



Economia Aziendale Online

Economia Aziendale Online

Business and Management Sciences
International Quarterly Review

RegTech, the startups' ecosystem
operated by Swisscom

Luca Battanta, Francesca Magli

Pavia, December 31, 2023
Volume 14 - N. 4/2023

DOI: 10.13132/2038-5498/14.4.1391-1412

www.ea2000.it
www.economiaaziendale.it


PaviaUniversityPress

RegTech, the startups' ecosystem operated by Swisscom

Luca Battanta, PhD.

IULM - International University
of Languages and Media. Milan.
Italy

Francesca Magli

Associate Professor.
University of Milano Bicocca.
Milan. Italy

Corresponding Author:

Luca Battanta

luca.battanta@iulm.it

Cite as:

Battanta, L., & Magli, F (2023).
RegTech, the startups' ecosystem
operated by Swisscom. *Economia
Aziendale Online*, 14(4), 1391-1412.

Section: *Refereed Paper*

SPECIAL ISSUE 2023

Received: September 2023

Published: 31/12/2023

ABSTRACT

After the tremendous financial 2008 crisis, at the same time as the strong emergence of digital technologies and the end of banking secrecy, FinTech and RegTech start-ups are offering products related to the financial regulatory field. This is particularly true for the Swiss financial market. We desire to explore the start-ups map RegTech of Swisscom, the main Swiss IT/telecommunication company involved in regulatory technology. We begin the scientific analysis through preliminary systematic review of the literature. Today the literature on case studies in RegTech is not proposing any solution of cooperation or aggregation in Switzerland. We started our exploration of the Swiss context in RegTech with a unique article about RegTech in Switzerland (Witz, 2019) and then we did an exploratory investigation through interviews and reviewing the website of the start-ups in RegTech field. To explore the field, we find the Swisscom RegTech map: a successful aggregator of startups in Switzerland. The objective of our contribution is to determine how Swiss start-ups, applying RegTech and cooperation with an Information technology and telecommunication company, can improve risk management, lower compliance costs in Switzerland especially in banks, and how they could develop Swiss financial market.

Dopo la tremenda crisi finanziaria del 2008, in concomitanza con il forte emergere delle tecnologie digitali e la fine del segreto bancario, le start-up FinTech e RegTech offrono prodotti legati al settore della regolamentazione finanziaria. Ciò vale in particolare per il mercato finanziario svizzero. Vogliamo esplorare la mappa delle start-up RegTech di Swisscom, la principale azienda svizzera di informatica e telecomunicazioni che si occupa di tecnologia regolatoria. Iniziamo l'analisi scientifica attraverso una revisione sistematica preliminare della letteratura. Oggi la letteratura sui casi di studio nel RegTech non propone alcuna soluzione di cooperazione o aggregazione in Svizzera. Abbiamo iniziato la nostra esplorazione del contesto svizzero nel RegTech con un articolo unico sul RegTech in Svizzera (Witz, 2019) e poi abbiamo fatto un'indagine esplorativa attraverso interviste e recensioni del sito web delle start-up in ambito RegTech. Per esplorare il settore, troviamo la mappa di Swisscom RegTech: un aggregatore di successo di startup in Svizzera. L'obiettivo del nostro contributo è quello di determinare in che modo le start-up svizzere, applicando il RegTech e la collaborazione con un'azienda di tecnologia

dell'informazione e delle telecomunicazioni, possano migliorare la gestione del rischio, ridurre i costi di compliance in Svizzera, in particolare nelle banche, e come potrebbero sviluppare il mercato finanziario svizzero.

Keywords: RegTech, FinTech, finance, banks, Switzerland

1 – Introduction: from financial crisis to RegTech

Since the Global Financial Crisis, the financial services industry has faced a growing amount of regulatory change, as both international and domestic legislators for improving the functioning of the industry and reducing systemic risk.

Regulators have moved towards a risk-based approach where access to data is key to prudential supervision. Developed markets have seen a 492% increase in regulatory changes between 2008-2015 (Morgan *et al.*, 2017)

For financial institutions, this regulatory activity has meant cost increases in terms of capital (e.g., Basel III), operations (e.g., human resources), or penalties.

On the last point alone, since 2008, banks penalties in the Western world have been calculated at over \$242 billion as reported by academics that are interested in the macro context (Arner, Barberis and Buckey, 2016) and about issues generated by the huge amount of the regulation after the great financial crisis.

Relevant topics are already mentioned (Arner, Barberis & Buckey, 2016) but there are also new ones like the protection of the customers in bank failure (Baxter, 2016), the complexity of risk supervisory in financial institutions (Anagnostopoulos, 2018), supervisory reporting (Kavassalis *et al.*, 2018).

In Switzerland, literature is not today providing a framework around case studies of functions and applications for the banks about Regulatory Technology (RegTech), and we must fill this research gap.

Following the financial crisis, in fact, firms must deal with more significant reporting requirements and meet higher regulatory standards.

The implementation of regulation technology helps, in this turbulent and complex regulatory times, to enable effective competition, promote innovation, better manage regulatory requirements, and reduce compliance costs.

Technology is changing the financial industry and transforming how the industry and financial authorities implement and enforce regulations.

Detailing our research questions are:

- 1) Which kind of RegTech startups cooperate with Swisscom during the pandemic?
- 2) How Swiss information technology and telecommunications companies, like Swisscom, are refocusing on entering RegTech's market?
- 3) Which are the applications at the center of the cooperation in the Swisscom RegTech ecosystem?
- 4) Previous and follow pandemic literature review confirms the evidence we found in Swisscom's RegTech system?
- 5) Which and how many start-ups have survived in Swisscom's RegTech ecosystem?

We verify also if the application of RegTech is suitable for compliance and to comply with regulatory requirements and RegTech can facilitate or even solve these issues given in a new and more complex world regulatory environment.

RegTech indeed is born as a part of financial technology (FinTech), that is used in the field of compliance in financial firms also applied to regulators for supervision of regulated entities but now, 2023, RegTech is commonly also used in other areas than finance like transportation and pharmaceutical sectors.

1.1 – Why the interest in RegTech in Switzerland and about Swisscom?

In our article, we will report on Switzerland's experience in the development of RegTech. In the literature, the unique result that mentions “RegTech” and “Switzerland” is written by Dominik Witz that worked about this topic in Swisscom, which examines potential of a Sandbox

for the testing of RegTech solutions. Testing RegTech applications is likely to be of particular interest to banks, as in any case they have to meet stringent regulatory requirements and consequently bear high costs (Witz, 2019).

We assume Swisscom and Witz study as a starting point for our research about the startups' ecosystem operated by Swisscom in the RegTech's field.

Thanks to particularly favourable legislation, Switzerland has proved to be extremely attractive for investment in this financial area. In recent years a huge number of startups have emerged in the Swiss financial ecosystem after the release of banking secrecy, which forced Switzerland to focus on other forms of business to maintain its competitive advantage in Europe and worldwide.

Due to this pushing and to the birth of numerous incubators, Switzerland has been able to earn a prominent place in the world concerning digital finance cryptocurrencies, crowdfunding, initial coin offering and initial public offering (Shashkova *et al.*, 2020; Zavolokina *et al.*, 2017), while remaining outside the European area from a political point of view but being a participant of the single European market (Schimmelfennig, 2021; Raffournier, 1995).

The choice of Switzerland to refocus its financial system was extremely particular: it did not focus only on a controlled regulatory environment called the "Sandbox" but also decided to focus on greater dialogue with the Authorities and on their presence within the incubators and aggregators.

