INNOVATE

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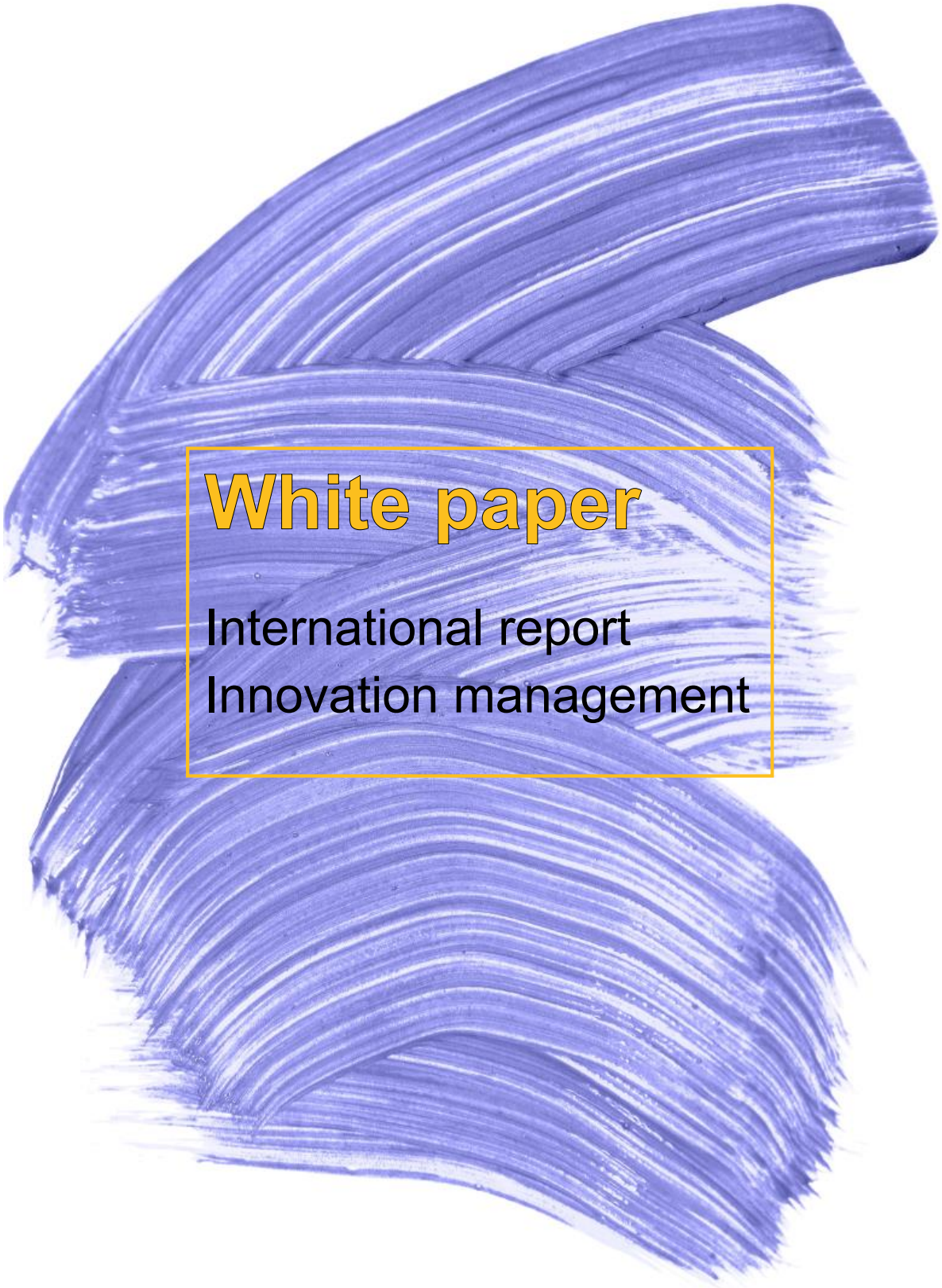

White paper

International report
Innovation management

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THE IMPORTANCE OF THE PRESENT WHITEPAPER

In a world characterized by continuous transformation, the ability to manage and leverage innovation within ever-changing frameworks is a fundamental key to success. Society is experiencing a paradigm shift, propelled by rapid technological progress, evolving economic models, and the growing intricacy of global challenges. Within this fluid context, particular attention is diverted towards the role of innovation and the adoption of critical skills highlighting the necessity for structured processes and strategies that support sustained growth. Innovation management and ISO56000 bring to the fore a suite of essential competencies, including strategic foresight, effective process management, creative problem-solving, stakeholder engagement, and adaptability to change. These capabilities enable organizations to not only anticipate and respond to market changes but also to drive and shape the future of their industries. Therefore, in the realm of perpetual innovation, these skills are paramount, laying the foundation for a resilient and dynamic organizational culture that excels in facing and instigating unchartered waters.

Despite the advent of the European Year of Skills (2023) spotlighting the importance of skill development, there remains a notable gap in awareness and understanding about the significance of innovation management. Many professionals, alongside numerous educational and corporate institutions, remain largely unaware of or underinformed about the strategic importance of embracing innovation frameworks and standards. This shortfall is particularly concerning for European Vocational Enterprises (EVEs), which are pivotal to the European economy's dynamism and resilience. VET providers are crucial in preparing a workforce that is not only skilled but also adaptable and innovative. Enterprises, including SMEs, drive economic activity and employment, yet their potential for growth and competitiveness is often hampered by a lack of innovation management practices. Start-ups, on the other hand, renowned for their agility and potential for disruption, face equal challenges in scaling their innovation capabilities without a structured framework to guide their growth.

To bridge this gap, the overarching objective of the present Whitepaper is to align current skill sets with the emerging needs of the global economy by providing a detailed compilation of best practices in innovation management and explaining its implications for contemporary workplaces. By drawing inspiration from the guidelines and principles of the ISO56000 standard, which seeks to assist organizations to create and sustain economic growth and innovative high- quality products as well as the experiences of organizations with a strong history of innovation, this guide aspires to promote the acquisition of necessary competencies and methods that will enable various stakeholders to achieve their specific ambitions more effectively. This document also intends to explore and address the variations in innovation management education and training offerings, taking into account the challenges of professional adjustment and market entry across various European contexts. By collecting and analyzing exemplary practices and insights, it endeavors to enhance understanding of the future market requirements, underlining the importance of structured innovation management and the adaptability to thrive in diverse, multicultural settings.

THE INNOVATE PROJECT

The Whitepaper on Innovation Management is a pivotal outcome of the INNOVATE project, titled "Innovation Management Standard for Quality and Business Acceleration", an Erasmus+ funded initiative (2023-1-AT01-KA220-VET-000154065). As a key component of Work Package 2 (WP2) - Whitepaper on Innovation Management, it is strategically designed to enhance the capabilities of entities across the vocational sector, specifically targeting Small and Medium-sized Enterprises (SMEs), Start-ups, and Vocational Education and Training (VET) providers. By addressing the urgent need for these organizations to adapt to the rapidly changing dynamics of the labor market, it seeks to guide them in maintaining their competitive edge through the provision of state-of-the-art services and high-quality products. The overarching aim is to navigate and manage the accelerated pace of change effectively, ensuring that public and private not only survive but thrive by adopting innovative practices and frameworks.

To achieve this, the Whitepaper sets forth several sub-objectives that collectively contribute to enhancing the quality and resilience of the vocational sector across Europe. Firstly, it aims to forge stronger connections between organizations and innovation, recognizing that a robust link is crucial for increasing the sector's resilience and quality output. Secondly, it focuses on equipping multiple entities with the knowledge and tools necessary for implementing innovative processes, thereby enabling them to better meet evolving market demands. Lastly, it advocates for the transformation of management practices by integrating more digital-supported innovative processes, facilitating a shift towards more efficient, effective, and adaptable business models. The INNOVATE project spans across 7 European countries: Austria, France, Cyprus, Sweden, Bulgaria, Finland, and Poland, illustrating its wide-reaching impact and the collaborative effort to elevate innovation management standards across Europe and beyond.

