

Europe+ SME & Startup Challenge Atlas

Text manuscript with in-text citations and full source register

Draft date: 2026-01-31

Mechanisms are analysed as stepwise transmission chains in which an initial constraint becomes binding because it creates second-order effects on liquidity, capability, and investment. Each interaction mechanism is written in full prose and illustrated with a simple flow diagram.

How to use this file: In-text citations appear as bracketed reference IDs (e.g., [EIB 2025]). At the end, a Source Register lists each ID with a full reference and URL. Generate an automatic Table of Contents in Word via References leads to Table of Contents.

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

Abstract and executive summary

Abstract

This research book develops a Europe+ comparative atlas of constraints facing SMEs, startups/scale-ups, and succession-exposed owner-managed firms across the EU27 plus the UK, Switzerland and Norway. It closes a common gap in European SME work by replacing unstructured “lists of problems” with a multi-level framework and by keeping measures conceptually separate (for example, distinguishing broad enterprise births from the venture-oriented startup subset).

The analysis applies a six-level socio-ecological model (individual, interpersonal/team, firm, ecosystem, national institutions, supranational/system) and triangulates evidence from official business demography (births, deaths, survival, high-growth enterprises and gazelles), firm surveys and institutional monitoring, and venture ecosystem sources. Across Europe+, constraints tend to appear as interacting bundles—liquidity and payment discipline, skills and managerial capacity, administrative fixed costs, and scaling frictions—whose combined pressure is reflected in cross-country differences in survival and early scaling outcomes. A reference-integrity audit was completed for this edition: ambiguous or incomplete bibliography entries were corrected against official publisher records, and newly added claims use verifiable institutional or publisher sources. The updated evidence also

distinguishes broad AI awareness from operational adoption, and cyclical finance conditions from structural finance frictions.

Management summary

This manuscript can be read as a research book and as an applied atlas. The research sections build theory-to-evidence links so that each domain chapter reports what sources actually find, not just where they exist. The atlas sections translate this into comparable country profiles and a clustering design for Europe+.

Comparability uses a two-spine plus triangulation design. Spine A uses Eurostat business demography and entrepreneurship indicators as the default for EU27 cross-country comparisons, supported by Eurostat–OECD harmonised definitions and cohort survival methods [Eurostat–OECD 2007; Eurostat 2025e]. Spine B uses the UK’s Office for National Statistics business demography as a parallel official series for births, deaths and survival [ONS 2025a]. Switzerland and Norway are anchored through their national statistical offices’ enterprise demography outputs and used to validate and contextualise harmonised series where coverage differs [BFS 2025a; SSB 2025a].

What the evidence most consistently shows is that many “typical SME problems” are capacity problems. Compliance and reporting requirements behave like fixed costs that drain managerial time; skills constraints persist because SMEs recruit and train at a disadvantage; and liquidity risk is amplified where payment discipline is weak. For startups and scale-ups, the dominant additional constraints relate to equity finance depth, follow-on availability and exits, which the atlas measures with dedicated venture ecosystem sources rather than trying to infer from enterprise demography [Dealroom 2025a; EIF 2025a; Invest Europe 2025a].

Verified 2025–2026 evidence sharpens four conclusions. First, AI use among SMEs is no longer negligible, but it remains shallow: an OECD cross-country SME survey reports generative AI use in 31% of SMEs, yet only 29% of users apply it in core activities; 65% report improved employee performance, while fewer report scaling (35%), competing with larger firms (29%), or revenue gains (26%). Second, the OECD’s 2025 G7 discussion paper confirms that SME AI adoption remains below large-firm adoption and depends on connectivity, data/compute, skills and finance. Third, euro-area financing conditions remained tight at the end of 2025: the ECB SAFE survey reports that a net 13% of SMEs faced higher bank-loan rates and 17% faced stricter collateral requirements, while 7% of firms for which loans were relevant encountered financing obstacles. Fourth, skills and costs remain simultaneous constraints rather than substitutes: 59% of euro-area firms identified skilled labour and 59% identified production or labour costs as major concerns in the fourth quarter of 2025. These findings strengthen the book’s central argument that policy and management responses must address interacting capacity, finance and organisational constraints rather than one isolated barrier. [OECD 2025; OECD 2025b; ECB 2026]

List of figures and tables

List of Figures

Figure F1. Europe+ socio-ecological multi-level model (Levels 1-6) and example constraint bundles.

Figure F2. Evidence architecture for Europe+ comparability: EU27 spine + UK parallel spine + CH/NO anchors + VC layer.

Figure F3. Europe+ clustering axes template (illustrative archetypes used to interpret country groupings).

Figure F4. Business dynamics dashboard template (births, deaths, survival 1/3/5-year, gazelles).

Figure F5. Constraint-bundle heatmap template (example-only values; atlas populates with cited indicators).

Figure F6. Venture capital concentration reporting template (example-only values; atlas populates from Dealroom/Invest Europe).

Figure F7. Succession risk mechanism model (ownership transition uncertainty -> investment and closure outcomes).

List of Tables

Table T1. Europe+ indicator-to-source map (comparability spine; EU27/UK/CH/NO; VC layer).

Table T2. Firm typology: size/age/ownership categories and expected dominant constraint bundles.

Table T3. Propositions and evidence map: propositions, indicators, and key sources.

Table T4. Country profile template: minimum evidence requirements per module (SME + startup + succession).

Table T5. Workbook-to-manuscript crosswalk: source IDs, chapters, and atlas modules (Appendix B summary).

Abbreviations

AI — Artificial intelligence

BBB — British Business Bank

BFS — Swiss Federal Statistical Office (Bundesamt für Statistik)

BVCA — British Private Equity and Venture Capital Association

DSO — Days sales outstanding

EIB — European Investment Bank

EIBIS — EIB Investment Survey

EIC — European Innovation Council

EIF — European Investment Fund

ESNA — Europe Startup Nations Alliance

EU27 — European Union (27 Member States)

HGE — High-growth enterprise

ONS — Office for National Statistics (UK)

SAFE — Survey on the Access to Finance of Enterprises (ECB)

SME — Small and medium-sized enterprise (incl. micro)

SNS — Startup Nations Standards (ESNA)

Data sources and comparability quick guide

Europe+ comparability is achieved through a “spine + triangulation” design:

Spine 1 (EU27 and where covered): Eurostat business demography and entrepreneurship indicators are used for enterprise births, deaths, survival (1/3/5-year), and scaling proxies (HGEs and gazelles). [Eurostat 2025a][Eurostat 2025e; Eurostat 2025f]

Spine 2 (UK parallel): The UK is treated using Office for National Statistics business demography as the official parallel series for births, deaths and survival. [ONS 2026.]

Triangulation for Switzerland and Norway: National statistical sources are used to ensure that CH/NO are not treated as informal “footnotes” and to clarify coverage differences where Eurostat series may be incomplete. [Swiss Federal Statistical Office (BFS) 2025.][SSB 2025c]

Startup/VC evidence is handled as a separate layer (venture-backed subset) rather than a proxy for all new firms:

- Dealroom provides cross-country VC depth and concentration signals. [Dealroom 2025b]
- Invest Europe provides market-cycle and fundraising context. [Invest Europe 2025c]
- EIF Equity Survey provides fund-manager sentiment on fundraising and exits. [European Investment Fund (EIF) 2025b]
- National deep-dives provide institutional context (e.g., UK BBB returns evidence; Swiss VC report). [British Business Bank 2025a][startupticker 2025a]

The evidence workbook (Appendix B) documents the source register, indicator definitions, and where each source is used in country profiles and chapters.

Table of Contents

Insert an automatic TOC in Word (References → Table of Contents). All headings use Word heading styles.

Part I — Scope, definitions, and research questions

Europe incl. EU27 + UK/CH/NO. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas,

the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

1. Introduction

1.1 Why SMEs, startups, and succession matter for Europe’s competitiveness and resilience

Small and medium-sized enterprises (SMEs) form the structural “base layer” of European economies: they dominate the enterprise population and carry large shares of employment, regional economic activity, and supply-chain capacity. In the EU, the SME Performance Review reports around ****26.1 million SMEs**** and tracks SME performance in terms of value added and employment, including the post-2020 shock period and projections (e.g., a slight decline in real SME value added in 2024 with a more optimistic 2025 outlook). [European Commission 2025i] This macro importance makes SME constraints a first-order determinant of Europe’s productivity trajectory, investment capacity, and the stability of local labor markets. [European Commission 2025i]

Startups matter for different—but complementary—reasons. While most new firms remain small, a subset of young firms contributes disproportionately to innovation diffusion and experimentation with new technologies. European statistical systems capture the dynamics of new firm formation and survival through business demography—enterprise births, deaths, and survival followed up to five years after birth—offering a consistent lens on “how many firms are created,” “how long they survive,” and “how enterprise populations change.” [Eurostat 2025a; Eurostat 2025b] Yet venture-backed startups and scale-ups depend on a distinct financing and ecosystem logic that cannot be inferred from enterprise births alone, motivating the integration of venture capital (VC) evidence (country concentration; stage mix; and market cycles) into a Europe-wide comparison. [Dealroom 2025a; Invest Europe 2025a; EIF 2025]

Evidence note (key empirical findings of cited sources):

- Dealroom 2025a: Dealroom Europe Q1 2025: shows VC funding concentration—UK, Germany, France, Spain each exceeded \$1B raised in the quarter—indicating a geography-of-capital effect. Used to benchmark country VC ‘depth’ and concentration.
- Invest Europe 2025a: Invest Europe H1 2025 Activity Report: provides cycle indicators for European VC/PE markets, including fundraising (digital capability and investment gaps; needs complementary skills/process change); investment and exit activity; used to contextualise tightening/loosening phases.
- EIF 2025: EIF Equity Survey 2025: fund-manager survey reporting fundraising remains challenging and exit opportunities limited; notes VC capital raised to date at a decade-low and less than half the amount for the same period the year before.

Succession planning (Nachfolgeplanung) is a third, often under-modelled driver of resilience and competitiveness in Europe’s SME base. A substantial share of European SMEs is owner-managed or family-owned, meaning continuity depends on the ability to transfer leadership and ownership. Evidence from KfW shows that succession is not a niche issue: its monitoring highlights large annual cohorts of firms seeking succession solutions and points to bureaucracy, valuation expectations, and

limited successor availability as barriers. [KfW 2024a; KfW 2025; KfW 2026] The same evidence line indicates that when succession fails, the economic outcome is often closure rather than sale, with spillovers to employment and local service provision. [KfW 2024a; KfW 2025] While the headline figures are Germany-specific, the underlying mechanisms—aging ownership, successor scarcity, and transaction complexity—are widely relevant in demographically aging European societies.

Taken together, SMEs, startups, and succession form a linked system:

- SMEs dominate the stock of enterprises and anchor employment and supply networks.
- Startups and scale-ups drive experimentation and a portion of productivity gains, but depend on financing depth and cross-border scaling conditions.
- Succession determines whether a large share of existing SMEs continue investing and employing—or exit by closure.

This study treats these components as interdependent, not separate silos.

1.2 The research gap

fragmented lists vs systematic and multi-level and cross-country analysis. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Most discussions of “SME problems” converge on familiar themes—access to finance, skills shortages, regulation, digitalisation—but too often remain (i) single-level (only firm-level constraints, without institutional/economic context), (ii) single-country (or informal comparisons without harmonised indicators), or (iii) non-comparable (mixing official enterprise-birth measures with VC-startup narratives without clarifying what each metric represents).

By contrast, the European data landscape offers strong building blocks for a systematic approach:

- **Official cross-country demography:** Eurostat provides harmonised business demography for enterprise births, deaths, survival, and related entrepreneurship indicators, grounding cross-country comparisons in official definitions and cohort logic. [Eurostat 2025a; Eurostat 2025b; Eurostat 2025e; Eurostat 2025f]
- **Comparable barrier prevalence:** the EIB Investment Survey quantifies perceived obstacles (skills, energy costs, regulation, uncertainty, and Single Market fragmentation) across countries and firm sizes, providing a “constraint prevalence” layer. [EIB 2025]
- **Finance constraints (euro area):** the ECB SAFE survey adds a targeted access-to-finance lens for euro area firms. [ECB 2025.]

- ****System-level liquidity constraints:**** EU initiatives such as the Payment Observatory monitor late payments and related dynamics relevant to SME liquidity and investment capacity. [European Commission 2025b; European Commission 2025j]
- ****Startup financing and scaling conditions:**** market and institutional sources (Dealroom, Invest Europe, EIF equity survey) support cross-country comparisons of venture capital depth, stage availability, and funding cycles. [Dealroom 2025a; Invest Europe 2025a; EIF 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- European Commission 2025b: EU Payment Observatory Summary 2025: reports 52% of European companies faced problems due to late payments in 2024 (47% in 2023; 42% in 2021). Notes increases in 19 Member States and that average payment periods exceeded 60 days in both B2B and G2B transactions, with public purchasers paying later than businesses in every Member State.
- Dealroom 2025a: Dealroom Europe Q1 2025: shows VC funding concentration—UK, Germany, France, Spain each exceeded \$1B raised in the quarter—indicating a geography-of-capital effect. Used to benchmark country VC ‘depth’ and concentration.
- Invest Europe 2025a: Invest Europe H1 2025 Activity Report: provides cycle indicators for European VC/PE markets, including fundraising (digital capability and investment gaps; needs complementary skills/process change); investment and exit activity; used to contextualise tightening/loosening phases.
- EIF 2025: EIF Equity Survey 2025: fund-manager survey reporting fundraising remains challenging and exit opportunities limited; notes VC capital raised to date at a decade-low and less than half the amount for the same period the year before.

Despite these building blocks, there remains a gap in research that integrates them into one coherent Europe-wide framework that:

- distinguishes SMEs vs startups vs scale-ups conceptually and empirically,
- explains differences by institutional environment (not only firm-level factors),
- incorporates ownership and succession as a first-class domain,
- tests how “typical problems” vary by country, firm size, sector, and market orientation.

1.3 Research objectives, research questions, and expected contributions

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable

Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Objectives

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

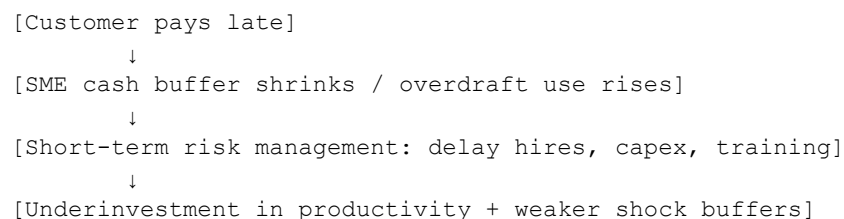
This work pursues four linked objectives:

Mechanisms are analysed as stepwise transmission chains in which an initial constraint becomes binding because it creates second-order effects on liquidity, capability, and investment. Each interaction mechanism is written in full prose and illustrated with a simple flow diagram.

Mechanism: Late payments amplify liquidity risk and suppress investment

Late payments operate like involuntary short-term lending from suppliers to customers. When invoices are paid beyond agreed terms, SMEs must finance the gap from their own cash buffers or external credit lines (overdrafts, factoring, short-term loans). Because SMEs typically have thinner cash buffers and less diversified financing options than large firms, the same delay converts more quickly into binding liquidity stress. Liquidity stress then feeds into operational choices: delaying supplier payments, postponing hiring, and cutting discretionary spend such as training and digital upgrades. Over time this mechanism lowers resilience: the firm enters shocks with weaker buffers, and even profitable firms can exit due to cash-flow failure. EU monitoring shows that late payments remain widespread and that payment times in B2B transactions increased in recent years, indicating a system-level deterioration of working-capital conditions. [European Commission 2025b; European Commission 2025a]

Figure 3.X Late-payment transmission chain (SME working-capital channel)



↓
[Higher exit risk / slower scaling outcomes]

Illustrative logic chain used in the atlas: late payment practices translate into liquidity constraints and then into underinvestment and fragility. [European Commission 2025b; European Commission 2025a]

Mechanism: Skills shortages delay execution, slow digitalisation, and cap productivity growth

Skills constraints become binding in SMEs because recruiting and training have fixed costs that do not scale down well. When SMEs cannot hire needed technical, digital, or managerial skills, they delay project execution—implementations of ERP/CRM, cybersecurity controls, process automation, export readiness, and even basic management professionalisation. Delays matter because many productivity gains are complementary: digital tools deliver returns only when processes are redesigned and staff are trained to use them. The result is a compounding gap: weak skills capacity slows adoption, slow adoption suppresses learning-by-doing, and the firm remains stuck with manual routines and low scalability. In Europe-wide firm evidence, skills availability is repeatedly reported among the most common obstacles, alongside uncertainty, energy costs and regulation—supporting the book’s “constraint bundles” view rather than a single-bottleneck narrative. [EIB 2025a]

Figure 3.Y Skills-to-productivity mechanism (complementarities)

[Hiring / training constraint]
↓
[Delayed implementation of digital + operational upgrades]
↓
[Lower process standardisation + weaker data quality]
↓
[Slower productivity catch-up + limited scaling capacity]

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Research questions

RQs. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling

firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

RQ1 (pan-European map): What challenges are consistently reported for SMEs across Europe, and which are most binding in different business domains (finance: access-to-finance frictions (cost, collateral, availability); HR; regulation: fixed-cost reporting/compliance burden; digital: capability and investment gaps in digital systems/data; operations; innovation; sustainability: capability and investment gaps in digital systems/data; governance)?

RQ2 (cross-country variation): How do SME constraints differ across European countries, and which institutional/environmental factors (payment discipline: working-capital strain from slow customer payment; energy cost environment: operating-cost exposure that squeezes margins; labour-market tightness: recruitment/retention/upskilling constraints; digital readiness: capability and investment gaps in digital systems/data; administrative burden: fixed-cost reporting/compliance burden) explain those differences?

RQ3 (startups & funding ecosystems): How do startup problems differ from those of established SMEs, and how do differences in VC depth, stage availability, and exit markets shape survival and scaling outcomes?

RQ4 (succession & ownership): How do ownership structures and succession planning affect business continuity, investment behaviour, and employment stability—especially in owner-managed SMEs?

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Expected contributions

The contribution of this book is not a new single dataset or a single causal estimate; it is a structured, evidence-anchored way of comparing SME and startup constraints across Europe+ without collapsing them into a generic ‘list of problems’. The value comes from combining (i) a multi-level theory frame, (ii) harmonised official demography for outcomes, and (iii) repeatable evidence capsules that report what each source actually finds. This design lets readers see which constraints are persistent across

Europe and which are country-specific or ownership-specific, and it makes the interpretation transparent when measurement differs (e.g., EU vs UK statistical spines). Practically, the book produces a reusable atlas template that can be updated as new data releases appear.

More concretely, the book contributes in four ways:

- a business-function-complete taxonomy of SME and startup constraints, organised by the socio-ecological levels rather than by a flat checklist;
 - a Europe+ comparability spine that explicitly harmonises EU27 indicators with parallel official series for the UK, Switzerland and Norway;
 - a mechanism approach that explains how constraints become binding through interaction (liquidity, capability, investment postponement), avoiding ‘one-factor’ narratives; and
 - an integrated treatment of ownership and succession as economic constraints, linking governance and transfer-market dynamics to closure and investment risk.
-
- a multi-level analytical framework (firm → ecosystem → institutions/policy) aligned with measurable indicators (Part II), [EIB 2025; European Commission 2025a]
 - a Europe+ comparative dataset design that bridges EU statistical harmonisation with UK/CH/NO national series, [Eurostat 2025a; ONS 2026.; Swiss Federal Statistical Office (BFS) 2025.; SSB 2025c]
 - an integrated treatment of succession planning as an economic constraint domain (Part VI), [KfW 2024a; KfW 2025; KfW 2026]
 - a combined approach to “new firm dynamics” that separates enterprise births/survival (official demography) from venture-backed startup finance (VC data). [Eurostat 2025a; Dealroom 2025a]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.
- KfW 2024a: Nachfolge-Monitoring Mittelstand 2024: estimates large annual cohorts of SMEs seeking succession solutions and documents time pressure from ageing owners, successor scarcity, and transaction complexity. Highlights that failed succession often results in closure rather than sale, with local employment and service-provision spillovers.
- KfW 2025: Nachfolge-Monitoring Mittelstand 2025: updates the scale of upcoming successions and the tightening ‘market for business transfers’ (more sellers than buyers in many segments). Emphasises valuation expectations, bureaucracy and search costs as key frictions; reports rising intentions to close if no successor is found.
- KfW 2026: KfW press note (Jan 2026): documents rising purchase-price expectations in SME

transfers and reiterates bureaucracy/administrative complexity as a factor shaping transfer feasibility and timing.

- Dealroom 2025a: Dealroom Europe Q1 2025: shows VC funding concentration—UK, Germany, France, Spain each exceeded \$1B raised in the quarter—indicating a geography-of-capital effect. Used to benchmark country VC ‘depth’ and concentration.

1.4 Europe+ scope and boundaries

Geographic scope

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Why this boundary matters methodologically:

- EU27 comparisons can rely heavily on harmonised EU-level statistical infrastructure (especially Eurostat business demography and related indicators). [Eurostat 2025a; Eurostat 2025b]
- Switzerland and Norway are handled through national statistical office demography outputs for births/deaths/survival where harmonised coverage differs (and as validation spines). [Swiss Federal Statistical Office (BFS) 2025.; SSB 2025c]
- The UK requires a parallel official spine using Office for National Statistics business demography (births; deaths; survival). [ONS 2026.]

Population scope

The default population analysed is SMEs (micro, small, and medium) in the non-financial business economy, because this is where cross-country comparability is strongest and where SMEs constitute the largest share of enterprises and employment. Where sector boundaries matter (e.g., energy-intensive manufacturing vs services), the manuscript flags them explicitly because the same ‘constraint’ can operate differently by sector.

Startups are treated as a partially overlapping population rather than as a synonym for ‘new firms’. The analysis therefore uses a dual operationalisation: business demography captures broad enterprise births and survival, while the venture-finance layer captures the venture-backed subset with scaling ambition and equity dependence. This separation prevents category errors in cross-country comparison and allows the atlas to distinguish ‘many new firms’ from ‘many scalable startups’.

Startups are considered via a dual approach:

- (a) ****new enterprises**** captured by official births/survival measures; and
- (b) ****venture-backed startups/scale-ups**** captured by VC ecosystem sources.

This dual definition is explicit because “startup” is not a single official statistical category. [Eurostat 2025a; Dealroom 2025a]

Evidence note (key empirical findings of cited sources):

- Dealroom 2025a: Dealroom Europe Q1 2025: shows VC funding concentration—UK, Germany, France, Spain each exceeded \$1B raised in the quarter—indicating a geography-of-capital effect. Used to benchmark country VC ‘depth’ and concentration.

2. Definitions and firm typology

2.1 SME definition

micro, small, and and medium. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This study uses the official European Commission SME definition, based on staff headcount and either turnover or balance-sheet totals. SMEs are enterprises with fewer than 250 employees and financial ceilings; within SMEs:

- Micro: < 10 employees
- Small: 10–49 employees
- Medium: 50–249 employees

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Size moderation (mechanism and evidence anchor): many constraints scale non-linearly with size. Compliance, HR specialisation, cybersecurity, and reporting are partly fixed-cost burdens (heaviest for micro and small firms). Financing constraints differ because smaller firms have weaker collateral bases and thinner financial histories, affecting credit access and pricing. Managerial bandwidth constraints (owners doing multiple roles) are most acute among micro and small enterprises. The analysis therefore treats size class as a core moderator rather than a descriptive label. Evidence anchor: fixed-cost burdens are measurably regressive—EIB estimates bureaucracy costs at ~1.1% of turnover for EU firms overall versus ~1.8% for SMEs, consistent with the claim that the same compliance tasks consume a larger share of small-firm resources. [EIB 2025a]

2.2 Startup vs “enterprise birth”

measurement caveat and analytic definition. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Enterprise birth

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

official demography. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

In official business demography, an enterprise birth refers to the emergence of a new enterprise in the register, excluding cases that are merely reorganisations, mergers, or break-ups. Eurostat anchors its methodology in business registers and internationally aligned demography concepts and tracks survival up to five years after birth. [Eurostat 2025a; Eurostat 2025b]

What enterprise birth captures well:

- the rate of new business formation in a country,
- sector patterns of entry,
- early-stage survival dynamics and business churn. [Eurostat 2025a; Eurostat 2025b]

What enterprise birth does not uniquely capture:

- whether a new enterprise is a “startup” in the venture-scale sense (high-growth ambition — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- scalable model — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- VC financing) — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- the financing structure and scaling pathway.

Startup

analytic definition used in this study. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise,

SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A “startup” here is defined as a young firm with a scalable growth orientation (often but not always tech-intensive), whose constraints are shaped by: high uncertainty and experimentation, reliance on intangible assets (software; IP; human capital), financing needs that may exceed bank-debt suitability, and cross-border scaling challenges.

This subsection uses official scaling proxies to separate ‘many new firms’ from ‘many firms that grow’. High-growth enterprises and gazelles are treated as outcome indicators that reflect whether a country’s constraint environment allows young firms to professionalise, hire, and expand reliably.

The analytical payoff is that these measures translate abstract constraints into observable outcomes: if a country combines high enterprise births with low gazelle incidence, the bottleneck is unlikely to be entrepreneurial intent alone; it is more plausibly found in scaling conditions such as management capacity, cross-border frictions, late payments, and access to later-stage finance.

In the atlas, scaling proxies are interpreted together with the venture-finance layer and with institutional frictions (administrative burden, payment discipline) to avoid single-factor explanations.

Evidence note (key empirical findings of cited sources):

- Dealroom 2025a: Dealroom Europe Q1 2025: shows VC funding concentration—UK, Germany, France, Spain each exceeded \$1B raised in the quarter—indicating a geography-of-capital effect. Used to benchmark country VC ‘depth’ and concentration.
- EIF 2025: EIF Equity Survey 2025: fund-manager survey reporting fundraising remains challenging and exit opportunities limited; notes VC capital raised to date at a decade-low and less than half the amount for the same period the year before.

This subsection uses official scaling proxies to separate ‘many new firms’ from ‘many firms that grow’. High-growth enterprises and gazelles are treated as outcome indicators that reflect whether a country’s constraint environment allows young firms to professionalise, hire, and expand reliably.

The analytical payoff is that these measures translate abstract constraints into observable outcomes: if a country combines high enterprise births with low gazelle incidence, the bottleneck is unlikely to be entrepreneurial intent alone; it is more plausibly found in scaling conditions such as management capacity, cross-border frictions, late payments, and access to later-stage finance.

In the atlas, scaling proxies are interpreted together with the venture-finance layer and with institutional frictions (administrative burden, payment discipline) to avoid single-factor explanations.

2.3 Scale-ups, high-growth enterprises, and gazelles

Scale-ups are operationalised with **official statistical proxies** so that cross-country comparisons are anchored in harmonised definitions rather than informal “scale-up lists”. In this book, the two core Eurostat proxies are:

- **High-growth enterprises (HGE):** enterprises with **≥ 10** employees at the beginning of a three-year window and **$> 10\%$** average annualised growth over that period (measured either by employment or; in an alternative definition; by turnover); enterprise births at the start of the window are excluded.
- **Gazelles:** the young high-growth subset—HGEs that are typically **4–5 years old**—used as an official ‘young scale-up’ indicator.

These proxies allow the atlas to distinguish countries that generate many new firms from those that produce more young high-growth firms, and to link scaling outcomes to constraint bundles (finance depth: access-to-finance frictions (cost, collateral, availability); skills: recruitment/retention/upskilling constraints; administrative burden: fixed-cost reporting/compliance burden; fragmentation). [Eurostat 2025e; Eurostat 2025f]

High-growth enterprises

HGE. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Eurostat defines high-growth enterprises (employment-based) as enterprises with: (i) at least 10 employees at the beginning of a three-year period and (ii) average annualised growth in employment greater than 10% per year over that period (excluding enterprise births at the start of the growth window). Eurostat also documents a turnover-based alternative definition with the same threshold and growth criterion. [Eurostat 2025e]

Gazelles (young high-growth)

Gazelles are the young sub-population of high-growth enterprises (HGEs) and are used in this book as the earliest official statistical proxy for “scale-up outcomes.” In the Eurostat / European Business Statistics (EBS) framework, a gazelle is defined by three hard filters: (i) youth (the enterprise is 4 or 5 years old at the end of the growth window), (ii) minimum scale (at least 10 employees at the beginning of a three-year observation period), and (iii) sustained rapid growth (average annualised employment growth above 10% across that three-year period). Two consequences follow directly from the definition: first, gazelles are not “all startups,” but the subset that both survived and crossed

the early employment threshold; second, the metric captures sustained scaling, not one-off jumps. [Eurostat 2025e; Eurostat 2025f]

EU-level findings: gazelles sit inside a scaling pipeline that varies sharply by country. Eurostat's business demography reporting for 2023 shows that the broader HGE population is sizeable but far from universal: around 180,200 enterprises qualified as HGEs in the EU business economy, corresponding to 10.5% of all active enterprises with at least 10 employees, and employing 14.2 million people. Country dispersion is large (for 2023, the HGE share ranges from 21.1% in Ireland to 2.8% in Cyprus). For the present book, this matters because gazelles are the "young" segment of this pipeline: where the overall HGE share is structurally low, the expected base rate of gazelles is also low unless the country's young cohorts are unusually growth-intensive. Conversely, a high HGE share does not automatically imply a strong gazelle pipeline: a country can have many established HGEs but relatively fewer young HGEs if early-stage cohorts struggle to cross the 10-employee threshold (a common pattern when skills: recruitment/retention/upskilling constraints; liquidity; or regulation make hiring risky: fixed-cost reporting/compliance burden). [Eurostat 2025g; Eurostat 2025e]

EU sector evidence (2022): gazelles appear disproportionately in "fast-cycle, lower-entry-barrier" activities—important for interpreting what gazelle counts do (and do not) say about innovation. In Eurostat's entrepreneurship indicators, the largest absolute numbers of young high-growth enterprises in the EU (2022) are observed in construction (around 1,810 gazelles), accommodation & food service activities (about 1,710), administrative & support service activities (about 1,640), and wholesale/retail trade including motor-vehicle repair (about 1,560). By contrast, highly regulated and capital-intensive activities record very few gazelles (e.g., mining & quarrying around 20; water supply/sewerage/waste management around 79). This pattern has two analytical implications for startup/scale-up outcomes: (1) gazelles are an employment-scaling signal that often reflects demand cycles, entry barriers, and hiring feasibility—so a high gazelle count is not automatically "high-tech strength"; (2) gazelles are still economically meaningful in non-tech sectors because they are one of the few measurable routes through which young firms generate material job growth quickly. [Eurostat 2025f]

Europe+ interpretation with a Switzerland anchor: gazelles are statistically rare but can account for disproportionate job creation in the growth tail. An OECD study that includes a Switzerland deep-dive characterises gazelles as roughly 2% of businesses in the Swiss setting examined, yet finds that this small set accounts for around one-third of new jobs created by expanding businesses over the period studied; the same Switzerland chapter reports construction as the single largest sector habitat for gazelles and documents that many gazelles relied heavily on self-financing and cautious bank borrowing, highlighting a finance-behaviour channel that differs from venture-backed scaling. This Switzerland evidence is used in the book as a mechanism illustration: even where VC is not central, a functioning "growth tail" can deliver substantial employment outcomes, but it depends on managerial capability, demand access, and working-capital stability. [OECD 2010]

A socio-ecological reading of gazelle outcomes (what the indicator tells you about constraints, level by level).

- Individual (owner/founder/manager): becoming a gazelle implies that the founder/manager successfully executes a rapid transition in roles—moving from hands-on execution to delegation, hiring standards, financial control, and process discipline. Where managerial bandwidth is already absorbed by compliance or operational firefighting, firms often cap hiring and remain below the ≥ 10 -employee threshold, so the growth tail is “hidden” in revenue but absent in employment-based gazelle statistics.
- Interpersonal (team/family/social capital): fast growth magnifies governance and conflict risks—co-founder misalignment, weak management bench, and (in family firms) succession uncertainty. If ownership transition is unresolved, firms frequently postpone expansion decisions or avoid taking on debt/hiring commitments; in the atlas, this is one reason succession risk is treated as a scaling constraint, not merely a continuity issue. [KfW 2025]
- Firm (capabilities/resources/processes): gazelles require operational “scaling routines” within three years: repeatable sales, working-capital control, formal HR practices, compliance routines, and basic digital infrastructure. Where these capabilities are missing, firms may experience short bursts of growth but fail to sustain it long enough to qualify statistically. This is why the gazelle indicator is interpreted alongside firm-reported obstacles (skills, regulation, uncertainty, energy costs) rather than in isolation. [EIB 2025a]
- Ecosystem (customers/suppliers/finance/labour markets/local institutions): the EU sector distribution shows that ecosystems with low entry barriers and fast demand cycles generate more gazelle events; however these same ecosystems can be vulnerable to late payments and labour tightness. Where late payment culture is prevalent, the working-capital load of rapid growth can become a failure trigger (growth increases receivables and payroll faster than cash inflows). This links gazelle outcomes to payment-discipline evidence: in countries where late payment problems are widespread, young fast-growing firms face a higher risk that growth itself becomes liquidity stress. [European Commission 2025b]
- National institutions (regulation/enforcement/education/energy/tax): the very large cross-country dispersion in HGE shares implies that national frameworks materially shape scaling feasibility. Administrative burden and enforcement practices create fixed costs and threshold effects that can discourage hiring (e.g., firms stay below certain employment thresholds to avoid additional obligations), while education and training systems shape whether scaling firms can recruit the needed occupational mix. In later chapters, countries’ gazelle/HGE outcomes are read alongside institutional indicators for administrative burden, payment discipline, labour tightness, and energy/input-cost exposure. [European Commission 2025a; Eurostat 2025g]
- Supranational / systems (Single Market, fragmentation, macro/finance cycles): gazelles are a “domestic” scaling proxy, but their next step is often cross-border expansion. Where Single Market fragmentation is perceived as high, young scaling firms face duplicated compliance and go-to-market costs that can slow the transition from gazelle to mature HGE/scale-up. The atlas therefore pairs gazelle outcomes with (i) EIB measures of perceived market fragmentation and bureaucracy costs and

(ii) the venture cycle evidence (where relevant) to interpret whether the ecosystem supports continued scaling inside Europe. [EIB 2025a; Dealroom 2025a; EIF 2025]

Operational use in the Europe+ atlas (what is reported and how it is interpreted). Country profiles report the gazelle indicator where available (gazelle count and/or share among active enterprises with ≥ 10 employees) and always report it next to: (1) enterprise births and survival (to show whether the country generates large cohorts in the first place), (2) the broader HGE share (to show whether scaling is concentrated in older firms or also present among young cohorts), and (3) the dominant constraint bundle (skills tightness: recruitment/retention/upskilling constraints; payment discipline: working-capital strain from slow customer payment; administrative burden: fixed-cost reporting/compliance burden; and finance depth: access-to-finance frictions (cost, collateral, availability)) that best matches the observed pattern. Interpreting “low gazelles” therefore becomes an outcome evaluation, not a label: it is read as evidence that early scaling is being filtered out somewhere between birth/survival and sustained hiring growth, and the country chapter then specifies which constraint bundle is most consistent with that filter. [Eurostat 2025f; Eurostat 2025g]

Conceptual foundations of gazelles and high-growth firms in books and handbooks

The term “gazelle” is not a casual label for a successful startup. In official business demography it is a precisely defined statistical construct: a young high-growth enterprise identified through a fixed growth window, a minimum size threshold, and an age filter. The Eurostat–OECD Manual on Business Demography Statistics sets out the logic behind this class of indicators and clarifies that the intention is comparability: the same definitions should identify similar phenomena across countries and over time. In the Eurostat framework, the first-order measure is the high-growth enterprise (HGE), which requires at least 10 employees at the start of a three-year observation period and average annualised employment growth above 10% over that period, with enterprise births excluded at the start of the window. Gazelles are the young subset of HGEs (typically 4–5 years old at the end of the window), so they capture sustained early scaling rather than “being newly founded.” [Eurostat–OECD 2007; Eurostat 2025e; Eurostat 2025f]

Book-length syntheses emphasise two interpretive cautions that matter for this Europe+ atlas. First, HGEs and gazelles are rare by design, so a country can show strong entrepreneurial entry (high enterprise births) yet still show few gazelles if the environment filters scaling between years 2 and 5. Second, measurement choices shape the population: using employment growth focuses on organisational scaling and labour-market impact, while turnover-based variants may be more sensitive to price inflation and sector structure. OECD’s High-Growth Enterprises volume uses the Eurostat–OECD definitions to explain why policy attention concentrates on these firms: they are associated with disproportionate job creation and, in some contexts, innovation diffusion, yet their emergence depends on a broad set of conditions rather than one “silver bullet” intervention. [OECD 2010; Eurostat–OECD 2007]

Handbook evidence provides the conceptual bridge from definitions to mechanisms. Collewaert and Jansen’s Handbook of Research on Scaling and High-Growth Firms synthesises the modern literature on scaling and clarifies an important distinction: “high growth” is an outcome (rapid expansion in

employment or turnover), whereas “scaling” is a process that requires organisational design, managerial systems, and ecosystem support. The handbook frames scaling as a multi-level phenomenon: firm routines and leadership decisions interact with talent supply, capital markets, customers and procurement channels, and the institutional burden of operating across borders. This framing aligns with the socio-ecological model used in this book and justifies treating gazelles as a system outcome indicator rather than as a founder trait. [Collewaert & Jansen 2025]

The research consensus on outcomes is captured in an influential survey by Henrekson and Johansson. Reviewing a large body of empirical studies, they conclude that gazelles are outstanding job creators and often account for all or a large share of net new jobs in the periods studied. Critically, their synthesis challenges a common misconception: rapidly growing firms are not necessarily both small and young; on average they are younger and smaller than other firms, but young age is more consistently associated with rapid growth than small size. They also find that gazelles exist across industries and are not confined to high-technology sectors, which supports using gazelles as an economy-wide scaling proxy rather than a “tech startup” proxy. [Henrekson & Johansson 2010]

Mechanism-focused studies help explain why gazelles are difficult to “manufacture” through narrow programs. Parker, Storey and van Witteloostuijn analyse British gazelles and argue that growth trajectories are dynamic: high-growth episodes often follow strategic adjustments and the ability to reconfigure management strategy as environments change. Their evidence supports a capability interpretation: gazelle outcomes are linked to managerial strategy, not only to initial idea quality. For this atlas, that implies that gazelles should be interpreted alongside indicators of managerial capacity, finance depth, and institutional frictions rather than treated as a simple entrepreneurship-rate outcome. [Parker, Storey & van Witteloostuijn 2010]

2.4 Ownership types and governance categories

for SME and startup analysis. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Ownership structure shapes incentives, time horizons, access to finance, and the feasibility of succession. This study distinguishes:

- Founder-led / owner-managed SMEs — high agility is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Higher key-person risk is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.

- Family-owned SMEs — longer-term orientation is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. governance complexity is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. succession pivotal is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Partnerships — incl. professional partnerships is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Dispersed shareholders / corporate group-owned SMEs
- PE/VC-backed firms — professionalised governance is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. growth targets and exit horizons explicit is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.

Succession planning is most structurally consequential in founder-led and family-owned categories. As a mechanism example, KfW's succession monitoring emphasises that many owners are approaching retirement age and that insufficient planning can lead to failed transitions and closures—an economic risk channel distinct from ordinary insolvency. [KfW 2024a; KfW 2025; KfW 2026]

Evidence note (key empirical findings of cited sources):

- KfW 2024a: Nachfolge-Monitoring Mittelstand 2024: estimates large annual cohorts of SMEs seeking succession solutions and documents time pressure from ageing owners, successor scarcity, and transaction complexity. Highlights that failed succession often results in closure rather than sale, with local employment and service-provision spillovers.
- KfW 2025: Nachfolge-Monitoring Mittelstand 2025: updates the scale of upcoming successions and the tightening 'market for business transfers' (more sellers than buyers in many segments). Emphasises valuation expectations, bureaucracy and search costs as key frictions; reports rising intentions to close if no successor is found.
- KfW 2026: KfW press note (Jan 2026): documents rising purchase-price expectations in SME transfers and reiterates bureaucracy/administrative complexity as a factor shaping transfer feasibility and timing.

2.5 Europe+ comparability

what is comparable and how it is handled. In this book, this is not treated as an aside or a "background condition": it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on "capability" alone.

Comparability is treated as a method problem (not a footnote). Europe+ comparisons combine EU-harmonised statistics with non-EU national series. The risk is not only missing data but false comparability: indicators can look similar while definitions differ (scope of the business economy; unit of observation; size thresholds; treatment of reorganisations; cohort timing for survival; or mandatory vs voluntary reporting). The Europe+ design therefore uses two official measurement spines plus an explicit triangulation rule set that tells the reader which indicator is used when, and how gaps are handled. The approach is grounded in the official demography spines and their documented definitions/coverage notes. [Eurostat 2025a; ONS 2026a; BFS 2025a; SSB 2025c]

Two measurement spines (official demography)

Spine A — EU27 (and where available EFTA comparables). Eurostat business demography and entrepreneurship indicators provide harmonised definitions for enterprise births, deaths and cohort survival (1/3/5-year), plus scaling proxies such as high-growth enterprises (HGE) and gazelles. These indicators anchor the EU-wide baseline and are used whenever the relevant country coverage exists. [Eurostat 2025a; Eurostat 2025e; Eurostat 2025f; Eurostat 2025g]

Spine B — United Kingdom. The UK is outside Eurostat’s harmonised EU business demography in the same way as EU members. The atlas therefore uses the Office for National Statistics (ONS) Business Demography series as a parallel official spine for births, deaths and survival. Cross-country comparisons are made at the conceptual level (birth/death/survival) while documenting definitional differences explicitly in the country profile metadata note. [ONS 2026a]

National anchors for Switzerland and Norway (coverage and validation)

Switzerland (BFS). The Swiss Federal Statistical Office publishes official enterprise/business demography outputs (firm creations, closures and survival). These series populate the Switzerland country profile directly and are also used to validate or qualify Eurostat coverage where a harmonised indicator is missing or defined differently for EFTA participation. [BFS 2025a]

Norway (SSB). Statistics Norway provides enterprise demography (including survival and growth). This series serves as the Norway profile spine and as a cross-check when Eurostat tables include Norway in some series but not others. [SSB 2025c]

Triangulation rules (how the book prevents “apples vs oranges”)

Triangulation is a decision rule, not a slogan:

- 1) If a harmonised Eurostat indicator covers the country, it is the primary value.
- 2) If Eurostat does not cover the country (common for UK) or the indicator is unavailable for a specific country-year, the atlas uses the national statistical office series and adds a comparability note (scope; unit; threshold; cohort year).
- 3) If an outcome indicator is not available in a comparable form (e.g., gazelles missing), the atlas does not invent a substitute; it reports the nearest comparable outcome layer (births/survival; HGE; employment growth) and interprets cautiously.
- 4) For constraint layers, the atlas prefers the most comparable cross-country source

(Eurostat/EIB/ECB/Commission). For UK/CH/NO, national equivalents are used with an explicit mapping note (definition and time window). [Eurostat 2025b; EIB 2025a; ECB 2025a; European Commission 2025a]

Minimum indicator-to-source map (what is measured where)

Outcome layer — enterprise demography: • Births/deaths/survival: Eurostat for EU27 (+ EFTA where available); ONS for UK; BFS for Switzerland; SSB for Norway. • Scaling proxies (HGE/gazelles): Eurostat where available; if missing for a specific country-year, the atlas reports HGE where available and flags the gap. Constraint layers: • Finance conditions (euro area): ECB SAFE; UK: British Business Bank/UK Finance; others: OECD scoreboard for context. • Late payments/payment periods: EU Payment Observatory and Commission competitiveness reporting; UK/CH/NO: national payment-discipline sources when available. • Labour tightness: Eurostat job vacancy rate for EU; ONS vacancy series for UK; SSB vacancy series for Norway; Swiss official vacancy indicators where available. • Digital readiness: Eurostat Digital Intensity Index for EU; national SME digital surveys for UK/CH/NO as complements. • Energy/input cost exposure: Eurostat non-household electricity price series for EU; national price series for UK/CH/NO when needed. Startup/VC layer (venture-backed subset): • Dealroom country VC intensity + stage mix; Invest Europe activity reporting (cycle context); EIF Equity Survey (fund-manager constraints on fundraising/exits). [Dealroom 2025a; Invest Europe 2025a; EIF 2025]

Evidence note (what the comparability sources actually establish)

• Eurostat 2025a/2025b: establishes business demography concepts (births/deaths/survival) as cohort-based and harmonised, clarifies lag structure (especially 5-year survival), and documents country coverage limits for some entrepreneurship indicators. • ONS 2026a: provides the UK's official births/deaths/survival series as a parallel demography spine; prevents forcing UK into Eurostat tables when coverage differs. • BFS 2025a and SSB 2025c: provide national demography series that populate Switzerland and Norway profiles and qualify harmonised comparisons when coverage differs. • Dealroom 2025a, Invest Europe 2025a, EIF 2025: establish that VC activity is concentrated and cyclical and therefore is treated as a separate “venture subset” layer rather than inferred from enterprise births. [Eurostat 2025a; Eurostat 2025b]

2.6 Firm typology used throughout the book

linking definitions to expected constraint bundles. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline,

regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

To analyse “typical problems” systematically, the study uses a typology combining size, age, market orientation, and financing model:

- **Micro enterprises (often owner-operated):** managerial bandwidth, compliance fixed costs, working-capital volatility, limited cyber maturity.
- **Small traditional SMEs (domestic):** hiring/skills, regulation/admin burden, late payments, digital adoption gaps.
- **Medium-sized SMEs (often export-connected):** energy/input costs (sector dependent), standards/certification, supply-chain risk, cross-border compliance complexity.
- **Innovative SMEs (non-venture financed):** financing intangibles, skills, commercialisation, procurement access.
- **Startups (venture-oriented subset):** runway, talent competition, product-market fit risk, governance scaling, cross-border scaling, late-stage capital availability. [Dealroom 2025a; EIF 2025]
- **Scale-ups / high-growth enterprises (gazelles/HGEs):** late-stage financing depth, internationalisation, organisational scaling (process, compliance, management layers). [Eurostat 2025e; EIF 2025]
- **Succession-challenged owner-managed firms:** successor scarcity, valuation gap, tax/legal complexity, timing risk that can depress investment. [KfW 2024a; KfW 2025]

Evidence note (key empirical findings of cited sources):

- Dealroom 2025a: Dealroom Europe Q1 2025: shows VC funding concentration—UK, Germany, France, Spain each exceeded \$1B raised in the quarter—indicating a geography-of-capital effect. Used to benchmark country VC ‘depth’ and concentration.
- EIF 2025: EIF Equity Survey 2025: fund-manager survey reporting fundraising remains challenging and exit opportunities limited; notes VC capital raised to date at a decade-low and less than half the amount for the same period the year before.
- EIF 2025: EIF Equity Survey 2025: fund-manager survey reporting fundraising remains challenging and exit opportunities limited; notes VC capital raised to date at a decade-low and less than half the amount for the same period the year before.
- KfW 2024a: Nachfolge-Monitoring Mittelstand 2024: estimates large annual cohorts of SMEs seeking succession solutions and documents time pressure from ageing owners, successor scarcity, and transaction complexity. Highlights that failed succession often results in closure rather than sale, with local employment and service-provision spillovers.
- KfW 2025: Nachfolge-Monitoring Mittelstand 2025: updates the scale of upcoming successions and the tightening ‘market for business transfers’ (more sellers than buyers in many segments). Emphasises valuation expectations, bureaucracy and search costs as key frictions; reports rising intentions to close if no successor is found.

