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CHANGING THE EDUCATIONAL PARADIGM IN THE DIGITIZED FINANCIAL WORLD

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ЗМІНА ОСВІТНЬОЇ ПАРАДИГМИ У ЦИФРОВІЗОВАНОМУ ФІНАНСОВОМУ СВІТІ

The article addresses the critical challenge faced by traditional higher education institutions (HEIs) in preparing graduates for the rapidly evolving digitized financial world, heavily influenced by FinTech innovations. It proposes the integration of micro-credentials and digital badges as a strategic mechanism to bridge the growing skills gap between conventional finance education and the dynamic demands of the modern financial labor market. The core idea is to shift from a rigid, degree-focused paradigm to a more agile, modular, and practically oriented learning ecosystem.

The research employs a comprehensive analysis of recent scholarly publications and reports, examining the limitations of traditional finance education, the rise and impact of FinTech, and the emerging role of micro-credentials and digital badges globally. It systematizes key in-demand FinTech skills identified from employer requirements and leading HEI offerings. The authors compare and contrast micro-credentials with traditional degrees across various aspects, including duration, focus, flexibility, and market responsiveness. Based on this analysis, a strategic mechanism for integrating micro-credentials and digital badges into HEI programs is proposed, detailing stages such as curriculum mapping, industry co-design, learning pathway integration, and continuous improvement. The novelty of this article lies in its systematic proposal of a comprehensive, multi-stage mechanism for the strategic integration of micro-credentials and digital badges within traditional HEIs to specifically address the FinTech-driven transformation of the financial world. Unlike general calls for educational reform, this article provides a structured framework that considers governance, curriculum modularization, industry co-design, and continuous monitoring, offering a practical roadmap for institutions to enhance the competitiveness and labor market relevance of their financial education programs.

The article offers practical value for HEIs, policymakers, and industry stakeholders. For HEIs, it provides a clear pathway to modernize finance education, attract and retain students, and improve graduate employability in a highly competitive job market. For employers, it suggests a standardized and

verifiable means of identifying candidates with precise, in-demand FinTech skills. By fostering lifelong learning through modular, stackable credentials, the proposed mechanism equips individuals with the necessary agility to continuously adapt and thrive in the dynamically evolving digitized financial landscape, thereby contributing to a more skilled and adaptable workforce.

У статті розглядається проблема, з якою стикаються традиційні заклади вищої освіти при підготовці випускників до оцифрованого фінансового світу, на який суттєво впливають інновації FinTech. Авторами пропонується інтеграція мікро кваліфікацій і цифрових бейджів як стратегічний механізм для подолання зростаючого розриву в навичках між традиційною фінансовою освітою та динамічними вимогами сучасного фінансового ринку. Основна ідея полягає в переході від жорсткої парадигми, орієнтованої на певний рівень освіти, до більш гнучкої, модульної та практично орієнтованої навчальної екосистеми.

У дослідженні використовується всебічний аналіз останніх наукових публікацій і звітів, досліджуються обмеження традиційної фінансової освіти, розвиток і вплив фінансових технологій, а також зростаюча роль мікро кваліфікацій і цифрових бейджів у всьому світі. Він систематизує ключові затребувані навички FinTech, визначені на основі вимог роботодавця та провідних пропозицій ЗВО. Автори порівнюють механізми набуття мікро-кваліфікацій з традиційними рівнями вищої освіти за різними аспектами, включаючи тривалість, фокус, гнучкість і реагування на ринок. На основі цього аналізу пропонується стратегічний механізм для інтеграції мікро-кваліфікацій та цифрових бейджів у програми ЗВО із детальним описом етапів реалізації. Новизна статті полягає в її систематичній пропозиції всеосяжного, багатоетапного механізму стратегічної інтеграції мікро кваліфікацій і цифрових бейджів у традиційні ЗВО для адекватної адаптації до трансформації фінансового світу, спричиненої FinTech. Стаття містить структурований механізм, який розглядає управління,

модульність навчальної програми, спільне проектування мікро кваліфікацій та постійний моніторинг, пропонуючи практичну дорожню карту для ЗВО щодо підвищення конкурентоспроможності та актуальності своїх програм фінансової освіти на ринку праці.