AUDIENCE

The present Whitepaper is intended to engage with a multifaceted audience across the European Vocational Enterprises (EVEs) landscape, aiming to influence a wide range of stakeholders involved in the management and operational frameworks. The identified targeted audience is extended, but not limited to, organizational leaders, management professionals, policymakers, and educators, all of whom play critical roles in steering their institutions and organizations toward innovative excellence and adopting the ISO56000 innovation management standard. The aim of the present report is to reach those who are in a position to make impactful decisions and implement strategies that can significantly enhance innovation capacities within their respective domains.

For policymakers and educators within the VET sector, the Whitepaper serves as an invaluable tool for understanding the contemporary demands of the labor market and the crucial role that innovation management plays in meeting these needs. It aspires to provide them with the insights needed to shape policies and curricula that better prepare students for a future where innovation and adaptability are key to personal and professional success. By targeting this group, the Whitepaper seeks to foster a stronger alignment between educational outcomes and the evolving requirements of the European economy, ensuring that the workforce of tomorrow is equipped with the necessary skills to drive and sustain innovation.

Similarly, for leaders and key decision-makers within Enterprises, SMEs, and Start-ups, the present study offers a comprehensive guide to embedding innovation management practices into their core strategies. This audience segment is directly responsible for navigating their organizations through the challenges of modern business landscapes, where embracing innovation is not just an option but a necessity for survival and growth. The Whitepaper envisions to empower these individuals with knowledge, best practices, and practical recommendations that can help transform their approach to innovation, making it more structured, systematic, and aligned with global standards such as ISO56000.

METHODOLOGY

The research methodology behind the drafting of the INNOVATE Whitepaper represented a comprehensive, collaborative effort involving a series of methodical steps designed to harness expertise and insights from multiple organizations and entities across the participating European countries. This process began with the creation of national reports for each partner country, undertaken through detailed desk research. These national reports were pivotal in gathering and compiling the most pertinent and effective best practices specifically focusing on their integration and promotion of innovation management. This approach allowed the project to capture a clear and current picture of the effective methods being utilized within the context of innovation management across various sectors, offering valuable insights into what practices are yielding positive results and how they are being implemented.

The methodology was underpinned by a standardized approach that identified several key pillars deemed essential for fostering a strong culture of innovation within organizations. These pillars included the following key indicators: resource allocation, organizational structure and culture, strategic goals and market positioning, customization and scalability of innovation practices, the role of digital transformation and globalization, as well as the capacity for learning and adaptation. This structured analysis culminated in the identification of 7 exemplary practices, which were highlighted for their effectiveness in advancing innovation management and for providing a framework that could be replicated and scaled across different organizational and national contexts. This approach ensured that the INNOVATE Whitepaper was grounded in empirical evidence and could offer practical, actionable guidance to enhance innovation management practices across various sectors and industries.

INNOVATION AS A PARADIGM SHIFT IN MANAGEMENT

Innovation, once considered a peripheral element of business strategy, has now emerged as a central paradigm shift in management practices globally. This shift represents a fundamental transformation in how organizations conceive of and implement strategies for growth, competitiveness, and sustainability. Traditionally, management practices focused on optimizing existing processes, reducing costs, and maximizing efficiency within well-defined parameters. However, the rapid pace of technological advancements, along with increasingly volatile and complex market environments, has necessitated a reevaluation of these conventional approaches. Today, innovation is not merely about introducing new products or services; it encompasses a holistic rethinking of organizational structures, cultures, and strategies to advance creativity, agility, and continuous adaptation.

Central to this paradigm shift is the recognition of innovation as a comprehensive ecosystem that transcends mere product development. It involves reshaping the organizational culture to embrace risk-taking, failure, and experimentation as essential components of the innovation process. Companies are now investing in creating environments where ideas are freely shared, and collaboration is encouraged across all levels and departments. This cultural transformation is supported by redefining leadership roles to prioritize vision, inspiration, and empowerment over traditional command-and-control models. Furthermore, strategic goals are increasingly focused on market creation and disruption rather than just market participation. This approach leverages digital transformation, globalization, and advances in technology to explore new business models, enter untapped markets, and create value in unprecedented ways. As a result, innovation-centric management practices are driving organizations towards becoming more adaptable, resilient, and capable of navigating the challenges of the modern business landscape.

As a result, the shift towards innovation management brought to the surface the need to reconfigure organizational resources, structures, processes, and values to support the seamless integration of innovation at every level. In this effort, certification standards, particularly in the context of innovation principles such as ISO56000, play a critical role in safeguarding and standardizing the approaches organizations take towards innovation management. These standards provide a solid baseline that guides companies in establishing an environment conducive to innovation, from the generation of ideas to their successful implementation, ensuring that these efforts are strategic, efficient, and effective. Ultimately, adherence to certification principles reassures stakeholders, including investors, customers, and partners, of an organization's dedication to maintaining high standards in innovation practices, thereby attracting better opportunities for collaboration and investment.

THE ISO56000 STANDARD AND ITS POTENTIAL

The ISO56000 series, published in February 2020, serves as a ground-breaking framework for organizations aiming to harness innovation as a pivotal force for sustained growth, economic viability, and societal development. Recognizing an organization's capacity to innovate as essential, ISO56000 outlines a systematic approach to understanding and responding to changing market conditions, seizing new opportunities, and leveraging both internal creativity and external collaborations.

This ISO standard is, therefore, designed to assist organizations in establishing a coherent, consistent, and common foundation for innovation management. It elucidates key terms, definitions, concepts, and principles, guiding organizations in setting up, maintaining, and continually improving their innovation management systems. Applicable to a wide range of organizations—irrespective of their type, sector, size, or maturity level— ISO56000 underscores the universality of innovation across different types, including products, services, processes, models, and methods, and across various approaches such as internal and open innovation, and user-, market-, technology-, and design-driven activities.

ISO56000's relationship with other standards like ISO 56002, which offers guidance for setting up innovation management systems; ISO 56003, focusing on innovation partnership tools and methods; and ISO TR 56004, sets a clear blueprint for organizations to address the complexities of innovation. Thus, its adoption can have profound implications for management and innovation. By embedding ISO56000 principles and practices, organizations can systematically manage their innovation processes, from ideation to implementation, ensuring a consistent pipeline of novel solutions that meet market demands. This approach encourages a culture of continuous improvement and strategic risk-taking, enabling organizations to respond agilely to changing market dynamics.

INNOVATION MANAGEMENT PRACTICES ACROSS EUROPE

Our investigation into the dynamics of innovation management within Austria, Finland, Sweden, Bulgaria, Poland, France, and Cyprus offers a revealing look into how each country navigates the complexities of innovation within their borders. Drawing from comprehensive national reports prepared by participating project partners, this chapter presents the distinct innovation capabilities and hurdles encountered by each country by revealing the intricate interplay between each nation's economic backdrop, regulatory policies, and the societal valuation of innovation. By leveraging the European Innovation Scoreboard (2023), alongside a retrospective examination using data from 2016 to 2023, this section highlights each nation's current standing on the innovation spectrum while also offering insights into the evolution of their innovation landscapes over the past years.

Overall, in examining the innovation landscapes of Austria, Finland, Sweden, Bulgaria, Poland, France, and Cyprus, it becomes clear that there are several key factors acknowledged as critical for nurturing innovation across these diverse nations. Foremost among these is the essential role that education plays in cultivating an environment conducive to innovative thinking and problem-solving.

