Navigating the Skills Revolution: The Essential Role of Competence Frameworks

Panos Fitsilis[1]

1 University of Thessaly

Abstract

This opinion paper delves into the significance of competence frameworks in contemporary education and professional development. It posits that these frameworks are crucial in delineating the requisite skills, knowledge, behaviors, and attributes for effective performance in diverse roles, particularly within the context of Education 4.0. The paper emphasizes that competence frameworks are not just descriptive tools but foundational elements that align individual capabilities with strategic organizational goals. They play a pivotal role in talent development by guiding personal and professional growth and aiding in the standardization of skills across industries. Furthermore, the adaptability of these frameworks ensures workforce agility in rapidly changing business environments. The strategic value of competence frameworks in competency-based education systems is highlighted, suggesting that they can be disassembled and reassembled to meet various needs. The paper explores potential research avenues in curriculum design and pedagogical approaches, emphasizing the shift from mere knowledge transmission to creating skill and attitude-developing experiences.

Panos Fitsilis

University of Thessaly

(fitsilis@uth.gr)

Introduction

According to Le Deist & Winterton (2005) a competences framework is 'a descriptive tool that identifies the skills, knowledge, personal characteristics, and behaviors needed to effectively perform a role in the organization and help the business meet its strategic objectives. According to Miranda et al. (2021), competencies and therefore competence frameworks, particularly within the framework of Education 4.0, can be effectively categorized into two distinct groups. The first group encompasses Cross-Functional Competencies, which involve critical thinking, teamwork, collaboration, communication, and creativity. These skills are pivotal for students' comprehensive development, enabling them to address complex challenges and collaborate effectively. The second group, Subject-Specific Competencies, focuses on the acquisition and enhancement of specialized knowledge and technical skills. This includes the development of research and design abilities, the application of new technologies, and the integration of the latest best practices in technical solutions, ensuring students are proficient in both theory and practical application within their disciplines.

Therefore, competence frameworks are structured tools that define the essential skills, knowledge, behaviors, and attributes required for effective performance in various roles or professions. These frameworks serve to delineate the specific competencies expected of individuals, encompassing both technical skills relevant to a particular field and softer skills like leadership and communication. Their primary function is to align individual capabilities with the strategic goals and objectives of an organization, ensuring that the workforce's skills are directly contributing to the organization's success. They also provide clear benchmarks for performance evaluation, enabling organizations to identify skill gaps and areas for targeted improvement (Sultana, 2009).

In the realm of talent development, competence frameworks play a pivotal role. They offer employees a clear guide for personal and professional development, highlighting areas for skill enhancement and career progression (Bacigalupo, 2022). Organizations utilize these frameworks to design focused training programs and professional development initiatives, ensuring that learning efforts are aligned with both individual career goals and organizational needs. This alignment is crucial for maintaining quality and efficiency in professional practices, and it also aids in the standardization of skills across an organization or industry. This standardization is vital for consistent performance and quality assurance in professional outputs (Dai, 2023).

Moreover, competence frameworks are dynamic and adaptable, capable of evolving with changing business environments, new technologies, and market trends. This adaptability ensures that the workforce remains agile and equipped with relevant skills. Additionally, by setting clear expectations and development pathways, these frameworks

significantly enhance employee engagement and retention. Employees who understand their role's expectations and growth opportunities within an organization are more likely to be motivated and committed. In summary, competence frameworks are integral to aligning workforce capabilities with organizational strategies, fostering effective talent development, and ensuring a dynamic and engaged workforce (Dai, 2023).

In the world of professional development, a body of knowledge (BoK) serves as a comprehensive collection of essential information, while a competence framework outlines the specific skills and behaviors required for proficiency. A BoK provides the foundational knowledge, while a competence framework focuses on the practical application of skills to deliver value. Together, they form a synergistic duo that supports skill development, performance evaluation, and organizational effectiveness (Fitsilis & Kokkinaki; 2021; PMI, 2018).

In this opinion paper, the strategic value of competence frameworks within the current competency-based education system is emphasized. The article suggests that these frameworks can be disassembled into their core elements and reassembled in various combinations to address diverse needs and contexts. This flexibility enables innovative customization, making it easier to communicate, compare, and integrate competencies. The paper further explores potential research avenues, including curriculum design, pedagogical approaches for fostering diverse competencies, and the recognition of competencies gained in informal settings, thereby shifting the educational focus from mere knowledge transmission to creating experiences that develop skills and attitudes applicable beyond formal education.

Defining the Essence of Competence Frameworks

Competence frameworks are essential tools in the landscape of organizational development and talent management. At their core, they are structured models that define the specific skills, knowledge, behaviors, and attributes necessary for effective performance in various roles within an organization. Their primary role is to align individual capabilities with the strategic goals and objectives of the organization, thus ensuring that the workforce's competencies are directly contributing to the organization's success. By clearly delineating expected competencies, these frameworks serve as a guide for both the organization and its employees, facilitating talent development and enhancing overall performance (Sultana, 2009; Dai, 2023).

