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A SWOT ANALYSIS OF DIGITAL FINANCIAL LITERACY IN THE EUROPEAN UNION

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The article aims to explore strengths and weaknesses alongside opportunities and threats affecting digital financial literacy in the European Union. For the aim, the article applies SWOT analysis. An analysis of theoretical and empirical studies on digital financial literacy in the European Union allows to indicate such strengths as high online banking adoption rates and strong existing policy frameworks. Availability of survey data on digital and financial literacy across Member States also represents a significant strength. Weaknesses could encompass digital skill gaps among specific demographics, and challenges related to measurement differences between data sources. Opportunities may arise through emerging financial technologies (fintech) that can encourage improvements in digital financial literacy, and the potential of recovery and resilience funding initiatives. Threats appear due to cybersecurity risks and the spread of misinformation, which can undermine trust in digital services. The SWOT analysis provides a structured overview of the internal and external factors influencing digital financial literacy in the European Union what could be useful for development of educational programs. Within the research, the primary problems of digitalization and financial literacy in the European Union, as well as possible solutions to such problems have been indicated. There are still notable differences in digital financial literacy among Member States. Age, gender, and income level are among main affecting factors. While digital literacy plays a foundational role, it must be accompanied by intentional, context-specific financial education. A significant progress has been made in enhancing digital access and promoting digital financial services. At the same time, a gap in digital financial literacy creates disparities across regions and demographics. Addressing this requires a renewed and integrated focus on financial education that is digitally fluent, culturally sensitive, data-based and reinforced with updates in policy-making.
Keywords: financial literacy, digital literacy, European Union, SWOT analysis, digital economy.

Digitālās finanšu pratības Eiropas Savienībā SVID analīze
Raksta mērķis ir izpētīt stiprās un vājās puses, kā arī iespējas un draudus, kas ietekmē digitālo finanšu pratību Eiropas Savienībā. Šim mērķim rakstā tiek izmantota SVID analīze. Teorētisko un empīrisko pētījumu par digitālo finanšu pratību Eiropas Savienībā analīze ļauj norādīt uz tādām stiprajām pusēm kā augsts tiešsaistes banku pakalpojumu izmantošanas līmenis un spēcīgs regulējums. Apsekojumu datu par digitālo un finanšu pratību pieejamība par visām dalībvalstīm arī ir ievērojamā priekšrocība. Savukārt, digitālo prāsmju trūkums starp noteiktām demogrāfiskām grupām un atšķirības starp dāžadu avotu mērījumiem norāda uz vājām pusēm. Iespējas var rasties pateicoties jauno finanšu tehnoloģiju (fintech) izmantošanai, kas var stiprināt pratību, kā arī no finanšu atbalsta instrumentu izmantošanas. Draudi ietver kiberdrošības riskus un dezinformācijas izplatīšanos, kas var mazināt uzticēšanos digitālajiem pakalpojumiem. Tādējādi SWOT analīze sniedz strukturētu pārskatu par iekšējiem un ārējiem faktoriem, kas ietekmē digitālo finanšu pratību Eiropas Savienībā. Šīs zināšanas varētu būt noderīgas izglītības programmu izstrādē. Pētījumā arī ir noteiktas galvenās digitalizācijas un finanšu pratības problēmas Eiropas Savienībā, kā arī šo problēmu iespējamie risinājumi. Joprojām pastāv ievērojamas atšķirības pēc digitālās finanšu pratības starp dalībvalstīm. Vecums, dzimums un ienākumu līmenis ir vieni no galvenajiem ietekmējošajiem faktoriem, kas veicina minētās atšķirības. Lai gan digitālajai pratībai ir nozīmīga loma, tā ir jāpapildina ar apzinātu un kontekstam pielāgotu finanšu izglītību. Eiropas Savienībā ir panākts ievērojams progress digitālās piekļuves uzlabošanā un digitālo finanšu pakalpojumu veicināšanā. Vienlaikus digitālās finanšu pratības plaisa rada nevienlīdzību starp reģioniem un demogrāfiskajām grupām. Lai risinātu šo problēmu, ir nepieciešama atjaunota un integrēta uzmanība finanšu izglītībai, kas ir vērsta uz digitālo iemaņu attīstību, ņem vērā kultūru atšķirības un jaunākas tendences, un kuras pamatā ir spēcīgs politikas ietvars un datos balstītas atziņas.
Atslēgas vārdi: finanšu pratība, digitālā pratība, Eiropas Savienība, SVID analīze, digitālā ekonomika.

