



School of Social Sciences

Master in Business Administration

Postgraduate Dissertation

Modeling Digital Transformation: A Case Study on Re-engineering  
the Customer Onboarding Journey at Piraeus Securities to Address  
Market Challenges

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Patras, Greece, May 2026

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*Dedicated to my family*

## **Abstract**

This thesis explores the transition of customer onboarding processes from physical to digital formats to address challenges in the financial environment, focusing on a case study of the digital transformation at Piraeus Securities. It examines the challenges, strategies, and benefits of implementing digital onboarding solutions in the financial services industry, highlighting how digital tools enhance customer experience, operational efficiency, and compliance. Furthermore, a business process modeling approach is employed in this case, enabling an in depth exploration of the underlying processes associated with Equities products and unveiling the technical aspects of the transformation. Through the analysis of this case study, we can identify the improvements in the involved processes as observed by Piraeus Securities and its customers.

## Keywords

- Digital Transformation
- Strategic Management
- Financial Services
- Innovation
- Modeling
- Business Processes
- Quality Assurance

## Περίληψη

Ο στόχος της διπλωματικής εργασίας είναι η διερεύνηση της μετάβασης των διαδικασιών ένταξης πελατών από φυσική σε ψηφιακή μορφή για την αντιμετώπιση προκλήσεων στο χρηματοοικονομικό περιβάλλον, εστιάζοντας σε μια μελέτη περίπτωσης του ψηφιακού μετασχηματισμού στην Piraeus Securities. Εξετάζει τις προκλήσεις, τις στρατηγικές και τα οφέλη της εφαρμογής λύσεων ψηφιακής ένταξης στον κλάδο των χρηματοοικονομικών υπηρεσιών, επισημαίνοντας πώς τα ψηφιακά εργαλεία βελτιώνουν την εμπειρία του πελάτη, την επιχειρησιακή αποτελεσματικότητα και την κανονιστική συμμόρφωση. Επιπλέον, σε αυτή την περίπτωση χρησιμοποιείται μια προσέγγιση μοντελοποίησης επιχειρηματικών διαδικασιών, επιτρέποντας μια εις βάθος διερεύνηση των υποκείμενων διαδικασιών που σχετίζονται με τα προϊόντα μετοχών και αποκαλύπτοντας τις τεχνικές πτυχές του μετασχηματισμού. Μέσω της ανάλυσης αυτής της μελέτης περίπτωσης, μπορούμε να εντοπίσουμε τις βελτιώσεις στις εμπλεκόμενες διαδικασίες, όπως παρατηρήθηκαν από την Piraeus Securities και τους πελάτες της.

### **Λέξεις – Κλειδιά**

- Ψηφιακός μετασχηματισμός
- Στρατηγική Διοίκηση
- Χρηματοοικονομικές Υπηρεσίες
- Καινοτομία
- Μοντελοποίηση
- Επιχειρηματικές Διαδικασίες,
- Διασφάλιση Ποιότητας

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# 1 Introduction

## 1.1 Foreword

Technology impacts every facet of our daily lives, driven by innovations and advancements in research and development. This influence extends to both our personal lives and business operations. Banks, too, are inevitably affected by this technological wave, which often necessitates significant changes. One notable shift we all recall is the move from traditional banking to electronic banking, prompted by the need for modernization.

In recent years, we are witnessing a new wave that is both social and technological, pushing banks to transform digitally to enhance various aspects, such as offering more attractive terms, creating competitive products, and streamlining processes. Companies developing digital capabilities and rethinking their business models, operations, and customer relationships engage in what is termed Digital Transformation. The banking sector is at the forefront of this transformation, facing challenges while also enabling digital advancement.

Financial institutions are adapting to this new environment at different rates, influenced by various factors. Numerous examples highlight digital transformation within banks, impacting their internal operations, customer facing products and services, and overall business models. These institutions are well positioned to provide a comprehensive range of services, from basic needs like account openings and card issuance to more complex transactions related to stock markets, real estate, and investments. Such services can be accessed remotely through digital channels (e.g., web and mobile banking) or via more direct, personalized methods (e.g., call centers, video calls, chatbots, and branches).

## 1.2 Definition of Customer onboarding

” How are customer onboarding processes defined?”, covers the definitions of customer onboarding processes.

Customer onboarding has been defined as the customer’s first experience with the organization or product (Paknikar, S., Arya, A., Karni, G., Kumar, S., & Mehta, V., 2014); For instance, in (Carl’ en, 2017), customer onboarding is defined as” focusing on user’s first encounter with a product.”

Extending the previous definitions of onboarding as a question:” Who are you, do I want to do business with you, and do I have enough information to confirm that I can do business with you?” Such a definition emphasizes the process for confirmation or termination of a business relationship.