Other authors besides Witz (2019) have also examined how to facilitate financial innovation and its regulation. Of particular interest in this topic is the study provided by Fáykiss *et al.* (2018) argues about “the regulatory tools that can be applied to encourage FinTech innovations, also focusing on the aims of financial stability.”

The Swiss financial and regulatory environment allowed the Authorities to have extremely quick feedback from companies already established in the financial sector such as large Swiss banks, telecommunications companies that have a strong contribution also in the development of innovative financial solutions, and emerging start-ups in the field of digital finance compliance to regulation that uses advanced technological tools.

We started our investigation into this part topic about the new refocused financial environment in Switzerland by consulting an article from the University of Zurich (Zavolokina, Dolata & Schwabe, 2016) regarding the definition of FinTech phenomenon. In the same manner we try to go in deep the RegTech phenomenon in its complexity trying to make this market novelty clearer.

This necessity has become important after the financial crisis. The improved regulation costs and to better answer to customer needs for their financial prudence makes the empowering of the compliance a urgent topic in Switzerland.

To delve the argument, we opted for interviews with the main Swiss start-ups thanks to a map made by the Swiss telecommunications operator Swisscom. Swisscom was interviewed as well. The map (Figure 1) contains various RegTech applications including anti-money laundering and customer profiling risk management, cross-border compliance operation, authentication, RegTech governance, tax and cross-border solutions, and regulatory mapping.

We have therefore asked a whole series of questions to try to understand the differences and similarities between the start-ups and in order to investigate until we no longer had new elements that characterize the RegTech companies. In this journey, which also took place during the coronavirus restrictions, we encountered extremely diverse business experiences in various areas of the finance and banking sector. In this article, through the interviews and checks due on the websites and regarding the financial statements data, we want to give a general idea of the start-up and incumbents' collaborations linked to regulation in the Swiss context. This aspect seems to be the greatest attraction of companies or the financial RegTech ecosystem provided by Swisscom.

2 – Methodology and literature review

Our methodology is based firstly on a preliminary literature review. We have not seen a similar paper in Switzerland, but we have found cases about RegTech implementation in the rest of the world. The number of cases studied is still residual and does not allow for a clear picture of the market in RegTech field.

We chose Switzerland, as we introduce before, because it is located outside the European Union and has become an extremely important FinTech market, partly because the authorities have decided to develop this sector to make Switzerland competitive again after the loss of banking secrecy. In this sense, the Swiss financial market Authority (FINMA) and one expert of the RegTech's topic (Witz, 2019) describing how Switzerland is opening to the possibility of settlement by facilitating regulation for access to the Swiss financial hub.

Before going in deep in the startups' RegTech ecosystem operated by Swisscom we have performed a literature review about the use of RegTech. As findings of this literature review, we explore the field of RegTech and its use experience into financial sector also in other countries in the world. We exclude from our results the articles and the books not related with the financial sector or RegTech.

We have done a preliminary literature review papers in the field, utilizing SSRN and Google Scholar. To identify relevant articles, we conduct a keyword "RegTech" + "case study" and "RegTech" in a second step in the over-mentioned databases and over the internet (if the full paper enlisted in the two databases could not be found on Google Scholar or SSRN)

During the exploration of the literature, we applied the following constraints as well: (1) dating to 31.7.2023 (without any lower time of beginning). (2) available in English.

Unfortunately, due to the novelty and complexity of the topic, few contributions have answered positively to our query. However, we have found some literature dealing with applications in RegTech. In all the analysed papers is described at least one case study of RegTech. These RegTech use cases will be useful for comparison with the evidence we have found in Switzerland.

We notice that few studies have argued about the strategies or the development of a FinTech company with the contribution of RegTech's solutions. In the field of our paper and in Swiss RegTech ecosystem in Switzerland or even in Europe, we don't find any paper or any detailed case similar to our objective.

The literature I have found can be grouped into several topics:

1) RegTech for anti-fraud and anti-money laundering.

2) RegTech for regulation's Authorities

3) Application in developing Countries (i.e. GDPR, privacy and detects unstructured personal information of tax effects of investment, without other calculations, artificial intelligence-powered solution for auditing and internal audit) and under developing countries about RegTech.

2.1 – Anti-fraud and anti-money laundering

The first group of literature is about the Anti money laundering and anti-fraud applications (Turki *et. al.*, 2020; Bakhos Douaihy, & Rowe, 2023; Zetzsche & Dewi, 2018; Rouhollahi *et. al.*, 2021; Battanta *et. al.*, 2019). In all the articles in this group, it emerges that anti-fraud and combating money laundering is a priority for implementing RegTech in the financial system. The articles, however, analyze the phenomenon from different perspectives, usually using specific case studies except for Turki *et al.* (2020) which proposes a survey of 100 banks.

The article of Battanta *et. al.* (2019) focalizes on a case study of RegTech in the banking sector in Italy showing important evidence in Anti Money Laundering, counterterrorism and the classification of norms inside banks of the financial regulation for semiautomatically compliance. The article of Turki *et. al.* 2020 analyses RegTech in anti-money laundering through a survey distributed to 100 bankers working in Bahrain with expertise in compliance. The paper shows that "transactions monitoring through RegTech and cost- and time-saving aspects of RegTech, drive money laundering prevention effectiveness to a highly statistically significant extent". However, "electronic know your customer (KYC)" technologies are insignificant as drivers. This research is not only focus on the efficacy of RegTech but also "raises general awareness concerning the adoption and integration of RegTech platforms for fighting money laundering" (Turki *et. al.*, 2020). Another study focused on laundering, addressed the following questions: how do commercial banks in developing countries like Lebanon respond to institutional pressures for compliance concerning anti-money laundering (AML) and counter-financing of terrorism (CFT)? "How do Regulatory Technology (RegTech) solutions contribute to solving their compliance problems" (Bakhos Douaihy, & Rowe, 2023).

The last article of this group written by Rouhollahi *et al.*, in 2021 discusses about challenging as the financial institutions need to upgrade their data and analytics capabilities to enable new technologies such as Artificial Intelligence (AI) to predict and detect financial crimes. In this paper, they put "a step towards AI-enabled financial crime detection in general and money laundering detection in particular to address this challenge" (Rouhollahi *et. al.*, 2021).

2.2 – RegTech for regulation's Authorities

In the second group, we find paper which connects RegTech to the supervision by Authorities in the western world but also in developing countries (Zetzsche & Dewi, 2018 ; Butler & O'Brien, 2019).

All the articles of this group deal with how technology such as artificial intelligence applied to regulation can help improve control. FCA, the UK market regulator in Butler and O'Brien, 2019 could be a model for developing countries as in the cases presented by Zetzsche et Dewi, 2018. In 2018 Zetzsche et Dewi arguing RegTech "may help not only in the set-up, but also in the governance and supervision of a credit register." (Zetzsche & Dewi, 2018).

The contribution of Butler and O'Brien cited a case study superficially, but the contribution mentions advantages noted as the ability to free up regulatory capital due to the better monitoring of RegTech. In particular a section explores the promise and potential of Regulatory Technologies (RegTech) as a new and vital dimension to the digitalization and speed provided by FinTech solutions into the financial system. The authors draw on the findings and outcomes of a five-year research programme to highlight the role that RegTech can play in making regulatory compliance more efficient and effective. This contribution presents research on the Bank of England/Financial Conduct Authority (FCA) RegTech Sprint initiative. The objective was to demonstrate how straight-through processing of regulations and regulatory compliance reporting using semantically enabled applications can be made possible by RegTech (Butler & O'Brien, 2019).