The development of competence frameworks, as detailed in the study by Midhat Ali et al. (2021), emphasizes a nine-layer model. This model systematically breaks down competencies into foundational, industry-related, and occupation-specific tiers, each with sub-layers that encapsulate the required skills, abilities, and knowledge for success in various occupations and industries. The framework's design is comprehensive and adaptable, allowing for minor modifications to cater to specific industry needs. It follows a bottom-up approach, integrating research, data analysis, and expert input, thereby providing a flexible yet structured path for competency development across diverse sectors. This model is presented in Figure 1.
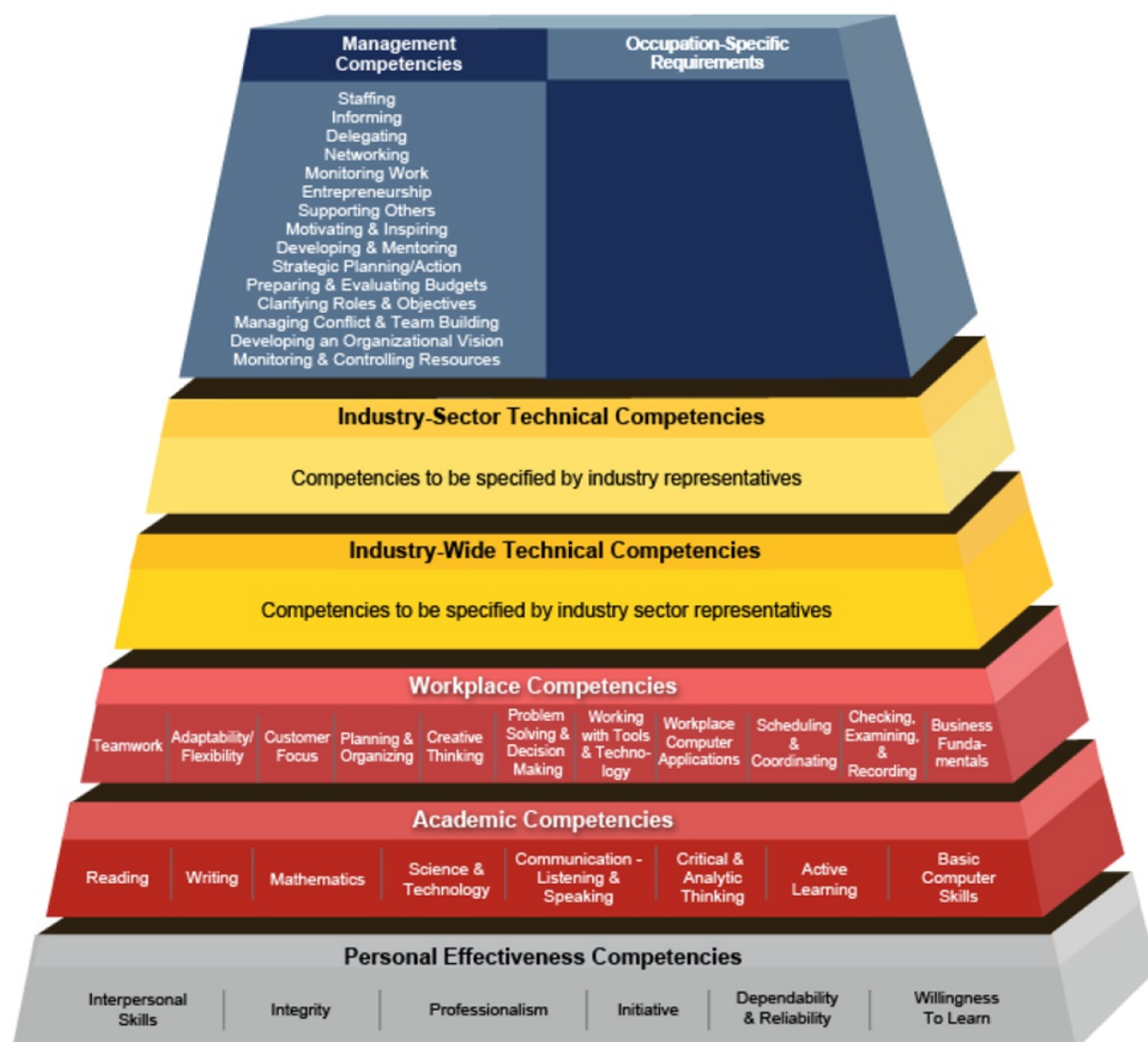
Figure 1. Nine-tier competency model by Employment and Training Administration, U.S. Department of Labor. Source. http://www.melvinhenry.org/generic-model.pdf; www.doleta.gov.

An effective competence framework typically comprises several key components (Bacigalupo, 2022; Midhat et al., 2021; batt et al., 2021; Sultan et al., 2020):

- Core Competencies: These are the essential skills and knowledge that are fundamental to performing the job effectively. They typically encompass technical skills, knowledge of industry standards and best practices, and the ability to apply theoretical concepts to practical situations (Trollor, 2017).

- Behavioral Indicators: These are observable actions, behaviors, and attitudes that demonstrate the application of core competencies. They provide clear guidelines for assessing proficiency and identifying areas for improvement.

- Levels of Proficiency: These are defined standards that indicate the level of mastery of each core competency and behavioral indicator. They allow for objective performance evaluation and the identification of individuals' readiness for progression or promotion.

- Performance Criteria: These are specific, measurable, and achievable objectives that align with the core competencies

and behavioral indicators. They provide a framework for setting performance expectations and evaluating progress.