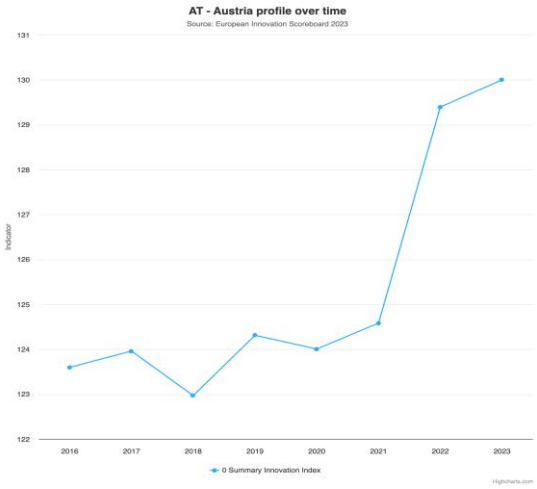
Equally important is the influence of government policies and the support mechanisms in place that facilitate the adoption of innovation, demonstrating how public sector engagement can significantly impact a country's innovative output. The necessity for cooperation across different sectors, including academia, industry, and government, emerges equally as a basic component, underscoring the multidisciplinary nature of successful innovation ecosystems.

In parallel to this, the historical and cultural backdrop of each country also significantly informs their respective innovation strategies, leading to a rich variety of approaches. For instance, some countries may prioritize the exploitation of technological breakthroughs as a cornerstone of their innovation efforts, capitalizing on their advanced scientific research sectors.

In contrast, others might focus on addressing societal challenges through innovative solutions, reflecting a commitment to social welfare and sustainability. Certain nations might be navigating economic transformations that necessitate innovative approaches to ensure resilience and competitive advantage in the global market. This diversity in focus—whether it be on educational reforms, technological prowess, cultural shifts, or policy frameworks—demonstrates the multifaceted approaches adopted by these countries to position innovation at the heart of their development agendas. In more detail:

AUSTRIA

Historically, Austria's societal commitment to education, research, and technological progress has forged an environment conducive to innovation. The nation's high regard for educational attainment, combined with a supportive government that incentivizes innovation through legislation and funding, has crafted a well-integrated innovation ecosystem. Initiatives like the "FTI-Strategies 2030" highlight a forward-looking approach, tying in
academia-industry collaboration with a strong emphasis on SMEs.
Austria's innovation awards reflect a culture that values not just new ideas but also entrepreneurial impact and sustainability, underscoring a multifaceted approach to innovation.



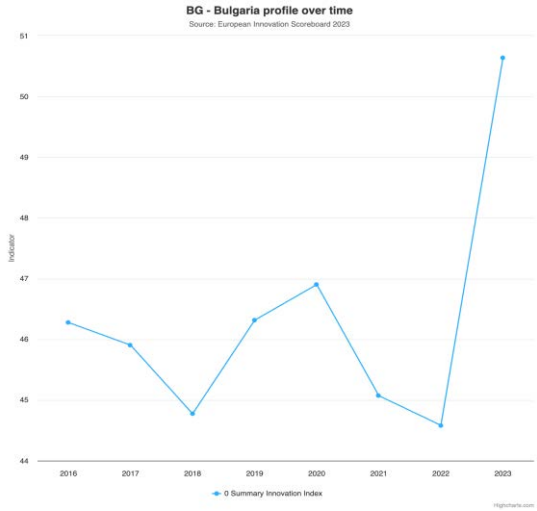
Source: European Commission, 2023

Limitations

- **High labour and operational costs:** Austria's high cost of living and stringent labour laws can increase operational costs for start-ups and SMEs, potentially limiting their ability to allocate resources to R&D and innovation.
- **Limited venture capital:** Compared to global innovation hubs, Austria may have limited access to venture capital, which can restrict growth opportunities for highly innovative start-ups.

BULGARIA

Bulgaria is on a trajectory towards enhanced innovation, with increasing societal recognition and an evolving education system that now includes innovation management. With initiatives like “Innovate Bulgaria" and the "Innovative Company of the Year" award, there is a concerted effort to instil a culture of innovation that permeates various sectors. The government’s role is pivotal, with strategies such as the "National Development Program 2030" and the "Innovation Strategy for Smart Specialisation" aiming to align national capacities with broader EU policies, promoting a digital and green economy transition.



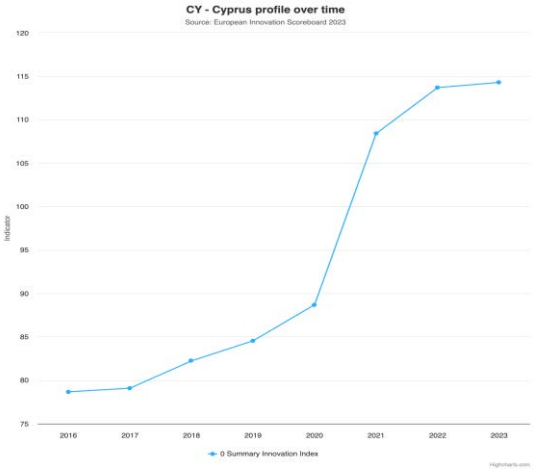
Source: European Commission, 2023

Limitations

- **Emerging economy constraints:** Bulgaria's status as an emerging economy may mean limited access to funding and a smaller domestic market for innovative products and services.
- **Skills gap:** There may be a gap between the skills needed for high-tech innovation and the available talent pool, despite improvements in the educational system.

CYPRUS

Cyprus, while lacking a single comprehensive innovation framework, has taken significant strides in building a supportive ecosystem through government-led initiatives, non-profit resources, academic R&D, and business incubation. The European Union's regulatory framework significantly influences innovation management strategies for SMEs, providing tailored support packages and fostering an environment conducive to innovation. Cross-sector collaboration is key to Cyprus's ongoing efforts to unify and optimize its innovation management processes.



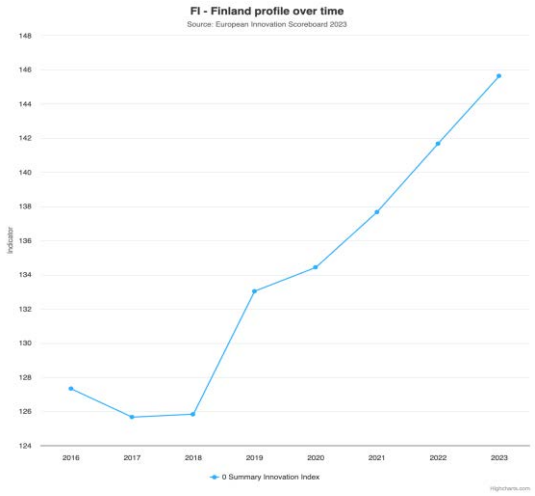
Source: European Commission, 2023

Limitations

- **Small domestic market**: The small size of the domestic market can limit the scalability of innovative ventures. within the country, pushing companies to seek. international expansion early.
- **Regional instability:** Geopolitical tensions in the region can create uncertainty for businesses, potentially affecting investment in innovation.

FINLAND

Finland has built its competitive edge on innovation, particularly in high-tech industries, backed by a tradition of strong R&D and an education system that fosters lifelong learning. Collaboration between educational institutions and industry is key, with research often translating into commercial and societal applications. Finland's investments in R&D (aiming for 4% of GDP) and its comprehensive innovation policy articulate a strategic vision that addresses societal challenges and economic transitions. The Finnish framework is adaptive, aiming to maintain agility in a rapidly evolving global landscape.



