

INNOVATIVE FINTECH TECHNOLOGIES AT EDUCATIONAL INSTITUTIONS

Abstract

FinTech (Finance Technology), as leading financial innovation all over the world, attracts attention not only from the business (for profit increasing) and governmental sectors (for regulation) but also from the academia to fill the possible gap in the market. However, the balance is still needed to be found because of a serious mismatch in FinTech experts supply and demand, not only on the business but also on the academic side. As a developing country with quite a recent boost in FinTech, Georgia has great potential to become a regional hub but is limited in specific areas necessary in this direction. Thus, given research is focused on FinTech specifics and the development of FinTech curriculum for the Georgian academic institution.

Keywords: FinTech; Alternative Financing; Curriculum Designing; Education.

Introduction

A variety of factors could explain the popularity and success of innovative sources of crediting in developed countries, but most importantly: the likelihood of receiving credit at a lower interest rate (Baber, 2020; Lee & Shin, 2018); speedier loan processing speed compared to traditional sources; lower operating costs (Ozili, 2018); and greater comfort in the credit obtaining process, especially in remote areas with less access to conventional sources of credit. At the same time, lenders are also gaining from the fact that FinTech companies are backed by investors rather than the companies themselves (Anagnostopoulos, 2018), decreasing credit risks based on particular big data analysis software (Lu, 2018), and providing the economy in general with more financial (and not just) opportunities.

Innovative digital solutions could be a problem-solving paradigm for the business and private sector's financial challenges (Chuen et al, 2015), considering existing problems in finance access from the banks and constant regulation strengthening procedures by national banks all over the world. According to Berger and Udell's (2006) study, SMEs frequently experience financial limitations because of: a lack of financial transparency, erratic financial management, and especially a lack of collateral, which in cases involving developing nations typically exceeds two times the loan amount itself (Charaia, Lashkhi, 2021). While the economic conditions of richer nations have greatly improved, poorer countries continue to suffer from issues such as a lack of diversified finance sources, inadequate IT infrastructure, immature creative digital technology potential, and more.

Although evidence suggests that bank loans remain the primary source of funding for the business sector (Schweitzer, Barkley, 2017) and taking into account that research on cutting-edge digital Financing is scarce (Hua et al., 2019), according to certain investigations by this time demonstrates that understanding of alternate finance through FinTech is rising (Walden, 2020, Lashkhi et al., 2022). The past ten years have been incredibly successful. (Jaksic & Marinc, 2019).

Global FinTech popularity is rapidly rising (Odinet, 2018), which may be explained by the following factors:

- A quicker loan processing time when compared to sources using more conventional methods (Sangwan et al., 2019);
- Decreased operational expenses for credit management (Ozili, 2018);

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- Convenience in credit application processes, particularly in remote locations where there is no need to travel far distances;
- Fewer regulation-related red tape, which frequently complicates client-bank relationships;
- Possibility of obtaining a loan with a lower interest rate, etc.

On the other hand, from the lender's perspective:

- Receiving funding becomes simpler for FinTech startups. This company operates with investors' money, rather than with its own (Anagnostopoulos, 2018);
- Reducing credit risks using novel techniques and large-scale data analysis technology (Lu, 2018);
- Rapidly rising number of clients and mounting financial income from the customer from remote areas, which is unachievable for other lenders.

Nevertheless, there are dangers as well, which demand immediate attention:

- Internet safety;
- Online data security;
- Population with a lack of financial literacy;
- Internet connection level, especially in emerging nations' remote areas.

FinTech will undoubtedly address and solve several significant issues (collateral, proximity to the borrower, loan cost, etc.) that hinder business financing in Georgia, especially small and medium-sized enterprises (Lashkhi, 2022). Still, it is hard to predict that the country's difficulties will be resolved just by introducing FinTech to the market due to various other factors. There are just too many to list here:

- Lack of legislative backing thus far;
- Low levels of market competitiveness;
- Lack of financial and digital literacy in society;
- Lack of business desire to invest adequate time, money, and effort in innovation;
- FinTech industry's lack of interest due to modest market size;
- Absence of the necessary number of trained workers;
- Strongest positions in the banking sector, hindering the development of other players in the financial market.

1. Fintech Evolution

A lot has been published about FinTech and related topics, much of it in the last decade. The notion of FinTech is still in its infancy, and its products are mostly focused on practical applications rather than theoretical foundations. However, the progression of FinTech also impacted the educational field, and the need for well-educated workers with a wide range of abilities in this industry has increased. Due to the development of FinTech, educational institutions now see the need to provide resources required for FinTech promotion from the academic prism.

