Security Challenges in FinTech Integration with Legacy Systems

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Abstract

The unique evolution of financial technology or better known as FinTech has turned the wheel of the financial services and transformed them into more efficient, customer centric and innovative. However, there are conflicts which arise when implementing FinTech solutions with traditional systems in place, primarily being the security issues that threaten these advantages. These are systems developed several years back and cannot meet today's IT security measures since they were programmed with inadequate security measures. These open doors for developers during integration, which can result in data leakage, cyber-attacks and financial fraud among others. In addition, socializing new more flexible innovative technologies with traditional monolithic systems increases risks concerning data and identity, as well as meeting new and newly updated regulation requirements. This abstract aims at discussing the major concerns concerning security in the integration process and the importance of encryption, well-protected APIS, and taking security risks. It also explains why the cooperation between it technical teams and cybersecurity specialists must be established to minimize these threats and transition to a more developed financial environment.

Keywords: FinTech, Legacy Systems, Security Challenges, Cybersecurity, Integration, Vulnerabilities

Introduction

The financial sector has known a shift due to the emergence of the financial technology or commonly refer as FinTech. The FinTech solutions have upgraded the services of financial technology with the help of superior technologies such as AI, Blockchain, and the Cloud computing network. These innovations have facilitated and improved conversations with the customers, simplification of operations and processes, as well as new ways and methods of carrying out financial businesses hence the financial digitalization.

However, integration of FinTech solutions with the existing traditional or legacy systems poses several large problems especially in respect of security. Most of the time, these systems are old and have centralized and/or distributed architectures that were not built to handle the various types of security threats that come with the provision of the numerous digital services. Such systems remain very relevant to many FI's, as the complete overhaul of the existing systems can be very costly and time-consuming. That being the case, companies are forced to adopt FinTech platforms into their existing systems, which results in a peculiar environment where old infrastructures coexist with relatively newer ones.

This integration brings in many other security factors, which is typical, but is a problem nevertheless. The old systems can often miss the must-have encryption, secure linking, and the essential update authentication system, making the system prone to hacking. Furthermore, when new FinTech applications are integrated with existing legacy databases, customers' financial and personal information is at risk. Such derogation accounts for the current dynamic threat environment, which especially requires the right integration of FinTech solutions into existing platforms. Cybersecurity has become paramount in the current complex

world of integration of financial institutions as well as to ensure compliance to the various regulatory standards so as to contain the risks involved in these integration processes.

Literature Review:

The use of FinTech in traditional systems is a subject that has received a lot of attention by scholars and practitioners because of the security issues connected to it. Today's interest in FinTech, which includes applications of AI, blockchain, and other technologies and extensive data analysis, stems from the sector's potential to revolutionize financial services and improve customers' experiences and business performance. But, integration of such new enhanced technologies into the systems already in place has raised significant security concerns. Analysing legacy systems, which were designed on the base of often outdated technological architecture, it is possible to highlight that they do not possess sufficient flexibility and scalability to meet the requirements of present days security environment【1】. These systems are rigid by design and that not only makes them vulnerable to hacking but also the integration process is challenging.

A greater part of the literature investigated distinguished certain security threats associated with the implementation of FinTech and traditional systems. For instance, Chen and Wang (2021) state that it becomes challenging for legacy systems to fully implement advanced cryptographic features and thus heritage systems are vulnerable and become prone to data breaches during integration【2】. They state that current and newer operating systems do not contain the security inherent in a traditional information processing environment but such was not an issue in older systems because there was no such need for today's digital financial environment. Kuo et al. (2020) also owe increased vulnerabilities to the absence of secure APIs in legacy systems since their architectural design does not include a mechanism to securely transfer data between the old and new systems. This is more so since these FinTech applications deal with financial information and data, coupled with personal information, which act as juicy targets for hackers.

Also, a topic that has increasingly emerged as an issue in the literature is that of compliance. The challenge that exists in financial institutions is the blending of FinTech with traditional systems and this is linked with specifics like GDPR and PCI DSS. Noncomitance with these regulations trigger severe penalties and erode the image of the institution【3】. Therefore, scholars state that there should be a balanced approach taken by institutions of placing security alongside the checks that need to be conducted in matters of integration to prevent the process from putting much risk to the institution【4】.