This typology is designed so each empirical chapter can test whether constraints differ by category, rather than treating “SMEs” as homogeneous.

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Endnotes — Part I

Endnote I.1 — Scope and population. Unless stated otherwise, the SME analysis refers to the non-financial business economy. Official demography indicators (births, deaths, survival, high-growth enterprises, gazelles) are defined for this population and are used as the outcome layer for cross-country comparison.

Endnote I.2 — Definitional discipline. ‘Enterprise birth’ is a register-based event and should not be equated with venture-oriented ‘startup’ formation. The manuscript therefore reports business-register dynamism and the venture-subset indicators side-by-side where relevant.

Endnote I.3 — Europe+ boundary. EU27 indicators rely on Eurostat where harmonised; the UK, Switzerland and Norway use their national statistical office series when Eurostat coverage differs. The methods chapter explains harmonisation rules and comparability cautions.

Literature — Part I

Key sources (full references):

- Collewaert, V., & Jansen, J. J. P. (Eds.). (2025). Handbook of Research on Scaling and High-Growth Firms. Edward Elgar Publishing. ISBN 978-1-0353-2665-5.
- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- Eurostat–OECD. (2007). Eurostat–OECD Manual on Business Demography Statistics. Eurostat / OECD.
- Henrekson, M., & Johansson, D. (2010). Gazelles as job creators: A survey and interpretation of the evidence. *Small Business Economics*, 35(2), 227–244. <https://doi.org/10.1007/s11187-009-9172-z>
- European Investment Bank (EIB). (2025). EIB Investment Survey 2025. European Investment Bank. <https://doi.org/10.2867/4791610>
- OECD. (2010). High-Growth Enterprises: What Governments Can Do to Make a Difference. OECD Studies on SMEs and Entrepreneurship. OECD Publishing.

Additional sources cited in this Part (author–year as cited in text):

- BFS (2025a)
- Dealroom (2025a)
- ECB (2025)
- ECB (2025a)

- EIB (2025)
- EIB (2025a)
- EIF (2025)
- KfW (2024a)
- KfW (2025)
- KfW (2026)
- ONS (2026)
- ONS (2026a)
- SSB (2025c)

Firm type	Defining features	Dominant constraint bundle (typical)	Outcome risk focus
Micro enterprise (0–9)	Owner-operated; thin team; limited specialist functions	Bandwidth + fixed compliance cost + working-capital volatility + basic digital/cyber gaps	Liquidity failure; exit by closure; slow formalisation
Small SME (10–49)	Growing teams; still thin HR/compliance; often domestic/regional	Hiring/skills + admin burden + late payments + process standardisation gap	Growth ceiling; delayed investment; weak scaling
Medium SME (50–249)	More complex operations; exporter exposure; regulated supply chains	Energy/input cost exposure (sector); standards/certification; cross-border compliance; managerial layers	Competitiveness erosion; export scaling friction
Startup (venture subset)	Young; scalable model; intangible assets; equity rounds	Runway + follow-on risk + talent competition + cross-border scaling friction + exits	Failure due to funding cycle; premature sale/relocation
Scale-up / gazelle	Young high-growth; rapid headcount/process scaling	Late-stage capital depth + organisational scaling (process/compliance/people systems)	Execution risk; down-rounds; exit bottlenecks
Succession-challenged owner-managed	Aging owner; transfer uncertainty; valuation gap	Succession delay + governance/bench weakness + transaction complexity	Closure risk despite viability; investment freeze

Part II — Theory and analytical framework

3. Socio-ecological multi-level SME challenge model

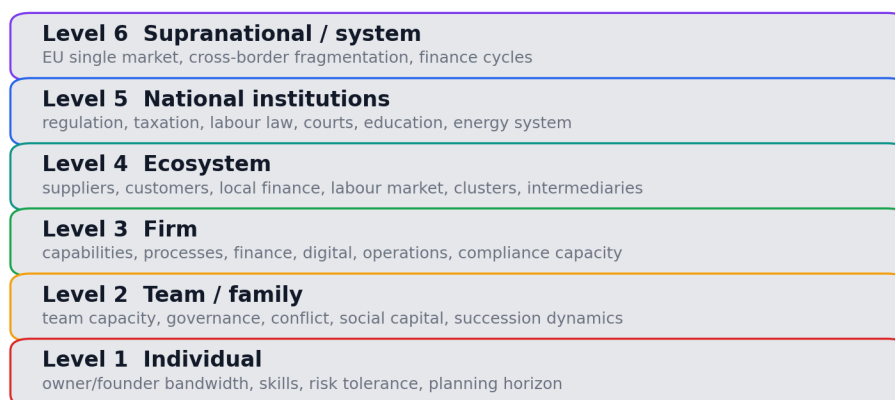
3.1 Why a socio-ecological model for SMEs and startups

SME and startup “problems” are rarely located at a single level. A hiring bottleneck, for example, may be triggered by firm-level wage capacity, amplified by local labor-market tightness, shaped by

education and migration systems, and then constrained further by regulation or cross-border recognition of qualifications. A socio-ecological model provides a systematic way to (a) classify constraints, (b) explain interactions, and (c) compare countries without collapsing everything into a single “list of problems.”

This book therefore analyzes constraints across six nested levels:

- Individual — owner/founder/manager is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Interpersonal — team is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. family is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. social capital is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Firm — capabilities is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. resources is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. processes is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Ecosystem — suppliers is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. customers is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. finance is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. labor markets is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. local institutions is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- National institutions — regulation is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. taxation is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. labor law is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. judicial enforcement is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. education is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. energy systems is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Supranational / systems (EU single market rules; cross-border fragmentation; macro shocks; finance cycles: access-to-finance frictions (cost, collateral, availability)) Evidence detail: in firm survey evidence, 62% of EU firms perceive the EU market as fragmented for their main product/service, indicating that cross-border scaling costs remain material even inside the Single Market. [EIB 2025a]



Interpretation: constraints become binding through interactions (bundles) across levels.
 Example bundle: late payments + skills gap + admin burden -> liquidity stress + delayed adoption -> underinvestment -> weaker survival.

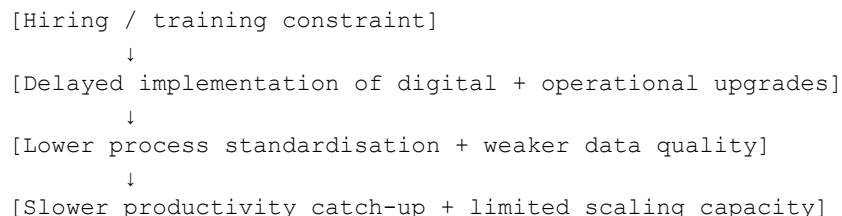
Figure F1. Europe+ socio-ecological multi-level model (Levels 1–6) and example constraint bundles.

Mechanisms are analysed as stepwise transmission chains in which an initial constraint becomes binding because it creates second-order effects on liquidity, capability, and investment. Each interaction mechanism is written in full prose and illustrated with a simple flow diagram.

Mechanism: Skills shortages delay execution, slow digitalisation, and cap productivity growth

Skills constraints become binding in SMEs because recruiting and training have fixed costs that do not scale down well. When SMEs cannot hire needed technical, digital, or managerial skills, they delay project execution—implementations of ERP/CRM, cybersecurity controls, process automation, export readiness, and even basic management professionalisation. Delays matter because many productivity gains are complementary: digital tools deliver returns only when processes are redesigned and staff are trained to use them. The result is a compounding gap: weak skills capacity slows adoption, slow adoption suppresses learning-by-doing, and the firm remains stuck with manual routines and low scalability. In Europe-wide firm evidence, skills availability is repeatedly reported among the most common obstacles, alongside uncertainty, energy costs and regulation—supporting the book’s “constraint bundles” view rather than a single-bottleneck narrative. [EIB 2025a]

Figure 3.Y Skills-to-productivity mechanism (complementarities)



SME productivity effects are mediated by complementarities: skills shortages delay the organisational changes needed to realise gains from digitalisation. [EIB 2025a]

Mechanism: Administrative burden drains management bandwidth and raises fixed costs

Administrative and regulatory burdens affect all firms, but they are regressive because many compliance tasks are fixed-cost activities: reporting, documentation, audit preparation, policy updates, and record-keeping. In SMEs, these tasks disproportionately fall on owners and small leadership teams, creating a direct trade-off between compliance work and growth work (sales, hiring, process improvement). The bandwidth drain is measurable: comparable survey evidence estimates bureaucracy costs as a share of turnover and indicates that SMEs carry a higher proportional burden than large firms. The mechanism matters for outcomes because persistent bandwidth loss reduces the firm's capacity to invest, professionalise, and scale—especially when combined with other constraints such as skills shortages or late payments. [European Commission 2025a; EIB 2025a]

Figure 3.2 Compliance fixed-cost mechanism (SME capacity channel)

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Fixed-cost compliance work is converted into capacity loss in SMEs, because specialised compliance teams rarely exist at small scale. [European Commission 2025a; EIB 2025a]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

3.2 Populating each level with evidence

Europe+. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Below, each level is defined and paired with the evidence sources used to measure or triangulate it. The goal is not to assign every problem to one level, but to make explicit where the primary mechanism operates and which higher levels amplify or dampen it.

Level 1 — Individual

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

owner/founder. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Typical constraints

- Limited managerial bandwidth (multi-role overload) — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- risk tolerance — This covers crisis preparedness, insurance coverage, and continuity planning; SMEs are more exposed because buffers and specialist capabilities are limited.

- and planning horizon — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- Decision biases under uncertainty — over/under-investment is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples. delayed succession planning is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Knowledge gaps: finance, digitalisation/cyber, export rules

How we measure/triangulate

Direct “individual-level” statistics are scarce cross-country; we infer owner overload and decision constraints via:

- firm-reported bureaucracy time/cost burdens (as experienced by SMEs) from EIB survey evidence (see Level 3), [EIB 2025]
- succession planning dynamics (owner age profile; planning stage; and transition risk) from KfW succession monitoring (used as mechanism evidence and developed further in Part VI). [KfW 2024a; KfW 2025; KfW 2026]

Interpretation in the model

Individual constraints often translate into delayed action—for example, postponing digital investments (which delays process and productivity upgrades), delaying compliance upgrades (which increases disruption and penalty risk), or postponing succession planning (which can freeze investment decisions). These delays make the firm more fragile when shocks hit.

Level 2 — Interpersonal

team/family/social capital. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Typical constraints

- Hiring friction and onboarding capacity — especially in micro/small firms is treated as a fixed-cost or capability constraint for SMEs; the mechanism is spelled out in the relevant domain chapter with indicators and examples.
- Founder-team conflicts and governance transition problems as firms grow
- Family business dynamics: successor selection, conflict, role ambiguity

How we measure/triangulate

Succession planning evidence is a core interpersonal/family mechanism. KfW monitoring documents

the scale of succession demand, the age/time-pressure problem, and that a nontrivial share of owners may fail to realise near-term succession arrangements. [KfW 2024a; KfW 2025] KfW also reports successor pathway considerations (e.g., internal employee succession interest) and highlights complexity/time costs of external succession processes. [KfW 2024a; KfW 2025; KfW 2026]

Interpretation in the model

Interpersonal constraints are “hidden multipliers”: when teams are thin, every compliance cycle, cyber incident, hiring delay, or customer dispute consumes disproportionate attention and reduces execution capacity.

Level 3 — Firm

resources, capabilities, and processes. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This level contains most “classic SME problems”: finance, skills, costs, operations, digitalisation, and compliance capacity.

Firm-level barrier distributions (key evidence)

The European Investment Bank Investment Survey provides a Europe-wide, comparable distribution of perceived obstacles. In its EU overview, commonly cited barriers include skills availability, energy costs, business regulation, and uncertainty; it also quantifies perceived Single Market fragmentation and the cost of bureaucracy as a share of turnover, with SMEs bearing a higher proportional burden. [EIB 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

What this does analytically

- Provides a comparable prevalence layer across countries and firm sizes.
- Supports a “constraint ranking” approach (what is most binding where).

Interpretation in the model

Firm-level constraints translate into measurable outcomes: lower survival, weaker growth, and fewer

high-growth enterprises (linked in Chapters 8 and 16 via business demography and HGE/gazelle proxies). [Eurostat 2025a; Eurostat 2025e]

Level 4 — Ecosystem

markets, finance channels: access-to-finance frictions (cost, collateral, availability), local institutions, and supply chains: capability and investment gaps in digital systems/data. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Typical constraints

- Local labor-market tightness (vacancies) and wage competition
- Supplier power and late-payment asymmetries in value chains
- Availability of local finance intermediaries — This domain includes access to credit, cost/collateral requirements, and working-capital stability; SMEs are vulnerable because cash buffers are thin and late payments shift financing burdens onto them.
- accelerators — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- and innovation networks — This covers innovation investment, diffusion of new technologies and productivity upgrading. SMEs face finance frictions for intangibles and difficulty releasing staff time for experimentation.

How we measure/triangulate

- Working-capital ecosystem frictions (late payment culture) from the EU Payment Observatory (system instrument; ecosystem mechanism is supply-chain power asymmetry). [European Commission 2025b; European Commission 2025j]
- Startup ecosystem depth via VC concentration and stage mix (Dealroom/Invest Europe/EIF evidence). These are developed fully in Part V; here they enter as conceptual ecosystem inputs. [Dealroom 2025a; Invest Europe 2025a; EIF 2025]

Evidence note (key empirical findings of cited sources):

- European Commission 2025b: EU Payment Observatory Summary 2025: reports 52% of European companies faced problems due to late payments in 2024 (47% in 2023; 42% in 2021). Notes increases in 19 Member States and that average payment periods exceeded 60 days in both B2B and G2B transactions, with public purchasers paying later than businesses in every Member State.
- Dealroom 2025a: Dealroom Europe Q1 2025: shows VC funding concentration—UK, Germany, France, Spain each exceeded \$1B raised in the quarter—indicating a geography-of-capital effect. Used

to benchmark country VC ‘depth’ and concentration.

- Invest Europe 2025a: Invest Europe H1 2025 Activity Report: provides cycle indicators for European VC/PE markets, including fundraising (digital capability and investment gaps; needs complementary skills/process change); investment and exit activity; used to contextualise tightening/loosening phases.
- EIF 2025: EIF Equity Survey 2025: fund-manager survey reporting fundraising remains challenging and exit opportunities limited; notes VC capital raised to date at a decade-low and less than half the amount for the same period the year before.

Interpretation in the model

Ecosystems determine whether firm capabilities can be converted into growth. Two equally capable SMEs in different ecosystems can face radically different growth ceilings.

Level 5 — National institutions

rules, enforcement, education, energy: operating-cost exposure that squeezes margins, and tax. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This level shapes the background transaction costs of doing business and the incentives to invest.

Regulatory and administrative burden as a core national constraint

The European Commission’s Annual Single Market & Competitiveness Report identifies key challenges holding SMEs back, including regulatory/administrative burden, payment delays, access to finance, and skills; it also reports that payment times in B2B transactions rose from 52 days (2022) to 62 days (2024)—a deterioration with direct liquidity implications. [European Commission 2025a]

Interpretation in the model

Institutional quality affects:

- the fixed cost of compliance,
- speed and predictability of enforcement,
- the cost of dispute resolution and payment recovery,
- incentives for formalization, scaling, and cross-border trade.

Level 6 — Supranational / systems

EU single market, macro shocks, and finance cycles: access-to-finance frictions (cost, collateral, availability). In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller

organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Typical constraints

- Single-market fragmentation — Cross-border compliance means repeating legal/technical checks, contracts, labelling, documentation, and sector permits for each target country, often requiring external advisors and slowing expansion timelines. VAT complexity adds multi-country registration and reporting, invoice rules, OSS/IOSS boundaries, and audit documentation, raising back-office workload and error risk. Differing standards and administrative practices further mean forms, language requirements, inspections, and processing times vary across authorities, creating unpredictable delays. Because these tasks are largely fixed-cost, they disproportionately burden SMEs and deter cross-border scaling. [EIB 2025a]
- EU-level regulatory spillovers — Regulatory spillovers via supply chains occur when large customers pass reporting and due-diligence requirements down to SMEs (e.g., ESG; cyber; product traceability), creating compliance work even when SMEs are not directly regulated at the same level. [European Commission 2025a]
- Capital market cycles — Equity funding and exit conditions move in cycles; when valuations fall and exits slow, follow-on rounds become harder, timelines lengthen, and even otherwise strong startups can fail due to runway constraints. The mechanism is most relevant for startups and scale-ups because their financing model depends on sequential equity rounds and credible exit markets. [EIF 2025; Invest Europe 2025a]

How we measure/triangulate

- Single Market fragmentation and simplification needs are measured in EIB survey evidence (share of firms perceiving fragmentation; bureaucracy cost estimates). [EIB 2025]
- EU-level diagnosis of SME challenges is summarised in the Annual Single Market & Competitiveness Report. [European Commission 2025a]
- Late payment as an EU-wide system constraint is quantified by the Payment Observatory summary, which reports that more than half of European companies indicated problems linked to late payments in 2024. [European Commission 2025b]

Interpretation in the model

At the systems level, even well-run firms can become constrained if cross-border costs, payment culture, or funding cycles turn adverse.

3.3 Core interaction mechanisms

the “constraint bundle” logic. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly

for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Evidence reporting standard used throughout the manuscript. To keep the text readable and analytically useful, each evidence citation is accompanied by a short, concrete summary of what the source actually finds. Where possible, the summary specifies (i) the metric/indicator used, (ii) the reference year(s) and sample/population, (iii) the magnitude (levels or changes), and (iv) any reported dispersion across countries or firm sizes. Pure ‘name-dropping’ citations are avoided: every source should contribute either a quantified finding, a documented trend, or a clearly scoped qualitative diagnosis that links to a mechanism.

The multi-level model is operationalised through a small set of repeatable mechanisms you can trace across countries:

Late payments to liquidity stress to underinvestment to lower resilience

This subsection explains finance as an operating constraint that becomes visible in day-to-day decisions—whether the firm can bridge receivable delays, finance inventory, invest in equipment, or sustain hiring while demand fluctuates.

SME finance differs structurally from large-firm finance because information is thinner, collateral is limited (especially in services and digital SMEs), and transaction costs of lending do not scale down well. The result is a financing ‘ceiling’ at specific growth transitions: moving from owner-operated micro scale to formalised small-firm processes, or from small to medium scale with export-related working-capital needs.

Empirically, the manuscript triangulates this domain with SAFE (euro-area finance conditions), OECD financing scoreboards (cross-country comparability beyond the euro area), and late-payment evidence (Payment Observatory) because liquidity stress is often driven by payment behaviour rather than by profitability.

System evidence (EU Payment Observatory). The Payment Observatory’s analysis reports that late payments remain an increasing problem in the EU. In the 2024 results, more than half of companies report difficulties linked to late payments; the 2025 summary quantifies this at 52% of European companies in 2024, five percentage points higher than 2023 and ten points higher than 2021, indicating a multi-year deterioration rather than a one-off fluctuation. The same EU-level monitoring notes that average payment periods exceeded 60 days in both business-to-business (B2B) and government-to-business (G2B) transactions, and that governments paid later than businesses in every Member State. A recurrent asymmetry is also documented: the larger the company, the less likely it is to pay on time, which operationalises the bargaining-power channel in SME value chains. In addition,

the summary reports that in 19 Member States the share of firms reporting late-payment problems increased, and identifies high-problem countries (e.g., Poland; Czech Republic; Luxembourg) as system-level risk anchors for SME liquidity. [European Commission 2025b][European Commission 2025j]

Institutional evidence (Annual Single Market & Competitiveness Report). The Commission's 2025 Annual Single Market & Competitiveness Report states that the payment situation in Europe keeps worsening, reporting that actual payment times in B2B transactions rose from 52 days in 2022 to 62 days in 2024. For SMEs, this matters because a ten-day deterioration in realised payment times mechanically increases working-capital needs and exposes firms to cash-flow volatility—especially in sectors where SMEs are suppliers to larger customers. In the socio-ecological framework, this is a Level 5–6 institutional/system shift that amplifies firm-level finance frictions (Level 3). [European Commission 2025a]

Cross-link to finance constraints (Payment Observatory annual report evidence). The Payment Observatory's annual reporting further analyses the interaction between late payments and access to finance, noting that the share of firms experiencing problems due to late payments increases with the severity of their difficulties in accessing finance. This supports the 'liquidity amplification proposition': late payments do not merely delay revenue; they tighten financing constraints and can convert otherwise viable SMEs into underinvesting firms. [European Commission 2025j]

This subsection treats regulation and administrative burden as a regressive fixed-cost problem: many compliance tasks (reporting, documentation, updates to processes and policies) do not shrink proportionally with firm size, so they consume a larger share of SME time and turnover.

The practical effect is not only direct cost but management bandwidth loss. In SMEs, compliance work often lands on the owner-manager or a small leadership team, creating a direct trade-off between 'keeping the firm compliant' and 'making the firm grow'. Fragmentation adds a second layer: when rules and administrative practice differ across borders, scaling turns into repeated re-compliance rather than a simple replication of a proven model.

The book anchors this domain in EU-level obstacle diagnoses (Annual Single Market & Competitiveness Report) and firm-reported quantification (EIB bureaucracy cost and compliance staffing shares), then checks consistency against scaling outcomes (high-growth enterprises/gazelles) in the country atlas.

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

Energy costs and uncertainty as drivers of investment postponement

Energy costs influence SMEs through both a direct cost channel and an uncertainty channel. Directly, higher electricity, gas, or fuel input costs reduce margins and raise break-even output; this is particularly binding in energy-intensive SME manufacturing and in services with high facility or transport intensity. Indirectly, volatile or unpredictable energy prices raise planning uncertainty, which is especially damaging for SMEs because investment projects are often lumpy and financed with limited slack. The typical response is postponement: firms defer equipment upgrades, digital investments and training that would raise productivity, because the short-term cash-flow and risk profile becomes less tolerable. In firm-reported Europe-wide evidence, energy costs and uncertainty appear among the most frequently reported obstacles, supporting the interpretation that investment postponement is often a bundled reaction to multiple simultaneous constraints rather than a single-factor decision. [EIB 2025a]

Figure X Energy-uncertainty transmission chain (investment postponement)

[Higher/volatile energy costs]
↓
[Margin pressure + planning uncertainty]
↓
[Postpone capex, digital upgrades, training]
↓
[Slower productivity growth + weaker resilience]

Illustrative logic chain used in country profiles to interpret underinvestment patterns during cost and uncertainty shocks. [EIB 2025a]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

Administrative burden to management time diversion to weaker scaling capacity

EU diagnosis: administrative burden is a core SME challenge in EU competitiveness reporting.

[European Commission 2025a]

Firm quantification: EIB estimates bureaucracy costs as a share of turnover, higher for SMEs. [EIB 2025]

Succession uncertainty to investment freeze / strategic drift to closure risk

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and

staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity), and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

Mechanism evidence: KfW monitoring documents the scale of succession demand and rising closure intentions among firms needing succession solutions. [KfW 2024a; KfW 2025; KfW 2026]

These mechanisms become the backbone of later country profiles: each country chapter identifies which bundles dominate, and the atlas indicators provide the traceable evidence layer for those judgments.

4. Complementary theory lenses

The socio-ecological model classifies *where* constraints operate. The theory lenses below explain why they arise, why they persist, and why they differ by size and ownership.

4.1 Financing frictions and the SME finance gap

This subsection explains finance as an operating constraint that becomes visible in day-to-day decisions—whether the firm can bridge receivable delays, finance inventory, invest in equipment, or sustain hiring while demand fluctuates.

SME finance differs structurally from large-firm finance because information is thinner, collateral is limited (especially in services and digital SMEs), and transaction costs of lending do not scale down well. The result is a financing ‘ceiling’ at specific growth transitions: moving from owner-operated micro scale to formalised small-firm processes, or from small to medium scale with export-related working-capital needs.

Empirically, the manuscript triangulates this domain with SAFE (euro-area finance conditions), OECD financing scoreboards (cross-country comparability beyond the euro area), and late-payment evidence (Payment Observatory) because liquidity stress is often driven by payment behaviour rather than by profitability.

Core idea

SMEs face structural financing frictions because they are more opaque (shorter track records, less audited information), their assets are often less collateralizable (especially service/digital SMEs), and lending transaction costs are relatively fixed.

This predicts:

- higher borrowing costs,
- stronger collateral requirements,
- greater sensitivity to tightening credit standards,
- and a stronger working-capital channel (late payments hurt more).

Evidence hooks in this study

The ECB SAFE survey is used as the primary comparable evidence for euro-area firms' financing conditions and constraints. [ECB 2025.] OECD evidence provides cross-country finance context beyond the euro area. [OECD 2024]

Evidence note (key empirical findings of cited sources):

- OECD 2024: Source focus: Financing SMEs and Entrepreneurs 2024 (cross-country finance scoreboard). (contains reported figures such as 2024, 2024; used here for its empirical indicators and cross-country comparability notes).

How it connects to the socio-ecological model

Finance frictions sit at Level 3 (firm), but are shaped by Level 5/6 (macro rates; bank competition; policy guarantees) and amplified by Level 4 (payment culture in supply chains). [European Commission 2025b; European Commission 2025a]

4.2 Liability of smallness and liability of newness

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

survival economics. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Core idea

Smaller and younger firms have higher hazard rates because they lack diversified customer bases, slack resources, established routines and quality systems, bargaining power in supply chains, and crisis buffers. This predicts that late payments, energy shocks, or regulatory complexity disproportionately reduce survival among small/new firms.

Evidence hooks in this study

Eurostat business demography provides survival rates that quantify vulnerability. For example, Eurostat “Key figures on European business” reports an EU-27 five-year survival rate of 45% for a referenced cohort (fewer than half surviving to year five), with substantial cross-country variation. [Eurostat 2025f]

How it connects to the socio-ecological model

Survival outcomes become the measurable “result” of interacting constraints across Levels 4–6. [Eurostat 2025f; European Commission 2025b; European Commission 2025a]

4.3 Administrative burden and transaction cost economics

Core idea

Regulation and administrative procedures impose fixed transaction costs. Because many compliance and reporting tasks do not scale down with firm size, the burden is regressive: micro and small firms pay more per unit of turnover.

Evidence hooks in this study

EU competitiveness reporting frames administrative burden as a main SME constraint. [European Commission 2025a] The EIB Investment Survey estimates bureaucracy costs as a share of turnover and indicates higher relative burden for SMEs. [EIB 2025]

This subsection explains cost pressures as a competitiveness constraint that varies strongly by sector and by national price environment. SMEs are more exposed to shocks when margins are thin, hedging is limited, and contracts provide little room to pass costs through quickly.

Energy and input costs matter not only as expenses but as investment drivers: when volatile costs raise uncertainty, firms postpone modernisation (equipment upgrades, energy efficiency investments, digitalisation) even when returns are positive under stable conditions. This postponement is one route by which cost shocks translate into weaker productivity growth.

Cross-country comparison uses harmonised price indicators where available combined with firm-reported barrier prevalence (EIB) to separate the objective cost environment from perceived constraint intensity.

4.4 Family business, governance, and succession theory

Nachfolge as an economic constraint. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence)

alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Core idea

In owner-managed and family-owned firms, ownership and control are concentrated. This can enable fast decision-making and long-term orientation, but also creates key-person risk and succession vulnerability. Succession failure is not merely a private family issue; it can cause closures, job losses, and loss of regional capabilities.

Evidence hooks in this study

KfW succession monitoring provides mechanism-rich evidence that large numbers of SMEs seek succession solutions and that bureaucracy and valuation dynamics matter. It reports the scale of annual succession demand and points to rising purchase price expectations over time, increasing the risk of “no-deal → closure” pathways. [KfW 2024a; KfW 2025; KfW 2026] KfW also emphasizes time pressure: many owners are older and a meaningful share may not realize succession plans in time. [KfW 2024a; KfW 2025]

How it connects

Succession spans Level 1 (owner), Level 2 (family/team), Level 3 (firm continuity), and Level 4/5 (market for business transfers, taxation/legal complexity).

4.5 Integrating the lenses: testable propositions

Part II becomes operational through a small set of explicit propositions that later chapters evaluate against indicators and country profiles. Each proposition names (i) a constraint, (ii) a transmission mechanism, and (iii) an observable implication in the atlas outcomes. This approach avoids ‘topic listing’ by forcing the manuscript to state what should be visible in the data if a mechanism is binding—for example, whether countries with weaker payment discipline also show stronger working-capital stress narratives and weaker survival/scaling proxies, or whether high administrative burden is accompanied by higher reported compliance staffing shares and lower high-growth incidence. The propositions are not treated as universal laws; they are used as disciplined reading guides that structure cross-country comparison and prevent ad-hoc explanations.

P1 — Fixed-cost burden proposition

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable

Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.
- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

P2 — Liquidity amplification proposition

Late payments amplify credit constraints and reduce investment more strongly among SMEs than among large firms because SMEs rely more on working-capital stability. [European Commission 2025b; European Commission 2025j]

Evidence note (key empirical findings of cited sources):

- European Commission 2025b: EU Payment Observatory Summary 2025: reports 52% of European companies faced problems due to late payments in 2024 (47% in 2023; 42% in 2021). Notes increases in 19 Member States and that average payment periods exceeded 60 days in both B2B and G2B transactions, with public purchasers paying later than businesses in every Member State.

P3 — Skills–digital–productivity proposition

This subsection treats skills and labour constraints as an execution bottleneck rather than a generic ‘HR topic’. For SMEs, missing skills show up as delayed delivery, weaker quality systems, slower adoption of digital tools, and an inability to add management layers that make growth scalable.

The socio-ecological framing matters because ‘skills’ is produced by interactions across levels: firm-level wage and training capacity meets local labour-market tightness, the availability of training providers, and national institutions such as apprenticeship systems, migration policy and recognition of qualifications. In tight labour markets, the binding mechanism is often competition and wage pressure; in lower-vacancy environments, reported shortages can reflect mismatch (wrong skills, location, or job quality) and weak training pipelines rather than absolute scarcity.

In later country profiles this domain is anchored by comparable barrier prevalence evidence (EIB Investment Survey) and by labour-tightness proxies (Eurostat vacancy rates for EU countries, ONS/SSB/BFS analogues for UK/NO/CH), so the atlas can distinguish scarcity from mismatch and connect the interpretation to survival and scaling outcomes.

Where skills shortages are more binding, SME digital adoption is slower and productivity catch-up is weaker, especially among micro and small firms. [EIB 2025; Eurostat 2025a; Eurostat 2025c]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- Eurostat 2025a: Source focus: Digitalisation in Europe 2025 (interactive publication). (contains reported figures such as 2025, 2025; used here for its empirical indicators and cross-country comparability notes).

P4 — Survival sensitivity proposition

Countries with weaker survival outcomes (especially lower 5-year survival) shows stronger sensitivity to cost/uncertainty shocks, consistent with liability of smallness/newness. [Eurostat 2025f; EIB 2025]

P5 — Succession drag proposition

This subsection treats ownership and succession as economic constraints because uncertainty about control transfer changes investment incentives. When the ownership horizon is unclear, owners rationally postpone long-payback projects and managers avoid disruptive restructuring, which can erode competitiveness before any formal transition occurs.

Succession is multi-level in the socio-ecological model: it begins at the individual level (owner readiness), depends on interpersonal dynamics (family/team governance and trust), requires firm-level preparation (process documentation, management bench, financial transparency), and is shaped by ecosystem and institutional factors (availability of buyers, tax/legal complexity, financing for MBO/MBI).

The manuscript uses development-bank monitoring as a mechanism anchor and then maps the same risk logic into Europe+ country profiles by documenting institutional pathways and transfer-market conditions alongside SME survival and closure patterns.

In owner-managed economies with aging ownership, succession uncertainty reduces investment and increases closure intentions, creating a competitiveness drag distinct from ordinary insolvency risk. [KfW 2024a; KfW 2025; KfW 2026]

Evidence note (key empirical findings of cited sources):

- KfW 2024a: Nachfolge-Monitoring Mittelstand 2024: estimates large annual cohorts of SMEs seeking succession solutions and documents time pressure from ageing owners, successor scarcity, and transaction complexity. Highlights that failed succession often results in closure rather than sale, with local employment and service-provision spillovers.
- KfW 2025: Nachfolge-Monitoring Mittelstand 2025: updates the scale of upcoming successions and the tightening 'market for business transfers' (more sellers than buyers in many segments).

Emphasises valuation expectations, bureaucracy and search costs as key frictions; reports rising intentions to close if no successor is found.

- KfW 2026: KfW press note (Jan 2026): documents rising purchase-price expectations in SME transfers and reiterates bureaucracy/administrative complexity as a factor shaping transfer feasibility and timing.

4.6 How Part II feeds the empirical chapters

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Part II produces two deliverables used throughout the book:

- 1) A classification system (multi-level socio-ecological model) for coding every “problem” observed in data and country writeups.
- 2) Mechanism hypotheses (theory lenses + propositions) that guide indicator selection in each domain chapter: firm-reported barrier prevalence (EIBIS), system constraints (Payment Observatory; EU competitiveness reporting), outcomes (Eurostat survival and high-growth), finance conditions (SAFE + OECD context), and succession dynamics (KfW monitoring as mechanism anchor). [EIB 2025; European Commission 2025b; European Commission 2025a; Eurostat 2025f; ECB 2025.; OECD 2024; KfW 2024a]

5. Propositions and hypotheses

operational and testable statements. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Part II introduces conceptual lenses and mechanisms. This chapter translates them into explicit propositions that can be evaluated using the Europe+ indicators and the country profiles. The goal is not to claim causal identification; rather, it is to keep the analysis disciplined: when the narrative says

“X is binding,” it should be traceable to observable indicators and triangulated evidence.

Each proposition is written with (i) expected mechanism, (ii) observable indicators, and (iii) moderator expectations (size/sector/ownership/market orientation).

P1 — Fixed-cost burden proposition

This subsection explains cost pressures as a competitiveness constraint that varies strongly by sector and by national price environment. SMEs are more exposed to shocks when margins are thin, hedging is limited, and contracts provide little room to pass costs through quickly.

Energy and input costs matter not only as expenses but as investment drivers: when volatile costs raise uncertainty, firms postpone modernisation (equipment upgrades, energy efficiency investments, digitalisation) even when returns are positive under stable conditions. This postponement is one route by which cost shocks translate into weaker productivity growth.

Cross-country comparison uses harmonised price indicators where available combined with firm-reported barrier prevalence (EIB) to separate the objective cost environment from perceived constraint intensity.

administrative and compliance load is regressive. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism: Many regulatory and reporting tasks have fixed components. SMEs therefore bear a higher proportional burden (time and cost) than large firms, which drains managerial bandwidth and reduces investment capacity.

Observable indicators used: EIB bureaucracy cost as a share of turnover (higher for SMEs) and shares of firms devoting significant staff time to regulatory compliance; EU-level framing of administrative burden as a top SME obstacle. [EIB 2025][European Commission 2025a]

Moderators: strongest in micro and small firms; amplified in highly regulated sectors and cross-border selling where fragmentation multiplies compliance tasks.

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about

the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

P2 — Liquidity amplification proposition

This subsection explains finance as an operating constraint that becomes visible in day-to-day decisions—whether the firm can bridge receivable delays, finance inventory, invest in equipment, or sustain hiring while demand fluctuates.

SME finance differs structurally from large-firm finance because information is thinner, collateral is limited (especially in services and digital SMEs), and transaction costs of lending do not scale down well. The result is a financing ‘ceiling’ at specific growth transitions: moving from owner-operated micro scale to formalised small-firm processes, or from small to medium scale with export-related working-capital needs.

Empirically, the manuscript triangulates this domain with SAFE (euro-area finance conditions), OECD financing scoreboards (cross-country comparability beyond the euro area), and late-payment evidence (Payment Observatory) because liquidity stress is often driven by payment behaviour rather than by profitability.

late payments amplify finance constraints and exit risk. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism: Late payments shift working-capital financing burden to suppliers, increasing reliance on short-term credit and reducing investment. In downturns, this increases insolvency and exit risk among SMEs.

Indicators: late-payment prevalence and payment-period evidence from the Payment Observatory; rising payment times in the Single Market report; consistency checks with survival outcomes in business demography. [European Commission 2025j][European Commission 2025a][Eurostat 2025a]

Moderators: strongest for micro/small firms and for B2B subcontractors with low bargaining power; amplified when bank credit tightens (SAFE/OECD context). [ECB 2025.][Swiss Federal Statistical Office (FSO) 2025.]

P3 — Skills—digital—productivity proposition

skills constraints slow upgrading. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism: Skills shortages (including managerial capability) delay digital adoption and process upgrading, which reduces productivity catch-up and competitiveness.

Indicators: EIB barrier prevalence for “availability of skilled staff” and related constraints; labour tightness proxies (job vacancy rates and national equivalents) in country profiles; digital intensity gaps. [EIB 2025][ENISA 2024][European Union 2022]

Moderators: strongest in knowledge-intensive services and ICT-heavy SMEs; also binding in manufacturing for technical and process roles.

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- ENISA 2024: Source focus: ENISA Threat Landscape 2024. (contains reported figures such as 2024, 2024; used here for its empirical indicators and cross-country comparability notes).
- European Union 2022: Source focus: NIS2 Directive (EU) 2022/2555. (contains reported figures such as 2022, 2, 2022; used here for its empirical indicators and cross-country comparability notes).

P4 — Fragmentation proposition

This subsection treats regulation and administrative burden as a regressive fixed-cost problem: many compliance tasks (reporting, documentation, updates to processes and policies) do not shrink proportionally with firm size, so they consume a larger share of SME time and turnover.

The practical effect is not only direct cost but management bandwidth loss. In SMEs, compliance work often lands on the owner-manager or a small leadership team, creating a direct trade-off between

‘keeping the firm compliant’ and ‘making the firm grow’. Fragmentation adds a second layer: when rules and administrative practice differ across borders, scaling turns into repeated re-compliance rather than a simple replication of a proven model.

The book anchors this domain in EU-level obstacle diagnoses (Annual Single Market & Competitiveness Report) and firm-reported quantification (EIB bureaucracy cost and compliance staffing shares), then checks consistency against scaling outcomes (high-growth enterprises/gazelles) in the country atlas.

Single Market complexity constrains scaling. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism: Even when demand exists, cross-border scaling inside Europe is slowed by regulatory, administrative and market fragmentation (different procedures; standards interpretation; VAT complexity; procurement rules). This increases the “cost of expanding into the next European market,” reducing the rate of scale-up outcomes.

Indicators: EIB measurement of perceived market fragmentation; EU-level diagnosis of fragmentation and administrative burden in the competitiveness report; scaling proxies (gazelles/HGE). [EIB 2025] [European Commission 2025a][Eurostat 2025e; Eurostat 2025f]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

P5 — Cost-competitiveness proposition

energy/input costs compress margins and delay investment. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for

well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism: When energy and input costs rise faster than firms can pass through to prices, margins shrink, investment is postponed, and in some segments exit risk rises.

Indicators: EIB barrier prevalence for energy costs; Eurostat non-household electricity price dispersion (used in profiles); investment postponement patterns in EIBIS; survival outcomes as consistency check. [EIB 2025][Dealroom 2025a][Eurostat 2025a]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- Dealroom 2025a: Dealroom Europe Q1 2025: shows VC funding concentration—UK, Germany, France, Spain each exceeded \$1B raised in the quarter—indicating a geography-of-capital effect. Used to benchmark country VC ‘depth’ and concentration.

P6 — Venture follow-on proposition

startup failure can be cycle-driven. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism: Venture-backed startups depend on multi-round financing. Fundraising downturns and limited exits can generate failure through financing discontinuity even when product potential remains. This creates a “cycle-driven fragility” channel distinct from established SMEs’ working-capital channel.

Indicators: Invest Europe fundraising-cycle signals; EIF Equity Survey evidence on fundraising and exits

constraints; Dealroom stage and concentration signals. [Invest Europe 2025c][European Investment Fund (EIF) 2025b][Dealroom 2025b]

P7 — Succession drag proposition

ownership transition uncertainty reduces investment and continuity. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism: In owner-managed and family-owned SMEs, succession uncertainty creates strategic drift and investment freezes. When succession fails, closure risk rises even for otherwise viable firms.

Indicators: KfW succession monitoring (mechanism evidence); closure intentions and time pressure; in broader Europe+, triangulate with national transfer-market evidence as it is collected. [European Commission 2003][European Commission 2025I]

P8 — Ecosystem conversion efficiency proposition

capabilities → growth depends on ecosystem depth. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism: Local ecosystems determine whether firm capabilities can be converted into growth (finance intermediaries: access-to-finance frictions (cost, collateral, availability); training providers: capability and investment gaps in digital systems/data; innovation infrastructure; market access channels). Weak ecosystems increase transaction costs of growth and scaling.

Indicators: Startup Nations Standards implementation dimensions; venture ecosystem depth; innovation infrastructure evidence (EIC/InvestEU) and country profiles. [Europe Startup Nations Alliance (ESNA) 2024][EIC 2025b][European Investment Fund (EIF) 2025b]

How propositions are used later

Table T3. Propositions and evidence map (mechanisms, indicators, and sources).

Proposition	Mechanism summary	Indicators used in atlas	Key sources
P1 Fixed-cost burden	Regressive compliance cost reduces SME investment and scaling	EIB bureaucracy cost; compliance staffing; admin burden prominence	EIB 2025; European Commission 2025a
P2 Liquidity amplification	Late payments create liquidity stress and raise exit risk	Payment days; share reporting late-payment problems; working-capital risk	European Commission 2025j; European Commission 2025a
P3 Skills–digital–productivity	Skills gaps delay adoption and process change, widening productivity gaps	EIB skills barrier; job vacancy/tightness; digital intensity	EIB 2025; Eurostat 2025k
P4 Survival sensitivity	Lower survival implies greater vulnerability to shocks and fixed-cost pressure	Survival 1/3/5; births/deaths; HGEs/gazelles	Eurostat 2025a; ONS 2026; BFS 2025; SSB 2025c
P5 Succession drag	Succession uncertainty shortens horizons and can cause closures despite viability	Succession pressure; owner age; transfer pathways; closure intentions	KfW 2025; KfW 2024a; European Commission 2025m
P6 Venture follow-on risk	Funding cycle + thin exits create follow-on gaps and forced outcomes	VC per GDP; stage mix; fundraising/exits sentiment; gazelles/HGE compare	Dealroom 2025b; Invest Europe 2025c; EIF 2025b

In Parts IV–VII, each country chapter and domain chapter uses these propositions as a checklist:

- If a proposition is invoked, the narrative must point to at least one comparable quantitative indicator and one triangulating source where possible.
- Where indicators are missing (especially non-EU), the book uses explicit “comparability notes” rather than silent inference.
- Propositions are treated as mechanism hypotheses, not causal proofs; the atlas offers consistency checks and structured comparison.

Part IIIA — Literature review and academic evidence spine

5A. Literature review: what research says about typical SME and startup constraints in Europe+

5A.1 Why an academic evidence spine is necessary

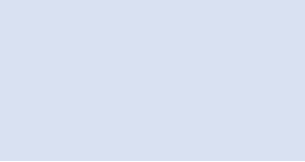
An integrated Europe-wide comparative study that relies only on institutional monitoring (official statistics, policy reports, and large surveys) can become overly descriptive: it can document which barriers firms report and how outcomes differ across countries, but it cannot always explain why those patterns should be expected to arise, persist, and differ by firm size, age, and ownership. The academic literature provides a complementary backbone by supplying mechanism families, validated constructs, and empirically tested relationships.

Three functions are most important for this book. First, research on small-firm economics and organisational ecology explains structural vulnerabilities that recur across sectors and countries:

limited buffers, weaker bargaining power in supply chains, and reduced ability to absorb fixed costs in compliance, technology, and management systems. Second, finance and contract theories explain how institutions translate into firm-level constraints through credit rationing, collateral requirements, and enforcement frictions. Third, human-capital and capability research explains why the same technology or policy environment produces different outcomes depending on internal routines, training capacity, and managerial quality.

Accordingly, this manuscript introduces an academic evidence spine that complements the Europe+ institutional evidence base. The academic spine is not used to claim that one paper proves a country outcome. Instead it is used to define the plausible mechanism set behind each problem domain, specify which observable indicators should align if those mechanisms are relevant, and support disciplined interpretation of cross-country differences without relying on stereotypes or purely anecdotal narratives.

Socio-ecological level	What research emphasises	Academic anchors (examples)	Atlas evidence hooks used in this book
Individual	Owner-manager bandwidth, opportunity recognition, decision-making under uncertainty, and the role of human capital in shaping strategy.	Penrose 1959; Barney 1991; Shane 2003	Owner/manager constraints inferred via EIB bureaucracy burden; successor planning readiness (KfW).
Interpersonal	Team formation, founder conflict, family governance, social capital, and succession process dynamics.	Sharma 2004; Venter et al. 2005; Reif et al. 2025	Succession pathways and failure modes; labour onboarding constraints (Eurofound; EIBIS).
Firm	Resources and capabilities, management practices, internal training systems, financing frictions and investment behaviour.	Berger and Udell 1998; Bloom and Van Reenen 2007; Nolan and Garavan 2016	EIBIS obstacle prevalence; SAFE finance conditions; digital intensity and investment indicators.
Ecosystem	Supply-chain power and trade credit, late payment culture, local labour markets, finance and innovation networks.	Deloof 2003; Kaya 2024; Henrekson and Johansson 2010	Payment Observatory; vacancy/tightness indicators; VC dealflow and stage mix (Dealroom).
National institutions	Administrative burden, enforcement quality, tax compliance costs, education and apprenticeship systems, energy systems.	North 1990; European Commission DG GROW 2022	Single Market & Competitiveness Report; tax compliance cost evidence; energy price statistics; training system map.
Supranational/systems	Market integration and	European Parliament 2025;	EIB fragmentation



fragmentation, regulatory layering across regimes, macro and capital market cycles affecting risk finance.

Vial 2019; OECD 2025

perception; EU digital regulation set; VC fundraising/exits cycle (Invest Europe; EIF).

