Anticipating Strategic Long-term Challenges

D3.1 ASTRAL TRAINING FOR BUSINESS

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1. EXECUTIVE SUMMARY

Deliverable 3.1 presents the **competence matrix**, **learning objectives**, **curriculum outline, course index and content, access to the training platform links**, and **complete syllabus** for the ASTRAL LTFF Training for Business (C-VET). It is built from the results of the **four national co-design workshops** carried out in Germany, Spain, Denmark, and France in 2025, as required under WP3 Task 3.1.

According to the **Grant Agreement**, WP3 must:

- Define the **competence matrix** and **curriculum outline** for LTFF training for business.
- Co-design the **learning approach**, **course structure**, **learning objectives**, and **type of training materials needed**.
- Ensure **alignment with the ontology and semantics defined in WP5** for blended and online learning.
- Produce the baseline for the development of training content in T3.2 and T3.3.

Across all countries, the workshops revealed **converging needs**:

1. **Future literacy & mindset development** – the largest skill gap.
2. **Strategic foresight tools** – very low familiarity and high demand for simple, guided tools.
3. **Decision-making under uncertainty** – universal weakness.
4. **Soft skills** (curiosity, communication, adaptability, empathy, collaboration).
5. **Ethical, social & human foresight** – strong emphasis on data sovereignty, responsible AI, and human well-being.

The final curriculum consists of **ten modules**, delivered through a **blended learning approach** including micro-learning, experiential workshops, real-world cases, simulations, and challenge-based learning.

The training presented in this deliverable represents the current version of the ASTRAL Training for Business and will be further refined on the basis of the forthcoming T3.4 piloting and target-group feedback.

2. ASTRAL CURRICULUM

2.1. About Astral online course. Purpose and scope.

Deliverable 3.1 defines the **competence matrix**, **curriculum outline, training content**, and **detailed syllabus** for the ASTRAL LTFF Training for Business (C-VET), based on the co-design workshops in Germany, Spain, Denmark, and France.

The Grant Agreement states that WP3 must define:

- **Training approach & course structure for business (C-VET)**
- **Learning objectives**
- **Content structure and development of training content**
- **Type of training materials needed**
- **(Self-)assessment methodology**
- **Blended learning approach aligned with the ontology/semantics from WP5**

The co-design workshops in DE, DK, ES, FR provide the **competence matrix**, **priority themes**, and **learning preferences** that must form the basis of Deliverable 3.1.

2.2. Results of co-design workshops (synthesis)

2.2.1. Denmark

Key insights:

- Need for structured methods for LTFF
- Emphasis on interdisciplinary collaboration
- Critical thinking and noise vs signal filtering
- Strong desire for case-based and practice-based learning

2.2.2. France

Key insights:

- Weak ability to think 10–20 years ahead
- Data security, cyber hygiene & sovereign AI are top concerns
- Critical thinking & sense-making highly valued
- Preference for “credible” foresight (sector-specific, not abstract)

2.2.3. Germany

Key insights:

- Ethical sovereignty & data awareness as core need
- Missing strategic thinking & contextual intelligence
- Human-centric skills: empathy, reflective capability
- Role modelling & learning-through-play

2.2.4. Spain

Key insights:

- Extensive need for practical foresight tools
- Major gaps in analytical skills and trend interpretation
- High stress, burnout, and low psychological safety
- Desire for modular micro-learning + practical workflows

2.2.5. Converging Competence Priorities Across the Four Countries

1. Future Literacy & Mindset Development

- Strongest gap in **France**, **Spain**, **Denmark**, **Germany**.
- Difficulties imagining 10–20-year horizons (FR)
- Very short-term, firefighting mindset (ES)
- Need to understand *how humans think and act* to shape change (DE)
- Need to reduce ambiguity aversion (DK)

2. Strategic Foresight Tools & Methods

- Needed in all countries; described as “missing”, “unknown” or “rarely used”.
- Spain identifies **complete lack of simple foresight toolkits** (Trend scanning, Interdependency mapping)
- Germany notes **missing strategic thinking + impact assessment**
- Denmark emphasises **scenario creation, backcasting, horizon scanning**
- France requests **credible, applied tools** (avoid abstract “chamanisme”)

3. Decision-Making Under Uncertainty

- A universal weakness.
- Spain: fear of mistakes, reactive decisions, difficulty forecasting long-term impacts.
- France: impact as key prioritization criterion, need for structured uncertainty tools.
- Germany: inability to evaluate environmental, political, technological consequences.
- Denmark: need to filter noise vs. signals.

4. Soft Skills Foundational to LTFF

Common weaknesses:

- **Curiosity** (FR, ES)

- **Communication** & cross-department alignment (ES, DK, FR)
- **Empathy & reflective capability** (DE)
- **Adaptability** (FR, DK, ES)
- **Trust-building & collaboration** (ES, DK)

5. Ethical, Social & Human Foresight

- Germany: data sovereignty, ethical AI, "AI must be switchable"
- France: legal and cyber-ethical constraints, data protection
- Spain: well-being, psychological safety, burnout
- Denmark: human aspects of AI & societal impacts

2.3. Who is the Astral online course for

The ASTRAL online course is designed for **professionals, organisations, and educational actors** who need to develop or strengthen their capacity to anticipate long-term technological, societal, and market trends.

Overall, the ASTRAL Online Course Is Intended for Individuals who:

- Need to **anticipate long-term futures** (10–20 years ahead)
- Must make decisions in **complex, uncertain, fast-changing environments**
- Are responsible for **innovation, strategy, transformation, or technology adoption**
- Seek skills in **foresight, ethical and responsible innovation, and strategic resilience**
- Want to use **practical, applied foresight methods** validated by experts and industry
- Benefit from a **flexible, blended learning journey** combining online modules and experiential activities

In line with the project's mission and the results of the co-design workshops, the course targets two complementary groups:

1. Business and Industry Representatives (C-VET Target Group)

Professionals currently working in the **high-tech and deep-tech sectors**, including:

- SMEs and start-ups facing rapid technological change
- Innovation managers and R&D teams
- Strategic planning, product development, and foresight units
- Technology transfer, industry liaison, and business development staff

- Cluster organisations, business associations, and innovation intermediaries
- Impact hubs and ecosystem actors supporting industrial transformation

These learners need **practical foresight skills**, tools to make decisions under uncertainty, and the capacity to turn long-term trends into actionable strategies for competitiveness and resilience.

2. Higher Education Target Groups (Complementary to WP2)

Although WP3 focuses on business, the ASTRAL online platform also supports:

- **HE teachers**, who integrate LTFF into their courses
- **HE students**, especially in innovation, engineering, design, business, and policy-related programmes
- **Doctoral candidates and early-stage researchers** advancing futures thinking within scientific or technological domains

2.4. Learning approach

The ASTRAL Training for Business combines a flexible self-paced online learning component with facilitated and blended learning opportunities. The digital course content can be completed asynchronously, allowing learners to progress at their own pace, while practical exercises, case-based activities, simulations, peer exchange and train-the-trainer activities can also be implemented in facilitated face-to-face, online or blended settings. This flexible approach allows the same modular learning content to support both independent learners and (C-)VET trainers or business support professionals working with groups.

The learning progression will follow a flexible, modular approach rather than a strictly linear sequence. Training content will be organized into independent modules, allowing learners to select and complete the modules most relevant to their needs or interests. While each module can be taken on its own, the overall design will still support a coherent learning journey by encouraging learners to revisit key concepts across different modules. In this way, elements of spiral sequencing will be incorporated, enabling learners to reinforce previously covered material, enhance long-term retention, and deepen their understanding of the respective topics.

The course is structured around several key components:

- **Theory:** This section provides concise, demand-focused, and concentrated knowledge snippets to give learners a solid theoretical foundation.
- **Inspiration through Real-life Examples:** Through case studies and examples, this component sparks creativity and demonstrates real-world applications of the concepts, providing inspiration for learners.
- **Tools:** Here, learners explore the practical range of applications for Long-Term Future Foresight (LTFF) in business, enabling them to implement these tools effectively in their professional contexts.

- **Resources and References:** This section offers a wealth of additional materials for those who wish to dive deeper into the subject, providing opportunities for further reading and self-directed learning.

2.4.1. Most requested learning methods across countries

Method	Countries	Justification
Real-world cases	ES, DK, FR	Need for credible, applicable foresight; cases reduce abstraction
Experiential / practice-based	DE, ES, DK	Adult learners need hands-on, time-efficient, applied activities
Simulations	FR, DK	Especially cyber/PQC; credible long-term risk exposure
Micro-learning	ES, FR	Time-poor SMEs, preference for flexible formats
Gamification & play	DE, DK	To build cognitive flexibility and motivation
Challenge-based learning	ES, FR	Move from theory → action via real problems
Peer exchange	DK	Within-sector exchange for credibility
Storytelling & role modelling	DE	Effective for mindset & soft skills

3. COURSE OUTLINE AND LEARNING OBJECTIVES

The course material will be presented in ten modules, corresponding to the following phases:

Module 0: LTFF Future-Readiness Self-Assessment

Module 1: LTFF Foundations for Business (Why LTFF)

Module 2: Future Literacy & Mindset Development

Module 3: Strategic Foresight Tools & Methods

Module 4: Decision-Making Under Uncertainty

Module 5: Innovation & Transformation Skills (Future-Proof SMEs)

Module 6: Collaboration & Ecosystem Foresight

Module 7: Ethical, Social & Human Foresight

Module 8: Road mapping & Long-Term Strategy Execution

Module 9: LTFF for SMEs: Application & Barriers

As participants progress through the ten modules, they will be equipped with the essential knowledge and skills necessary to navigate and anticipate the intricate landscape of the future. Thus, the expected learning outcomes are as follows:

Module 0: LTFF Future-Readiness Self-Assessment

Introduces learners to their starting point in Long-Term Future Foresight (LTFF) through a structured self-assessment that measures individual and organisational readiness. Participants evaluate their mindset, digital and AI literacy, uncertainty-handling capacity, strategic thinking habits, and current foresight practices. The module generates a personalised readiness profile that guides each learner's learning path throughout the course. By establishing a clear baseline from the outset, Module 0 ensures that the training experience is tailored, relevant, and aligned with the specific needs of different SMEs and professional contexts.