2.3 – RegTech Application in developing Countries

In third group of articles dedicated to application of RegTech inside financial institutions (Johansson *et al.*, 2019; von Solms, 2020)

In this third and last classification category of literature about RegTech articles, we take a more general look at RegTech applications related to treasury, privacy and customer profiling. Johansson *et al.*, 2019 and von Solms, 2020 not only in developed countries but, as the article points out Bhyer, B. S., & Lee, A. S., 2019, RegTech could also be employed to provide social inclusion within the financial system in developing countries.

The article of Johansson *et al.*, 2019 shows case studies in the RegTech field with aim to display real-life applications of Regulatory Technologies. The topic of the article is discussing, about how companies, display and solve clear and understandable problems connected to RegTech. In detail the article has focused on several companies offer regulatory compliance solutions for audit and assurance purposes. The first company analyzed offers a solution that complies with GDPR and detects unstructured personal information. The second company uses a software solution, which allows direct determination of tax effects of investment, without other calculations. The third company is given an artificial intelligence-powered solution for auditing and internal audit. Information about firms and their products have gathered from companies' websites, news articles, magazine articles, and academic papers (Johansson *et al.*, 2019).

Their aim, however, in comparison to our analysis, is different. For Johansson *et al.* (2019) the article shows the general possibilities that can be explored with RegTech. In our article, instead, the aim is to delve into a specific market by examining both how RegTech develops and to give as complete an overview as possible of the Swiss market in RegTech. While it may be interesting to understand how to examine cases as Johansson *et al.* (2019) have done, it is not ideal for our methodology and purpose. Also, the article's characterization and objectives are profoundly different.

Another contribution concerned this group but that it has not the same scope of our research is von Solms (2020) into the digital transformation of a bank Treasury. This article writing about

the option to incorporate RegTech into the digital transformation strategy of a management function such as Treasury (von Solms, 2020).

Connected to general RegTech's application we find an article about fostering financial inclusion in Asia and Africa developing countries (Bhyer & Lee, 2019). The study of Bhyer and Lee in 2019 discusses about views RegTech as a solution to financial inclusion by examining three case studies. The study focused on India, which has pioneered RegTech solutions through its India Stack. The authors widespread the analysis on Africa and on the Middle East and North Africa region, where there have been numerous initiatives by multiple stakeholders to use blockchain-backed RegTech, in the process fostering financial inclusion. Lastly, the study looks at refugees as a group and the work that many countries, international bodies, and organizations have done to create digital identities not only as a regulatory instrument but also to allow refugees to access financial services once they cross borders." (Bhyer & Lee, 2019).

2.4 – Theoretical support for the methodology to be applied for our investigation

After reviewing the literature, underlining applications fields of RegTech we think is important to have theoretical support for the methodology to be applied for our investigation of the Swiss RegTech about the Swisscom's ecosystem in several aspects. We examine the contemporary phenomenon of RegTech; we think to inspire our research from the FinTech's field since they strictly technologically connected. The use of AI and machine learning is used in both fields. FinTech also presents a richer literature.

In the FinTech field, scholars propose analysis using a qualitative case study research methodology. (Pan & Tan, 2011; Walsham, 1995).

As we notice from the literature review, in RegTech is present a very diversified and narrow number of cases with differences in the application. As a result of this situation of the literature a quantitative case study approach is impossible to apply due to the difference inherent in a possible sample. In a qualitative analysis on a single organization like (Haakman *et. al.*, 2020) ING bank, in particular, shows in their case the benefits of the AI analyses implementation.

Our research in fact is conducted on a single organization as the study of (Haakaam *et. al.*, 2020). In our paper, as in the overmentioned paper, we are focusing on a single case the Swisscom RegTech ecosystem that has no quantitative meaning on its relevance. Also, generalizability which refers to the extent the results is not possible directly possible because the legislation and the economic environment in other Countries is different from the Swiss one. However, we think our results may seem generalizable only to companies or nation of much smaller size and similar legislative background like Switzerland.

For generalizing we need, in the future, case studies at organizations involved in facilitating RegTech in several nations. For these motivations our paper is based on an illustrative case study: the Swisscom RegTech ecosystem in Switzerland to have a first view of a new phenomenon. In our paper we develop an illustrative case study about RegTech and the application provided by the Swisscom's ecosystem for incumbents in Switzerland to make the unusual field of regulatory technology more familiar and to give scholars the first exploration of application studies about the topic in question.

Because the illustrative case studies were accompanied by Exploratory (or pilot) Case Studies, we organize the extrapolation of relevant concepts and the discovery of application in order to identify outcomes in the form of lessons learned by practice.

We need to search if there are previous exploratory case study about RegTech or at least Fintech with the same aim to investigate a financial ecosystem. To help us in our research, we looked for models within the related topic of FinTech.

The first exploratory paper found in the FinTech's field is about a case study in the FinTech's field. The paper of Hung and Luo, 2016 is more similar to our intent because it is linked with FinTech companies and collaboration with the banking system.

This study aims to provide strategic considerations in the process of searching for FinTech investment targets. Taking lessons from the literature, we decide to collect data primarily through in-depth semi-structured interviews and corroborated by our observation notes, the material provided from the entity and secondary data taken from insider and regulatory product managers. Case access was negotiated through the company's regulatory division responsible, which granted us an immediate "legitimacy and credibility" in line with Patton, 1990; we want also to understand as Hung and Luo (2016) the cooperation between banks and other innovative players (Hung & Luo, 2016).

Also, for FinTech sector, previous case studies are described but for RegTech implementation we have only very different case study with no comparison each other. No papers about ecosystem in RegTech in a single country are also retrieved.

With this new topic of Swiss ecosystem in RegTech, not fully indeed yet we are obliged to write a new methodological path and do not refer from an existing model. We select to analyse the most representative dimensions in our sample and the most involved with the incumbents according to Seawright and Gerring (2008). Our choice of cases is primarily driven along these dimensions within the population of interest to have a broad view of the phenomenon, for monitoring the regulation. For individuating company and RegTech usage, we inspire our job to a paper based on the literature review that at the end provided a RegTech definition.

2.5 – Theories on Open banking and Platform theory

We found that the ecosystem of companies revolving around Swisscom can be traced back to two concepts, that refers to open banking and to the platform theory.

Open banking incorporates for banks business model change, client data sharing, incorporation of technological companies (FinTechs and in general I.T.), and regulation technology company. Briones de Araluze, Cassinello Plaza (2022) and Westermeier (2020) underlines about Open Banking, that "*recently, there have been initiatives that merge the digital and the financial sphere by integrating the transactions that run through established financial infrastructures into digital platforms*". With the use of "Large data-driven companies" hereby seek access to financial transactions and try to embed payments within their platforms.

Like the described models this opening potentially enables tech and other companies to access transactional data processed within the payment infrastructures and embed them within platforms". Open banking is a concept born in '00s years as part of the open innovation movement due to the born of internet banking. In 2015 the EU adopted

a new directive on payment services, PSD2, which incorporates the concept to Open Banking. The directive came into force in January 2018 and its explicit aims are to take account of new types of payment services and to promote innovative mobile and internet payment services (Westermeier, 2020).

The open banking platforms in which the banks are embedded are

... a system that provides a user with a network of financial institution's data through the use of application programming interfaces. With the help of platform banking, it is easy to show how data inside a bank be created, accessed, and shared (Arayesh *et al.*, 2022).

We notice, also with an examination of some case study analysis, that RegTech could be examined as qualitative case study and another theoretical approach very used is the Platform Theory (Seawright & Gerring, 2008; Levy, 2022; Sironi, 2021).