- Learning and Development Resources: These are resources that support the acquisition and development of the competencies outlined in the framework. They may include training programs, instructional materials, mentorship opportunities, and professional development opportunities (OECD, 2021).

European competence Frameworks

In 2018, the Council of the European Union updated its Recommendation on Key Competences for Lifelong Learning, which outlines eight essential competences that individuals need to thrive in an ever-changing world (European Union. (2018). These competences, which are interrelated and mutually supportive, are:

1. Literacy competence: the ability to understand, use, and critically evaluate written texts.
2. Multilingual competence: the ability to communicate effectively in multiple languages.
3. Mathematical competence and competence in science, technology, and engineering: the ability to apply mathematical concepts and critical thinking skills in various contexts.
4. Digital competence: the ability to use digital technologies effectively and critically.
5. Personal, Social, and Learning to Learn competence: the ability to manage oneself effectively, build relationships, and learn throughout life.
6. Citizenship competence: the ability to participate actively and responsibly in society.
7. Entrepreneurship competence: the ability to identify and seize opportunities to develop and manage innovative ventures.
8. Cultural awareness and expression competence: the ability to appreciate and respect diverse cultures and express oneself creatively.

The Council's Recommendation emphasizes the interconnectedness of these competences, highlighting that they are not isolated domains but rather interrelated and mutually supportive. Skills such as critical thinking, problem-solving, teamwork, communication, analytical thinking, creativity, and intercultural understanding are embedded throughout the key competences, demonstrating their profound impact on personal and professional success.

Sure, here is a paragraph that introduces LifeComp, EntreComp, DigiComp, and DigiCompEdu with in-text references and APA references at the end:

To facilitate the development, assessment, and certification of the eight key competences, the European Commission has developed a suite of frameworks: LifeCompe, EntreComp, DigiComp, and DigiCompEdu. These frameworks provide a common language and a structured approach to measuring and developing the key competences. More specifically:

- LifeCompe is a framework for life-wide and lifelong learning that encompasses all eight key competences, emphasizing the importance of continuous learning and personal development. It provides a comprehensive overview of the skills and knowledge needed to succeed in an ever-changing world (European Commission, 2022c).

- EntreComp is a framework for entrepreneurship competence that focuses on the skills and mindsets needed to identify and seize opportunities, develop innovative ventures, and manage entrepreneurship ventures effectively (European Commission, 2022a).
- DigiComp is a framework for digital competence that outlines the knowledge, skills, and attitudes required to use digital technologies effectively and critically in various contexts. It covers areas such as information and communication technologies (ICT), digital literacy, digital safety, and digital citizenship (European Commission, 2022).
- DigiCompEdu is a framework for digital competence in education that provides guidance on how to integrate digital technologies into teaching and learning practices to enhance student learning outcomes. It covers areas such as digital literacy, digital pedagogy, and digital assessment (European Commission, 2022b).
- GreenComp is a competence framework developed to promote a transition towards a sustainable and climate-neutral society. The framework outlines the skills and knowledge that individuals need to make informed decisions about their environmental impact and contribute to sustainable practices. (European Commission, 2022d).

These frameworks are designed to be flexible and adaptable to different contexts and learning environments, making them valuable tools for educators, trainers, policy makers, and others involved in promoting lifelong learning and competence development. In the following subsection we present a short overview of each competence.

LifeComp: A Framework for Personal, Social and Learning to Learn

LifeComp, developed by the Joint Research Centre of the European Commission, is a competence framework focusing on personal, social, and learning-to-learn skills. It identifies nine competencies, each described through three descriptors. These competencies are vital for thriving in the 21st century and can be developed through formal, informal, and non-formal education. LifeComp is intended as a flexible, non-prescriptive tool for curriculum development and fostering personal and social development, as well as learning-to-learn skills.

The LifeCompe framework is a comprehensive tool that outlines the skills and knowledge individuals need to succeed in an ever-changing world. It encompasses nine key personal, social, and learning to learn competencies that are essential for lifelong learning and personal growth.

Personal Competencies

- Self-regulation: The ability to manage emotions, thoughts, and behavior effectively.
- Flexibility: The ability to adapt to change and new situations.
- Well-being: The ability to maintain physical, mental, and social health.

Social Competencies

- Empathy: The ability to understand and respond to the emotions of others.
- Communication: The ability to communicate effectively in different contexts.
- Collaboration: The ability to work effectively with others to achieve common goals.

Learning to Learn Competencies

- Growth mindset: The belief that one can learn and grow with effort.
- Critical thinking: The ability to analyze information and form reasoned conclusions.
- Managing learning: The ability to plan, organize, and evaluate one's own learning.