5A.2 Financing frictions: why SMEs face structural disadvantages in credit markets

Financing constraints are a persistent theme in SME research because many underlying frictions are structural rather than cyclical. Credit-rationing theory argues that under asymmetric information, banks may be unable to clear markets purely by increasing interest rates: higher rates can attract riskier borrowers or worsen borrower incentives, making quantity restrictions rational. This implies that some creditworthy borrowers can be rationed even in competitive markets [Stiglitz and Weiss 1981].

SMEs amplify these frictions because they have shorter track records, less audited information, and thinner collateral. Relationship-lending research shows that repeated interactions and soft information can partly substitute for hard collateral, but this requires time and stable banking relationships; for many young or micro firms, relationship capital is limited while screening costs are high [Berger and Udell 1998]. Consequently, SMEs are more exposed to tightening credit standards, collateral requirements, and documentation burdens during stress periods.

Empirical work provides measurable signatures consistent with these theories. Using European firm data, Wagenvoort finds that growth is more sensitive to internal cash flow for smaller firms; the interpretation is that retained earnings become a binding fuel for growth when external finance is constrained [Wagenvoort 2003]. In this manuscript, such signatures are used to justify why finance constraints are expected to be stronger for micro and small firms and why financing conditions should be analysed jointly with investment and scaling outcomes.

5A.3 Working capital, trade credit, and the late-payment mechanism

Late payments are not merely an administrative irritation. They are an economic mechanism that shifts financing burdens down the supply chain. Trade-credit research treats accounts receivable and payable as an informal financing channel that interacts with bank credit. When customers pay late, suppliers extend involuntary credit, increasing liquidity risk and raising reliance on short-term borrowing (overdrafts, factoring, revolving credit). For SMEs with thin buffers, this can trigger investment postponement and vulnerability to shocks.

European micro-evidence links late payments to access-to-finance problems through a bank-channel mechanism. Kaya documents that SMEs experiencing frequent or occasional late payments are more likely to report access-to-finance difficulties. The paper interprets this as credit rationing: banks treat delayed receivables and cash-flow volatility as higher risk, translating into less favourable loan conditions (higher interest rates, smaller loans) [Kaya 2024]. This finding provides a research-grade

microfoundation for the liquidity amplification mechanism used throughout Part IV.

In the socio-ecological framework, late payments primarily operate at the ecosystem level (power asymmetries between customers and suppliers) and the national institutions level (enforcement speed, dispute resolution costs, penalties). Their impacts become visible at the firm level in higher short-term debt dependence, underinvestment, and—in severe cases—higher exit risk.

5A.4 Liability of smallness and newness: survival economics and the fragility baseline

The liability of smallness and liability of newness are widely used lenses in organisational ecology and industrial economics to explain why young and small firms face higher hazard rates. Learning models view survival and growth as a selection process: firms enter with uncertain efficiency, learn through market experience, and exit when realised performance is poor relative to costs. In this view, higher exit rates among young firms are expected, but the level and pattern of exit across countries provide information about institutional and market environments.

This literature justifies treating business demography as an outcome layer rather than a descriptive sidebar. If many new firms fail within a few years, a country filters out a large share of entrepreneurial experiments before they mature into productivity-raising or employment-stabilising enterprises. Survival rates therefore operate as a system resilience indicator that summarizes the combined influence of demand conditions, finance access, skills, regulation, and enforcement in a single cohort measure.

The liability lenses also explain why shocks disproportionately affect SMEs. Energy price spikes, compliance expansions, and demand uncertainty shocks can be spread across buffers by large firms, while micro and small firms experience them as immediate cash-flow and bandwidth constraints. This is why the Europe+ narrative checks whether cost shocks, finance tightening, and late payments align with survival and scaling outcomes: the liability lens provides an evidence-based expectation that these interactions should be stronger for smaller and younger firms.

5A.5 Human capital, training, and managerial capability: why SMEs underinvest in development

Training and development is both a competitiveness lever and a structural problem domain for SMEs. SMEs often underinvest in formal training not necessarily because they undervalue skills, but because they face predictable frictions: fixed costs of planning and delivering training, limited HR infrastructure, limited ability to release staff from operations, and fear of poaching once training raises employee marketability. These frictions are direct consequences of small scale and are expected to vary by sector and labour-market tightness.

Nolan and Garavan's systematic review synthesises the HRD-in-SMEs literature and identifies recurring patterns: capacity constraints (time, managerial attention, budget), reliance on informal and on-the-job learning, and uneven adoption of structured HRD practices across SMEs [Nolan and Garavan 2016]. For this manuscript, the key implication is that skills shortages cannot be treated only as external labour-market problems; they are also internal capability accumulation problems. Where

SMEs cannot train at scale, shortages persist even when labour is available.

Managerial capability is a particularly important sub-domain because management quality is a multiplier: it affects recruitment and retention, delegation and team structure, process design, performance management, and strategic planning under uncertainty. In micro and small firms, weak management systems can be binding even when markets are favourable, because execution depends on a thin leadership layer and informal routines. Later HR chapters therefore treat managerial capability as part of the skills domain and link it to survival and scaling outcomes.

5A.6 Family business, governance, and succession as an economic constraint

Ownership structure shapes incentives, time horizons, and continuity risks. In owner-managed and family-owned SMEs, decision-making can be agile and long-term oriented, but concentrated control creates key-person risk and succession vulnerability. The academic succession literature analyses not only who becomes successor but how succession is planned, governed, and executed. Poorly designed transitions can generate strategic drift, employee uncertainty, conflict, and underinvestment in the years leading up to transfer.

A systematic review by Reif and co-authors synthesises family-firm succession research and distinguishes two dominant streams: work on succession candidates (family versus non-family successors) and work on succession process models (planning, development, onboarding, and transition governance) [Reif et al. 2025]. The review emphasises that succession outcomes depend on governance structures and preparation, not only on whether the successor is inside or outside the family.

For the Europe+ atlas, the succession literature provides mechanism logic that complements development-bank monitoring evidence. It motivates treating succession as a cross-domain constraint: succession uncertainty can depress investment, slow digital upgrading, and weaken talent retention if employees and suppliers doubt continuity. In the socio-ecological framework, succession spans individual, interpersonal, and firm levels, but it is shaped by ecosystem-level markets for business transfers and national-level tax and legal frameworks.

5A.7 Digital transformation and AI adoption in SMEs: capabilities, strategy, and uneven readiness

Digital transformation research treats technology adoption as a capability-building process rather than a one-off investment decision. For SMEs, this capability lens is essential because digital tools and AI systems require complementary assets: data quality, process standardisation, cybersecurity hygiene, workforce skills, and managerial routines that integrate technology into operations. Without these complements, the productivity payoff from technology investment is often limited and experimentation can remain superficial.

Empirical research on AI adoption in SMEs tests these complementarity mechanisms. Arroyabe and co-authors analyse AI adoption in SMEs using dynamic capabilities and resource dependency theories, finding that digital capabilities and innovation capabilities, together with environmental support, are

associated with higher likelihood of AI adoption [Arroyabe et al. 2024]. The practical implication is that SMEs lacking digital foundations may adopt AI tools tactically but fail to embed them into processes that deliver durable productivity gains.

OECD work complements this by proposing SME AI adoption typologies. An OECD paper distinguishes SME adopter profiles based on digital maturity and strategic intent and argues that support needs differ: some SMEs need foundational digitisation and data management, others need targeted AI skills and governance tools, and a smaller subset needs advanced compute and specialised talent [OECD 2025]. In this manuscript, these insights are used to connect national digital readiness indicators and barrier surveys to realistic adoption pathways.

5A.8 Regulation, compliance costs, and transaction-cost burdens

Transaction-cost economics and compliance-cost research emphasise that many regulatory obligations are fixed-cost tasks: record keeping, reporting, documentation, audits, and procedural updates. Because fixed costs do not scale down with firm size, compliance burdens are regressive: SMEs incur higher costs per unit of turnover and often divert owner time to compliance rather than strategy, growth, and training.

Quantitative measurement of compliance costs is difficult, but targeted studies provide anchors. A European Commission study on tax compliance costs estimates administrative burdens associated with tax filing across EU Member States and the UK. It reports substantial time and monetary costs that fall disproportionately on smaller enterprises and vary significantly across jurisdictions, indicating that national implementation and administrative design matter for SME burden intensity [European Commission DG GROW 2022].

At the supranational level, complexity also arises from interactions among regulations. A European Parliament analysis of overlaps and interdependencies across EU digital regulations discusses how such complexity can challenge smaller actors without specialist legal capacity and highlights the importance of coherent compliance guidance [European Parliament 2025]. This provides policy-research grounding for the EU AI Act chapter and supports the broader proposition that fragmentation and regulatory layering create scaling frictions for SMEs and startups.

5A.9 Entrepreneurship ecosystems, gazelles, and scaling outcomes

High-growth firm research shows that a small subset of firms account for disproportionate shares of net job creation and productivity dynamics. Gazelles are commonly defined as young high-growth firms, but the research emphasises heterogeneity: high growth is often episodic and context-dependent rather than a stable firm trait. This matters for Europe+ analysis because it shifts attention from average firm outcomes to the conditions that make high-growth episodes more likely and more sustainable.

Reviews of the high-growth literature argue that institutions, market size, and access to finance influence the probability that high-growth episodes occur and persist [Henrekson and Johansson

2010]. In practice, a country can generate many new firms yet produce fewer gazelles if growth-stage finance is scarce, cross-border scaling costs are high, and labour markets or management capabilities constrain organisational scaling.

In the socio-ecological model, gazelle emergence is an outcome of stacked conditions across levels: founder ambition and skills, team formation and governance, operational capabilities, availability of customers and finance, and regulatory and market integration conditions. Later chapters therefore evaluate gazelle outcomes through this multi-level lens rather than presenting them as a purely cultural or entrepreneurial-attitude phenomenon.

5B. Using the literature spine in a Europe+ comparative atlas

The academic literature review is operationalised in this manuscript through three concrete devices used throughout later chapters.

First, each domain chapter includes an explicit mechanism map grounded in scholarship. The finance chapter links survey evidence on credit tightening to credit-rationing and collateral models and uses investment and scaling outcomes as consistency checks. The late payments chapter links payment-discipline monitoring to trade-credit and bank-channel mechanisms and then evaluates whether late-payment prevalence aligns with SME finance constraints and weaker survival patterns for young firms.

Second, the country atlas applies a triangulation rule to interpretation. When a country shows weaker outcomes, the narrative does not assign causality to a single factor. Instead, it checks whether multiple indicators align with the mechanism families defined in the literature. Alignment is treated as a mechanism-consistent pattern that motivates further explanation and policy relevance; misalignment is treated as a prompt to re-check measurement, sector composition, or definitional differences.

Third, Appendix D provides an annotated academic literature register. Each entry gives a short “what this work found” capsule so that later chapters can cite content rather than merely naming sources. The register is organised by the same problem domains and socio-ecological levels used in the book to maintain conceptual consistency.

Endnotes — Part II

Endnote II.1 — Levels are nested and interacting. Constraints can be proximate at one level (firm capability) yet driven or amplified at other levels (ecosystem, institutions, supranational systems).

Endnote II.2 — Constraint bundles. Binding constraints are treated as interacting bundles rather than single causes unless a cited research design supports causal inference.

Endnote II.3 — Propositions are evaluated as consistency patterns in the atlas (do indicators move in the theoretically expected direction) rather than as universal causal claims.

Literature — Part II

Key sources (full references):

- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- European Investment Bank (EIB). (2025). EIB Investment Survey 2025. European Investment Bank. <https://doi.org/10.2867/4791610>
- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- Henrekson, M., & Johansson, D. (2010). Gazelles as job creators: A survey and interpretation of the evidence. *Small Business Economics*, 35(2), 227–244. <https://doi.org/10.1007/s11187-009-9172-z>
- OECD. (2025). AI adoption by small and medium-sized enterprises: OECD discussion paper for the G7. OECD Publishing. <https://doi.org/10.1787/426399c1-en>

Additional sources cited in this Part (author–year as cited in text):

- Arroyabe et al. (2024)
- Berger and Udell (1998)
- Dealroom (2025a)
- Dealroom (2025b)
- ECB (2025)
- EIB (2025)
- EIB (2025a)
- EIC (2025b)
- EIF (2025)

- ENISA (2024)
- European Commission (2003)
- European Commission DG GROW (2022)
- European Union (2022)
- Kaya (2024)
- KfW (2024a)
- KfW (2025)
- KfW (2026)
- Nolan and Garavan (2016)
- OECD (2024)
- Reif et al. (2025)
- Stiglitz and Weiss (1981)
- Wagenvoort (2003)

Part III — Europe+ data, comparability, and methods

6. Europe+ research design

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity), and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

7. Data sources, harmonization, and empirical methods

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Table T1. Europe+ indicator-to-source map (comparability spine and triangulation).

Indicator domain	EU27 primary (spine)	UK (parallel spine)	Switzerland (anchor)	Norway (anchor)	Comparability notes
Business demography (births/deaths/survival)	Eurostat business demography / entrepreneurship indicators	ONS Business Demography	BFS business demography	SSB enterprise demography	Survival is cohort-based and lagged; always report cohort year
Scaling proxies (HGE/gazelles)	Eurostat HGE/gazelles (availability varies)	UK: use national proxies where series differ	National high-growth proxies where available	National high-growth proxies where available	Do not equate enterprise births with venture startups
Firm barriers (skills, energy, regulation, uncertainty)	EIB Investment Survey (EU/country tables)	UK: BBB + business surveys	CH: national surveys where available	NO: national surveys where available	Interpret as bundles; avoid single-cause claims
Payment discipline / late payments	EU Payment Observatory; Single Market report	UK late-payment evidence	CH: business transfer/payment practice evidence	NO: payment practice evidence	Treat as working-capital constraint (Level 4/5)
Digital readiness	Eurostat digital intensity; DESI (EU)	UK digital adoption indicators	CH digitalisation indicators	NO digitalisation indicators	Combine adoption metrics with skills constraints
Energy / input costs	Eurostat non-household electricity prices	UK energy prices (non-domestic)	CH electricity prices (non-household)	NO electricity prices (non-household)	Interpret with sector structure and energy mix
VC & startup finance (venture subset)	Dealroom; Invest Europe; EIF Equity Survey	Same + BBB equity/returns deep-dive	Swiss VC Report / ecosystem sources	NO ecosystem sources	VC is venture subset layer; report alongside births/survival

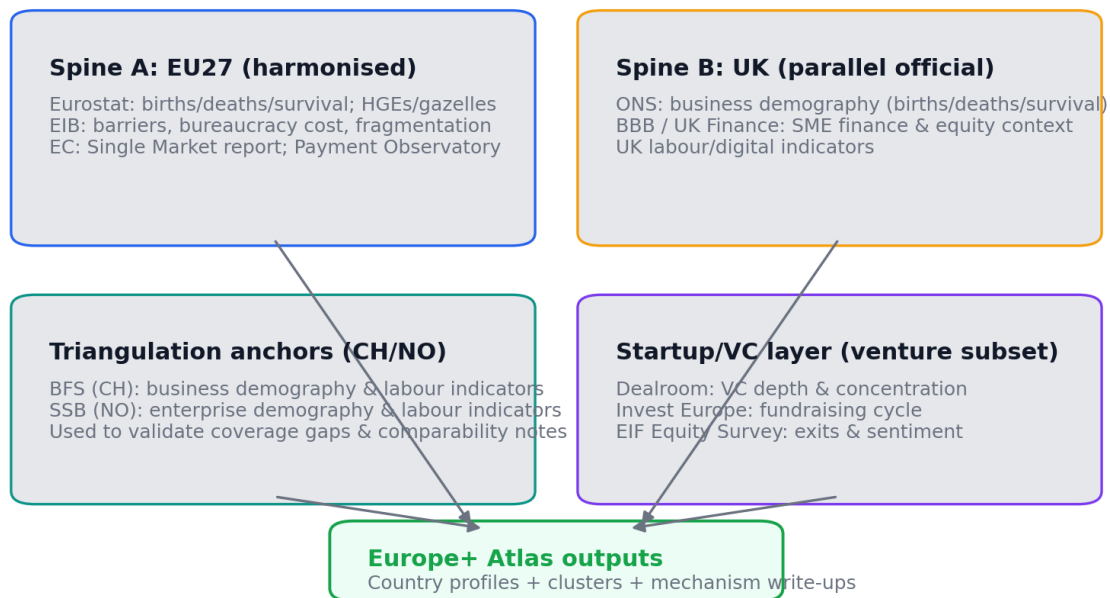


Figure F2. Evidence architecture for Europe+ comparability (EU27 spine + UK parallel spine + CH/NO anchors + VC layer).

7.6 Cross-country axes, clustering procedure, and robustness checks

Axes operationalisation. Each axis is defined as a small set of observable indicators that map to a theoretical construct, so the cross-country synthesis does not rely on subjective labels. The minimum axis set used in Part VII is: A1 Business dynamics/resilience: enterprise birth rate, death rate, and cohort survival (1/3/5-year) and—when available—scaling proxies (HGE share; gazelles). A2 Labour tightness/skills constraints: job vacancy rate (or national equivalent) plus EIB barrier prevalence for “availability of skilled staff” where available. A3 Payment discipline / working-capital risk: late-payment prevalence and payment periods (Payment Observatory; Commission competitiveness reporting). A4 Administrative burden / fragmentation: EIB bureaucracy cost estimates and compliance staffing share; EIB fragmentation perception where available. A5 Cost exposure: non-household electricity price indicators and sector exposure narratives (energy-intensive manufacturing vs services). A6 Venture scaling capacity: VC intensity (level and per GDP/per capita), stage mix (seed vs growth), and cycle context (fundraising/exits constraints). **Standardisation.** Where indicators have different units, the synthesis uses transparent normalisation rules recorded in the workbook (e.g., per-GDP VC; z-scores within the Europe+ sample for axis aggregation). The book reports both the raw indicators and the axis score so readers can see what drives the classification. **Clustering procedure** (descriptive, not causal). Countries are grouped using a simple, replicable clustering method on the axis scores (hierarchical clustering with Ward linkage as the default; k-means as a sensitivity check). The purpose is narrative compression: clusters summarise “constraint bundle profiles” across Europe+. Cluster labels are assigned post-hoc based on which axes are above/below sample median; the book avoids cultural stereotypes and ties labels to indicators (e.g., “high dynamism / weak payment discipline” rather than “Southern cluster”). **Robustness checks.** The synthesis runs three robustness checks, all recorded in the workbook: R1 Cohort lag robustness: survival comparisons

always display the cohort year; sensitivity tables repeat the clustering with 3-year survival only (less lagged) to check stability. R2 Indicator availability robustness: if gazelles/HGE are missing for some countries, the clustering is rerun without the scaling proxy axis component to ensure clusters are not artefacts of missingness. R3 Source triangulation robustness: where a constraint layer can be measured via two sources (e.g., finance conditions via SAFE and via OECD scoreboard context; VC cycle via Invest Europe and via EIF survey), the narrative diagnosis is checked for consistency, and divergences are explicitly discussed as “evidence disagreement,” not smoothed away. Evidence base. Eurostat and ONS/BFS/SSB establish the official demography spines; EIB and ECB SAFE provide comparable barrier/finance layers; Commission Payment Observatory provides late-payment evidence; Dealroom, Invest Europe and EIF provide venture scaling evidence. [Eurostat 2025a; ONS 2026a; BFS 2025a; SSB 2025c; EIB 2025a; ECB 2025a; European Commission 2025a; Dealroom 2025a; Invest Europe 2025a; EIF 2025]

Endnotes — Part III

Endnote III.1 — Cohort lag in survival. Five-year survival is structurally lagged and is used as a resilience baseline; 1- and 3-year survival provide more timely signals.

Endnote III.2 — Two-spine comparability. EU27 uses Eurostat; UK uses ONS business demography; Switzerland and Norway use their national series where needed. Triangulation is applied when definitions, coverage or reference periods differ.

Endnote III.3 — Venture indicators are a subset. VC and scale-up finance measures describe the venture-backed subset of startups and scale-ups and are not interpreted as total business formation.

Literature — Part III

Key sources (full references):

- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- European Investment Bank (EIB). (2025). EIB Investment Survey 2025. European Investment Bank. <https://doi.org/10.2867/4791610>

Additional sources cited in this Part (author–year as cited in text):

- BFS (2025a)
- Dealroom (2025a)
- ECB (2025a)
- EIB (2025a)
- EIF (2025)
- ONS (2026a)
- SSB (2025c)

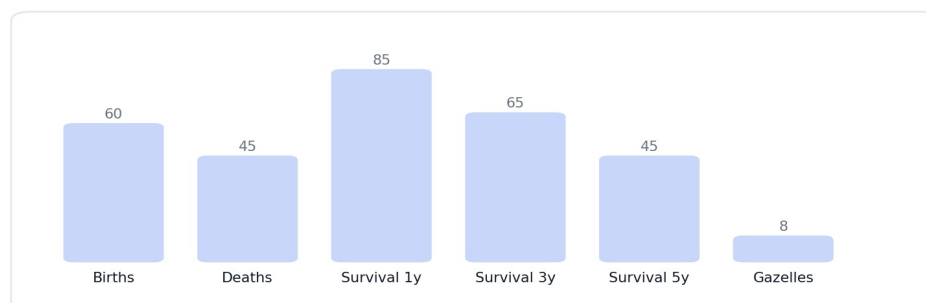
Part IV — SME challenge domains

Chapter 8 — Business dynamics and survival in Europe+

enterprise births, deaths, survival, and scaling outcomes. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or

cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Business dynamics dashboard (country profile module)



Note: values shown are illustrative layout only. In the atlas, values are populated from Eurostat/ONS/BFS/SSB series with cohort-year notes.

Figure F4. Business dynamics dashboard template (births, deaths, survival 1/3/5-year, gazelles).

8.1 Why “business dynamics” is a core SME problem domain

A large share of SME “problems” only becomes visible when you look at entry, exit, and survival. Many constraints (late payments: working-capital strain from slow customer payment; energy costs: operating-cost exposure that squeezes margins; administrative burden: fixed-cost reporting/compliance burden; credit tightening: access-to-finance frictions (cost, collateral, availability); skills shortages: recruitment/retention/upskilling constraints) do not always show up immediately in GDP or employment statistics; instead they show up as:

- fewer new firms entering,
- more firms exiting (or not surviving to year 3 or 5),
- fewer young firms achieving high growth (gazelles/high-growth enterprises).

Business demography therefore functions as the outcome layer of the socio-ecological model in Part II: it tells us whether the environment produces resilient firm cohorts or fragile ones. Evidence detail: EU monitoring reports that more than half of companies indicated problems linked to late payments in 2024, and EU B2B payment times increased from 52 days (2022) to 62 days (2024), which translates directly into higher working-capital strain for SMEs. [European Commission 2025b; European Commission 2025a]

8.2 Core definitions and measurement

Europe+. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external

environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This subsection explains finance as an operating constraint that becomes visible in day-to-day decisions—whether the firm can bridge receivable delays, finance inventory, invest in equipment, or sustain hiring while demand fluctuates.

SME finance differs structurally from large-firm finance because information is thinner, collateral is limited (especially in services and digital SMEs), and transaction costs of lending do not scale down well. The result is a financing ‘ceiling’ at specific growth transitions: moving from owner-operated micro scale to formalised small-firm processes, or from small to medium scale with export-related working-capital needs.

Empirically, the manuscript triangulates this domain with SAFE (euro-area finance conditions), OECD financing scoreboards (cross-country comparability beyond the euro area), and late-payment evidence (Payment Observatory) because liquidity stress is often driven by payment behaviour rather than by profitability.

official demography. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

For EU comparisons, Eurostat business demography provides the canonical definitions for:

- enterprise births (new enterprises entering the register under criteria designed to exclude mere reorganisations),
- enterprise deaths, and
- survival rates (the proportion of a birth cohort still active after 1/3/5 years). [Eurostat 2025a]

For Europe+, the UK is measured via the UK’s official business demography series published by the Office for National Statistics. [Eurostat 2025e]

Switzerland and Norway are supported through their national statistical demography outputs (used

both for country chapters and to cross-check coverage differences in harmonised series). [Eurostat 2025a][European Commission 2023]

8.2.2 Survival is cohort-based

and lagged. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A critical methodological point: five-year survival cannot be “current” by design; it refers to cohorts born at least five years earlier. Eurostat’s documentation and “key figures” outputs make this lag explicit and provide a baseline reference for EU-level survival comparisons. [Eurostat 2025f]

Implication: treat 5-year survival as a structural resilience baseline; use 1- and 3-year survival for timelier signals.

8.3 What business demography reveals about “typical problems”

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

8.3.1 The “fragility baseline”

A Europe-wide baseline of survival (especially 3- and 5-year survival) operationalizes the liability of newness/smallness: many firms do not survive long enough to invest, professionalize, and scale. Eurostat’s EU27 key figures show that less than half of a cohort may survive to year 5 (with substantial cross-country variation). [Eurostat 2025f]

This baseline is not a “problem” by itself; it is the system’s stress test result—showing how strongly the environment filters new and small firms.

8.3.2 Cross-country variation is the research opportunity

The comparative value is not “Europe has churn,” but that Europe has different churn profiles:

- Some countries show high entry but weaker medium-term survival (dynamic but fragile cohorts).
- Others show moderate entry but strong survival (stable but potentially less entrepreneurial dynamism).
- Some show relatively stronger high-growth/gazelle outcomes (more scaling), while others generate births but fewer high-growth trajectories.

These patterns become the quantitative foundation for your country clusters in Part VII.

8.4 Linking “problems” to dynamics

mechanisms you can test in the atlas. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Business demography is the outcome layer; to explain variation you connect it to constraint layers.

Mechanism A — Late payments to liquidity stress to higher exit risk

Late payments reduce working capital stability. The EU Payment Observatory reports that a large share of European firms report late-payment problems and documents worsening dynamics in recent years. [European Commission 2025j]

This mechanism predicts worse survival among SMEs in environments with persistent late payment culture and long payment periods (tested as a consistency check, not asserted as causal proof).

Mechanism B — Administrative burden to fixed cost pressure to exit and non-scaling

The Annual Single Market & Competitiveness Report treats administrative burden as a central obstacle for firms (including SMEs), reinforcing the “fixed cost burden” proposition from Part II. [European Commission 2025a]

Where this burden is high, the expectation is not only lower profitability; it can show up as:

- fewer births (discouraged entry), and/or
- lower survival (reduced buffers), and/or
- fewer high-growth outcomes (management time diverted to compliance).

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights

administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

Mechanism C — Skills shortages to constrained capacity to slower maturation and scaling

The European Investment Bank Investment Survey reports high prevalence of skills shortages and other barriers (energy costs: operating-cost exposure that squeezes margins; regulation: fixed-cost reporting/compliance burden; uncertainty: capability and investment gaps in digital systems/data), offering a comparable barrier distribution layer across countries and firm sizes. [EIB 2025]

In the demography layer, the theory-consistent pattern is: where skill constraints are more binding, firms may struggle to professionalize and stabilize, which can reduce survival and scaling potential.

8.5 Size, sector, and market orientation

why “SMEs” are not homogeneous. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This chapter treats heterogeneity as core science, not a footnote.

8.5.1 Firm size

micro vs small vs medium. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Micro firms are most sensitive to fixed-cost shocks (compliance: fixed-cost reporting/compliance burden; cyber incidents; payroll shocks) and working-capital instability (late payments).

Small firms often face the tightest HR constraint (they must compete for talent but cannot always match wages/benefits).

Medium firms may face stronger exposure to energy/input costs and cross-border complexity (especially exporters).

Empirical rule in the atlas: when survival-by-size is used, document how size class is defined in the underlying statistics (some demography series record size at birth, not current size). [Eurostat 2025f]

8.5.2 Sector and value chain position

B2B subcontractors and firms with low bargaining power are more exposed to late-payment asymmetries.

Energy-intensive manufacturing SMEs are more exposed to energy price differences.

Knowledge-intensive services rely more on human capital and intangible assets, linking survival/scaling more strongly to skills and finance structure.

8.6 Practical outputs from Chapter 8 for your book

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

This subsection explains finance as an operating constraint that becomes visible in day-to-day decisions—whether the firm can bridge receivable delays, finance inventory, invest in equipment, or sustain hiring while demand fluctuates.

SME finance differs structurally from large-firm finance because information is thinner, collateral is limited (especially in services and digital SMEs), and transaction costs of lending do not scale down well. The result is a financing ‘ceiling’ at specific growth transitions: moving from owner-operated micro scale to formalised small-firm processes, or from small to medium scale with export-related working-capital needs.

Empirically, the manuscript triangulates this domain with SAFE (euro-area finance conditions), OECD financing scoreboards (cross-country comparability beyond the euro area), and late-payment evidence

(Payment Observatory) because liquidity stress is often driven by payment behaviour rather than by profitability.

Chapter 9 — Finance and liquidity constraints

debt finance: access-to-finance frictions (cost, collateral, availability), working capital, credit conditions: access-to-finance frictions (cost, collateral, availability), and the SME-specific channels. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

9.1 Why finance is a “typical problem” for SMEs

This subsection explains finance as an operating constraint that becomes visible in day-to-day decisions—whether the firm can bridge receivable delays, finance inventory, invest in equipment, or sustain hiring while demand fluctuates.

SME finance differs structurally from large-firm finance because information is thinner, collateral is limited (especially in services and digital SMEs), and transaction costs of lending do not scale down well. The result is a financing ‘ceiling’ at specific growth transitions: moving from owner-operated micro scale to formalised small-firm processes, or from small to medium scale with export-related working-capital needs.

Empirically, the manuscript triangulates this domain with SAFE (euro-area finance conditions), OECD financing scoreboards (cross-country comparability beyond the euro area), and late-payment evidence (Payment Observatory) because liquidity stress is often driven by payment behaviour rather than by profitability.

and different for startups. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

SMEs face a structurally different financing environment than large firms because:

- information is more opaque (shorter track record),
- collateral is thinner (especially in services),
- financing needs are often small but transaction costs of lending are not,
- cash flows are more volatile and more exposed to customer payment behavior.

Startups are different again: venture-oriented startups often have high intangible investment needs and limited collateral, making bank debt less suitable; they rely more on equity or quasi-equity (developed fully in Part V).

9.2 Evidence base and what it measures

This subsection explains finance as an operating constraint that becomes visible in day-to-day decisions—whether the firm can bridge receivable delays, finance inventory, invest in equipment, or sustain hiring while demand fluctuates.

SME finance differs structurally from large-firm finance because information is thinner, collateral is limited (especially in services and digital SMEs), and transaction costs of lending do not scale down well. The result is a financing ‘ceiling’ at specific growth transitions: moving from owner-operated micro scale to formalised small-firm processes, or from small to medium scale with export-related working-capital needs.

Empirically, the manuscript triangulates this domain with SAFE (euro-area finance conditions), OECD financing scoreboards (cross-country comparability beyond the euro area), and late-payment evidence (Payment Observatory) because liquidity stress is often driven by payment behaviour rather than by profitability.

The European Central Bank SAFE survey provides repeated measurement of access-to-finance conditions for enterprises in the euro area (availability perceptions: capability and investment gaps in digital systems/data; demand; changes in terms/conditions; and obstacles). [ECB 2025.]

SAFE is essential for:

- documenting cyclical tightening/loosening in SME finance,
- distinguishing “demand for finance” from “availability,”
- linking financing constraints to other reported barriers.

9.2.2 Cross-country SME finance scoreboard: OECD

The OECD financing scoreboard consolidates cross-country evidence on SME financing trends, cost of finance, and policy measures. [Swiss Federal Statistical Office (FSO) 2025.]

This is used for:

- Europe+ comparability beyond the euro area,

- triangulating national/development bank narratives against a standardized cross-country source base.

9.2.3 UK deep-dive

development bank + banking association. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

For the UK, the British Business Bank provides structured evidence on small business finance markets, including debt and equity conditions and market structure. [KfW 2026]

Complementarily, UK Finance provides periodic summaries of lending trends. [ONS 2025]

These allow a strong UK chapter without forcing euro-area SAFE concepts onto non-euro institutions.

Evidence note (key empirical findings of cited sources):

- KfW 2026: KfW press note (Jan 2026): documents rising purchase-price expectations in SME transfers and reiterates bureaucracy/administrative complexity as a factor shaping transfer feasibility and timing.
- ONS 2025: Source focus: Vacancies and jobs in the UK: December 2025 (PDF). (contains reported figures such as 2025, 2025; used here for its empirical indicators and cross-country comparability notes).

9.3 The SME finance problem set

what “typical challenges” look like. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

9.3.1 Working capital and liquidity risk

the late-payment channel. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Even when a firm is solvent on paper, it can be liquidity-constrained in practice. Late payments shift financing burdens down the supply chain:

- SMEs finance customers’ payment delays through their own working capital,
 - which increases reliance on overdrafts — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
 - factoring — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
 - or short-term credit — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- and increases vulnerability to credit tightening.

The EU Payment Observatory provides Europe-wide evidence that late payments remain widespread and have worsened in many contexts. [European Commission 2025]

This chapter treats late payments as a finance constraint because it forces SMEs into involuntary lending to customers.

9.3.2 Credit access: collateral and price

From theory, bank lending to SMEs is constrained by collateral and information. Empirically, SAFE provides a systematic way to measure:

- whether SMEs report finance as a pressing problem,
 - whether terms have tightened (interest rates — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
 - collateral) — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- and whether firms are discouraged borrowers. [ECB 2025.]

OECD evidence supports cross-country comparison of SME cost-of-finance environments and policy countermeasures. [Swiss Federal Statistical Office (FSO) 2025.]

9.3.3 Refinancing and interest-rate sensitivity

SMEs typically have less access to bond markets and large diversified funding pools. This makes them more sensitive to:

- shifts in bank standards,
- refinancing conditions,
- and interest rate levels (especially when margins are thin).

This channel is not measured by one number; it is reconstructed via:

- SAFE indicators (euro area),
- national market reports (UK),
- and OECD cross-country financing context. [ECB 2025.][KfW 2026][ONS 2025][Swiss Federal Statistical Office (FSO) 2025.]

9.4 Linking finance constraints to investment and resilience

mechanism logic. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This chapter translates finance conditions into the mechanisms from Part II.

Mechanism D — Liquidity constraint to underinvestment

When liquidity is strained (late payments, tighter short-term credit), SMEs tend to delay:

- digital investment,
- equipment upgrades,
- hiring,
- training, even if long-run returns are positive.

Late-payment evidence and EU competitiveness reporting provide the system-level context (payment periods and the spread of late-payment problems). [European Commission 2025a][European Commission 2025j]

Mechanism E — Finance frictions to “growth ceiling”

SMEs may remain “stuck” below a size threshold because:

- growth requires working capital,
- investments are lumpy,
- and financing becomes a binding constraint at specific transition points (e.g., moving from micro to small, or from small to medium).

SAFE is used to identify where finance becomes binding relative to other constraints, while business demography outcomes (Chapter 8) show whether that environment is producing high-growth outcomes. [ECB 2025a; Eurostat 2025f]

9.5 Differences by firm type

SMEs vs startups vs scale-ups. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

9.5.1 Established SMEs

debt-dominant. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Typical problems: collateral requirements, refinancing sensitivity, working capital volatility, late payments.

9.5.2 Startups

equity-dominant or hybrid. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Typical problems: runway, risk capital availability, stage gaps, exit markets. These are analyzed with the startup/VC evidence base (Dealroom; Invest Europe; EIF survey) in Part V and are not substituted by enterprise birth data. [Dealroom 2025a][EIF 2025]

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

late-stage gap risk. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Even in countries with healthy early-stage funding, late-stage finance may be thinner and more internationally competitive; that gap becomes a binding constraint for scaling (fully assessed in Part V).

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Country profiles report a finance-and-liquidity panel as a three-layer evidence package: (i) the firm-reported access-to-finance constraint layer, (ii) the system-level working-capital layer (late payments), and (iii) the outcome consistency checks (survival/exit pressure). This makes finance interpretable as a constraint bundle rather than a single number.

A. Comparable indicators (reported as values, not narratives)

1) Euro-area finance conditions (SAFE). For euro-area countries, the profile reports: (a) the share of firms naming access to finance as their most pressing problem; (b) perceived availability of bank loans/credit lines; (c) changes in terms (interest rates; collateral; other costs) and (d) discouraged borrowing. These SAFE indicators are used as the comparable cyclical signal of tightening/loosening. [ECB 2025a]

2) Cross-country finance context (OECD scoreboard). For all Europe+ countries, the profile adds OECD scoreboard indicators on SME lending volumes, interest rate spreads/cost of finance, and policy guarantee context to triangulate whether SAFE-style tightening is visible in broader financing data and to cover non-euro countries. [OECD 2024]

3) Working-capital risk (late payments). The profile reports late-payment prevalence and payment-period indicators from the EU Payment Observatory / Commission competitiveness reporting where available, because liquidity constraints can arise even when loan markets are stable. [European Commission 2025b; European Commission 2025a]

B. Interpretation rules (how the atlas converts indicators into a diagnosis)

Rule B1 — Binding finance constraint. Finance is classified as a binding constraint when SAFE indicates high problem salience or tightening terms AND the country shows weak investment/low survival resilience in the outcome layer. The diagnosis explicitly states which SAFE components drive the classification (availability vs cost vs collateral vs discouraged borrowing). [ECB 2025a; Eurostat 2025a]

Rule B2 — Working-capital dominated constraint. Finance is classified as working-capital dominated when late-payment prevalence/payment periods are high relative to peers, and the narrative diagnosis emphasises receivables-driven liquidity stress (growth increases payroll faster than cash inflows). This classification links the finance module to the payment discipline chapter and is treated as a mechanism rather than a moral judgement. [European Commission 2025b]

Rule B3 — Heterogeneity by firm type. The profile states which firm segment is most exposed: micro firms (cash buffers thin), small firms (credit access and HR interaction), and medium firms (investment/refinancing and export-related needs). Where the source supports segmentation, the profile reports the segmented indicator; otherwise it flags the limitation. [ECB 2025a; OECD 2024]

C. Workbook traceability (reproducibility)

Every dashboard value used in the finance module is traceable to a workbook row (source; indicator name; period; unit; extraction note). Where a value is derived (e.g., normalised cost-of-finance

measures), the workbook records the formula and input series. This prevents “finance narrative drift” across countries.

Chapter 10 — Late payments and payment discipline as a Europe-wide liquidity problem

This chapter is expanded from a “single-issue” problem into a cross-cutting liquidity mechanism that links to survival (Chapter 8), investment (Chapter 9), and scaling capacity (Part V).

10.1 What the Europe-wide evidence says

and why it is not a niche issue. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Late payments are a system-level liquidity transfer: buyers delay payment and effectively force suppliers—often SMEs—to provide short-term financing. The EU’s Payment Observatory compiles evidence that late payments remain widespread across Europe and that many firms report negative effects on cash flow, investment, and the ability to pay suppliers and staff. [European Commission 2025j]

The Annual Single Market & Competitiveness Report reinforces that late payments are not a marginal phenomenon but a structural obstacle for the business environment. It highlights deteriorating payment discipline in recent years and treats payment times as a competitiveness-relevant friction rather than merely a private contractual issue. [European Commission 2025a]

10.2 Mechanisms

how late payments propagate into “typical SME problems”. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Late payments act through several linked channels:

- 1) Working capital volatility: SMEs experience unpredictable cash inflows, increasing reliance on overdrafts and factoring.
- 2) Cost channel: when short-term credit is needed, higher interest rates translate payment delays into higher financing costs.
- 3) Risk channel: liquidity stress increases default risk, which can tighten supplier credit and bank terms.
- 4) Underinvestment channel: SMEs postpone digital, energy-efficiency, and training investments to preserve cash.

This is why the atlas treats late payments as part of a constraint bundle rather than a standalone issue. In the country chapters, late-payment signals are interpreted alongside finance conditions (SAFE/OECD), uncertainty, and administrative burden.

10.3 Cross-country patterns and which SMEs are most exposed

The exposure is not uniform. SMEs are more exposed when they are (a) low bargaining power suppliers in B2B chains, (b) concentrated on a small number of large customers, or (c) operating in sectors with long contractual cycles (construction; certain manufacturing supply chains: capability and investment gaps in digital systems/data; professional services with milestone billing). Public-sector payment practices can also matter in some countries.

In the atlas, this heterogeneity is handled by treating late payments as an ecosystem-level constraint (Level 4) that is shaped by institutional enforcement (Level 5) and amplified by macro finance conditions (Level 6).

Late payment is not just a “bad practice”; it is a structural liquidity mechanism that shifts financing needs down the supply chain. When customers pay late, suppliers—often SMEs—provide involuntary trade credit and absorb cash-flow volatility, higher short-term financing needs (overdraft/factoring), delayed investment, and elevated insolvency risk.

Measurement and credibility. The EU Payment Observatory provides EU-wide evidence on (a) the share of firms reporting late-payment problems and (b) payment-period patterns by transaction type. The Observatory’s 2025 summary reports that 52% of European companies indicated they faced issues due to late payments in 2024. [European Commission 2025b] The Observatory analysis reports that average payment periods exceed 60 days in both B2B and G2B transactions and that governments pay later than businesses in every Member State. [European Commission 2025j]

System deterioration signal. The Annual Single Market & Competitiveness Report states that actual payment times in B2B transactions rose from 52 days (2022) to 62 days (2024), indicating worsening payment discipline at system level. [European Commission 2025a]

Cross-country differences and asymmetry. The Observatory highlights country variation and emphasizes a consistent power-asymmetry pattern: larger companies are less likely to pay on time, implying regressive effects on SMEs. [European Commission 2025j]

Mechanism chains.

(10A) Late payments → working-capital squeeze → underinvestment (postponed equipment; digital upgrades: capability and investment gaps in digital systems/data; hiring and training: capability and investment gaps in digital systems/data).

(10B) Late payments → short-term borrowing → higher cost of capital and margin compression.

(10C) Late payments → contagion and cascading failures (delay propagation through supply networks).

Policy interpretation. Late payments are policy-relevant because public-sector payment practices and enforcement mechanisms shape outcomes, and because payment discipline behaves like an institutional “business climate” parameter in comparative analysis. [European Commission 2025j; European Commission 2025a]

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

Chapter 11 — Costs and margins

energy, input prices, and and the cost-competitiveness squeeze. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This chapter is expanded to connect energy/input cost shocks to (i) margin compression, (ii) investment postponement, and (iii) cross-country competitiveness divergence.

11.1 What the Europe-wide evidence shows

The EIB Investment Survey identifies energy costs as one of the most frequently reported obstacles for EU firms in recent years, alongside uncertainty, regulation, and skills. SMEs are particularly exposed because they typically have less hedging capacity and less ability to pass through costs immediately. [EIB 2025]

The EU's competitiveness monitoring frames payment discipline deterioration (longer payment times) and administrative burden together with the cost environment; this matters because cost shocks become more damaging when liquidity and managerial bandwidth are already strained. [European Commission 2025a]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

11.2 Mechanisms

why costs translate into “SME problems” faster than for large firms. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Cost shocks propagate through three SME-specific channels:

- 1) Thin-buffer channel: smaller cash buffers mean margin shocks convert quickly into liquidity stress.
- 2) Pass-through channel: SMEs often have lower pricing power and face longer contract cycles; pass-through is delayed.
- 3) Investment squeeze channel: when internal funds fall, investment in digitalisation, training, and energy efficiency is postponed.

The bundle logic is central: energy costs become most damaging when they interact with uncertainty (option value of waiting), finance tightening (higher cost of liquidity), and skills constraints (slower implementation of efficiency improvements). [EIB 2025]

11.3 Cross-country divergence and the atlas interpretation rule

The atlas does not claim a single “energy price ranking” explains performance. Instead it uses an interpretation rule:

- If a country exhibits weaker investment and weaker survival outcomes in a period where firms report high energy costs and uncertainty (EIB), this supports a cost-shock bundle interpretation.
- If survival remains strong despite cost reports, the book interprets this as evidence of better buffers, stronger pass-through, or mitigating institutions (support measures; sector mix; contract structures).

This rule is applied cautiously: cost reports are not taken as proof of causality, but as consistent mechanism evidence when aligned with outcomes. [EIB 2025][Eurostat 2025f]

SMEs are typically less able than large firms to hedge energy price risk, negotiate long-term input contracts, pass through costs quickly, or finance inventory buffers. As a result, cost shocks show up as margin compression, delayed investment, and reduced hiring and training—often culminating in exits for the most fragile firms. Evidence detail: the EU-wide barrier distribution identifies “availability of skilled staff” as one of the most frequently reported obstacles (reported by 79% of EU firms), alongside uncertainty (83%), energy costs (75%), and business regulation (69%). [EIB 2025a]

Europe-wide barrier evidence. The EIB Investment Survey highlights energy costs among the most frequently cited impediments alongside skills availability, regulation, and uncertainty, framing energy as a competitiveness dimension for EU firms. [EIB 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

Comparable cross-country measurement. Eurostat electricity price statistics provide comparable non-household price indicators (including a standard consumer band definition) and show large dispersion across countries. [Eurostat 2025d] This dispersion is analytically meaningful because many SMEs cannot relocate production quickly and have thin buffers, so national cost environments become durable competitiveness determinants.

Mechanisms.

(11A) Energy/input cost shock → incomplete pass-through → margin compression.

(11B) Margin compression → underinvestment (capex; digital: capability and investment gaps in digital systems/data; energy efficiency: operating-cost exposure that squeezes margins) and talent squeeze.

(11C) Interaction with liquidity and burden: high costs combined with late payments and administrative burden amplify fragility (margin squeeze + cash squeeze + bandwidth drain). [EIB 2025; European Commission 2025b; European Commission 2025a]

Chapter 12 — Skills, labour shortages, and management capacity

12.1 Why skills are a “typical” SME problem in Europe+

This subsection treats skills and labour constraints as an execution bottleneck rather than a generic ‘HR topic’. For SMEs, missing skills show up as delayed delivery, weaker quality systems, slower adoption of digital tools, and an inability to add management layers that make growth scalable.

The socio-ecological framing matters because ‘skills’ is produced by interactions across levels: firm-level wage and training capacity meets local labour-market tightness, the availability of training providers, and national institutions such as apprenticeship systems, migration policy and recognition of qualifications. In tight labour markets, the binding mechanism is often competition and wage pressure; in lower-vacancy environments, reported shortages can reflect mismatch (wrong skills, location, or job quality) and weak training pipelines rather than absolute scarcity.

In later country profiles this domain is anchored by comparable barrier prevalence evidence (EIB Investment Survey) and by labour-tightness proxies (Eurostat vacancy rates for EU countries, ONS/SSB/BFS analogues for UK/NO/CH), so the atlas can distinguish scarcity from mismatch and connect the interpretation to survival and scaling outcomes.

This subsection treats skills and labour constraints as an execution bottleneck rather than a generic ‘HR topic’. For SMEs, missing skills show up as delayed delivery, weaker quality systems, slower adoption of digital tools, and an inability to add management layers that make growth scalable.