The notion of RegTech has emerged in recent years, but its application appears to have been mostly limited to the use of technology to assist organisations' compliance with regulatory requirements. A model encompassing RegTech's is presented, with the scope of embrace its capacity to address the needs not only of regulated entities, but also of regulators and the intended beneficiaries of regulatory regimes. The model is then applied to the recently popularised platform-based business model, whose mature form is evidenced by Uber and Airbnb. A range of opportunities is identified for practitioners and researchers to contribute to the application of information technologies in the regulatory space.

In this path we see that the telecommunication industry, Swisscom, has created a platform of services in the RegTech field associating several RegTech's startups that could be offered to the financial institution, for example banks and insurances, as facilitation for compliance that is directly connected to the core business of such financial institutions.

In the case of RegTech startups and the cooperation with banks, the platform theory is linked to the managing the regulatory field and core business of a bank. RegTech is relate to the main business and the compliance of a bank or a financial institution.

The relation means that RegTech is a transversal business through the sector, and the distinct characteristics of platforms are relevant to the four issues regarding collective interaction for entities and customers as the startup in the Swisscom Map. We have found some recent articles about Platform theory, banks and innovative services that analyzes FinTech and RegTech.

The porpoise of Levy (2022) regarding

digital banking platforms (website and apps) are offered to bank customers in order to create an experiential service, which is essential in retaining customers and generating brand bank loyalty. The current study aims to examine the dynamics of customer emotional experience generated during digital banking service delivery and investigate the effect of customer psychological engagement with various digital platform types on brand bank loyalty creation (Levy, 2022).

Although RegTech is generally not directly part of the customer user experience (except for customer identification and profiling) this study can also be considered interesting as a model for our purpose of mapping Swisscom's RegTech ecosystem and its impact on the Swiss banking system.

Another useful article to frame the FinTech and RegTech ecosystem in platform theory is writed by Lynn, Rosati and Cummins, written in 2020 and entitled

Exploring open banking and banking-as-a-platform: Opportunities and risks for emerging markets". "This analysis explores Banking-as-a-Platform (BaaP), a digital platform strategy for banking. After discussing the key technologies and concepts that underpin banking as a platform, we present a conceptual reference model for a platform-based bank and discuss the opportunities and challenges for policymakers, banks, FinTech companies, and entrepreneurs in emerging markets (Lynn *et. al.*, 2020).

The content of this chapter confirms that platform theory can also be adapted to the financial system to study services and technologies that are added and to expand or facilitate the bank's core business.

Another contribution (Sironi, 2021) explains the link between fintech banks and platforms economies. In this analysis author delivers the examination of how platform theory, born outside of financial services, will act inside banking and financial markets to change the way of the financial firm to conduct their business. The study discusses also about how the financial industry towards new forms of digital transformation underpinned by Contextual Banking and Conscious Banking platform strategies and benefit stakeholders. The author notices also that the mindset necessary to maintain banks strengthen and to transform traditional banks to a Banking-as-a-Service and Banking-as-a-Platform operations (Sironi, 2021).

According to Sironi with Banking-as-a-Service and Banking-as-a-Platform, operations banks can face bigtech contenders, enjoying greater flexibility and adaptability at lower digital costs. In particular figures in the financial services as CEOs, business leaders, regulators, fintech entrepreneurs, wealth managers, behavioural finance researchers and professionals working at financial technology companies, Banks and Fintech on Platform Economies, can redesign future of the financial industry and banks (Sironi, 2021).

In the topics of business strategy and management, the field utilized the words "industry platform" and defined them as "building blocks". Gawer in 2009 argues that could be a product, technologies, or services that "*act as the business ecosystem that can develop complementary products, technologies or services*" (Gawer, 2009).

RegTech and the Swisscom RegTech's map are also part of a block applied to the financial industry in terms of services applied to the regulatory field and compliance. Also, according to the finding of Walshe and Cropper (Walshe & Cropper, 2018), the Swisscom's RegTech could be identified as a platform because Swisscom mediating interactions between two or more groups of organizations: the banks and the start-ups in RegTech field.

Developing a Platform between different organization creates network effects (Ballon, 2009). The network effect is deployed into the startups connected with Swisscom to sell services to the swiss banks.

In the case of banks, RegTech companies are helping to manage the regulatory field and speed up compliance and know your customer capabilities. The banks could focus on the core business, and RegTech companies create a transversal business through the financial sector, which is the regulatory business. RegTech applications are complementary to the core business of the bank. We achieved this with cases whose findings are replicated across different levels of analysis.

2.6– The Research Methodology and Interview Design

About the Research Design, we perform exploratory case studies in order to identify the gaps in the existing RegTech solutions and explore key challenges in the field. This is a recurrent methodology to define new research by looking at concrete situations and to shed empirical light on existing concepts and principles. We follow the guidelines proposed by some scholars (Brereton *et al.*, 2008) on case study methodology. We also take care to Identify, with coding, the most critical aspects of Swisscom's eco-system about the benefits for both the company and startups. The book "Case study research: Design and Methods" (Yin, 2003) helps us to handle how to conduct our case study. It is not our objective to build an entirely new theory from the

ground up but to describe a new phenomenon like the use case of RegTech in Switzerland, specifically around the Swisscom ecosystem. For that reason and because a field of study like ours has not a long history, we don't adopt a fully Grounded Theory approach. Still, we do use several techniques based on Grounded Theory, for example, theoretical sampling, memoing, memo sorting, and saturation to find and order dataset.

The Research Methodology is based on semi-structured interviews that are the main original source of data in this case study. The data is later triangulated with other resources available inside the organization. (Brereton *et al.*, 2008). Documentation on the website of Swisscom is used to gain a deeper understanding of the cases and to theorize cooperation platforms and processes about RegTech mentioned in the interview. This documentation is available to the public in the organization and aims to provide a clear understanding of the processes and innovations available by Swisscom. It typically consists of slide decks, guides, technical documents and web pages. This documentation is not confidential but though triangulation was verified by the authors of this article.

The main goal is to provide means of assessing the validity of the innovations and cooperations from practitioners, specifically Swisscom and its ecosystem. It allows understanding the relevance of specific and niche topics and whether the peculiar insights from practitioners generalize to other sectors of the organization.

It is impossible to use other research methods because there is no quantitative sample to work with. The peculiarities of these Swiss start-ups and Swisscom are so varied that, as we anticipate before, it is impossible to make a quantitative analysis and only an exploratory, qualitative analysis of the phenomenon is possible. The approach used to collect information from interviews and to report data is based on the guidelines proposed by (Halcomb & Davidson, 2006). It is a reflexive and iterative process so composed:

1. Audio recordings of the interview and/ or concurrent notetaking. Only precise notetaking if recoding is not permitted by the interviewer.
2. Reflective journaling immediately post-interview.
3. Listening to the Mp3 and revising memos.
4. Triangulation of the shreds of evidence.
5. Data analysis

This procedure follows the method of Halcomb and Davidson, 2006.

The starting position for finding interviewees was the lead of a preliminary literature review and for Switzerland, the map provided by Swisscom, the most important telecommunication company and I.T. (Information Technology) company in Switzerland.

We selected interviewees based on their role and their involvement in the process of developing RegTech applications. The idea was to interview all the subjects on the map in Figure 1. Still, unfortunately, this was not possible as, partly due to restrictions caused by the coronavirus, subjects other than those listed below did not want to answer or could not answer. For the companies we interviewed, we heard from the administrator. For Swisscom, we interview the RegTech area manager Dominik Witz. We interviewed Swisscom to find out how the map was created, and we were told that they intend to foster a RegTech ecosystem with banks as well as research into their opportunities for collaborations by telling us that in Switzerland, they are offering a lot to banks and start-ups to help them get out of a prototype

phase and sell their solutions to important customers such as banks (Figure 2). We tracked down the cases thanks to the Swisscom map after contacting the companies.