Module 1: LTFF Foundations for Business (Why LTFF)

This module introduces the essential principles of Long-Term Future Foresight (LTFF) and explains why it is a strategic capability for modern businesses. Participants learn what LTFF is—and what it is not—clarifying misconceptions about prediction and highlighting the value of foresight as a practical tool for navigating uncertainty. Through real-world examples and sector-relevant cases, the module shows how LTFF strengthens competitiveness, supports innovation, reduces strategic blind spots, and enables organisations to anticipate long-term technological, social, and market shifts. At the end of the module, learners understand the strategic importance of LTFF and its relevance to their daily decision-making and long-term planning.

Cross-country priority (DE, DK, ES, FR)

Module 2: Future Literacy & Mindset Development

This module focuses on developing the cognitive and behavioural foundations needed to work effectively with long-term futures. Participants learn to recognise how assumptions, mental models, and cognitive biases shape their view of the future, and they practise expanding their imagination beyond short-term constraints. Through guided exercises and reflective activities, the module strengthens adaptability, curiosity, and tolerance for ambiguity—key elements of a future-ready mindset. By cultivating the ability to consider multiple plausible futures and question existing patterns of thinking, learners build the mindset necessary to anticipate change, embrace uncertainty, and engage more confidently in long-term strategic reflection

Most important competence area across all workshops (DE, DK, ES, FR)

Module 3: Strategic Foresight Tools & Methods

This module provides participants with a practical introduction to the **core tools and methods used in strategic foresight**. Learners explore horizon scanning, weak-signal detection, trend and impact mapping, scenario creation, backcasting, and basic systems thinking—all presented through clear, step-by-step guidance. Emphasis is placed on accessibility and real-world application, ensuring that SMEs can apply these methods even with limited time or resources.

The module also introduces **AI-augmented foresight techniques**, showing how artificial intelligence can support the identification and interpretation of emerging changes. Participants learn how AI can automate horizon scanning, cluster large amounts of qualitative or quantitative data, detect weak signals, simulate future conditions, and support early-warning capabilities. The module distinguishes clearly between **predictive analytics** and **long-term foresight**, helping learners understand the opportunities and limits of AI in anticipating possible futures. Practical examples illustrate how AI can enhance—but not replace—human judgment in the foresight process.

Through hands-on exercises and case-based examples, participants learn how to structure foresight activities, integrate AI-generated insights responsibly, and translate both human and machine-supported analyses into meaningful strategic implications. The module equips them with a usable, future-ready toolkit to support long-term anticipation and informed decision-making.

Module 4: Decision-Making Under Uncertainty

This module helps participants strengthen their ability to make informed and confident decisions in complex, fast-changing, and ambiguous environments. Learners explore practical frameworks for evaluating risks and opportunities, comparing alternative futures, and identifying the strategic implications of emerging trends. Through simulations, what-if analyses, and structured decision exercises, the module encourages a shift away from reactive, short-term thinking toward more deliberate, long-term judgment. By understanding how uncertainty shapes choices—and how biases and assumptions influence decision outcomes—participants develop the skills needed to navigate ambiguity, prioritise effectively, and make robust decisions aligned with future-oriented strategies.

Module 5: Innovation & Transformation Skills (Future-Proof SMEs)

This module equips participants with the skills and methods needed to translate future insights into meaningful innovation and organisational transformation. Learners explore how emerging trends can inspire new value propositions, business models, and strategic opportunities, even under conditions of uncertainty or limited resources. Through practical exercises, rapid experimentation techniques, and creativity tools, the module supports SMEs in developing future-oriented solutions and building a culture of continuous learning and adaptation. By the end of the module, participants are able to prototype long-term business ideas, challenge existing assumptions, and design transformation pathways that strengthen the resilience and competitiveness of their organisations.

Module 6: Collaboration & Ecosystem Foresight

This module focuses on helping participants understand and navigate the wider ecosystems in which their organisations operate. Learners explore how long-term trends and disruptions affect not only their own business but also customers, partners, suppliers, regulators, and other stakeholders. Through ecosystem mapping, collaboration exercises, and silo-breaking practices, the module strengthens the ability to work across disciplines and organisational boundaries. Participants learn how to build shared visions, foster trust, and identify strategic opportunities that emerge from collective intelligence and cross-sector partnerships. By the end of the module, they are equipped to engage more effectively in collaborative foresight processes and to position their organisation strategically within evolving innovation ecosystems.

Module 7: Ethical, Social & Human Foresight

This module enables participants to integrate ethical reflection and human-centred considerations into long-term strategic thinking. Learners examine how emerging technologies, data practices, and organisational decisions can affect people, communities, and society over time. The module introduces tools for identifying ethical risks, assessing social impacts, and ensuring responsible innovation—while also exploring issues such as data sovereignty, psychological well-being, inclusion, and the human consequences of automation and AI. Through practical exercises and scenario-based discussions, participants learn to anticipate unintended effects and to design strategies that are aligned with human values and societal expectations. By the end of the module, they are equipped to make future-oriented decisions that are not only strategically sound but also ethically and socially responsible.

Module 8: Road mapping & Long-Term Strategy Execution

This module focuses on translating foresight insights into clear, actionable, and time-sequenced strategies. Participants learn how to build long-term roadmaps that connect future scenarios with concrete steps, milestones, and decision points. The module introduces practical methods such as backcasting, dependency mapping, and strategic prioritisation to help organisations plan over 5-, 10-, and 20-year horizons. Through guided exercises and collaborative design sessions, learners practice turning vision into implementation pathways that are realistic, adaptable, and aligned with organisational capabilities. By the end of the module, they can develop strategic roadmaps that guide transformation, support investment decisions, and help their organisations stay resilient and future-ready.

Module 9: LTFF for SMEs: Application & Barriers

This module helps participants understand how to integrate Long-Term Future Foresight into the everyday reality of small and medium-sized enterprises. Learners explore the most common barriers SMEs face—such as limited time, scarce resources, short-term pressures, and cultural resistance—and identify practical ways to overcome them. The module introduces simple, low-effort foresight routines, leadership engagement strategies, and tools for embedding long-term thinking into existing

processes without adding unnecessary workload. By examining real examples and co-creating tailored solutions, participants develop a personalised plan for applying LTFF within their own organisational context, ensuring sustained impact beyond the training.

3.1. Assessment

The assessment component of this course is designed to be highly interactive and adaptable to the learner's needs. It includes self-assessment assignments and exercises that encourage learners to reflect on the knowledge they've acquired and consider how to apply it to their unique context within their respective SMEs.

3.2. Learning Objectives

Module 0 — LTFF Future-Readiness Self-Assessment

(Mandatory intro module — requested by ES, DK, FR)

Dimension	Content
Learning Outcomes (LOs)	LO0.1 Identify own LTFF maturity level. LO0.2 Recognise individual and organisational LTFF gaps. LO0.3 Establish baseline for personalised learning path.
Competences addressed	Digital literacy, Mindset readiness, Future literacy.
Topics	LTFF maturity categories Digital/AI competence baseline/ Cyber hygiene Uncertainty-handling baseline Organisational foresight culture scan
Methods	Self-assessment survey Group reflection (if multiple learners from same SME) Quick-scan mapping
Assessment	Automated self-assessment report; baseline score.
Materials/Tools	LTFF readiness scan, AI literacy quick-scan, mindset diagnostic: • LTFF Maturity Scan • Digital/AI Competence Scan

	• Mindset Readiness Diagnostic • PQC/cyber readiness (France-specific option)

Module 1: LTFF Foundations for Business (Why LTFF)

(Common need across DE, ES, DK, FR)

Dimension	Content
Learning Outcomes (LOs)	LO1.1 Explain what LTFF is and is not. LO1.2 Describe the value of foresight for SMEs. LO1.3 Understand LTFF as structured decision-making under uncertainty LO1.4 Recognise business value: competitiveness, resilience, innovation. LO1.5 Clarify misconceptions: *not prediction*, but guided anticipation.
Competences Addressed	Strategic thinking (DE), Critical thinking (FR), Systems awareness (ES).
Topics	• Definition of LTFF. What LTFF is / is not • LTFF vs. prediction • Why foresight is essential for SMEs. Why SMEs need LTFF • 10–20-year horizon thinking challenges (FR insight) • Long-term trends shaping markets (sector examples from countries) • Human role in an AI-driven world (DE focus on sovereignty & agency)
Methods	Storytelling (DE), Real-world cases, inspirational cases (DK), Micro-videos (ES).
Assessment	Short quiz + reflection (Why LTFF matters for my SME?).
Materials/Tools	Intro slides, sectoral case library, LTFF glossary.

Module 2: Future Literacy & Mindset Development

(Top competence in all countries)

Dimension	Content
Learning Outcomes (LOs)	LO2.1 Recognise personal cognitive biases that limit future thinking. LO2.2 Apply futures literacy concepts to interpret multiple plausible futures. Practice multiple-futures thinking. LO2.3 Increase tolerance for ambiguity and uncertainty. LO2.4 Expand imagination & break linear thinking LO2.5 Foster reflective capability & error culture transformation
Competences Addressed	Adaptability (FR), Curiosity (FR/ES), Reflective capability (DE), Cognitive flexibility (DK)
Topics	• Futures literacy foundations (UNESCO-inspired) • Multiple-futures thinking. Futures Triangle, Three-Horizons Model • Future-imagination exercises (ES) • Mental model transformation. Mental models & assumption testing • Ambiguity tolerance • Cognitive biases in foresight • Curiosity, adaptability, self-reflection
Methods	• "Future mindset stretchers" (DK) • Time-travel diary (DE & ES) • Assumption-testing challenges • Guided reflection circles • Creative foresight drills • Scenario reframing
Assessment	Personal Future Imagination Log (short written piece).
Materials/Tools	Worksheets, cognitive-bias cards, video prompts.