Introduction

According to the World Economic Forum (2023), access to financial services has evolved better than financial literacy. Nowadays, financial literacy is not a choice but a necessity for engaging within a contemporary, global, and increasingly digital economy (OECD 2020). European Central Bank's (2024b) study demonstrates that consumers' non-cash payments have a tendency to increase. Moreover, innovation financial services (e.g., digital banking provision, algorithmically chosen investment options) requires digital financial literacy to bargain cyber exposures and to use new market opportunities. At the same time, digital access inequalities (Eurostat 2024a; Gomes, Dias 2025) negatively affect the use of digital financial services, especially in rural communities and for the elderly. According to Eurostat (2024b), in 2023, regions like Stockholm (Sweden), as well as Île-de-France (France) have significantly higher number of households with access to the internet at home than Calabria (Italy) as well as Severozapaden (Bulgaria). A quality of Internet connectivity and limited access to technological devices may hinder access to digital financial services (Weisman-Pitts 2024) similarly like an insufficient digital financial literacy level.

Financial capability is a combination of skills. The OECD (2020) states that it is an aggregation of awareness, knowledge, skills, and behavior in making informed economic decisions. Three elements increase the urgency of financial literacy in a digital European economy. First, access to online banking, digital payment systems, and robo-advisors increases (Statista 2025; European Central Bank 2024a; European Commission: Directorate-General for Research and Innovation 2018) and users must interact with complicated applications. Without digital financial literacy, users inadvertently mismanage their funds or even fall prey to scams. Second, new technologies can be riddled with dangerous cyber scams; thus, the need for understanding secure transaction procedures and data protection is even higher. For example, Nguyen et al. (2024) emphasize that digital literacy is significant for secure online behavior. Third, open access to financial services through apps and blockchain technology demands advanced knowledge to benefit from opportunities without falling prey to scam.

Within a Digital Finance Strategy (European Commission 2020), the European Union has placed great priority on promotion of digital finance and cybersecurity at financial markets. Additionally, an inclusive and safe financial service provision and improvements of financing possibilities are placed at the center through introducing the Payment Services Directive 2 (PSD2) (Directive (EU) 2015/2366) (EUR-Lex 2015) and the Capital Markets Union (CMU) (European Commission n/d), and the Anti-Money Laundering (AML) (Directive (EU) 2018/843) (EUR-Lex 2018). The success of all these policies also hinges on the financial literacy of individuals since finacially and digitally literate individulas are better able to use open banking, engage with capital markets, and take sound financial decisions.

World Economic Forum (2023) emphasizes that new channels and creative approaches are key for reaching wider audience when aiming for financial literacy improvements. On the other hand, increased digitization may improve financial literacy in Europe. This is grounded in the premise that availability of diverse digital tools, such as financial management apps, online banking platforms, and AI-driven educational tools, is helpful for enhancing individuals' awareness to manage their finances. For example, Ferilli et al. (2024) conclude that innovation in financial service contributes to decrease in digital financial divide.

In the European Union, financial literacy concept has expanded to encompass digital competencies as well. Modern requirements to financial literacy emphasize core competencies including knowledge, bahaviors, attitudes that ensure sound financial decisions, functional digital skills, critical evaluation of online financial content, and resilience in digital environments (OECD 2016; Directorate-General for Financial Stability, Financial Services and Capital Markets Union 2022).