Source: European Commission, 2023

Limitations

- **Aging population:** An aging population could lead to a shrinking workforce, affecting not only the labour market but also the focus of innovation towards healthcare and aging technology.
- **High taxation:** High levels of taxation can impact the available capital for reinvestment in innovation and R&D activities.

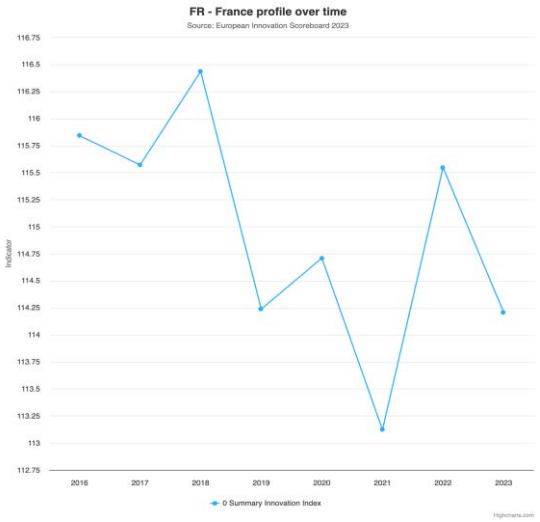
FRANCE

France's innovation is deeply influenced by its intellectual tradition and focus on addressing societal needs through technology and science. The French education system, particularly in higher education, nurtures innovation through interdisciplinary programs and collaborations with industry. The holistic innovation framework in France is notably collaborative,

involving strategic government initiatives like "France 2030," academia, and the private sector working in tandem to enhance the nation's innovative capacity. Innovation hubs and policies by entities like Bpifrance provide critical support to start-ups and entrepreneurs, furthering the country's legacy as a global leader in innovation.

Limitations

- **Bureaucracy and regulation:** While France has made strides in supporting start-ups and innovation, companies often face bureaucratic hurdles and a complex regulatory environment that can slow down innovation processes.
- **Centralization of economic activities:** The concentration of economic activities and innovation hubs in Paris and a few other cities can limit regional innovation capabilities.



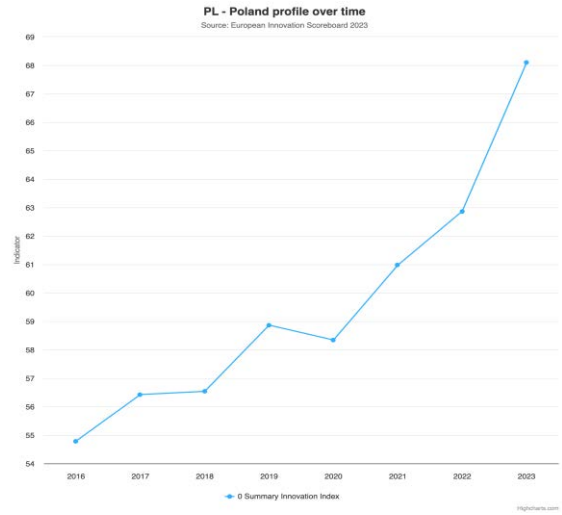
Source: European Commission, 2023

POLAND

In Poland, innovation is socially embraced as essential for quality of life and economic prosperity. The government fosters innovation through a combination of initiatives that promote training, scholarships, and cross-sector collaboration. Incubators and accelerators play a significant role in this ecosystem, providing a foundation for start-ups to thrive. The holistic framework for innovation in Poland includes strategic government action, funding sources, and a legal environment that encourages innovation, with a particular focus on sustainability.

Limitations

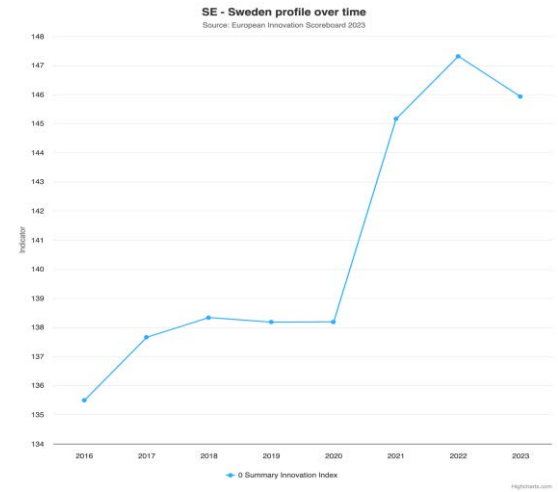
- **R&D expenditure:** Poland's R&D expenditure as a percentage of GDP has traditionally been lower than the EU average, which could impact long-term innovation output.
- **Brain drain:** Emigration of skilled workers seeking better opportunities abroad can deplete the country's talent pool necessary for innovation.



Source: European Commission, 2023

SWEDEN

Sweden's journey from its agrarian roots to becoming a global innovation leader is anchored in its historical focus on education and infrastructure. With a society that values collective achievement, Sweden has cultivated a transparent and collaborative innovation climate. The government's support, the cultural ethos of “Jantelagen," and a strong social welfare system encourage risk-taking in entrepreneurship. Sweden’s holistic innovation framework integrates education, government policy, and business support, fostering an environment where innovation is seen as vital for sustainable development and job creation.



Source: European Commission, 2023

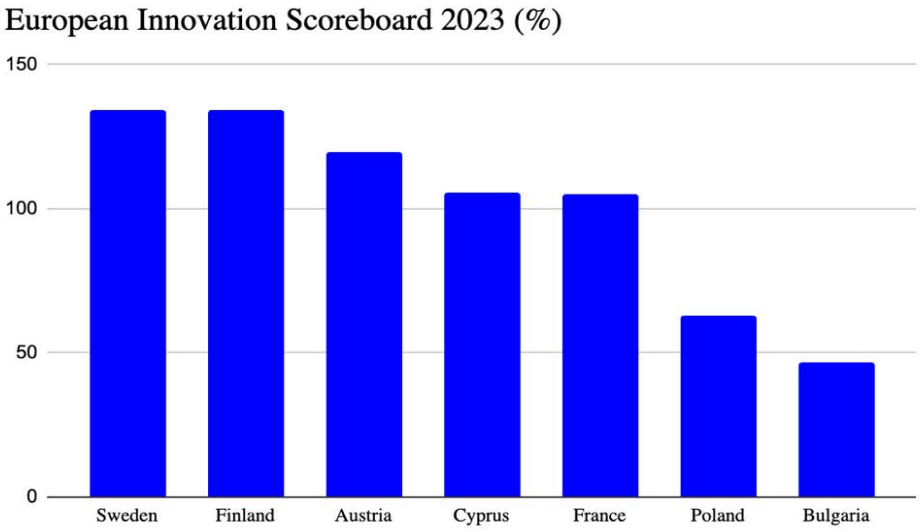
Limitations

- **Cost of living and salaries:** High cost of living and salary expectations can make it challenging for start-ups to manage operational costs, particularly in the early stages.
- **Market saturation in tech:** With a strong emphasis on technology and innovation, there's intense competition, which might be challenging for new entrants to break through.

COMPARATIVE ANALYSIS AND EUROPEAN CONTEXT

In the European innovation landscape, Finland and Sweden are distinguished as frontrunners, setting benchmarks that exceed the European Union (EU) average. Their leadership in innovation is anchored in a strong emphasis on collaborative projects that bridge the gap between high-level education and business processes. Both countries have made significant steps into leveraging public-private partnerships and engaging in international research collaborations, which have been pivotal in their success. The commitment to lifelong learning and fostering close cooperation with small and medium-sized enterprises (SMEs) further solidifies their position at the forefront of innovation while contributing to a sustainable innovation ecosystem that is inclusive and dynamic.