Стаття має практичну цінність для ЗВО, політиків та зацікавлених сторін галузі. Для ЗВО забезпечено чіткий алгоритм модернізації фінансової освіти, залучення й утримання студентів, а також покращення працевлаштування випускників на висококонкурентному ринку праці. Для роботодавців запропоновано стандартизовані та перевірені засоби пошуку кандидатів із точними, затребуваними навичками FinTech. Стимулюючи навчання протягом усього життя за допомогою мікро кредитів та цифрових бейджів, запропонований механізм надає людям необхідну гнучкість для постійної адаптації в цифровому фінансовому середовищі, що динамічно розвивається, тим самим сприяючи формуванню більш кваліфікованої та адаптивної робочої сили.

Keywords: *micro-credential, digital badge, higher education, digital skills, financial literacy, competencies, digital finance.*

Ключові слова: *мікрокваліфікація, цифровий бейдж, вища освіта, цифрові навички, фінансова грамотність, компетенції, цифрові фінанси.*

Statement of the problem in general terms and its connection with important scientific or practical tasks. The global financial landscape is undergoing an unprecedented transformation, largely driven by the relentless march of digitalization and the burgeoning rise of FinTech. The rapid digitalization of the financial world, characterized by fintech innovations, blockchain, AI-driven finance, and evolving regulatory environments, has outpaced traditional educational models. This shift is fundamentally reshaping how financial services are delivered, consumed, and regulated, demanding a new breed of professionals equipped with agile, interdisciplinary skills that transcend traditional financial

competencies. The prevailing educational paradigm, particularly within Higher Education Institutions (HEIs) in the field of financial education, faces a significant challenge in adequately preparing graduates for this rapidly evolving environment. Classical finance education, often rigid and degree-focused, struggles to adapt to the agile, skill-specific demands of the modern financial sector.

FinTech, encompassing innovations in areas such as blockchain, artificial intelligence (AI), machine learning (ML), big data analytics, peer-to-peer lending, and mobile banking, has disrupted conventional financial models and created a dynamic ecosystem that prioritizes technological proficiency alongside financial acumen. This rapid growth necessitates a workforce that is not only conversant with foundational financial principles but also adept at leveraging cutting-edge technologies, understanding data-driven decision-making, navigating regulatory complexities of digital finance, and adapting to continuous innovation.

Traditional HEI curricula, often characterized by their comprehensive yet rigid structures and slower adaptation cycles, struggle to keep pace with the exponential rate of change in the FinTech sector. This inertia risks creating a widening skills gap between the education offered and the demands of the modern financial industry. Graduates may find themselves entering the workforce with outdated knowledge or lacking the specific, in-demand technical and analytical skills required by employers operating at the forefront of financial innovation.

In response to this critical challenge, the implementation of flexible, targeted educational solutions has emerged as a promising avenue. Specifically, microcredentials and digital badges represent a significant opportunity for traditional HEIs to bridge this gap. These modular, verifiable certifications focus on specific skills or competencies, offering a nimble alternative or complement to traditional degree programs. Digital badges, as visual representations of these achievements, provide tangible and easily shareable proof of skill acquisition. Their integration into financial education within HEIs could enable students and professionals to acquire highly relevant, up-to-date skills in areas like data privacy, cybersecurity in finance, algorithmic trading, blockchain applications, or AI in risk

management, without necessitating a complete overhaul of existing degree structures.

The problem, therefore, lies in how traditional HEIs can strategically adapt their established educational paradigms to effectively integrate and leverage agile learning mechanisms like microcredentials and digital badges. This integration is crucial to ensure that financial education remains relevant, responsive, and capable of producing graduates who are not merely observers of the digitized financial world but active, skilled contributors to its ongoing evolution. The challenge involves developing robust frameworks for curriculum design, assessment, and accreditation of these new learning pathways, while maintaining the academic rigor and breadth of knowledge traditionally associated with higher education.