The LifeCompe framework can be used in a variety of ways, including: Self-assessment, organizations can use the framework to identify the competence needs of their employees and develop training and development programs to address those needs, policymakers can use the framework to inform education and training policies that support lifelong learning and competence development.
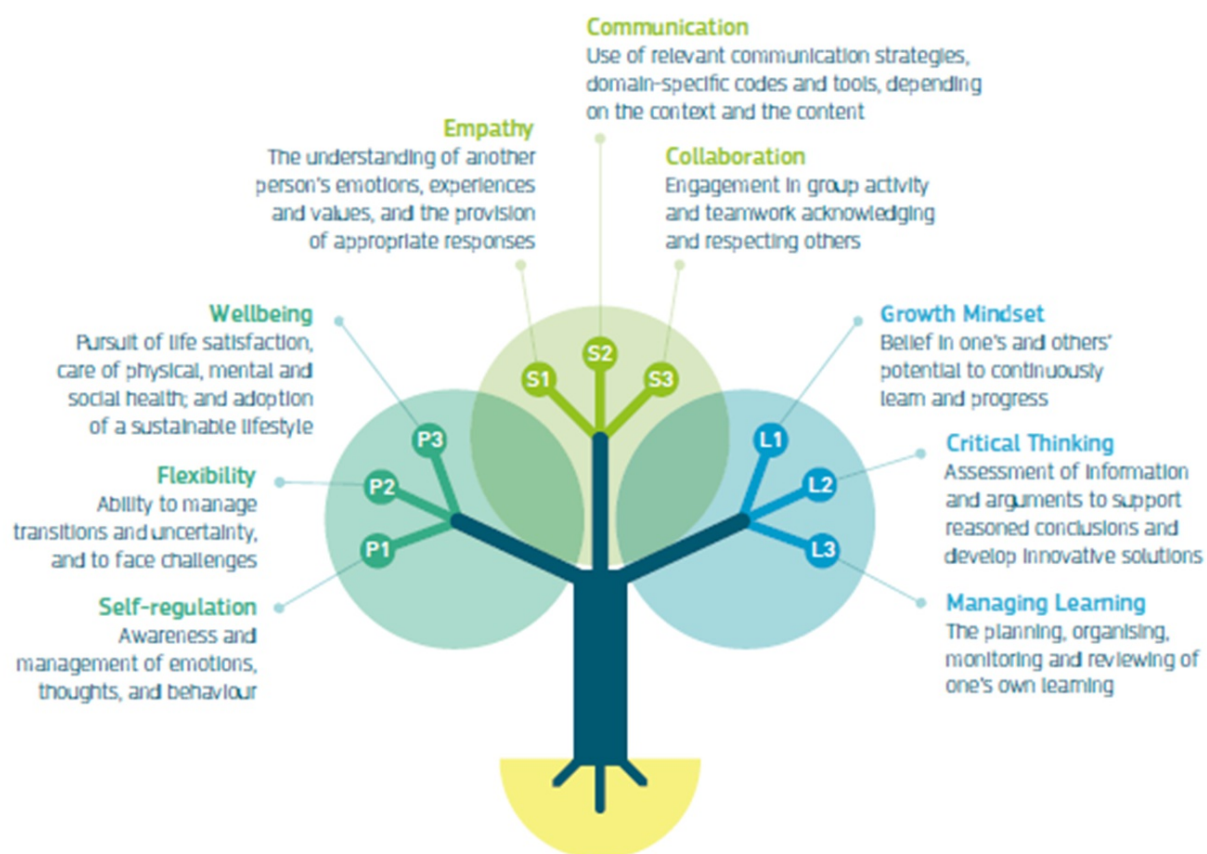

Figure 2. Lifecomp competence framework

EntreComp: The entrepreneurship competence framework

The EntreComp framework, developed by the European Commission's Joint Research Centre, plays a pivotal role in nurturing entrepreneurship skills and knowledge. It specifies the competencies essential for identifying and capitalizing on

opportunities, effectively managing innovative projects, and stimulating sustainable economic progress. Entrepreneurship is not only a key driver of economic growth and job creation but also a catalyst for innovation and personal fulfillment. It contributes significantly to societal well-being. In today's dynamic and ever-changing global landscape, entrepreneurship skills are increasingly crucial, empowering individuals to excel in various life stages and across multiple career trajectories, fostering adaptability and innovation in an increasingly complex world.

The EntreComp framework comprises fifteen competencies categorized into three key areas: 'Ideas and Opportunities', 'Resources', and 'Into Action'. Each area includes five competencies, which are the building blocks of entrepreneurship as a competence. More specifically:

- Ideas and Opportunities: This category in the EntreComp framework focuses on the competencies related to spotting, assessing, and creating opportunities. It includes being imaginative and creative, recognizing opportunities for personal, professional, or societal value, valuing ideas, and being able to identify needs and challenges. It also involves acting upon opportunities, which is about transforming ideas into action.
- Resources: The Resources competences group emphasizes competencies in effectively managing and utilizing available resources. It encompasses self-awareness and self-efficacy, mobilizing others, financial and economic literacy, mobilizing resources, and working in a team. These competencies are crucial for organizing the necessary resources and support for entrepreneurial activities.
- Into Action: The "Into Action" competencies are about actively implementing ideas into practice. They include planning and management, coping with uncertainty, ambiguity, and risk, working with others, learning through experience, and taking the initiative. These skills are essential for executing plans, managing projects, and adapting to changing circumstances in entrepreneurial endeavors.

The EntreComp Progression Model introduces the concept of progression in entrepreneurial learning, emphasizing development through action to create value. This progression comprises two aspects: increasing autonomy in creating value and enhancing the capacity to generate value from simple to complex environments. The model outlines four main levels - Foundation, Intermediate, Advanced, and Expert - each with sub-levels, reflecting a journey from creating value with external support to achieving transformative impact. This non-linear model highlights the expanding boundaries of entrepreneurial competences, allowing for a diverse range of impacts through value-creating endeavors.