Austria, France, and Cyprus, while not at the very top of the innovation leaderboard, are recognized as strong innovators, each bringing a unique focus to their innovation strategies. Austria invests heavily in research and development (R&D) and integrates innovative practices within its educational system, aiming to cultivate a future workforce skilled in navigating and contributing to an innovative economy. France's approach to innovation revolves around constructing a robust ecosystem that facilitates public-private collaboration, ensuring that innovation is a shared endeavor across different sectors. Cyprus, on the other hand, concentrates on amplifying the innovative capabilities of its SMEs, recognizing the vital role these entities play in the broader economic fabric. However, these countries are not without their challenges; bureaucratic obstacles and the need to cultivate a more pervasive culture of innovation remain areas for improvement.



Source: European Commission, 2023

Government involvement plays a crucial role in the innovation strategies of Austria, Finland, Sweden, and France. All four countries demonstrate a proactive stance in fostering innovation through a range of supportive policies and initiatives. Sweden, in particular, showcases how societal structures, such as its social safety net, can encourage entrepreneurial risk-taking by reducing the personal financial risks associated with innovation. This policy environment contributes significantly to high employment rates and economic resilience, underlining the symbiotic relationship between social policies and innovation dynamics.

Conversely, Bulgaria and Poland are identified as emerging innovators within the EU, displaying commendable progress yet still lagging behind the average EU performance. Bulgaria's innovation efforts are noteworthy in the fields of design and environmental technologies, indicating a focused approach to leveraging innovation for sustainable development. Poland's innovation landscape is invigorated by dynamic SMEs and startups, which are essential drivers of its growing innovation ecosystem. Nonetheless, both countries face considerable challenges in enhancing lifelong learning opportunities, securing adequate government support, and creating a more inclusive and comprehensive environment for innovation. Addressing these challenges is imperative for Bulgaria and Poland to elevate their status and fully realize their innovation potential within the European context.

SKILLS THAT DEFINE INNOVATION

Across the diverse landscape of European innovation, where each country brings its unique strategies and cultural influences to the fore, certain universal skills stand out as critical. Creativity, adaptability, and critical thinking are heralded as the pillars supporting the structure of innovation. Creativity empowers individuals and organizations to think outside the conventional frameworks, generating groundbreaking ideas and solving problems through unorthodox approaches. Adaptability ensures that entrepreneurs and innovators remain agile, ready to pivot and adjust their strategies in response to the ever-changing market dynamics and uncertainties that characterize the modern business environment. Meanwhile, critical thinking provides the foundation for analyzing complex situations, recognizing opportunities amidst challenges, and making decisions that are both strategic and evidence-based. These skills, when harmonized, create a potent force capable of driving innovation forward, transcending the boundaries of geography and culture.

However, the journey of innovation does not solely rely on individual capabilities; it is significantly influenced by broader societal elements. The European Commission (2023) underscores the importance of government support in nurturing an ecosystem conducive to innovation. An education system that actively promotes innovative thinking and problem-solving, as highlighted by Eurostat (2005), lays the groundwork for a generation adept at navigating the complexities of the future. Furthermore, a society's attitude towards innovation, as discussed by McKinsey & Company (2017), can either propel or hinder the acceptance and integration of innovative solutions. The infrastructure within a country, coupled with a cultural acceptance of risk-taking and an understanding approach towards failure, as noted by Sharif (2006), are equally critical. These elements collectively forge an environment where innovation not only takes root but thrives, highlighting the intricate web of skills and societal factors essential for cultivating a vibrant and resilient innovation ecosystem.

AN EXAMINATION OF CURRENT DEFICITS IN INNOVATION MANAGEMENT

Diving into the intricacies of innovation management practices across Europe, especially through the lens of the ISO56000 standards, uncovers a mixed set of challenges and opportunities. While Nordic powerhouses like Finland and Sweden appear to sail smoothly with innovation practices that resonate well with ISO56000's ethos, emerging innovators like Bulgaria and Poland reveal some gaps. The heart of the issue often lies in the fragmented approach to innovation management - a lack of coherent systems, sporadic innovation activities without a clear roadmap and objectives that sometimes miss the sync with the broader mission of organizations. These shortcomings not only throw a wrench in the gears of innovation strategies but also clip the wings of organizations, limiting their full potential to soar in the realms of creativity and technological advancements. Bridging these gaps, particularly by steering closer to the guidelines of ISO, could be a game-changer, transforming innovation practices into more focused, impactful, and globally competitive ventures.

In addition, the essence of unlocking the full spectrum of innovation lies in nurturing a deep-seated understanding of innovation itself and the benefits it brings. From seed-stage startups to multinational enterprises, as well as VET providers and SMEs across the European landscape, getting to grips with the ISO56000 standards is akin to discovering a well of new possibilities. Familiarity with the core tenets and methodologies can equip these entities

with the knowledge to instill a robust innovation culture internally. This understanding is pivotal for converting theoretical innovation potential into tangible economic value. When these organizations internalize and implement structured approaches to innovation management, they can position themselves to not only navigate but also shape the future of their respective industries through continuous innovation. Consequently, ISO56000 provides a roadmap that, when followed, can transform the raw potential of ideas into tangible outcomes that resonate in the market. In a world where innovation is the currency of success, aligning with these principles can help organizations not only navigate the often turbulent waters of the global economy but also sail ahead to new horizons of prosperity. It's about crafting products and services that aren't just good but are trailblazers in their own right, setting new benchmarks for quality and innovation.

IS INNOVATION AN INNATE ABILITY?

The question of whether innovation is an innate ability or a skill that can be developed has intrigued scholars and practitioners alike. Research, such as that by Koellinger (2008), points to a complex interplay between individual characteristics and the external environment in shaping innovative entrepreneurship. This suggests that while some people may have natural tendencies that favour innovation, such as creativity or a knack for problem-solving, the environment in which they find themselves is equally pivotal. Factors like cultural norms, the availability of educational resources, and the level of support within organizations (OECD, 2017) significantly influence the degree to which these innate qualities can flourish. Therefore, it becomes apparent that the capacity for innovation is not merely a product of inherent traits but is also heavily dependent on conducive external conditions that can foster and amplify these natural inclinations.

Conversely, the argument that innovation can be taught and learned highlights the transformative power of education and experiential learning in honing innovative abilities. While certain intrinsic qualities might predispose individuals to be more naturally innovative, structured educational programs and targeted training can cultivate these predispositions into fully-fledged skills. Through deliberate practice, exposure to a variety of ideas, and participation in collaborative projects, individuals can develop the critical thinking, adaptability, and creative prowess essential for innovation. Additionally, learning environments that encourage experimentation and the exploration of diverse viewpoints can unlock potential in individuals who may not initially exhibit strong innovative traits. Thus, as the literature suggests, the development of innovation capabilities is not solely reliant on innate talent but can be significantly influenced and enhanced through dedicated effort and the right educational and organizational support systems.

MANAGERIAL PERSPECTIVE OF INNOVATION

Based on the glossary provided by ISO5600, innovation management can be defined as the process of directing and controlling aspects of an organization in relation to innovation (ISO, 2020). This encompasses the development of an innovation vision, strategy, policies, and objectives, alongside setting up the necessary organizational structures and processes to realize these goals including comprehensive planning, providing support, managing operations, evaluating performance, and facilitating continuous improvement.

However, this leads to another inquiry: What precisely constitutes innovation? According to the same framework, innovation refers to the creation or modification of an entity that either introduces new value or redistributes existing value in a novel way (ISO, 2020). This concept emphasizes that both novelty and the perception of value are subjective, and contingent upon the views of the organization and its stakeholders. Consequently, innovation can manifest in various forms, including products, services, processes, models, or methods. In this context, the role of innovation managers is pivotal as they are tasked with orchestrating these elements to ensure that innovative initiatives align with the organization's broader objectives. Still, this role encapsulates a unique challenge: blending the unpredictable essence of innovation with the structured frameworks typical of conventional management practices.