The socio-ecological framing matters because ‘skills’ is produced by interactions across levels: firm-level wage and training capacity meets local labour-market tightness, the availability of training providers, and national institutions such as apprenticeship systems, migration policy and recognition of qualifications. In tight labour markets, the binding mechanism is often competition and wage pressure; in lower-vacancy environments, reported shortages can reflect mismatch (wrong skills, location, or job quality) and weak training pipelines rather than absolute scarcity.

In later country profiles this domain is anchored by comparable barrier prevalence evidence (EIB Investment Survey) and by labour-tightness proxies (Eurostat vacancy rates for EU countries, ONS/SSB/BFS analogues for UK/NO/CH), so the atlas can distinguish scarcity from mismatch and connect the interpretation to survival and scaling outcomes.

- ****Scale disadvantage in recruiting**** (lower employer brand, thinner HR capacity, fewer internal career ladders).
- ****Training investment frictions**** (fixed costs of training, risk of trained staff leaving, and limited time away from operations).
- ****Mismatch dynamics**** (vacancies can coexist with unemployment because the missing skills are specific—digital, technical, managerial, language/export, or regulated-profession credentials).

This domain sits across the socio-ecological model:

- **Level 3 (firm capabilities):** recruitment, retention, and training systems.
- **Level 4 (ecosystem):** local labour-market tightness, competition from large firms, and the presence of training providers.
- **Level 5 (national institutions):** education/apprenticeship systems, migration policy, and recognition of qualifications.
- **Level 6 (EU/system):** cross-border mobility and recognition, and the unevenness of a “single market for labour.”

12.2 Europe-wide evidence

skills as one of the most reported barriers. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A comparable EU-wide baseline comes from the European Investment Bank’s Investment Survey. In the **EIB Investment Survey 2025 EU overview**, the availability of skilled staff is one of the top reported barriers: **79%** of EU firms report it as a (minor or major) obstacle, alongside other leading obstacles including **uncertainty about the future (83%)**; **energy costs (75%)**; **business regulation (69%)**. [EIB 2025]

This subsection treats skills and labour constraints as an execution bottleneck rather than a generic ‘HR topic’. For SMEs, missing skills show up as delayed delivery, weaker quality systems, slower adoption of digital tools, and an inability to add management layers that make growth scalable.

The socio-ecological framing matters because ‘skills’ is produced by interactions across levels: firm-level wage and training capacity meets local labour-market tightness, the availability of training providers, and national institutions such as apprenticeship systems, migration policy and recognition of qualifications. In tight labour markets, the binding mechanism is often competition and wage pressure; in lower-vacancy environments, reported shortages can reflect mismatch (wrong skills, location, or job quality) and weak training pipelines rather than absolute scarcity.

In later country profiles this domain is anchored by comparable barrier prevalence evidence (EIB Investment Survey) and by labour-tightness proxies (Eurostat vacancy rates for EU countries, ONS/SSB/BFS analogues for UK/NO/CH), so the atlas can distinguish scarcity from mismatch and connect the interpretation to survival and scaling outcomes.

- 1) ****Skills constraints are not niche.**** The prevalence is broad enough to treat skills as a “typical” European SME challenge domain rather than a sector-only problem. [EIB 2025]
- 2) ****Skills is rarely isolated.**** In the same evidence base it appears alongside regulation, uncertainty, and costs—supporting the atlas logic of ****constraint bundles**** rather than single-factor explanations. [EIB 2025]

12.3 Measuring “tightness” and cross-country differences in labour scarcity

12.3.1 EU job vacancy rates

strong dispersion across Member States. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A harmonised indicator of labour-market tightness is the job vacancy rate published by Eurostat. In ****Q3 2025****, the EU vacancy rate was ****2.0%****, but dispersion across Member States was large: the highest vacancy rates were in ****the Netherlands (4.1%)**** and ****Belgium (3.8%)****, followed by ****Malta (3.4%)****, ****Austria (3.2%)****, and ****Cyprus (3.0%)****; the lowest were ****Romania (0.6%)****, ****Bulgaria (0.8%)****, ****Poland (0.8%)****, then ****Spain (0.9%)****, ****Slovakia (1.0%)****, and ****Finland (1.0%)****. [Eurostat 2025b]

Interpretation note (tightness vs mismatch): the same “skills problem” can reflect different mechanisms depending on labour-market tightness. In high-vacancy economies (e.g., those at the top of the Eurostat vacancy distribution), SMEs primarily face recruitment competition and wage pressure; in low-vacancy economies, reported skills problems more often reflect mismatch (credentials; occupation; location; or job quality) rather than aggregate scarcity. [Eurostat 2025h; EIB 2025a]

12.3.2 Europe+ non-EU

UK and Norway as evidence-based anchors. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This subsection treats skills and labour constraints as an execution bottleneck rather than a generic ‘HR topic’. For SMEs, missing skills show up as delayed delivery, weaker quality systems, slower adoption of digital tools, and an inability to add management layers that make growth scalable.

The socio-ecological framing matters because ‘skills’ is produced by interactions across levels: firm-level wage and training capacity meets local labour-market tightness, the availability of training providers, and national institutions such as apprenticeship systems, migration policy and recognition of qualifications. In tight labour markets, the binding mechanism is often competition and wage pressure; in lower-vacancy environments, reported shortages can reflect mismatch (wrong skills, location, or job quality) and weak training pipelines rather than absolute scarcity.

In later country profiles this domain is anchored by comparable barrier prevalence evidence (EIB Investment Survey) and by labour-tightness proxies (Eurostat vacancy rates for EU countries, ONS/SSB/BFS analogues for UK/NO/CH), so the atlas can distinguish scarcity from mismatch and connect the interpretation to survival and scaling outcomes.

- **United Kingdom:** ONS reports **729,000 vacancies** (Sep–Nov 2025, seasonally adjusted), broadly unchanged on the quarter and down year-on-year. [ONS 2025]
- **Norway:** Statistics Norway (SSB) maintains official quarterly statistics for job vacancies (including vacancies as a percentage of all positions), used as the “official tightness spine” for Norway (parallel to Eurostat for EU members). [SSB 2025a]
- **Switzerland:** Switzerland is handled similarly via the Swiss federal statistics “jobs statistics” vacancy indicators; the country chapter uses the Swiss official tightness series with explicit comparability notes rather than forcing Eurostat-only measures onto the dataset. [Swiss Federal Statistical Office (FSO) 2025.]

12.4 Skills shortages vs skills mismatch

what SMEs experience in practice. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how

higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

- **Shortage:** not enough people available at the required wage/conditions, often reflected in high vacancy rates and intense competition.
- **Mismatch:** people exist, but not with the required skills, credentials, location, or willingness to accept offered conditions—common in lower-vacancy environments.

Eurostat’s occupational vacancy statistics help ground mismatch and composition effects. For **EU 2024**, the highest occupational vacancy rate was for **“Sales, marketing and development managers”** (8.4%), indicating unusually high unmet demand in certain managerial/market-facing occupations. [Eurostat 2025e; Eurostat 2025f]

12.5 SME-specific mechanisms

why skills become a binding constraint. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism 12A — Skills scarcity constrains execution and creates a productivity ceiling

When hiring is slow or fails, SMEs face an execution bottleneck that is more severe than in large firms because tasks cannot be reallocated to specialised departments. The immediate outcome is a backlog of projects that require scarce skills: digital implementations (ERP/CRM and data governance), cybersecurity controls and monitoring, process automation, export expansion (language, compliance and logistics know-how), and the professionalisation of management layers (delegation, performance management and planning). Each delay has second-order effects: without these upgrades, processes remain manual, error rates remain higher, and growth remains dependent on a few individuals. Over time, this creates a productivity and scaling ceiling, consistent with Europe-wide evidence that skills constraints often co-occur with other binding barriers such as regulation and uncertainty. [EIB 2025a]

implement digital systems (ERP/CRM/cyber hygiene),

- expand production capacity,
- professionalise management layers,
- sustain export expansion (language/compliance/logistics skills), even when demand exists. — In

SMEs this is typically delayed because implementation requires both scarce skills and time away from daily operations; postponement reduces standardisation and limits scaling capacity.

This mechanism is consistent with EIB evidence that the “availability of skilled staff” is widely reported alongside other top constraints. [EIB 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

Mechanism 12B — Training frictions to persistent gaps

especially for SMEs. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Skills constraints persist when SMEs cannot train at scale. A UK-focused example shows the mechanism clearly: the Edge Foundation’s skills shortages bulletin summarises that SMEs face more barriers to increasing investment in training (lack of scale; high fixed costs of training; capability and investment gaps in digital systems/data; and lack of capacity) and cites evidence that small employers would increase training with cost support. [Edge Foundation 2025]

The mechanism generalises beyond the UK: in many European SMEs, training time competes directly with operations, and small teams make absence costly—so training is structurally harder than in large firms.

Mechanism 12C — Managerial capacity is a skills constraint

not a personality issue. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A recurring “skills” sub-domain for SMEs is managerial capability: hiring and delegation, process design, performance management, and strategic planning under uncertainty. EU competitiveness framing explicitly includes managerial skills as part of the skills constraint set affecting SMEs. [European Commission 2025a]

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

12.6 Cross-country comparison implications

For Europe+ comparison, ‘skills constraints’ are treated as a composite with three traceable components so that country chapters can explain **why** skills are binding, not merely that they are reported. First, barrier prevalence indicates how frequently firms report skills as an obstacle in comparable surveys (capturing perceived bindingness). Second, labour-market tightness provides a macro proxy for scarcity versus mismatch (high vacancy rates usually signal scarcity and wage competition; lower vacancy rates can still hide mismatch). Third, training and managerial-capability frictions explain persistence: SMEs can remain constrained even when markets are not extremely tight because training has fixed costs and small teams cannot release people from operations. Using these three components together prevents misleading comparisons—for example, equating a high-vacancy country’s recruitment scarcity with a lower-vacancy country’s mismatch and training bottleneck.

- 1) ****Barrier prevalence**** (EIBIS: how many firms report skills as an obstacle). [EIB 2025]
- 2) ****Tightness**** (job vacancy rates and dispersion; EU via Eurostat; UK via ONS; NO via SSB; CH via BFS). [Eurostat 2025b; ONS 2025; SSB 2025a; Swiss Federal Statistical Office (FSO) 2025.]
- 3) ****Training frictions evidence**** (where available). For the UK, the Edge bulletin and UK government skills/apprenticeship reforms provide an evidence template for how training capacity constraints and cost support interact. [Edge Foundation 2025; UK Government 2025]

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity),

and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

Country profiles treat “skills constraints” as a composite with three observable components: (i) labour-market tightness, (ii) barrier prevalence (skills as an obstacle), and (iii) training and management-development capacity. The goal is to distinguish scarcity from mismatch and to avoid describing all skills problems as the same phenomenon.

A. Tightness indicators (scarcity signal)

EU27: job vacancy rate (Eurostat) is reported with the reference quarter and compared to the EU distribution to classify countries as high-, medium-, or low-tightness environments. UK: ONS vacancy series is reported (level and trend); Norway: SSB vacancy indicator; Switzerland: official Swiss vacancy/tightness indicator where available. [Eurostat 2025h; ONS 2026b; SSB 2025d; BFS 2025b]

B. Barrier prevalence (firm-reported obstacle layer)

Where available, the profile reports the share of firms identifying “availability of skilled staff” as a minor/major obstacle from the EIB Investment Survey, and it is shown next to other top barriers (uncertainty: capability and investment gaps in digital systems/data; energy: operating-cost exposure that squeezes margins; regulation: fixed-cost reporting/compliance burden) to reflect the bundle logic. [EIB 2025a]

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

The profile reports at least one comparable training indicator: (1) Continuing Vocational Training Survey (CVTS) participation (where available) and/or (2) national SME training participation evidence from the mapped Europe+ training systems appendix. The profile also specifies whether the dominant gap is technical skills, digital/AI skills, or managerial capability, based on the national evidence cited. [Eurostat 2025i; CEDEFOP 2024a; OECD 2024]

D. Interpretation rules (scarcity vs mismatch vs training friction)

Rule D1 — High-tightness scarcity: high vacancy + high EIB skills barrier prevalence → primary constraint is competition for workers and wage pressure; policy/managerial emphasis on retention, apprenticeships, migration recognition, and productivity tools.

Rule D2 — Mismatch: low/medium vacancy but high skills barrier prevalence → primary constraint is occupational/credential mismatch; emphasis on targeted training, qualification recognition, and local provider capacity.

Rule D3 — Training friction: low training participation and/or SME-reported training barriers → constraint is the fixed cost of training and limited release time; emphasis on modular training, shared training infrastructure, and management-development programs.

Each profile states which rule is applied and cites the supporting indicator values, so the classification is falsifiable. [EIB 2025a; Eurostat 2025h]

Chapter 12A — Training and development in SMEs

employee upskilling, management development, and and know-how transfer. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Training and development (T&D) is a central but often under-specified problem domain for European SMEs. Discussions about “skills shortages” typically focus on labour-market supply (how many skilled workers exist). T&D focuses on capability formation inside firms: whether SMEs can systematically upgrade employees’ and managers’ skills fast enough to keep up with technological change, regulatory complexity, and competitive pressure. In Europe+, the training problem matters for three reasons:

- 1) Productivity and competitiveness: digital tools, AI-assisted workflows, quality systems, and process improvement require learning. Firms that cannot train tend to adopt later and less deeply, reinforcing productivity gaps. [OECD 2025a][OECD 2021]
- 2) Resilience: training builds adaptive capacity during shocks (energy price volatility: operating-cost exposure that squeezes margins; supply disruptions; regulatory changes). Firms with stronger internal learning routines adjust faster and avoid brittle dependence on single individuals. [CEDEFOP 2024a]
- 3) Succession: many SMEs are owner-managed. Continuity depends on transferring know-how and building a management bench; training is a key mechanism that makes succession operational rather than merely legal. [Oskam, J 2024][Baltazar, J 2025]

This chapter treats T&D as a multi-level issue in the socio-ecological model:

- Level 1 (owner/manager): prioritisation, learning orientation, and time allocation.
- Level 3 (firm): HR systems, training processes, mentoring and documentation routines.
- Level 4 (ecosystem): provider availability, sectoral funds, chambers/clusters, peer-learning networks.
- Level 5–6 (institutions): subsidy design, qualification systems, and EU programmes that lower access barriers for SMEs. [CEDEFOP 2024a][European Commission 2025o][European Commission 2025p]

12A.1 What counts as SME training and development in this study

To avoid definitional drift, the training and development chapter uses three constructs that are conceptually distinct and therefore require different evidence. ‘Formal training’ refers to structured courses leading to recognised skills or credentials (often linked to vocational education systems and external providers). ‘Work-based learning’ refers to learning embedded in daily work—mentoring, job rotation, supervised practice, and the progressive transfer of responsibility. ‘Succession knowledge transfer’ refers to the deliberate handover of tacit knowledge, customer relationships, and decision routines from owner-managers to successors or to a professional management bench. Treating these constructs separately matters for SMEs because each has different fixed costs, different time-away-from-operations burdens, and different institutional supports across Europe+.

A) Formal employer-sponsored continuing vocational training (CVT courses)

This is the core harmonised construct in Eurostat’s Continuing Vocational Training Survey (CVTS), which reports the share of employees participating in CVT courses, training hours, and expenditure. [Eurostat 2025k][Eurostat 2021]

B) Broader learning inside SMEs (informal and on-the-job)

Many SMEs rely on learning-by-doing, coaching, and vendor-provided training. These are often not fully captured by CVTS “courses” but can be essential for technology adoption and compliance.

C) Management and leadership development

Owner-managers and first-line supervisors frequently lack structured training in finance, HR, process design, and strategic planning. Evidence on targeted management development is therefore treated as part of the HR domain, not as “general business support.” [UK Department for Business and Trade 2025.]

Throughout Europe+, the binding constraint is rarely “training is impossible.” It is the combination of fixed costs, time constraints, and uncertainty about returns that prevents training from reaching the volume and regularity needed for the twin transition and demographic change.

12A.2 Europe-wide evidence

the SME training gap and cross-country dispersion. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and

product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The CVTS provides the strongest harmonised evidence on employer-sponsored training in enterprises. Eurostat’s CVTS synthesis for 2020 indicates that about 42% of employed persons in the business economy participated in employer-sponsored CVT courses at EU level, with methodological notes clarifying what constitutes a CVT course. [Eurostat 2025k][Eurostat 2021]

Two findings are consistently relevant for an SME-focused book:

First, training participation and intensity rise strongly with enterprise size. In CVTS-based analyses, large firms are more likely than SMEs to provide CVT courses and to spend more on training per employee. This is a structural “MSME training gap” rather than a temporary fluctuation. [Eurostat 2025k][CEDEFOP 2024a]

Second, dispersion across countries is large. Cedefop’s CVTS-based data insight for 2020 highlights substantial variation in participation rates across Member States, implying that “SME training problems” mean different things depending on national training institutions and employer norms. In high-participation systems, the marginal issue is often relevance (digital: capability and investment gaps in digital systems/data; AI: capability and investment gaps in digital systems/data; green) and learning transfer; in low-participation systems, the binding issue is access and take-up among micro and small firms. [CEDEFOP 2020]

A methodological caveat matters for interpretation: 2020 was affected by the pandemic period, which shifted modalities (online delivery) and may have suppressed training volumes for some sectors. For atlas purposes, CVTS is treated as a structural participation indicator; it is triangulated with higher-frequency national sources where available (e.g., UK employer skills survey evidence). [Eurostat 2021] [UK Department for Education / GOV 2024]

12A.3 Why SMEs under-train

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity),

and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

barriers, frictions, and testable mechanisms. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Cedefop’s policy analysis on narrowing the micro/small enterprise training gap is particularly useful because it distinguishes “subsidising costs” from addressing deeper frictions. It identifies recurring barriers that align closely with the socio-ecological model: direct and indirect costs, organisational capacity constraints, information and quality uncertainty, behavioural factors (short horizons), and appropriation risk (turnover/poaching). [CEDEFOP 2024a]

The OECD’s SME-focused skills work complements this by linking barriers directly to the twin transition. It frames SME training as a competitiveness constraint: SMEs need skills for digital transformation and green upgrading, but face disproportionate barriers to providing training at scale. [OECD 2025a][OECD 2021]

Complementing these macro sources, the OECD’s qualitative study on enterprise training highlights practical determinants of training provision (including time constraints: capability and investment gaps in digital systems/data; managerial attitudes; and how firms decide who trains and why: capability and investment gaps in digital systems/data), supporting the view that training decisions are shaped by organisational capacity and incentives rather than by funding alone. [OECD 2021]

Evidence note (key empirical findings of cited sources):

- OECD 2021: Source focus: OECD Publishing. (2021/updated PDF; accessed 2026-01-31). (contains reported figures such as 2021, 2021, 2026; used here for its empirical indicators and cross-country comparability notes).

The book operationalises the training domain through three mechanisms that can be traced across Europe+:

Mechanism T1 — Fixed costs and time constraints lead to “training rationing”

Even when subsidies exist, SMEs ration training because the operational disruption cost is high.

Training therefore concentrates among firms with stronger management systems and slack capacity (often larger SMEs or exporters), while micro and small firms remain persistently under-trained.

[CEDEFOP 2024a]

Mechanism T2 — Training uncertainty reduces investment (quality and relevance problem)
SMEs may not know which training tends to translate into productivity gains. Without the ability to evaluate providers and design learning transfer, training is treated as a cost centre rather than an investment, especially under uncertainty. [OECD 2021]

Mechanism T3 — Appropriation risk (poaching) depresses training investment
If trained employees are likely to be hired away, SMEs underinvest even when training would be socially beneficial. This market failure motivates collective solutions (sectoral funds; apprenticeships; shared training: capability and investment gaps in digital systems/data) and policy designs that reduce the perceived risk. [CEDEFOP 2024a]

12A.4 Training content in the twin transition

digital/AI, green skills, and and compliance. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The twin transition changes the content of “necessary SME training” in Europe+:

Digital and AI capabilities

SMEs increasingly need baseline data literacy, process digitalisation skills (ERP/CRM, e-invoicing), cybersecurity hygiene, and—where relevant—safe AI-assisted workflows. OECD analysis links SME competitiveness to access to these skills and highlights rapid technological change as a driver of continuous upskilling needs. [OECD 2025a][OECD 2021]

Green transition skills

SMEs need skills for energy efficiency, circular-economy practices, and supply-chain sustainability requirements. For many SMEs, this is less about “green R&D” and more about operational compliance and customer-driven requirements.

Compliance and documentation skills

Regulatory complexity and supply-chain reporting spillovers increase the importance of documentation, quality systems, and audit readiness. This creates a training demand that is often strongest in SMEs that supply large firms or the public sector.

Management and change leadership

The ability to redesign work processes, delegate, and sustain change is frequently the binding constraint that determines whether technical training translates into productivity. For SMEs,

management capability is therefore part of the training domain, not merely a leadership style issue. [UK Department for Business and Trade 2025.]

12A.5 Europe+ institutional models

how countries solve (or fail to solve) SME training barriers. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A Europe+ comparative book cannot list every national programme in equal depth, but it can classify national systems into a small set of institutional archetypes and then provide evidence-backed examples. The atlas uses four archetypes; many countries combine them:

Model A — Sectoral or levy-based training funds (resource pooling)

These models pool resources to reduce SME fixed costs and provide intermediation. Italy is a clear example: Cedefop notes that continuing training is funded largely through an employer contribution (0.30% to social security) channelled through interprofessional funds, explicitly designed to meet enterprise training needs. [INAPP (Italy) 2024]

Model B — Subsidies and qualification allowances that reduce release-time costs

Germany’s reforms to promote further training (including instruments that reduce the cost of releasing employees for training and support reskilling) are described in Cedefop’s implementation briefing. Such schemes are especially relevant for SMEs facing structural change and skills scarcity. [CEDEFOP 2024b]

Model C — National co-financing systems administered through dedicated bodies

Spain provides a strong example via FUNDAE, which publishes annual statistics on employer-programmed training, participating enterprises, and training credit use. This evidence base supports diagnosis of whether training support reaches SMEs broadly or concentrates among larger firms. [FUNDAE (Spain) 2023]

Evidence note (key empirical findings of cited sources):

- FUNDAE (Spain) 2023: Source focus: Formación en las Empresas 2023 (annual national report). Fundación Estatal para la Formación en el Empleo. Accessed 2026-01-31. (contains reported figures such as 2023, 2023, 2026; used here for its empirical indicators and cross-country comparability notes).

Model D — Management development and peer-learning programmes for SME leaders

The UK's Help to Grow: Management programme is a structured, heavily subsidised management training course delivered through business schools with mentoring and peer sessions. Government evaluation reports provide unusually concrete evidence on uptake and early impacts, allowing a stronger causal narrative than “generic advice.” [UK Department for Business and Trade 2025.]

France as an institutional anchor for operator-based systems

France's continuing training architecture is organised through national institutions and sectoral operators, with official reporting on the use of training funds. This is analytically valuable because operator-based systems are explicitly designed to support smaller firms that otherwise have limited HR capacity. [France Compétences 2024]

Evidence note (key empirical findings of cited sources):

- France Compétences 2024: Source focus: [France Compétences 2024] France Compétences. Rapport 2024 sur l'usage des fonds de la formation professionnelle (published 2025-02-04). (contains reported figures such as 2024, 2024, 2025; used here for its empirical indicators and cross-country comparability notes).

Institutional design matters because it shapes whether training is “available” in principle or “usable” in practice. Systems that pool resources, simplify access, and provide intermediation are better positioned to overcome SME fixed-cost barriers than systems relying solely on individual firm initiative. [CEDEFOP 2024a]

To ensure consistent Europe-wide coverage of national training institutions (including countries not illustrated above), the atlas draws on CEDEFOP ReferNet country notes such as the “Spotlight on VET” series and related country system descriptions. These provide standardised summaries for all EU Member States and are used as the baseline institutional layer alongside CVTS metrics. [CEDEFOP 2024]

Evidence note (key empirical findings of cited sources):

- CEDEFOP 2024: Source focus: Accessed 2026-01-31. (contains reported figures such as 2024, 2024, 2026; used here for its empirical indicators and cross-country comparability notes).

12A.6 Measuring training participation beyond CVTS

national evidence anchors. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This subsection treats regulation and administrative burden as a regressive fixed-cost problem: many compliance tasks (reporting, documentation, updates to processes and policies) do not shrink proportionally with firm size, so they consume a larger share of SME time and turnover.

The practical effect is not only direct cost but management bandwidth loss. In SMEs, compliance work often lands on the owner-manager or a small leadership team, creating a direct trade-off between 'keeping the firm compliant' and 'making the firm grow'. Fragmentation adds a second layer: when rules and administrative practice differ across borders, scaling turns into repeated re-compliance rather than a simple replication of a proven model.

The book anchors this domain in EU-level obstacle diagnoses (Annual Single Market & Competitiveness Report) and firm-reported quantification (EIB bureaucracy cost and compliance staffing shares), then checks consistency against scaling outcomes (high-growth enterprises/gazelles) in the country atlas.

United Kingdom

The Employer Skills Survey (ESS) provides recurring, detailed measurement of training activity and skill needs, with breakdowns by employer size and sector. It supports analysis of whether SMEs train less, spend less, or face different obstacles to training than larger firms. [UK Department for Education / GOV 2024]

Evidence note (key empirical findings of cited sources):

- UK Department for Education / GOV 2024: Source focus: [UK Department for Education / GOV 2024] UK Department for Education / GOV.UK. Employer Skills Survey 2024: Full UK research report and key findings (published 2025-11-27). (contains reported figures such as 2024, 2024, 2025; used here for its empirical indicators and cross-country comparability notes).

Spain

FUNDAE annual statistics provide granular evidence on the scale of employer-programmed training and its distribution across firms, enabling a practical assessment of whether policy instruments reach the SME segment. [FUNDAE (Spain) 2023]

Evidence note (key empirical findings of cited sources):

- FUNDAE (Spain) 2023: Source focus: Formación en las Empresas 2023 (annual national report). Fundación Estatal para la Formación en el Empleo. Accessed 2026-01-31. (contains reported figures such as 2023, 2023, 2026; used here for its empirical indicators and cross-country comparability notes).

Italy

INAPP provides official evidence on continuing training and adult learning, supporting interpretation of Italy's training fund architecture and participation outcomes. [INAPP (Italy) 2024]

Evidence note (key empirical findings of cited sources):

- INAPP (Italy) 2024: Source focus: Continuous Training in Italy: XXIII Parliamentary Report /

Continuous Training Survey (published 2024-07-02). (contains reported figures such as 2024, 2024, 07; used here for its empirical indicators and cross-country comparability notes).

For Switzerland and Norway, country chapters rely on national vocational education and training system descriptions and targeted studies to capture the institutional training environment, with explicit comparability notes where the metric differs from CVTS concepts. [European Commission 2025o][European Commission 2025p]

12A.7 Training as a bridge to technology diffusion

the role of European Digital Innovation Hubs and intermediaries. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A recurring problem in SMEs is the gap between knowing that digital tools (including AI) matter and being able to implement them. Intermediary institutions lower this barrier by bundling assessment, training, experimentation, and vendor-neutral advice.

European Digital Innovation Hubs (EDIHs) are an EU-level institutional response designed to provide SMEs and public sector organisations with support services such as “test before invest;” skills and training (recruitment/retention/upskilling constraints); access to finance for digital transformation (access-to-finance frictions: cost, collateral, availability). In this manuscript, EDIHs are treated as an ecosystem-level intervention that directly targets the SME training gap by providing structured learning pathways linked to applied pilots. [European Commission 2025o][European Commission 2025p]

In the Europe+ atlas logic, the presence and maturity of such intermediaries (EDIHs; sectoral competence centres; cluster organisations) is treated as a qualitative modifier: countries with strong intermediary infrastructure are hypothesised to convert training effort into adoption and productivity gains more effectively, holding training participation constant.

12A.8 Know-how transfer and successor development

turning succession into a capability project. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and

product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Succession succeeds only when knowledge is transferred. Empirical and review research supports treating knowledge transfer as a core failure point in SME succession.

A 2024 study focused on tacit knowledge transfer in SME family firm succession analyses why tacit knowledge (relationships; judgement; routines) is difficult to transfer, supporting the view that “succession readiness” is partly an HR and training issue. [Oskam, J 2024]

Research on internal succession processes emphasises that knowledge transfer is shaped by power dynamics and relational factors, implying that successor preparation requires governance and interpersonal design, not only a checklist. [Muskat, B 2017]

Recent systematic reviews identify knowledge transfer and successor development as central strategic dimensions of succession, reinforcing the argument for integrating successor training into HR policy for owner-managed SMEs. [Baltazar, J 2025][Reif, T 2025]

Practical successor-development practices that map to these findings:

- Overlap and shadowing periods with milestones (customer handovers, supplier negotiations).
- Documentation of key routines and decision rules (“why we do it this way”).
- Role rotations for successors and potential internal candidates (creating a management bench).
- Joint external training for predecessor and successor to align tools and language (digitalisation: capability and investment gaps in digital systems/data; AI: capability and investment gaps in digital systems/data; compliance: fixed-cost reporting/compliance burden). [Oskam, J 2024][Baltazar, J 2025]

Evidence note (key empirical findings of cited sources):

- Oskam, J 2024: Source focus: Difficulties of tacit knowledge transfer in the succession process of family firms (SME focus). Tilburg University repository (arno.uvt.nl). (contains reported figures such as 2024, 2024; used here for its empirical indicators and cross-country comparability notes).
- Baltazar, J 2025: Source focus: What do we know about strategic approaches to family firm succession? A systematic literature review. Journal of Family Business Strategy. (contains reported figures such as 2025, 2025; used here for its empirical indicators and cross-country comparability notes).

12A.9 Training, innovation and R&D

why learning capacity enables upgrading. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence)

alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Training and development and SME innovation reinforce each other. Many SMEs innovate through applied development, process improvement, and customer-driven adaptation rather than formal R&D departments. Training contributes to innovation and productivity through:

Absorptive capacity

Firms learn to identify, evaluate, and apply external knowledge. OECD analysis highlights that skills are a precondition for competitiveness during structural transitions; without skills, technology diffusion slows. [OECD 2025a]

Applied experimentation and continuous improvement

Digital tools and AI-assisted workflows enable low-cost process experiments, but only if staff can implement and evaluate them. Skill building therefore raises the return on digital investment. [OECD 2021]

Supply chain upgrading and quality systems

Training often becomes a supply-chain requirement (quality; cybersecurity; ESG documentation). UNIDO’s synthesis of evidence links structured training to productivity and sustainable supply-chain participation, supporting the economic case for collective and policy investment in SME learning. [UNIDO 2025]

Evidence note (key empirical findings of cited sources):

- UNIDO 2025: Source focus: [UNIDO 2025] UNIDO. The strategic role of training for SMEs in building sustainable supply chains (2025 report). (contains reported figures such as 2025, 2025; used here for its empirical indicators and cross-country comparability notes).

For the book’s argument, this implies that training is not a peripheral HR activity. It is a mechanism that shapes whether SMEs can upgrade, innovate, and survive in competitive environments. Evidence detail: the EU-wide barrier distribution identifies “availability of skilled staff” as one of the most frequently reported obstacles (reported by 79% of EU firms), alongside uncertainty (83%), energy costs (75%), and business regulation (69%). [EIB 2025a]

12A.10 Practical SME training programmes

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity), and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

what to teach and how to deliver it. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A Europe+ research book should specify what “good SME training systems” look like. The blueprint below translates the mechanisms into implementable programme designs that reduce fixed costs, increase relevance, and strengthen learning transfer.

Design principle 1 — Strategy-anchored learning

Training should be mapped to business priorities: cashflow stability, process reliability, compliance readiness, digital adoption, export expansion, or succession continuity. This reduces relevance uncertainty. [CEDEFOP 2024a]

Design principle 2 — Modularity and shared provision

SMEs benefit from modular learning (short-cycle sessions; micro-credentials; blended formats) and shared provision via sectoral funds, chambers, clusters, or public intermediaries. Shared provision reduces fixed costs and improves provider selection. [CEDEFOP 2024a][INAPP (Italy) 2024]

Design principle 3 — Combine employee upskilling with management development

Technical training fails without managerial capability to redesign processes and sustain change. Management programmes that include peer learning and mentoring provide a template (e.g., Help to Grow: Management). [UK Department for Business and Trade 2025.]

Design principle 4 — Build learning transfer into delivery

SMEs should define how learning becomes routine: internal champions, updated processes, documentation, and peer review. Without transfer mechanisms, training remains isolated and does not raise capability. [CEDEFOP 2024a]

Minimum viable curriculum (role-based)

A) Owner/managers and supervisors (management system)

- Financial management: cashflow, working capital, pricing, investment appraisal.
- People management: recruiting, onboarding, performance and retention.
- Operations: process design, quality systems, continuous improvement.

- Strategic planning under uncertainty: scenario thinking and risk management. [UK Department for Business and Trade 2025.]

B) Digital and AI-ready operations (all staff; role-based depth)

- Digital process basics: ERP/CRM, e-invoicing, data hygiene.
- Cybersecurity baseline: phishing, access control, backups, incident response.
- Safe AI use: suitable use cases, data protection, human oversight, output validation.

(EDIHs and similar intermediaries can deliver these modules linked to applied pilots.) [European Commission 2025o][European Commission 2025p]

C) Green transition and compliance

- Energy efficiency practices; monitoring and reporting basics.
- Supply chain ESG requirements; documentation and audit readiness.

D) Succession and knowledge transfer (owner + successor + key managers)

- Staged authority transfer plan and governance routines.
- Mentoring plan and tacit knowledge capture.
- Digital documentation of key processes and customer knowledge.
- External advisory use (legal/tax) integrated with internal capability building.

(Justification: empirical work shows tacit knowledge transfer is a key failure point in SME succession.)

[Oskam, J 2024][Muskat, B 2017][Baltazar, J 2025]

Evidence note (key empirical findings of cited sources):

- Oskam, J 2024: Source focus: Difficulties of tacit knowledge transfer in the succession process of family firms (SME focus). Tilburg University repository (arno.uvt.nl). (contains reported figures such as 2024, 2024; used here for its empirical indicators and cross-country comparability notes).
- Muskat, B 2017: Source focus: A power perspective on knowledge transfer in internal succession processes of small family businesses. SSOAR working paper / article. (contains reported figures such as 2017, 2017; used here for its empirical indicators and cross-country comparability notes).
- Baltazar, J 2025: Source focus: What do we know about strategic approaches to family firm succession? A systematic literature review. Journal of Family Business Strategy. (contains reported figures such as 2025, 2025; used here for its empirical indicators and cross-country comparability notes).

Programme architecture (practical template)

Phase 1 (diagnostic, 2–4 hours): skills and process baseline; priority setting.

Phase 2 (core modules, 6–12 weeks): blended learning plus an applied project.

Phase 3 (transfer, 4–8 weeks): implementation support and peer review.

Metrics: completion and adoption indicators plus business proxies (cycle time; error rate; sales pipeline; staff turnover). [CEDEFOP 2024a]

12A.11 What this chapter adds to the Europe+ atlas

Each country profile includes a “Training & Development” module with three components:

- 1) Structural participation: CVTS participation and (where possible) the MSME training gap by

enterprise size. [Eurostat 2025k][Eurostat 2021]

2) Institutional archetype: dominant national training-support model (fund/levy; subsidy/allowances; operator co-financing; management development). [CEDEFOP 2024a][INAPP (Italy) 2024][CEDEFOP 2024b][UK Department for Business and Trade 2025.]

3) Succession capability signal: whether successor development and know-how transfer are treated explicitly in SME support ecosystems (linked to Part VI). [Oskam, J 2024][Baltazar, J 2025]

This module connects directly to the book’s mechanism logic: weak SME training participation and weak management development infrastructure are hypothesised to amplify digital adoption gaps, reduce upgrading, and weaken scaling outcomes, especially in small-market economies and in labour-tight environments. [OECD 2025a][OECD 2021]

Chapter 13 — Regulation, administrative burden, and Single Market fragmentation

13.1 Why regulation is a disproportionately large SME problem

Regulation affects all firms, but it hits SMEs differently because many compliance activities behave like fixed-cost work. Typical obligations include periodic reporting, maintaining documentation and audit trails, updating internal policies and procedures, meeting product or safety requirements, and responding to supply-chain compliance requests from larger customers. Large firms spread this work across specialised teams; SMEs often cannot, so the same obligation consumes a larger share of leadership time and operating budget. The binding effect is therefore capacity loss: less time for sales, hiring, process improvement and innovation. In cross-country comparison this mechanism matters because implementation quality and administrative practice vary, so ‘the same’ regulation can produce very different SME burdens across countries.

reporting obligations,

- documentation and audit preparation,
- product/ESG/cyber requirements that cascade through supply chains,
- legal review and process updates. — For SMEs this is rarely a one-off task; it tends to recur (renewals, updates, inspections), so small compliance loads accumulate into persistent management bandwidth loss.

Large firms spread these costs across a bigger revenue base and maintain specialised compliance teams. SMEs often cannot—so regulation becomes a **capacity problem** (time and attention), not only a money problem.

13.2 EU-level diagnosis

administrative burden is a top SME constraint. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births,

survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The EU’s competitiveness and SME policy framing explicitly identifies administrative burden/regulatory obstacles among the main challenges holding SMEs back. The ****SME Relief Package**** cites ****Flash Eurobarometer 486**** and states that ****administrative burden or regulatory obstacles are among the biggest problems for 55% of SMEs****. [European Commission 2023]

This is not merely rhetorical: it anchors administrative burden as a first-class domain in a Europe-wide comparative study and provides a repeatable reference point for the atlas’ problem taxonomy (admin burden; payment delays: working-capital strain from slow customer payment; access to finance: access-to-finance frictions (cost, collateral, availability); skills: recruitment/retention/upskilling constraints). [European Commission 2023]

13.3 Firm-level quantification

bureaucracy cost and compliance staffing. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The EIB Investment Survey provides rare, comparable quantification of burden intensity:

- It estimates the ****cost of bureaucracy at ~1.1% of turnover for EU firms, and ~1.8% for SMEs****. [EIB 2025]
- It reports cross-country dispersion in the share of firms devoting significant staff capacity to regulatory compliance (e.g., countries where around 30% of firms devote more than 10% of staff to regulatory requirements versus much lower shares in others). [EIB 2025]

Interpretation: regulatory burden is not uniform across Europe; it is partly shaped by national implementation practices, administrative systems, and sector composition. [EIB 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

13.4 Single Market fragmentation

regulation as a cross-border scaling barrier. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

For SMEs and scale-ups, the central regulatory problem is not only “how heavy is regulation,” but ****how fragmented the rule environment feels across borders****.

In the EIB Investment Survey EU overview, ****62% of EU firms perceive the EU market as fragmented for their main product****, indicating substantial room for simplification and integration. [EIB 2025]

This connects directly to: (i) why SMEs struggle to unlock economies of scale across Europe, (ii) why some scaling firms expand to the US faster than to neighbouring EU countries, and (iii) why compliance complexity becomes a strategic barrier to growth. [EIB 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

13.5 Stakeholder evidence

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

which regulations are perceived as “burden hotspots”. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and

transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A scientific treatment should separate ****official diagnoses and measured burden**** from ****stakeholder claims about specific burden hotspots**** (which are evidence about perceived adjustment costs, compliance complexity, and implementation uncertainty).

A concrete example is BusinessEurope’s ****mapping of regulatory burden****, which catalogues areas stakeholders flag as costly (administrative burdens: fixed-cost reporting/compliance burden; cross-border regulatory barriers; and excessive compliance costs: fixed-cost reporting/compliance burden) and proposes specific simplifications. [BusinessEurope 2025]

In this book, such stakeholder mapping is used in two ways:

- 1) as a structured catalogue of alleged burden hotspots; and
- 2) as prompts to test whether the same countries also show higher measured burden intensity (bureaucracy cost, compliance staffing shares) in EIBIS. [BusinessEurope 2025; EIB 2025]

13.6 Mechanisms

how regulation becomes a binding constraint. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism 13A — Fixed compliance costs to management bandwidth drain to lower investment

Because SMEs have limited managerial layers, compliance work often lands on the owner/leadership team. This creates a direct trade-off: each additional reporting/compliance cycle reduces attention to sales, product improvement, hiring, and cashflow management.

EIBIS’ quantified “bureaucracy cost” and cross-country compliance staffing shares provide measurable support for this bandwidth-drain mechanism. [EIB 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about

the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

Mechanism 13B — Fragmentation to scaling friction to fewer high-growth outcomes

If cross-border compliance is costly and unpredictable, SMEs delay expansion, reduce product variety, or rely on intermediaries—raising costs and slowing scaling. The ****62% fragmentation perception**** is the core comparable EU indicator for this mechanism. [EIB 2025]

The atlas treats this as a scaling-friction channel that can be checked against outcome indicators such as high-growth enterprise incidence (where available) and the “dynamic but fragile” vs “resilient but low-scaling” archetype logic. [Eurostat 2025e; Eurostat 2025f]

Mechanism 13C — Regulation interacts with other constraints

This subsection treats regulation and administrative burden as a regressive fixed-cost problem: many compliance tasks (reporting, documentation, updates to processes and policies) do not shrink proportionally with firm size, so they consume a larger share of SME time and turnover.

The practical effect is not only direct cost but management bandwidth loss. In SMEs, compliance work often lands on the owner-manager or a small leadership team, creating a direct trade-off between ‘keeping the firm compliant’ and ‘making the firm grow’. Fragmentation adds a second layer: when rules and administrative practice differ across borders, scaling turns into repeated re-compliance rather than a simple replication of a proven model.

The book anchors this domain in EU-level obstacle diagnoses (Annual Single Market & Competitiveness Report) and firm-reported quantification (EIB bureaucracy cost and compliance staffing shares), then checks consistency against scaling outcomes (high-growth enterprises/gazelles) in the country atlas.

bundles. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Regulatory burden rarely appears alone: it amplifies skills needs (compliance expertise), interacts with late payments (time and cash drain), and interacts with financing (documentation and reporting affect risk assessment and loan processing).

This bundle logic aligns with EU-level diagnosis where administrative burden, payment delays, access to finance, and skills are presented together as core SME challenges. [European Commission 2025a; European Commission 2023]

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

13.7 Europe+ comparability: EU vs UK/CH/NO

For EU27, backbone indicators are:

- EU-level framing (SME Relief Package + competitiveness reporting) that anchors administrative burden as a major obstacle; [European Commission 2023; European Commission 2025a]
- EIBIS bureaucracy cost and compliance staffing shares; [EIB 2025]
- EIBIS fragmentation perception. [EIB 2025]

For the UK/CH/NO chapters, the atlas covers the same conceptual constructs using national regulatory context and SME surveys (country-specific) plus any relevant EIB country reporting. The EU-specific “Single Market fragmentation” measure is explicitly flagged as EU-specific when reporting non-EU chapters to avoid false comparability.

13.8 Atlas implementation for regulation, administrative burden, and fragmentation

Country profiles treat regulation as a measurable capacity constraint. The atlas therefore reports both (i) burden intensity indicators and (ii) fragmentation indicators, and then evaluates whether these align with weaker scaling outcomes (HGE/gazelles) and/or weaker survival resilience. Evidence detail: in firm survey evidence, 62% of EU firms perceive the EU market as fragmented for their main product/service, indicating that cross-border scaling costs remain material even inside the Single Market. [EIB 2025a]

A. Measured burden intensity (comparable quantitative indicators)

- 1) Bureaucracy cost as % of turnover (EIB). The profile reports the EIB estimate and explicitly notes the SME vs large-firm difference where reported, because the mechanism is regressivity (fixed-cost burden). [EIB 2025a]
- 2) Compliance staffing share (EIB). The profile reports the share of firms devoting >10% of staff to regulatory requirements where available and flags cross-country extremes to avoid ‘average Europe’ storytelling. [EIB 2025a]

B. Fragmentation / scaling friction indicators

1) Perceived Single Market fragmentation (EIB). The profile reports the share of firms perceiving fragmentation for their main product/service, because this is the most direct comparable indicator of cross-border scaling friction in the EIB evidence base. [EIB 2025a]

2) EU-level obstacle prominence (Commission competitiveness framing). The profile cites the Commission's synthesis of SME obstacles (administrative burden: fixed-cost reporting/compliance burden; payment delays: working-capital strain from slow customer payment; access to finance: access-to-finance frictions (cost, collateral, availability); skills: recruitment/retention/upskilling constraints) to ground regulation as a Europe-wide priority domain. [European Commission 2025a]

C. Outcome consistency checks (evaluation step)

The profile checks whether high measured burden and high fragmentation coincide with weaker scaling proxies (HGE/gazelles) or weaker cohort survival. This is a consistency evaluation, not a causal claim: where indicators disagree, the country chapter records the disagreement and provides a plausible explanation (sector mix; firm-size structure; or measurement coverage). [Eurostat 2025g; Eurostat 2025a; EIB 2025a]

13.9 Special focus

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

the EU Artificial Intelligence Act and practical compliance implications for SMEs. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The EU Artificial Intelligence Act (Regulation (EU) 2024/1689) introduces a risk-based compliance regime for AI systems placed on the EU market or used within the Union. For SMEs, the practical

impact depends less on ‘whether you use AI at all’ and more on your role in the AI value chain: most SMEs is deployers (users) of AI embedded in software they buy; a smaller but economically important subset is providers (developers) of AI systems or applies to substantially modify and re-package AI solutions for clients. The Act therefore creates two distinct compliance pathways for SMEs: (i) deployer duties focused on safe and transparent use, and (ii) provider duties focused on risk management, documentation and (for high-risk AI) conformity assessment. [European Union 2024]

13.9.1 Timeline and what becomes applicable when

The AI Act entered into force in August 2024 and applies in stages. The Regulation specifies that Chapters I and II (including definitions, the risk framework and prohibitions) apply from 2 February 2025, while the general application date is 2 August 2026, with additional transitional dates for specific areas. For SMEs this staging matters because early compliance work is mainly about governance and inventory (understanding which AI systems are used and whether any fall into prohibited or high-risk categories), while later phases expand to full operational compliance for high-risk systems. [European Union 2024][European Commission 2024]

13.9.2 What SMEs should do first

role mapping and AI inventory. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A practical starting point is an ‘AI inventory’ that classifies each AI-enabled tool or system by (a) business function (HR; customer service; marketing; production; credit/financing: access-to-finance frictions (cost, collateral, availability); etc.), (b) deployment context (internal use; customer-facing; regulated domain: capability and investment gaps in digital systems/data), and (c) supplier relationship (off-the-shelf; customised; in-house). This inventory is not bureaucracy for its own sake: it is the only scalable way for a small firm to avoid accidental exposure to high-risk obligations or prohibited practices, particularly when AI functionality is embedded in broader software products.