Analysis of recent research and publications. The digitalization of finance is significantly transforming the educational paradigm within the field of finance, necessitating a shift in teaching methodologies and curriculum design. This transformation is driven by the integration of advanced technologies and the need for financial professionals to possess digital competencies. The COVID-19 pandemic accelerated the shift towards online learning, prompting higher education institutions (HEIs) to adopt flexible, competency-based, and personalized learning approaches. This shift aims to meet the evolving demands of the digital economy and the need for continuous upskilling [1].

According to the EU Approach to Micro-credentials report [2], the demand for short learning courses, their recognition and validation are likely to increase further as a means to achieve a sustainable recovery from the COVID-19 crisis. M. Bajac and M. Fišer emphasize the need for an educational paradigm shift due to digital transformation, suggesting that similar principles may apply to finance education through active learning and blended approaches [3]. Also it is crucial to underline that digitalization in finance and FinTech development necessitates a restructuring of the education system to develop new professional skills. It requires training specialists who can adapt to rapidly changing conditions, ensuring they acquire and utilize knowledge effectively in a knowledge-based economy. It

requires continuous learning and adaptation, shifting educational paradigms towards real-time, customized training. Technologies like Digital Adoption Platforms (DAP) enable tailored instruction, empowering employees to effectively utilize modern tools and enhancing their skills in a rapidly evolving financial landscape [4]

Financial education now incorporates online learning alongside traditional classroom methods, enhancing accessibility and engagement [5]. Digitalization in finance is transforming the educational paradigm by integrating classroom learning with online methods, enhancing financial resilience, and necessitating a shift in teaching staff training to meet the demands of modern technologies in financial education.

Courses like "Finance 4.0" focus on emerging technologies such as AI, blockchain, and big data, equipping students with essential skills in AI, blockchain, and mobile payments, enhancing their adaptability and problem-solving abilities in a rapidly evolving financial landscape [6].

Moreover, it should be mentioned that educators also face challenges in adapting curricula to meet the evolving demands of the digital economy, requiring a focus on critical thinking and problem-solving skills, developing comprehensive analytical abilities and risk assessment skills, aligning with the demands of a technologically advanced society [7].

Institutions must address the digital skills gap fostering interactive learning and adapting to innovative financial products and services among students to ensure they are prepared for the modern job market, which increasingly relies on digital tools [8] This shift emphasizes the importance of digital literacy for further employability.

Some authors mention that reshaping education by emphasizing the need for digital and financial literacy, fostering innovative FinTech models, and necessitating a qualified workforce adept in technology is crucial for the effective interplay between education, digitalization, and financial development highlights, where the necessity for joint policies that foster digital skills in emerging

economies should guiding educational policies to enhance skills relevant to the evolving financial landscape [9]

Conversely, while digitalization offers numerous benefits, it also raises concerns about the potential for widening educational disparities, particularly in regions with limited access to technology. This duality underscores the importance of equitable digital education initiatives.

Formulation of the article's goals (task statement). The goal of the presented research is to substantiate the mechanism for integrating the micro credential approach in teaching FinTech and digital finance as a tool for increasing the competitiveness of traditional financial education and meeting the requirements of the labor market for practically oriented alumni.

In order to achieve the settled goal it is necessary to investigate the limitations of traditional finance education in the context of digital transformation, to explore how micro-credentials and digital badges can supplement or enhance classical learning in finance, to propose hybrid models that merge academic rigor with industry-aligned, digitally-delivered learning, and to assess the benefits and risks associated with such educational transformation.

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Traditional education systems, by their very nature, operate on longer cycles for curriculum development, faculty training, and resource allocation. This inherent difference in pace creates a widening, structural gap between the immediate and evolving skill demands of the industry and the capabilities of graduating students. The necessity for agile financial education therefore transcends mere curriculum updates; it demands a fundamental re-evaluation of the speed, modularity, and responsiveness of educational delivery to align with the

industry's rapid innovation cycle. This implies that traditional degrees, in isolation, will increasingly prove insufficient without continuous, agile supplementation.