Module 3: Strategic Foresight Tools & Methods

(Massive demand in ES, DK, FR; strong support in DE)

Dimension	Content

Learning Outcomes (LOs)	LO3.1 Use structured foresight tools to analyse signals, trends, and systems. LO3.2 Identify weak signals and map their impacts. LO3.3 Build short scenarios using evidence-based inputs. Build short scenarios using human and AI-supported insights LO3.4 Translate signals into business-relevant insights. LO3.5 Apply AI-enhanced methods (e.g., automated scanning, clustering) to support foresight analysis. LO3.6 Distinguish between predictive analytics and long-term foresight, understanding their complementarities and limitations.
Competences Addressed	Trend detection & horizon scanning (DK, ES). Analytical reasoning & sensemaking (FR). AI literacy for foresight (FR, DE, ES). Systems thinking (ES).
Topics	• Horizon scanning methods (manual & AI-augmented). • Signal logbook • Trend-to-impact mapping • Scenario planning & mini-sprints • Backcasting & systems mapping. • Systems mapping • Weak signal detection & interpretation. **AI in Foresight** • AI-supported horizon scanning (automation, clustering, summarisation). • AI for weak-signal detection and early-warning monitoring. • Predictive analytics vs. foresight: complementarities and limits. • Using LLMs for qualitative sense-making (opportunities & cautions). • Bias, data quality, and validation concerns when using AI outputs.
Methods	• Micro-modules (ES). • Case-based tool practice (FR). • Group foresight labs (DK). • AI tools demonstration: automated scan dashboards, signal clustering, AI-supported scenario descriptions. • Human–AI comparison exercise: “Where do insights diverge?”
Assessment	• Create one scenario enriched with trend-impact mapping. • Submit an “AI-supported scanning output + human interpretation” exercise.

	• Short reflection: strengths & limitations of using AI for foresight.
Materials/Tools	• Foresight Toolkit 3.0 • Signal Logbook + AI scanning tools • Scenario builder templates • Systems mapping boards (Miro/FigJam) • AI integration pack (illustrative tools, prompts, validation checklist)

Module 4: Decision-Making Under Uncertainty

(Consistently weak across all countries)

Dimension	**Content**
Learning Outcomes (LOs)	LO4.1 Apply decision-making frameworks for ambiguous futures. Develop structured decision-making frameworks. LO4.2 Evaluate trade-offs between risks & opportunities. Evaluate alternative futures and risk-impact trade-offs. LO4.3 Practise structured decision-making using scenarios LO4.4 Strengthen ownership and responsibility for decisions (ES insight).
Competences Addressed	Critical thinking (FR), Analytical scepticism (ES), Impact assessment (DE).
Topics	• What-if analysis • Risk–Opportunity Matrix (ES) • Impact/uncertainty mapping (FR) • Decision trees (ES) • Red-team vs Blue-team challenge • Ambiguity gym. Bias-aware decision-making (DK)
Methods	Simulations (FR), Case-based drills, Rapid decision games • Cyber/PQC attack futures (FR) • AI failure mode scenarios (DE, FR)
Assessment	Short team simulation + decision justification.

Materials/Tools	Decision Canvas, scenario cards, risk matrix.

Module 5: Innovation & Transformation Skills (Future-Proof SMEs)

(Strongly requested in ES, FR, DK; implicit in DE)

Dimension	Content
Learning Outcomes (LOs)	LO5.1 Design innovative responses to future scenarios. LO5.2 Prototype future business models. LO5.3 Apply experimentation methods for long-term initiatives LO5.4 Embed innovation in daily operations despite time/resource constraints. LO5.5 Learn to translate technologies into business models. LO5.6 Strengthen creativity and experimentation.
Competences Addressed	Creativity (ES), Adaptability (FR), Transformation leadership (DK)
Topics	• Innovation under uncertainty • Future business model studio. Future business model prototyping (ES, DK) • Break-the-pattern sessions (ES) • Rapid experimentation & MVP logic • Opportunity radar (ES) • Transformation roadmapping (ES, FR, DK)
Methods	Hands-on innovation sprints, cross-case comparisons, prototyping
Assessment	Business model prototype for a 2035 scenario.
Materials/Tools	Business Model Canvas 2035, ideation cards.

Module 6: Collaboration & Ecosystem Foresight

(Critical for ES, DK; moderate in DE; sector-specific in FR)

Dimension	Content
Learning Outcomes (LOs)	LO6.1 Facilitate cross-disciplinary collaboration and communication. LO6.2 Map relevant ecosystems for strategic futures. LO6.3 Build shared long-term visions with teams LO6.4 Build trust and shared language. LO6.5 Understand ecosystem opportunities.
Competences Addressed	Communication (FR/ES), Trust building (ES), Ecosystem awareness (DK)
Topics	• Silo-breaking techniques • Ecosystem mapping (DK, ES) • Trust-building micro-practices (ES) • Collaboration roles simulation (ES) • Sector-specific collaboration (FR cybersecurity • Cross-functional foresight processes (DE, ES)
Methods	Cooperation labs (DK), Cross-department labs (ES), Facilitated visioning.
Assessment	Ecosystem Map + collaboration plan.
Materials/Tools	Partner Canvas, visioning toolkit.

Module 7: Ethical, Social & Human Foresight (MKO, UCA, Lucidminds)

(Top in DE, ES, FR; Denmark emphasises societal impact of AI)

Dimension	Content
Learning Outcomes (LOs)	LO7.1 Evaluate ethical risks of long-term strategies. LO7.2 Integrate human well-being into foresight. LO7.3 Apply responsible innovation principles LO7.4 Integrate ethical thinking in strategic decisions. LO7.5 Explore human impacts of technology. LO7.6 Strengthen sovereignty over data (DE).

Competences Addressed	Ethical reasoning (DE, FR), Human-centred foresight (ES)
Topics	• Ethical AI & data sovereignty (DE) • Secure data handling & hosting (FR) • Psychological safety, well-being & burnout risks (ES) • Social impact scanning (DK) • Human-impact mapping. Human-values-driven futures • Responsible AI (DE, FR) • Ethical red flag identification (ES) • Data governance, secure hosting, sovereign AI (FR)
Methods	Ethical red-flag workshop (ES), Regulatory foresight (FR), Shadow stakeholder role-play.
Assessment	Ethical foresight review of a long-term strategy
Materials/Tools	Ethical Reflection Canvas, impact maps

Module 8: Road mapping & Long-Term Strategy Execution

(Very high in FR; high in DK & ES; essential in DE)

Dimension	**Content**
Learning Outcomes (LOs)	LO8.1 Build actionable long-term roadmaps (5–20 years). Organisation-specific LTFF roadmap LO8.2 Translate scenarios into concrete steps. LO8.3 Align teams around a shared future vision LO8.4 Turn foresight into actionable strategies. LO8.5 Build strategic alignment within SMEs. LO8.6 Personal professional foresight plan
Competences Addressed	Strategic planning (DE), Vision building (FR), Backcasting (DK)
Topics	• Vision building for SMEs • Backcasting methods • Dependency mapping (FR) • Transformation roadmap (ES) • KPI & early signal integrations

	• Long-term backcasting (DK) • Strategic sequence planning
Methods	Vision workshops, Backcasting labs, Roadmap design studios.
Assessment	Full LTFF roadmap
Materials/Tools	Roadmap Builder, KPI templates, Future Vision Canvas

Module 9: LTFF for SMEs: Application & Barriers

(Critical across all countries)

Dimension	**Content**
Learning Outcomes (LOs)	LO9.1 Identify SME-specific barriers (time, resources, culture, skills). LO9.2 Embed LTFF into daily operations. Learn how to embed foresight in daily routines LO9.3 Develop continuous foresight micro-routines LO9.4 Identify high-impact LTFF entry points.
Competences Addressed	Organisational resilience (ES), Practical foresight (DK), Human-centred leadership (DE)
Topics	• SME Barriers, constraints and leverage points (time, culture, resources) • Micro-practices (daily scanning, weekly scenarios) • Leadership buy-in strategies (DK, FR) • Low-effort, high-impact LTFF routines. Building LTFF routines without extra workload
Methods	Group discussions, case critiques, quick LTFF practice labs.
Assessment	Personal LTFF integration plan.

Materials/Tools	Micro-routine templates, leadership communication kit.

3.3. Competence matrix

Competence Area 1 — Future Literacy & Mindset Development

Competence Area 1 — Future Literacy & Mindset Development	Description	Countries
1.1 Futures Literacy	Ability to understand, imagine, and explore multiple plausible futures beyond linear thinking.	ES, DK, FR, DE
1.2 Cognitive Flexibility	Ability to shift mental models, embrace ambiguity, and think in alternative possibilities.	DK, ES, FR
1.3 Bias Recognition	Ability to identify personal and organisational biases that limit foresight.	FR, DE
1.4 Imagination & Creativity for Futures	Capacity to expand the range of possible futures considered through creative techniques.	ES, DK

Competence Area 2 — Strategic Foresight Tools & Methods

Competence Area 2 — Strategic Foresight Tools & Methods	Description	Countries
2.1 Horizon Scanning & Trend Interpretation	Ability to identify, filter, and interpret early signals and emerging trends.	ES, DK, FR
2.2 Scenario Development	Ability to construct plausible multi-future scenarios and articulate their implications.	DK, FR, ES
2.3 Backcasting & Roadmapping Foundations	Ability to derive strategic steps from long-term visions or scenarios.	DK, ES
2.4 Systems Thinking	Ability to understand interdependencies, feedback loops, and systemic impacts.	ES, DK
2.5 AI Literacy for Foresight (NEW)	Ability to use AI tools to support scanning, clustering, trend detection, and sensemaking.	DE, FR, DK

2.6 Distinguishing Prediction vs. Foresight (NEW)	Ability to differentiate probabilistic AI predictions from exploratory foresight.	FR, DE