The article aims to explore strengths and weaknesses alongside opportunities and threats affecting digital financial literacy in the European Union. Additionally, the problems of digitalization and financial literacy in the European Union, as well as possible solutions have been indicated. The European Union was chosen for research due to the high diversity in financial literacy and digitalization across countries and regions. It is noteworthy to indicate that need in financial literacy and digital skills increased during the Covid-19 pandemic (Cedefop 2021; Hamdan, Koch n/d).

SWOT analysis: research findings

A SWOT analysis is an important component of understanding peculiarities of digital financial literacy in the European Union. The SWOT framework allows for identifying strengths and weaknesses, as well as opportunities and threats, providing a structured approach to evaluating the current state and future potential of digital financial literacy across the European Union. The results provide a structured overview to contextualize quantitative findings and guide targeted interventions.

Table 1

Effects of digitalization on financial literacy in the European Union – SWOT analysis

Strengths	Weaknesses
High adoption of online banking, digital engagement	Persistent digital-skill gaps among vulnerable groups (e.g., seniors, low-income populations, rural residents)
Robust EU-level policy frameworks (e.g., Financial Competence Framework for Adults, Capital Markets Union Action Plan, Digital Education Action Plan)	Inconsistent implementation of financial education initiatives across Member States
Integration of behavioral nudges and micro-learning via apps in educational programs	Limited proficiency in specific digital financial competencies
Integration of digital financial literacy into formal education in some Member States	Low engagement in capital markets among financially illiterate populations, despite digital access
Rich, comparable survey data for benchmarking and policy alignment	Measurement differences across different data sources
Supportive legislative environment promoting innovation and financial transparency	Digital interface complexity and lack of support for users with limited tech fluency
Opportunities	Threats
Integration of digital financial literacy into national digital strategies including use of Recovery and Resilience Facility (RRF) funding possibilities	Increasing of cybersecurity risks, including phishing, malware, and online financial fraud
Use of emerging fintech tools (e.g., robo-advisors, digital budgeting platforms)	Misinformation online causing distrust in digital finance or leading to poor financial decisions
Gamified learning applications making financial education more engaging and accessible	Digital access and digital skills divide that may increase exclusion of vulnerable groups (elderly, low-educated, low-income)
Partnerships (e.g., public-private, Fintech-NGO) expand outreach and inclusion	Overreliance on automated decision-making tools (e.g., AI-driven loan approvals) without sufficient transparency
Increased personalization in financial education through AI, behavioral analytics, and adaptive content	Ethical concerns from algorithmic bias and data privacy breaches in digital financial platforms
Cross-sector collaboration enhances digital literacy activities	Risk of exclusion from financial services of users not fluent in both financial and digital competencies

Source: own elaboration using data from Bagul 2025.

Focusing on the strengths, following prominent aspects stand out: the high overall adoption of online banking, robust policy frameworks and the availability of rich, comparable survey data across the Member States. These strengths represent significant advantages that can be leveraged to advance digital financial literacy and inclusion throughout the Member States.

High overall rate of online banking adoption ensures digital landscape that promotes necessity and interest in digital financial literacy. The proliferation of online banking directly results from increased internet connectivity, the convenience offered by digital platforms for routine transactions, and regulatory support aimed at modernizing payment services. A high adoption rate means that a large proportion of the population is already engaging with digital financial tools, providing a fertile ground for integrating and delivering digital financial literacy initiatives. This widespread usage also suggests a degree of basic digital proficiency and a willingness to conduct financial activities online, which can be built upon to enhance more complex digital financial skills and knowledge.

The Financial Competence Framework for Adults, developed jointly by the European Commission and the OECD International Network on Financial Education (INFE) (European Union, OECD 2022), articulates a shared understanding of the knowledge, skills, attitudes, and behaviors essential for financial resilience in the digital age. The document explains inseparability of digital and financial skills in the modern financial environment. This framework serves as an important blueprint for the Member States to align their national strategies and educational programs, ensuring consistency in learning objectives across the European Union. Additionally, the Capital Markets Union Action Plan (European Commission n/d) aims to empower individuals through financial literacy to increase participation in savings and investment markets.