Digicomp 2.2: Digital Competence Framework for Citizens

DigiComp, the Digital Competence Framework for Citizens, is a multifaceted initiative developed by the European Commission to delineate and elucidate the digital competencies indispensable for individuals in the digital era. It offers a structured approach to comprehending, evaluating, and augmenting digital proficiency (European Commission, 2022; Vuorikari, Kluzer, Punie, 2022).

At the heart of DigiComp lies the conceptualization of five foundational dimensions of digital competence:

1. Information and Data Literacy: This dimension encompasses the ability to employ digital tools, devices, and

applications to gather, process, and manage information effectively. It entails skills such as searching for, evaluating, and using digital information, as well as using digital communication tools for personal, social, and professional purposes.

2. Communication and Collaboration: This dimension highlights the ability to communicate and collaborate effectively in the digital realm. It entails skills such as utilizing appropriate communication channels, collaborating with others online, and participating in digital communities.

3. Digital Content Creation: This dimension focuses on the capacity to produce and share creative digital content. It encompasses skills such as creating presentations, composing text documents, editing images and videos, and designing interactive web pages.

4. Safety: This dimension underscores the ability to use digital technologies safely and securely. It entails skills such as protecting personal data, recognizing, and avoiding online risks, and making responsible digital choices.

5. Problem-Solving: This dimension emphasizes the ability to solve problems and think critically in the digital environment. It encompasses skills such as identifying and framing digital problems, evaluating online information, and analyzing digital content.

DigiComp further elaborates these dimensions into twenty-one competence areas, each comprising a set of specific skills and knowledge. These competence areas are organized into four levels of proficiency namely foundation, intermediate, advanced, and highly specialized.
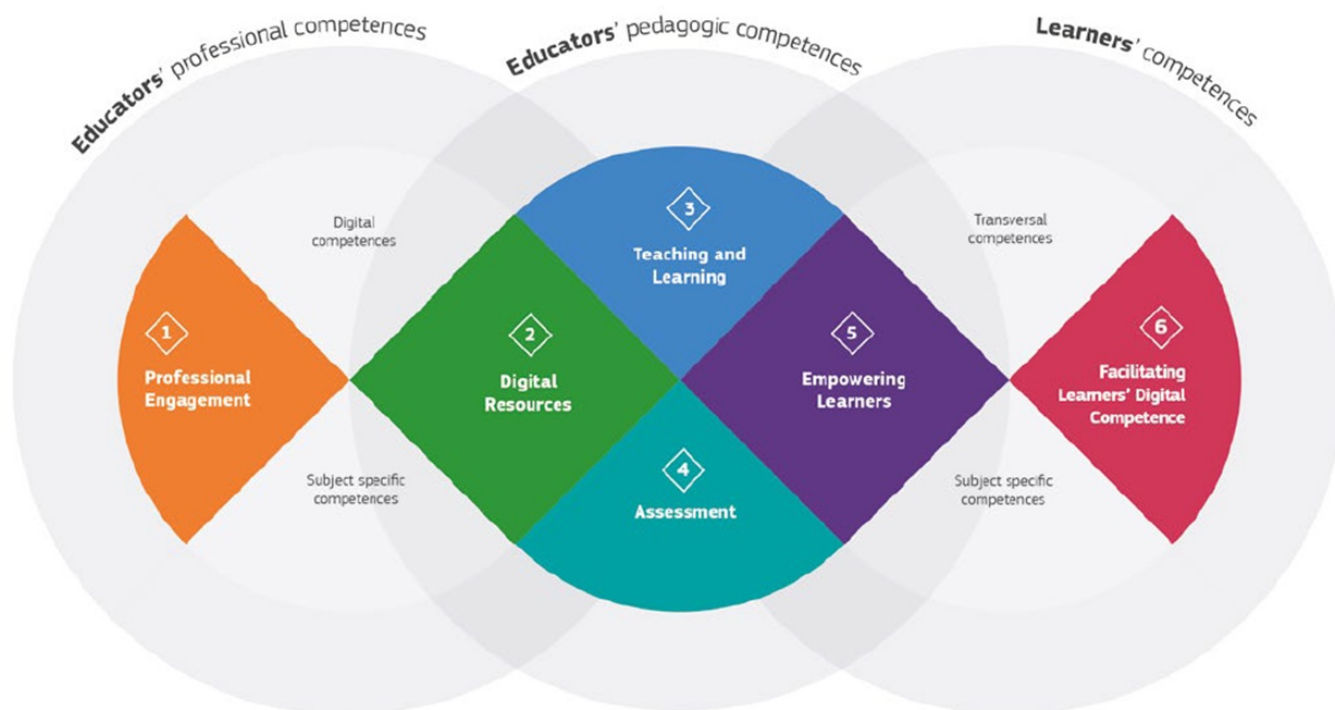

Figure 3. Digicomp competence framework.