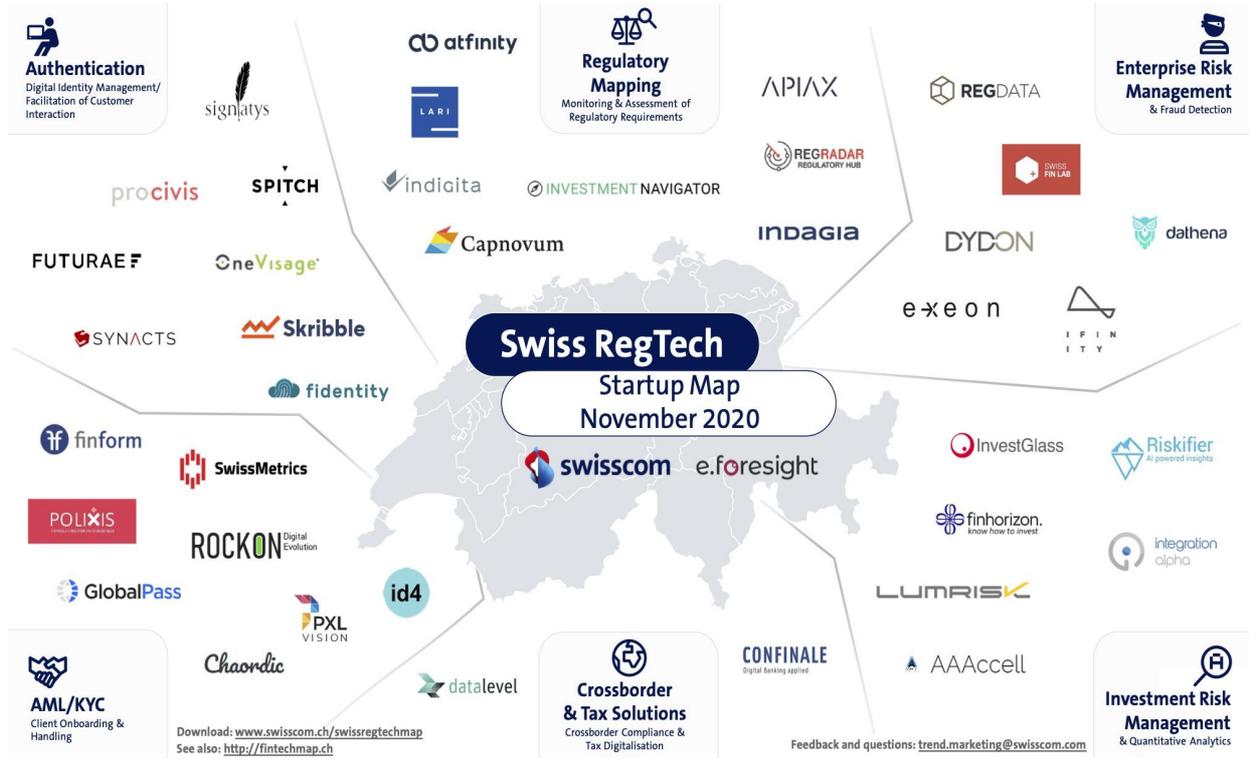


Fig. 1 – Swisscom Map in November 2020 (Source: website Swisscom map extracted in November 2020. <https://www.swisscom.ch/en/business/enterprise/downloads/banking/swiss-regtech-start-up.html>)

The sample in the Swisscom's ecosystem

RegTech ecosystem by Swisscom by sector of activity

Composition of interviewed sample in terms of sector of activity

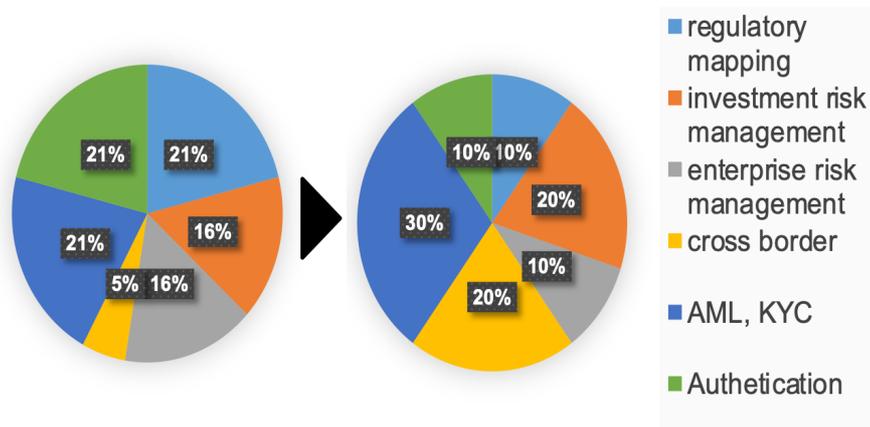


Fig. 2 – The swisscom's regtech SAMPLE (Source: our rielaboration from Swisscom map on Swisscom's website published in november 2020)

The responding companies, however, cover the entire spectrum of RegTech-related activities with which Swisscom cooperates, including:

- AML (anti money laundering) / KYC (Know your customers: (Apiax), Pxl vision, Finform
- Crossborder & Tax Solutions: Indigita
- Enterprise Risk Management / Fraud Detection: Dydon
- Investment Risk Management / Quantitative Analytics: AAACell, Integration Alpha
- Regulatory Mapping: Apiax
- Authentication: Fidentity

We adopt a basic approach to assessing data saturation. We assume that we achieved data saturation when practitioners from different teams reported information and insights we have not observed in previous interviews and meetings. We increased the number of participants until we reached a saturation level in the remarks mentioned by interviewees for each stage of the lifecycle.

For the Interview Design, we conducted the interviews, which took approximately one hour each. We took notes during the interviews, and we recorded the interviews, if allowed, with the permission of the participants of the CEO or RegTech division manager of the overmentioned companies. If not allowed by the persons, we take precise notes of the concepts expressed in the interviews. As interviewers, we started by introducing ourselves and providing a brief description of the purpose of the research and the interview. We make clear how and the motivation why it is connected to the research and the thesis. We asked the interviewees to introduce themselves and describe their main activity within the organization. After the introductions, we involved the interviewee to talk about a specific RegTech application project he or she was involved in recently and the peculiarity of the project in which the person was involved.

On that project, we expand our research by asking and discussing our interlocutor to describe the implementation of RegTech and the vision of the marketing in RegTech. No less important were the questions of how their partnerships with Swisscom developed and how and why these companies have moved into the RegTech market.

We decided firstly to interview a person who has dealt with it from both a business and academic perspective, providing not only useful details about the structure of the Swiss sandbox but also constructive criticism of its design and corrections that would be necessary to make the Swiss environment even more attractive to FinTech and RegTech investors. In particular, we identified one person who was familiar with the Swisscom ecosystem, who was aware of RegTech developments in academia, who had experience with regulators but also with startups in the person of Dominik Witz. Dominik Witz was Head of Banking Compliance and RegTech, at Swisscom we have interviewed, he has written a paper on the rules for the license-exempt innovation space, the sandbox, came into force in Switzerland. His knowledge of the industry was a guide in exploring Swiss RegTech.

3 – Results

As we mentioned in the introduction and in the methodology, Swisscom is a publicly owned company that deals with telephony but after the financial crisis decided to focus on RegTech and FinTech offering information technology linked to financial services.

Swisscom decided to approach the subject seeing the great potential of FinTech and RegTech. Due to the changing international environment and the fall in banking secrecy, Switzerland had to refocus on FinTech.