The second significant strength lies in the availability of diverse survey data that allow for comparisons across the Member States. Surveys such as the Eurobarometer financial literacy modules (European Commission 2023) and the OECD/INFE International Survey of Adult Financial Literacy (OECD 2023) are instrumental in providing detailed insights into the financial knowledge, behavior, and attitudes of individuals in the European Union. The comparability of data across the Member States is a particularly valuable strength. It allows researchers and policymakers to identify variations in digital financial literacy levels, understand the underlying factors contributing to these differences, and evaluate the relative effectiveness of different national approaches and policy interventions.

In conclusion, the high adoption of online banking and strong policy frameworks, coupled with the availability of survey data, represent key strengths in the European Union's endeavor to enhance digital financial literacy.

Weaknesses of digital financial literacy in the European Union disclose issues that harden achievement of universal financial well-being. As a result of the analysis, two significant weaknesses emerge: the persistence of digital-skill gaps among vulnerable demographic groups and the methodological measurement differences between key data sources. Addressing these weaknesses is paramount for developing effective and equitable strategies to enhance digital financial literacy across the Member States.

One of the most prominent weaknesses is the persisting digital skills gaps depending of sociodemographic and geographic peculiarities (Eurostat 2024 a, b). Despite overall increases in Internet penetration and online banking adoption across the European Union, some socio-demographic groups still lacks the necessary digital competencies. Research findings demosntrate lower levels of basic digital skills among older adults (Vercruyssen et al. 2023) and individuals with lower educational attainment and income levels (Soederberg Miller et al. 2024). These digital divides are not merely about access to technology but also encompass the skills and confidence required to navigate digital environments effectively and securely. These factors translate into difficulties in accessing online banking services, using digital payment methods, understanding online financial information, and protecting oneself from cyber threats like phishing, which disproportionately target less digitally literate individuals.\

A second key weakness is measurement differences between key data sources used to assess financial literacy across the European Union. While providing valuable data, the reliance on surveys may introduce challenges due to their subjectivity, differing methodologies and scoring systems. Researchers, educators, and policy-makers should pay attention to peculiarities of measurement process and outcomes. For example, Eurobarometer's (European Commission 2023) measurement includes financial knowledge and financial behavior. The OECD/INFE's (OECD 2023) measurement besides financial knowledge and financial behavior includes financial attitudes also.

In conclusion, addressing digital skills gaps among vulnerable groups and harmonization of methodologies for measurement of financial literacy may improve overall financial well-being. The digital divide, particularly affecting seniors and low-income populations, threatens to exacerbate financial exclusion in an increasingly digital economy. Simultaneously, methodological differences between the most prominent data sources can challenge assessment as well as effective targeting of policy and education activities.

Identifying opportunities is crucial for leveraging external factors and trends to enhance the financial capabilities of individuals in the digital age. Drawing from the analysis, two significant opportunities stand out: the potential of emerging fintech tools, such as robo-advisors and gamified applications and use of funding of the European Union's Recovery and Resilience Facility.

One of the most promising opportunities lies in applying emerging financial technologies (fintech) for improvements in digital financial literacy. Fintech is rapidly transforming the financial landscape, introducing innovative tools and platforms that can serve as powerful educational instruments (European Fintech Association 2024). Robo-advisors, for instance, are automated digital platforms that provide financial advice and portfolio management with minimal human intervention. Financially better literate individuals are more interested to be potential users of robo-advisers (Isaia, Oggero 2022). While primarily designed for investment, their interfaces and educational content can help users understand investment concepts, risk tolerance, and long-term financial planning in a personalized and accessible manner. By interacting with robo-advisor platforms, individuals can gain practical experience with digital investment tools and improve their understanding of complex financial products, reinforcing their digital financial literacy in a practical setting (Aristei, Gallo 2025; Nourallah et al. 2025). The increasing sophistication of robo-advisors, including features like educational modules and simulations, presents an opportunity to integrate learning directly into financial management tools.