Source. https://joint-research-centre.ec.europa.eu/digcomp/digcomp-framework_en

DigiCompEdu: Digital Competence Framework for Educators: DigiCompEdu

The European Framework for the Digital Competence of Educators (DigiCompEdu) is a comprehensive framework that defines and details the digital competences essential for educators in the digital age. It provides a structured approach to understanding, evaluating, and enhancing digital proficiency among educators. It addresses the growing need for educators to possess a broad and sophisticated set of digital skills, essential in a world where digital technology is ubiquitous.

The DigiCompEdu framework includes six areas of digital competence for educators, each containing several competencies. More specifically:

1. Professional Engagement: This area involves digital competencies for professional collaboration, reflective practice, and continuous development. It includes engaging in collaborative processes and networks, addressing digital transformation within the profession, and managing one's digital identity.

2. Digital Resources: Focuses on selecting, creating, and integrating digital resources. Educators learn to manage diverse types of digital resources, ensuring relevance, accessibility, and inclusivity, and also adapting them for specific learning scenarios.

3. Teaching and Learning: Involves designing and implementing digital teaching and learning strategies. This includes orchestrating the use of digital technologies and fostering learner-centered environments where digital tools enhance learning experiences.

4. Assessment: This area covers leveraging digital technologies for assessment purposes. It includes strategies for formative and summative assessment using digital tools, providing feedback, and understanding ethical considerations in digital assessment.

5. Empowering Learners: Focuses on using digital technologies for learner differentiation, support, and engagement. This includes recognizing and accommodating diverse learner needs and preferences using digital tools and fostering digital creativity and innovation among learners.

6. Facilitating Learners' Digital Competence: Educators learn to support learners in developing their own digital competence, covering safe, responsible, and effective use of digital technologies. This includes guiding learners on digital content creation, communication, and problem-solving.

Figure 4. DigiCompEdu competence framework. Source. https://joint-research-centre.ec.europa.eu/digcompedu_en

GreenComp: The European sustainability competence framework

GreenComp is a comprehensive and inclusive framework that aims to provide common ground for learners, educators, and policymakers to address the challenges and opportunities of sustainability. It is designed to support lifelong learning and empower individuals to make informed decisions and act for a sustainable future (European Commission, 2022d). Inevitably, GreenComp aligns with the European Green Deal's vision ((European Commission, 2020) of achieving a sustainable future by empowering individuals with the knowledge, skills, and attitudes necessary to contribute to a greener and more equitable world.

The framework is built around four core areas of competence:

- Embodying Sustainability Values: This area emphasizes the importance of personal values, equity, and respect for nature as the foundation for sustainable action. Learners are encouraged to reflect on their own values, identify the values of others, and critically evaluate how these values align with sustainability principles. They are also guided to promote equity and justice for current and future generations, learn from past generations, and acknowledge the interconnectedness of humans and nature.
- Embracing Complexity in Sustainability: This area delves into the complexity of sustainability challenges and equips learners to approach these challenges from multiple perspectives. It promotes systems thinking, which involves understanding the interactions among different elements within and between systems. Learners are also encouraged to engage in critical thinking, assessing information and arguments, identifying assumptions, and challenging the status quo. Problem-framing skills are also emphasized, enabling learners to formulate complex sustainability problems

effectively.

- Envisioning Sustainable Futures: This area fosters imagination and creativity in envisioning alternative sustainable futures. Learners are guided to develop scenarios for a preferred sustainable future, identify the steps needed to achieve that future, and develop strategies for managing transitions and adapting to challenges. They are encouraged to embrace adaptability, making decisions in the face of uncertainty, ambiguity, and risk. Exploratory thinking is also promoted, encouraging learners to explore and connect different disciplines, using creativity and experimentation to develop innovative solutions.
- Acting for Sustainability: This area focuses on taking action to drive positive change. Learners are guided to navigate political systems, identify political responsibility for unsustainable behavior, and demand effective policies for sustainability. They are also encouraged to engage in collective action, working collaboratively with others to achieve shared goals. Individual initiative is also emphasized, empowering learners to identify their own potential for sustainability and actively contribute to improving prospects for the community and the planet.

GreenComp recognizes that sustainability is a complex and multifaceted concept that requires a range of skills and knowledge. The framework provides a comprehensive approach to sustainability education, addressing not only the technical aspects but also the ethical, social, and political dimensions of sustainability challenges. It encourages learners to develop a deep understanding of their values, their place in the world, and their role in shaping a sustainable future.

The key role of competence frameworks in a Skills-Based World

Competence frameworks play a pivotal role in shaping the workforce and organizational success. These structured models define essential skills and behaviors for various roles, aligning them with strategic objectives. Their impact spans from enhancing individual career development to optimizing organizational performance. A number of key arguments are underscoring their essential role:

- Standardization and Consistency: Competence frameworks ensure uniformity in skill and knowledge expectations across an organization or industry, promoting consistency in performance and quality (Lester, 2014).
- Professional Development: They provide clear pathways for employee growth and development, helping individuals identify skill gaps and areas for improvement.
- Alignment with Organizational Goals: Competence frameworks align employee skills and behaviors with organizational objectives, ensuring that workforce capabilities contribute to achieving business goals (Mulder, 2017).
- Adaptability and Future Readiness: They enable organizations to keep pace with industry changes by continually updating the required competencies, ensuring the workforce is adaptable and prepared for future challenges (Marope, Griffin & Gallagher, 2017).