13.9.3 Risk tiers

where SMEs face the highest compliance load. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on

compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The Act distinguishes prohibited AI practices (unacceptable risk), high-risk AI systems, transparency obligations for certain AI interactions, and general-purpose AI model obligations. For most SMEs, the largest compliance effort arises in two situations:

(1) SMEs developing AI systems that fall into the ‘high-risk’ categories (for example; AI used in employment: capability and investment gaps in digital systems/data; worker management; education/exams; critical infrastructure; or certain access-to-service decisions: capability and investment gaps in digital systems/data). High-risk providers must implement risk management and quality management systems, ensure data governance, produce technical documentation, enable logging, ensure human oversight, and run conformity assessment processes before placing systems on the market. [European Union 2024]

(2) SMEs as deployers of high-risk AI in sensitive functions. Examples include using AI for employee recruitment or workplace management, creditworthiness assessment in a fintech or retail-lending context, or certain biometric identification scenarios. In these cases, the SME may fall under “deployer” obligations (or may be a “provider” if it develops/puts the system on the market). Practical impacts include the need to ensure appropriate human oversight, use instructions, incident reporting and documentation/record-keeping, and to verify that the AI system is used within its intended purpose—tasks that behave like fixed compliance costs and often require specialist expertise. [European Union 2024]

A third category—transparency obligations—matters even for low-risk uses: certain AI systems require that people are informed when they interact with an AI system or when content is AI-generated or manipulated. This affects SMEs deploying chatbots in customer service or using generative tools for marketing content, because disclosure and internal policies become part of ‘good practice’ compliance.

13.9.4 Support measures and why they matter for SME compliance

The AI Act explicitly recognises the need to reduce compliance friction for SMEs and start-ups. Article 62 requires Member States to put in place support measures such as priority access to AI regulatory sandboxes (digital capability and investment gaps; needs complementary skills/process change); tailored training and awareness actions (digital capability and investment gaps; needs complementary skills/process change); dedicated communication channels; facilitation of SME participation in standardisation. It also foresees that conformity-assessment fees should be reduced for SMEs to make high-risk compliance more achievable. [European Commission / AI Act Service Desk 2025a]

Regulatory sandboxes (Chapter V) are particularly relevant for SMEs developing innovative systems in regulated domains, because they can enable supervised testing and earlier feedback on compliance requirements. The Commission is tasked with supporting consistent sandbox rules to avoid fragmentation, which matters for cross-border scale-ups that would otherwise face different sandbox designs across Member States. [European Commission / AI Act Service Desk 2025b]

13.9.5 Practical implications for SME strategy and procurement

For established SMEs primarily buying AI-enabled software, the AI Act's main practical impact is procurement discipline: SMEs need contractual clarity on whether the supplier is a provider of a regulated AI system, what documentation and instructions are supplied, and what incident/reporting channels exist. In procurement-heavy sectors (manufacturing; logistics: dependency and limited redundancy in sourcing/logistics; healthcare suppliers), SMEs should also anticipate 'compliance cascade' effects: larger customers may require AI Act-aligned documentation and risk controls as part of supplier qualification.

For SMEs and startups building AI products, compliance under the EU AI Act operates as a concrete product requirement: firms may need documented risk management, data governance, technical documentation, record keeping/logging, transparency information, human oversight measures, and post-market monitoring for high-risk systems. These requirements increase fixed costs and can shift build-vs-buy decisions toward compliant vendors and standardised components. [European Union 2024]

13.9.6 How the AI Act interacts with the SME constraint bundle model

The AI Act does not create a new constraint in isolation; it interacts with existing SME bottlenecks: skills shortages (need for compliance and risk expertise), administrative burden (documentation and audits), finance (upfront compliance costs and longer time-to-market), and ecosystem fragmentation (different national implementation capacity). In the atlas, this chapter's role is to provide a policy-level mechanism layer: countries with stronger support infrastructures (sandboxes; guidance; diffusion institutions) are expected to translate AI opportunities into SME productivity gains more effectively, while countries with weaker support may see a 'compliance chill' effect for small innovators.

Chapter 14 — Digital foundations and artificial intelligence in SMEs

adoption, barriers, and and opportunity. In this book, this is not treated as an aside or a "background condition": it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on "capability" alone.

14.1 Why AI is a distinct opportunity and constraint domain for SMEs

Artificial intelligence (AI), and especially the rapid diffusion of generative AI tools, has created a new category of opportunity for small and medium-sized enterprises (SMEs): automation of routine cognitive work, faster customer interaction, improved forecasting and planning, and the possibility to embed analytics in functions (sales; operations; HR) that were previously difficult to professionalise at small scale. For Europe+, AI matters for competitiveness because it can raise productivity and help SMEs partially offset structural disadvantages in management capacity and data-driven decision-making. At the same time, AI is also a new constraint domain: it magnifies gaps in digital foundations (data; processes; cybersecurity), and introduces new compliance, transparency, and risk-management requirements, particularly under the EU Artificial Intelligence Act (Chapter 13.9).

This chapter therefore treats AI as a bridge between digitalisation and productivity: it is not only a technology choice, but a capability stack that interacts with skills, finance, and regulation. Evidence detail: the EU-wide barrier distribution identifies “availability of skilled staff” as one of the most frequently reported obstacles (reported by 79% of EU firms), alongside uncertainty (83%), energy costs (75%), and business regulation (69%). [EIB 2025a]

14.2 Europe-wide baseline

how many enterprises use AI and the SME gap. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Eurostat’s ICT usage statistics provide the most comparable Europe-wide baseline for enterprise AI adoption. In 2024, Eurostat reports that around one in eight EU enterprises used AI technologies, with adoption strongly increasing with enterprise size. The statistic is important analytically because it shows that AI adoption is still far from universal in the enterprise population: Europe’s productivity potential from AI tends to depend on diffusion to the SME base, not only frontier firms. [Eurostat 2025e][Eurostat 2025f]

Eurostat also reports that the gap between small and large enterprises is systematic, indicating that AI is subject to the same ‘scale disadvantage’ dynamics as other advanced digital tools (ERP; data analytics; cybersecurity maturity). [Eurostat 2025e]

Implication for the atlas: AI adoption is treated as an outcome of the ‘digital capability spine’ (process digitalisation + data + skills) and therefore expected to correlate with digital intensity indicators (Chapter 10) and skills tightness (Chapter 12). Evidence detail: the EU-wide barrier distribution

identifies “availability of skilled staff” as one of the most frequently reported obstacles (reported by 79% of EU firms), alongside uncertainty (83%), energy costs (75%), and business regulation (69%). [EIB 2025a]

14.3 Cross-country variation

Europe is not one AI adoption regime. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Cross-country evidence consistently shows wide dispersion. A practical anchor comes from survey evidence in the European Investment Bank’s Investment Survey (EIBIS), which tracks firms’ adoption of digital technologies, including AI and (in the most recent waves) generative AI use. EIBIS also documents that AI and digital adoption tend to be higher in Northern and Western Europe than in several Southern and parts of Central/Eastern Europe, mirroring broader digital-intensity patterns. [EIB 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

Eurostat’s country breakdown shows that AI adoption rates differ widely across Member States, with a clear ‘frontier group’ and a long tail of lower-adoption economies. This dispersion is consistent with broader differences in digital intensity and skills availability, implying that AI diffusion is strongly conditioned by national ecosystems and institutions rather than being a purely firm-level choice. [Eurostat 2025e][OECD 2025]

Evidence note (key empirical findings of cited sources):

- Eurostat 2025e: Source focus: Artificial intelligence in enterprises (Statistics Explained) and underlying ICT usage survey tables on enterprise use of AI technologies (EU-27 comparison; breakdowns by enterprise size and country). (contains reported figures such as 2025, 27; used here for its empirical indicators and cross-country comparability notes).
- OECD 2025: Source focus: (2025-12-09). AI adoption by small and medium-sized enterprises (OECD report / discussion paper; G7 SME AI Adoption Blueprint context). (contains reported figures such as 2025, 2025, 12; used here for its empirical indicators and cross-country comparability notes).

14.4 What SMEs actually do with AI

practical use cases and value creation channels. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The OECD’s 2025 discussion paper on AI adoption by SMEs emphasizes that AI uptake is not a binary ‘adopt vs not adopt’ decision. Rather, SMEs move through stages of experimentation, pilot use, and integration into core processes; and digital maturity is both a prerequisite for AI adoption and a consequence of successful deployment. [OECD 2025]

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

- Customer interaction and marketing: chatbots, drafting and localisation of content, lead scoring, customer support triage.
- Operations and planning: demand forecasting, inventory optimisation, production scheduling, predictive maintenance (especially in manufacturing SMEs).
- Finance and administration: invoice processing, document classification, anomaly detection in expenses, faster reporting.

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how

higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

AI tools can enable “professionalisation at low scale” by providing capabilities SMEs often lack in-house (customer support automation; basic analytics; document processing; coding assistance; and process monitoring). In the constraint-bundle framing, these opportunities are most likely to materialise where the firm can also resolve the complementary bottlenecks: skills and data readiness (often reported as major barriers) and the ability to invest in digital tooling. [EIB 2025a; Eurostat 2025k]

14.5 Why SMEs struggle

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

digital foundations: capability and investment gaps in digital systems/data, data, people, trust, and the barrier stack behind AI. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Cross-source synthesis shows that AI barriers in SMEs rarely come from ‘technology fear’ alone. Instead, they reflect a stack of complementary constraints:

(1) Digital foundations and process maturity: SMEs without integrated accounting, CRM/ERP, or data management struggle to move from ‘prompting tools’ to process-integrated AI.

- (2) Data quality and governance: AI systems require clean, accessible data; many SMEs have fragmented data across spreadsheets, legacy tools, and informal processes.
- (3) Skills and management capacity: SMEs report shortages not only of technical skills but also of managerial capability to lead transformation, redesign processes, and manage vendor relationships.
- (4) Finance and uncertainty: investment in data infrastructure, cybersecurity upgrades, and integration costs are lumpy; when credit conditions tighten (Chapter 9), AI projects are postponed.
- (5) Trust, legal risk and cybersecurity: concerns about data privacy, IP leakage, and misinformation or hallucinations can deter adoption; this aligns with OECD evidence that legal and data-privacy concerns remain significant barriers for non-users.

Taken together, these barriers explain why ‘AI enthusiasm’ can coexist with weak digital basics: experimentation is cheap, but scaling AI into operations requires complementary investments (systems; data; governance). [OECD 2025]

Evidence note (key empirical findings of cited sources):

- OECD 2025: Source focus: (2025-12-09). AI adoption by small and medium-sized enterprises (OECD report / discussion paper; G7 SME AI Adoption Blueprint context). (contains reported figures such as 2025, 2025, 12; used here for its empirical indicators and cross-country comparability notes).

Peer-reviewed systematic reviews of AI adoption in SMEs reinforce this interpretation: the most commonly identified obstacles are not only technical, but organisational—limited top-management capacity to drive change, lack of data governance, skills gaps, and uncertainty about returns—suggesting that ‘digital strategy’ and ‘change management’ are core explanatory variables, not soft add-ons. [Oldemeyer, L 2025]

Evidence note (key empirical findings of cited sources):

- Oldemeyer, L 2025: Source focus: , et al. (2025). Investigation of artificial intelligence in SMEs: a systematic review of the state of the art and the main implementation challenges. Management Review Quarterly (Springer). (contains reported figures such as 2025, 2025; used here for its empirical indicators and cross-country comparability notes).

14.6 Digital strategy as the missing link

why ad-hoc AI adoption can backfire. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A recurring finding in both policy and market evidence is that SMEs may adopt AI tools faster than they professionalise basic digital systems. In surveys of European SMEs (France; Germany; Italy; Spain: capability and investment gaps in digital systems/data), a substantial share report frequent AI tool usage while lacking foundational tools such as digital accounting, structured data analytics, or document management—creating a ‘digital paradox’ where AI use does not translate into sustainable productivity improvements. [Reuters 2025]

Evidence note (key empirical findings of cited sources):

- Reuters 2025: Source focus: (2025-10-08). European small businesses rush into AI without basic digital tools, study shows (Qonto/Appinio survey evidence on the ‘digital paradox’ in FR/DE/IT/ES). (contains reported figures such as 2025, 2025, 10; used here for its empirical indicators and cross-country comparability notes).

The analytical implication is that ‘AI adoption’ should not be treated as a single indicator. In the atlas, we separate: (a) AI tool usage (experimental), (b) digital intensity/process digitisation (foundational), and (c) governance/compliance readiness (risk management). The strategic risk for SMEs is that ad-hoc AI can increase operational risk (inconsistent outputs, data leakage), while delaying investment in the core systems that make AI valuable.

14.7 Evidence on impacts: what is known

and what is still uncertain. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Evidence on AI impacts is improving but still heterogeneous. The European Investment Bank’s recent work on AI adoption links AI use to higher productivity, with early estimates suggesting positive productivity effects without necessarily reducing employment on average—though impacts differ by task composition and complementary skills. This is consistent with a ‘complementarity’ view: SMEs gain most when AI is paired with digital process upgrades and workforce upskilling. [European Investment Bank (EIB) 2026][European Investment Bank (EIB) 2024b]

However, impact measurement is difficult because many SMEs use AI in small, distributed ways (marketing drafts, support triage) that are not captured in official investment data. Therefore, this book treats AI impacts as a mechanism hypothesis to be triangulated using (i) adoption indicators, (ii) skills/digital-intensity indicators, and (iii) productivity and survival outcomes, rather than claiming a single causal estimate. Evidence detail: the EU-wide barrier distribution identifies “availability of

skilled staff” as one of the most frequently reported obstacles (reported by 79% of EU firms), alongside uncertainty (83%), energy costs (75%), and business regulation (69%). [EIB 2025a]

14.8 Policy and support instruments that matter for SMEs

Across Europe, diffusion institutions and programmes increasingly position AI as part of SME digital transformation, including advisory services; testing facilities; ‘AI-as-a-service’ infrastructures (digital capability and investment gaps; needs complementary skills/process change). At EU level, European Digital Innovation Hubs (EDIHs) are designed to provide SMEs with access to testing, expertise, and financing advice—an institutional attempt to reduce the fixed costs of experimentation and integration. [European Commission 2025n]

The OECD’s policy synthesis emphasizes that effective AI diffusion for SMEs typically combines: (a) advisory and demonstration, (b) skills programmes, (c) support for data and cybersecurity foundations, and (d) financial instruments that de-risk complementary investment. The EU AI Act adds a further layer: regulatory sandboxes and targeted SME support measures (Chapter 13.9) can reduce compliance uncertainty for SMEs developing or deploying AI in regulated domains. [OECD 2025] [European Commission 2025h]

14.9 Atlas implementation for digitalisation, cybersecurity, and AI adoption

The digital chapter is operationalised as a readiness-and-capability module, not a generic ‘digital is important’ statement. Country profiles report digital intensity, security posture signals, and AI adoption evidence, then interpret them through the constraint bundle (skills: recruitment/retention/upskilling constraints; finance: access-to-finance frictions (cost, collateral, availability); compliance/trust: fixed-cost reporting/compliance burden).

A. Digital readiness (baseline capability)

EU27: the profile reports the enterprise Digital Intensity Index (DII) distribution and the SME gap vs larger firms where available, because many digital adoption constraints are size-mediated. [Eurostat 2025j]

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity),

and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

The profile reports at least one SME-relevant cyber indicator (basic security practices; incident prevalence; or readiness surveys). Where Europe-wide indicators are limited, ENISA evidence is used for qualitative mechanism anchoring and the profile flags the measurement gap. [ENISA 2024a]

C. AI adoption and AI strategy maturity (emerging capability layer)

EU27: the profile reports Eurostat enterprise AI use (where available) and the national evidence base on SME digital strategy maturity (e.g., whether SMEs report lacking a digital strategy, data readiness, or internal AI skills). This is paired with the skills and finance modules to identify the dominant bottleneck. [Eurostat 2025k; EIB 2025a]

D. EU AI Act practical implications (compliance/trust constraint)

Profiles include a short ‘AI Act exposure note’ that states: (i) typical SME roles (provider; deployer; distributor; importer), (ii) whether SMEs operate in high-risk use contexts (employment; essential services; product safety), and (iii) which obligations are most relevant (risk management; data governance; documentation; human oversight; transparency). This transforms the legal framework into operational constraints that can affect adoption pace and vendor choices. [European Union 2024]

Chapter 15 — Cybersecurity risk and resilience constraints for SMEs

This chapter is expanded to treat cybersecurity as an operational resilience constraint with economic consequences, not merely an IT issue.

15.1 Why cyber risk is structurally asymmetric for SMEs

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity), and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

Cybersecurity has strong fixed-cost characteristics: baseline security hygiene (asset inventory; patching; backups; MFA), incident response planning, and compliance processes are not proportional to firm size. This is why cybersecurity gaps persist among micro and small firms even when awareness

is high: the constraint is capacity and specialist access. Europe-wide guidance and SME-focused threat evidence highlight that SMEs are disproportionately exposed because they rely on third parties, have limited security staff, and face ransomware/extortion as common threat patterns. [ENISA 2024a]

15.2 Interaction with finance, regulation, and customer requirements

Cyber risk interacts with other constraints:

- Finance: incident costs and downtime can trigger liquidity crises, especially in late-payment environments.
- Regulation: SMEs may face compliance obligations indirectly via customers and insurers (supplier security requirements; audits; certification).
- Market access: in B2B markets, security standards can become a de facto entry barrier.

This reinforces the bundle logic: cyber risk is most damaging when combined with low working-capital resilience, tight finance conditions, and high administrative burden.

15.3 Practical atlas module

Country chapters use three items when data allow: (i) digital adoption indicators (proxy for exposure), (ii) evidence of cyber maturity gaps (survey or national reports), and (iii) a qualitative mechanism note on whether cyber risk is prominent in that country's SME environment. Where comparable quantitative cyber incident data are not available, the atlas explicitly flags this as an evidence limitation rather than inferring from anecdote.

Cybersecurity is a typical SME problem because it combines high business impact (downtime; data loss; reputational harm; legal exposure) with low internal capacity and high dependence on outsourced IT and third-party software.

Threat environment. ENISA's Threat Landscape 2024 identifies prime threat areas including availability attacks and ransomware, as well as social engineering, malware, and supply chain threats—categories that translate directly into downtime and cash-flow shocks for SMEs. [ENISA 2024]

Institutional pressure. NIS2 (Directive (EU) 2022/2555) expands cybersecurity obligations across sectors; even when SMEs are not directly in scope, compliance cascade effects arise through supply-chain requirements imposed by regulated or large customers. [European Union 2022]

Minimum viable control baseline. ENISA's Cybersecurity guide for SMEs provides a practical baseline set of controls (backups; updates/patching; access control; awareness; secure configuration), which this manuscript uses as a coding rubric in country chapters. [ENISA 2021.]

Mechanisms.

(15A) "Security debt" (incremental systems; weak identity/access; irregular patching) increases vulnerability.

(15B) Outsourcing and provider dependence create configuration and third-party risk.

(15C) Incidents become liquidity events, interacting with the late-payment and finance constraint domains. [European Commission 2025b; ECB 2025.]

Endnotes — Part IV

Endnote IV.1 — Evidence hierarchy. Domain chapters prioritise official statistics and harmonised surveys for prevalence/outcomes, then development bank and institutional reports for mechanism detail, then academic studies for causal and conceptual anchors.

Endnote IV.2 — Burden versus bindingness. A reported obstacle is treated as binding when it is persistent across sources and plausibly linked to measurable outcomes (investment, survival, scaling).

Endnote IV.3 — Moderators. Firm size, sector and market orientation are treated as core moderators because constraint intensity is strongly non-linear with size and value-chain position.

Literature — Part IV

Key sources (full references):

- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- OECD. (2025). AI adoption by small and medium-sized enterprises: OECD discussion paper for the G7. OECD Publishing. <https://doi.org/10.1787/426399c1-en>

Additional sources cited in this Part (author–year as cited in text):

- BFS (2025b)
- BusinessEurope (2025)
- CEDEFOP (2020)
- CEDEFOP (2024)
- CEDEFOP (2024a)
- CEDEFOP (2024b)
- Dealroom (2025a)
- ECB (2025)
- ECB (2025a)
- EIB (2025)
- EIB (2025a)
- EIF (2025)

- ENISA (2021)
- ENISA (2024)
- ENISA (2024a)
- Edge Foundation (2025)
- European Commission (2023)
- European Commission (2024)
- European Union (2022)
- European Union (2024)
- Eurostat (2021)
- France Compétences (2024)
- KfW (2026)
- OECD (2021)
- OECD (2024)
- ONS (2025)
- ONS (2026b)
- Reuters (2025)
- SSB (2025a)
- SSB (2025d)
- UK Department for Business and Trade (2025)
- UK Department for Education / GOV (2024)
- UK Government (2025)
- UNIDO (2025)

Part V — Startups and scale-ups in Europe+

formation, survival, and scaling finance: access-to-finance frictions (cost, collateral, availability. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose

fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Chapter 15A — Markets, competition, demand, and Single Market frictions

why market conditions and fragmentation are ‘typical’ constraints even when internal capabilities are strong. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

15A.1 Why markets and demand are a core SME problem domain

In practice, SMEs often experience “market problems” not as abstract competition but as binding constraints on planning and investment: demand volatility, customer concentration, price pressure, and the inability to spread fixed costs across larger market footprints. These forces are amplified in small domestic markets and in sectors where SMEs act as subcontractors with limited bargaining power.

This domain links to the socio-ecological model:

- Firm level: sales capability, pricing strategy, customer diversification.
- Ecosystem level: local buyer power, procurement practices, presence of anchor firms.
- Institutions/system level: cross-border market fragmentation and administrative friction that prevent SMEs from unlocking economies of scale.

The Annual Single Market & Competitiveness Report explicitly frames Europe’s competitiveness challenge in terms of upscaling and the ability of firms to benefit from the Single Market; administrative burden and fragmentation therefore translate directly into market-access costs. [European Commission 2025a]

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports

deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

15A.2 Evidence anchor

fragmentation as a measurable market friction. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The EIB Investment Survey provides a rare comparable indicator of perceived market fragmentation. When a large share of firms perceive the market as fragmented for their main product, this indicates that firms face cross-border friction that behaves like a demand/market constraint: it raises the cost of reaching customers in other countries, increasing the threshold size needed for expansion. [EIB 2025]

In the atlas, fragmentation is treated as a market-access friction that interacts with regulation and administrative burden (Chapter 13) rather than being treated as a purely legal issue.

15A.3 Customer concentration and bargaining power as “hidden” market constraints

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity), and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

SMEs frequently operate in value chains where a small number of customers determine pricing and payment terms. This produces two “typical” SME vulnerabilities:

- Margin squeeze: weak ability to pass through cost increases, especially during energy/input shocks.
- Payment discipline asymmetry: large buyers can impose long payment periods, creating working-capital strain (Chapter 10).

The late-payment evidence base (Payment Observatory and Single Market report) is therefore also market-structure evidence: it captures a systematic bargaining-power asymmetry in B2B markets. [European Commission 2025j][European Commission 2025a]

15A.4 Public procurement as a market access channel

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

and a barrier. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

For many SMEs and innovative firms, public procurement is a potential demand stabiliser and a scaling channel. Yet procurement can also function as a barrier due to documentation demands, complex tendering procedures, and risk aversion that favours incumbents. This book treats procurement as a market-access institution: it sits at the intersection of markets (demand), regulation (compliance), and ecosystem capacity (advisory support to bid).

Where procurement barriers are binding, they amplify the fixed-cost burden proposition: SMEs face disproportionately high transaction costs to compete for large contracts. [European Commission 2025a][EIB 2025]

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to

liquidity stress.

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

15A.5 Cross-country interpretation rule

In country comparisons, “market constraints” are interpreted using three measurable proxies:

- Fragmentation perception (EIB) as the cross-border scaling friction proxy. [EIB 2025]
- Payment discipline as bargaining-power and liquidity amplifier proxy. [European Commission 2025j] [European Commission 2025a]
- Business demography outcomes (births/survival) as the system response to market conditions. [Eurostat 2025a][ONS 2026.]

This keeps market diagnosis evidence-based rather than anecdotal.

Chapter 15B — Operations and supply chains

resilience, dependency, and logistics constraints. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

(how supply chain shocks and operational fragility become binding constraints for SMEs)

15B.1 Why operations are a ‘typical’ SME constraint domain

Operational fragility is a structural feature of small firms: fewer alternative suppliers, thinner inventories, limited redundancy in production and logistics, and lower bargaining power in input markets. When supply chain disruptions occur, SMEs often cannot buffer shocks through diversified sourcing or long-term contracts to the same extent as large firms. The result is a direct link from operational shocks to cashflow stress, delivery failures, and reputation loss.

In the socio-ecological model, operations constraints primarily sit at:

- Level 3 (firm): process maturity, inventory management, quality systems.
- Level 4 (ecosystem): supplier networks, transport capacity, cluster density.
- Level 6 (system): geopolitical and trade shocks that reshape input availability.

15B.2 Evidence

supply chain disruptions and input access as reported obstacles. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The EIB has published evidence that supply chain disruptions affected EU firms materially, including obstacles related to access to commodities/raw materials and disruptions in logistics and transport, while also documenting that firms invested to enhance resilience through inventories, diversification and digital tracking. [European Investment Bank (EIB) 2024a]

The EIB Investment Survey 2025 notes that concerns about supply chain disruptions have eased compared with earlier periods but remain linked to geopolitical risks and trade tensions, and that firms are investing in supply chain efficiency and resilience rather than radically overhauling models. [European Investment Bank (EIB) 2025]

15B.3 Mechanisms

how operational shocks translate into SME outcomes. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism 15B-A — Input disruption → delivery failure → cashflow stress

When SMEs cannot deliver, they face delayed revenue and sometimes contract penalties. This interacts with late payments: delayed delivery and delayed payment can stack into a severe liquidity squeeze (bundled constraint logic).

Mechanism 15B-B — Resilience investment requires capacity and finance

Building resilience (dual sourcing; inventory buffers; digital tracking; capability and investment gaps in digital systems/data) is investment-intensive. In SMEs, it competes with digitalisation, training, and compliance spending. Therefore, the ability to invest in resilience is shaped by finance conditions

(Chapter 9) and cost pressure (Chapter 11).

Mechanism 15B-C — Quality systems as a scaling constraint

As SMEs scale, operational complexity increases. Weak process maturity becomes a hidden scaling ceiling, especially in regulated supply chains where quality assurance and documentation are required. Evidence detail: EU monitoring reports that more than half of companies indicated problems linked to late payments in 2024, and EU B2B payment times increased from 52 days (2022) to 62 days (2024), which translates directly into higher working-capital strain for SMEs. [European Commission 2025b; European Commission 2025a]

15B.4 EU system context

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

supply chain analytics and preparedness. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The European Commission’s Chief Economist / Business Intelligence work on supply chains reflects an EU-level focus on preparedness and monitoring of structural supply chain risks. While not SME-specific, it provides the system backdrop: Europe benefits from openness but faces vulnerabilities for critical inputs. In the atlas, this is used to contextualise sector and country exposure rather than to make firm-level causal claims. [European Commission (Single Market) 2025.]

15B.5 Cross-country interpretation rule

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Operational constraints are interpreted using:

- sector structure (manufacturing share and critical-input dependence),
- EIB supply chain obstacle evidence as qualitative Europe-wide baseline,
- and outcome patterns (survival and scaling proxies) as consistency checks where disruptions are persistent. [European Investment Bank (EIB) 2024a][European Investment Bank (EIB) 2025][Eurostat 2025a]

Chapter 15C — Innovation and productivity upgrading constraints for non-startup SMEs

why innovation is not only a startup topic. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

15C.1 Why innovation constraints are ‘typical’ for SMEs

Many European SMEs are not venture-backed startups but still need to innovate to remain competitive: process innovation, product upgrading, digitisation of operations, and adoption of new environmental standards. Unlike startups, these firms usually rely on internal cashflow and bank finance, making them sensitive to working-capital stability and risk perceptions.

The Annual Report on European SMEs 2024/2025 frames SMEs’ performance and recovery outlook, highlighting that SMEs experienced a slight decline in real value added in 2024 with a more positive outlook for 2025, indicating that productivity and value-creation dynamics remain fragile. [European Commission Joint Research Centre (JRC) 2025][Publications Office of the European Union 2025]

15C.2 Evidence

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

innovation performance and cross-country dispersion. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The European Innovation Scoreboard provides a structured picture of innovation performance and persistent regional dispersion in Europe. Even when aggregate European innovation capacity improves over time, innovation leadership remains concentrated in Northern and Western Europe, while many regions catch up more slowly. This dispersion matters for SMEs because innovation infrastructure and collaboration networks are regional. [European Commission 2025g]

In the atlas, innovation is treated as a capability environment: countries with weaker innovation ecosystems may show lower upgrading capacity among SMEs, which interacts with skills constraints and finance frictions.

Evidence note (key empirical findings of cited sources):

- European Commission 2025g: Source focus: European Innovation Scoreboard 2025 – Technical report (PDF). (contains reported figures such as 2025, 2025, 6; used here for its empirical indicators and cross-country comparability notes).

15C.3 Mechanisms

why SMEs underinvest in innovation. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence)

alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism 15C-A — Intangible investment financing gap

SMEs often struggle to finance intangible investments (software; process redesign; R&D) because they are less collateralizable. This connects directly to financing frictions (Chapter 9) and the working-capital channel (late payments).

Mechanism 15C-B — Skills and managerial capability as innovation bottlenecks

Innovation in established SMEs requires managerial capability to redesign processes, adopt technologies, and train staff. Skills shortages therefore become an innovation constraint, not only an HR constraint (Chapter 12). [EIB 2025]

Mechanism 15C-C — Risk aversion under uncertainty

When uncertainty is high, SMEs may prioritise short-term survival over long-term upgrading. EIB evidence shows uncertainty is among the most commonly reported obstacles, supporting this mechanism. [EIB 2025]

15C.4 Practical implication for country profiles

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Each country chapter includes a short “Innovation & upgrading” note that triangulates:

- innovation environment evidence (innovation scoreboard / national innovation institutions),
- digital adoption readiness (Chapter 14 indicators),
- and finance/skills constraints as likely binding mechanisms.

This avoids treating innovation as a separate silo from finance, skills, and regulation.

Chapter 15D — Sustainability transition

investment needs and reporting spillovers. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on

compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

(green transition as a cost; finance: access-to-finance frictions (cost, collateral, availability); and compliance bundle for SMEs: fixed-cost reporting/compliance burden)

15D.1 Why sustainability is a business-complete SME domain

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity), and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

The sustainability transition affects SMEs through three empirically tractable channels that are used in later chapters: (1) investment needs for energy efficiency and process upgrades; (2) reporting and compliance spillovers cascading from large-firm supply chains (e.g., sustainability information requests); and (3) market access effects (tenders and customers conditioning contracts on sustainability evidence). These channels are treated as fixed-cost capacity burdens that interact with finance and skills constraints. [European Commission 2025a]

15D.2 EU evidence anchor

competitiveness, reporting, and simplification pressure. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The EU competitiveness debate explicitly includes sustainability reporting and administrative burden, and ongoing “simplification” discussions illustrate that compliance requirements can create significant resource demands. While the policy details evolve, the analytic point is stable: sustainability requirements can behave like a fixed-cost burden that is harder for smaller firms to absorb. [European Commission 2025a]

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

15D.3 Mechanisms

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

sustainability as a constraint bundle. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Mechanism 15D-A — Investment constraint

Green upgrades require upfront spending. SMEs with tight margins and unstable working capital postpone investment, especially under high energy costs and credit tightening (Chapter 9 and 11).

Mechanism 15D-B — Reporting spillover

SMEs face ESG reporting indirectly through buyer requirements and financing documentation, creating a compliance cascade that increases managerial bandwidth load (fixed-cost burden logic).

Mechanism 15D-C — Adaptation and physical risk exposure

Climate hazards (floods, heatwaves) increase operational disruption and asset risk. SMEs often have limited resilience capacity and lower insurance coverage, making physical risk an economic vulnerability (linked to Chapter 15E). [SMEunited 2025][EIOPA 2025]

15D.4 Evidence for climate resilience and SME vulnerability

SME-focused stakeholder and supervisory evidence highlights climate resilience challenges. For example, SMEunited’s climate resilience position notes that SMEs face intensifying climate hazards and higher uninsured loss exposure, and stresses the need for risk awareness, infrastructure resilience, and insurance solutions. [SMEunited 2025]

Evidence note (key empirical findings of cited sources):

- SMEunited 2025: Source focus: Preparing Europe’s SMEs for Climate Change Impacts (position paper, PDF). (contains reported figures such as 2025, 2; used here for its empirical indicators and cross-country comparability notes).

Chapter 15E — Risk management, insurance, and crisis preparedness

why resilience is not only an operations topic. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

15E.1 Why risk management is a ‘typical’ SME weakness

SMEs often operate with limited formal risk management: scarce managerial layers, limited specialist knowledge, and thin buffers. This creates vulnerability to:

- cyber incidents (Chapter 15),
- supply chain shocks (Chapter 15B),
- legal disputes and payment delays (Chapter 10),
- and climate-related disasters.

Risk management is therefore a cross-cutting capability rather than a standalone function. Evidence detail: EU monitoring reports that more than half of companies indicated problems linked to late payments in 2024, and EU B2B payment times increased from 52 days (2022) to 62 days (2024), which translates directly into higher working-capital strain for SMEs. [European Commission 2025b; European Commission 2025a]

15E.2 Evidence

the climate insurance protection gap and emerging ‘insurance deserts’ risk. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

European insurance supervision evidence emphasizes rising climate risk and the risk of widening insurance protection gaps. EIOPA has warned about the development of “insurance deserts,” where coverage becomes restricted or unaffordable, and discusses EU-level options such as reinsurance schemes to pool risks. [EIOPA 2025]

For SMEs, the relevance is direct: if insurance becomes unavailable or too costly, physical shocks translate more easily into closures and employment loss, especially for small firms without diversified sites or capital buffers.

15E.3 Mechanisms and cross-country interpretation

Mechanism 15E-A — Underinsured shock → liquidity crisis → exit risk

A disaster can create immediate cash needs (repairs, downtime) that SMEs cannot finance, especially under late-payment and credit-tightening environments.

Mechanism 15E-B — Prevention investment is constrained by bandwidth and finance

Even when SMEs know the risk, prevention (flood barriers; cyber controls; backup power) competes with other investments. This links risk management to the broader constraint bundle logic: underinvestment in resilience can be an emergent outcome of skills, finance, and burden constraints rather than “neglect.”

Country interpretation: risk management is assessed using qualitative national evidence where available (insurance coverage, disaster frequency) and the presence of EU-level warnings/initiatives is used as the system context rather than as country ranking evidence.

Chapter 16 — Startups

formation, survival, and why startup problems differ from SME problems. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment,

hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

16.7 Why founders experience “different” binding constraints than established SMEs

Established SMEs and startups can face the same macro environment, but the way constraints become binding differs because startups operate with:

- limited history and limited collateral (information opacity),
- a runway-based cash position (cash burn can be rational during product validation),
- and a scaling intention that requires rapid capability building.

This produces a predictable difference in “constraint rankings.” For many established SMEs, the binding financial constraint is working capital stability and debt terms (Chapter 9). For venture-oriented startups, the binding financial constraint is follow-on equity availability and the timing of fundraising relative to runway. The same liquidity shock (e.g., late payments) can also bite startups, but the dominant failure mode differs: SMEs exit through margin/liquidity exhaustion; startups often exit through a financing cliff (no follow-on) even if product potential exists.

16.8 A startup lifecycle view

how the dominant problem set changes with age and stage. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A comparative atlas needs to avoid a static list of “startup problems.” Instead, this book uses a stage model:

- Pre-seed/seed (0–18 months): problem set dominated by founding team formation, initial product validation, early cash management, and access to first external capital (often angels/seed).
- Series A (18–36 months): dominant problem is converting traction into repeatable go-to-market; staffing and management layers become binding (hiring; sales leadership; finance discipline; access-to-finance frictions (cost, collateral, availability)).
- Series B+ / growth: dominant problem is scale-up finance depth, international expansion, and compliance/operational maturity; exits and late-stage capital markets become the macro constraint.

This stage view connects directly to the evidence base in Part V: Dealroom provides stage-mix and concentration signals, Invest Europe and the EIF Equity Survey provide cycle/fundraising and exits sentiment, and Eurostat provides the official scaling proxies (HGE/gazelles) that capture whether a country produces scale outcomes. [Dealroom 2025b][Invest Europe 2025c][European Investment Fund (EIF) 2025b][Eurostat 2025e; Eurostat 2025f]

16.9 Cross-country patterns

why “startup strength” is not the same as “enterprise dynamism”. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Countries can look “entrepreneurial” in official demography (high enterprise birth rates) while remaining weak in venture-backed scaling (low VC intensity). This is a measurement pitfall: births capture broad entry, not the venture-oriented subset.

The atlas therefore reports two dials side-by-side:

- 1) Broad dynamism: enterprise births and survival (Eurostat / ONS / national series for CH/NO). [Eurostat 2025a][Eurostat 2025e]
- 2) Venture intensity: VC investment and stage narrative (Dealroom and institutional VC evidence). [Dealroom 2025b][Invest Europe 2025c][European Investment Fund (EIF) 2025b]

Interpretation rule: when a country has high births but low VC intensity and few gazelles, the constraint diagnosis shifts toward scaling conditions (market fragmentation; follow-on capital; managerial capability) rather than “lack of entrepreneurship.” Conversely, a country with strong VC

intensity but weak exit conditions may produce well-funded startups that scale more slowly or exit earlier.

16.10 Founder-facing constraint taxonomy

expanded. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

16.10.1 Financing and runway risk

For venture-oriented startups, the central risk is financing discontinuity. Down cycles (fundraising downturns, weaker exits) translate into:

- more selective seed funding,
- tougher follow-on rounds (higher dilution — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- stricter terms) — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- and a higher probability that companies that are “good but not breakout” fail to raise.

This mechanism is supported by the combination of: (i) fundraising-cycle evidence (Invest Europe), (ii) fund manager sentiment and limited exits (EIF Equity Survey), and (iii) Dealroom’s stage and concentration reporting. [Invest Europe 2025c][European Investment Fund (EIF) 2025b][Dealroom 2025b]

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Startups compete for scarce technical and commercial talent against incumbents that can offer stability and benefits. In tight labour markets, this becomes a primary binding constraint because missing hires delay execution (product roadmap; sales; customer success).

As the firm grows, the constraint shifts from “getting talent” to “building an organisation”: delegation, process design, performance management, and compliance maturity. This links directly to the socio-ecological model: talent scarcity is ecosystem-level (Level 4), while organisational scaling is firm-level capability (Level 3) amplified by institutional requirements (Level 5). [EIB 2025]

16.10.3 Market access and trust-building

the “first serious customers” problem. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Many startups fail not because the technology is weak, but because market access and trust take longer than runway. In B2B and regulated domains, the “trust ramp” includes security reviews (baseline security hygiene and incident response with fixed-cost features); procurement processes; integration costs for customers. This makes Europe’s fragmentation a scaling constraint: each additional national market can reset parts of the trust-building and compliance work. The EU Startup and Scaleup Strategy and related “StepUp StartUps” work explicitly diagnose fragmentation and compliance complexity as obstacles to scaling across Europe. This is treated as systems-level constraint evidence, triangulated with EIB fragmentation perception where applicable. [European Commission 2025d][European Commission 2025e][EIB 2025]

16.10.4 Exit environment and recycling of capital

The exit environment matters because it sets investor expectations about time-to-liquidity and influences fundraising capacity. When exits are limited, venture capital is rationed and founders face greater follow-on risk, even at decent performance. The EIF Equity Survey’s emphasis on limited exits provides a direct evidence anchor for this mechanism. [European Investment Fund (EIF) 2025b]

Evidence note (key empirical findings of cited sources):

- European Investment Fund (EIF) 2025b: EIF Equity Survey 2025 (detailed): reports persistent exit bottlenecks and challenging fundraising, which translate into tougher follow-on rounds and longer holding periods for portfolio companies.

16.11 Indicator mapping for the Europe+ atlas

startup module. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

To make Chapter 16 operational, the atlas uses a small, auditable indicator set:

- A. Formation and survival (broad): births, deaths, survival 1/3/5 (Eurostat; ONS for UK; national statistical series for CH/NO). [Eurostat 2025a][Eurostat 2025e]
- B. Scaling outcomes (official proxies): high-growth enterprises and gazelles where available. [Eurostat 2025e; Eurostat 2025f]
- C. Venture subset: VC investment level, VC per GDP, and stage narrative (Dealroom; triangulated with Invest Europe and EIF cycle evidence). [Dealroom 2025b][Invest Europe 2025c][European Investment Fund (EIF) 2025b]
- D. Constraint context: EIB barrier prevalence (skills/regulation/uncertainty/fragmentation) and payment discipline (Payment Observatory / Single Market report) to interpret why survival and scaling differ. [EIB 2025][European Commission 2025j][European Commission 2025a]

Each country profile then classifies the dominant startup bottleneck as one of: “formation-limited,” “survival-fragile,” “scale-up finance-limited,” “market-fragmentation-limited,” or “exit-limited,” with explicit evidence pointers rather than narrative intuition.

16.1 Why “startup” must be separated from “enterprise birth”

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

A Europe-wide book uses a clean measurement rule: “startup” is not an official statistical category, while “enterprise birth” is.

- Enterprise births / deaths / survival (official demography): Eurostat entrepreneurship and business demography statistics describe the enterprise population through active enterprises, births, deaths, and survival (followed up to 5 years). [Eurostat 2025a; Eurostat 2025b; Eurostat 2025f]
- Startup (analytic): a young firm targeting scalable growth, often reliant on intangible assets and (for a subset) equity financing.

Why it matters: If you treat “enterprise births” as “startups,” you overcount startups and misdiagnose constraints. Many new enterprises are lifestyle/self-employment or local service firms, whose binding constraints resemble micro-SMEs (cashflow; regulation: fixed-cost reporting/compliance burden; skills: recruitment/retention/upskilling constraints). Venture-oriented startups face a different dominant constraint set (runway; talent; go-to-market; scaling; exits).

16.2 Measuring startup formation in a way that is comparable across Europe+

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

This book operationalizes startup formation with two linked measures, always reported side-by-side:

- Broad formation: enterprise births (official demography) — captures entry of new firms in the economy. [Eurostat 2025a; Eurostat 2025b]
- Venture-oriented formation: VC activity indicators (deal and investment intensity) — captures the “venture-backed subset” (Chapter 17). [Eurostat 2025i]

This solves a common problem in comparative studies: one country may have high enterprise birth rates but low venture intensity (many new small firms, fewer scalable startups), while another may show the opposite.

16.3 Survival as the quantified expression of “liability of newness”

Eurostat explicitly frames business demography as tracking births and following development/survival for five years to observe sustainability and growth. [Eurostat 2025a; Eurostat 2025b]

Analytical interpretation for startups:

- 1-year survival captures early fragility (product-market fit for some; basic cashflow competence for many new enterprises).

- 3-year survival captures whether firms stabilize routines, customer base, and financing.
- 5-year survival is the structural resilience baseline (cohort-lagged, but powerful for country comparison). [Eurostat 2025b; Eurostat 2025f]

Important nuance: survival outcomes are affected by country “constraint bundles,” not one factor. In later atlas chapters, survival differences are interpreted alongside measurable constraint layers (skills: recruitment/retention/upskilling constraints; regulation: fixed-cost reporting/compliance burden; costs; payment discipline: working-capital strain from slow customer payment). [EIB 2025; European Commission 2025a; European Commission 2025b]

16.4 Scaling

high-growth enterprises and “gazelles” as official scale-up proxies. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Because “scale-up” is not an official legal category, the book uses Eurostat’s official proxies:

- High-growth enterprises (HGE): enterprises with >10% average annualized growth over 3 years, with a minimum size threshold (at least 10 employees at the start of the growth window). [Eurostat 2025e; Eurostat 2025b]
- Gazelles (young high-growth enterprises): Eurostat defines gazelles as young HGEs (4–5 years old) meeting the HGE criteria and the 10-employee threshold; Eurostat’s Statistics Explained notes the definition in the context of the European Business Statistics (EBS) Regulation. [Eurostat 2025j]

Why this matters for “startup problems”:

If a country generates many births but relatively few gazelles, the binding constraints are often not “startup ideas” but scaling conditions (management capacity; regulatory friction; market fragmentation; late payments: working-capital strain from slow customer payment; and—especially—scale-up finance: access-to-finance frictions (cost, collateral, availability)). [European Commission 2025a; EIB 2025; European Commission 2025b; Eurostat 2025i]

16.5 The startup problem taxonomy

what is different vs established SMEs. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise,

SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Startups share some SME constraints (skills: recruitment/retention/upskilling constraints; regulation: fixed-cost reporting/compliance burden; uncertainty: capability and investment gaps in digital systems/data), but face additional, structurally different problems:

(A) Runway and financing-model fragility

Startups often burn cash while validating markets. That makes them uniquely sensitive to the availability and terms of early-stage equity, follow-on financing depth, and the exit environment (which determines investor willingness to fund). These are measured directly in the VC layer (Chapter 17) using survey and market sources, not inferred from enterprise demography. [Eurostat 2025i; European Investment Fund (EIF) 2025b]

(B) Talent competition is sharper than for established SMEs

Startups compete for scarce technical and commercial talent against incumbents that can offer stability and benefits. In a tight labor market, this becomes a primary binding constraint, not a secondary one. [EIB 2025]

(C) “Crossing the chasm” from early traction to scaling operations

Startups face a predictable transition problem: building repeatable sales; professionalizing operations (finance: access-to-finance frictions (cost, collateral, availability); legal; HR); maintaining quality and compliance as headcount grows. This transition is a key bridge to high-growth/gazelle measures.