This quest for novelty often clashes with the established routines and fixed methodologies that organizations rely on to maintain order and efficiency. As a result, innovation managers find themselves in the challenging position of fostering an environment that encourages creativity and breakthroughs while simultaneously adhering to the organization's need for predictability and control. This delicate balance requires a nuanced understanding of both the free-spirited nature of innovation and the disciplined approach of traditional management, making the innovation manager's role both critical and complex.

The discussion surrounding the optimal methods and models for managing innovation further complicates this balance. It raises a crucial question: Should the focus be on tweaking and refining the existing models to inject greater flexibility and adaptability, or is there a need for a more fundamental overhaul of how organizations conceptualize and tackle innovation? This debate touches on the core of innovation management, probing whether incremental adjustments to current frameworks are sufficient to accommodate the dynamic nature of innovation or if a more profound transformation in mindset and approach is necessary. As organizations grapple with these questions, the pursuit of effective innovation management perspectives becomes an evolving journey, one that demands continuous reassessment of strategies in the face of rapidly changing technological landscapes and market demands:

Refinement of existing models:

- This perspective suggests tweaking current innovation management models to better accommodate change. This could mean more agile approaches to project management, like scrum or lean methodologies, which allow for iterative development and rapid adaptation to feedback.
- Innovation labs or skunkworks projects that operate semi-autonomously from the main business can provide a 'safe space' for radical ideas to be explored without the constraints of the larger organization's processes (McKinsey & Company, 2022).

A paradigm shift:

- Alternatively, it might be argued that a more fundamental shift in perspective is necessary. Instead of trying to fit innovation into existing structures, there might be a need to redefine the organizational culture to prioritize adaptability and learning as core principles.
- This could involve embracing a culture that values experimentation, accepts failure as a learning process, and rewards entrepreneurial thinking at all levels of the organization.

Transformation of methods:

- On the methodological front, there may be a call for entirely new ways of working. For instance, incorporating design thinking throughout the organization can embed a mindset geared towards continuous innovation.
- Collaborative tools and platforms can democratize the innovation process, inviting ideas from all stakeholders, including customers, thus broadening the innovation ecosystem beyond the company's boundaries.

UNIVERSALITY OF INNOVATION METHODS

Within the dynamic realm of contemporary business, the approaches to innovation are as varied as the multitude of organizations employing them. As identified by the World Economic Forum in 2019, innovation stands as a pivotal force propelling growth and ensuring long-term sustainability. Organizations embark on this journey through an array of strategies and methodologies, each designed to align with their distinct needs, operational frameworks, and organizational cultures. This customization of innovation practices underscores the recognition that there is no one-size-fits-all solution; rather, success in innovation requires an adaptable and nuanced understanding of an organization's specific context and goals. Focusing on the specifics, a comprehensive matrix has been developed, drawing insights from seven national reports compiled by the project partners of the INNOVATE project. This matrix serves to delineate the key drivers of innovation, outline prevalent challenges, propose actionable solutions, and identify essential skills within four distinct sectors: Vocational Education and Training (VET) Providers, Enterprises, Small and Medium-sized Enterprises (SMEs), and Start-ups:

Categories	VET Providers	Enterprises	SMEs	Start-ups
Driving Factors for Innovation	Digital literacy & tech integration - Emphasizes *the importance of equipping students with the digital skills necessary to thrive in a technology-driven world and integrating these tools into the learning process.* Industry collaboration *Refers to the partnerships between educational institutions and industries to ensure that the curriculum is aligned with real-world demands and students are prepared for the workforce.* Problem-solving curriculum *Involves the inclusion of critical thinking and problem-solving in educational programs to foster innovation and adaptability.*	R&D and open innovation *Focuses on the investment in research and development to create new products and services, and the adoption of an open innovation approach to incorporate external ideas and paths to market.* Government incentives *Pertains to leveraging governmental programs, such as tax breaks, grants, and subsidies that support innovation activities within enterprises.* Interdisciplinary collaboration *Encourages collaboration across different fields and departments to bring various perspectives to problem-solving and innovation.*	Market adaptability *Highlights the need for small and medium-sized enterprises to be agile and able to pivot in response to changing market conditions.* Digital transformation support *Refers to the process of integrating digital technology into all areas of a business, fundamentally changing how they operate and deliver value to customers.* Competitive advantage focus *Involves identifying and leveraging unique aspects of a business that give it an edge over competitors.*	Entrepreneurial ecosystem *Describes the network of entrepreneurs, investors, service providers, and other business stakeholders that support start-ups' growth and innovation.* Risk tolerance & learning *Refers to the capacity to engage in ventures that carry a certain degree of risk and the ability to learn from both successes and failures to drive innovation.* Access to funding & incubators *Involves that offer mentorship, resources, and networking opportunities.*
Challenges	Curriculum alignment with industry *Ensuring educational programs match the current needs and technologies of the industry.* Rapid tech evolution *Keeping up with the fast pace of technological advancements and integrating them into the curriculum.* Access to resources *Securing the necessary tools, technologies, and*	Bureaucratic processes *Navigating through complex administrative procedures that may hinder innovation efforts.* Innovation integration *Effectively incorporating new ideas and technologies into existing business models and practices.* Balancing profit & innovation *Finding the right investment balance between immediate profitability and long-term innovative growth.*	Resource constraints *Operating with limited financial, technological, and human resources.* Skilled talent access *Attracting and retaining employees with the necessary skills for innovation.* Regulatory navigation *Understanding and complying with relevant regulations and policies that impact innovation.*	Sustainable growth *Growing the business in a manner that is manageable and sustainable over the long term.* Market presence *Establishing a strong brand and customer base in competitive markets.* Regulatory & legal hurdles *Overcoming legal challenges and understanding*

	materials for effective learning.			*regulatory requirements.*
Practical Solutions	Real-world training partnerships *Collaborating with industries to provide students with hands-on experience.* Curriculum updates with emerging tech *Regularly refreshing educational content to include the latest technological developments.* Inclusivity in digital access *Ensuring all students have equal access to digital learning tools and resources.*	Cross-functional innovation teams *Creating teams from different departments to foster diverse ideas and solutions.* Employee training for innovation *Offering workshops and courses to enhance employees' innovative skills and thinking.* Idea management systems *Implementing systems to capture, evaluate, and implement innovative ideas from employees.*	Strategic alliances & partnerships *Forming collaborations with other businesses or institutions for mutual benefit in innovation.* Specialization in niche markets *Focusing on specific market segments where the business can offer unique value.* Government & EU program leverage *Utilizing financial and advisory support from government and European Union programs.*	Customer-centric product development *Designing products or services with a strong focus on customer needs and feedback.* Agile & lean methodologies *Adopting flexible and efficient approaches to business operations and product development.* Strong pitch for investor engagement *Crafting compelling narratives to attract and secure funding.*
Skills Required to Foster Innovation	Technical & industry skills *Mastery of current technologies and understanding of industry practices.* Adaptability & continuous learning *Ability to adjust to new information and continually update one's knowledge base.* Creative problem-solving *Developing innovative solutions to challenges through creativity and critical thinking.*	Leadership for innovation *Guiding and motivating teams toward innovative outcomes.* Cross-functional collaboration *Working effectively across different areas of expertise within the organization.* Technological literacy *Understanding and utilizing current technologies relevant to the business.*	Entrepreneurial mindset *Taking initiative, being resourceful, and willing to take calculated risks.* Networking & relationship-building *Establishing valuable connections with others in the industry.* Efficiency in resource use *Maximizing limited resources for optimal innovation outcomes.*	Business acumen & technical expertise *Understanding the market and possessing the technical skills relevant to the start-up's focus.* Flexibility & resilience *Being able to adapt to setbacks and persist through challenges.* *Effectively communicating ideas to potential investors to secure funding.*

WHAT WORKS FOR WHO?