Furthermore, the process can be extending the above definition by clarifying that “know your customer” KYC explicitly refers to the need to get to know the customer and create a better customer profile.

Effective “Know Your Customer” (KYC) processes constitute the foundation of successful compliance and risk management programmes, particularly as the demand to meet KYC requirements intensifies. However, current KYC and Customer Due Diligence (CDD) processes in most firms remain inefficient and ineffective. While financial institutions mandate that customers provide personal information during onboarding, this often creates significant friction, negatively impacting customer experience and brand perception.

Concurrently, banks face a dichotomy of criticism: they are scrutinized for excessive data collection while simultaneously warned against poor data maintenance and utilisation.

Consequently, the critical question arises: how can banks address these challenges to implement robust, future proof CDD processes across the client life cycle that satisfy regulators, empower internal teams, and meet customer expectations? The solution lies not in increasing controls or personnel, but in adopting an approach that is significantly more tailored, data driven, and risk based.

Effective KYC and due diligence are essential for understanding customer operations and determining whether business relationships align with the bank's interests. Furthermore, they are crucial for assessing the financial crime risk presented by each customer. While regulators mandate 'enhanced scrutiny' for higher risk customers without specifying the exact parameters, this is generally interpreted as requiring heightened monitoring of transactional activity. The true challenge, therefore, is rendering CDD more targeted and effective. This involves optimising transaction monitoring through the integration of KYC data, addressing the complexities of digital technology adoption, and formulating strategic recommendations for the banking sector. (Matthews, 2022)

Multiple definition of the customer onboard process with the primary goal of KYC along with the sub processes such as AML and profiling are:

**Table 1 Onboarding Definition**

No	Definition	References
1	Customer onboarding is the first real experience of the customer with the organization	(Paknikar, S., Arya, A., Karni, G., Kumar, S., & Mehta, V., 2014)
2	Client onboarding is the first touch point where customers interact with the financial institution	(Watson, 2019)
3	Customer onboarding refers to the phase of a prospective customer starting a business relationship with the bank.	(Bitterli, 2020)
4	Customer onboarding is the first touch point where the customer gets the first experience and impression about the bank, and in return, the bank gets the opportunity to delight their new customer for the first time.	(Joshi, 2020)
5	(1) Onboarding is the process of letting new users acquire the necessary skills to become active customers. (2) User onboarding is the "process of increasing the likelihood that new users become successful when adopting your product." (3) User onboarding is a discipline in UX design focusing on the user's first encounter with a product	(Carl'en, 2017)
6	Customer onboarding is the process of a financial services provider establishing a business relationship with a customer	(G20 digital identity onboarding, 2018)
7	Customer understanding and onboarding means: who are you, do I want to do business with you, and do I have enough information to confirm that I can do business with you?	(Anti-money laundering and financial crime compliance a viewpoint for

		revitalization and efficiency, 2017)
8	Onboarding is the commencement of the operational process or the start of account maintenance	(Guiral, 2019)
9	Customer onboarding is the procedure for establishing or otherwise setting up a new user account.	(Dieter, 2020)
10	Onboarding is a process to minimize counterparty and fraud risk, as well as to satisfy any relevant KYC and AML procedures	(Lowmaster, 2018)
11	Client onboarding is an extensive process that requires firms to carry out CDD and be able to verify the identity of clients on an ongoing basis to prevent activities such as money laundering, financial fraud, identity theft, and terrorist financing.	(Underwood, et al., 2019)
12	The onboarding process includes KYC checks but also broader points such as the individual's tax residency or employment information, as well as information to assist with the institution's	(Grace, D., Joyce, S., Clark, A., & Loy, V. , 2016)

### 1.3 Sub processes

From the above listed definitions, we can extract that the onboarding process is a complex set of processes that has profound effect in the relation customer and finance institution. Moreover, additional subprocesses exist to fulfill the financial institution's regulation obligations Customer Due Diligence (CDD) Anti Money Laundering (AML), avoiding pitfalls that will raise questions about the collected customer data following the General Data Protection Regulation (GDPR).

An onboarding request does not necessarily have to be for a new customer. Existing customers may seek a new product. For instance, onboarding requests may be for account opening, credit card, or a loan (Paknikar, S., Arya, A., Karni, G., Kumar, S., & Mehta, V., 2014).

Moreover, today's investors clearly expect the same digital experience from financial institutions as they get from any other digital eCommerce services (e.g., Amazon, Uber, Alibaba, etc.). From the other hand, initial onboarding times were reduced to a few minutes, a more than 90% improvement; clients were more likely to complete processes, leading to increases in client conversation rates of 5% or more; and efficiency improvements ultimately saw margin gains in the range of 10% (Investor expectations for digital are rising is the industry responding?, 2023).