Competence Area 3 — Decision-Making Under Uncertainty

Competence Area 3 — Decision-Making Under Uncertainty	Description	Countries
3.1 Risk–Opportunity Assessment	Ability to evaluate risks, opportunities, and trade-offs across different futures.	ES, FR, DE
3.2 Judgment Under Ambiguity	Ability to make decisions with incomplete information and uncertain outcomes.	DK, DE, ES
3.3 Prioritisation Under Complexity	Ability to prioritise strategic actions based on potential impacts, uncertainty, and alignment.	FR, DK
3.4 AI-Assisted Decision Support	Ability to critically use AI-supported models, simulations, and recommendations.	FR, DE

Competence Area 4 — Analytical & Sensemaking Skills

Competence Area 4 — Analytical & Sensemaking Skills	Description	Countries
4.1 Critical Thinking	Ability to challenge assumptions, question sources, and analyse evidence rigorously.	FR, DK
4.2 Signal–Noise Discrimination	Ability to detect meaningful signals among overwhelming information flows.	DK, ES
4.3 Data Interpretation	Ability to evaluate qualitative and quantitative data for foresight purposes.	FR, ES
4.4 AI-Enabled Information Processing (NEW)	Ability to interpret AI-generated outputs responsibly and validate them through human judgment.	FR, DE, DK

Competence Area 5 — Soft Skills for LTFF

Competence Area 5 — Soft Skills for LTFF	Description	Countries

5.1 Curiosity & Openness	Ability to explore unfamiliar ideas and engage with complex emerging issues.	FR, ES
5.2 Communication & Alignment	Ability to communicate future insights clearly and foster shared understanding.	ES, DK
5.3 Adaptability & Learning Agility	Ability to continuously learn, adjust, and respond to change.	FR, DK, ES
5.4 Empathy & Human Insight	Ability to consider human needs, behaviours, and values when thinking about futures.	DE, ES
5.5 Collaboration & Trust Building	Ability to work across roles, teams, and organisations in foresight activities.	ES, DK

Competence Area 6 — Ethical, Social & Human Foresight

Competence Area 6 — Ethical, Social & Human Foresight	**Description**	**Countries**
6.1 Ethical Reasoning in Futures	Ability to identify ethical implications of strategic choices and long-term impacts.	DE, ES
6.2 Data Sovereignty & Responsible AI	Ability to manage data ethically and ensure responsible use of AI in foresight.	DE, FR
6.3 Social & Human Impact Assessment	Ability to evaluate how trends and innovations affect people, communities, and society.	ES, DK
6.4 Anticipating Unintended Consequences	Ability to foresee second-order or ripple effects of innovations and strategies.	FR, DK

Competence Area 7 — Innovation & Transformation Skills

Competence Area 7 — Innovation & Transformation Skills	**Description**	**Countries**
7.1 Creativity & Idea Generation	Ability to produce novel concepts and challenge existing assumptions.	ES, FR
7.2 Opportunity Framing	Ability to turn emerging trends into strategic opportunities or business ideas.	ES, DK
7.3 Future-Oriented Business Model Design	Ability to design business models based on long-term drivers and future scenarios.	ES, FR

7.4 Experimentation & Prototyping	Ability to test ideas rapidly under uncertainty and learn from iterations.	ES, DK
7.5 Transformation Leadership	Ability to guide teams through long-term change and foster a culture of innovation.	DK, ES, FR

3.4 Recognition of learning, certificates and micro-credentials

The ASTRAL Training for Business is designed to make the learning outcomes and competences acquired through the programme transparent and recognisable. In line with the ASTRAL project approach, recognition should be linked to the learning outcomes, learning activities and assessment evidence associated with the selected modules.

Learners may complete the full training programme or select individual modules according to their professional needs and learning objectives. Where recognition is provided, the respective learning pathway should clearly identify the modules completed, the learning outcomes addressed and the evidence used to assess achievement.

Certificate and Certificate Supplement

Successful completion of the ASTRAL Training for Business may be documented through a specific certificate and/or a Certificate Supplement, depending on the implementation context of the training provider. The certificate or accompanying supplement should provide transparent information on:

- the title of the ASTRAL learning activity or training pathway;
- the modules or learning units completed;
- the corresponding learning objectives and competences;
- the learning and assessment activities undertaken;
- the evidence used to demonstrate successful completion; and
- the date and issuing organisation.

The assessment approach described in this deliverable provides the basis for documenting achievement. Depending on the module, evidence may include self-assessments, practical exercises, case-based tasks, scenarios, roadmaps, reflection activities or other outputs demonstrating the application of LTFF concepts, methods and tools.

Micro-credentials

ASTRAL also foresees the use of micro-credentials for selected (C-)VET training and cooperation activities. A micro-credential may be used to recognise the successful completion of a defined and coherent learning experience, for example an individual module or a selected combination of modules.

For each micro-credential, the relevant learning outcomes, competences, learning activities and assessment requirements should be defined in advance. Recognition should be based on demonstrated learning achievement rather than participation alone.

The specific implementation and issuing arrangements for certificates, Certificate Supplements and micro-credentials remain subject to the procedures of the respective training provider or issuing organisation. The ASTRAL framework therefore provides a common basis for describing learning outcomes and assessment evidence while allowing implementation to be adapted to different (C-)VET and organisational contexts.

3.5 Validation and piloting approach

3.5.1 Syllabus validation

The ASTRAL (C-)VET training approach and course structure were developed on the basis of the T3.1 co-design workshops and subsequently reviewed through the ongoing consultation and feedback process involving consortium partners and participants engaged in the co-design activities. The consortium includes representatives from higher education, business support organisations and other relevant stakeholder groups, allowing the proposed syllabus, learning objectives, competence areas and course structure to be reviewed from different user perspectives.

Feedback was provided informally during the course development process and was used to refine the structure and content presented in this deliverable. The project will retain available records of the review and feedback process as supporting evidence.

3.5.2 Train-the-trainer and piloting

The ASTRAL Training for Business will undergo further validation and piloting under T3.4. The piloting will be coordinated with the corresponding WP2 testing activities in order to ensure a coherent approach across the education and business training strands.

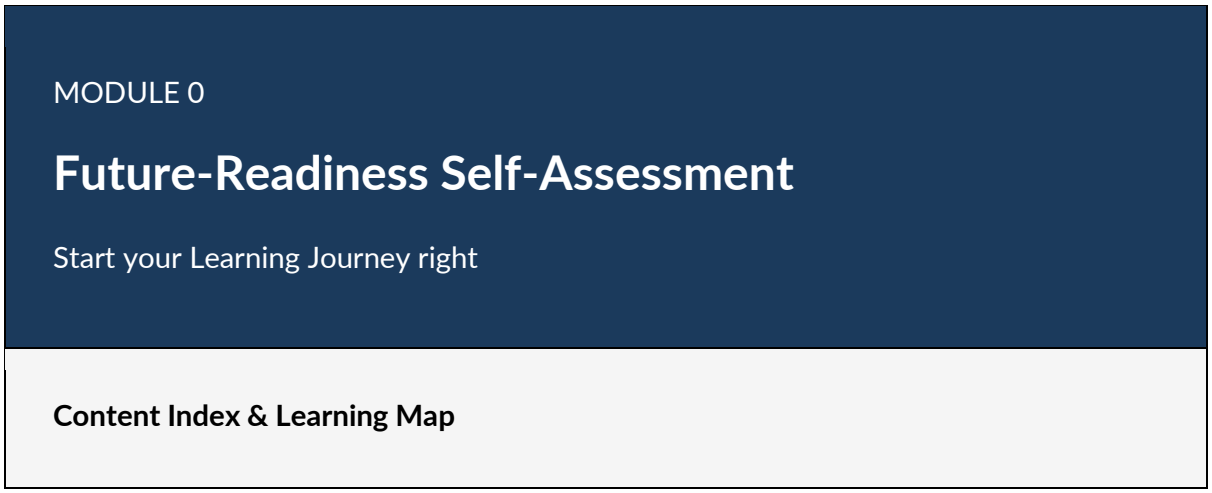
As preparation for the piloting, a joint train-the-trainer activity for WP2 and WP3 is planned. The current implementation approach foresees two online preparatory sessions between November and December 2026, followed by an in-person follow-up workshop in conjunction with the next consortium meeting. The sessions will introduce participants to LTFF, the ASTRAL learning materials, the testing approach and the practical use of the training activities.

The wider piloting will start once the relevant learning content is available on the ASTRAL learning platform. In parallel, partners may already begin recruiting participants from the respective target groups. Feedback from trainers, business professionals and other participants will be collected during the piloting and used to further review and improve the training content and materials. Updated resources will subsequently be made available through the ASTRAL platform.

4. ASTRAL TRAINING FOR BUSINESS

This section presents the full training content of the ASTRAL Training for Business programme, providing a structured overview of each of the ten modules that make up the course. For each module, it includes a general description of its objectives, the competences it develops, the country focus, and a detailed content map linking each section to its corresponding learning outcomes. This section serves as the central reference for the training programme, giving development teams, facilitators, and participants a clear and comprehensive view of the learning architecture designed to build long-term strategic thinking capacity in SMEs.

4.1. Module 0



Module Overview

Introduces learners to their starting point in Long-Term Future Foresight (LTFF) through a structured self-assessment that measures individual and organisational readiness. Participants evaluate their mindset, digital and AI literacy, uncertainty-handling capacity, strategic thinking habits, and current foresight practices. The module generates a personalised readiness profile that guides each learner's learning path throughout the course. By establishing a clear baseline from the outset, Module 0 ensures that the training experience is tailored, relevant, and aligned with the specific needs of different SMEs and professional contexts.

Competences	Digital literacy, Mindset readiness, Future literacy.

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR)

Content Index

The table below maps each section to its associated Learning Outcomes (LOs).