The argument for the universality of innovation methods lies in the concept that the core principles of innovation, such as customer focus, iterative development, and cross-functional collaboration, are universally applicable across organizations of all sizes and sectors (European Commission, Directorate-General for Research, and Innovation, 2023). However, the question of whether innovation methods should be adapted to the size of an organization or if any company, regardless of size and purpose, can use any method is complex and merits a nuanced discussion. The effectiveness of innovation methods is often contingent upon various factors, including organizational structure, culture, resources, and strategic objectives (ISO (2022); Harvard Business Review, December 2009):

Resource allocation

- Large enterprises often have substantial resources at their disposal, allowing them to invest in comprehensive innovation strategies like R&D departments, partnerships with research institutions, and extensive market research. These organizations can implement wide-ranging innovation methods, including both incremental and radical innovations (Enterprise Europe Network, 2022).
- Start-ups and SMEs, on the other hand, typically operate with limited resources. They may benefit more from lean and agile innovation methods, such as the Lean Start-up methodology or bootstrapping, that allow for rapid iteration based on customer feedback without significant upfront investment (Enterprise Europe Network (EEN), n.d.).

Organizational structure and culture

- Flexible vs. rigid structures: Start-ups often have more flexible organizational structures, which can easily adopt and benefit from methods like design thinking and open innovation (European Commission, Directorate-General for Research, and Innovation, 2023). In contrast, larger enterprises might need to navigate more complex bureaucratic processes, making it challenging to implement rapid innovation cycles without adapting these methods to fit their structured environments (Dickson, K. E., & Hadjimanolis, A.1998).
- Culture of innovation: A culture that encourages experimentation and tolerates failure is crucial for innovation. While start-ups naturally lean towards this culture, larger organizations might need to implement specific strategies, such as intra-organizational entrepreneurship, to foster such an environment (European Commission, 2023).

Strategic goals and market position

- Market leadership vs. disruption: Established companies may focus on innovation methods that reinforce their market position and focus on incremental improvements, whereas start-ups may lean towards disruptive innovation methods to carve out a niche for themselves (Global Entrepreneurship Monitor (GEM), 2021/2022).

Customization and scalability

- While the fundamental principles of methodologies like Lean Start-up, design thinking, and open innovation are broadly applicable, the specific tactics and implementation strategies can be customized to fit the organization's size, culture, and objectives, suggesting a blend of universality and adaptability (ISO, 2022).

Digital transformation and globalization

- In the age of digital transformation and globalization, the barriers to adopting various innovation methods are lowering. Digital tools and platforms enable even small companies to engage in open innovation, collaborate with global partners, and utilize idea management tools that were once the domain of larger entities.

Learning and adaptation

- Continuous learning and adaptation to market changes are essential for all organizations. Methods such as continuous professional development and fostering a culture of continuous learning are universally beneficial, emphasizing that while the scale of implementation may vary, the underlying principles have widespread relevance (European Commission, 2023).

METHODS USED TO INNOVATE

The following table introduces the various methods and processes organizations can employ to drive innovation within their operations. It serves as a comprehensive guide, showcasing a wide array of strategies ranging from open innovation and design thinking to lean start-up methodologies and agile development. Each method is accompanied by a brief description, highlighting its core principles and the specific context in which it is most effectively applied. This table provides a clear understanding of the diversity in innovation practices, illustrating how different approaches can be tailored to meet the unique challenges and opportunities faced by organizations in their pursuit of growth and sustainability:

Category	Methods identified
Collaboration & External Partnerships	**Cross-functional Collaboration**: Involves various departments like HR, Finance, IT, Marketing, and Sales working together to contribute diverse perspectives to the innovation process. **Open Innovation**: A strategy that encourages companies to collaborate with external entities such as customers, suppliers, and even competitors to source new ideas. **Open Innovation Model:** The practice of seeking expertise and solutions from outside the organization to enhance internal innovation efforts. **Collaborative networks involving universities and research Institutes:** Partnerships that enable knowledge sharing and joint research and development efforts.
Methodologies & Approaches	**Design Thinking:** An approach that centers on understanding user needs and rapidly prototyping solutions, focusing on customer experience and practical utility. **Lean Start-up methodology:** Advocates for developing products or services iteratively and efficiently based on customer feedback to meet market needs promptly. **Sustainable Design in Business:** Integrates eco-friendly practices and solutions into the innovation process, aligning product development with sustainability goals. **Inventive Methods:** the organization uses an appropriately designed reward system to encourage certain behaviours in employees. The components of the system are pay, bonuses and allowances. **Market pull**, i.e. the development of innovations in response to customer demand. Solutions created with user involvement are referred to as user-driven innovations
Tools & Events	**Idea Management Tools:** Digital platforms used for managing, developing, and evaluating ideas contributed by employees, fostering a democratic and inclusive innovation process. **Hackathons:** Time-bound events where individuals collaborate intensively to solve specific problems or develop new ideas, often focusing on technology and innovation.
Standards & Frameworks	**ISO Standards for Innovation Management** (e.g., ISO 56000 series): These provide a set of guidelines and principles for establishing a systematic innovation management system within organizations.

Incentives & Rewards	**Reward Systems:** Utilized by organizations to incentivize innovative behaviour among employees through monetary and non-monetary rewards. **Financial and Promotional Incentives:** Measures that support companies involved in developing innovative technologies or business models.
Organizational Culture	**Intra-organizational Entrepreneurship:** Encourages employees within a company to develop new products or activities, akin to internal entrepreneurs. **Culture of Continuous Learning and Adaptation:** Encouraging an organizational mindset that is open to new ideas and continuous improvement. **Corporate Culture of Innovation:** Developing an organizational culture that values and supports innovative thinking and practices.
Professional Development	**Continuous Professional Development:** Ongoing education and training for managers to stay abreast of the latest trends and skills in their areas of expertise.
Digital & Technological Initiatives	**Digital Transformation and Cybersecurity Initiatives:** The adoption of digital technologies to enhance operational efficiency and innovation capacity.
Regulation & Legal Frameworks	**Technology Transfer Process Regulation:** Legal frameworks designed to facilitate the transfer of technology from research to market application.

BEST PRACTISES / SUCCESS STORIES IN EUROPE

Europe's innovation scene is a collection of stories, each telling their own journey, challenges, and smart strategies to overcome them. Highlighting the success stories of those who have made significant strides is vital, yet it's equally crucial to bear in mind that these accomplishments are just one facet of the entire journey. From Cyprus to Sweden, Finland to Bulgaria, Austria to Poland, and France, these narratives are united by a common dedication to pushing the boundaries of what's possible. Their triumphs are not just commercial but cultural, as they have shaped and been shaped by the unique business environments of their respective European homes.

KIOS Research and Innovation Center of Excellence (Cyprus)

Founders: The University of Cyprus, Professor George Michaelides, Research and Innovation Foundation of Cyprus and Imperial College London

The KIOS Research and Innovation Center of Excellence (KIOS CoE), situated at the University of Cyprus, stands as a prime example of innovative management strategies and best practices. Established in collaboration with Imperial College London, KIOS CoE emerged from the Teaming Horizon 2020 Project, marking a significant stride in creating advanced research facilities. These facilities are equipped with cutting-edge tools for experimental evaluation, testing, prototyping, and intelligent technologies geared towards emergency response, focusing on the critical areas of infrastructure security, monitoring, and control.