Rapidly evolving job markets and technological advancements are placing immense pressure on education and training systems to adapt and provide learners with the skills they need to succeed. Competence frameworks play a crucial role in this process by providing a clear and concise outline of the competencies required for specific occupations or industries.

This information can then be used to inform curriculum design, assessment, and professional development programs, ensuring that learners are equipped with the skills they need to navigate the changing world of work. They provide a structured, measurable approach to identifying, developing, and assessing the skills and knowledge required in various contexts, making them integral to several key areas:

- **Integration with New Professions:** As industries evolve and new professions emerge, competence frameworks guide the development of relevant training programs, ensuring that the workforce is prepared for future challenges. They map essential competencies to these novel roles, fostering a workforce that is adaptable and skilled in cutting-edge areas. More specifically,

  - Mapping Competences to Emerging Roles: As new professions emerge, especially in fields like technology, healthcare, and sustainability, competence frameworks need to be updated to include skills and knowledge relevant to these new roles.
  - Guiding Training and Development: Competence frameworks can guide the development of training programs and courses that are tailored to the specific requirements of new professions.

- **Personalized Learning:** In education, competence frameworks enable the creation of personalized learning pathways. They allow for the assessment of individual learners' strengths and weaknesses, tailoring education to their specific needs. This bespoke approach ensures more effective and engaging learning experiences, catering to diverse learning styles and objectives. More specifically,

  - Tailoring Learning Pathways: Competence frameworks can be used to create personalized learning pathways for individuals. By assessing a learner's current competencies, educators can design a learning plan that addresses specific gaps or strengths.
  - Adaptive Learning Environments: In digital learning environments, competence frameworks can be integrated with adaptive learning technologies to provide resources and activities suited to the learner's unique needs and progress.

- **Recognition of Prior Learning (RPL)**: In direct relationship with the need for personalized learning, competence frameworks are crucial in recognizing and valuing skills and knowledge acquired outside formal education. By providing a benchmark for existing competencies, these frameworks facilitate the identification of areas for further development, ensuring that individuals receive credit for their experiential learning and can build upon it effectively.

  - Assessing Existing Competencies: Competence frameworks are crucial in RPL as they provide a structured way to evaluate the skills and knowledge an individual has gained through previous experiences, such as work or informal learning.
  - Bridging Gaps: Once prior competencies are recognized, frameworks can help identify areas where the individual may need further development to meet current professional standards.

- **Curriculum Design:** In curriculum development, competence frameworks ensure that educational programs are aligned with the required professional skills and knowledge. They are pivotal in shifting towards outcome-based education, focusing on equipping students with competencies that are relevant and demanded in the real world.

- Basis for Curriculum Development: Competence frameworks serve as a foundational element in designing curricula for educational programs. They ensure that the curriculum aligns with the skills and knowledge required in specific fields or professions.
- Outcome-Based Education: Using competence frameworks, educational institutions can shift towards outcome-based education, focusing on what students are expected to know and be able to do by the end of their studies.

- **Reskilling and Upskilling:** In today's fast-paced world, continuous learning is crucial. Competence frameworks play a key role in identifying skills gaps in the workforce and designing targeted training programs for reskilling and upskilling. This ensures that employees remain competitive and are equipped with the latest skills and knowledge pertinent to their fields.

  - Identifying Skills Gaps: Competence frameworks help in identifying the skills gaps in the workforce. This is particularly important in fast-evolving sectors where continuous learning is essential.
  - Designing Targeted Training Programs: For reskilling and upskilling initiatives, competence frameworks provide a guide for developing targeted training programs that address the specific needs of the workforce, ensuring that employees are equipped with relevant and current skills.

- **Microlearning and competence frameworks:** Combining competence frameworks with microlearning involves a strategic approach to skill development that is particularly effective in today's fast-paced, information-rich environments. Here are how these two concepts can be synergistically integrated:

  - Targeted Skill Development: Microlearning breaks down complex skills and knowledge into smaller, more manageable units. By aligning these units with specific competencies in a framework, learners can focus on acquiring precise skills in a targeted manner, ensuring efficient and relevant learning.
  - Aligning Microlearning Modules with Competences: Each microlearning module can be designed to address a particular element of a competence framework. This alignment ensures that even brief learning sessions contribute directly to the overall development of the desired competences.
  - Flexibility and Accessibility: Microlearning's flexible nature allows learners to engage with content at their own pace and in various settings. This flexibility is particularly useful for developing competencies that require ongoing reinforcement, such as soft skills or rapidly evolving technical skills.

The following table summarizes the importance of competence frameworks in the overall educational landscape.

Integration with New Professions	Mapping Competences to Emerging Roles
	Guiding Training and Development
Personalized Learning	Tailoring Learning Pathways
	Adaptive Learning Environments
Recognition of Prior Learning (RPL)	Assessing Existing Competencies
	Bridging Gaps
Curriculum Design	Basis for Curriculum Development
	Outcome-Based Education
Reskilling and Upskilling	Identifying Skills Gaps
	Designing Targeted Training Programs
Microlearning and competence frameworks	Targeted Skill Development
	Aligning Microlearning Modules with Competences
	Flexibility and Accessibility

Table 1. The role of competence frameworks in the educational landscape

Conclusion

In the ever-evolving world of work, competence frameworks serve as beacons of guidance, illuminating the skills and knowledge required for success in various occupations and industries. By defining and identifying essential competencies, fostering personalized learning approaches, promoting RPL, supporting reskilling and upskilling, and enhancing career guidance and counseling, competence frameworks empower individuals and organizations to navigate the ever-changing landscape of work. As we embrace competence frameworks, we pave the way for a more adaptable, resilient, and skilled workforce, ready to meet the demands of the future.