From the historical perspective, FinTech development can be divided into four eras; from the standpoint of a chronological timeline, its history goes as far as 1866 years (please see the Table).

Table. FinTech evolution around the world from different prisms

	FinTech 1.0. 1866-1966	FinTech 2.0. 1967-2007	FinTech 3.0. 2008-2018	FinTech 4.0. 2019-to date
Main Concepts	IT-based efficiency	Application of new technologies	Application Programming Interfaces (API) ecosystem	Rebuilding

Diffusion	Global & developed countries	Global & developed countries	Global & developed countries	Emerging & developing countries
Main Players	Finance IT vendors	FinTech startups	Large startup companies	Big players in API
Overview	IT as a booster for financial services	Implementations of new technologies from different areas into the finance sector	API advancement, service innovation	Rebuilding of unbundled financial services
Sectors	Analog Banking; Infrastructure development; Usage of Telegraph & Telephone in Finance & Banking; Computerization	Electronic Banking; Digitalization; Traditional Internet; Payment Gateways; ATMs; Online Banking; Paypal	Digital Banking; Mobile/Smart Phone Banking; Focus on Apps; Hi-Tech Start-ups; Distributive model of FinTech; Digital Wallets; Bitcoin; Apple, Samsung and Google Pay	Mobile Banking; Fourth industrial revolution; Digital Transformation; Agglomeration model of FinTech
Main Technologies	Credit cards	Smart devices, cloud, big data	API Blockchain, Artificial Intelligence (AI)	Internet of Things (IoT)
Education / Curriculum	Separate academic disciplines	Programs of business with a major in MIS or IT as a minor	Programs of business major with AI, Machine Learning, Blockchain, etc., as an elective course	Programs with FinTech as central with AI, Machine Learning, Blockchain... as core courses

Source: NRI Journal, 2016; Setiawan & Maulisa, 2020; Hudithi & Siddiqui, 2021 and Authors modifications.

The fourth stage of FinTech, i.e., FinTech 4.0, is when academic institutions create their first FinTech curriculums with AI, Machine Learning, Blockchain, IoT and other innovations at the center of the course. Business colleges now have new options to produce innovative specialists, thanks to the FinTech industry's rapid development. The delivery of the additional skill requirements must be prepared for, and an integrated delivery model is anticipated. Such skills as programming, data analysis, application writing, etc., are the top directions where academia tries to fill the gap. However, it should be noted that youngsters often prefer short- and long-term courses, rather than full-scale bachelor's or master's programs in IT-related fields.

2. FinTech and Academia

FinTech is disrupting the traditional company paradigm, generating chances for newcomer entrepreneurs and current organizations wishing to expand. While the industry is creating more job possibilities globally, it is also dealing with a number of uncertainties, significant disruptions, and unintended effects.

Normally, the course of FinTech employs a student-centered learning style, which includes problem-based learning, discussion, seminars, essays/reports, lectures, debates, panels, and brainstorming, among other things.

The obvious initial step in the establishment of academic FinTech programs is to work on integrating diverse disciplines into complete applied programs (Lam & Jackson, 2019). This trend is an opportunity for business school educational programs to improve interdisciplinarity, industrial relevance, information sharing, and social impact.

The role of FinTech in the European Studies program is significant, based on modern European business model trends. At least SME sector development in Europe, as well as private lending system development, is almost unimaginable without a strong FinTech segment. In other words, studying EU economy-related topics cannot be complete without a FinTech course.

The FinTech course gives students an introduction to the theory and practice of FinTech. It has also been designed to teach students how to take a systemic approach to understand disruption in the context of digitalization across various dimensions, including money, markets, marketplaces, and infrastructure. This will allow students to fill the financial services sector gaps and empower them to create better economic institutions.

The course covers a wide range of topics, including current and new financial technology markets, consumer experience, and important concepts, principles, and frameworks. It discusses how the FinTech sector has affected economics, regulations, and technology and the pros and cons it has brought to the market.