Section	Title	Learning Outcomes
1	**Welcome & Module Overview**	—
1.1	Module Objectives & Learning Outcomes	—
1.2	How This Module Is Structured	—
2	**Digital/AI competence baseline**	**LO01**
2.1	What does Digital and AI Competence mean?	—
2.2	Assessment: Check your Digital and AI Competence	—
2.3	Recommendations for Assessment result	
	Extra: Cyber Security Competences, Assessment and Recommendations	
3	**Uncertainty-handling baseline**	
3.1	Plans and Contingencies - What to do when Disaster strikes	
3.2	Assessment: Check your own uncertainty-Handling	
3.3	Recommendations for Assessment result	

4	**Organisational foresight culture scan**	
4.1	Organizational LTFF Culture instead of lone wolf knowledge	
4.2	Assessment: Organizational LTFF Culture establishment	
4.3	Recommendations for Assessment result	
5	**LTFF maturity categories**	
5.1	What are LTFF maturity Categories	–
5.2	Assessment: Where do I, my Team and my Company stand?	–
5.3	Recommendations for Assessment result	–
ASSESSMENT & RESOURCES		
6	**Assessment & Reflection**	–
6.1	Self-Assessment Survey: Personal, Team and Organizational LTFF Readiness	LO0.2
6.2	Reflection: What do you want to gain through this Course?	LO0.3
7	**Resources & Tools**	–
7.1	Guide to the Course, Curriculum and Modules	–

7.2	Further Reading on Maturity Categories, LTFF Readiness and AI and Digital Competencies	–

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed.

Learning Outcome	Description	Covered In
LO0.1	Identify own LTFF maturity level	
LO0.2	Recognise individual and organisational LTFF gaps	
LO0.3	Establish baseline for personalised learning path	

Methods & Materials

Methods	• Self-assessment survey • Group reflection (if multiple learners from same SME) • Quick-scan mapping

Assessment	• Automated self-assessment report; baseline score

Materials & Tools	• LTFF readiness scan, AI literacy quick-scan, mindset diagnostic: • LTFF Maturity Scan • Digital/AI Competence Scan

	• Mindset Readiness Diagnostic • PQC/cyber readiness (France-specific option)

4.2. Module 1

MODULE 1

LTFF Foundations for Business

Why LTFF

Content Index & Learning Map

Module Overview

This module introduces the essential principles of Long-Term Future Foresight (LTFF) and explains why it is a strategic capability for modern businesses. Participants learn what LTFF is—and what it is not—clarifying misconceptions about prediction and highlighting the value of foresight as a practical tool for navigating uncertainty. Through real-world examples and sector-relevant cases, the module shows how LTFF strengthens competitiveness, supports innovation, reduces strategic blind spots, and enables organisations to anticipate long-term technological, social, and market shifts.

Competences	Strategic thinking (DE) • Critical thinking (FR) • Systems awareness (ES)

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR)

Content Index

The table below maps each section of the module to its associated Learning Outcomes (LOs).

Section	Title	Learning Outcomes

1	**Welcome & Module Overview**	—
1.1	Module Objectives & Learning Outcomes	—
1.2	How This Module Is Structured	—
2	**What Is LTFF? — Definition & Scope**	**LO1.1**
2.1	Defining Long-Term Future Foresight	—
2.2	What LTFF Is — and What It Is Not	—
3	**LTFF vs. Prediction — Clearing Up the Myths**	**LO1.1, LO1.5**
3.1	Common Misconceptions About Foresight	—
3.2	From Prediction to Guided Anticipation	—
4	**LTFF as Structured Decision-Making Under Uncertainty**	**LO1.3**
4.1	Understanding Uncertainty in Business	—
4.2	How LTFF Structures Your Thinking	—
5	**Why Foresight Matters for SMEs**	**LO1.2**
5.1	Unique Challenges Facing SMEs	—
5.2	How LTFF Fits the SME Context	—

6	**The Business Value of LTFF**	**LO1.4**
6.1	Strengthening Competitiveness	—
6.2	Building Resilience	—
6.3	Driving Innovation	—
7	**Horizon Thinking: Looking 10–20 Years Ahead**	**LO1.3**
7.1	Why Long Horizons Are Hard	—
7.2	Practical Approaches to Horizon Thinking	—
8	**Long-Term Trends Shaping Markets**	**LO1.2, LO1.4**
8.1	Identifying and Reading Trends	—
8.2	Sector Case Studies	—
9	**The Human Role in an AI-Driven World**	**LO1.3, LO1.4**
9.1	AI as a Tool — Not a Replacement	—
9.2	Digital Sovereignty & Human Agency	—
10	**Assessment & Reflection**	—
10.1	Short Quiz	—

10.2	Reflection Exercise: Why LTFF Matters for My SME	—
11	**Resources & Glossary**	—
11.1	Sectoral Case Library	—
11.2	LTFF Glossary	—
11.3	Recommended Reading & References	—

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed across the module.

Learning Outcome	Description	Covered In
LO1.1	Explain what LTFF is and is not.	Sections 2, 3
LO1.2	Describe the value of foresight for SMEs.	Sections 5, 8
LO1.3	Understand LTFF as structured decision-making under uncertainty.	Sections 4, 7, 9
LO1.4	Recognise business value: competitiveness, resilience, innovation.	Sections 6, 8, 9
LO1.5	Clarify misconceptions: not prediction, but guided anticipation.	Sections 3

Methods & Materials

Methods	Storytelling (DE) • Real-world cases • Inspirational cases (DK) • Micro-videos (ES)

Materials	Introductory Slides • Sectoral Case Library • LTFF Glossary

Assessment	Short Quiz • Reflection: "Why LTFF matters for my SME?"

4.3. Module 2

MODULE 2

Future Literacy & Mindset Development

From fixed Perspectives to Future Possibilities

Content Index & Learning Map

Module Overview

This module focuses on developing the cognitive and behavioural foundations needed to work effectively with long-term futures. Participants learn to recognise how assumptions, mental models, and cognitive biases shape their view of the future, and they practise expanding their imagination beyond short-term constraints. Through guided exercises and reflective activities, the module strengthens adaptability, curiosity, and tolerance for ambiguity—key elements of a future-ready mindset. By cultivating the ability to consider multiple plausible futures and question existing patterns of thinking, learners build the mindset necessary to anticipate change, embrace uncertainty, and engage more confidently in long-term strategic reflection.

Competences	Adaptability (FR), Curiosity (FR/ES), Reflective capability (DE), Cognitive flexibility (DK)

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR)

Topics	• Futures literacy foundations (UNESCO-inspired) • Multiple-futures thinking. Futures Triangle, Three-Horizons Model • Future-imagination exercises (ES) • Mental model transformation. Mental models & assumption testing • Ambiguity tolerance • Cognitive biases in foresight • Curiosity, adaptability, self-reflection

Content Index

The table below maps each section of the module to its associated Learning Outcomes (LOs).

Section	Title	Learning Outcomes
1	**Welcome & Module Overview**	
1.1	Module Objectives & Learning Outcomes	
1.2	How This Module Is Structured	
2	**Futures literacy foundations**	LO2.2
2.1	the future as a space for thought and action	
2.2	Identifying expectations, assumptions, and implicit visions of the future	
2.3	Futures literacy as a key competence for resilient business strategies	
3	**Multiple-futures thinking**	LO2.2, LO2.4

3.1	Why there is not just one future	
3.2	Introduction to the Future Triangle	
3.3	The Three Horizons Model for Structuring Transformation	
4	**Future-imagination**	LO2.4, LO2.5
4.1	Creative methods for expanding visions of the future	
4.2	Breaking through linear extrapolation logic	
4.3	Working with narrative and visual images of the future	
4.4	Translating visions into business opportunities	
5	**Mental model transformation**	LO2.1, LO2.2, LO2.5
5.1	Identification of personal and organizational mental models	
5.2	Assumption testing, perspective shifting, alternative interpretation patterns	
6	**Ambiguity tolerance**	LO2.3
6.1	Difference between risk, uncertainty, and ambiguity	
6.2	Dealing with contradictory information	

6.3	Reflecting own reaction patterns to uncertainty	
7	**Cognitive biases in foresight**	LO2.1, LO2.5
7.1	Key cognitive biases in the context of foresight (e.g., confirmation bias, status quo bias)	
7.2	Influence of unconscious thought patterns on assessments of the future	
7.3	Strategies for consciously reducing bias	
8	**Strengthen a future-oriented mindset – promote curiosity, adaptability and self-reflection**	LO2.3, LO2.4, LO2.5
8.1	Develop curiosity as an exploratory skill	
8.2	Understand adaptability as a dynamic ability to act	
8.3	Self-reflection as the basis for continuous learning processes	
9	**Assessment & Reflection**	–
9.1	Assessment:	–
9.1.1	Business Track: Action-oriented Self-Assessment	
9.1.2	HE Track: Formative/Summative Knowledge Check	
9.2	Reflection: Personal Action Plan for Mindset Development	–

11	Resources & Glossary	–

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed across the module.

Learning Outcome	Description	Covered In
LO2.1	Recognise personal cognitive biases that limit future thinking	Sections 5, 7
LO2.2	Apply futures literacy concepts to interpret multiple plausible futures. Practice multiple-futures thinking.	Sections 2, 3, 5
LO2.3	Increase tolerance for ambiguity and uncertainty.	Sections 6, 8
LO2.4	Expand imagination & break linear thinking	Sections 3, 4, 8
LO2.5	Foster reflective capability & error culture transformation	Sections 4, 5, 7, 8

Methods & Materials

Methods	• "Future mindset stretchers" (DK) • Time-travel diary (DE & ES) • Assumption-testing challenges • Guided reflection circles • Creative foresight drills • Scenario reframing

Materials	Worksheets, cognitive-bias cards, video prompts

Assessment	Personal Future Imagination Log (short written piece)

4.4. Module 3

MODULE 3

Strategic Foresight Tools & Methods

From Signals to Scenarios — Including AI

Content Index & Learning Map

Module Overview

This module provides a practical introduction to the core tools and methods used in strategic foresight. Learners explore horizon scanning, weak-signal detection, trend and impact mapping, scenario creation, backcasting, and basic systems thinking—all presented through clear, step-by-step guidance. Emphasis is placed on accessibility and real-world application, ensuring that SMEs can apply these methods even with limited time or resources.