## 1.4 Digital onboarding: Benefits and key challenges

The main factors that prove the importance of digital onboarding in the financial industry are the following:

- **Speed:** The digital approach speeds up every banking process, as more customers can access and acquire services and products in a few minutes, without the limitations of time, distance, resources etc. More specifically, the customer onboarding through digital tools ensures that there is no need for physical presence or interaction between clients and the bank's personnel. Furthermore, there is the advantage of instant data verification through video identification, digital document checks and other automated procedures. All these, lead to a smooth experience, with the minimum possible duration.
- **Low cost:** Digital transactions have significantly lower costs compared to traditional banking, mainly because they entail lower or no operational expenses. Given that one of the main factors that influence a customer's choice, when deciding with which bank to cooperate is cost, digitalization offers an important competitive advantage to the organizations that follow the trend. In addition, customers also benefit from lower transactions costs, so this leads to a win-win situation for them and the organizations they choose.
- **Quality improvement:** By reducing the transactions' cost and the speed of the procedures, digital onboarding improves the overall customer experience. This is also achieved through the rigid regulatory framework that is imposed on the digital processes, which enhances transparency and as a result, customer trust. In the long term the relationship between the client and the bank becomes trustful and this adds to brand equity and customer loyalty.
- **Uninterrupted service:** One of the most important advantages of digital banking and consequently of digital onboarding is the 24/7 customer service. While bank branches operate at a certain time schedule and of course not on weekends or public holidays, digital tools enable customers to onboard and perform their transactions whenever convenient.
- **Sustainability:** Through digitalization, companies invest in sustainability, by reducing their environmental footprint. This is achieved because paper consumption is significantly lower and at the same time, the buildings needs and the CO2 emissions are reduced. Given that sustainability is the new imperative for customer acquisition, financial institutions that comply with this trend are gaining brand equity and consequently market share. This is especially important for Gen-Z, a generation that is very concerned about the environmental impact of its transactions. More specifically 91% of the Gen Zer's say that they intend to cooperate with sustainable companies, according to the PDI Business of Sustainability Index (2023).

However, the transition to a fully digital way of working entails significant challenges:

- The digital transformation decision must be a collective decision, which leads to a change of culture for the entire organization. This practically means that all employees must be aware of the new digital era that the company is entering and agree to be a part of the journey. If the transformation process is led only by the management or a small working/project team then there will be resistance to change from the rest of the employees and the whole attempt could be jeopardized.
- One of the biggest risks in adopting new technologies is to proceed without taking into account the needs of the client. So it is essential that the design of the transformation strategy is based on customer research in order to determine the priorities of the customer in the digital world. If this is not the chosen methodology, it is possible that the digital transformation is based on assumptions of the implementation team, resulting in a lack of sufficient connection with the customer needs.

Furthermore, according to KPMG, digital onboarding in European banking represents a critical yet intricate transformation that necessitates balancing customer experience and operational speed with stringent regulatory compliance and security protocols. Major impediments to this transition include the fragmentation of national regulations, the escalation of advanced cybersecurity threats, and the difficulties of integrating emerging technologies with legacy infrastructure. Specifically, four primary challenges are highlighted:

- **Security Vulnerabilities:** The shift to remote onboarding amplifies risks of impersonation fraud, particularly through AI driven threats like deepfakes. Consequently, few institutions express full confidence in their current defenses.
- **Data and Infrastructure Deficiencies:** Operational efficiency is often hampered by poor data quality and siloed applications. KPMG notes that 72% of banks cite data quality concerns as a barrier to AI adoption and process integration.
- **Legacy Constraints:** Technical debt remains a significant hurdle, with only 25% of banks possessing the comprehensive cloud platforms necessary to support modern digital initiatives, resulting in high implementation costs.
- **Customer Experience vs. Safety:** In order to enter the digital world successfully, banks must create a "seamless" digital experience, an easy and pleasant journey for the customer. At the same time, they struggle to ensure that the process is safe but not too cumbersome, while still gathering the information needed for the AML regulations.

## 2 Digitalization

### 2.1 Recent developments

Digital infrastructure development has afforded organizations the opportunity to improve their routine activities by adopting and deploying various digital tools. Several scholars have come up with different definitions of the concept “digitalization.” (Gobble, 2018) defines digitalization as a process of using digital technologies to create and obtain value in new ways. further defined digitalization as the usage of some form of IT to support business operations and decision making. Literature reports that digitalization includes computers, software, communications equipment, and network technologies (Nevo, 2010). Several digital platforms such as social networks, electronic mailing systems, and customized web portals have been used to reach and deliver products and products information (Kumar, Rishika, Janakiraman, & Kannan, 2016).