The telecommunication company already has experience as a company helping business customers not only with the provision of telephone lines and high-speed Internet connectivity but also with the provision of complementary services connected to Informatics solutions. Swisscom itself is already a service provider for Swiss financial institutions and therefore has a privileged channel for dialogue to propose technologically advanced solutions in the computer science field.

We have interviewed Dominik Witz, at the time Head of Banking Compliance & RegTech in Swisscom and expert in the topic of regulation. We introduce him in the introduction about RegTech in Switzerland. He explains that the Swisscom's purpose is to promote financial innovation and to improve the competitiveness of Switzerland as a financial hub. He discusses this new proposition and examines its potential for the testing of RegTech solutions (Witz, 2019).

For Swisscom, RegTech services are informatic technologies that permit banks and other financial service providers to compliance with regulatory requirements more effectively and efficiently than the previous solutions. As Swisscom is a telecommunication and I.T. player in the swiss market they talk about data analytics, artificial intelligence, self-learning software, encryption technologies, blockchain and biometric applications. These use cases and applications of RegTech we are correspondent on what have found also in other countries in our literature review.

3.1 – Findings

The interesting findings about RegTech ecosystem operated by Swisscom are that:

- It's working and evolving their perimeter together with the startup of the Swisscom map that the Telecom company has created.
- The solutions that cover different requirements: tax, reporting, cross border, risk management with data analytics, KYC and preferences of the clients can be analysed to answer better to their exigence.
- The same data can also be used to meet compliance requirements. For example, one of the banks is to know the customers for profiling then and to avoid money laundering and frauds. RegTech could Data analytics, Ai helps a great improvement here.
- The strategy is already in place: cooperations with startups and adds managed services to this. The services will enable the customer to get everything from a single source.

Swisscom, as a RegTech provider, also for the financial sector gives the option to improve customer interactions and services on all its digital channels using its IT infrastructure. As Witz in 2017 (updated in 2021) reported also in a previous interview entitled "*RegTech can already be implemented today*" (on the Swisscom's company website) Swisscom with the RegTech solutions provided by Qumram (nowadays named Dynatrace) is a very good example of how Swisscom will establish services in future and as it now operates.

Qumram as reported in the interviews on the Swisscom's website conducted by Honegger in 2016 and 2017, provides the software, and Swisscom makes available the entire infrastructure, such as servers, databases, applications, and lines, but they will of course, also implement the integration project: advising the customer specifications and, in cooperation with other start-

ups in the Swisscom map create new business models for incumbents. Financial services providers have already made a lot of progress with the digitization of their processes.

As soon as Swiss banks will get on RegTech in time and standardize and make faster compliance processes across the industry in Switzerland. The great possibility offered by the ecosystem and openness of the regulators in comparison to other countries will be an advantage for the Swiss banking system in the future. T

The Swiss model of regulation is based on a liberal economy, it has been a model of success to grant banks. However, the rule-based regulation, which is standard in foreign countries, facilitates the automation of compliance processes, which makes cost savings easier to implement in some countries abroad. However, Swisscom seems to think that Swiss banks will get on board with RegTech in time and standardize compliance processes across the industry, not only for cost reasons but also to provide better services to the clients, improve efficiency, and provides cost savings with RegTech thinking particularly in the cross-border area. In principle, all information is available on what is permitted and what is not in cross-border service provision, but to create a database of rules, like Apiax, mapped in the Swisscom map, is doing a great deal of effort on a case-by-case cross-border needs but also about other sectors.

This cross-border solution also contains some exciting innovations, both in the technological sphere through a technology that can make the databases of the bank or financial institution communicate and, more generally, concerning the linguistic interpretation of the rules and their way of cataloguing norms: if it is necessary to rely on a database of rules to endorse a cross-border operation, these must be digitized and comprehensible in machine language, as well as being compared in real-time directly or through an app or through the so-called API that enable the Apiax servers to communicate with those of the bank requesting the service. The digitization of this information and these rules means considerable time savings for the affected banks in their day-to-day business. However, it will only be possible in the long term to automatically recognize new regulations and assign them to the appropriate processes and systems, as the Swisscom map shows for these sectors.

We found that in all cases categorized by Swisscom as a RegTech company that are involved in lowering costs for the bank to be involved in another innovation field, the cost of compliance is a huge cost for the banks. The work of the bank staff will change, also concerning compliance, risk management, and reporting due to the emergence of RegTech.

Swisscom is wide spreading its network of start-up RegTech every year. We notice an expansion of the map also during the first phase of the pandemic demonstrating resilience during lockdown as it can be seen from the two Swisscom maps shown in Figure 3:

In fact, analysing the survival of start-ups after three years, we note that the start-ups which have had contact with Swisscom have modified their business model to deal with entities such as UBS, Credit Suisse or Post Finance.

For a RegTech start-up, adapting a business model that is extremely technology-based and less regulation-based to the needs of a bank is not easy and requires extensive internal reorganization. This internal reorganization and adaptation of the prototypes to fit the bank's business model contributed in no small part to the fact that Swisscom acted as a mediator between the start-ups' technology and access to the bank's data and customer base that the start-ups encountered in their development path.

The internal reorganization and adaptation of the prototypes created by the start-ups to fit the bank's business model is possible also because Swisscom acted as a mediator between the start-ups' technology and access to the bank's data and customer base.

Start-ups encountered in their development path the bank's needs and customers and the banks become partner in the RegTech field.

Evolution of the Swisscom map during pandemic: sectors and startups in May 2020 and in August 2021



Fig. 3 – Evolution of The Swisscom Map (Source: Swisscom's website)

3.2 – The survival rates of the analyzed start-ups and those on the Swisscom maps

Let us now look specifically at the survival rates of the start-ups we analyzed and those on the Swisscom maps after three years the beginning of the pandemic:

- AML (anti money laundering) / KYC (Know your customers: Apiax, PXL vision (alive and expanded in telecommunication sector), Finform
- Crossborder & Tax Solutions: Indigita
- Enterprise Risk Management / Fraud Detection: Dydon (expanded into legal and medical sector)
- Investment Risk Management / Quantitative Analytics: AAACell (acquired by LPA), Integration Alpha
- Regulatory Mapping: Apiax
- Authentication: Fidentity

We checked again in September 2023 and all the start-ups interviewed and present in the Map of November 2020 that were part of the Swisscom ecosystem were found to be alive and some in expansion. Some like Dydon have even expanded their solutions into other sectors such as healthcare and legal and like PXL vision into telecommunications.

Start-ups interact through Swisscom, which, thanks to its contacts within financial institutions, can propose a range of solutions profiled and adapted to match what start-ups could offer and the business needs of the banks. Swisscom, clearly, is not merely a reseller of

solutions provided by start-ups but can provide for example technical competence and infrastructure like servers and cloud computing.

Adapting solutions to the market context is also an onerous task but is essential to meet market needs. An example of this is the start-ups PXL vision, which provides customer knowledge and profiling systems for telephony.

Still, the same solution can be adapted to the financial sector, e.g., for the Swiss post office or the big Swiss banks. The exact process of adapting solutions is also a business applies to other companies in the RegTech area.

The start-ups Integration Alpha, which work in the field of quantitative data analysis and data cleaning could help to better manage data not only in the financial sector but also through different sector making better data better comparable.

The different realities need to have comparable data and to be able to use them both to propose new products to customers. Companies need to have comparable data and to be able to use both to introduce new services but also to comply with regulations in terms of avoid fines. In contrast, other areas such as cross-border or regulatory mapping are applied more strongly to the financial system.