Micro-credentials are concisely defined as short programs or courses that offer a targeted, focused approach to learning a specific skill, focusing on a narrow set of learning outcomes. They are typically achievable over a much shorter period than traditional programs [10]. Crucially, they are designed to provide practical, in-demand skills that can be applied immediately in the workplace or specific professional contexts [11]. These credentials serve to certify that an individual has gained specific skills, knowledge, or competencies in a particular area [11] and can be offered by a diverse range of providers, including commercial entities, private providers, and traditional education institutions [10]. Their growing prominence is a direct consequence of a constantly changing job market, where there is an urgent need for individuals to continuously enhance and extend the "shelf life" of their skills to meet evolving economic demands [12].

It should be mentioned that the global digital badges market was valued at \$226 million in 2024 and is projected to reach \$966 million by 2033, growing at a CAGR of 17.5% during 2025–2033. [13]. Another report estimates the market to grow from \$0.2 billion in 2023 to \$0.5 billion by 2028, at a CAGR of 16.5%. [14]

The clear link between the growing demand for micro-credentials and the "constantly changing job market" and the need for "practical, in-demand skills" suggests that micro-credentials are not merely an academic experiment. Instead, they represent a direct, market-driven innovation born out of a palpable skills gap. Their emergence signifies a perceived inadequacy of traditional, longer-form education to adequately serve the immediate and rapidly evolving needs of the workforce. This dynamic places significant pressure on traditional institutions to either proactively adopt and integrate these solutions or risk a decline in their relevance and competitiveness.

Table 1. Key In-Demand FinTech Skills and Their Relevance

Category	Specific Skill	Relevance/Application in FinTech
Technical Proficiency	AI/Machine Learning	Used for credit modeling, investment, insurance, trading automation, and streamlining customer service options
	Blockchain Technology	Underpins cryptocurrencies, digital payments, and asset tokenization, addressing slow settlement times and high intermediary costs
	Data Analysis	Essential for understanding market trends, customer behavior, and building predictive models
	Cybersecurity	Critical for protecting sensitive financial information and systems from cyber-attacks and fraud in technology-reliant services
	Digital Literacy	Fundamental for navigating and leveraging technology-based financial solutions
	Programming	Enables the development and implementation of FinTech applications and infrastructure
Analytical Acumen	Problem-Solving	Crucial for addressing complex challenges in a rapidly evolving technological and regulatory environment
Business Understanding	Business Acumen	Necessary for understanding market dynamics, strategic partnerships, and identifying growth opportunities in FinTech
Interpersonal & Cognitive Skills	Storytelling	Important for effectively communicating complex financial data and insights to diverse stakeholders
	Emotional Intelligence	Key for navigating human interactions in a technology-driven landscape and fostering client trust
	Communication	Essential for collaboration within interdisciplinary teams and with industry partners
	Leadership	Required for guiding teams through digital transformation and innovation initiatives
	Critical Thinking	Vital for evaluating new technologies, assessing risks, and making informed decisions in a complex environment

Source: systematized by the authors based on the [17-19].

A global Coursera survey found that 76% of employers are more likely to hire candidates who possess industry-recognized micro-credentials [15]. However, a

report by the Aspen Institute indicates that many employers struggle with the lack of standardization in digital badges, making it challenging to assess their value.

According to a 2023 HolonIQ survey, 13% of institutions describe their adoption of micro-credentials as 'mature', up from 7% in 2021. The same survey notes that 88% of respondents agree that alternative and micro-credentialing is an important strategy for their institution's future [16].

Major corporations like Google, IBM, and Meta have launched micro-credential programs targeting digital roles, including those in finance. These programs have attracted nearly 7 million enrollments globally [15].

The generalization of employer requirements and offers from leading higher education institutions in financial education allowed us to formulate key in-demand FinTech skills and their relevance in FinTech.