Interestingly, when firms can improve their communication, they are expected to better improve their operational performance (Al Busaidi & Zulkifli, 2019). In many organizations, the operational goals may involve cost efficiency, quality, and delivery flexibility (Al Busaidi & Zulkifli, 2019). According to Bayo-Moriones (Bayo-Moriones & Lera-López, 2013), improved communication infrastructure means proper information flow, coordination, decision-making processes, and resource deployment. Consequently, prompt and regular access to information improves decision making process and better resource deployment which eventually enhances productivity, efficiency, and effectiveness. Information flow and communication also help managers to monitor business environmental changes and respond quickly to performance

### 2.2 Customer Engagement

Consumer engagement as a concept is related to the involvement of consumers. Researchers assert that the concept of consumer engagement is rooted in consumer interactive relationship which results in a consumer perception of value of that interaction (Hollebeek, 2014) described customer engagement as the dedication that a customer has toward a brand within an environment which has resulted in the development of a relationship with the brand. Consequently, firms are pushing promotional material directly to their target audience via social networks, emails, customized web portals, and social media for potential and existing customers to pull as much information as they wish (Nabieva, 2021). For instance, using website as digital platforms server as a promotional tool to generate traffic to the site by using advertising banners and social media links.

### 2.3 Customer Engagement - Conceptual Framework

Digitalization measures include general use, communication integrating, and market oriented. Firms that possess strong IT capability can accelerate decision making and respond swiftly to changing market requirements (Mikalef & Pateli, 2017). The researcher opines that companies possess bundle of tangible and intangible resources such as digital infrastructure, employee IT knowledge, skills, and capabilities which create favorable clients and clients–business engagement. Consequently, engagement on digital platforms will promote timely and efficient information flow, customer service, convenience, trust, and loyalty which enhance overall business performance (financial improvement, communication improvement, and operational improvement). To the above direction, Piraeus Securities has done a lot to maximize the overall business performance from one hand and gain high customer loyalty and respect from the quality of the provided services. Not only during the onboarding process but in the whole umbrella of

services that firms do provide. That is, trading services in domestic and foreign exchanges, custodian and clearing services to end clients and institutional clients too. And many other services that are especially designed for retail, intermediary or Institutional clients. Digital onboarding process using the online platform of the company was early adopted since a decade ago. Online trading platform for end users for trading was tightly integrated with the digital onboarding platform. The transformation and innovation on these platforms in time, we will examine later in detail.

## 2.4 Building blocks of digital transformation

Regardless of the pace or level of adoption, organizations typically focus on certain strategic areas when executing digital transformation projects. (Westerman, 2011) offers a solid framework for managing this change. Figure 1 illustrates the framework's three primary categories. That is, Customer Experience, Operational Process, and Business Model. Each of these categories are subdivided into three elements, for a total of nine. Organizations are not required to advance in every area. In practice they choose the elements that align with their needs and business strategy.