The module also introduces AI-augmented foresight techniques, showing how artificial intelligence can support the identification and interpretation of emerging changes. Practical examples illustrate how AI can enhance—but not replace—human judgment in the foresight process.

Competences	Trend detection & horizon scanning (DK, ES) • Analytical reasoning & sensemaking (FR) • AI literacy for foresight (FR, DE, ES) • Systems thinking (ES)

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR)

Colour Key

Blue — Core Foresight Tools & Methods (Part A)	**Teal — AI in Foresight (Part B)**

Content Index

The table below maps each section to its associated Learning Outcomes (LOs). Colour coding distinguishes core foresight tools (blue) from AI-augmented methods (teal).

Section	Title	Learning Outcomes
1	**Welcome & Module Overview**	—
1.1	Module Objectives & Learning Outcomes	—
1.2	How This Module Is Structured	—
PART A — CORE FORESIGHT TOOLS & METHODS		
2	**Horizon Scanning**	**LO3.1, LO3.4**
2.1	What Is Horizon Scanning?	—
2.2	Manual Scanning Techniques	—
2.3	Building Your Signal Logbook	—
3	**Weak-Signal Detection & Interpretation**	**LO3.1, LO3.2**
3.1	Recognising Weak Signals	—
3.2	From Signal to Insight: Mapping Impacts	—
4	**Trend-to-Impact Mapping**	**LO3.1, LO3.2, LO3.4**
4.1	Reading Trends That Matter	—

4.2	Mapping Trend Impacts on Your Business	—
5	**Scenario Planning & Mini-Sprints**	**LO3.1, LO3.3**
5.1	Scenario Planning Fundamentals	—
5.2	Running a Mini-Sprint	—
5.3	Enriching Scenarios with Trend-Impact Data	—
6	**Backcasting & Systems Mapping**	**LO3.1, LO3.4**
6.1	Working Backwards from a Desired Future	—
6.2	Systems Mapping: Seeing the Bigger Picture	—
PART B — AI IN FORESIGHT		
7	**AI-Supported Horizon Scanning**	**LO3.5**
7.1	Automation, Clustering & Summarisation	—
7.2	Working with AI Scan Dashboards	—
8	**AI for Weak-Signal Detection & Early Warning**	**LO3.2, LO3.5**
8.1	How AI Detects Emerging Signals	—
8.2	Early-Warning Monitoring in Practice	—

9	**Predictive Analytics vs. Long-Term Foresight**	**LO3.5, LO3.6**
9.1	What Predictive Analytics Can (and Cannot) Do	—
9.2	Complementarities and Limitations	—
10	**LLMs for Qualitative Sense-Making**	**LO3.5, LO3.6**
10.1	Opportunities of Using LLMs in Foresight	—
10.2	Cautions: Bias, Data Quality & Validation	—
11	**The Human–AI Comparison Exercise**	**LO3.4, LO3.5, LO3.6**
11.1	Where Do Insights Diverge?	—
11.2	Integrating AI Outputs Responsibly	—
ASSESSMENT & RESOURCES		
12	**Assessment & Reflection**	—
12.1	Task 1 — Scenario with Trend-Impact Mapping	—
12.2	Task 2 — AI Scanning Output + Human Interpretation	—
12.3	Task 3 — Reflection: Strengths & Limits of AI in Foresight	—
13	**Resources & Toolkit**	—

13.1	Foresight Toolkit 3.0	—
13.2	Signal Logbook & AI Scanning Tools	—
13.3	Scenario Builder Templates	—
13.4	Systems Mapping Boards (Miro / FigJam)	—
13.5	AI Integration Pack	—

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed. LO3.5 and LO3.6 (AI-focused) are highlighted in teal.

Learning Outcome	Description	Covered In
LO3.1	Use structured foresight tools to analyse signals, trends, and systems.	Sections 2, 3, 4, 5, 6
LO3.2	Identify weak signals and map their impacts.	Sections 3, 4, 8
LO3.3	Build short scenarios using human and AI-supported insights.	Sections 5
LO3.4	Translate signals into business-relevant insights.	Sections 2, 4, 6, 11
LO3.5	Apply AI-enhanced methods (automated scanning, clustering) to support foresight.	Sections 7, 8, 9, 10, 11
LO3.6	Distinguish predictive analytics from long-term foresight.	Sections 9, 10, 11

Methods & Materials

Methods	• Micro-modules (ES) • Case-based tool practice (FR) • Group foresight labs (DK) • AI tools demonstration: automated scan dashboards, signal clustering, AI-supported scenario descriptions • Human–AI comparison exercise: "Where do insights diverge?"
Materials	• Foresight Toolkit 3.0 • Signal Logbook + AI scanning tools • Scenario builder templates • Systems mapping boards (Miro / FigJam) • AI integration pack (illustrative tools, prompts, validation checklist)
Assessment	• Task 1 — Create one scenario enriched with trend-impact mapping • Task 2 — Submit an AI-supported scanning output + human interpretation exercise • Task 3 — Short reflection: strengths & limitations of using AI for foresight

4.5. Module 4

MODULE 4

Decision-Making Under Uncertainty

From Silos to Shared Vision

Content Index & Learning Map

Module Overview

This module helps participants strengthen their ability to make informed and confident decisions in complex, fast-changing, and ambiguous environments. Learners explore practical frameworks for evaluating risks and opportunities, comparing alternative futures, and identifying the strategic implications of emerging trends. Through simulations, what-if analyses, and structured decision exercises, the module encourages a shift away from reactive, short-term thinking toward more deliberate, long-term judgment. By understanding how uncertainty shapes choices—and how biases and assumptions influence decision

outcomes—participants develop the skills needed to navigate ambiguity, prioritise effectively, and make robust decisions aligned with future-oriented strategies.

Competences	Critical thinking (FR) • Analytical scepticism (ES) • Impact assessment (DE)

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR) • Netherland (NL)

Colour Key

Amber — Frameworks (Part A)	**Green — Applications (Part B)**

Content Index

The table below maps each section to its associated Learning Outcomes (LOs). Amber rows represent frameworks (Part A), while green rows represent Applications (Part B).

Section	Title	Learning Outcomes
1	**Welcome & Module Overview**	—
1.1	Module Objectives & Learning Outcomes	—
1.2	How This Module Is Structured	—
PART A — FRAMEWORKS		
2	**Understand Uncertainty**	**LO4.1 and LO4.4**
2.1	Introduction to Real World Uncertainty	—
2.2	How Uncertainty Affects Decisions	—

3	**Decision-Making Methods**	**LO4.1 and LO4.2**
3.1	Traditional vs. Uncertainty-Aware Decision-Making	—
3.2	Apply Critical Thinking to your decision	—
4	**Risk Opportunity Matrix**	**LO4.2 and LO4.4**
4.1	Build a Risk Opportunity Matrix	—
4.2	Summarise Options and Trade-offs Using the Matrix	—
5	**Decisions Trees to Real Scenarios**	**LO4.1 and LO4.3**
5.1	Build Your Decision Tree	—
5.2	Apply Decision Trees to a Real Case	—
PART B — APPLICATIONS		
6	**Quantum Threat Scenarios**	**LO4.1, LO4.2, LO4.3, LO4.4**
6.1	Uncertainty: Quantum Computers	—
6.2	Decisions under Quantum Threats	—
7	**AI Failure Mode Scenarios**	**LO4.1, LO4.2, LO4.3, LO4.4**
7.1	Issue 1: Privacy Leakage Concerns	—

7.2	Issue 2: Misleading Information	—
8	**Red Team vs Blue Team**	**LO4.1, LO4.2, LO4.3, LO4.4**
8.1	Red Team Attack	—
8.2	Blue Team Defense and Adaptation	—
ASSESSMENT & RESOURCES		
9	**Assessment & Reflection**	—
9.1	Short Team Simulation	—
9.2	Decision Justification	—
9.3	Reflection:	
10	**Resources & Tools**	—
10.1	Decision Canvas	—
10.2	Scenario cards	—
10.3	Risk matrix	—
10.4	Recommended Reading & References	—

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed. Amber highlights collaboration-focused LOs; green highlights ecosystem-focused LOs.

Learning Outcome	Description	Covered In
LO4.1	Apply decision-making frameworks for ambiguous futures. Develop structured decision-making frameworks.	Session 2,3,5,6,7,8
LO4.2	Evaluate trade-offs between risks & opportunities. Evaluate alternative futures and risk-impact trade-offs.	Session 3,4,6,7,8
LO4.3	Practise structured decision-making using scenarios.	Session 5,6,7,8
LO4.4	Strengthen ownership and responsibility for decisions (ES insight).	Session 2,4,6,7,8

Methods & Materials

Methods	• Simulations (FR) • Case-based exercises • Rapid decision games • Cyber/PQC attack futures (FR) • AI failure mode scenarios (DE, FR)
Assessment	• Short team simulation • Decision justification
Materials & Tools	• Decision Canvas • Scenario cards • Risk matrix

4.6. Module 5

MODULE 5

Innovation & Transformation Skills

Future-Proof SMEs

Content Index & Learning Map

Module Overview

"This module equips participants with the skills and methods needed to translate future insights into meaningful innovation and organisational transformation. Learners explore how emerging trends can inspire new value propositions, business models, and strategic opportunities, even under conditions of uncertainty or limited resources. Through practical exercises, rapid experimentation techniques, and creativity tools, the module supports SMEs in developing future-oriented solutions and building a culture of continuous learning and adaptation. By the end of the module, participants are able to prototype long-term business ideas, challenge existing assumptions, and design transformation pathways that strengthen the resilience and competitiveness of their organisations." From HERE

Competences	Creativity (ES) • Adaptability (FR) • Transformational leadership (DK)

Country Focus	Denmark (DK) • Spain (ES) • France (FR) • (implicit in Germany (DE))

Content Index

The table below maps each module section to its associated Learning Outcomes (LOs).