KIOS CoE represents an exemplary model of how collaboration among state agencies, businesses, and academic institutions can drive innovation forward. By leveraging its technological expertise and disseminating knowledge in digital technologies, KIOS CoE aims to propel Cyprus into the digital age, benefiting both the commercial and public sectors. This initiative, which is co-financed by the European Commission and the Cyprus Deputy Ministry of Research, Innovation, and Digital Policy, showcases the efficacy of a strong public-private partnership model. Through seamless integration of research, technology, and collaborative efforts, KIOS CoE is at the forefront of fostering innovation within Cyprus. (KIOS Research and Innovation Center of Excellence, University of Cyprus).

Truecaller (Sweden)

Founders: Nami Zarringhalam and Alan Mamedi

The success story of Truecaller, a Swedish start-up, exemplifies innovation and global reach. Co-founded by Alan Mamedi and Nami Zarringhalam, Truecaller has transformed the way phone numbers are found and spam calls are blocked. With its largest market in India, the app boasts 350 million users worldwide. Backed by notable investors and valued at over $1.15 Billion 2024, Truecaller's journey reflects Sweden's thriving tech scene, which includes globally successful companies like Spotify and Skype. The Swedish environment, characterized by small domestic markets and a supportive government fostering tech growth, underpins this success. Truecaller's story is a testament to Sweden's capacity to produce innovative tech giants with a global impact from start.

Sweden's environment has played a crucial role in the success of companies like Truecaller. Sweden offers a small domestic market that necessitates a global perspective for start-ups, encouraging them to expand internationally early on, which Truecaller is an example of. Additionally, Sweden's robust infrastructure, government support in tech, and a collaborative culture have fostered a thriving tech ecosystem. This nurturing environment allows start-ups to experiment and innovate, when Truecaller started the innovation ecosystem in Stockholm was booming.

Rovio Angry Bird (Finland)

Founders: Mikael Hed, Niklas Hed and Jarmo Valkama

Rovio Entertainment, known for Angry Birds, exemplifies innovation management in Finland. They transformed from a small start-up to a global brand by fostering an innovative culture, embracing user-centric design, iterative development, and a cross-platform strategy. Despite challenges like market saturation and the risks of brand extension, Rovio achieved global recognition and financial success, expanding into merchandise and entertainment. Their adaptability, understanding of market trends, and culture of innovation highlight key elements of successful innovative management. Rovio focused on creating games that were easy to play, visually appealing, and highly engaging. This user-centric approach was fundamental to their design philosophy. Before the success of Angry Birds, Rovio developed many other games, learning from each experience. This iterative process was key to refining their skills and understanding of the market.

Scalefocus (Bulgaria)

Founders: Viktor Bilyanski and Ivan Ivanov

Scalefocus is a software company that delivers agile solutions, with over 500 projects for 300+ clients worldwide, including Fortune 500 firms. They foster an open innovation culture, involving clients in the development process to explore multiple solutions and actively engage in decision-making. With innovations across internal processes, customer challenges, and new products, Scalefocus has won multiple awards, including the Innovative Company of the Year at Forbes Business Awards and the Grand Stevie® Award for healthcare technology. Their products like SoundVision and ViruSafe have been recognized for their societal impact. They are also creating a demo area for innovations at their headquarters. Krasimir Kostadinov emphasizes the importance of early market validation for innovations to ensure they are not only technologically brilliant but also socially impactful.

Runtastic (Austria)

Founder: Florian Gschwandtner, Christian Kaar, René Giretzlehner & Alfred Luger

Runtastic, an Austrian health and fitness app company founded in 2009, has seen significant growth with 182 million registrations and 341 million downloads. To handle the need for efficient SaaS negotiations and favorable terms, Runtastic partnered with Sastrify, reducing negotiation time from three months to three weeks and saving resources. Facing the challenge of a growing product line and the need to stay current in digital trends, the founders implemented App Store Optimization (ASO), boosting their app store rankings. To manage rapid growth and improve their offerings, Runtastic was sold to Adidas Group for €220 million in 2015, enabling future

expansion while retaining its independence and founding team. The co-founders' strategies for innovation included partnerships, embracing new methodologies like ASO, and restructuring through acquisition by Adidas Group.

iYoni (Poland)

Founders: Katarzyna Goch and Krzysztof Lukaszuk

iYoni is a groundbreaking Polish app that supports reproductive health using advanced technology, medicine, and AI. It aids couples in conceiving and provides women with trusted information about health, sex, and childbirth. With only 104 specialized doctors in Poland and a lack of gynecological facilities, iYoni is a critical tool given that 66% of women find online reproductive health information unsatisfactory. It boasts 91% accuracy in predicting fertility by analyzing data from 260,000 menstrual cycles and evaluates hormonal and semen tests, making diagnosis and treatment of infertility more efficient. The app also emphasizes data security, offers personalized advice, and has been developed by ITgenerator in six months. With the goal of integrating into health programs for fertility support, iYoni has been installed by over 130,000 users across 176 countries and has a 4.7/5 rating. It's changing the landscape of medical care for fertility and is available in 13 languages on app stores.

Ubisoft (France)

Founders: Yves Guillemot, Claude Guillemot, Michel Guillemot, Gérard Guillemot and Christian Guillemot (five brothers)

Ubisoft, a leading French video game company, is recognized for its innovative management and best practices. The company, known for franchises like Assassin's Creed and Far Cry, has a decentralized structure that promotes creativity across its global studios. Ubisoft's Innovation Lab explores technological and social trends, engaging with external partners to infuse innovation within the group. Despite challenges in the dynamic gaming industry, Ubisoft prioritizes player engagement and feedback to enhance its games. The company's success is marked by a diverse, commercially successful portfolio and a reputation for advancing the gaming industry through innovative storytelling and gameplay.

The success stories of European organizations is driven by a blend of factors that include fostering a culture of innovation, creativity, and continuous learning, allowing them to adapt to market and technological changes swiftly. They focus on enhancing user experience through intuitive designs, engaging content, and effective solutions, ensuring their offerings resonate with their audience. Strategic collaborations and embracing agile methodologies, like iterative development, enable rapid adaptation to user feedback and market shifts. Utilizing data analytics for decision-making, as demonstrated by iYoni's fertility predictions, these companies achieve more precise outcomes and efficient problem-solving. Government support and visionary leadership further fuel their growth and innovation, turning challenges into opportunities for differentiation and societal impact.

INNOVATION MANAGEMENT: MOVING A STEP FORWARD

In an era of relentless change, mastering innovation management and adapting to new frameworks is crucial for organizational success. The rapidly evolving technological landscape, alongside shifts in economic models and global challenges, highlights the need for structured innovation strategies. In this direction, ISO56000 emphasizes essential skills such as strategic foresight and adaptability, crucial for organizations aiming to influence their industries' futures. Still, despite recognizing the importance of skill development, a significant knowledge gap remains around innovation management's value, particularly within European Vocational Enterprises (EVEs) like VET providers, SMEs, and start-ups.

The present Whitepaper seeks to bridge this cognitive gap, aligning skills with global economic needs and outlining innovation management best practices. It presents a comprehensive narrative on innovation management, specifically focusing on the "Know-Why" aspect of the innovation process by elucidating the underlying reasons and motivations behind adopting innovation management practices. By exploring the theoretical underpinnings and

strategic importance of innovation management, this work sets the foundation for a deeper understanding of the actionable steps and tools (i.e., Know-How) that organizations require to successfully navigate this transition. This will further ensure that organizations are not only cognizant of the theoretical importance of innovation management but are also proficient in applying this knowledge practically, thereby facilitating a seamless integration of innovative practices into their management paradigms and operational processes.

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