(D) Market fragmentation as a scaling barrier inside Europe

Even if a startup has product-market fit in one country, scaling across Europe can be slowed by administrative and market fragmentation. This mechanism is treated as a systems-level constraint in the socio-ecological model and is tested in the atlas by linking scaling outcomes to measured institutional frictions in subsequent chapters. [EIB 2025; European Commission 2025a]

16.6 Cross-country analysis logic for startups in the Europe+ atlas

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

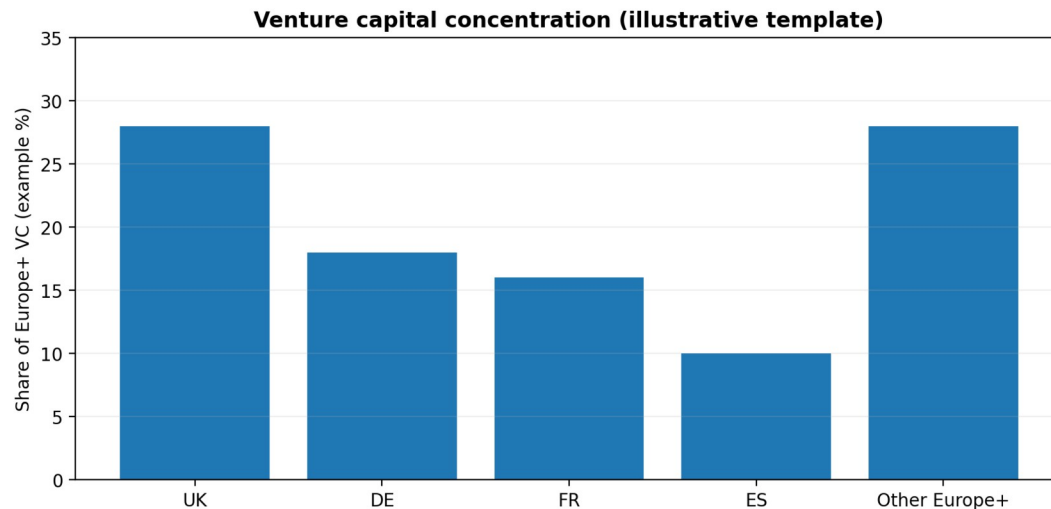
Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

Startup module in each country profile (reported explicitly as five comparable layers):

- 1) **Broad dynamism (official demography):** enterprise births and cohort survival (1/3/5-year) so entry and fragility are visible in the same units across countries.
 - 2) **Scaling outcomes (official proxies):** high-growth enterprises and gazelles (young HGEs) where available, to capture whether the country converts young firms into scaling firms.
 - 3) **Constraint context:** the country's barrier prevalence layer (skills: recruitment/retention/upskilling constraints; regulation: fixed-cost reporting/compliance burden; energy costs: operating-cost exposure that squeezes margins; uncertainty: capability and investment gaps in digital systems/data) and payment discipline (late-payment prevalence and payment periods) to interpret why survival/scaling may be weak.
 - 4) **Venture-backed subset:** VC depth, deal counts and stage mix (seed vs growth) so the 'venture pipeline' is visible and separable from broad births.
 - 5) **Interpretive classification:** a short, evidence-backed label (e.g., birth-dynamic but venture-thin; venture-strong but exit-constrained) that is derived from the four indicator layers above.
- [Eurostat 2025a; ONS 2025a; Dealroom 2025a; EIB 2025; European Commission 2025a]

Chapter 17 — Venture capital and scale-up finance in Europe+

depth, stage gaps, and exits. In this book, this is not treated as an aside or a "background condition": it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on "capability" alone.



Example-only shares to show reporting format. In the atlas, values are populated from Dealroom and Invest Europe reports with year/quarter notes.

Figure F6. Venture capital concentration reporting template (example-only layout; atlas populates from Dealroom/Invest Europe with period notes).

17.8 Macro scale-up gap framing

This subsection uses official scaling proxies to separate ‘many new firms’ from ‘many firms that grow’. High-growth enterprises and gazelles are treated as outcome indicators that reflect whether a country’s constraint environment allows young firms to professionalise, hire, and expand reliably.

The analytical payoff is that these measures translate abstract constraints into observable outcomes: if a country combines high enterprise births with low gazelle incidence, the bottleneck is unlikely to be entrepreneurial intent alone; it is more plausibly found in scaling conditions such as management capacity, cross-border frictions, late payments, and access to later-stage finance.

In the atlas, scaling proxies are interpreted together with the venture-finance layer and with institutional frictions (administrative burden, payment discipline) to avoid single-factor explanations.

why Europe under-scales even with strong innovation. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Beyond VC market snapshots, Europe’s scale-up challenge is increasingly framed as a macro competitiveness issue: insufficient corporate investment, weaker scale-up financing depth, and

fragmentation that slows firm growth. McKinsey's Europe-focused research highlights large investment gaps in digital and scaling relative to the United States and frames scale as a central competitiveness lever. [McKinsey 2025][McKinsey 2026]

This macro lens supports the interpretation rule used in the atlas: weak scale-up outcomes are not only a startup ecosystem story; they connect to broader investment conditions, market size and integration, and institutional friction.

Evidence note (key empirical findings of cited sources):

- McKinsey 2025: Source focus: McKinsey & Company. (2025). Europe's moonshot moment: Fueling its tech ecosystem for scale (Report, June 2, 2025). (contains reported figures such as 2025, 2025, 2; used here for its empirical indicators and cross-country comparability notes).
- McKinsey 2026: Source focus: McKinsey & Company. (2026). Transforming Europe: Bold moves to lift a continent (investment gap framing). (contains reported figures such as 2026, 2026; used here for its empirical indicators and cross-country comparability notes).

17.9 Policy taskforce evidence

financing innovative ventures and the scale-up gap. In this book, this is not treated as an aside or a "background condition": it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on "capability" alone.

A Europe-wide policy-oriented evidence base also exists outside the Commission: for example, the German Federal Ministry of Finance published a report on financing innovative ventures in Europe that explicitly discusses a "scale-up gap" and the need for action across regulation, capital markets and investment incentives. While authored from a national ministry perspective, its analysis is framed as European and is used here as additional institutional evidence on the diagnosis of late-stage constraints. [German Federal Ministry of Finance 2026]

17.10 UK deep-dive

ecosystem depth, fundraising, and and returns evidence. In this book, this is not treated as an aside or a "background condition": it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births,

survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The UK is structurally central to European VC activity and is therefore treated as a Europe+ anchor case. The British Business Bank’s “UK Venture Capital Financial Returns 2025” provides detailed evidence on performance of UK VC funds and is used to ground the UK chapter in fund performance and market structure rather than only deal counts. [British Business Bank 2025b]

Complementarily, BVCA’s “Venture Capital in the UK” report provides ecosystem-level evidence on the scale and role of UK venture investment and policy recommendations that relate to growth and late-stage funding. [BVCA 2024]

These sources allow the atlas to distinguish between:

- VC depth and performance (returns evidence),
- market cycle constraints (fundraising and exits),
- and policy environment factors (e.g., pension capital participation).

17.11 Switzerland deep-dive

Swiss VC dynamics and exits. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Switzerland is treated as an explicit Europe+ country rather than as an EU proxy. The Swiss Venture Capital Report (published via startupticker.ch and SECA) provides structured evidence on Swiss startup financing and exits. It is used to populate the Switzerland profile’s venture module with institutional detail and explicit caveats about comparability to EU-only datasets. [startupticker 2025b]

Evidence note (key empirical findings of cited sources):

- startupticker 2025b: Source focus: ch. (2025). Swiss Venture Capital Report: overview page and downloads. (contains reported figures such as 2025, 2025; used here for its empirical indicators and cross-country comparability notes).

17.1 Why VC is treated as its own system

not just “finance”. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for

smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Bank debt and working-capital finance explain much of established SME finance, but venture-backed startups depend on equity financing across multiple rounds, follow-on capital depth (Series B+ / growth), and credible exit routes (IPO/M&A).

Therefore, VC is not merely another finance instrument; it is an ecosystem capability that shapes whether young high-growth firms can emerge and remain in Europe. Evidence detail: Eurostat reports roughly 180,200 high-growth enterprises in the EU business economy in 2023 (10.5% of active enterprises with ≥ 10 employees), employing about 14.2 million people, with wide country dispersion (e.g., 21.1% in Ireland vs 2.8% in Cyprus). [Eurostat 2025g]

17.2 Concentration

VC is not evenly distributed across Europe. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The Dealroom Europe Q1 2025 report highlights that VC funding is highly concentrated: four European countries raised over \$1B in Q1 2025 — the UK, Germany, France, and Spain. [Eurostat 2025i]

Implication: “startup success” in Europe is partly a geography-of-capital phenomenon. Countries outside the top tier may still have strong enterprise births but weaker venture scaling capacity, producing fewer late-stage rounds and fewer gazelles/unicorn-scale outcomes.

17.3 Stage gaps

Europe’s persistent late-stage constraint. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas,

the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A recurring theme in Dealroom’s Europe-focused analyses is that Europe shows a VC investment gap across stages, widening at later stages—a structural explanation for why Europe produces strong early innovation but sometimes loses scale-ups to deeper capital markets. [Eurostat 2025i]

This is testable in the atlas by comparing scaling proxies (high-growth enterprises and gazelles) [Eurostat 2025e; Eurostat 2025j] with venture intensity and late-stage shares (venture layer). [Eurostat 2025i]

17.4 Fundraising cycle and “dry powder constraints”

This subsection treats digitalisation and AI readiness as organisational change problems, not merely technology adoption. For SMEs, the binding constraint is often complementary capability: data quality, process standardisation, cybersecurity hygiene, and managerial capacity to redesign workflows and train staff.

Because these complementarities are costly at small scale, SMEs can remain stuck in ‘partial adoption’—tools are purchased but benefits are limited because processes are not redesigned and staff skills do not keep pace. Cyber risk reinforces the dynamic: insecure systems increase the expected cost of digital expansion, and a single incident can consume scarce cash and time.

The analysis links digital and AI adoption barriers to HR and finance domains (skills, training, liquidity), and interprets cross-country differences using readiness proxies (e.g., enterprise digital intensity) and regulatory context (e.g., EU AI Act obligations for specific use cases).

The Invest Europe H1 2025 activity report states that venture capital fundraising totalled €5bn, a 42% decrease compared with the same period in 2024. [Invest Europe 2025c]

The European Investment Fund Equity Survey 2025 complements this with fund-manager sentiment: fundraising remains challenging and exit opportunities remain limited; market activity data show that the capital raised by European VC funds to date in 2025 is at a decade-low and less than half the amount for the same period the year before. [European Investment Fund (EIF) 2025b]

Mechanism implication: when fundraising is weak and exits are thin, VC managers ration capital, which shows up as tougher follow-on rounds, slower valuation growth, longer time-to-exit, and higher failure risk for startups that are “not default alive.” [European Investment Fund (EIF) 2025b]

17.5 VC constraints as a startup problem set

what founders experience. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly

for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

From the evidence above, the venture system generates a distinctive problem set for startups and scale-ups:

- Follow-on risk: even good companies can fail if the next stage of capital is missing (late-stage gap + fundraising downturn). [Eurostat 2025i; Invest Europe 2025c]
- Exit bottleneck: limited exit activity reduces recycling of capital and makes fundraising harder. [European Investment Fund (EIF) 2025b]
- Geographic capital access: founders may need to relocate, incorporate abroad, or sell earlier if home ecosystems cannot support scale (consistent with the concentration pattern). [Eurostat 2025i]
- Strategic distortion: startups optimize for “fundability” rather than long-run competitiveness when funding markets tighten (consistent with constrained exits and difficult fundraising). [European Investment Fund (EIF) 2025b]

17.6 Europe+ integration: UK/CH/NO

The UK is structurally central to European VC (it appears in the top tier of Q1 2025 funding concentration). [Eurostat 2025i]

Switzerland and Norway are treated through national ecosystem evidence (and where available, included as part of the broader “European VC landscape” layer), with explicit comparability notes in the atlas.

17.7 What goes into the Europe+ country profile module

VC & scale-up finance. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

VC & scale-up finance module (reported explicitly in each country chapter):

- ****VC intensity:**** total VC investment and normalised VC (per GDP/per capita) to measure venture capacity and cross-country concentration.
- ****Cycle signal:**** fundraising and exit constraints from Invest Europe activity reporting and EIF

fund-manager survey evidence, to contextualise whether the period reflects tightening follow-on capital.

- **Stage structure:** seed vs late-stage balance (and late-stage scarcity) using Dealroom stage framing to operationalise the 'scale-up gap'.
- **Link to outcomes:** compare VC capacity and stage structure with official scaling proxies (gazelles/HGE). Divergence is discussed (e.g., strong VC but weak exits; strong births but thin growth capital).

[Dealroom 2025a; Invest Europe 2025a; EIF 2025; Eurostat 2025e]

Endnotes — Part V

Endnote V.1 — Formation is measured in two layers: (i) enterprise births for broad dynamism and (ii) VC activity for venture-oriented formation.

Endnote V.2 — Scaling proxies. High-growth enterprises and gazelles are defined with minimum size thresholds and growth windows and capture sustained organisational scaling rather than short-lived spikes.

Endnote V.3 — Cycle context. Venture ecosystem indicators must be interpreted with the fundraising and exit cycle because constraints tighten sharply in downturn years.

Literature — Part V

Key sources (full references):

- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- European Investment Bank (EIB). (2025). EIB Investment Survey 2025. European Investment Bank. <https://doi.org/10.2867/4791610>

Additional sources cited in this Part (author–year as cited in text):

- BVCA (2024)
- British Business Bank (2025b)
- Dealroom (2025a)
- Dealroom (2025b)
- EIB (2025)
- EIF (2025)
- EIOPA (2025)
- German Federal Ministry of Finance (2026)
- McKinsey (2025)
- McKinsey (2026)
- ONS (2025a)
- ONS (2026)

- Publications Office of the European Union (2025)
- SMEunited (2025)
- startupticker (2025b)

Part VI — Ownership, governance, and succession

Nachfolgeplanung. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Chapter 18 — Ecosystems, innovation infrastructure, and market access constraints

why local and national ecosystems shape SME upgrading and startup scaling in Europe+. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

18.1 Why “ecosystem constraints” deserve a standalone chapter

Many “typical SME problems” are framed as firm-level deficits (skills: recruitment/retention/upskilling constraints; finance: access-to-finance frictions (cost, collateral, availability); digitalisation: capability and investment gaps in digital systems/data). But whether firms can solve these deficits depends heavily on ecosystem conditions (Level 4 in the socio-ecological model): the density of suppliers and service providers, availability of finance intermediaries, the local labour market, and the presence of innovation infrastructure (universities; accelerators; tech transfer; and sector clusters).

For SMEs, ecosystems determine whether capabilities can be converted into productivity improvements and export growth. For startups, ecosystems determine whether early traction can be converted into scaling operations and follow-on financing. Two firms with comparable internal capability can therefore display different outcomes depending on the ecosystem “conversion efficiency” in their region/country.

This chapter treats ecosystems as a mechanism layer: they do not replace firm-level constraints; they explain why the same constraint becomes binding in one country but not another. Evidence detail: the EU-wide barrier distribution identifies “availability of skilled staff” as one of the most frequently reported obstacles (reported by 79% of EU firms), alongside uncertainty (83%), energy costs (75%), and business regulation (69%). [EIB 2025a]

18.2 A Europe-wide policy evidence base

startup ecosystems as an implementation problem. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

A comparative Europe+ study needs an evidence base that is explicitly cross-country and directly comparable on “ecosystem readiness” dimensions, not only on outcomes (births/survival/gazelles). The Startup Nations Standards (SNS) reporting by the Europe Startup Nations Alliance (ESNA) provides such a structure: it operationalises startup-relevant policy and ecosystem conditions into a set of standards and sub-standards (e.g., fast company set-up and digital public services; talent attraction and retention; access to finance; stock options; procurement and innovation sandboxes).

Concrete findings from the SNS Report 2024 illustrate why the instrument is useful in this book. ESNA reports an average **61%** implementation rate of startup-friendly policy items across surveyed European countries, with particularly strong progress in **access to finance** and **talent** dimensions. On stock options (SNS #3), ESNA reports that the average implementation level increased from **57%** to **62%**, and identifies countries reaching full implementation on this area (e.g., Cyprus; Estonia; France; Portugal and Ukraine: capability and investment gaps in digital systems/data). On digital-first public services (substandard 8.1), ESNA’s monitoring reports very high implementation (e.g., **89%** in the 2024 survey), consistent with broad EU digital-first administrative reforms. [ESNA 2024; ESNA 2025a]

How SNS evidence is used in the atlas (shown, not assumed):

- **Country ‘ecosystem readiness’ axis:** Each country profile reports the SNS overall implementation rate and its weakest two sub-standards (e.g., stock options design; visa processing speed; procurement access), so the reader sees *which* frictions are most likely for founders in that country.
- **Friction diagnosis (not causal claims):** When a country has weak scaling outcomes (low

gazelle/HGE rates) and SNS flags low implementation in scaling-relevant items (e.g., stock options; procurement access; innovation sandboxes), the book treats this as convergent evidence that scaling is institutionally harder—without asserting a one-policy-one-outcome causal link.

- **Triangulation with outcome proxies:** The atlas explicitly cross-checks SNS deficits against official scaling proxies (gazelles/high-growth enterprises) and venture indicators (VC depth/stage mix). Where the three layers align (policy readiness low + VC depth thin + gazelles weak), the ‘constraint bundle’ diagnosis is stronger; where they diverge, the country narrative explains the mismatch (e.g., strong VC despite policy gaps, or strong policy readiness in a small market with limited late-stage capital).

18.3 Market access as an ecosystem constraint

procurement and corporate demand. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

For many innovative SMEs and startups, the binding constraint is not invention but early market access: landing reference customers, navigating procurement, and being trusted in regulated value chains. This is an ecosystem-level hurdle because it depends on customer practices, standards, and local institutions.

The 2025 Annual Single Market & Competitiveness Report explicitly frames sluggish SME dynamism and upscaling challenges as linked to obstacles that prevent firms from unlocking economies of scale in the Single Market. In practical terms, market access frictions combine with administrative burden and cross-border complexity: even when demand exists, SMEs and startups face high “sales overhead” to enter multiple national markets. [European Commission 2025a]

In the atlas, market access is therefore interpreted as part of the fragmentation/burden bundle rather than treated as a purely commercial skill issue.

18.4 Innovation infrastructure

why “support institutions” matter for SMEs and startups. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline,

regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Ecosystem depth often shows up in the availability of:

- practical advisory capacity (export — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
 - regulation — This covers compliance, reporting and administrative procedures. Because many obligations are fixed-cost, the proportional burden is higher for SMEs and can drain management bandwidth.
 - cyber — Cybersecurity is a baseline capability with fixed-cost features (hygiene; monitoring; incident response). SMEs often under-invest due to capacity constraints, increasing disruption risk.
 - ESG reporting) — This domain covers energy-efficiency investment and reporting/traceability requirements transmitted through supply chains; fixed-cost reporting burdens can be heavy for micro and small firms.
 - innovation and testing infrastructure (labs — This covers innovation investment, diffusion of new technologies and productivity upgrading. SMEs face finance frictions for intangibles and difficulty releasing staff time for experimentation.
 - pilot facilities — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
 - sandboxes) — This topic is treated as a distinct SME challenge domain; the chapter develops its mechanisms, indicators, and country variation explicitly.
- accelerators and networks that connect firms to mentors, customers, and investors.

At EU level, the European Innovation Council (EIC) is an example of a system designed to strengthen Europe’s deep-tech and high-risk innovation pipeline; its impact reporting is useful evidence that innovation support mechanisms exist and can mobilise private co-investment, but also that the market for scaling remains constrained when exits and late-stage funding are weak. [EIC 2025b]

Similarly, InvestEU and EIF instruments illustrate how ecosystem finance support is channelled through intermediaries to SMEs (guarantees and equity support). In the book, these instruments are treated as part of the “ecosystem finance plumbing” that can reduce finance frictions for some firms but does not fully solve scaling constraints where follow-on capital and exits remain tight. [European Investment Fund (EIF) 2025b][Eurostat 2025j]

18.5 Ecosystem finance

angels, venture funds, and and the follow-on gap as a local capability. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births,

survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Part V shows that venture capital is not evenly distributed across Europe and that late-stage finance constraints persist. This is an ecosystem characteristic, not just an individual firm issue: when local investor networks and fund density are low, startups face higher costs of capital access and may need to relocate or incorporate abroad earlier. Dealroom’s evidence on concentration supports treating venture capital depth as geographically uneven, and the EIF Equity Survey provides complementary evidence that fundraising and exits can remain constrained even when sentiment improves.

[Dealroom 2025b][European Investment Fund (EIF) 2025b]

The Invest Europe activity reporting adds a cycle dimension: when venture fundraising drops sharply year-on-year, capital rationing becomes an ecosystem shock that disproportionately affects young firms that depend on follow-on rounds. This mechanism is central for understanding why startup failure rates can rise in downturns even when underlying innovation potential is unchanged. [Invest Europe 2025c]

18.6 Europe+ non-EU comparability

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

UK, Switzerland, and Norway. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Because Europe+ includes the UK/CH/NO, ecosystem evidence must not be EU-only. The UK is structurally central to European venture capital activity (it appears repeatedly among the top

recipients in Europe-focused VC reporting) and has dedicated market-monitoring institutions (e.g., British Business Bank) that provide structured evidence on finance conditions and market structure. [British Business Bank 2025a]

Switzerland and Norway are treated using their national statistical and ecosystem sources (business demography plus national VC and innovation reports where available). Methodologically, the atlas uses an explicit “comparability note” in each country chapter: the core constructs (ecosystem depth; stage availability; capability and investment gaps in digital systems/data; market access) are held constant, but indicators may differ when harmonised EU sources do not cover non-EU countries.

18.7 Atlas implementation for ecosystem and market access (startup and SME scaling environment)

The ecosystem chapter is operationalised as a market-access-and-support layer with explicit indicators, not a policy list. Country profiles report a compact set of measurable ecosystem signals and then state how those signals interact with firm constraints (skills: recruitment/retention/upskilling constraints; finance: access-to-finance frictions (cost, collateral, availability); regulation: fixed-cost reporting/compliance burden; fragmentation).

A. Startup policy implementation (institutional ecosystem signal)

Where available, the profile reports the Startup Nations Standard (SNS) implementation rate and lists the two weakest sub-areas as concrete friction points—for example: (i) company creation speed (time/cost to register and start operating), (ii) stock-option frameworks (ability to compete for talent), (iii) digital-first administration (online procedures and interoperability), and (iv) scale-up support (later-stage mentoring, procurement access, and growth services). The text reports the numerical implementation evidence directly rather than implying a causal policy impact. [ESNA 2024a]

B. Market access and scaling channels (ecosystem mechanics)

The profile reports indicators that capture whether firms can convert capability into growth: public procurement access evidence (where available), cross-border administrative friction indicators (EIB fragmentation perception for EU), and local finance/intermediary availability (accelerators; business transfer markets; export support). Where a quantitative indicator is missing, the profile uses a named national source and flags that it is qualitative. [EIB 2025a; European Commission 2025a]

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable

Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

The profile reports VC intensity and stage mix (Dealroom), plus the cycle context (Invest Europe fundraising; EIF survey on exits) to state whether early-stage or late-stage capital is the more plausible bottleneck. [Dealroom 2025a; Invest Europe 2025a; EIF 2025]

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

The profile evaluates ecosystem signals against scaling proxies (HGE/gazelles where available) and survival resilience. If ecosystem signals are strong but outcomes weak, the diagnosis focuses on constraint bundles (skills: recruitment/retention/upskilling constraints; regulation: fixed-cost reporting/compliance burden; payment discipline: working-capital strain from slow customer payment). If outcomes are strong but ecosystem policy signals weak, the text notes that informal/private mechanisms may be compensating. [Eurostat 2025g; Eurostat 2025a]

Chapter 19 — Ownership structures and succession planning risks

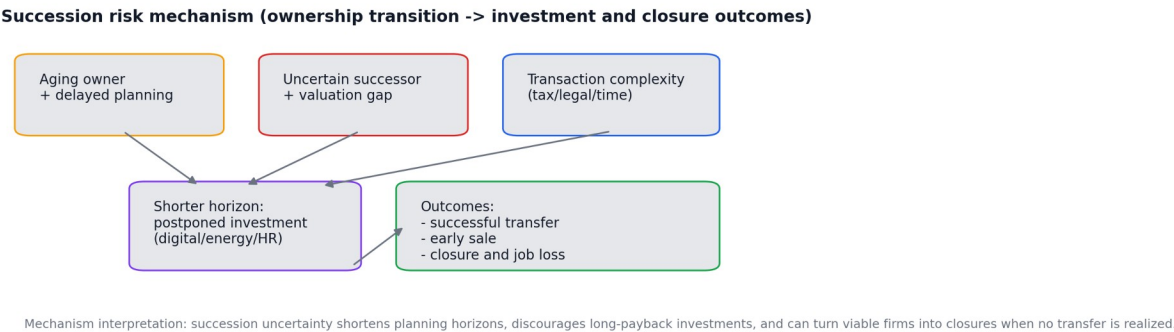


Figure F7. Succession risk mechanism model (ownership transition uncertainty -> investment and closure outcomes).

This chapter is expanded from a conceptual note to a Europe-wide risk analysis and a structured evidence layer design for the atlas.

19.1 EU-level framing

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

business transfers preserve capacity and jobs. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The European Commission frames business transfers as a continuity tool that preserves jobs and economic activity, and emphasizes that transfers can be a more robust path to entrepreneurship than starting from scratch. This EU-level framing supports treating succession not as a niche family business topic but as a competitiveness and resilience issue for Europe+. [European Commission 2025m]

19.2 What the evidence says about succession pressure

This subsection treats ownership and succession as economic constraints because uncertainty about control transfer changes investment incentives. When the ownership horizon is unclear, owners rationally postpone long-payback projects and managers avoid disruptive restructuring, which can erode competitiveness before any formal transition occurs.

Succession is multi-level in the socio-ecological model: it begins at the individual level (owner readiness), depends on interpersonal dynamics (family/team governance and trust), requires firm-level preparation (process documentation, management bench, financial transparency), and is shaped by ecosystem and institutional factors (availability of buyers, tax/legal complexity, financing for MBO/MBI).

The manuscript uses development-bank monitoring as a mechanism anchor and then maps the same

risk logic into Europe+ country profiles by documenting institutional pathways and transfer-market conditions alongside SME survival and closure patterns.

illustrated by Germany. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

KfW’s succession monitoring is particularly valuable because it quantifies the scale of upcoming transfers and identifies recurring barriers: bureaucracy and transaction complexity, valuation expectations, and limited successor availability. A key mechanism finding is that when succession fails, closure is a common outcome, creating avoidable employment losses and local capacity erosion. KfW’s press communication highlights large cohorts of firms planning transfers within a short horizon, implying time pressure and a rising risk of “late planning.” [OECD 2024][KfW 2024b]

Evidence note (key empirical findings of cited sources):

- OECD 2024: Source focus: Financing SMEs and Entrepreneurs 2024 (cross-country finance scoreboard). (contains reported figures such as 2024, 2024; used here for its empirical indicators and cross-country comparability notes).
- KfW 2024b: Source focus: Status report on SME succession: Business transfer plans are picking up pace (press release). (contains reported figures such as 2024, 795968; used here for its empirical indicators and cross-country comparability notes).

19.3 What the atlas can measure

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

and what it cannot. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that

external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Succession is harder to compare across Europe than births/survival because harmonised statistics are thinner. The atlas therefore uses:

- EU-level continuity concepts and policy levers (Commission business transfers page),
- national deep-dives where evidence is robust (e.g., Germany via KfW),
- and supplementary family business evidence (used cautiously and flagged as non-harmonised).

This design avoids pretending that succession can be measured with the same precision as business demography while still treating it as a first-class domain. Evidence detail: development-bank monitoring shows succession demand is large and time-pressured; many owners approaching retirement still lack a settled transition plan, and failed succession frequently implies closure rather than sale, making succession a continuity and investment constraint, not only a family issue. [KfW 2025; KfW 2024a]

Ownership structure shapes constraints and resilience. In owner-managed and family SMEs, the owner is often the key strategic resource (customer relationships; operational know-how; financing credibility). This creates key-person risk and makes continuity dependent on successful ownership transfer.

Germany as mechanism laboratory. KfW Nachfolge-Monitoring provides repeated, mechanism-rich evidence on succession pressures. The monitoring documents that large numbers of SMEs seek succession over multi-year horizons and that closure intentions remain a significant pathway when transfers fail. [KfW 2024a; KfW 2025]

Evidence note (key empirical findings of cited sources):

- KfW 2024a: Nachfolge-Monitoring Mittelstand 2024: estimates large annual cohorts of SMEs seeking succession solutions and documents time pressure from ageing owners, successor scarcity, and transaction complexity. Highlights that failed succession often results in closure rather than sale, with local employment and service-provision spillovers.
- KfW 2025: Nachfolge-Monitoring Mittelstand 2025: updates the scale of upcoming successions and the tightening ‘market for business transfers’ (more sellers than buyers in many segments). Emphasises valuation expectations, bureaucracy and search costs as key frictions; reports rising intentions to close if no successor is found.

Transaction frictions and valuation dynamics. KfW reports that bureaucracy has gained relevance in succession outcomes and that purchase price expectations have risen strongly since 2019 (including

inflation-adjusted changes), implying a valuation-gap + transaction-friction mechanism that increases no-deal outcomes and closure probability. [KfW 2026]

Succession risk model.

- (1) Demography/time pressure: older owner cohorts increase urgency and can depress investment pre-transfer.
- (2) Market thickness: thin successor markets raise search and matching costs.
- (3) Transaction costs/uncertainty: bureaucracy, legal/tax complexity, approvals, due diligence.
- (4) Valuation and buyer finance feasibility: higher price expectations + tighter finance increases deal failure risk.

Europe+ transfer. Germany evidence is used to identify mechanisms, which are then tested in other countries using transfer-market evidence and institutional comparisons in country chapters (clearly flagged when using non-comparable national sources).

Endnotes — Part VI

Endnote VI.1 — Succession is an economic constraint domain. Unresolved succession can reduce investment and capability upgrading before the transfer, not only at the moment of sale/closure.

Endnote VI.2 — Mechanism transfer. Germany deep-dives are used to illustrate mechanisms and are triangulated with other Europe+ sources where available rather than assumed to generalise mechanically.

Endnote VI.3 — Knowledge transfer. The manuscript distinguishes legal ownership transfer from operational knowledge transfer (tacit routines, customer relationships, compliance know-how).

Literature — Part VI

Key sources (full references):

- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- European Investment Bank (EIB). (2025). EIB Investment Survey 2025. European Investment Bank. <https://doi.org/10.2867/4791610>

Additional sources cited in this Part (author–year as cited in text):

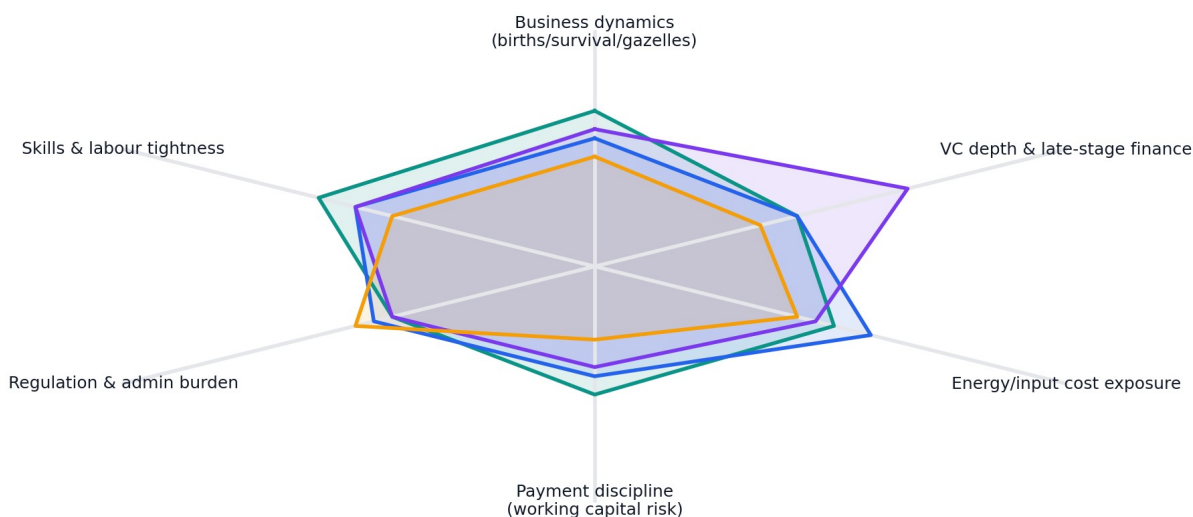
- British Business Bank (2025a)
- Dealroom (2025a)
- Dealroom (2025b)
- EIB (2025a)
- EIC (2025b)
- EIF (2025)
- ESNA (2024)
- ESNA (2024a)
- ESNA (2025a)
- KfW (2024a)
- KfW (2024b)
- KfW (2025)

- KfW (2026)
- OECD (2024)

Part VII — Europe+ comparative synthesis and country atlas

Chapter 20 — Country clustering and cross-country axes

Figure template: Europe+ clustering axes (illustrative archetypes)



In the atlas, each country is scored on these axes using harmonised indicators; clusters are interpretive groupings, not causal claims.

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

20.7 A reproducible mini-protocol

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

step-by-step. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This section provides a compact protocol that a reader can reproduce with the workbook.

Step 1 — Assemble the country spine (Europe+)

- EU27: pull business demography indicators from Eurostat (births; deaths; survival; where available: capability and investment gaps in digital systems/data; HGE/gazelles). [Eurostat 2025a][Eurostat 2025e; Eurostat 2025f]
- UK: pull the parallel ONS business demography series and map variables to Eurostat equivalents with a “parallel series” flag. [Eurostat 2025e]
- CH/NO: pull national demography series (BFS/SSB) and include comparability notes where coverage differs. [Swiss Federal Statistical Office (BFS) 2025.][SSB 2025c]

Step 2 — Assemble constraint layer indicators

- Barrier prevalence: EIB Investment Survey (skills, regulation, uncertainty, energy costs; fragmentation perception; bureaucracy cost). [EIB 2025]
- Payment discipline context: EU Payment Observatory and Single Market report. [European Commission 2025j][European Commission 2025a]
- Finance cycle context (for startup module): Invest Europe and EIF Equity Survey. [Invest Europe 2025c][European Investment Fund (EIF) 2025b]
- Venture intensity: Dealroom (VC per GDP; stage narrative). [Dealroom 2025b]

Step 3 — Normalize and audit

- Convert totals into rates where appropriate (per enterprise base, per GDP).
- Standardise within the comparable set and record transformations in the workbook.
- Keep missingness explicit: no imputation unless clearly justified; use reduced-variable clustering if needed.

Step 4 — Construct axes (interpretation-ready dimensions)

Typical axes used in this book:

- Dynamism axis: births and deaths intensity (entry/exit churn).
- Resilience axis: survival (3-year, 5-year) as cohort stability.
- Scaling axis: HGE/gazelles (where available) and venture intensity.
- Constraint axes: late payment risk, burden/fragmentation, skills tightness, cost pressure.

Step 5 — Run clustering as a heuristic, then validate

- Run 3–6 cluster solutions (k-means; hierarchical as robustness).
- Inspect whether cluster membership is stable across specifications.
- Validate cluster interpretation against country evidence (do the profiles make sense given the sources?).

This protocol turns clustering into an auditable descriptive tool rather than a “story generator.”

20.8 How to read clusters

descriptive typology and not causal ranking. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Clusters in this book are used to structure comparison, not to rank countries. Two cautions apply:

- Clusters depend on indicator selection and standardisation; different reasonable choices can shift boundaries.
- Cluster membership is not a policy verdict; it is a descriptive summary of patterns in outcomes and constraints.

Therefore, the book uses clusters as “starting points” for mechanism interpretation: the country chapters explain what combinations of constraints plausibly drive the cluster’s outcome profile, using evidence from multiple sources. [EIB 2025][European Commission 2025a][European Commission 2025j]

This chapter is expanded to describe the clustering logic, indicator selection, normalization, and interpretation discipline so that readers can reproduce and critique the atlas rather than treating it as a “black box.”

20.4 Indicator selection: why these variables

and not dozens. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The atlas uses a deliberately small indicator set to avoid overfitting and false precision. Candidate indicators were screened for: (i) comparability across Europe+ (harmonised where possible), (ii) conceptual link to the socio-ecological model, (iii) stability over time (not overly noisy), and (iv) interpretability for policy and management.

This leads to a two-layer structure:

- Outcome layer (what we want to explain): enterprise births/deaths, survival, high-growth/gazelles.
- Constraint layer (mechanisms): barrier prevalence (EIB), payment discipline (Payment Observatory/competitiveness reporting), labour tightness (vacancies), cost environment (energy), and VC depth (Dealroom for startup ecosystems).

20.5 Normalisation and comparability rules

To avoid “big country bias,” the atlas prioritises rates and shares over raw totals (e.g., births per enterprise base; VC per GDP; survival rates). Indicators are standardised (z-scores) within comparable country sets when used for clustering.

Comparability rule: EU27 use Eurostat; UK uses ONS and is mapped as “parallel series”; CH and NO use national series and are included with explicit caution labels. Where an indicator is missing for a country, the clustering uses a reduced variable set for that subset rather than imputing values that would create false certainty.

20.6 Clustering method and robustness checks

The clustering is presented as a heuristic taxonomy, not a definitive classification. The book uses clustering to detect patterns, then validates interpretation qualitatively against country evidence.

Recommended procedure (used in the underlying workbook):

- 1) Compute standardised indicators for the outcome layer.
- 2) Run a small number of clustering specifications (e.g., k-means for 3–6 clusters; hierarchical clustering as a robustness check).
- 3) Inspect cluster stability: do the same countries remain grouped under small changes in variables/time windows?
- 4) Interpret clusters through constraint bundles (Chapter 22), not as “winners vs losers.”

The write-up reports cluster narratives (e.g., “dynamic-but-fragile;” “stable-but-low-scaling”) rather than implying sharp boundaries.

Purpose. The atlas does not aim to create a single “SME ranking.” It creates interpretable country archetypes that explain why some countries systematically show stronger survival, more high-growth firms, higher SME digital readiness, deeper VC markets, or lower liquidity friction.

Axes (evidence inputs).

Axis A: Business dynamics and resilience (births; deaths; survival) and scaling proxies (HGE/gazelles). [Eurostat 2025a; Eurostat 2025e]

Axis B: Barrier prevalence (skills: recruitment/retention/upskilling constraints; energy: operating-cost exposure that squeezes margins; regulation: fixed-cost reporting/compliance burden; uncertainty: capability and investment gaps in digital systems/data; fragmentation) and bureaucracy cost. [EIB 2025]

Axis C: Payment discipline and liquidity friction (late-payment prevalence and payment times). [European Commission 2025b; European Commission 2025j; European Commission 2025a]

Axis D: Digital readiness (SME DII distribution; Digital Decade distance). [Eurostat 2025a; Eurostat 2025c]

Axis E: Energy cost exposure (non-household electricity prices). [Eurostat 2025d]

Axis F: VC depth and cycle/exits constraints (Dealroom + Invest Europe + EIF). [Dealroom 2025a; Invest Europe 2025a; EIF 2025]

Axis G: Ownership & succession pressure (KfW mechanism anchor; mapped to other countries). [KfW 2024a; KfW 2025]

Cluster archetypes (diagnostic, not moral).

- Dynamic but fragile: high entry, weaker 3–5 year survival; often liquidity + admin + skills bundles.
- Resilient but low-scaling: stronger survival, weaker HGEs/gazelles; often fragmentation and late-stage capital thinness.
- Venture-strong core: high VC intensity; may still face exit bottlenecks.
- Cost-pressured / liquidity-friction heavy: high energy prices and/or long payment periods.
- Digital-lagging SME base: low basic DII shares; often stacked with skills shortages and admin burden.

Chapter 21 — Country atlas

30 profiles: EU27 + UK + CH + NO. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

21.5 Worked example template

how to write one country profile. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

To prevent profiles from becoming narrative essays, the book uses a worked template that can be applied consistently.

Example workflow (illustrative; apply to any country):

- 1) Start with outcomes: births, deaths, survival 1/3/5; note whether the cohort looks “fragile” or “resilient.” [Eurostat 2025a]
- 2) Add scaling proxies: gazelles/HGE where available; note whether scaling outcomes are weak/strong relative to survival. [Eurostat 2025e; Eurostat 2025f]
- 3) Add constraint prevalence: EIB barrier distribution; note whether skills/regulation/uncertainty/energy are high and whether fragmentation perception is prominent. [EIB 2025]
- 4) Add system constraints: payment discipline evidence; identify whether late payments likely amplify liquidity stress. [European Commission 2025j][European Commission 2025a]
- 5) Add startup module: Dealroom VC intensity and the current cycle context (Invest Europe/EIF). [Dealroom 2025b][Invest Europe 2025c][European Investment Fund (EIF) 2025b]
- 6) Write the mechanism paragraph: identify the most plausible bundle (e.g., “skills + burden + fragmentation” vs “late payment + finance tightening” vs “cost shock + uncertainty”) and state it as a hypothesis with explicit evidence pointers.

The result is a profile that is comparable, auditable, and cautious about causality.

21.6 Consistency checks used in country narratives

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable

Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

to avoid story drift. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Each profile uses three simple consistency checks:

- If a constraint is claimed to be “dominant,” it should appear in at least one comparable quantitative source (e.g., EIB barrier prevalence or Payment Observatory) or in a credible national institution source (e.g., development bank report).
- If scaling is weak, check whether fragmentation perception and/or VC late-stage constraints are also present; do not attribute scaling weakness solely to “culture” or “entrepreneurship.” [EIB 2025] [Dealroom 2025b]
- If survival is weak, check whether liquidity amplifiers (late payments) and cost/burden pressures are also present; treat this as consistent mechanism evidence, not proof. [European Commission 2025j] [European Commission 2025a][Eurostat 2025f]

These checks keep the atlas scientific: it privileges triangulation and evidence discipline over anecdotal explanation.

This chapter is expanded to specify the exact structure and minimum content of a country profile so that profiles are consistent, comparable, and auditable.

21.3 Standard profile layout

one country and 3–6 pages. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Table T4. Country profile template: minimum evidence requirements per module (SME + startup + succession).

Profile module	Minimum indicators	Required sources (EU27	Interpretation rule
----------------	--------------------	------------------------	---------------------

		vs UK/CH/NO)	
A. Snapshot	1 paragraph: distinctive features and cluster context	Workbook sources + chapter evidence	Must reference at least 2 quantified indicators used below
B. Business dynamics	Births, deaths, survival (1/3/5y), scaling proxy (HGE/gazelles where available)	EU27: Eurostat; UK: ONS; CH: BFS; NO: SSB	Always report cohort year; interpret 5y survival as structural baseline
C. Top constraint ranking	Top 5 obstacles with metrics and period	EU27: EIBIS + EC reports; UK/CH/NO: national surveys + triangulation	Only rank constraints with explicit evidence (no narrative-only ranking)
D. SME domain diagnosis	Finance/liquidity, skills, costs, regulation, digital/cyber, ops, innovation, sustainability	EIBIS; Payment Observatory; energy prices; digital intensity; national sources	Explain mechanism link from each constraint to outcomes
E. Startup/scale-up diagnosis	Births/survival + VC layer (VC per GDP, stage mix) + exits narrative	Eurostat/ONS/BFS/SSB + Dealroom/Invest Europe/EIF + national VC reports	Report venture subset separately from overall births; discuss late-stage gap
F. Ownership & succession	Succession pressure signals and pathways	KfW (mechanism anchor) + country transfer-market evidence where available	Discuss investment freeze risk and closure risk channels
G. Policy supports & watchlist	2 risks + 2 opportunities + levers (EU + national)	EU programmes + national agencies	Keep descriptive; do not claim causal impact without evaluation evidence

Each profile follows a fixed layout:

A. Snapshot (1 paragraph): what makes the country distinctive in the atlas.

B. Business demography dashboard (charts/tables): births, deaths, survival 1/3/5; where available, high-growth/gazelles.

C. Constraint bundle dashboard: EIB barrier prevalence (skills: recruitment/retention/upskilling constraints; regulation: fixed-cost reporting/compliance burden; energy: operating-cost exposure that squeezes margins; uncertainty: capability and investment gaps in digital systems/data; fragmentation) and payment discipline context.

D. Startup/scale-up module: VC intensity, ecosystem concentration, and stage narrative (Dealroom; national sources where relevant).

E. Interpretation: 3–5 bullet points linking the observed outcomes to the dominant constraint bundle using socio-ecological coding.

F. Evidence quality note: data coverage, definitions, and key comparability caveats.

21.4 The “no over-claim” rule for country narratives

To prevent narrative drift and stereotypes, the atlas uses a strict interpretation discipline:

- Do not infer causal claims from single indicators.
- Use at least two independent evidence types before asserting a mechanism is salient (e.g., survival pattern + EIB barriers; or late payment indicator + liquidity narratives).
- If evidence is missing, say so explicitly and keep interpretation conditional.

This rule is especially important for UK/CH/NO where some Eurostat harmonisation is absent and for startup ecosystem metrics where market data coverage varies.

Minimum evidence standard. Every country profile follows a strict minimum evidence set to avoid uneven depth:

- 1) Official demography: births/deaths/survival (EU via Eurostat; UK/CH/NO via national spines). [Eurostat 2025a; Eurostat 2025b; ONS 2025; SSB 2025a; Swiss Federal Statistical Office (FSO) 2025.]
- 2) Barriers/obstacles: EIBIS and/or EU Single Market synthesis; SAFE where relevant (euro area). [EIB 2025; European Commission 2025a; ECB 2025.]
- 3) Payment discipline: EU Payment Observatory (EU members); national equivalents flagged for UK/CH/NO. [European Commission 2025b; European Commission 2025j]
- 4) Digital readiness: Eurostat DII/Digital Decade for EU; national equivalents flagged. [Eurostat 2025a; Eurostat 2025c]
- 5) Energy cost environment: Eurostat non-household prices; national equivalents flagged. [Eurostat 2025d]
- 6) Startup/VC module: Dealroom baseline; optional triangulation with Invest Europe and EIF survey plus national sources. [Dealroom 2025a; Invest Europe 2025a; EIF 2025]

Standard narrative structure.

- (1) Snapshot dashboard (1 page).
- (2) Most binding constraint bundle.
- (3) Mechanism interpretation (liquidity amplification; execution ceiling; margin squeeze; fragmentation/scaling friction; VC stage gap).
- (4) SME–startup distinction (enterprise births/survival vs venture-backed subset).
- (5) Implications for resilience and scaling.

Endnotes — Part VII

Endnote VII.1 — Clusters are built from measurable axes and are used as descriptive narrative tools rather than cultural stereotypes.

Endnote VII.2 — Minimum evidence bundle. Country profiles combine at least one official demography source, one barrier/constraint source, and one startup/finance source.

Endnote VII.3 — Interpretation avoids causal overreach unless a research design supports it.