Section	Title	Learning Outcomes
1	**Welcome & Module Overview**	–
1.1	Module Objectives & Learning Outcomes	–
1.2	How This Module Is Structured	–
2	**What is Innovation?**	L5.1, L5.4

2.1	Types of Innovation (Process or outcome)	–
2.2	Sources of Innovation (Scientific Breakthroughs)	–
2.3	Innovation in an Uncertain World	–
2.4	Possible Responses to Future Scenarios (Resilience?)	–
3	**Future Business Models**	L5.2, L5.3, L5.5
3.1	Introduction to Business Models	–
3.2	Types of Business Models	–
3.3	Risk Management and Governance	–
4	**Unlocking Creativity**	L5.3, L5.6
4.1	Preparing to be Creative	–
4.2	Break-The-Pattern Session	–
4.3	Ideation Techniques	–
4.4	Opportunity Radar • AI • Weak signals • Five key attributes of an emerging technology	–
4.5	Future Business Model Studio (Triple-layer BM canvas)	–
4.6	Rapid Experimentation	–

5	**Implementing Transformative & Innovative Strategy**	L5.2, L5.4, L5.5
5.1	Commercialization Strategies	—
5.2	Roadmapping	—
5.3	Implementation Strategies	—
5.4	Risk Management and Governance	—
6	**Assessment & Reflection**	—
6.1	Business Model Prototype for the Future	—
6.2	Implementation Plan for the Transformative and Innovative Strategy	—
7	**Resources & Glossary**	—
7.1	Sectoral Case Library	—
7.2	LTFF Glossary	—
7.3	Recommended Reading & References	—

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed across the module.

Learning Outcome	Description	Covered In

LO5.1	Design innovative responses to future scenarios	Section 1
LO5.2	Prototype future business models	Sections 3 & 5
LO5.3	Apply experimentation methods for long-term initiatives	Sections 3 & 4
LO5.4	Embed innovation in daily operations despite time/resource constraints	Sections 1 & 5
LO5.5	Learn to translate technologies into business models	Sections 3 & 5
LO5.6	Strengthen creativity and experimentation	Sections 4

Methods & Materials

Methods	Hands-on innovation sprints • Cross-case comparisons • Prototyping

Materials	Business Model Canvas 2045 • Ideation cards

Assessment	Business model prototype for a 2045 scenario.

4.7. Module 6

MODULE 6

Collaboration & Ecosystem Foresight

From Silos to Shared Vision

Content Index & Learning Map

Module Overview

This module focuses on helping participants understand and navigate the wider ecosystems in which their organisations operate. Learners explore how long-term trends and disruptions affect not only their own business but also customers, partners, suppliers, regulators, and other stakeholders. Through ecosystem mapping, collaboration exercises, and silo-breaking practices, the module strengthens the ability to work across disciplines and organisational boundaries. Participants learn how to build shared visions, foster trust, and identify strategic opportunities that emerge from collective intelligence and cross-sector partnerships.

Competences	Communication (FR, ES) • Trust building (ES) • Ecosystem awareness (DK)

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR)

Colour Key

Amber — Collaboration & Trust (Part A)	**Green — Ecosystem & Strategy (Part B)**

Content Index

The table below maps each section to its associated Learning Outcomes (LOs). Amber rows cover collaboration and trust-building; green rows cover ecosystem mapping and strategic positioning.

Section	Title	Learning Outcomes
1	**Welcome & Module Overview**	—
1.1	Module Objectives & Learning Outcomes	—
1.2	How This Module Is Structured	—

PART A — COLLABORATION & TRUST		
2	**Breaking Down Silos**	**LO6.1**
2.1	Why Silos Exist — and Why They Hurt Foresight	—
2.2	Silo-Breaking Techniques in Practice	—
3	**Building Trust & a Shared Language**	**LO6.1, LO6.4**
3.1	Trust-Building Micro-Practices	—
3.2	Developing a Common Foresight Vocabulary	—
4	**Collaboration Roles & Dynamics**	**LO6.1, LO6.4**
4.1	Understanding Roles in Collaborative Foresight	—
4.2	Collaboration Roles Simulation	—
5	**Cross-Functional Foresight Processes**	**LO6.1, LO6.3**
5.1	Designing Cross-Department Workflows	—
5.2	Running a Cross-Functional Foresight Lab	—
PART B — ECOSYSTEM MAPPING & STRATEGIC POSITIONING		
6	**Ecosystem Mapping**	**LO6.2, LO6.5**

6.1	What Is an Innovation Ecosystem?	—
6.2	Mapping Your Stakeholders & Relationships	—
6.3	Reading the Ecosystem: Opportunities & Risks	—
7	**Sector-Specific Collaboration**	**LO6.1, LO6.2, LO6.5**
7.1	Collaboration in High-Tech & Cybersecurity Sectors	—
7.2	Cross-Sector Case Studies	—
8	**Building Shared Long-Term Visions**	**LO6.3, LO6.4, LO6.5**
8.1	From Individual Foresight to Collective Vision	—
8.2	Facilitated Visioning: The Process	—
8.3	Turning a Shared Vision into Joint Action	—
9	**Strategic Positioning Within Your Ecosystem**	**LO6.2, LO6.3, LO6.5**
9.1	Identifying Your Strategic Position	—
9.2	Leveraging Partnerships for Long-Term Growth	—
ASSESSMENT & RESOURCES		
10	**Assessment & Reflection**	—

10.1	Deliverable — Your Ecosystem Map	—
10.2	Deliverable — Collaboration Plan	—
10.3	Reflection: Collaboration in My Organisation	—
11	**Resources & Tools**	—
11.1	Partner Canvas	—
11.2	Visioning Toolkit	—
11.3	Recommended Reading & References	—

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed. Amber highlights collaboration-focused LOs; green highlights ecosystem-focused LOs.

Learning Outcome	Description	Covered In
LO6.1	Facilitate cross-disciplinary collaboration and communication.	Sections 2, 3, 4, 5, 7
LO6.2	Map relevant ecosystems for strategic futures.	Sections 6, 7, 9
LO6.3	Build shared long-term visions with teams.	Sections 5, 8, 9
LO6.4	Build trust and shared language.	Sections 3, 4, 8
LO6.5	Understand ecosystem opportunities.	Sections 6, 7, 8, 9

Methods & Materials

Methods	• Cooperation labs (DK) • Cross-department labs (ES) • Facilitated visioning

Assessment	• Deliverable 1 — Ecosystem Map • Deliverable 2 — Collaboration Plan

Materials & Tools	• Partner Canvas • Visioning Toolkit

4.8. Module 7

MODULE 7

Ethical, Social & Human Foresight

From Silos to Shared Vision

Content Index & Learning Map

Module Overview

This module enables participants to integrate ethical reflection and human-centred considerations into long-term strategic thinking. Learners examine how emerging technologies, data practices, and organisational decisions can affect people, communities, and society over time. The module introduces tools for identifying ethical risks, assessing social impacts, and ensuring responsible innovation—while also exploring issues such as data sovereignty, psychological well-being, inclusion, and the human consequences of automation and AI. Through practical exercises and scenario-based discussions, participants learn to anticipate unintended effects and to design strategies that are aligned with human values and societal expectations. By the end of the module, they are equipped to make future-oriented decisions that are not only strategically sound but also ethically and socially responsible.

Competences	Ethical reasoning (DE, FR) • Human-centred foresight (ES)

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR)

Colour Key

Amber — Real World Cases(Part A)	Green — Actions (Part B)

Content Index

The table below maps each section to its associated Learning Outcomes (LOs). Amber rows cover real world cases (Part A); green rows cover actions (Part B).

Section	Title	Learning Outcomes
1	**Welcome & Module Overview**	—
1.1	Module Objectives & Learning Outcomes	—
1.2	How This Module Is Structured	—
PART A — REAL WORLD CASES		
2	**Ethics and Social of Technology**	**LO7.1, LO7.6**
2.1	Ethical and Social Dilemmas in Technology	—
2.2	Ethical Security in the Digital Age (Digital Sovereignty)	—
3	**Human Dimensions of Technology**	**LO7.5**
3.1	Technology's Impact on Work and Livelihoods	—
3.2	Technology's Impact on Well-being and Psychology	—

PART B — ACTIONS		
4	**Ethical Strategies for Responsible Innovation**	**LO7.3, LO7.6**
4.1	Ethical Governance and Accountability	—
4.2	Ethical Red-Flag Identifications	—
5	**Social Strategies for Foresight Futures**	**LO7.4, LO7.6**
5.1	Reducing Social Inequality in the Digital World	—
5.2	Data Sovereignty and Digital Identity Strategies	—
6	**Integration and Action Planning**	**LO7.2, LO7.6**
6.1	Strategies for Integrating Well-being into Foresight	—
6.2	Personal and Organizational Action Plans	—
ASSESSMENT & RESOURCES		
7	**Assessment & Reflection**	—
7.1	Ethical foresight review of a long-term strategy	—
7.2	Reflection	—
8	**Resources & Tools**	—

8.1	Ethical Reflection Canvas	—
8.2	Impact maps	—
8.3	Recommended Reading & References	—

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed. Amber highlights collaboration-focused LOs; green highlights ecosystem-focused LOs.

Learning Outcome	Description	Covered In
LO7.1	Evaluate ethical risks of long-term strategies.	Session 2
LO7.2	Integrate human well-being into foresight.	Session 6
LO7.3	Apply responsible innovation principles.	Session 4
LO7.4	Integrate ethical thinking in strategic decisions.	Session 5
LO7.5	Explore human impacts of technology.	Session 3
LO7.6	Strengthen data sovereignty (DE).	Session 2, 4, 6

Methods & Materials

Methods	• Ethical red-flag workshop (ES) • Regulatory foresight (FR) • Shadow stakeholder role-play

Assessment	• Ethical foresight review of a long-term strategy

Materials & Tools	• Ethical Reflection Canvas • Impact maps

4.9. Module 8

MODULE 8

Road mapping & Long-Term Strategy Execution

From Vision to Action

Content Index & Learning Map

Module Overview

This module focuses on translating foresight insights into clear, actionable, and time-sequenced strategies. Participants learn how to build long-term roadmaps that connect future scenarios with concrete steps, milestones, and decision points. The module introduces practical methods such as backcasting, dependency mapping, and strategic prioritisation to help organisations plan over 5-, 10-, and 20-year horizons.