All these findings emerged as we were talking to responsible of RegTech business unit of the individual companies listed above.

We have therefore seen how in reality a telecommunications company from which financial institutions cannot disregard because the financial institution needs connectivity, is in privileged position as regards the aggregation of competencies: a telecommunication in general company is in an optimal position as regards opportunities to propose solutions in various fields similar or not to the business of Internet connectivity, which was Swisscom's original business.

In terms of industry development, we see in the interviews that, both the incumbents PostFinance and Swisscom gained a cost advantage from working with start-ups by being able to acquire and adapt innovations produced by start-ups.

3.3 – The Swisscom ecosystem

Swisscom has created a true ecosystem, while Post finance has relied on know their RegTech solutions for customer onboarding aggregated in Swisscom ecosystem.

We notice for compliance about the knowledge of the client that for Swisscom an active market segment is also Know Your Customer (KYC) compliance and in particular document validation operations.

This is masterful example is the Swisscom's ecosystem in both the fintech and RegTech spheres. Swisscom's ecosystem is a true model of collaboration and development for start-ups linked to innovation in financial regulation also in KYC RegTech.

Some of the incumbents cited by start-ups such as of UBS, Credit Suisse, and PostFinance have also empower financial innovation in this area.

The areas of RegTech included in Swisscom ecosystem are varied and range over solutions that can be extremely useful in other Countries as well, such as Anti-Money Laundering (AML) and KYC, data cleaning for compliance and compliance reporting for onboarding and certainly the catalogue of regulations useful for cross border activities.

We see similar result confirmed in other countries like Bahrein (Turki, 2020), in Lebanon (Bakhos Douaihy, & Rowe, 2023).

There is also a strong need for customer profiling in Lebanon, but more for the purpose of preventing illicit financing and fraud as showed by Bakhos Douaihy, & Rowe, (2023) that argue that Lebanon responding to institutional pressures for compliance concerning anti-money laundering (AML) and counter-financing of terrorism (CFT). The asking how Regulatory Technology (RegTech) solutions contribute to solving their compliance problems" (Bakhos Douaihy & Rowe, (2023).

We note that the need to improve through profiling RegTech technology for commercial and regulatory purposes (fraud prevention) is very much alive not only in Switzerland and it an important RegTech use case not only in developed country.

We also believe that in this area of anti-money laundering and anti-terrorism, it is possible for Swiss-built RegTech solutions to spread to developing countries and in particular to Arab countries, as demonstrated by RegTech use cases in Bahrain and Lebanon.

In our evidence in the Swisscom startups ecosystem, shows the correspondence in a platform theory for RegTech services in companies and banks.

The cooperation between start-ups and banks modified the concept of traditional banking in a platform of services through Fintech and Regtech adding new modalities to introduce new services and make existing services related to financial compliance more efficient through RegTech.

The overmentioned RegTech services are not only provided by the bank but also from startups who cooperates, through Swisscom, with the bank to provide to the costumers RegTech's services. This idea is presented in a conceptual reference model for a platform-based bank in Lynn et. Al. 2020.

The Swisscom map and the huge variety of operations improvements in compliance though RegTech for the Swiss banking system are a clear representation of this open banking and platformization of services provided by banks.

The RegTech solution around improvement of AML (anti money laudering) / KYC (Know your customers, Crossborder & Tax Solutions: Enterprise Risk Management / Fraud Detection and Investment, Risk Management / Quantitative Analytics: Regulatory Mapping and Authentication are represented in the Swisscom's RegTech ecosystem and shared by RegTech's start-ups with important Swiss financial institutions like banks or the Swiss post.

What's even more interesting is that our research was conducted in 2019-2020, in the middle of the pandemic in Switzerland, and the overall results of the literature search provided the same evidence of application in RegTech as found in the Swisscom's ecosystem.

Even though the different researches (our research and those found in the literature review mentioned in the literature review section) were conducted in different countries, the results in term of applications of the RegTech in the Swisscom ecosystem are pretty much the same as those found in the more recent papers.

It can be underline that the Swisscom's platform ecosystem is a world pioneer in creating an aggregator of solutions in RegTech field.

It could therefore be argued that the Swiss ecosystem system in the RegTech sphere has not only confirmed its adherence to the platform theory but has also been a forerunner in comparison to other economic contexts Bahrain and Lebanon.

Both in Switzerland and in the two countries mentioned above, all of which have the same need on the part of the authorities and banking institutions to be able to examine not only the financial sheet of those who carry out banking transactions for Know-Your-Customer (KYC) purposes but also for the prevention of money laundering and the financing of terrorism.

We can therefore state that RegTech is rightfully part of the open banking and platform theory, applied to banks, aggregators such as Swisscom and RegTech start-ups, the Swiss system has been a forerunner of this trend worldwide precisely because of its peculiarities of openness to exchanges and the careful search by incumbents in the financial and information technology sector (such as Swisscom) for innovations to improve processes and reduce costs for clients. In fact, improve processes and reduce costs for clients is what RegTech for example promises to do with the reduction of compliance costs and the speeding up of compliance procedures giving more effective customer management and commercial profiling.

4 – Conclusion

We have acquired from Switzerland that the areas where improvement is possible span many fields of RegTech. A market as rich as Switzerland's, devoted to innovation traditionally provided only by banks and financial institution through internal lines, has surprised us introducing in the financial system the innovations by startups in a newly created RegTech ecosystems powered by an incumbent, Swisscom.

Thanks to Swisscom, we have learned how the creation of a RegTech aggregation system can modernize many activities and applications related to financial regulation. However, the Swisscom ecosystem shows that a collaborative approach by all stakeholders, regulators included, is required to achieve this result of modernization of the financial service. This is also an indispensable step for the telecommunications companies themselves to offer a wide range of solutions in the current market context that need to search business opportunities well beyond connectivity.

In our specific case, which was dedicated to the Swisscom RegTech ecosystem, the company would satisfy the need for innovation in telecommunication business unit with Know Your Customer RegTech for onboarding new clients but also to create new business lines and opportunities with banks.

In the current market environment, Swisscom offers a wide range of solutions not only for connectivity and cloud computing but also for RegTech regulation in the financial field. Some of these solutions, particularly those dedicated to compliance to uploading and interacting with customers, are now important for many sectors other than telecommunications companies and the financial sector. The health care, pharmaceutical and transportations sector are clearly sectors in which RegTech solution for complex compliance issues could help.

In fact, some of the companies that collaborate with Swisscom in its ecosystem are also starting to investigate these domains in order to propose RegTech solutions to these sectors.

In our specific research, Swisscom has decided to meet the innovation needs of banks and financial institutions by providing them with a RegTech service that will impact lowering compliance costs in the various areas we examined during this article.

Data are becoming more and more the actual value of companies. The huge amount of data, together with the compliance, in which RegTech is useful, also gives, through technology, the possibility to compare them.

The new scenario provided by the implementation of RegTech into the Swiss financial system could provide to Switzerland a competitive advantage to companies through different RegTech applications. In the swiss modern and technologically advanced financial system RegTech could not only foster innovation in financial services with a better customer satisfaction but also mitigate severe risks of non-compliance by financial institutions.