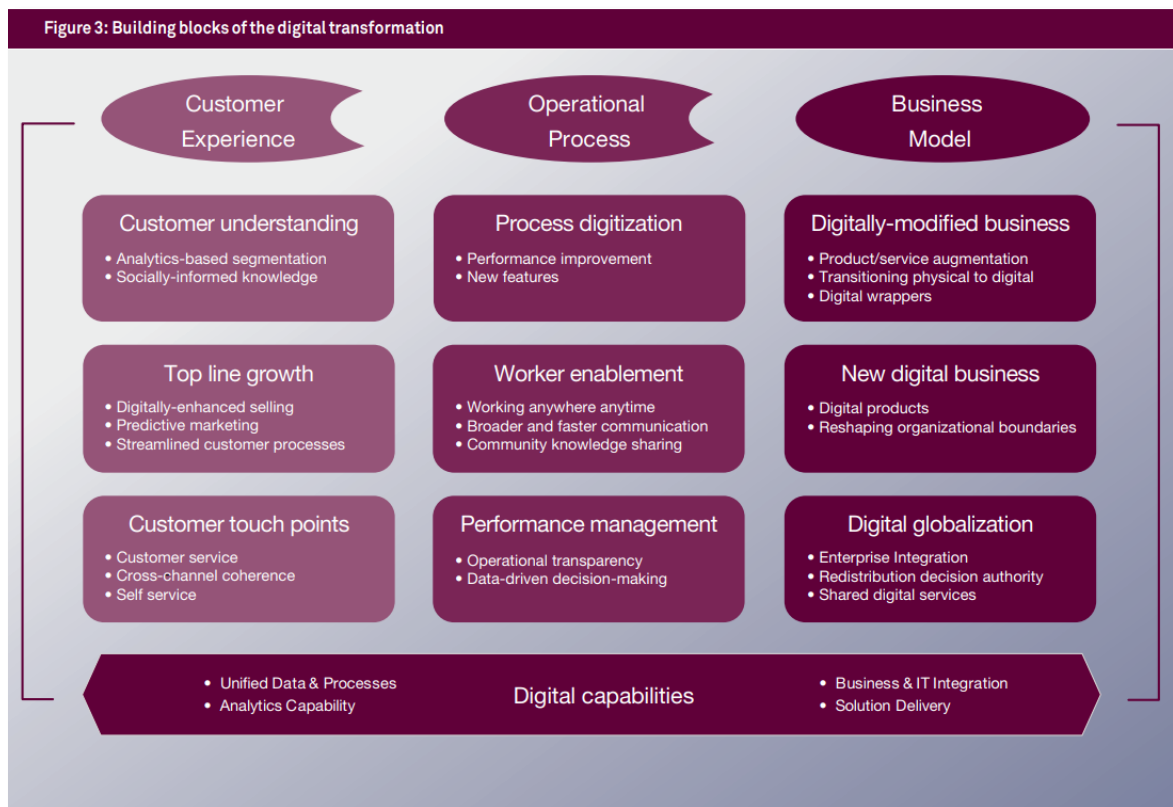


Figure 1. Building blocks of the digital transformation

## 2.4.1 Customer Experience

### 2.4.1.1 Customer understanding

Companies are trying to understand customers by performing the following:

- a) Segmenting existing customers into well-established categories based on qualitative criteria
- b) Use prior investment in MIS system to understand the segment customers into geographies and market areas
- c) Exploring social media to understand satisfiers and dissatisfiers
- d) Building online communities to advice on their products and services and build loyalty with customers

Customer understanding is critical for a company due to the following:

- Product market fit: design products and services that meet real customer needs and usage patterns.
- Customer retention: anticipate issues, reduce churn, and increase satisfaction and loyalty.
- Cost efficiency: target marketing and service delivery where they'll be most effective.
- Competitive differentiation: superior customer insights, enable better digital experiences and faster innovation.

Key actions companies perform to understand customers are:

- Collect customer data: demographic, employment, and contact information.
- Segment customers according to several criteria: behavior, value, life stage, needs, etc.
- Conduct customer research: surveys, interviews, focus groups to identify needs and pain points.
- Use behavioral analytics: track product usage, channel preferences, social media patterns.
- Customer journey mapping: map end-to-end journeys to identify friction points and moments of truth.

### 2.4.1.2 Top line growth

Companies are using technology to enhance in-person sales conversations.

- a) Financial services firms are using tablet-based presentations instead of paper-based slide decks to make sales pitches. Some are going beyond.
- b) Insurance firms are introducing mobile tools to help salespeople and customers engage in analytics-based planning.
- c) Processes through a digital plug in. A retailer automatically loads a customer's last online shopping list into its ecommerce site. Customers can decide whether to use delivery method and choose from or a drive-through service with a specific pick-up time.
- d) A mortgage company also developed an integrated multi-channel experience to help investors set their realistic expectations quickly. Then, processes can cross-sell or up-sell products.

### **2.4.1.3 Customer touch points**

Customer service can be enhanced significantly by digital initiatives:

- a) A bank utilize social media channels, such as LinkedIn or X, formerly known as twitter, to communicate with customer inquiries avoiding them to present physically at bank's branch. It also builds a live communication channel and an expert community too.
- b) Companies with multiple channels, exploring the idea of delivering products at home or store or even pick-up point. This requires envisioning and implementing change across customer experience and internal operational processes.

## **2.5 Operational Process**

Process digitization Companies historically use automation to make processes efficient and scalable customer experience.

- a) By using top notch technology, such as digital site for an insurance company. Customers can easily introduce directly claims into insurance company core system and receive compensation without the need to be present in a branch.
- b) New technologies are extending this trend of gaining benefits beyond efficiency. An apparel company switch to digital design processes when collaborating with manufacturing partners.

Going digital eliminates most need to ship physical prototypes back and forth, reducing the product development lifecycle by 30 percent. Moreover a significant amount of money creates a competitive advantage for the company.

## **2.6 Employees enablement**

Nowadays, especially after the COVID19 period, the majority of the companies uses a variety of collaboration tools.