Traditional degree programs typically span multiple years and often cover broad academic content, making them inherently slow to adapt to new technologies that evolve at a pace far exceeding most established curricula. Consequently, course content in traditional programs can become outdated rapidly, making it challenging to provide students with truly cutting-edge knowledge and skills relevant to current industry demands.

A significant barrier lies in the difficulty universities face in recruiting and retaining faculty who possess the necessary dual expertise in both finance and technology, an interdisciplinary requirement for effective FinTech education.

The traditional academic term model, with its fixed schedules and comprehensive course loads, is inherently less efficient and responsive compared to a more personalized, competency-based learning model that allows for tailored and agile skill acquisition.

The core problem identified is not merely what is being taught, but the fundamental structure of traditional higher education. The multi-year degree cycles, formalized admissions processes, and broad, often prescribed curricula are intrinsically slow and rigid when contrasted with the rapid, iterative, and constantly innovating nature of the FinTech industry. This inherent structural

inflexibility means that even with dedicated efforts, traditional institutions are perpetually in a reactive state, leading to a persistent "curriculum lag". This implies that a fundamental re-engineering of educational delivery models, rather than just incremental content updates, is an absolute necessity for traditional education to maintain relevance and competitiveness in dynamic sectors.

Micro-credentials have emerged as a strategic response to these changes, offering modular and targeted learning opportunities that align with industry needs. They enable learners to acquire specific skills pertinent to the digitalized financial world, such as data analytics, blockchain technologies, and cybersecurity, and serve as verifiable indicators of specific competencies acquired by learners. They provide a transparent and standardized method for recognizing and communicating skills to employers, thereby enhancing employability [20]

The European Qualifications Framework (EQF) and initiatives like the European Skills, Competences, and Occupations (ESCO) classification have been instrumental in aligning micro-credentials with recognized qualification standards. This alignment ensures that the skills acquired through micro-credentials are relevant and transferable across different sectors and countries [21].

A major obstacle to effective FinTech education is the pervasive lack of faculty expertise in this highly interdisciplinary field, which demands proficiency in both finance and technology. Specifically, traditional finance faculty may lack the requisite technical skills, while computer science faculty may not possess a deep understanding of core financial principles, creating a critical knowledge gap. Furthermore, there are limited opportunities for existing faculty to upskill or gain practical, hands-on experience in FinTech, hindering their ability to teach cutting-edge topics effectively.

Developing and maintaining robust FinTech programs necessitates substantial investment in advanced technology, specialized infrastructure (such as dedicated labs, cloud computing resources, and data analytics platforms), and strategic industry partnerships. These requirements are often severely hindered by budget limitations faced by many Higher Education Institutions (HEIs).

Beyond the challenges of curriculum design and financial investment, the analysis reveals a critical human capital bottleneck. Universities face systemic difficulties in attracting, adequately training, and retaining faculty who possess the necessary dual expertise in both finance and technology. This challenge extends beyond mere financial resources; it pertains to the fundamental human capacity within academia to teach and conduct research effectively in a rapidly evolving, interdisciplinary domain. This suggests that even if sufficient funding were readily available, the pipeline for qualified FinTech educators remains constrained, further exacerbating the curriculum lag and making rapid, comprehensive adaptation exceedingly difficult. This points towards an urgent need for leveraging external partnerships and exploring alternative teaching models, such as incorporating industry experts to deliver specialized micro-credentials, to effectively overcome this critical human capital limitation.

According to the conducted analysis it is necessary to clarify the difference between micro-credentials and traditional degrees (Table 2).

Considering the possible approaches for integration of microcredentials and digital badges into traditional bachelor and master programs there are some alternatives that usually used by the HEI: BLM - Blended Learning Models, combining traditional in-person instruction with online modules that award micro-credentials for specific skills (e.g., blockchain applications, AI in finance, compliance automation); Modular Curriculum Design restructuring degree programs with including elective modules or specializations that culminate in digital badges, enabling learners to customize their paths while maintaining core academic integrity. But most viable forms of integration are stackable credential pathways, where students accumulate micro-credentials over time that can be "stacked" into larger certifications or count toward formal degree credits, and industry-academic partnerships, created in collaboration with FinTech companies and other employers through joint development of micro-courses and issuing jointly branded digital badges, ensuring that content remains relevant and industry-certified.