Literature — Part VII

Key sources (full references):

- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- European Investment Bank (EIB). (2025). EIB Investment Survey 2025. European Investment Bank. <https://doi.org/10.2867/4791610>

Additional sources cited in this Part (author–year as cited in text):

- Dealroom (2025a)
- Dealroom (2025b)
- ECB (2025)
- EIB (2025)
- EIF (2025)
- KfW (2024a)
- KfW (2025)
- ONS (2025)
- SSB (2025a)
- SSB (2025c)

Part VIII — Implications and conclusions

Verified evidence update: 2025–2026

AI adoption now requires a two-stage interpretation: adoption incidence and depth of organisational integration. The OECD’s 2025 discussion paper for the G7 concludes that SME adoption remains lower than adoption among large firms and identifies four enabling conditions—connectivity; access to data, algorithms and computing resources; skills; and finance. The evidence therefore does not support a simple ‘buy an AI tool’ prescription. SMEs without digital foundations, usable data and managerial capacity are likely to remain novice adopters, while firms with stronger capabilities can progress from peripheral use to embedded process redesign. [OECD 2025]

A separate OECD survey of generative-AI use demonstrates why depth matters. Generative AI was used by 31% of surveyed SMEs, ranging from 24% in Japan to 39% in Germany. Use was widespread across sectors but concentrated in information and knowledge-intensive services. Among users, only 29% reported use in core business activities. The most frequently reported benefit was improved employee performance (65%), followed by enabling scale-up (35%), competing with larger firms (29%) and increasing revenue (26%). The gap between use and core integration supports the manuscript’s proposition that complementary investments—workflow redesign, data governance, training and managerial controls—determine whether AI becomes a productivity capability or remains a peripheral tool. [OECD 2025b]

Finance evidence from the ECB’s SAFE survey for the fourth quarter of 2025 shows simultaneous improvement and tightening. Bank-loan applications increased to 23% of relevant firms, but 7% encountered financing obstacles; discouraged borrowers remained the largest obstacle category. SMEs reported a net 13% increase in bank-loan interest rates and a net 17% tightening in collateral requirements. At the same time, only 5% of SMEs reported higher investment and 5% expected higher investment in the following quarter, while a net 13% reported declining profits. This combination is consistent with a finance constraint that is not simply ‘credit unavailable’: borrowing remains possible, but cost, collateral and weak profitability reduce the willingness and capacity to invest. [ECB 2026]

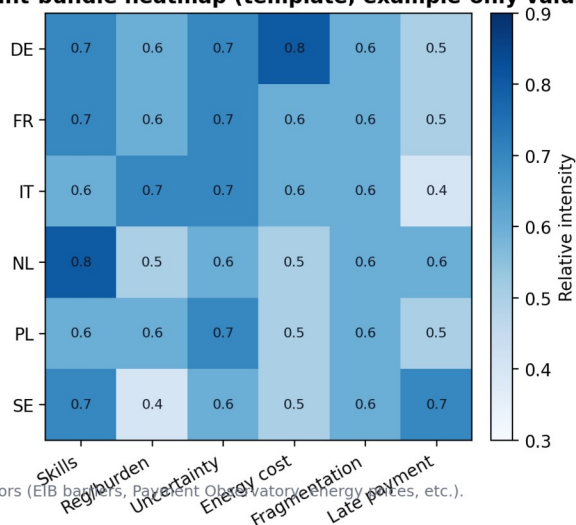
The 2025 EIB Investment Survey remains the principal EU-wide investment spine. It covers approximately 13,000 firms in all EU Member States and reports that investment remained resilient, although firms became more cautious about the economic outlook and political and regulatory environment. Country reports are available for all EU Member States, allowing the atlas to replace generic European statements with country-specific comparisons. The survey’s coverage and official DOI are now recorded precisely in the bibliography. [EIB 2025]

Chapter 22 — Constraint bundles and interactions

systems view. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which

crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Constraint-bundle heatmap (template; example-only values)



This subsection uses official scaling proxies to separate ‘many new firms’ from ‘many firms that grow’. High-growth enterprises and gazelles are treated as outcome indicators that reflect whether a country’s constraint environment allows young firms to professionalise, hire, and expand reliably.

The analytical payoff is that these measures translate abstract constraints into observable outcomes: if a country combines high enterprise births with low gazelle incidence, the bottleneck is unlikely to be entrepreneurial intent alone; it is more plausibly found in scaling conditions such as management capacity, cross-border frictions, late payments, and access to later-stage finance.

In the atlas, scaling proxies are interpreted together with the venture-finance layer and with institutional frictions (administrative burden, payment discipline) to avoid single-factor explanations.

This chapter is expanded into a synthesis of the book’s central empirical claim: SMEs typically face interacting constraints, and these interactions explain cross-country differences better than single-factor explanations.

22.1 What “bundle thinking” changes

Bundle thinking changes the question from “what is the biggest barrier?” to “which combination of barriers is simultaneously binding, and how does it map to outcomes?” The EIB Investment Survey supports this because firms report multiple obstacles at once (skills: recruitment/retention/upskilling constraints; energy: operating-cost exposure that squeezes margins; regulation: fixed-cost reporting/compliance burden; uncertainty: capability and investment gaps in digital systems/data; market fragmentation), and SMEs report a higher bureaucracy cost share. [EIB 2025]

The Commission’s competitiveness framing on payment discipline adds a system-level amplifier: when

payment times deteriorate, firms become more liquidity constrained, which makes other barriers more damaging. [European Commission 2025a]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).
- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.

22.2 The four recurring bundles used for interpretation

The synthesis uses a small number of recurring bundles:

- 1) Skills + regulation + fragmentation: execution capacity constrained; cross-border scaling friction.
- 2) Energy/input costs + uncertainty: investment postponement, especially manufacturing SMEs.
- 3) Late payments + finance tightening: liquidity stress, higher exit risk.
- 4) Succession pressure + successor scarcity: continuity risk, investment freeze.

Countries may show multiple bundles; the atlas classification identifies which bundle is most consistent with the outcome pattern for the period analysed.

Why bundles matter. SMEs rarely face one isolated constraint. EIBIS shows multi-barrier patterns where skills, energy costs, regulation, uncertainty, and fragmentation co-occur, which implies amplification rather than simple addition. [EIB 2025]

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

Two high-frequency amplification mechanisms.

Bundle 1: Late payments + tightening finance → liquidity amplification. The Payment Observatory documents widespread late-payment problems and long payment periods, and EU competitiveness reporting signals deterioration in payment times. [European Commission 2025b; European Commission 2025j; European Commission 2025a]

Bundle 2: Skills + administrative burden → execution ceiling. Skills shortages delay execution and digital adoption; bureaucracy cost consumes scarce management time, and fragmentation lowers returns to scaling investments. [EIB 2025; European Commission 2025a]

Succession as slow-burn bundle. Succession interacts with uncertainty, buyer finance feasibility, bureaucracy, and valuation expectations. KfW monitoring indicates that transfer frictions can push firms into closure pathways, depressing investment and resilience even before the handover. [KfW 2024a; KfW 2025; KfW 2026]

Evidence note (key empirical findings of cited sources):

- KfW 2024a: Nachfolge-Monitoring Mittelstand 2024: estimates large annual cohorts of SMEs seeking succession solutions and documents time pressure from ageing owners, successor scarcity, and transaction complexity. Highlights that failed succession often results in closure rather than sale, with local employment and service-provision spillovers.
- KfW 2025: Nachfolge-Monitoring Mittelstand 2025: updates the scale of upcoming successions and the tightening 'market for business transfers' (more sellers than buyers in many segments). Emphasises valuation expectations, bureaucracy and search costs as key frictions; reports rising intentions to close if no successor is found.
- KfW 2026: KfW press note (Jan 2026): documents rising purchase-price expectations in SME transfers and reiterates bureaucracy/administrative complexity as a factor shaping transfer feasibility and timing.

Chapter 23 — Policy and managerial implications

This chapter is expanded to translate the empirical evidence into actionable implications without over-claiming causality. The core principle is bundle-aware policy and management: the binding constraint is rarely single-factor.

23.1 What the evidence implies for policy design

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

target bundles and not isolated symptoms. In this book, this is not treated as an aside or a "background condition": it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births,

survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The empirical chapters suggest that European SME and startup performance is shaped by interacting constraints: skills, regulation/burden, energy/input costs, uncertainty, payment discipline, and (for startups) venture system cycles. EIB barrier distributions show that firms report several of these obstacles simultaneously rather than one at a time. [EIB 2025]

Policy that addresses only one symptom may therefore fail if complementary constraints remain binding. For example, subsidies for digitalisation tends to underperform if skills shortages prevent implementation; finance programmes tends to underperform if late payments drain working capital and raise default risk; and startup support tends to underperform if cross-border scaling remains administratively fragmented.

Evidence note (key empirical findings of cited sources):

- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

23.2 SME policy priorities

Europe-wide. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

23.2.1 Payment discipline as a competitiveness and resilience lever

Late payments are a liquidity amplifier. The EU Payment Observatory documents widespread late-payment problems and their negative effects on firms’ cash flow and investment capacity. [European Commission 2025b][European Commission 2025j] The Annual Single Market & Competitiveness Report reinforces that the payment situation worsened in recent years, with actual payment times in B2B transactions rising materially. [European Commission 2025a]

Implication: effective enforcement and incentives that shorten payment times can be framed as productivity policy, not only fairness policy, because improved working-capital stability enables investment and hiring.

23.2.2 Administrative burden reduction and simplification

with an SME bandwidth lens. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The Commission’s competitiveness framing and SME relief discussions emphasise administrative burden as a top obstacle for SMEs. [European Commission 2025a][European Commission 2023] The EIB provides rare quantification of bureaucracy cost as a share of turnover, with SMEs bearing a higher proportional burden. [EIB 2025]

Implication: simplification should prioritise measures that reduce recurrent fixed-cost tasks for micro and small firms (reporting duplication; unclear procedures; fragmented national implementation), because these consume scarce managerial bandwidth and block scaling.

Evidence note (key empirical findings of cited sources):

- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.
- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8% of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

23.2.3 Skills, training capacity, and managerial capability

Skills constraints are widely reported across EU firms (EIB evidence) and interact with digitalisation and productivity upgrading. [EIB 2025] A practical implication is that skills policy for SMEs must treat training as capacity-constrained: SMEs often cannot release staff for training or absorb fixed costs. Where training is subsidised, design matters (short modular formats, on-the-job support, and shared training infrastructure via chambers/sector bodies).

Managerial capability should be treated as part of the skills agenda (planning; delegation; process design), because many “SME problems” are ultimately execution and coordination constraints rather than purely financial shortages.

23.2.4 Finance instruments

use guarantees and information support and but recognise the limits. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

SAFE evidence provides a structured view of changing finance conditions in the euro area, including tightening of terms and the distinction between demand and availability. [ECB 2025.] OECD scoreboard evidence helps triangulate finance conditions and policy tools across countries, including guarantees and co-financing mechanisms. [Swiss Federal Statistical Office (FSO) 2025.]

Implication: finance policies should be evaluated against whether they reduce the growth ceiling at key transition points (micro→small; small→medium) and whether they mitigate liquidity amplification from late payments. Where documentation requirements are heavy, “access” programmes can unintentionally add administrative friction; simplification can therefore be complementary finance policy.

23.3 Startup and scale-up policy priorities

This subsection uses official scaling proxies to separate ‘many new firms’ from ‘many firms that grow’. High-growth enterprises and gazelles are treated as outcome indicators that reflect whether a country’s constraint environment allows young firms to professionalise, hire, and expand reliably.

The analytical payoff is that these measures translate abstract constraints into observable outcomes: if a country combines high enterprise births with low gazelle incidence, the bottleneck is unlikely to be entrepreneurial intent alone; it is more plausibly found in scaling conditions such as management capacity, cross-border frictions, late payments, and access to later-stage finance.

In the atlas, scaling proxies are interpreted together with the venture-finance layer and with institutional frictions (administrative burden, payment discipline) to avoid single-factor explanations.

Europe+. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters

therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

23.3.1 Fragmentation reduction as scale-up policy

The EU Startup and Scaleup Strategy and related initiatives explicitly diagnose fragmentation and cross-border scaling friction as a barrier to building scale in Europe. [European Commission 2025d] [European Commission 2025e] EIB evidence on perceived market fragmentation provides an empirical anchor for why scaling is difficult even within the Single Market. [EIB 2025]

Implication: for startups, simplification is not only about compliance cost; it is about reducing the “cost of expansion into the next European market,” which affects whether Europe can retain scale-ups.

23.3.2 Follow-on capital, fundraising cycles, and exit markets

Venture-backed startups depend on multi-round equity financing and credible exits. Dealroom’s reporting highlights strong concentration of VC activity, while the EIF Equity Survey emphasises that fundraising can remain challenging and exit opportunities limited even when sentiment improves. [Dealroom 2025b][European Investment Fund (EIF) 2025b]

Invest Europe’s activity reporting provides additional cycle evidence: sharp year-on-year changes in venture fundraising can translate into follow-on risk and higher failure rates among firms dependent on new rounds. [Invest Europe 2025c]

Implication: “startup policy” that focuses only on early-stage grants tends to not close the scaling gap if late-stage capital and exit channels remain thin. Policy portfolios therefore need a stage lens (seed; Series A; Series B+; growth) and should monitor exit-market health.

23.3.3 Policy implementation as ecosystem capability

SNS lens. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

ESNA’s Startup Nations Standards reporting shows that startup-friendly policy is an implementation problem with cross-country differences across dimensions such as talent

(recruitment/retention/upskilling constraints); finance (access-to-finance frictions: cost, collateral, availability); speed of set-up; stock option frameworks. [Europe Startup Nations Alliance (ESNA) 2024] Implication: country strategies should not copy-paste “best practice lists,” but target the specific SNS dimensions where implementation gaps likely generate the largest friction for founders and investors.

Evidence note (key empirical findings of cited sources):

- Europe Startup Nations Alliance (ESNA) 2024: Source focus: Startup Nations Standards (SNS) Report 2024 (policy implementation across countries). (contains reported figures such as 2024, 2024; used here for its empirical indicators and cross-country comparability notes).

23.4 Managerial implications for SMEs

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

what firms can do even when institutions are slow. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

While this book emphasises system constraints, it also extracts firm-level actions that are robust across countries:

- Treat working capital as strategic: monitor DSO (days sales outstanding), formalise payment terms, and use tools like factoring selectively to stabilise liquidity in late-payment environments.
- Reduce compliance bandwidth drain: standardise reporting workflows, use shared service providers, and implement “minimum viable compliance” systems that scale with growth rather than ad hoc fixes.
- Build training into operations: micro-learning, apprenticeships, and cross-training are structural responses to skills shortages when hiring is difficult.
- Digitise for resilience, not only efficiency: backups, basic cyber hygiene, and process automation

reduce the impact of shocks.

These actions are framed as mitigation, not as a substitute for institutional improvement.

23.5 Managerial implications for startups and scale-ups

For venture-oriented startups, the dominant managerial focus shifts:

- Runway management becomes core strategy in down cycles: assumptions must be stress-tested against fundraising downturns (EIF/Invest Europe cycle evidence). [European Investment Fund (EIF) 2025b][Invest Europe 2025c]
- Build repeatable go-to-market and operational maturity early: scaling proxies (gazelles/HGE) reflect not only ideas but the ability to professionalise operations and compliance without collapsing speed.
- Cross-border scaling discipline: treat expansion as an operations and compliance project, not only a sales project; fragmentation costs are real and measurable in firm perceptions. [EIB 2025]
- Governance scaling: as headcount grows and investors enter, governance and decision processes must mature to avoid execution bottlenecks.

23.6 How to evaluate progress

This subsection is written as an analytical building block rather than a label. It defines the focal constraint, explains why it is structurally more binding for SMEs than for large firms, and identifies the main transmission paths by which the constraint affects investment, productivity and survival.

Using the socio-ecological model, the text distinguishes the level at which the mechanism primarily operates (individual, interpersonal, firm, ecosystem, institutions, or system) and then explains how higher levels amplify or dampen the effect in different countries.

Where possible, subsequent atlas chapters triangulate the interpretation with at least one comparable Europe-wide source and one official outcome measure (business demography survival/high-growth) so the narrative remains evidence-anchored.

for policymakers and researchers. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Because the book’s claims are mechanism-based rather than causal proofs, evaluation should focus on indicator movement consistent with mechanisms:

- Payment times and late-payment prevalence (system constraint).
- Administrative burden proxies (time/cost and compliance staffing share where available).
- Skills tightness indicators (vacancy rates) plus barrier prevalence.

- Business dynamics outcomes (births; survival; gazelles/high-growth).
- VC depth and stage distribution (venture ecosystem) plus exit proxies.

The workbook's design supports repeated updates: countries can be re-scored annually with new data releases without rewriting the conceptual structure.

Policy implications (EU level). The EU Startup and Scaleup Strategy frames fragmentation, access to finance, talent, and scaling conditions as core barriers and motivates EU-level coordination to improve Europe's attractiveness for start and scale. [European Commission 2025c] StepUp StartUps evidence syntheses highlight fragmentation and compliance burdens as scaling obstacles. [European Commission 2025k]

Evidence note (key empirical findings of cited sources):

- European Commission 2025c: Source focus: EU Startup and Scaleup Strategy (COM(2025) 270). (contains reported figures such as 2025, 2025, 270; used here for its empirical indicators and cross-country comparability notes).

Instruments. InvestEU/EIF portfolio guarantees illustrate how SME debt finance is supported through intermediaries. [EIF 2025.] The European Innovation Council provides deep-tech support; the EIC Impact Report 2025 documents program scale and mobilization dynamics. [EIC 2025a]

Managerial implications (firm level).

- Liquidity discipline as strategy: manage receivables and payment terms as strategic risk controls in long-payment environments. [European Commission 2025b; European Commission 2025a]
- Skills as system investment: structured training and retention systems; redesign processes to reduce dependence on scarce profiles. [EIB 2025]
- Digital foundations before "AI theater": raise basic digital intensity and data/process maturity before expecting large AI gains. [Eurostat 2025a; Eurostat 2025c]
- Succession as resilience planning: treat succession as a continuity and investment problem; delay increases closure probability and reduces attractiveness to successors. [KfW 2025; KfW 2026]

Evidence note (key empirical findings of cited sources):

- European Commission 2025b: EU Payment Observatory Summary 2025: reports 52% of European companies faced problems due to late payments in 2024 (47% in 2023; 42% in 2021). Notes increases in 19 Member States and that average payment periods exceeded 60 days in both B2B and G2B transactions, with public purchasers paying later than businesses in every Member State.
- European Commission 2025a: Annual Single Market & Competitiveness Report 2025: highlights administrative/regulatory burden as the most frequently reported SME obstacle in the cited SME evidence (55%), alongside payment delays (35%), access to finance (21%), and skills (17%). Reports deterioration in B2B payment times (52 days in 2022 to 62 days in 2024), linking late payments to liquidity stress.
- EIB 2025: EIB Investment Survey (EU overview): reports barrier prevalence where uncertainty about the future (83%) and skilled-staff availability (79%) are among the most cited obstacles; energy costs (75%) and business regulation (69%) are also high. Quantifies SME-weighted bureaucracy cost (~1.8%

of turnover vs ~1.1% overall) and perceptions of Single Market fragmentation (62% of firms).

- Eurostat 2025a: Source focus: Digitalisation in Europe 2025 (interactive publication). (contains reported figures such as 2025, 2025; used here for its empirical indicators and cross-country comparability notes).
- KfW 2025: Nachfolge-Monitoring Mittelstand 2025: updates the scale of upcoming successions and the tightening ‘market for business transfers’ (more sellers than buyers in many segments). Emphasises valuation expectations, bureaucracy and search costs as key frictions; reports rising intentions to close if no successor is found.
- KfW 2026: KfW press note (Jan 2026): documents rising purchase-price expectations in SME transfers and reiterates bureaucracy/administrative complexity as a factor shaping transfer feasibility and timing.

Appendix A — Source Register

References used in this manuscript. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

References are keyed to in-text citation IDs (e.g., [EIB 2025]). URLs are included for rapid access and later conversion into APA/Harvard style.

A.1 Reference list

Eurostat (2025a). Entrepreneurship and business demography indicators (births; deaths; survival; statistical indicators overview).

https://ec.europa.eu/eurostat/statistics-explained/index.php/Entrepreneurship_-_statistical_indicators

Eurostat (2025b). Business demography statistics metadata (BD).

https://ec.europa.eu/eurostat/cache/metadata/en/bd_sims.htm

European Commission (2025i). SME Performance Review (portal and fact sheets).

https://single-market-economy.ec.europa.eu/smes/sme-strategy-and-sme-friendly-business-conditions/sme-performance-review_en

European Commission (2025a). Annual Single Market and Competitiveness Report 2025 (COM(2025) 26).

https://single-market-economy.ec.europa.eu/document/download/e566634a-29cf-4adf-a98d-1e708c873af8_en?filename=COM_2025_26_F1_COMMUNICATION_FROM_COMMISSION_TO_INST_EN_V10_P1_3877708.PDF

EIB (2025). European Investment Bank. EIB Investment Survey 2025 – EU overview.

<https://www.eib.org/attachments/lucalli/20250216-141025-econ-eibis-2025-eu-en.pdf>

ECB (2025). European Central Bank. Survey on the Access to Finance of Enterprises (SAFE) – overview.

https://www.ecb.europa.eu/stats/ecb_surveys/safe/html/index.en.html

European Commission (2025b). EU Payment Observatory – Summary 2025.

https://single-market-economy.ec.europa.eu/document/download/8aabc383-52ce-49a9-a197-b4c49dc79a64_en?filename=Summary+2025.pdf

European Commission (2025j). EU Payment Observatory – Observatory analysis.

https://single-market-economy.ec.europa.eu/smes/challenges-and-resilience/late-payment/eu-payment-observatory/observatory-analysis_en

Eurostat (2025a). Digitalisation in Europe 2025 (interactive publication).

<https://ec.europa.eu/eurostat/web/interactive-publications/digitalisation-2025>

Eurostat (2025c). Towards Digital Decade targets for Europe.

https://ec.europa.eu/eurostat/statistics-explained/index.php/Towards_Digital_Decade_targets_for_Europe

Eurostat (2025d). Electricity price statistics (non-household).

https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Electricity_price_statistics

ENISA (2024). ENISA Threat Landscape 2024.

<https://www.enisa.europa.eu/publications/enisa-threat-landscape-2024>

ENISA (2021). Cybersecurity guide for SMEs.

<https://www.enisa.europa.eu/publications/cybersecurity-guide-for-smes>

European Union (2022). NIS2 Directive (EU) 2022/2555.

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2555>

Dealroom (2025a). Dealroom Europe Q1 2025 report (VC activity and concentration).

<https://dealroom.co/uploaded/2025/04/Dealroom-Europe-Q1-2025-report.pdf>

Dealroom (2025). Accelerating Europe (stage gap / scale-up finance framing).

<https://dealroom.co/uploaded/2025/02/Accelerating-Europe-Dealroom.pdf>

Invest Europe (2025a). H1 2025 Activity Report.

https://www.investeurope.eu/media/bsvfws33/20251022_invest-europe_h1-2025-activity-report.pdf

EIF (2025). European Investment Fund. EIF Equity Survey 2025.

<https://www.eif.org/files/publications/eif-equity-survey-2025.pdf>

Atomico (2024). State of European Tech 2024.

<https://www.atomico.com/soet>

ESNA (2024). Europe Startup Nations Alliance. Startup Nations Standards Report 2024.

<https://www.esnalliance.eu/multimedia/esna/sns-report-2024-5.pdf>

European Commission (2025c). EU Startup and Scaleup Strategy (COM(2025) 270).

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52025DC0270>

European Commission (2025k). StepUp StartUps evidence: Easing the path for European startups.

<https://digital-strategy.ec.europa.eu/en/library/easing-path-european-startups-towards-simpler-more-competitive-single-market>

EIC (2025a). European Innovation Council. EIC Impact Report 2025.

https://eic.ec.europa.eu/document/download/6a843d77-534e-42b8-a805-539fbc8ca92a_en?filename=EIC-Impact-Report-2025.pdf

EIF (2025). InvestEU guarantees overview (portfolio guarantee products).

<https://www.eif.org/flagship-initiatives/investeu/guarantees>

KfW (2024a). Nachfolge-Monitoring Mittelstand 2024 (Focus Volkswirtschaft No. 481).

<https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Fokus-Volkswirtschaft/Fokus-2025/Fokus-Nr.-481-Januar-2025-Nachfolge.pdf>

KfW (2025). Nachfolge-Monitoring Mittelstand 2025 (Focus Volkswirtschaft No. 526).

<https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-Fokus-Volkswirtschaft/Fokus-2026/Fokus-Nr.-526-Januar-2026-Nachfolge-Monitoring.pdf>

KfW (2026). Press note on purchase price expectations / bureaucracy relevance (Jan 2026).

https://www.kfw.de/%C3%9Cber-die-KfW/Newsroom/Aktuelles/News-Details_876800.html

ONS (2025). Vacancies and jobs in the UK: December 2025 (PDF).

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/jobsandvacanciesintheuk/december2025/pdf>

Eurostat (2025b). Euro area job vacancy rate at 2.1%, EU at 2.0% in Q3 2025 (press release).

<https://ec.europa.eu/eurostat/web/products-euro-indicators/w/3-16122025-bp>

SSB (2025a). Statistics Norway (SSB). Job vacancies (Ledige stillingar).

<https://www.ssb.no/en/arbeid-og-lonn/sysselsetting/statistikk/ledige-stillingar>

Swiss Federal Statistical Office (FSO) (2025). Vacancies (Jobs statistics).

<https://www.bfs.admin.ch/bfs/en/home/statistics/industry-services/businesses-employment/jobs-statistics/vacancies.html>

OECD (2024). Financing SMEs and Entrepreneurs 2024 (cross-country finance scoreboard).

<https://www.oecd.org/industry/smes/financing-smes-and-entrepreneurs.htm>

Eurostat (2025e). High-growth enterprises statistics (HGE; gazelles related).

https://ec.europa.eu/eurostat/statistics-explained/index.php/High-growth_enterprises_-_statistics

Eurostat (2025f). Business dynamics (Key figures on European business) — survival framing reference.

European Commission Joint Research Centre (JRC) (2025). Annual Report on European SMEs 2024/2025 (JRC142263). <https://publications.jrc.ec.europa.eu/repository/handle/JRC142263>

Dealroom (2025b). co. (2025). Dealroom Europe Q1 2025 report (PDF).

<https://dealroom.co/uploaded/2025/04/Dealroom-Europe-Q1-2025-report.pdf>

European Commission (2025m). Business transfers (SME continuity and exit). https://single-market-economy.ec.europa.eu/smes/continuity-and-exit/business-transfers_en

ECB (2025). European Central Bank. (2025). SAFE survey results — Third quarter of 2025.

https://www.ecb.europa.eu/stats/ecb_surveys/safe/html/ecb.safe202510.en.html

European Commission (2025d). EU Startup and Scaleup Strategy: Choose Europe to start and scale (COM/2025/270). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52025DC0270>

Reuters (2024). European tech funding stalls in 2024 but IPO window to open, report says (Atomico State of European Tech). <https://www.reuters.com/technology/european-tech-funding-stalls-2024-ipo-window-open-report-says-2024-11-19/>

KfW (2024b). Status report on SME succession: Business transfer plans are picking up pace (press release). https://www.kfw.de/About-KfW/Newsroom/Latest-News/Pressemitteilungen-Details_795968.html

European Commission (2009). Final report: Overview of family business relevant issues (PDF). <https://ec.europa.eu/docsroom/documents/10389/attachments/1/translations/en/renditions/native>

European Commission (2025e). StepUp StartUps: Easing the path for European startups. <https://digital-strategy.ec.europa.eu/en/library/easing-path-european-startups-towards-simpler-more-competitive-single-market>

EIC (2025b). European Innovation Council. (2025). EIC Impact Report 2025 (PDF). https://eic.ec.europa.eu/document/download/6a843d77-534e-42b8-a805-539fbc8ca92a_en?filename=EIC-Impact-Report-2025.pdf

Eurostat (2025c). Statistics Explained: Artificial intelligence technologies — ICT usage in enterprises. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Artificial_intelligence_technologies_-_ICT_usage_in_enterprises

Eurostat (2025d). Statistics Explained: Cloud computing services — ICT usage in enterprises. https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Cloud_computing_services_-_ICT_usage_in_enterprises

https://ec.europa.eu/eurostat/cache/htmlpub/key_figures_on_european_business_2021/business_dynamics.html

Appendix B — Evidence workbook integration and audit trail

This manuscript is accompanied by a structured evidence workbook:
“EuropePlus_SME_Startup_Atlas_Workbook_UPDATED_v2.xlsx” (compiled 2026-01-31).
The workbook is the **source-of-truth** for (i) the Source Register (SourceIDs S01–S15), (ii) the indicator schema that powers the Europe+ atlas (births/survival; constraint bundles: capability and investment gaps in digital systems/data; digital readiness: capability and investment gaps in digital systems/data; energy costs: operating-cost exposure that squeezes margins; startup/VC depth; succession proxies), and (iii) the country profile writing prompts.

Table T5. Workbook-to-manuscript crosswalk (evidence register summary).

Workbook ID (example)	Short source name (author-year)	Evidence type	Used in chapters / modules
-----------------------	---------------------------------	---------------	----------------------------

S01	Eurostat 2025 (business demography)	Official statistics (EU27; some EFTA coverage)	Ch. 8, 16; Atlas dashboard; clustering axis: dynamics
S02	ONS 2026 (Business Demography)	Official statistics (UK)	Ch. 8, 16; UK profile spine
S03	BFS 2025 (business demography)	Official statistics (CH)	CH profile spine; comparability checks
S04	SSB 2025 (enterprise demography)	Official statistics (NO)	NO profile spine; comparability checks
S05	EIB 2025 (Investment Survey)	Firm survey (barriers, fragmentation, bureaucracy)	Ch. 3, 12, 13, 22; constraint ranking module
S06	European Commission 2025a (Annual Single Market & Competitiveness Report)	Policy diagnostics + indicators (admin burden, payment times)	Ch. 3, 10, 13, 22; national institutions layer
S07	European Commission 2025j (EU Payment Observatory)	System monitoring (late payments)	Ch. 9, 10, 22; payment discipline axis
S08	ECB 2025 (SAFE)	Firm survey (access to finance; euro area)	Ch. 9; finance module (euro area countries)
S09	Dealroom 2025 (Europe VC reports)	Market data (VC depth, concentration, stages)	Ch. 17; VC axis; startup finance module
S10	Invest Europe 2025 (activity report)	Association statistics (fundraising cycle)	Ch. 17; cycle context
S11	EIF 2025 (Equity Survey)	Fund-manager survey (exits, fundraising, sentiment)	Ch. 17; cycle context and follow-on risk
S12	KfW 2024/2025 (Nachfolge Monitoring)	Development bank monitoring (succession)	Ch. 19; succession module; mechanism anchor

Workbook structure (how the evidence is meant to be used)

- Sources: one-row-per-source register. Each source receives a stable SourceID (e.g., S03) and a short “evidence supported” summary.
- Indicators: indicator columns for each country (EU27 + UK/CH/NO) with a companion “_SourceID” field to enforce traceability (numbers must be attributable).
- Atlas_Writeups: structured country narrative scaffolds that require citing SourceIDs in brackets.
- Figures_Tables: plan linking figures/tables to SourceIDs and indicator columns.

Reproducibility requirement. A Europe+ comparative study is scientifically credible only when every metric and narrative claim can be traced to an evidence source (and; where used; a workbook row recording definition; period; unit; and extraction note). This manuscript applies that rule throughout the atlas modules and evidence capsules. [Eurostat 2025a; ONS 2026a; EIB 2025a]

[UNIDO 2025] UNIDO. The strategic role of training for SMEs in building sustainable supply chains (2025 report).

[Reif, T 2025] Reif, T. (2025). An update on family firm succession: A systematic literature review. Journal of Family Business Strategy.

[Baltazar, J 2025] Baltazar, J.R., et al. (2025). What do we know about strategic approaches to family firm succession? A systematic literature review. Journal of Family Business Strategy.

[Muskat, B 2017] Muskat, B. (2017). A power perspective on knowledge transfer in internal succession processes of small family businesses. SSOAR working paper / article.

[Oskam, J 2024] Oskam, J.I.L.J. (2024). Difficulties of tacit knowledge transfer in the succession process of family firms (SME focus). Tilburg University repository (arno.uvt.nl).

[European Commission 2025p] European Commission. Digital Europe Programme (DIGITAL): funding for advanced digital skills and digital transformation. Accessed 2026-01-31.

[European Commission 2025o] European Commission. European Digital Innovation Hubs (EDIHs): service catalogue includes skills and training for SMEs. Accessed 2026-01-31.

[UK Department for Business and Trade 2025.] UK Department for Business and Trade. Evaluation of Help to Grow: Management – end of year three evaluation report and quarterly progress reports. GOV.UK. Accessed 2026-01-31.

[CEDEFOP 2024b] Cedefop. Implementing EU priorities: Germany (briefing on VET and continuing training reforms). Accessed 2026-01-31.

[France Compétences 2024] France Compétences. Rapport 2024 sur l’usage des fonds de la formation professionnelle (published 2025-02-04).

[INAPP (Italy) 2024] INAPP (Italy). Continuous Training in Italy: XXIII Parliamentary Report / Continuous Training Survey (published 2024-07-02).

[FUNDAE (Spain) 2023] FUNDAE (Spain). Formación en las Empresas 2023 (annual national report). Fundación Estatal para la Formación en el Empleo. Accessed 2026-01-31.

[UK Department for Education / GOV 2024] UK Department for Education / GOV.UK. Employer Skills Survey 2024: Full UK research report and key findings (published 2025-11-27).

[Eurofound 2024.] Eurofound. “Strategies used to address skills shortages in SMEs in the EU” (survey data / analysis). Accessed 2026-01-31.

[OECD 2021] OECD. Raising skills in SMEs in the digital transformation. OECD Publishing. Accessed 2026-01-31.

[OECD 2025a] OECD. Equipping SMEs with the skills to navigate the twin transition. OECD Publishing. Accessed 2026-01-31.

[CEDEFOP 2024a] Cedefop. Beyond subsidising training costs: policy levers to narrow the micro, small and medium-sized enterprise (MSME) training gap. Cedefop policy report. Accessed 2026-01-31.

[CEDEFOP 2020] Cedefop. “How many workers participate in continuing vocational training (CVTS 2020)?” Data insight. Accessed 2026-01-31.

[Eurostat 2021] Eurostat. “Continuing Vocational Training Survey (CVTS) 2021 – metadata annex / survey description.” European Commission/Eurostat. Accessed 2026-01-31.

[Eurostat 2025k] Eurostat. “Statistics on continuing vocational training in enterprises” (CVTS-based Statistics Explained). European Commission/Eurostat. Accessed 2026-01-31.
<https://ec.europa.eu/eurostat/statistics-explained/>

[OECD 2021] OECD. Training in enterprises (qualitative study complementing CVTS and other enterprise surveys). OECD Publishing. (2021/updated PDF; accessed 2026-01-31).

[CEDEFOP 2024] CEDEFOP / ReferNet. “Spotlight on VET” country series and VET-in-Europe country system summaries (example: Spotlight on VET Belgium, 2024). Accessed 2026-01-31.

Appendix B.1 — SourceID crosswalk

Workbook S## ↔ Manuscript R##. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

The manuscript text drafted earlier used bracketed reference codes [R##]. The workbook uses SourceIDs [S##].

To prevent future inconsistency, treat the workbook SourceIDs as primary going forward; use this crosswalk to map existing manuscript references to workbook IDs.

Appendix B.2 — Workbook Source Register

S01–S22. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This register is reproduced from the evidence workbook (sheet: “Sources”). Each SourceID (S##) is cited in the workbook’s indicators and profile prompts. The manuscript uses an R## bibliography; Appendix B.1 documents the crosswalk logic.

SourceID — Organization (Year). Publication / Dataset. Link: Link. Use: Use for (metrics / narrative).

S01 — Eurostat (varies). Business demography: births, deaths, survival, high-growth/gazelles. Link: <https://ec.europa.eu/eurostat/web/business-demography/information-data>. Use: Enterprise births/deaths; 1/3/5-year survival; high-growth enterprises.

S02 — European Commission (2025). SME Performance Review (country fact sheets). Link: https://single-market-economy.ec.europa.eu/smes/sme-strategy-and-sme-friendly-business-conditions/sme-performance-review_en. Use: SME structure; performance indicators; policy environment summaries.

S03 — European Investment Bank (2025). EIB Investment Survey (EIBIS) EU overview + country reports. Link: <https://www.eib.org/en/publications/20250216-econ-eibis-2025-eu>. Use: Top barriers (skills: recruitment/retention/upskilling constraints; energy: operating-cost exposure that squeezes margins; regulation: fixed-cost reporting/compliance burden; uncertainty: capability and investment gaps in digital systems/data); investment behavior; digital/green investment.

S04 — European Central Bank (2025). SAFE survey (Access to Finance of Enterprises). Link: https://www.ecb.europa.eu/stats/ecb_surveys/safe/html/index.en.html. Use: Debt financing conditions; collateral; loan demand/availability.

S05 — European Commission (2025). EU Payment Observatory (late payments analysis). Link: https://single-market-economy.ec.europa.eu/smes/challenges-and-resilience/late-payment/eu-payment-observatory_en. Use: Late payment prevalence; payment periods; SME cash-flow risk.

S06 — ONS (UK) (2024). Business demography. Link: <https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/bulletins/businessdemography/2024>. Use: Births, deaths, survival of businesses (UK series).

S07 — BFS (CH) (2024). Business demography / business creation statistics. Link: <https://www.bfs.admin.ch/bfs/en/home/statistics/industry-services/enterprises-employment/business-demography.html>. Use: Business creations; survival related releases (CH series).

S08 — Statistics Norway (latest). Enterprises / business demography. Link: <https://www.ssb.no/en/virksomheter-foretak-og-regnskap/virksomheter-og-foretak/statistikk/foretak>. Use: Enterprise demography incl. survival/growth (NO series).

S09 — Dealroom (2025). Europe VC / country investment reports. Link: <https://dealroom.co/>. Use: VC volume by country/city; stage mix; sector mix.

S10 — Invest Europe (2025). Activity reports (VC/PE). Link: <https://www.investeurope.eu/research/activity-data/>. Use: VC activity / fundraising/exits at European level.

S11 — EIF (2025). EIF Equity Survey. Link: <https://www.eif.org/publications/eif-equity-survey-2025>. Use: Fund manager sentiment: fundraising, valuations, exits; market conditions.

S12 — British Business Bank (2025). Small Business Finance / VC returns reports. Link: <https://www.british-business-bank.co.uk/about/research-and-publications/>. Use: UK finance & VC ecosystem evidence; returns (where needed).

S13 — Swiss Venture Capital Report (2025). Swiss VC report. Link: <https://www.startupticker.ch/en/news/swiss-venture-capital-report-2025>. Use: Swiss VC investment and ecosystem snapshot.

S14 — McKinsey (2024-2025). Europe competitiveness / scale-up gap framing. Link: <https://www.mckinsey.com/featured-insights/insights-on-europe>. Use: Macro framing, investment gaps; use as conceptual support.

S15 — KfW (2024-2025). KfW Research: succession / Mittelstand monitoring. Link: <https://www.kfw.de/%C3%9Cber-die-KfW/Research/>. Use: Succession planning (Nachfolge), owner age, transfer risks.

S16 — ENISA (2024). ENISA Threat Landscape 2024. Link: <https://www.enisa.europa.eu/publications/enisa-threat-landscape-2024>. Use: Cyber threat trends and SME-relevant risks (cyber domain baseline).

S17 — ENISA (2021). Cybersecurity guide for SMEs. Link: <https://www.enisa.europa.eu/publications/cybersecurity-guide-for-smes>. Use: Practical SME controls and maturity steps (cyber hygiene and capability constraints).

S18 — European Union (2022). Directive (EU) 2022/2555 (NIS2). Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022L2555>. Use: Regulatory obligations and indirect supply-chain compliance cascade affecting SMEs.

S19 — CEDEFOP (2024). ReferNet national partners (by country). Link: <https://www.cedefop.europa.eu/en/tools/refernet>. Use: Institution map for VET/skills systems; comparability anchor for training-system appendix.

S20 — SERI (Switzerland) (2025). VPET governance and continuing education overview. Link: <https://www.sbf.admin.ch/sbf/en/home/education/vocational-professional-education-and-training--vp-et.html>. Use: Swiss training-system governance and continuing education structure relevant to SME skill formation and succession know-how transfer.

S21 — SFUVET (Switzerland) (2025). SFUVET continuing education and services. Link: <https://www.sfuvet.swiss/>. Use: Swiss training provider capabilities and continuing education services relevant to SME upskilling.

S22 — UK Government (2025). Help to Grow: Management programme (collection & evaluations). Link: <https://www.gov.uk/government/collections/help-to-grow-management>. Use: UK SME management training programme and evidence on participation/impact.

This table reproduces the workbook's Sources sheet. Use it as the authoritative citation list for the atlas indicators and country profiles.

[CEDEFOP 2024c] CEDEFOP. ReferNet national partners (partner institutions by country). CEDEFOP website. Accessed 2026-01-31.

[SERI 2025.] State Secretariat for Education, Research and Innovation (SERI). Vocational, Professional and Continuing Education (VPET) overview and governance pages. Swiss Federal Administration (sbfi.admin.ch). Accessed 2026-01-31.

[SFUVET 2025.] Swiss Federal University for Vocational Education and Training (SFUVET). About SFUVET; continuing education and training services (sfuvet.swiss). Accessed 2026-01-31.

[UK Government 2025.] UK Government. Help to Grow: Management programme collection and evaluation reports (gov.uk). Accessed 2026-01-31.

Appendix C — Europe+ training-system institutional map

quick-reference. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

Purpose. This appendix provides a Europe+ (EU27 + UK + Switzerland + Norway) quick-reference to named institutional bodies that can be used as the official ‘training-system spine’ in country chapters. It complements harmonised metrics (e.g., CVTS participation) by identifying where country-specific governance and implementation details should be sourced.

How to use in the atlas. For each country profile, use the institutional spine to interpret training participation and the SME training gap:

- If training participation is low: test whether institutional access is complex, fragmented, or poorly intermediated (Mechanism T1/T2).
- If participation is high but digital/AI adoption remains weak: test whether content relevance and learning transfer are the binding constraint (T2).
- If succession risk is high: test whether successor development and know-how transfer are supported by training and advisory ecosystems (Part VI link).
- If labour markets are tight: test whether SMEs are substituting training for recruitment (upskilling) or are trapped in a low-training, high-turnover equilibrium.

Primary baseline for EU countries: ReferNet partner institutions provide standardised country reporting on VET/CVET systems and reforms under a common structure. [CEDEFOP 2024][CEDEFOP 2024c]

Non-EU anchors are provided separately for the UK and Switzerland (official programme/governance bodies) and for Norway (included in ReferNet as an ‘Other country’). [CEDEFOP 2024c][SERI 2025.] [SFUVET 2025.][UK Government 2025.]

Appendix C — Evidence-to-domain mapping

from the workbook. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

This matrix translates the workbook’s Source Register into the book’s chapter/problem domains. It is intended to prevent “citation drift” and ensure that every domain is supported by appropriate evidence layers.

Business dynamics & survival

SMEs and startups. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside

measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

- S01: Eurostat: births/deaths/survival; HGE/gazelles proxies; EU backbone
- S06: ONS UK: births/deaths/survival (UK spine)
- S07: BFS/FSO CH: business creation/demography (CH spine)
- S08: SSB Norway: enterprise demography/survival (NO spine)

Barrier prevalence and constraint bundles

skills/energy/regulation/fragmentation/uncertainty. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

- S03: EIBIS: barrier prevalence + bureaucracy cost proxies + fragmentation perceptions
- S04: SAFE: euro-area finance conditions; complements EIBIS with finance-focused lens
- S02: SME Performance Review: contextual SME structure/performance tracking (EU)

Late payments and liquidity amplification

- S05: EU Payment Observatory: late payment prevalence + payment periods; system-level constraint

Digital readiness and transformation capability

- S01: Eurostat (plus digital stats in broader Eurostat system): baseline comparability hooks used in atlas indicators
- S03: EIBIS: barriers (skills/uncertainty) that stall digital investment; fragmentation that lowers returns to scale

Energy-cost exposure and cost competitiveness squeeze

- S01: Eurostat system provides cross-country comparable energy price statistics used in atlas
- S03: EIBIS: energy cost as perceived top obstacle; interaction with investment postponement

Cybersecurity risk and compliance cascade

- S03: EIBIS: investment barriers context where cyber is crowded out

Startup/VC ecosystem depth, cycles, and scaling finance

- S09: Dealroom: VC intensity and concentration patterns

- S10: Invest Europe: fundraising cycle indicators
- S11: EIF Equity Survey: fund manager views on fundraising/exits/valuations
- S12: British Business Bank: UK SME finance/equity evidence (UK deep-dive)
- S13: Swiss VC report: CH ecosystem snapshot
- S14: McKinsey: competitiveness framing and scale-up gaps (conceptual synthesis)

Ownership, governance, and succession

Nachfolgeplanung. In this book, this is not treated as an aside or a “background condition”: it is analysed as a mechanism that can become binding even for well-managed firms. The key logic is that external environments impose fixed costs, uncertainty, and transaction frictions that scale poorly for smaller organisations. Where market conditions tighten or cross-border frictions rise, SMEs and young scaling firms must spend scarce managerial time on compliance, contracts, and risk management, which crowds out investment, hiring, training, and product improvement. In the atlas, the country chapters therefore interpret firm outcomes (births, survival, high-growth incidence) alongside measurable external constraints (payment discipline, regulatory burden, labour tightness, energy/input costs, and venture depth) to avoid blaming firm performance on “capability” alone.

- S15: KfW: succession demand, closure pathway, bureaucracy and valuation dynamics (Germany mechanism chapter)

Note on ENISA/NIS2 and training-system anchors: the manuscript cites ENISA and NIS2 for the cybersecurity domain and CEDEFOP/SERI/SFUVET/UK Help to Grow for the training-system map. These sources are now included in the workbook Sources register as S16–S22; future indicator work should cite these SourceIDs to keep the audit trail consistent.

Appendix A.2 — Additional references added in v5

- R35. Eurostat. Job vacancy statistics (including occupational vacancy rates; 2024 occupation ranking). https://ec.europa.eu/eurostat/statistics-explained/index.php/Job_vacancy_statistics
- R36. Eurostat. Which were the most demanded occupations in 2024? (news item; experimental OJA component). <https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20251210-3>
- R37. European Commission. SME Relief Package (COM/2023/535) – cites Flash Eurobarometer 486; 55% regulatory obstacles/admin burden. <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX%3A52023DC0535>
- R38. Flash Eurobarometer 486 dataset documentation (GESIS access portal). https://access.gesis.org/dbk/69610?download_purpose=-99
- R39. BusinessEurope. Mapping of regulatory burden (Jan 2025 PDF). https://www.buinesseurope.eu/wp-content/uploads/2025/02/2025-01-22_buinesseurope_mapping_of_regulatory_burden-d55-1.pdf
- R40. Edge Foundation. Skills shortages in the UK economy – bulletin summary 2025 (SME training barriers; cost support). https://www.edge.co.uk/documents/546/DD1660_-_Skills_shortages_bulletin_summary_2025_FINAL.pdf
- R41. UK Government. Apprenticeship reforms / support announcement (Dec 2025).

<https://www.gov.uk/government/news/50000-more-young-people-to-benefit-from-apprenticeships-as-government-unveils-new-skills-reforms-to-get-britain-working>

Appendix A.3 — Additional references added in v6

R42. Eurostat. Business demography statistics (Statistics Explained).

https://ec.europa.eu/eurostat/statistics-explained/index.php/Business_demography_statistics

R43. Eurostat. Business demography — information on data (definitions; cohort survival logic).