- a) Employees daily collaborate with others people whom may have never met in person.
- b) Mobile devices are ever increasing their use by employees, either to enter a physical location by demonstrating a digital QR Code in replacement of the entrance cards or to collaborate with others without the need to be at a fixed location. It can be anywhere.
- c) Work at home is a major trend nowadays, especially, in digital oriented companies or software houses of any kind and proportion.
- d) In a broader sense, digital transformation replaces limited one way vertical communication with broad communication channels that are both vertical and horizontal. Executive board of directors (EXB) members can engage in two-way communication quickly at scale. Employees can collaborate in ways that were previously not possible.

The tools that virtualize individual work, while implemented for cost reasons, have become powerful enablers for knowledge sharing. Salespeople and front-line employees, for example, are beginning to benefit from collaborative tools in which they can identify experts and get questions

answered in real time.

## 2.7 Performance Management

Performance transparency was a key highlight mentioned by several executives. It allows them to clearly make decisions.

- a) Transactional systems give executives deeper insights into products, regions, and customers segments, allowing decisions to be made on real data and not on assumptions.
- b) Data analytics and the level of detail is also broader, allowing managers to compare among numerous indices and factors in a more efficient way than before.

## 2.8 Business model

### 2.8.1 Digitally modified Businesses

This can be sub-divided into three elements: Product/service augmentation, Transitioning physical to digital and Digital wrappers. Companies strive to perform digitally modified business by:

- Transform physical products to digitally or add digital aspects to existing products
- Allowing digital penetration across silos for content sharing
- Building digital service wrappers around traditional products

### 2.8.2 New digital businesses

- The companies are introducing digital products that is counterpart traditional
- They are reshaping their boundaries to change the business model through digital

### 2.8.3 Digital globalization

- There is a growing trend of firms transitioning from multi-national models to genuinely global frameworks. The synthesis of digital technology and information integration enables these entities to capitalize on global synergies while maintaining local responsiveness. This paradox is often characterized by executives as a simultaneous move towards both centralization and decentralization.
- Adopting global shared services for back-office and core capabilities allows firms to optimize efficiency and risk management while unlocking global agility. This operational fluidity enables rapid responses to market changes, such as shifting manufacturing loads across borders within days to meet demand or avoid bottlenecks.
- While centralization can be challenging for local managers, it is offset by increased efficiency and the opportunity to focus on strategic goals. Access to centralized data gives these managers a wider perspective, empowering them to make autonomous decisions. They retain the freedom to adapt to local markets, provided they act in the company's

broader interests. This global approach shifts policy from strict mandates to flexible guidelines.

### 3 Digital Capabilities

Digital capabilities underpin transformation in customer experience, operations, and business models. While IT departments lead these efforts, they frequently augment their teams with specialized skills or new dedicated units to ensure successful digital integration.

- The most fundamental technology need for digital transformation is a digital platform of integrated data and processes. Large successful companies often operate in silos, each with their own systems, data definitions, and business processes. Generating a common view of customers or products can be very difficult. Without the common view, advanced approaches to customer engagement or process optimization cannot occur.
- The prerequisite for digital transformation is an integrated digital platform that consolidates data and processes. Large enterprises frequently face the challenge of operational silos, where disparate systems and inconsistent data definitions obscure a holistic view of the business. Without a unified perspective on customers and products, organizations cannot effectively implement advanced engagement strategies or process optimizations.

#### 3.1 A case in digital transformation in banking industry

BNP Paribas, an international banking group, grew significantly over the last decade through acquisitions. The firm is now concentrating on solidifying its global position by standardizing processes worldwide. Their strategy centers on internationalization, process optimization, and maintaining customer trust.

Facing crises, new regulations, and increased technology adoption by customers and employees, BNP Paribas is undergoing a digital transformation. Executives see digital as a way to reshape business boundaries, focus on profitable areas, and streamline middle and back-office operations. The transformation is ongoing. Initially, it focused on expanding reach through a multichannel strategy, including web, mobile, and social media. Currently, BNP Paribas is integrating transactions across these channels and building customer relationships using external CRM and analytics tools, supported by a new digital platform.

To enhance customer experience, they've launched several initiatives:

- Mobile apps as an alternative to their website.
- Increased social media engagement, offering customer service on Twitter and advertising on Facebook.
- A new "Concept Store" branch model launched in 2010 to foster tech-driven interactions and self-service.
- In 2011, they introduced new mobile bank services in partnership with a telecom operator, signaling a shift to a new digital business model.

- Their next step is to engage customers in social media conversations, requiring enhanced social-customer knowledge via CRM and improved analytics.
- From an operational perspective, BNP Paribas is still in the early stages of its transformation, prioritizing security enhancements and cloud solutions. The aim is to achieve end-to-end digitized processes on an integrated platform to gain international economies of scale.
- A group digital committee, sponsored by general management, leads the digital strategy and encourages sharing of best practices.