Table 2. Micro-credentials vs. Traditional Degrees

Aspect	Micro-credential	Traditional Degree
Duration	A few weeks to a few months	2-4 years (undergraduate) 1-2 years (graduate)
Focus/Scope of Learning	Very specific skills, knowledge, or competency; targeted and job-ready	Broad knowledge across multiple subjects; theoretical learning
Flexibility	Highly flexible, modular, often online; allows quick shifts into new sectors	Rigid, structured approaches to learning; less adaptable
Admissions Process	Typically no formal admissions process	Formal admissions process required
Credential Awarded	Digital badge, specific certification, nanodegree, micro-master	Diploma or academic degree
Market Responsiveness	Rapidly responsive to market changes; content reflects current industry practices	Slower to adapt to market changes; curriculum lag common
Employability Impact	High for specific, in-demand roles; provides tangible evidence of competency	General employability; foundational knowledge; may require further practical training
Primary Goal	Immediate job readiness, upskilling, reskilling for specific professional contexts	Comprehensive academic foundation, critical thinking, broad intellectual development

Source: systematized by the authors based on the [11, 12, 19, 22, 23]

The development of stackable credential models is crucial, as they enable continuous upskilling while simultaneously maintaining career flexibility for professionals. For instance, a FinTech micro-credential program can be designed to be seamlessly integrated into existing graduate programs or offered as standalone, direct enrollment courses, making them accessible to both traditional and non-traditional students. The consistent emphasis on "integrating" and "stacking" micro-credentials signifies a profound and necessary "modularization" of higher education. Instead of a monolithic, fixed degree, education is evolving into a collection of interconnected, verifiable, and adaptable modules. This

fundamental shift allows institutions to offer significantly more flexible learning pathways, cater effectively to a diverse range of learner needs (including traditional students, working professionals, and career changers), and, critically, rapidly update or introduce specific modules without having to undertake a complete overhaul of entire degree programs. This modular approach is paramount to achieving the agility and responsiveness required to keep pace with the relentless innovation in the FinTech sector.

Joint learning programs with employers in the form of industry-academic partnerships in digital finance (co-designed courses, internships with academic credit, or employer-sponsored certifications) can significantly improve the relevance and applicability of hard skills gained at university. First of all, employers help co-create or validate course content to ensure that what students learn matches the tools, platforms, and processes currently used in industry. Universities can focus on emerging areas like algorithmic trading, digital payments, blockchain, RegTech, or data compliance—areas often missing from classical finance programs. That provides access to industry-standard tools and technologies, where students use real software, APIs, and databases rather than simulations or outdated tools (for example, a program with a neobank may provide the opportunity to the students to be trained on real-time risk analytics tools or customer behavior dashboards powered by AI and ML). This improves job readiness and reduces the learning curve in the first months of employment. Approving the curriculum the employers can issue verified digital badges for completing real-world projects or passing assessments relevant to their workflows. Students who complete employer-aligned programs send clearer signals to recruiters about their practical competencies and role readiness. It reduces friction in hiring and improves the employability of graduates. Also employers can update course modules in real-time as technology and regulations evolve, ensuring academic content doesn't become obsolete. This model supports continuous learning and skill relevance over time.

Despite listed benefits, significant challenges persist in standardizing accreditation frameworks for micro-credentials and ensuring their consistent employer recognition across various industries and geographies.

There is a notable lack of a unified understanding or common definition of micro-credentials across different countries and educational systems, leading to confusion and inconsistency. Many countries currently lack specific laws or clear guidelines pertaining to micro-credentials, which complicates efforts to effectively regulate their quality and ensure consistent standards [24].

Establishing robust, internationally recognized standards for the assessment and quality assurance of micro-credentials is therefore crucial to ensuring their credibility and perceived value within the higher education sector and the labor market.²⁰ Ensuring that these innovative educational opportunities are digitally accessible to all potential learners, regardless of their location or socioeconomic background, remains an important hurdle to overcome.