Gamified applications also offer a significant opportunity to make financial education more engaging and interactive (United Nations Development Programme n/d; An et al. 2024). Gamification involves applying game-design elements and principles in non-game contexts, such as education. Financial literacy apps incorporating gamification can transform potentially dry or intimidating financial concepts into engaging challenges, simulations, and reward-based learning experiences. These apps can teach users about budgeting, saving, investing, and debt management through interactive games and scenarios, making learning more enjoyable and motivating. Gamified approaches are particularly effective for reaching younger demographics (Lisana et al. 2025; Nedyalkova 2025) but can also be designed to appeal to a wider audience. The scalability of mobile applications allows for widespread dissemination of financial education content overcoming geographical barriers and reaching large numbers of people at relatively low cost.

A second important opportunity stems from the Recovery and Resilience Facility (RRF) (European Commission 2024) that supports digital transition of the European Union Member States and makes possible to improve digital skills including necessary for financial literacy through education or training. The RRF (European Commission 2024) is a temporary recovery instrument designed to mitigate the economic and social impact of the Covid-19 pandemic and to make the European Union's economies more sustainable, resilient, and better prepared for the challenges and opportunities of the green and digital transitions. A substantial portion of this funding is earmarked for supporting digital transformation, including investments in digital skills and education. This focus on digital skills within the RRF presents a clear opportunity to mainstream digital financial literacy within broader digital education initiatives. Such activities can take various forms, for example: development of dedicated modules on digital finance, development of training programs that specifically address the needs of vulnerable groups, or supporting the development and deployment of innovative digital tools and platforms for financial education, including the aforementioned gamified apps and educational components within fintech solutions.

In conclusion, the European Union has significant opportunities to enhance digital financial literacy by strategically utilizing emerging fintech and available funding mechanisms.

Examining the threats of digital financial literacy in the European Union reveals some external challenges that could negatively impact individuals' ability to navigate the digital financial services effectively. Two primary threats are the risks of cybersecurity and misinformation, which can severely undermine trust in digital services, and the potential for widening financial exclusion if the existing digital divide is not effectively addressed. Overcoming these threats is essential for supporting a secure and inclusive digital financial ecosystem across the European Union.

One of the most significant threats is the increasing cybersecurity risks and the proliferation of financial misinformation that should be managed (European Commission n/d). As financial services increasingly migrate online, they become more susceptible to cyber threats, including phishing attacks, malware, data breaches, and online fraud. The constant evolution of cyber threats necessitates continuous vigilance and a high level of digital financial literacy related to online security practices, such as creating strong passwords, recognizing suspicious communications, and using multi-factor authentication. Compounding the threat of cybersecurity risks is widespread misinformation and disinformation in the financial realm.

The second major threat is the risk of widening financial exclusion if the existing digital divide persists. While the European Union has made strides in increasing internet penetration and digital access, significant disparities remain across the Member States and within populations, particularly affecting seniors, low-income individuals, those in rural areas, and individuals with lower educational attainment. If access to and ability to effectively use digital technologies become increasingly essential for accessing financial services (e.g., online banking, digital payments, accessing government benefits), those without the necessary digital access or skills risk being excluded from the formal financial system.

This exclusion can appear in various ways. Individuals without reliable access to internet or digital devices may struggle to open bank accounts, apply for loans, or make essential payments online. Even with access, a lack of digital skills can prevent individuals from confidently and safely using digital financial tools, leading them to rely on more expensive, less convenient or untrustable alternative methods. As more services transition to digital-only platforms, the digital divide directly translates into a financial divide also (Martínez de Ibarreta Zorita et al. 2025). This potentially can increasing reliance of vulnerable populations on informal or less regulated financial channels. The risk is that the benefits of digital finance, such as convenience and potentially lower costs, will be more available for those already digitally proficient and financially literate increasing inequalities. Addressing this threat requires improving digital access and implementing targeted digital literacy training programs that specifically reach and support vulnerable groups, ensuring they have the skills and confidence to participate fully in the digital economy.