<https://ec.europa.eu/eurostat/web/business-demography/information-data>

R44. Office for National Statistics (ONS). Business demography, UK: 2024 (bulletin: births; deaths; survival). <https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/bulletins/businessdemography/2024>

R45. Swiss Federal Statistical Office (FSO/BFS). Statistics on Business Demography (UDEMO) — press release / dataset reference. <https://www.bfs.admin.ch/bfs/en/home.gnpdetail.2024-0424.html>

R46. Statistics Norway (SSB). Enterprises (Foretak) — active, new, defunct, survival and growth.

<https://www.ssb.no/en/virksomheter-foretak-og-regnskap/virksomheter-og-foretak/statistikk/foretak>

R48. British Business Bank. Small Business Finance Markets Report 2025 (PDF). <https://www.british-business-bank.co.uk/sites/g/files/sovrnj166/files/2025-02/small-business-finance-market-report-2025.pdf>

R49. UK Finance. Business Finance Review 2025 Q1 (PDF).

<https://www.ukfinance.org.uk/system/files/2025-06/Business%20Finance%20Review%202025%20Q1.pdf>

Appendix A.4 — Additional references added in v7

R47. Joint Research Centre (JRC). EU start-up calculator: impact of COVID-19 on aggregate firm exit (technical report; uses Eurostat Business Demography survival/cohorts).

https://publications.jrc.ec.europa.eu/repository/bitstream/JRC121715/jrc121715_tr_1_22092020_final.pdf

R50. KfW Research / ifo Institute. KfW-ifo Credit Hurdle Q4 2025: small and medium-sized enterprises struggle to access credit (PDF, Jan 2026).

https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-KfW-ifo-Kredithuerde/2025-EN/KfW-ifo-Kredith%C3%BCrde-Q4-2025_EN.pdf

R51. Institut für Mittelstandsforschung Bonn (IfM Bonn). Less than half of all start-ups survive the first 5 years (press release, Apr 2025). <https://www.ifm-bonn.org/en/news/meldung/less-than-half-of-all-start-ups-survive-the-first-5-years>

Appendix A.5 — Additional references added in v9

R52. European Commission. Commission Recommendation 2003/361/EC concerning the definition of micro, small and medium-sized enterprises. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003H0361>

R53. European Commission. User guide to the SME definition (incl. SME self-assessment).

https://single-market-economy.ec.europa.eu/smes/sme-definition_en

Invest Europe (2025c). Investing in Europe: Private Equity Activity H1 2025 (includes VC fundraising €5bn; year-on-year change). https://www.investeurope.eu/media/bsvfws33/20251022_invest-europe_h1-2025-activity-report.pdf

European Investment Fund (EIF) (2025b). EIF Equity Survey 2025 (fundraising and exits sentiment; market activity decade-low for VC capital raised to date). <https://www.eif.org/files/publications/eif-equity-survey-2025.pdf>

Europe Startup Nations Alliance (ESNA) (2024). Startup Nations Standards (SNS) Report 2024 (policy implementation across countries). <https://www.esnalliance.eu/standards>

European Commission (2025f). The 2025 Annual Single Market and Competitiveness Report (PDF). https://single-market-economy.ec.europa.eu/document/download/e566634a-29cf-4adf-a98d-1e708c873af8_en?filename=COM_2025_26_F1_COMMUNICATION_FROM_COMMISSION_TO_INST_EN_V10_P1_3877708.PDF

Swiss Federal Statistical Office (BFS) (2025). Business demography / business creation statistics (Switzerland). <https://www.bfs.admin.ch/bfs/en/home/statistics/industry-services/enterprises-employment/business-structure-demography.html>

SSB (2025c). Statistics Norway (SSB). (2025). Enterprise demography statistics (Norway). <https://www.ssb.no/en/virksomheter-foretak-og-regnskap/statistikker/fordem>

ONS (2026). Office for National Statistics (ONS). (2026). Business demography (UK): births, deaths, survival. <https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/datasets/businessdemography>

McKinsey (2025). McKinsey & Company. (2025). Europe's moonshot moment: Fueling its tech ecosystem for scale (Report, June 2, 2025). <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/europes-moonshot-moment-fueling-its-tech-ecosystem-for-scale>

startupticker (2025a). ch & SECA. (2025). Swiss Venture Capital Report 2025 (PDF). https://www.startupticker.ch/assets/images/VCReport_2025_webc.pdf

European Investment Bank (EIB) (2024a). Navigating supply chain disruptions (EIB analysis). <https://www.eib.org/en/publications/20240179-navigating-supply-chain-disruptions>

European Investment Bank (EIB) (2025). EIB Investment Survey 2025: European Union overview (PDF). <https://www.eib.org/attachments/lucalli/20250216-141025-econ-eibis-2025-eu-en.pdf>

startupticker (2025b). ch. (2025). Swiss Venture Capital Report: overview page and downloads. <https://www.startupticker.ch/en/swiss-venture-capital-report>

BVCA (2024). Venture Capital in the UK (Report, PDF). <https://www.bvca.co.uk/static/c06ec8bf-5579-467e-b2d48bf021752e2c/BVCA-Venture-Capital-in-the-UK-Report-2024.pdf>

European Commission (Single Market) (2025). Supply chains: Chief Economist / Business Intelligence analytical work. https://single-market-economy.ec.europa.eu/single-market/chief-economist-business-intelligence-unit/analytical-work/supply-chains_en

Publications Office of the European Union (2025). Annual report on European SMEs 2024/2025 (metadata page). <https://op.europa.eu/en/publication-detail/-/publication/2073ad00-3521-11f0-8a44-01aa75ed71a1/language-en>

European Commission (2025g). European Innovation Scoreboard 2025 – Technical report (PDF). https://research-and-innovation.ec.europa.eu/document/download/6a7e54cc-9841-4199-8b36-87914a366fb9_en?filename=ec_rtd_eis-2025-technical-report-revision.pdf

SMEunited (2025). Preparing Europe's SMEs for Climate Change Impacts (position paper, PDF). <https://www.smeunited.eu/admin/storage/smeunited/smeunited-climateresiliencepositionfinal2.pdf>

EIOPA (2025). Challenges of climate risks and sustainability (feature article; insurance deserts and protection gaps). https://www.eiopa.europa.eu/challenges-climate-risks-and-sustainability-2025-09-24_en

McKinsey (2026). McKinsey & Company. (2026). Transforming Europe: Bold moves to lift a continent (investment gap framing). <https://www.mckinsey.com/featured-insights/insights-on-europe/transforming-europe-bold-moves-to-lift-a-continent>

German Federal Ministry of Finance (2026). Financing Innovative Ventures in Europe (FIVE taskforce report, PDF). https://www.bundesfinanzministerium.de/Content/DE/Downloads/Europa/abschlussbericht-five-taskforce.pdf?__blob=publicationFile&v=10

British Business Bank (2025b). UK Venture Capital Financial Returns 2025 (PDF). <https://www.british-business-bank.co.uk/sites/g/files/sovrnj166/files/2025-12/uk-vc-returns-2025-report.pdf?attachment=>

Eurostat (2025e). Artificial intelligence in enterprises (Statistics Explained) and underlying ICT usage survey tables on enterprise use of AI technologies (EU-27 comparison; breakdowns by enterprise size and country).

Eurostat (2025f). (2025-12-11). 20% of EU enterprises used AI technologies in 2024 (Eurostat News).

European Investment Bank (EIB) (2026). Artificial intelligence adoption, productivity and employment in Europe (EIB Working Paper 2026/02).

European Investment Bank (EIB) (2024b). (2024/2025). EIB Investment Report 2024/2025: Innovation, integration and AI.

OECD (2025). (2025-12-09). AI adoption by small and medium-sized enterprises (OECD report / discussion paper; G7 SME AI Adoption Blueprint context).

Reuters (2025). (2025-10-08). European small businesses rush into AI without basic digital tools, study shows (Qonto/Appinio survey evidence on the ‘digital paradox’ in FR/DE/IT/ES).

European Commission (2025n). European Digital Innovation Hubs (EDIHs) programme (SME support infrastructure for testing, skills and access to finance for digital technologies incl. AI).

European Commission (2025h). Apply AI Strategy (communication and implementation materials on accelerating AI uptake and diffusion, incl. SME support).

Oldemeyer, L (2025). , et al. (2025). Investigation of artificial intelligence in SMEs: a systematic review of the state of the art and the main implementation challenges. Management Review Quarterly (Springer).

European Union (2024). Regulation (EU) 2024/1689 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act) (EUR-Lex authentic legal text).

European Commission (2024). Artificial Intelligence Act — overview page (entry into force and phased application dates).

European Commission / AI Act Service Desk (2025a). Article 62 — Support measures for SMEs and start-ups (guidance on implementation).

European Commission / AI Act Service Desk (2025b). Article 58 — AI regulatory sandboxes (guidance on supervised testing).

Country	Named institutional reference point(s)	Atlas interpretation notes (training gap → constraint bundles)
Austria	ibw Austria – Research & Development in VET; Austrian Institute for Vocational Research (öibf) (ReferNet partner).	Use ReferNet/VET-in-Europe notes for CVET governance and SME access pathways to interpret CVTS participation and reported skills barriers. [R127]
Belgium	Bruxelles Formation – Institut Bruxellois Francophone pour la Formation Professionnelle (IBFFP) (ReferNet partner).	Use partner outputs to interpret training take-up in Belgium’s multi-level governance and provider landscape (intermediation intensity is often the binding

		constraint). [R127]
Bulgaria	National Agency for Vocational Education and Training (NAVET) (ReferNet partner).	Anchor for adult-learning governance and qualification system updates when explaining SME training participation gaps. [R127]
Croatia	Agency for Vocational Education and Training and Adult Education (AVETAE) (ReferNet partner).	Institutional baseline for CVET and adult education reforms; link to SME training access and certification constraints. [R127]
Cyprus	Ministry of Education, Sports and Youth, DSTVET (ReferNet partner).	Baseline for institutional responsibilities and SME access pathways; useful when participation is constrained by provider availability. [R127]
Czechia	National Pedagogical Institute of the Czech Republic (NPI ČR) (ReferNet partner).	Institutional context behind participation metrics; use for governance of VET/curricula and employer engagement. [R127]
Denmark	University College Copenhagen (UCC) (ReferNet partner).	Institutional mapping and SME training supports in a strong VET tradition; interpret whether gaps reflect content relevance rather than access. [R127]
Estonia	Ministry of Education and Research (HTM) (ReferNet partner).	Institutional baseline for skills policy and training governance; connects to digitalisation and AI readiness chapters. [R127]
Finland	Finnish National Agency for Education (EDUFI/OPH) (ReferNet partner).	Institutional design and SME training supports linked to skills strategy; use for interpreting training outcomes vs labour tightness. [R127]
France	Centre Inffo – Centre for the Development of Information on	Anchor for continuing training governance and operator-

	Continuing Vocational Training (ReferNet partner).	based systems; use to interpret participation via system navigation complexity. [R127]
Germany	Federal Institute for Vocational Education and Training (BIBB) (ReferNet partner).	Institutional anchor for VET/CVET; connect training to skills shortages and succession (management bench development). [R127]
Greece	National Organisation for the Certification of Qualifications and Vocational Guidance (EOPPEP) (ReferNet partner).	Governance of qualifications and pathways; interpret whether certification and recognition issues constrain SME training. [R127]
Hungary	Innovative Training Support Centre (IKK) (ReferNet partner).	Institutional detail behind participation gaps and reforms; use to interpret training supply constraints and SME access. [R127]
Ireland	SOLAS – Further Education and Training Authority (ReferNet partner).	SME-facing training provision and national upskilling initiatives; use to interpret whether uptake reflects programme reach. [R127]
Italy	National Institute for the Analysis of Public Policies (INAPP) (ReferNet partner).	Anchor for fund architecture and SME training participation interpretation; connect to time/fixed-cost barriers and intermediated delivery. [R127]
Latvia	Ministry of Education and Science (MoES) (ReferNet partner).	Governance and SME access notes; interpret participation differences as institutional/intermediation differences. [R127]
Lithuania	Qualifications and VET Development Centre (KPMPC) (ReferNet partner).	Qualification reforms and SME training system mapping; useful for interpreting skills

		mismatch vs shortage. [R127]
Luxembourg	Ministry of Education, Children and Youth – Department of Vocational Training (ReferNet partner).	Governance and SME access notes; interpret participation via system accessibility and cross-border labour dynamics. [R127]
Malta	Ministry for Education, Sport, Youth, Research and Innovation (MEYR) (ReferNet partner).	Adult learning governance and SME training channels; interpret gaps as provider/intermediation limits. [R127]
Netherlands	Stichting CINOP – eco (ReferNet partner).	Institutional details and SME participation barriers/solutions; connect to high labour tightness and the upskilling imperative. [R127]
Poland	Educational Research Institute – National Research Institute (ReferNet partner).	Institutional context and SME training access; interpret take-up alongside skills mismatch evidence. [R127]
Portugal	DGERT (Directorate-General of Employment and Industrial Relations), Ministry of Labour, Solidarity and Social Security (ReferNet partner).	Training certification/regulation and SME access details; connect to compliance/administrative capacity constraints. [R127]
Romania	National Centre for TVET development (CNDIPT) (ReferNet partner).	Institutional mapping and SME access channels; interpret low participation as a mix of capacity, informality, and provider reach. [R127]
Slovakia	State Institute of Vocational Education & Training (ŠIOV) (ReferNet partner).	Governance and SME take-up interpretation; connect to skills mismatch and regional labour-market differences. [R127]
Slovenia	CPI – National Institute for Vocational Education and Training (ReferNet partner).	Institutional mapping and policy reforms affecting SMEs; interpret participation as

		institutional and firm-capability interaction. [R127]
Spain	Ministry of Education, Vocational Training and Sports (todofp.es) (ReferNet partner).	Use alongside FUNDAE evidence to interpret SME training take-up and instrument reach (funded training vs capability constraints). [R127]
Sweden	Swedish National Agency for Education (Skolverket) (ReferNet partner).	Governance and SME access notes; connect to digital skills initiatives and sectoral differences. [R127]
Norway	Norwegian Directorate for Higher Education and Skills (HK-dir) (ReferNet partner, 'Other countries').	Norway's official institutional spine for Europe+ comparability; connect training participation to labour tightness and regional capability. [R127]
United Kingdom	Department for Business and Trade (DBT) – Help to Grow: Management programme (national SME management training) + evaluation reports.	UK anchor for SME management development design and outcomes; use evaluation findings to connect management training to productivity and growth mechanisms. [R112][R130]
Switzerland	State Secretariat for Education, Research and Innovation (SERI) – VPET governance; Swiss Federal University for Vocational Education and Training (SFUVET) – continuing training for VET professionals and research.	Switzerland's official governance + capability institution spine; connect continuing training to successor development and know-how transfer routines. [R128][R129]

Interpretation reminder. The institutional map is not a substitute for metrics; it is the bridge from metrics (CVTS/enterprise training participation: capability and investment gaps in digital systems/data; skills shortage prevalence: recruitment/retention/upskilling constraints; digital adoption gaps: capability and investment gaps in digital systems/data) to mechanisms. In country writeups, use the named institutions above as the primary 'where to look' references for why SMEs train less (barriers),

what is funded (instruments), and how learning transfer is supported (intermediation). This also links directly to succession: successor development and tacit knowledge transfer should be treated as an HR capability project anchored in training and mentoring routines, not only as a legal transfer event.

BusinessEurope (2025). Mapping of regulatory burden (stakeholder catalogue of administrative and cross-border burden hotspots). https://www.besnesseurope.eu/wp-content/uploads/2025/02/2025-01-22_besnesseurope_mapping_of_regulatory_burden-d55-1.pdf

Edge Foundation (2025). Skills shortages bulletin summary 2025 (SME training barriers; perceived constraints and policy suggestions). https://www.edge.co.uk/documents/546/DD1660_-_Skills_shortages_bulletin_summary_2025_FINAL.pdf

UK Government (2025). Skills and apprenticeship reforms announcement (Dec 2025). <https://www.gov.uk/government/news/50000-more-young-people-to-benefit-from-apprenticeships-as-government-unveils-new-skills-reforms-to-get-britain-working>

British Business Bank (2025a). Small Business Finance Markets Report 2025 (UK SME debt & equity market structure; pricing; approvals and trends). <https://www.british-business-bank.co.uk/sites/g/files/sovrnj166/files/2025-02/small-business-finance-market-report-2025.pdf>

European Commission (2003). Commission Recommendation 2003/361/EC concerning the definition of micro, small and medium-sized enterprises. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32003H0361>

European Commission (2023). SME Performance Review 2023/2024 (EU SME population, value added and employment trends; post-pandemic and energy-shock context). https://single-market-economy.ec.europa.eu/smes/sme-performance-review_en

European Commission (2025l). User guide to the SME definition (practical guidance on applying headcount/turnover/balance-sheet thresholds). https://single-market-economy.ec.europa.eu/smes/sme-definition_en

Eurostat (2025i). Entrepreneurship indicators and business demography — high-growth enterprises and gazelles (definitions and data notes). <https://ec.europa.eu/eurostat/web/structural-business-statistics/entrepreneurship>

Eurostat (2025j). Gazelles and high-growth enterprises — methodology note (age criterion, 10-employee threshold, 3-year growth window under EBS). https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:High-growth_enterprise

Appendix D — Annotated academic literature register

This appendix provides an academic literature register that complements the institutional evidence register in Appendix A. Each entry gives a short capsule summarising the study's central finding(s) and the specific way it is used in the Europe+ atlas. The goal is to avoid citations that merely name a source: whenever a chapter cites one of these works, it should be able to point to a concrete mechanism or empirical result.

Finance frictions and SME funding structures

Stiglitz, J. E., & Weiss, A. (1981). Credit rationing in markets with imperfect information. *American Economic Review*.

Shows why banks may restrict loan quantities rather than clear markets through higher interest rates when information is imperfect. The core mechanism is adverse selection and moral hazard: higher prices can worsen the risk pool. Relevance: provides a foundational mechanism for why SMEs can face persistent credit constraints even when willing to borrow at going rates, and why policy guarantees or information improvements can matter.

Berger, A. N., & Udell, G. F. (1998). The economics of small business finance: The roles of private equity and debt markets in the financial growth cycle. *Journal of Banking & Finance*.

Proposes a “financial growth cycle” where young/small firms rely on insider finance, trade credit, angel/VC, and relationship banking before accessing more arm's-length finance. Key implication: SME financing instruments change predictably with age and information availability. Relevance: underpins this book's separation of established SME debt channels from startup equity and scale-up finance needs.

Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2005). Financial and legal constraints to growth: Does firm size matter? *Journal of Finance*.

Uses cross-country firm data to show that smaller firms report higher financing and legal constraints and that these constraints are more tightly associated with slower growth among small firms. Key implication: institutions and financial development conditions moderate SME growth more strongly than large-firm growth.

Petersen, M. A., & Rajan, R. G. (1994). The benefits of lending relationships: Evidence from small business data. *Journal of Finance*.

Provides evidence that relationship lending can relax constraints for small firms through soft information, affecting credit availability and terms. Relevance: helps interpret why SME finance can be more constrained in banking systems with weaker relationship-banking capacity or greater reliance on collateral-based scoring.

Wagenvoort, R. (2003). Are finance constraints hindering the growth of SMEs in Europe? *EIB Papers*.

European evidence that small firms' growth is more sensitive to internal cash flow than that of larger firms, interpreted as stronger external finance constraints for SMEs. Relevance: supports the book's mechanism link between cash-flow volatility and SME investment/growth ceilings.

Working capital, trade credit, and late payments

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance & Accounting*.

Finds that longer receivables and inventory periods are associated with lower profitability, consistent with the idea that working capital ties up resources. Relevance: provides an empirical anchor for why late payments and poor working-capital conditions can depress SME performance.

Love, I., Preve, L., & Sarria-Allende, V. (2007). Trade credit and bank credit: Evidence from recent financial crises. *Journal of Financial Economics*.

Shows that trade credit can act as a substitute or buffer when bank credit contracts, but also that shocks propagate through supply chains. Relevance: supports the "liquidity amplification" idea: SMEs' dependence on trade credit can both help and harm resilience depending on payment discipline.

Kaya, A. (2024). Late payments and SMEs' access to finance: Evidence from European firms. *Economic Modelling*.

Finds that SMEs reporting frequent or occasional late payments are more likely to report access-to-finance problems and worse loan conditions, consistent with a bank-channel interpretation. Relevance: microfoundation for linking payment discipline to SME investment and survival differences in the atlas.

Fabbri, D., & Menichini, A. M. (2010). Trade credit, collateral liquidation, and borrowing constraints. *Journal of Financial Economics*.

Analyses how collateral and borrowing constraints interact with trade credit provision. Relevance: clarifies why financially constrained firms may rely more on trade credit and why late payment risk can feed back into bank lending terms.

Survival, liability of newness, and growth dynamics

Jovanovic, B. (1982). Selection and the evolution of industry. *Econometrica*.

Models firm learning where entrants discover efficiency over time; less efficient firms exit. Relevance: provides a theoretical rationale for why young-firm exit is expected and why survival differences across countries may reflect the speed/cost of learning and selection, shaped by institutions and markets.

Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. American Sociological Review.

Argues that organisations face inertia in changing routines, which can increase hazard in changing environments. Relevance: supports the idea that SMEs can be vulnerable to regulatory or technological shocks when they lack capacity to reconfigure routines quickly.

Audretsch, D. B. (1995). Innovation and Industry Evolution. MIT Press.

Synthesises evidence on entry, innovation, and industry dynamics, showing how innovation shapes firm turnover and survival. Relevance: supports interpreting demography outcomes as linked to innovation systems rather than purely “entrepreneurship culture.”

Coad, A. (2009). The Growth of Firms: A Survey of Theories and Empirical Evidence. Edward Elgar.

Reviews theory and evidence on firm growth, emphasising heterogeneity and the limits of average effects. Relevance: supports the atlas approach of focusing on distributions (e.g., gazelles) and moderators (size/sector) rather than “typical firm” averages.

Henrekson, M., & Johansson, D. (2010). Gazelles as job creators: A survey and interpretation of the evidence. Small Business Economics.

Reviews evidence that a small number of high-growth firms contribute disproportionately to job creation, and discusses conditions supporting gazelle emergence. Relevance: underpins the book’s emphasis on high-growth proxies and scaling conditions rather than only entry rates.

HRD, training, and capability building in SMEs

Nolan, C. T., & Garavan, T. N. (2016). Human resource development in SMEs: A systematic review of the literature. International Journal of Management Reviews.

Synthesises HRD research in SMEs, showing persistent constraints in time, budget, and HR infrastructure, heavy reliance on informal learning, and uneven adoption of structured training systems. Relevance: supports treating “skills shortages” as both an external labour-market constraint and an internal capability-accumulation challenge.

Barrett, R., & Mayson, S. (2008). Human resource management in growing small firms. Journal of Small Business and Enterprise Development.

Shows that HR practices professionalise as firms grow, but small firms often lag due to limited HR capacity. Relevance: supports the firm-size moderator logic and explains why small firms can struggle with retention and onboarding even when they recognise skills needs.

Bloom, N., & Van Reenen, J. (2007). Measuring and explaining management practices across firms and countries. Quarterly Journal of Economics.

Develops survey-based measurement of management practices and links stronger practices to better performance. Relevance: provides the conceptual basis for treating managerial capability as a measurable constraint domain that interacts with training, digitalisation, and scaling.

Storey, D. J. (2004). Exploring the link, among small firms, between management training and firm performance: A comparison between the UK and other OECD countries. *International Journal of Human Resource Management*.

Discusses evidence that management training can improve outcomes but is underutilised in small firms; highlights cross-country differences in take-up and support. Relevance: supports policy discussion on targeted management development for SMEs.

Family business, governance, and succession

Sharma, P. (2004). An overview of the field of family business studies: Current status and directions for the future. *Family Business Review*.

Provides a field overview, including succession as a central research and practice issue. Relevance: frames succession as a structured governance problem (planning, candidate development, role clarity) rather than a one-time event.

Venter, E., Boshoff, C., & Maas, G. (2005). The influence of successor-related factors on the succession process in small and medium-sized family businesses. *Family Business Review*.

Finds that successor preparation, commitment, and perceived competence influence succession success. Relevance: supports the book's emphasis on training and knowledge transfer to successors as a continuity mechanism.

Le Breton-Miller, I., Miller, D., & Steier, L. P. (2004). Toward an integrative model of effective FOB succession. *Entrepreneurship Theory and Practice*.

Proposes an integrative model linking succession planning, successor development, and post-succession governance. Relevance: supports interpreting succession failures as predictable outcomes of weak preparation and governance, not just "lack of heirs."

Reif, J., et al. (2025). Family-firm succession research: A systematic literature review. (journal systematic review).

Synthesises a large body of succession research and separates candidate-focused and process-focused streams; highlights that outcomes depend on planning intensity, governance, and context. Relevance: supports using Germany's KfW evidence as mechanism-rich input while searching for cross-country transfer-market evidence.

Digital transformation, AI adoption, and regulation

Vial, G. (2019). Understanding digital transformation: A review and a research agenda. Journal of Strategic Information Systems.

Defines digital transformation as a strategic and organisational change process rather than mere IT investment. Relevance: provides a foundation for why SMEs need strategy, process redesign, and capability complements to realise digital and AI benefits.

Arroyabe, M. F., et al. (2024). Artificial intelligence adoption in SMEs: A capabilities-based perspective. (journal empirical study).

Finds that digital and innovation capabilities and supportive environments are associated with SME AI adoption; suggests complementarities (data/process/skills) drive successful adoption. Relevance: supports the manuscript's framing of AI as an extension of digital capability rather than a plug-in tool.

Schwaeye, J., et al. (2025). The status quo of AI adoption in SMEs: The new normal. Journal of Retailing.

Provides a theoretically grounded account of AI implementation in SMEs, highlighting organisational readiness, data quality, and workforce capability as key constraints. Relevance: adds recent research framing for AI opportunity chapters and for training needs.

European Parliament (2025). Study on the interplay between the AI Act and other EU digital legislation.

Analyses overlaps and potential compliance complexity across EU digital regulatory regimes; discusses implications for smaller actors without specialist legal resources. Relevance: supports the dedicated AI Act chapter's focus on practical compliance burdens and guidance needs.

OECD. (2025). AI adoption by small and medium-sized enterprises: OECD discussion paper for the G7. OECD Publishing. <https://doi.org/10.1787/426399c1-en>

Proposes a typology of SME AI adopters and stresses that different profiles require different interventions (foundational digitisation, skills and advisory support, governance tools, and access to finance). Relevance: supports the book's recommended training programme architecture and policy implications.

Appendix D (continued) — Additional annotated references

These additional entries broaden the academic coverage across finance, demography, training, institutions, and innovation. They are not all cited yet in the main text, but they are included to strengthen the literature base and to provide ready-to-use citations for future expansions of chapters.

Finance frictions, capital structure, and entrepreneurial finance

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.
[https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)

Develops the pecking-order logic: when managers know more than outside investors, issuing external equity can be costly, so firms prefer internal funds and then debt. Relevance: explains why SMEs often rely on retained earnings and why information opacity raises the cost of external finance.

Fazzari, S. M., Hubbard, R. G., & Petersen, B. C. (1988). Financing constraints and corporate investment. *Brookings Papers on Economic Activity*.

Introduces the empirical strategy of using investment–cashflow sensitivity as a proxy for financing constraints. Relevance: provides the conceptual basis for interpreting why SMEs’ investment tends to be more sensitive to liquidity and payment discipline than that of large firms.

Kaplan, S. N., & Zingales, L. (1997). Do financing constraints explain why investment is correlated with cash flow? *Quarterly Journal of Economics*.

Challenges simplistic interpretations of cashflow sensitivity and argues measurement must be careful. Relevance: motivates the atlas’s “consistency check” posture: co-movement of indicators is suggestive, not definitive proof of constraints.

Robb, A. M., & Robinson, D. T. (2014). The capital structure decisions of new firms. *Review of Financial Studies*, 27(1), 153–179. <https://doi.org/10.1093/rfs/hhs072>

Shows that many new firms use personal debt and owner financing; formal external equity is concentrated in a small subset. Relevance: reinforces the measurement caveat that enterprise births are not equivalent to venture-backed startups.

Gompers, P., & Lerner, J. (2001). The venture capital revolution. *Journal of Economic Perspectives*.

Reviews how VC markets function (staged financing, monitoring, governance) and how they influence innovation and firm growth. Relevance: provides conceptual grounding for treating VC as an ecosystem system rather than a generic finance instrument.

Kaplan, S. N., & Strömberg, P. (2003). Financial contracting theory meets the real world: Evidence from venture capital contracts. *Review of Economic Studies*.

Documents how VC contracts allocate control rights contingent on performance milestones.

Relevance: explains why startups face governance and reporting requirements that differ from bank-financed SMEs, and why compliance capacity can become binding as firms scale.

Trade credit, payment discipline, and supply-chain finance

Petersen, M. A., & Rajan, R. G. (1997). Trade credit: Theories and evidence. Review of Financial Studies.

Shows that trade credit is both a financing instrument and a relational contracting tool; constrained firms may rely more on it. Relevance: supports interpreting late payments as a supply-chain finance channel that can substitute for bank credit but also transmit stress.

Ng, C. K., Smith, J. K., & Smith, R. L. (1999). Evidence on the determinants of credit terms used in interfirm trade. Journal of Finance.

Finds that credit terms vary systematically with product characteristics and buyer–seller relationships. Relevance: supports the ecosystem-level view that payment terms reflect bargaining power, not just “payment culture.”

Boissay, F., & Gropp, R. (2013). Payment defaults and interfirm liquidity provision. Review of Finance.

Shows how payment defaults can cascade through production networks. Relevance: provides a research foundation for systemic risk interpretations of late-payment spikes and the need for enforcement mechanisms.

Business demography, job creation, and high-growth firms

AL-GZ01 — Eurostat–OECD (2007). Eurostat–OECD Manual on Business Demography Statistics. Eurostat / OECD.

Evidence capsule. Methodology manual describing sources, methods, and harmonised definitions for business demography indicators used in cross-country comparisons, including births, deaths, survival, and high-growth enterprise measures. It clarifies why minimum size thresholds and growth windows are applied and how comparability is maintained. Relevance. Provides the definitional backbone for the atlas’ use of HGEs and gazelles and supports transparent comparability between Europe+ countries.

AL-GZ02 — OECD (2010). High-Growth Enterprises: What Governments Can Do to Make a Difference. OECD Studies on SMEs and Entrepreneurship. OECD Publishing.

Evidence capsule. Book-length synthesis using OECD–Eurostat definitions explains why policy focuses on high-growth firms: they can contribute disproportionately to jobs and innovation, yet are rare and

sensitive to framework conditions. It discusses measurement choices (employment vs turnover growth), and emphasises that policy cannot reliably “pick winners”; instead, reducing barriers and strengthening ecosystems is more robust. Relevance. Supports treating gazelles/HGEs as outcome indicators of the wider environment and motivates cross-domain constraint-bundle analysis.

AL-GZ03 — Collewaert & Jansen (eds.) (2025). Handbook of Research on Scaling and High-Growth Firms. Edward Elgar Publishing.

Evidence capsule. Handbook chapters synthesise the modern scaling literature and distinguish scaling as a process (organisational design, routines, leadership systems, and ecosystem engagement) from high growth as a measured outcome. The handbook highlights multi-level drivers: leadership and culture, capabilities and processes, access to talent/customers, and growth finance and exit routes. Relevance. Concept spine for interpreting gazelle outcomes through the socio-ecological model: multiple levels must align for early scaling to occur.

AL-GZ04 — Henrekson & Johansson (2010). Gazelles as job creators: a survey and interpretation of the evidence. Small Business Economics, 35(2), 227–244.

Evidence capsule. Meta-analysis/survey of empirical studies on job creation finds that gazelles frequently account for all or a large share of net job creation in studied periods. Rapid-growth firms are, on average, younger and smaller, but not necessarily both; young age is more consistently linked to rapid growth than small size. Gazelles exist across industries and are not confined to high-tech. Relevance. Provides the outcome rationale for including gazelles in the Europe+ atlas as a scaling proxy and supports avoiding the “gazelles = tech startups” category error.

AL-GZ05 — Parker, Storey & van Witteloostuijn (2010). What happens to gazelles? The importance of dynamic management strategy. Small Business Economics, 35(2), 203–226.

Evidence capsule. Using detailed UK data on more than 100 gazelles, the authors argue that high-growth episodes are not purely stochastic; growth is connected to strategic adjustment and the ability to reconfigure management strategy as conditions change. They interpret growth as a dynamic process in which managerial decisions and the external environment interact. Relevance to this book. Supports treating gazelles as an outcome of firm capability and strategy (Level 3) interacting with ecosystem and institutional shifts (Levels 4–6), rather than as a simple “startup quality” marker.

Evans, D. S. (1987). The relationship between firm growth, size, and age: Estimates for 100 manufacturing industries. Journal of Industrial Economics.

Finds that younger and smaller firms grow faster on average but also face higher exit risk. Relevance: supports treating size and age as core moderators and motivates separate analysis for micro firms versus scaling firms.

Dunne, T., Roberts, M. J., & Samuelson, L. (1989). The growth and failure of U.S. manufacturing plants. Quarterly Journal of Economics.

Documents systematic patterns of plant survival and growth. Relevance: provides benchmark evidence for selection dynamics and for why survival and growth distributions are central outcomes.

Haltiwanger, J., Jarmin, R. S., & Miranda, J. (2013). Who creates jobs? Small versus large versus young. Review of Economics and Statistics.

Shows that firm age matters strongly for job creation; young firms contribute disproportionately to net job creation. Relevance: supports the atlas emphasis on young high-growth firms and on institutional conditions supporting their scaling.

Anyadike-Danes, M., Hart, M., & Du, J. (2015). Firm dynamics and job creation in the United Kingdom: 1998–2013. *International Small Business Journal*, 33(1), 12–27.
<https://doi.org/10.1177/0266242614552334>

Highlights that high-growth episodes drive a large share of job creation and that persistence is limited. Relevance: strengthens the UK spine and supports the interpretation that gazelle rates reflect system conditions, not only entrepreneurial culture.

Daunfeldt, S.-O., Elert, N., & Johansson, D. (2015). Are high-growth firms overrepresented in high-tech industries? Industrial and Corporate Change.

Finds that high-growth firms are not confined to high-tech; they appear across sectors. Relevance: supports the book's warning against treating scaling as only a "tech startup" phenomenon.

Institutions, regulation, and administrative burden

North, D. C. (1990). Institutions, Institutional Change and Economic Performance. Cambridge University Press.

Argues that institutions shape transaction costs and economic performance through rules, enforcement, and norms. Relevance: foundational for linking regulatory burden and enforcement speed to SME scaling and survival outcomes.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. Journal of Political Economy.

Links legal origin and investor protections to financial development. Relevance: supports the cross-country logic that finance constraints and contract enforcement differ systematically across institutional regimes, affecting SMEs more strongly.

Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). The regulation of entry. Quarterly Journal of Economics.

Measures administrative procedures for firm entry across countries and shows large cross-country variation. Relevance: provides a methodological anchor for why administrative burden can depress entry and formalisation and can amplify SME fixed-cost constraints.

Acemoglu, D., & Pischke, J.-S. (1999). The structure of wages and investment in general training. *Journal of Political Economy*.

Shows that labour-market frictions can make firms invest in training even when general skills are transferable. Relevance: helps interpret why apprenticeship and training systems vary with institutions and why policy design can shift training incentives for SMEs.

Innovation, absorptive capacity, and productivity in SMEs

Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*.

Introduces absorptive capacity—the ability to recognise, assimilate, and exploit external knowledge. Relevance: underpins the book’s claim that SMEs’ innovation and AI adoption depend on prior capabilities (skills, processes, data), not just technology availability.

Acs, Z. J., & Audretsch, D. B. (1988). Innovation in large and small firms: An empirical analysis. *American Economic Review*.

Shows that small firms contribute to innovation in ways that differ from large firms, with sectoral variation. Relevance: supports treating SME innovation as a distinct domain with different constraints than R&D-intensive large-firm innovation.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*.

Develops dynamic capabilities as the ability to integrate and reconfigure competences in changing environments. Relevance: used in this book to interpret AI adoption and digital transformation as capability-building rather than plug-in investment.

Digital transformation and technology adoption frameworks

Tornatzky, L. G., & Fleischer, M. (1990). The Processes of Technological Innovation. Lexington Books.

Introduces the Technology–Organisation–Environment (TOE) framework for explaining adoption. Relevance: provides a structured way to interpret why SME adoption depends on internal readiness, external pressures, and support infrastructure.

Rogers, E. M. (2003). Diffusion of Innovations (5th ed.). Free Press.

Explains adoption as a diffusion process shaped by relative advantage, complexity, trialability, and social networks. Relevance: supports interpreting cross-country differences in digital and AI adoption as diffusion phenomena moderated by ecosystems and institutions.

Brynjolfsson, E., & Hitt, L. M. (2000). Beyond computation: Information technology, organizational transformation and business performance. Journal of Economic Perspectives.

Argues that IT productivity gains depend on complementary organisational changes. Relevance: provides a core rationale for why SMEs need process redesign, skills, and management capacity to realise benefits from digital and AI investments.

Family business succession and knowledge transfer

Handler, W. C. (1994). Succession in family business: A review of the research. Family Business Review.

Early synthesis identifying succession as a multi-stage process involving planning, role adjustment, and family dynamics. Relevance: supports the book's framing of succession as a governance and capability-transfer challenge.

Cabrera-Suárez, K., De Saá-Pérez, P., & García-Almeida, D. (2001). The succession process from a resource- and knowledge-based view of the family firm. Family Business Review.

Frames succession as transfer of tacit and explicit knowledge resources. Relevance: supports the training-and-development chapter's emphasis on structured knowledge transfer to successors.

De Massis, A., Chua, J. H., & Chrisman, J. J. (2008). Factors preventing intra-family succession. Family Business Review.

Identifies barriers such as lack of successor willingness/competence and family conflict. Relevance: informs the atlas's classification of succession failure modes and links to workforce development for successors.

Appendix E — Bibliography

This bibliography lists the institutional and academic sources used in the manuscript. Where a source is cited multiple times, it is listed once here.

- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- European Investment Bank (EIB). (2025). EIB Investment Survey 2025. European Investment Bank. <https://doi.org/10.2867/4791610>
- European Central Bank (ECB). (2026). Survey on the Access to Finance of Enterprises in the euro area: Fourth quarter of 2025. European Central Bank.
- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- OECD. (2025). AI adoption by small and medium-sized enterprises: OECD discussion paper for the G7. OECD Publishing. <https://doi.org/10.1787/426399c1-en>
- Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221. [https://doi.org/10.1016/0304-405X\(84\)90023-0](https://doi.org/10.1016/0304-405X(84)90023-0)
- Fazzari, S. M., Hubbard, R. G., & Petersen, B. C. (1988). Financing constraints and corporate investment. *Brookings Papers on Economic Activity*.
- Kaplan, S. N., & Zingales, L. (1997). Do financing constraints explain why investment is correlated with cash flow? *Quarterly Journal of Economics*.
- Robb, A. M., & Robinson, D. T. (2014). The capital structure decisions of new firms. *Review of Financial Studies*, 27(1), 153–179. <https://doi.org/10.1093/rfs/hhs072>
- Gompers, P., & Lerner, J. (2001). The venture capital revolution. *Journal of Economic Perspectives*.
- Kaplan, S. N., & Strömberg, P. (2003). Financial contracting theory meets the real world: Evidence from venture capital contracts. *Review of Economic Studies*.
- Petersen, M. A., & Rajan, R. G. (1997). Trade credit: Theories and evidence. *Review of Financial Studies*.
- Ng, C. K., Smith, J. K., & Smith, R. L. (1999). Evidence on the determinants of credit terms used in interfirm trade. *Journal of Finance*.
- Boissay, F., & Gropp, R. (2013). Payment defaults and interfirm liquidity provision. *Review of Finance*.
- Evans, D. S. (1987). The relationship between firm growth, size, and age: Estimates for 100 manufacturing industries. *Journal of Industrial Economics*.
- Dunne, T., Roberts, M. J., & Samuelson, L. (1989). The growth and failure of U.S. manufacturing plants. *Quarterly Journal of Economics*.
- Haltiwanger, J., Jarmin, R. S., & Miranda, J. (2013). Who creates jobs? Small versus large versus young. *Review of Economics and Statistics*.
- Anyadike-Danes, M., Hart, M., & Du, J. (2015). Firm dynamics and job creation in the United Kingdom: 1998–2013. *International Small Business Journal*, 33(1), 12–27. <https://doi.org/10.1177/0266242614552334>

- Daunfeldt, S.-O., Elert, N., & Johansson, D. (2015). Are high-growth firms overrepresented in high-tech industries? *Industrial and Corporate Change*.
- North, D. C. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge University Press.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. *Journal of Political Economy*.
- Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). The regulation of entry. *Quarterly Journal of Economics*.
- Acemoglu, D., & Pischke, J.-S. (1999). The structure of wages and investment in general training. *Journal of Political Economy*.
- Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*.
- Acs, Z. J., & Audretsch, D. B. (1988). Innovation in large and small firms: An empirical analysis. *American Economic Review*.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*.
- Tornatzky, L. G., & Fleischer, M. (1990). *The Processes of Technological Innovation*. Lexington Books.
- Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press.
- Brynjolfsson, E., & Hitt, L. M. (2000). Beyond computation: Information technology, organizational transformation and business performance. *Journal of Economic Perspectives*.
- Handler, W. C. (1994). Succession in family business: A review of the research. *Family Business Review*.
- Cabrera-Suárez, K., De Saá-Pérez, P., & García-Almeida, D. (2001). The succession process from a resource- and knowledge-based view of the family firm. *Family Business Review*.
- De Massis, A., Chua, J. H., & Chrisman, J. J. (2008). Factors preventing intra-family succession. *Family Business Review*.

Collewaert, V., & Jansen, J. J. P. (Eds.). (2025). *Handbook of Research on Scaling and High-Growth Firms*. Edward Elgar Publishing. ISBN 978-1-0353-2665-5.

Eurostat–OECD. (2007). *Eurostat–OECD Manual on Business Demography Statistics*. Eurostat / OECD.

OECD. (2010). *High-Growth Enterprises: What Governments Can Do to Make a Difference*. OECD Studies on SMEs and Entrepreneurship. OECD Publishing.

Henrekson, M., & Johansson, D. (2010). Gazelles as job creators: A survey and interpretation of the evidence. *Small Business Economics*, 35(2), 227–244. <https://doi.org/10.1007/s11187-009-9172-z>

Parker, S. C., Storey, D. J., & van Witteloostuijn, A. (2010). What happens to gazelles? The importance of dynamic management strategy. *Small Business Economics*, 35(2), 203–226. <https://doi.org/10.1007/s11187-009-9250-2>

Endnotes — Part VIII

Endnote VIII.1 — Implications follow from bundles. Because constraints interact, single-instrument fixes are rarely sufficient; recommendations are structured around bundle reduction and capability building.

Endnote VIII.2 — Managerial implications prioritise routines that reduce fragility (cash-flow discipline, training systems, compliance processes, succession planning).

Endnote VIII.3 — Updating logic. The atlas is designed to be updated as new releases appear; evidence capsules are intended to keep future editions readable.

Literature — Part VIII

Key sources (full references):

- European Commission. (2025). The 2025 Annual Single Market and Competitiveness Report (COM(2025) 26; SWD(2025) 11–12). European Commission.
- Eurostat (2025). Business demography and entrepreneurship statistics documentation and datasets. European Commission.
- European Investment Bank (EIB). (2025). EIB Investment Survey 2025. European Investment Bank. <https://doi.org/10.2867/4791610>
- OECD. (2025). AI adoption by small and medium-sized enterprises: OECD discussion paper for the G7. OECD Publishing. <https://doi.org/10.1787/426399c1-en>

Additional sources cited in this Part (author–year as cited in text):

- CEDEFOP (2020)
- CEDEFOP (2024)
- CEDEFOP (2024a)
- CEDEFOP (2024b)
- CEDEFOP (2024c)
- Dealroom (2025b)
- ECB (2025)
- EIB (2025)
- EIB (2025a)
- EIC (2025a)

- EIF (2025)
- Eurofound (2024)
- European Commission (2023)
- Eurostat (2021)
- France Compétences (2024)
- KfW (2024a)
- KfW (2025)
- KfW (2026)
- OECD (2021)
- ONS (2026a)
- SERI (2025)
- SFUVET (2025)
- UK Department for Business and Trade (2025)
- UK Department for Education / GOV (2024)
- UK Government (2025)
- UNIDO (2025)

OECD. (2025b). Generative AI and the SME workforce. OECD Publishing.

Appendix F — Reference integrity audit and verified evidence update

This appendix records the verification standard used for the revised edition. Current institutional sources and all bibliography entries that were ambiguous, incomplete or unusually recent were checked against official publisher, institutional or DOI records. Where a title or publication type could not be matched exactly, the manuscript was corrected or the reference was not used as support for a new claim. Classic academic works with stable bibliographic records were retained, and incomplete entries were normalised where authoritative metadata was available. The audit date is 16 July 2026.

Reference / item	Audit result	Action taken
OECD 2025 SME AI paper	Verified	Corrected title to “AI adoption by small and medium-sized enterprises: OECD discussion paper for the G7”; added DOI 10.1787/426399c1-en.
EIB Investment Survey 2025	Verified	Replaced the vague “2024/2025” title with the official 2025 title and DOI 10.2867/4791610.
ECB SAFE	Verified and updated	Replaced the generic 2025 entry with the Q4 2025 survey published in 2026; new findings added to the management summary and Part VIII.
European Commission competitiveness report	Verified	Specified COM(2025) 26 and accompanying SWD(2025) 11–12.
Anyadike-Danes, Hart & Du 2015	Verified and corrected	Replaced the non-existent ‘review of the evidence’ report wording with the journal article “Firm dynamics and job creation in the United Kingdom: 1998–2013”, DOI 10.1177/0266242614552334.
Collewaert & Jansen 2025 handbook	Verified	Retained; publisher and ISBN recorded.
Myers & Majluf 1984	Verified and completed	Added volume, issue, pages and DOI 10.1016/0304-405X(84)90023-0.
Robb & Robinson 2014	Verified and completed	Added volume, issue, pages and DOI 10.1093/rfs/hhs072.
Henrekson & Johansson 2010	Verified	Title, pages and DOI confirmed.
Parker, Storey & van Witteloostuijn 2010	Verified	Title, pages and DOI confirmed.

Reference-use policy for this edition. A source is used for substantive evidence only when the title, issuing body or journal, year, and publication location can be matched to an authoritative record. Market reports are treated as descriptive ecosystem evidence rather than peer-reviewed causal

evidence. Official statistics are preferred for country values, while academic studies are used for mechanisms and theory. Where figures are cohort-lagged or definitions differ, the manuscript states the limitation rather than harmonising by assumption.