BNP Paribas' future digital objectives include advancing in mobility, achieving deeper customer intimacy, and developing a robust analytics strategy. Key challenges involve strengthening digital coordination across the group and effectively balancing digital and physical channels in their front-office operations. (Westerman, 2011)

## 4 Customer Onboarding at Piraeus Securities

### 4.1 Traditional approach

During the previous years, the only way to onboard a customer was through the traditional way. In this stage, everything had to be accomplished in “vis-a-vis” mode.

That is, a required appointment needed to be scheduled beforehand with the customer service personnel department. Every customer should have in person, the original identification documents (i.e. Passport, Identification document issued by Police or other Government authorities Identification document) along as the required documents of occupation and residency. Extra documents and verification were needed according to the current legislation. And this has, to do with the source of money per se.

At this step, all documents had to be hard copied along with the occupation and the proof of residency in a specific type of folder. In some cases, where multiple people wish to create a joint investment account, extra steps need to be followed.

After successfully collecting all required documents, a lengthy screening process began. Every legislation requirement needs to be covered and satisfied. This is the most critical step in a lengthy process where every document is checked primarily for its authenticity and correctness. During this process, in many cases a customer service representative would have a lot of time to contact the customer because extra information may be needed. As may be clear now, this process was lengthy and demanding in many aspects, it also create a ‘friction’ point between the customer and the firm. Because of the current legislation and the GDPR requirements that need to be followed.

For instance, if after a while, a customer wants different products or services other than the initially selected, then, it is probably a painful point for both members, the customer and the company. In many cases, a particular process needs to be executed again to be valid according to the current legislation. A depicted BPMN diagram is the following Figure 2