In conclusion, the landscape of digital financial literacy in the European Union is affected by challenges of cybersecurity risks, the spread of financial misinformation, and the potential for increased financial exclusion due to the persistence of the digital divide.

Alongside the SWOT analysis, several problems may be defined and possible solutions offered for the development of digital financial literacy in the European Union.

Table 2

Development of digital financial literacy: problems and possible solutions

Problems	Solutions
Digital and financial literacy gap	Development of digital and financial literacy curricula
Demographic disparities by digital and financial literacy	Targeted upskilling for vulnerable cohorts
Regional divide by digital and financial literacy level	Regionally tailored interventions with educational programs and digital access improvements
Gender gap by digital and financial literacy level	Gender-sensitive educational programs
Inadequate cybersecurity awareness	Education and training on secure use of online financial services
Inadequate awareness of novel trends	Education, training, and fast guide on possibilities and benefits provided by the newest technological solutions
Short-term knowledge retention	Repetition strategies, availability of a short guide
Different methodologies across the most prominent surveys on financial literacy	Harmonization of measurement approaches
Insufficient data collection at regional level	Granular data collection given territorial peculiarities (urban regions, rural regions)
Data frequency and latency	Increase survey frequency
Subjectivity of self-assessment of digital financial literacy	Comrehensive assessment including statistical and behavioral data
Fragmented approach to digital financial skills curricula	Coordinated and sequent development of digital financial skills curricula
Underuse of unusual learning tools	Curricula on digital financial literacy including gamification, robo-advisers, nudges
Insufficient engagement of vulnerable groups	Culturally-, gender-, and age-sensitive learning content
Cultural barriers in learning on digital financial literacy	Collecting data on peculiarities of cultural attitudes to digital financial literacy

Source: own elaboration using data from Bagul 2025.

The mentioned problems and solutions underscores that rapid technological uptake calls for similarly rapid and deep development of digital financial skills. First, demographic disparities reveals that one-size-fits-all digital-skills training fails to reach those most in need. Second, the existing regional differences reflect uneven digital access, policy implementation, and education systems. Third, insufficient cyber risks awareness threatens both users' safety and confidence. Fourth, financial literacy assessment data frequency

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and latency may affect timely educational policy updates. Increasing survey frequency and collecting regional level data would allow for more detailed assessment of pilot learning programs and educational policy refinement. The proposed solutions form a coherent, multi-pronged strategy: to combine digital and financial curricula, prioritize vulnerable groups, leverage experiential learning platforms, harmonize measurement, and expand data collection at regional level.

Conclusions and discussion

Studies suggest that higher levels of digital skills are often associated with stronger financial literacy, supporting the view that digital competence plays an important role in enabling financial capability. However, the lack of sufficient improvements in financial literacy despite widespread digital adoption suggests that digital proficiency on its own is not enough. Engagement with tools like mobile banking appears to reinforce financial understanding through practical use, aligning with behaviorist learning theories that emphasize the importance of experiential learning in financial education.

Findings underscore the pivotal role of developmen strategies. A guidance provided within the European Commission–OECD/INFE Financial Competence Framework (European Union, OECD 20222) and Digital Education Action Plan (European Commission 2021) as well as possibilities of funding within the European Union's Recovery and Resilience Facility (European Commission 2024) ensure consequent and targeted steps for improvements in digital financial literacy by overcoming the abovementioned issues.

In light of the findings, several actions for development of digital financial literacy could be proposed:

- Integrated educational interventions: Financial and digital literacies must be taught together. Embedding digital financial literacy into school curricula and adult education programs will be important.
- Experiential learning: App-based and real-time learning opportunities (e.g., mobile banking, gamified financial planning tools) can foster practical financial knowledge. These methods include learning-by-doing approach and make abstract financial concepts more accessible.
- Targeted outreach: Bridging sociodemographic disparities requires culturally adapted and demographically sensitive programs.
- Enhanced infrastructure and funding: Expansion of broadband, investment in teacher training for digital and financial pedagogy, and cross-border collaboration through hackathons and fintech clusters can accelerate convergence, especially in mid-performing regions.

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