While micro-credentials offer immense benefits and flexibility, their rapid, often decentralized growth presents a significant governance challenge. The current lack of unified standards, consistent definitions, and robust regulatory frameworks creates confusion for students, employers, and educational providers alike, which could potentially undermine their overall credibility and widespread adoption. This implies that for micro-credentials to truly fulfill their transformative potential as a mainstream and trusted tool, there must be a concerted, collaborative effort from policymakers, accrediting bodies, and industry stakeholders to establish clear, verifiable quality assurance mechanisms and actively promote widespread recognition. Without such coordinated governance, the substantial benefits of micro-credentials could be diluted by a fragmented and potentially untrustworthy market.

Concluding the overall research the following mechanism for integration of microcredentials and digital badges into HEI's programs can be proposed (Fig. 1).

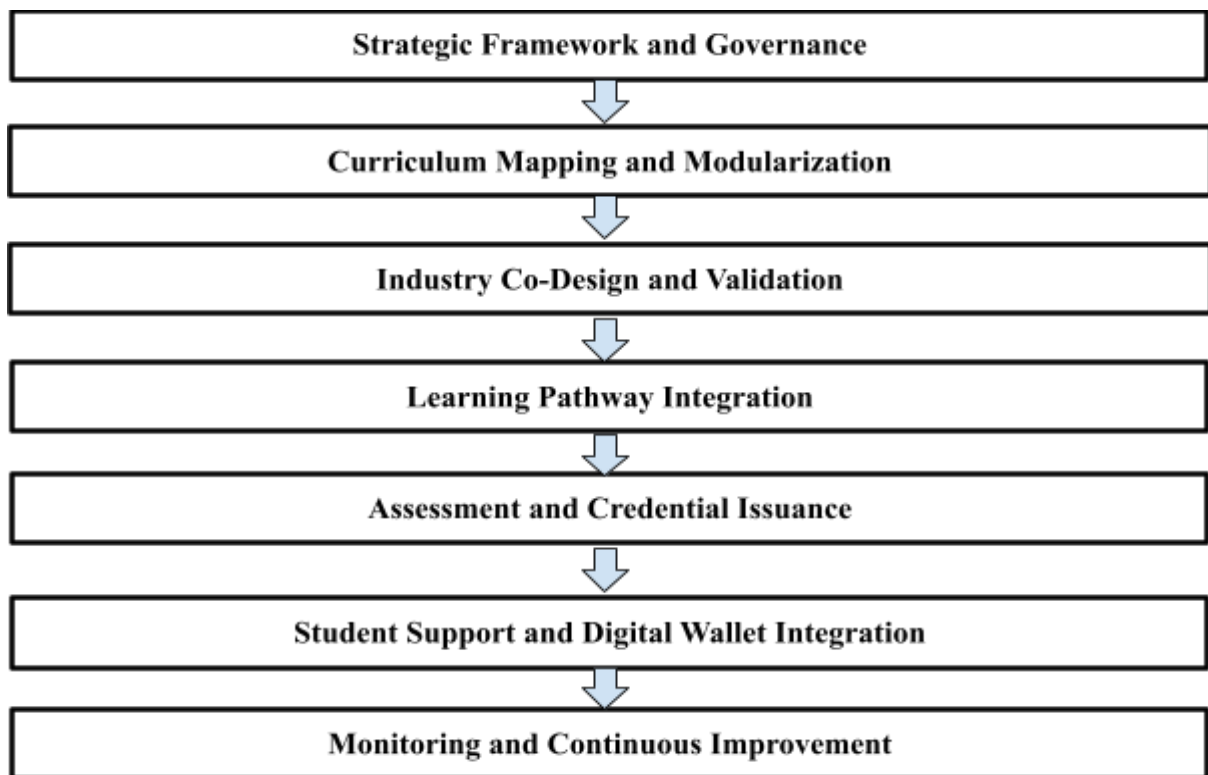


Fig. 1. Mechanism for integration of microcredentials and digital badges into HEI's programs