5 – References

- Anagnostopoulos, I. (2018). Fintech and regtech: Impact on regulators and banks. *Journal of Economics and Business*, 100, 7–25.
- Arayesh, M. B., Rezaeirad, M., Aidi, M., & Lamuki, T. G. (2022). Modeling the platform-based banking in commercial banks of Iran. *Journal of Banking Regulation*, 1-17.
- Arner, D. W., Barberis, J. & Buckley, R. P. (2016). FinTech, RegTech, and the reconceptualization of financial regulation. *Nw. J. Int'l L. & Bus.*, 37, 371.
- Bakhos Douaihy, H., & Rowe, F. (2023). Institutional pressures and RegTech challenges for banking: The case of money laundering and terrorist financing in Lebanon. *Journal of Information Technology*, 02683962231152968
- Ballon, P. (2009). The platformisation of the European mobile industry. *Communications & strategies*, (75), 15.
- Battanta, L., Giorgino, M., Grassi, L., & Lanfranchi, D. (2020, September). *Regtech: Case studies of cooperation with banks in italy*. In European Conference on Innovation and Entrepreneurship (pp. 112-119). Academic Conferences International Limited.
- Baxter, L. G. (2016). Adaptive financial regulation and regtech: a concept article on realistic protection for victims of bank failures. *Duke L J*, 66, 567.
- Bhyer, B. S., & Lee, A. S. (2019). *Banking the Unbanked and Underbanked: RegTech as an Enabler for Financial Inclusion*. The RegTech Book.
- Brereton, P. et al. (2008). *Using a protocol template for case study planning*. In the 12th International Conference on Evaluation and Assessment in Software Engineering (EASE) 12, 1–8.
- Briones de Araluze, G. K., & Cassinello Plaza, N. (2022). Open banking: A bibliometric analysis-driven definition. *PLoS one*, 17(10), e0275496.
- Butler, T. & O'Brien, L. (2019). Understanding RegTech for digital regulatory compliance. in *Disrupting Finance*. Palgrave Pivot, Cham, 85–102.
- Clarke, R. (2020). *RegTech opportunities in the platform-based business Sector*. In 33rd Bled eConference 2020: Bled, Slovenia
- Fáykiss, P., Papp, D., Sajtos, P., & Törös, Á. (2018). Regulatory tools to encourage FinTech innovations: The innovation hub and regulatory sandbox in international practice. *Hitelintézet Szemle/Financial and Economic Review*, 17(2), 43-67.
- Haakman, M., Cruz, L., Huijgens, H., & van Deursen, A. (2020). AI lifecycle models need to be revised. an exploratory study in fintech. *arXiv preprint arXiv:2010.02716*.
- Halcomb, E. J. & Davidson, P. M. (2006). Is verbatim transcription of interview data always necessary? *Applied nursing research*, 19(1), 38–42.
- Honegger, H. (2016). I needed to become a tad more aggressive" Interview with Patrick Barnert. Swisscom (24 October 2016). Available at: <https://web.archive.org/web/20210924004117/https://www.swisscom.ch/en/business/enterprise/themen/banking/interview-patrick-barnert.html>
- Honegger, H. (2021). RegTech can already be implemented today" interview with Dominik Witz. Swisscom (2017 updated 17 November 2021). Available at: <https://web.archive.org/web/20230324085022/https://www.swisscom.ch/en/business/enterprise/themen/banking/regtech-compliance-software-im-banking.html>

- Hung, J.-L. & Luo, B. (2016). FinTech in Taiwan: a case study of a Bank's strategic planning for an investment in a FinTech company. *Financial Innovation*, 2(1), 1–16.
- Gawer, A. (2009). Platform dynamics and strategies: from products to services. *Platforms, markets and innovation*, 45, 57.
- Johansson, E., et al. (2019). Regtech-a necessary tool to keep up with compliance and regulatory changes. *ACRN Journal of Finance and Risk Perspectives, Special Issue Digital Accounting*, 8, 71–85.
- Kavassalis, P. et al. (2018). An innovative RegTech approach to financial risk monitoring and supervisory reporting. *The Journal of Risk Finance*, 19(1), 39–55.
- Levy, S. (2022). Brand bank attachment to loyalty in digital banking services: mediated by psychological engagement with service platforms and moderated by platform types. *International Journal of Bank Marketing*, 40(4), 679-700.
- Lynn, T., Rosati, P., & Cummins, M. (2020). Exploring open banking and banking-as-a-platform: Opportunities and risks for emerging markets. *Entrepreneurial Finance in Emerging Markets: Exploring Tools, Techniques, and Innovative Technologies*, 319-334.
- Morgan, D. et al. (2017). The Future of RegTech for Regulators—Adopting a Holistic Approach to a Digital Era Regulator. *Transatlantic Policy Working Group Fintech (TPWG)*, (June 23), (accessed September 25, 2018) [available at: <https://new.innovatefinance.com/reports/future-regtech-regulators-adopting-holistic-approach-digital-era-regulator/>].
- Pan, S.L., Tan, B. (2011). Demystifying case research: A structured–pragmatic–situational (SPS) approach to conducting case studies. *Information and Organization* 21, 161–176.
- Raffournier, B. (1995). The determinants of voluntary financial disclosure by Swiss listed companies. *European accounting review*, 4(2), 261-280.
- Rouhollahi, Z., Beheshti, A., Mousaeirad, S., & Goluguri, S. R. (2021, November). *Towards Proactive Financial Crime and Fraud Detection through Artificial Intelligence and RegTech Technologies*. In The 23rd International Conference on Information Integration and Web Intelligence (pp. 538-546)
- Seawright, J. & Gerring, J. (2008). Case selection techniques in case study research: A menu of qualitative and quantitative options. *Political research quarterly*, 61(2), 294–308.
- Schimmelfennig, F. (2021). Brexit: differentiated disintegration in the European Union. In *The Politics and Economics of Brexit* (pp. 66-85). Routledge.
- Shashkova, A. V., Agranovskaya, M. A., & Kitsmarishvili, D. E. (2020). FinTech & new digital instruments. Post-crisis developments: Russia and Europe. *Digital LJ*, 1, 25.
- Sironi, P. (2021). *Banks and fintech on platform economies: contextual and conscious banking*. John Wiley & Sons
- Turki, M., Hamdan, A., Cummings, R. T., Sarea, A., Karolak, M., & Anasweh, M. (2020). The regulatory technology “RegTech” and money laundering prevention in Islamic and conventional banking industry. *Heliyon*, 6(10).
- von Solms, J. (2020). Integrating Regulatory Technology (RegTech) into the digital transformation of a bank Treasury. *Journal of Banking Regulation*, 1–17.
- Walsham, G. (1995). Interpretive case studies in IS research: nature and method. *European Journal of information systems* 4, 74–81.
- Walshe, J. & Cropper, T. (2018). Should you be banking on RegTech?. *Journal of Securities Operations & Custody*, 10(2), 167–175.
- Westermeier, C. (2020). Money is data—the platformization of financial transactions. *Information, Communication & Society*, 23(14), 2047-2063.

- Witz, B. D. (2019). *Sandbox Games for RegTech*. in *The RegTech Book*. John Wiley & Sons, Ltd.
- Yin, R. K. (2003). Design and methods. *Case study research*. SAGE, Los Angeles, London.
- Zavolokina, L., Dolata, M., & Schwabe, G. (2016). The FinTech phenomenon: antecedents of financial innovation perceived by the popular press. *Financial Innovation*, 2(1), 1-16.
- Zavolokina, L., Dolata, M., & Schwabe, G. (2017). *FinTech transformation: How IT-enabled innovations shape the financial sector*. In *Enterprise Applications, Markets and Services in the Finance Industry: 8th International Workshop, FinanceCom 2016, Frankfurt, Germany, December 8, 2016, Revised Papers 8* (pp. 75-88). Springer International Publishing.
- Zetsche, D. A., & Dewi, T. R. (2018). The paradoxical case against interest rate caps for microfinance—and: how FinTech and RegTech resolve the dilemma. *University of Luxembourg Law Working*, 3.