To analyze the FinTech course learning objectives for academic purposes, we employ a well-known Bloom's taxonomy. A prominent framework for creating and categorizing learning objectives in order to assess learners' knowledge attainment progress (Krathwohl, 2002). Learning objectives come out to be the following:

- Comprehension
- Be familiar with the development of FinTech and its history
- Be familiar with the nature and economics of FinTech
- Have a basic understanding of how FinTech products work
- Recognize how intricate the payment infrastructure is
- Recognize the different forms of payment that exist online
- Recognize the loan and crowdfunding models
- Recognize the benefits and drawbacks of employing FinTech
- Application
- Identify and describe the main payment instruments and how they work
- Identify changes in regulatory frameworks and how they support or impede innovation
- Identify and explain the main payment instruments and how they work
- Analysis
- Assess the implementation risks associated with FinTech for both financial service providers and their clients
- Examine the influences on FinTech's evolution
- Synthesis
- Simulating a token sale on online platforms while adhering to its regulations
- Create a presentation of the case study's findings

After finishing the FinTech course, students can work in various positions, including Innovation Department Specialist, Financial Investigator, Investment Advisor; Finance Analyst; Business Analyst; FinTech Consultant; Data Analytics; Trading Technologist, etc.

The teaching of FinTech classes should be interactive, oriented on conversations and power point presentations based on material per subject according to the curriculum, which covers principles, concepts, ideas, and all theoretical knowledge about a certain FinTech topic.

The seminars should include analyses of theoretical ideas and methodologies, some debates, and a question-and-answer period to allow students to participate actively and measure students learning. During the conversations, students should indicate at what level they agree with a point of view and provide suitable arguments for their answers. A multiple-choice mini-test quiz with solutions should be supplied at the end of theoretical subjects and presentations.

During seminar sessions, students solve case studies, issue simulations, answer, develop their questions, discuss, explain, argue, or brainstorm. Students work on challenges and projects in teams (up to six persons)

under settings that promote positive interdependence and individual accountability. Each student is required to contribute to the report's creation.

Students will examine the fundamental elements of the developing fintech industry in one of the first seminars, as well as cutting-edge methods for funding start-up businesses like initial coin offerings and crowdfunding. This session will address the following subsectors: lending, personal finance, equity crowdfunding, and etc. where entrepreneurs are either trying to sell their services to established players or try to remove them. Many of the new business models are based on important technologies like blockchain, peer-to-peer platforms, and artificial intelligence. Students will use a simulation method to research and assess how FinTech is applied to the actual economy, which is one of the course's learning objectives.

Given the continual rise of corporate FinTech activity, a strong partnership between academics and industry is likely required to train the future generation of FinTech graduates. This partnership will seek to improve graduate employability, skill transferability, and, most significantly, the informed creation of FinTech applications in directions compatible with ethics, legislation, and the critical goals of client protection and social performance.

Despite the opportunities the FinTech course provides, there are significant gaps between the market needs and the usual academic curricula on financial technologies offered by a different but very limited number of universities in Georgia. Moreover, the reason is the limited level of development of the FinTech market in Georgia (Charaia et al., 2021). However, with the improving trend.

Above all, it is important to promote critical thinking as a key component of the new curriculum. It is also imperative that there be a greater flow of information between academia and business, for example, through the development of scholarship inquiries, the dissemination of research findings, and the implementation of cooperative education and training programs in practical FinTech. Unfortunately, with few exceptions, Georgian academic institutions and FinTech firms have little to no collaboration.

Conclusion

The popularity and success of innovative sources of crediting in developed nations can be attributed to several factors. Still, the most significant is the likelihood of receiving credit at a lower interest rate, the speed at which loans are processed compared to traditional sources, the cost of operation, and the degree of comfort with which credit is obtained, particularly in remote areas where traditional sources of credit are less accessible.

Lenders profit from the fact that most FinTech businesses are supported by investors rather than the businesses themselves, which lowers credit risks based on specific big data analysis software and expands financial opportunities for the economy.

Given the difficulties businesses and the private sector currently face in obtaining financing from banks and the ongoing regulatory measures that national banks worldwide are taking to strengthen their regulations, innovative digital solutions may represent a paradigm shift in how these issues are resolved. However, some risks necessitate prompt attention: Internet security, financial illiteracy among the populace, poor Internet connectivity, particularly in distant areas of developing countries, and other issues.

FinTech will unquestionably address and resolve several significant problems (collateral, proximity to the borrower, loan cost, etc.) that prevent business financing in Georgia, particularly small and medium-sized enterprises. However, due to a number of other factors, it is difficult to predict if introducing FinTech to the market will relieve the country's problems. Simply put, there are far too challenges to mention: low levels of market competitiveness; a lack of existing legislative support; a societal lack of financial literacy; a lack of incentive on the part of businesses to devote adequate time, money, and innovation effort; a lack of interest in the FinTech industry due to its small market size and etc.

Despite the opportunities FinTech courses offer, there are large gaps between the demands of the business and the standard academic curriculum on financial technology. Furthermore, the reason is that Georgia's FinTech sector is only somewhat developed, despite a developing trend, and there is a shortage of trained workers prepared to teach academic courses and oversee pupils.