References

- Bacigalupo, M. (2022). Competence frameworks as orienteering tools. *RiiTE Revista Interuniversitaria de Investigación en Tecnología Educativa*, 20-33.
- Batt, A., Williams, B., Rich, J., & Tavares, W. (2021). A six-step model for developing competency frameworks in the healthcare professions. *Frontiers in medicine*, *8*, 2601.
- Dai, D. Y. (2023). Conceptual Frameworks Guiding Research on Talent Development. In*Talent Development from the*

Perspective of Developmental Science: A Guide to Use-Inspired Research on Human Excellence (pp. 37-55). Cham: Springer International Publishing.

- European Commission, Joint Research Centre (2022d), GreenComp, the European sustainability competence framework, Publications Office of the European Union, 2022, https://data.europa.eu/doi/10.2760/13286

- European Commission. (2020). A European Green Deal. Retrieved fromhttps://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en

- European Commission. (2022a). EntreComp entrepreneurship competence framework. Retrieved fromhttps://joint-research-centre.ec.europa.eu/entrecomp-entrepreneurship-competence-framework_en

- European Commission. (2022b). Digital competence framework for educators: DigiCompEdu. Luxembourg: Publications Office of the European Union. Retrieved from https://joint-research-centre.ec.europa.eu/digcompedu_en

- European Commission. (2022c). Lifelong learning competence framework: LifeCompe. Luxembourg: Publications Office of the European Union. Retrieved from https://joint-research-centre.ec.europa.eu/lifecomp_en

- European Commission. Joint Research Centre (2022). Digital competence framework for citizens: DigiComp. Retrieved from https://joint-research-centre.ec.europa.eu/digcomp_en

- European Union. (2018). Recommendation on key competences for lifelong learning [2018/C 189/01]. Official Journal of the European Union, C 189. Retrieved from https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604 (01

- Fitsilis, P., & Kokkinaki, A. (2021, November). Smart cities body of knowledge. In*Proceedings of the 25th Pan-Hellenic Conference on Informatics* (pp. 155-159).

- Le Deist, F. D., & Winterton, J. (2005). What is competence?*Human resource development international*, *8*(1), 27-46.

- Lester, S. (2014). Professional competence standards and frameworks in the United Kingdom. Assessment & Evaluation in Higher Education, 39(1), 38-52.

- Marope, M., Griffin, P., & Gallagher, C. (2017). Future competences and the future of curriculum. Retrieved from International Bureau of Education website: http://www.ibe.unesco.org/en/news/document-future-competences-and-future-curriculum

- Midhat A., M., Qureshi, S. M., Memon, M. S., Mari, S. I., & Ramzan, M. B. (2021). Competency framework development for effective human resource management. *SAGE open*, *11*(2), 21582440211006124.

- Miranda, J., Navarrete, C., Noguez, J., Molina-Espinosa, J. M., Ramírez-Montoya, M. S., Navarro-Tuch, S. A., Bustamante-Bello M., Rosas-Fernández J.B. & Molina, A. (2021). The core components of education 4.0 in higher education: Three case studies in engineering education. *Computers & Electrical Engineering*, *93*, 107278.

- Mulder, M. (2017). Competence and the Alignment of Education and Work. Competence-based Vocational and Professional Education: Bridging the Worlds of Work and Education, 229-251.

- PMI. (2018). Developing project management competency and a participative-empowering culture Retrieved January 6, 2024, from Project Management Institute website: https://www.pmi.org/learning/library/developing-competency-participative-empowering-culture-7412

- Punie, Y., editor(s), Redecker, C., European Framework for the Digital Competence of Educators: DigCompEdu. (2017). EUR 28775 EN. Publications Office of the European Union. Luxembourg. doi:10.2760/178382

- Säävälä, T. (2008). Key competencies for lifelong learning—A European framework. *A toolkit for the European citizen. The implementation of key competencies. Challenges and opportunities*, 17-30.

- Sultan, S., Morgan, R. L., Murad, M. H., Falck-Ytter, Y., Dahm, P., Schünemann, H. J., & Mustafa, R. A. (2020). A theoretical framework and competency-based approach to training in guideline development. *Journal of general internal medicine*, *35*, 561-567.

- Sultana, R. G. (2009). Competence and competence frameworks in career guidance: complex and contested concepts. *International Journal for Educational and Vocational Guidance*, *9*, 15-30.

- Trollor, J. N., Eagleson, C., Weise, J., & McKay, R. (2017). Development and dissemination of a core competency framework. *The Journal of Mental Health Training, Education and Practice*, *12*(4), 237-248.

- Vuorikari, R., Kluzer, S., Punie, Y. (2022), DigComp 2.2, The Digital Competence framework for citizens – With new examples of knowledge, skills and attitudes, Publications Office of the European Union. https://data.europa.eu/doi/10.2760/115376