Through guided exercises and collaborative design sessions, learners practise turning vision into implementation pathways that are realistic, adaptable, and aligned with organisational capabilities. By the end of the module, they can develop strategic roadmaps that guide transformation, support investment decisions, and help their organisations stay resilient and future-ready.

Competences	Strategic planning (DE) • Vision building (FR) • Backcasting (DK)

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR)

Colour Key

Blue — Vision, Backcasting & Planning (Part A)	Green — Roadmap Execution & Strategy (Part B)

Content Index

The table below maps each section to its associated Learning Outcomes (LOs). Blue rows cover vision building, backcasting and planning; green rows cover roadmap execution and strategic alignment.

Section	Title	Learning Outcomes
1	**Module Overview**	**—**
1.1	Module Objectives & Learning Outcomes	—
1.2	How This Module Is Structured	—
Part A — Vision Building, Backcasting & Planning		
2	**From Foresight to Strategy: Foundations of Roadmapping**	**LO8.1, LO8.4**
2.1	What Is a Strategic Roadmap? Definition and Purpose	—
2.2	The Gap Between Foresight and Action: Why Strategies Stall	—
2.3	The LTFF-to-Roadmap Pipeline: Connecting Scenarios to Steps	—
3	**Vision Building for SMEs**	**LO8.1, LO8.3**
3.1	Defining a Long-Term Vision: What It Is and What It Is Not	—
3.2	The Future Vision Canvas: Tool Walkthrough	—

3.3	Aligning Teams Around a Shared Future Vision (DE: Leadership & Agency)	—
4	**Backcasting: From Future to Present**	**LO8.1, LO8.2**
4.1	What Is Backcasting? Principles and Logic	—
4.2	Backcasting vs. Forecasting: Key Differences	—
4.3	Step-by-Step Backcasting Method for SMEs (DK Long-Term Approach)	—
4.4	Backcasting Lab: Practice Exercise with a Sector Scenario	—
5	**Dependency Mapping & Strategic Sequence Planning**	**LO8.2, LO8.4**
5.1	Understanding Dependencies: What Must Happen Before What?	—
5.2	Dependency Mapping Method (FR Focus)	—
5.3	Strategic Sequence Planning: Ordering Actions Across 5–20 Year Horizons	—
Part B — Roadmap Execution & Strategic Alignment		
6	**Transformation Roadmaps & KPI Integration**	**LO8.1, LO8.4, LO8.5**
6.1	Transformation Roadmap Structure: Phases, Milestones, Decision Points (ES Model)	—

6.2	Integrating KPIs and Early Signals into Your Roadmap	—
6.3	Adapting the Roadmap When Signals Change: Review and Revision Triggers	—
6.4	Roadmap Design Studio: Collaborative Session (FR/DK Format)	—
7	**Strategic Alignment Within SMEs**	**LO8.3, LO8.5**
7.1	Building Strategic Alignment: Leadership and Team Buy-In	—
7.2	Communication Strategies for Roadmap Adoption	—
7.3	Overcoming Internal Resistance to Long-Term Planning	—
8	**Turning Foresight into Actionable Strategies**	**LO8.4, LO8.5**
8.1	From Scenario Insight to Strategic Priority	—
8.2	Strategic Prioritisation Under Uncertainty	—
8.3	Real-World Case: SME That Used Foresight to Plan a 10-Year Transformation (DK/FR)	—
9	**The Personal Professional Foresight Plan**	**LO8.6**
9.1	Embedding Roadmapping in Daily Work	—
9.2	Building Your Personal LTFF Foresight Routine	—

9.3	Connecting Individual Action to Organisational Strategy	—
Assessment & Resources		
10	**Assessment & Reflection**	**—**
10.1	Deliverable — Organisation-Specific LTFF Roadmap (5–20 Years)	—
10.2	Reflection: What Is My SME's Most Critical Roadmapping Step in the Next 12 Months?	—
11	**Resources & Tools**	**—**
11.1	Roadmap Builder	—
11.2	KPI Templates	—
11.3	Future Vision Canvas	—
11.4	Recommended Reading & References	—

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed. Blue highlights vision and planning LOs; green highlights execution and alignment LOs.

Learning Outcome	Description	Covered In
LO8.1	Build actionable long-term roadmaps (5–20 years).	Sections 2, 3, 4, 6

LO8.2	Translate scenarios into concrete steps.	Sections 4, 5
LO8.3	Align teams around a shared future vision.	Sections 3, 7
LO8.4	Turn foresight into actionable strategies.	Sections 2, 5, 6, 8
LO8.5	Build strategic alignment within SMEs.	Sections 7, 8
LO8.6	Develop a personal professional foresight plan.	Section 9

Methods & Materials

Methods	• Vision workshops (DE) • Backcasting labs (DK) • Roadmap design studios (FR) • Transformation roadmap exercises (ES)
Assessment	• Full LTFF Roadmap — Organisation-specific strategic roadmap (5–20 years) • Reflection: "What is my SME's most critical roadmapping step in the next 12 months?"
Materials & Tools	• Roadmap Builder • KPI Templates • Future Vision Canvas

4.10. Module 9

MODULE 9

LTFF for SMEs: Application & Barriers

Beyond the Theory: Launching Your Long-Term Strategy

Content Index & Learning Map

Module Overview

This module helps participants understand how to integrate Long-Term Future Foresight into the everyday reality of small and medium-sized enterprises. Learners explore the most common barriers SMEs face—such as limited time, scarce resources, short-term pressures, and cultural resistance—and identify practical ways to overcome them. The module introduces simple, low-effort foresight routines, leadership engagement strategies, and tools for embedding long-term thinking into existing processes without adding unnecessary workload. By examining real examples and co-creating tailored solutions, participants develop a personalised plan for applying LTFF within their own organisational context, ensuring sustained impact beyond the training.

Competences	Organisational resilience (ES), Practical foresight (DK), Human-centred leadership (DE)

Country Focus	Germany (DE) • Denmark (DK) • Spain (ES) • France (FR)

Content Index

The table below maps each section to its associated Learning Outcomes (LOs).

Section	Title	Learning Outcomes
1	**Welcome & Module Overview**	–
1.1	Module Objectives & Learning Outcomes	–
1.2	How This Module Is Structured	–
PART A — ESTABLISHING A LTFF AND FORESIGHT ROUTINE		
2	LTFF Entry Points	LO9.4
2.1	Criteria for high-impact LTFF entry points	–

2.2	Approaches to select entry points and evaluation matrix	_
3	**Develop continuous foresight micro-routines**	**LO9.2 and LO9.3**
3.1	Micro-Routines: Definition, Advantages and Effectiveness	
3.2	Micro Routines Template	
3.3	Adapting micro Routines to your SME	
3.4	Group Discussion: Exchange of micro routines	
3.5	Case Critiques: Practical approaches	
PART B — APPLICATION AND BARRIERS		
4	**Applying LTFF and foresight into daily operations**	**LO9.2**
4.1	Foresight as part of Business Processes	
4.2	Biases in Strategic Decision Making	
4.3	Integration of foresight in meetings, planning and decision-making processes	
4.4	When to adapt and swerve: Identifying events and keeping Strategy and Vision validity	
4.5	Change Management and Communication by narratives	

5	**Barriers and Application for LTFF implementation in SME /your team**	LO9.1, LO9.2
5.1	How to handle Time and Resource constraints	–
5.2	Barrier: Company Culture	–
5.3	Overcoming strategic inertia	–
5.4	Necessary Skills for LTFF (in your team)	–
5.5	Example Cases and some Best Practices	–
5.7	Assessment: Personal LTFF integration plan (in your team)	–
ASSESSMENT & RESOURCES		
6	**Assessment & Reflection**	–
6.1	Assessment: Personal LTFF integration plan	–
6.2	Reflection: Is my SME LTFF ready across all levels?	–
7	**Resources & Tools**	–
7.1	Worksheets for Micro Routine Template,	–
7.2	Recommended Reading & References	–

Learning Outcomes Cross-Reference

A quick-reference guide showing where each Learning Outcome is addressed.

Learning Outcome	Description	Covered In
LO9.1	Identify SME-specific barriers (time, resources, culture, skills)	Session 5
LO9.2	Embed LTFF and foresight into daily operations	Session 4
LO9.3	Develop continuous foresight micro-routines	Session 2
LO9.4	Identify high-impact LTFF entry points	Session 1

Methods & Materials

Methods	• Group discussions • Case critiques • quick LTFF practice labs
Assessment	• Personal LTFF integration plan
Materials & Tools	• Micro-routine templates • leadership communication kit

5. TRAINING CONTENT MATERIAL AND PLATFORM

This section provides access to the full ASTRAL Training for Business programme across all five languages in which it has been developed. The course is available in English (EN), German (DE), Danish (DK), Spanish (ES), and French (FR), reflecting the multilingual scope of the ASTRAL project and its commitment to reaching SMEs across the participating countries. Each language version is accessible through a dedicated link provided below. All course materials are hosted on the ASTRAL website and can be accessed free of charge — no registration fees or subscriptions are required. This open-access

approach ensures that any professional, organisation, or SME wishing to develop their long-term foresight capacity can do so without barriers, regardless of their location or resources.

The training content will be made available through the ASTRAL learning platform in English, German, Danish, Spanish and French. The corresponding access links will be added as the language versions are published.

5.1. Link to the training content in Danish

5.2. Link to the training content in English

5.3. Link to the training content in French

5.4. Link to the training content in German

5.5. Link to the training content in Spanish