The new curriculum must prioritize encouraging critical thinking above everything else. Additionally, there needs to be a stronger information exchange between academia and business, for instance, through the

creation of grant applications, the publication of research findings, and the implementation of cooperative education and training initiatives in real-world finance. Unfortunately, there is little to no engagement between Georgian academic institutions and FinTech companies, with few exceptions.

References

- Al Hudithi, F., & Siddiqui, K. A. (2021). Designing the guidelines for FinTech curriculum. *Entrepreneurship and Sustainability Issues*, 9(1), 633.
- Anagnostopoulos, I. (2018). FinTech and regtech: Impact on regulators and banks. *Journal of Economics and Business*, 100, 7-25.
- Baber, H. (2020). Determinants of students' perceived learning outcome and satisfaction in online learning during the pandemic of COVID-19. *Journal of Education and e-learning Research*, 7(3), 285-292.
- Berger, A. N., & Udell, G. F. (2006). A more complete conceptual framework for SME finance. *Journal of Banking & Finance*, 30(11), 2945-2966.
- Charaia, V., & Lashkhi, M. (2021). SME Sector Development through FinTech in Georgia. *Globalization and Business*, 12, 179-185. <https://www.eugb.ge/uploads/content/N12/Vakhtang%20Charaia.pdf>
- Charaia, Vakhtang, Archil Chochia, & Mariam Lashkhi. (2021). "Promoting FinTech Financing for SME in S. caucasian and baltic states, during the COVID-19 Global Pandemic." *Business, Management and Economics Engineering* 19, no. 2: 358-372. <https://journals.vilniustech.lt/index.php/BMEE/article/view/14755>
- Chuen, K., Lee, D. and Teo, E.G. (2015), "Emergence of fintech and the LASIC principles", *Journal of Financial Perspectives*, Vol. 3 No. 3, pp. 24-36.
- Hua, K., Cobcroft, J. M., Cole, A., Condon, K., Jerry, D. R., Mangott, A., ... & Strugnell, J. M. (2019). The future of aquatic protein: implications for protein sources in aquaculture diets. *One Earth*, 1(3), 316-329.
- Jakšič, M., & Marinč, M. (2019). Relationship banking and information technology: The role of artificial intelligence and FinTech. *Risk Management*, 21(1), 1-18.
- Krathwohl, D.R. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory into Pract*, 41, 212-218.
- Lam, C. H., & Jackson, J. E. (2019). Teaching Electrochemistry with Common Objects: Electrocatalytic Hydrogenation of Acetol with US Coins. *Journal of Chemical Education*, 97(1), 172-177.
- Lashkhi M. (2022). *The Impact of FinTech Companies on Financial Institutions, Case of Georgia*. Generis Publishing. <https://libroterra.com/shop/business-finance/the-impact-of-fintech-companies-on-financial-institutions-789/>
- lashkhi M., Ogbaidze S., Lashkhi M., Charaia V. 2022. Startup access to finance in Georgia and international experience. *Economisti*. <https://ekonomisti.tsu.ge/?cat=nomer&leng=eng&adgi=692>
- Lee, I., & Shin, Y. J. (2018). FinTech: Ecosystem, business models, investment decisions, and challenges. *Business Horizons*, 61(1), 35-46.
- Lu, L. (2018). Promoting SME finance in the context of the FinTech revolution: A case study of the UK's practice and regulation. *Banking and Finance Law Review*, 317-343.
- NRI Journal. 2016. What is FinTech? https://www.nri.com/en/journal/2016/1031_2
- Odinot, C. K. (2018). The new data of student debt. *S. Cal. L. Rev.*, 92, 1617.
- Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review*, 18(4), 329-340.
- Robin Saks Frankel. 2021. When Were Credit Cards Invented: The History of Credit Cards. <https://www.forbes.com/advisor/credit-cards/history-of-credit-cards/>
- Sangwan, V., Prakash, P., & Singh, S. (2019). Financial technology: a review of extant literature. *Studies in Economics and Finance*.
- Schweitzer, Mark, and Brett Barkley. "Is FinTech Good for Small Business Borrowers? Impacts on Firm Growth and Customer Satisfaction." (2017).
- Setiawan, K., & Maulisa, N. (2020, March). The Evolution of FinTech: A Regulatory Approach Perspective. In *3rd International Conference on Law and Governance (ICLAVE 2019)* (pp. 218-225). Atlantis Press.
- Walden, S. (2020). What is FinTech and how does it affect how i bank. *Forbes Advisor*.