Problem Statement

Thus, technological progression especially in the financial sector through the use of the FinTech has had its pros and cons on the financial institutions. Among them, the process of integrating FinTech solutions into conventional large conventional systems is an important task. Old generation systems that have been in use for many years were developed using old generation technologies and security features which cannot fit into modern FinTech. This incompatibility results in information insecurity in form of data thefts, unauthorized access and cyber incidences. As the financial institutions look for ways of integrating these new technologies to their already established structures, the challenge of how to offer adequate protection to the financial and personal information that is usually traffic across the networks becomes a bit challenging. If not well managed, the integration process poses various risks to institutions since they will be prone to security threats that, in turn, lead to financial losses, tarnished reputation and failure to meet regulatory requirements.【5】【6】

Solution

The major security problems of incorporating FinTech into traditional IT environments cannot be solved by simple one-size-fits-all solutions. The first basic precaution that needs to be taken for a secure integration is to make a risk assessment. This means identifying the unique risks that are present with the old systems as well as the risks associated with the FinTech solutions that are to be integrated. For example, structure applications may not integrate the best encryption protocols thus exposing the organization to risks such as data leakage. Worlds of finance should use enhanced-secure encryption techniques when processing and storing information both while in motion and in the database setDate【7】. Furthermore, integrating the FinTech application means that secure APIs should be used in order to connect with the legacy systems. This also makes sure that data is transmitted in the database securely and there less likelihood of invasion by unauthorized personnel during this process【8】.

The second important factor in the solution is to implement a sound cybersecurity model. This framework should entail threat monitoring and threat management on a real-time basis while protocols are updated from time to time and; should have a clear incident response plan in case an attack occurs. Some organizations continue to use older systems thus require fortification of current security solutions like the MFA and IDS. Such measures serve to restrict access not known or permitted and also to identify threats before they transform into catastrophes【9】. In the same regard, there is the need to have integration between the financiers' IT department, cybersecurity, and FinTech engineers. This helps to guarantee that security aspect will be taken into account from the time of development of integration strategy to the moment when full integration has been achieved.

Regulations should not be a hindrance and more emphasis needs to be placed in compliance. It remains the responsibility of the financial institutions to ensure all the parts of security regulation conform to the regulation requirement of GDPR and PCI DSS. This includes the assessment of legal compliance and proprietary security that regular audits should be conducted to see that protection of data is in order and that personal and financial data should be protected as required by the law. They also have to monitor any change in regulation that may affect their security plans and respond to it early enough【10】.

One of the effective strategies is to use a step-by-step integration procedure. The alternative to implementing all FinTech solutions at once is to do it step by step so that institutions can consistently test and adjust the level of security. This helps to minimize chances of Large-Scale disruptions and also makes it easier to detect any areas of weakness as the integration planning is done. Phased integration also helps financial institutions to direct their officials on the new systems so that they can be able to handle the security risks adequately【11】. Advanced encryption, secure APIs, a strong cybersecurity system, being compliant with the regulations, and a process of phase-by-phase integration make it possible for financial institutions to avert the security threats that accompany FinTech's incorporation into traditional banking systems.

Conclusion

The attempt to incorporate FinTech services to traditional banking systems and frameworks creates a unique leverage that financial institutions can adopt to transform their current processes and stakeholders' experiences. Nevertheless, this integration also raises various se-curity issues that need to be solved in order to safeguard the data and stabilize the financial systems. Their mechanical attributes make them unfit to support the latest technologies employed by Fintech applications in the market today. Hence, it is imperative that financial institutions pay attention to risk management scoring, encryption, API protection as well as a cybersecurity framework. Also, achieving legal requirements and avoiding abrupt integration method is a

measure that should be taken to provide optimum security while integrating. If financial institutions are able to effectively manage these challenges, it is possible to determine how to combine information technology with biological technology and create efficient infrastructure for innovation and growth and protection against threats. in the present-tech world.

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