Strategic framework and governance should be targeted on establishing institutional commitment and defining the scope of integration by creating a micro-credential governance committee involving faculty, industry representatives, and digital learning experts who will define objectives of the process such as employability, industry alignment, and lifelong learning. Also the insurance of the alignment with national qualification frameworks is the responsibility of the micro-credential governance committee

The process of curriculum mapping and modularization align traditional academic content with market-relevant skills through deconstructing classical finance programs (e.g., Bachelor of Finance) into thematic modules (e.g., Risk Management, Blockchain for Finance, Behavioral finance), identifying the micro-credential opportunities within each module the required hard skill badges such as for example Python for financial modeling, Big Data analytics for stock market, etc. and soft skill badges such as agile teamwork in FinTech, design thinking in FinTech startups. And then the system where modular and stackable credentials

that can lead to degree credit (e.g., 3 badges = 1 elective credit) will be integrated should be created.

As it was mentioned earlier the industry co-design and validation should ensure micro-credentials are relevant and recognized by employers. This should be achieved through collaboration of the academic-industry advisory boards with fintech firms, banks, and regtech startups. The co-developed credentials should be characterized with clear learning outcomes, performance metrics, and real-world application projects as well as the platforms like Credly, Badgr, or Open Badge Factory to issue and manage credentials.

Providing students with flexible, personalized learning tracks should be provided by offering blended pathways, executive or lifelong learning path and cross-enrollment of micro-credentials into degree requirements. In order to validate skill acquisition with modern assessment methods it is crucial to use project-based assessments and industry-evaluated case studies, which should be harmonized with internal procedures and HEI ensuring transparency in rubrics and criteria for badge issuance and implementing automated badge issuance upon meeting criteria using blockchain or LMS integration.

Special attention should be paid to the student support by helping students manage and share their learning achievements by providing students with a digital wallet to store and share badges, using the open platforms such as EuroPass, LinkedIn, digital CVs, e-portfolios, etc. The students' support can be provided through the institution of mentoring and tutoring.

And, of course, the question of the monitoring and continuous improvement for maintaining quality and relevance over time by tracking employment outcomes, badge redemption rates, and employer feedback with usage of data analytics to revise course offerings, badge design, and assessment, providing permanent update of content to reflect new technologies and regulations in digital finance.

Conclusions and prospects for further exploration in this direction.

The creation and development of professionally oriented training in the field of financial technologies requires a high level of adaptability of methodological materials and constant updating of the content of the materials. Accordingly, the creation of classic courses, even when the syllabus and methodological content are formed at the beginning of the academic year, or even the semester, leads to training in many cases with "old" and irrelevant knowledge. In these conditions, the formation of training programs and specialized courses in the format of micro-qualifications with appropriate recognition of the results of informal education and the accumulation of digital badges is becoming an increasingly relevant tool for competition in the market of educational services and ensuring the competitiveness of graduates.

Micro-credentials actively promote the fundamental concept of lifelong learning, providing individuals with structured opportunities to continuously update and expand their skills and knowledge throughout their professional careers. They support a modular, ongoing approach to learning, allowing professionals to progressively assemble a customized and evolving toolkit of skills over time, adapting to changing professional demands. This adaptive mindset aligns perfectly with how modern careers are evolving—increasingly nonlinear, highly adaptive, and driven by an intrinsic curiosity for continuous growth and development.

The profound emphasis on "lifelong learning" and "continuous skill updating" signifies a fundamental shift in the very perception of education: from a one-time product (a terminal degree) to a continuous, ongoing service. In the dynamic FinTech era, where the shelf life of specific skills is demonstrably shorter, individuals must constantly engage in re-skilling and up-skilling. Micro-credentials facilitate this imperative by providing bite-sized, accessible, and highly relevant learning opportunities. This implies that educational institutions, to remain truly relevant and competitive, must strategically reposition themselves as

lifelong learning partners, offering continuous, modular educational services rather than solely focusing on the delivery of terminal degrees.

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