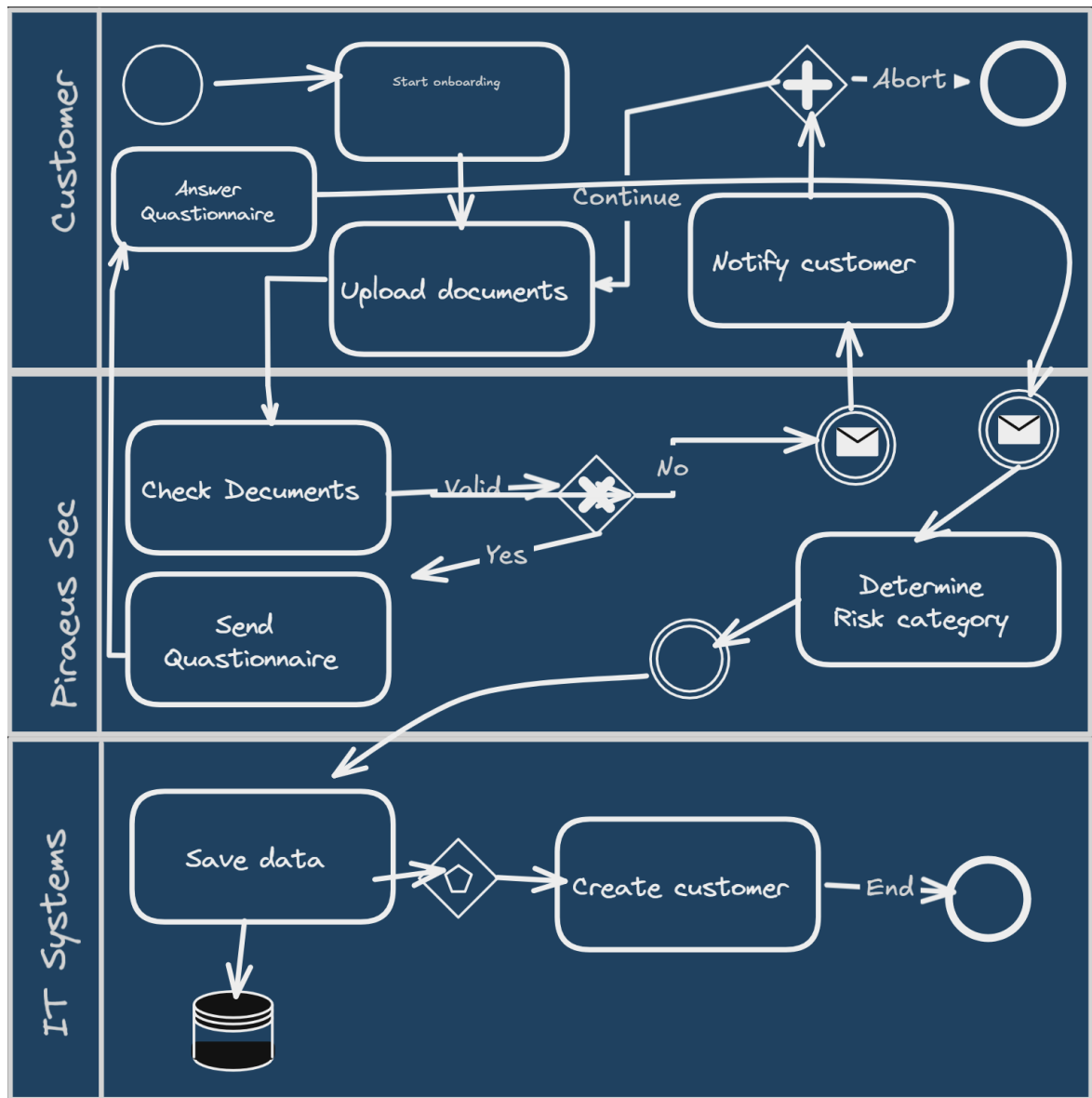


Figure 2. Physical onboarding

## 4.2 KYC/AML in Traditional approach

After the initiation of onboarding process by the customer, all the previously collected data must be fed to the firm's core system. This is where digitization process is happening and the data is transformed from its physical representation to the digital form. All hard copies are transformed into digital files and interconnected with the static data of the newly created/acquired customer. After this transformation step, the information is now available to specially designed software. That is, CRM software.

At this step, the customer data has begun to be valuable information for the companies. The data are stored in an internal database for execution and processes on a large scale.

Companies now can easily perform security checks of their potential or existing customers against sanctions list of any level. It goes without saying that there are many institutions that provide

sanction/watching lists including criminals, terrorist groups, politicians, etc. There are currently many directives that banks and financial institutions must adjust and follow. For instance, the 5<sup>th</sup> EU anti-money laundering is the framework that these institutions must adjust according to their strategy. And not only that, both banks and fintechs are obliged to follow a rigorous security framework having in mind and the risk appetite of their customers, questionnaires must be filled depending on the selected products and their categorization. For instance, there are differences between products that trade in the primary SPOT market and those that trade in the secondary market or their derivatives. From the corresponding answers to those questionnaires the Risk category that customers will belong to is also calculated. That is, the categorization by Risk level or Risk appetite that the customers are willing to accept.

### **4.3 The beginning of digitalization, early steps forward**

What is causing firms to have difficulty starting or benefiting from digital transformation? Challenges occur in all three elements of the transformation process: Initiation, Execution, and Coordination. An excellent impetus was given after the standardization of the Electronic Identification and Trust Service Regulation (eIDAS Regulation 910/2014/EC) across all European Union members states. This regulation provides a concrete legal framework for accepting electronic identities and signatures. eIDAS supervises electronic identification and trust services to facilitate confident and seamless electronic transactions in the European Union by providing a way to users to perform secure business online. (Mocanu, 2019)

The eIDAS regulation has set forth standards for electronic signatures, digital certificates, seals, and timestamps, ensuring that authenticated electronic transactions carry the same legal weight as paper-based ones. Financial institutions, recognizing the advantages of digital transactions—such as cost reduction, process automation, higher productivity, and improved customer experience are increasingly digitizing their operations.

This shift is supported by accredited e-signatures, which guarantee the integrity and legal validity of the resulting digital documents.

When discussing banking sector reforms, it is essential to reference Basel III. This international accord introduced significant changes aimed at enhancing regulation, supervision, and risk management within the industry. As (Härle, 2010) observe, these measures were a direct response to the regulatory failings exposed by the late-2000s financial crisis. The primary goals of Basel III include increasing bank liquidity, capping leverage, and strengthening capital requirements. Consequently, banks are encouraged to re-engineer their business models, shifting focus from mere cost reduction to more customer-centric strategies.

In developed nations, banks often employ restructuring tactics, such as downsizing or engaging in Mergers & Acquisitions (M&A). Additionally, the era of digital transformation has popularized strategic innovation, where institutions seek growth through the development of new technologies, products, and services.

Furthermore, data protection became a critical priority for organizations in 2018 due to the implementation of the General Data Protection Regulation (GDPR). Designed to protect privacy rights and prevent unauthorized third-party access to personal data, GDPR ensures individuals better understand how their information is processed. Processing generally requires a contract or explicit consent. The regulation mandates transparency and grants individuals the right to access and delete their data, while requiring new consent for any new data usage. Compliance is enforced through cooperation between national auditors and the European Data Protection Board, alongside strict penalty mechanisms for confirmed breaches.

At this moment, Piraeus Management Team in response to new challenges saw these newly created services as an opportunity to enhance the onboarding process. The era of digital transformation has just begun. It was not a solid digital transformation project, but the initiation of a digital strategy that will create new system and process ecosystem but most importantly, a way that doing business from now on.

(Cuesta, 2015) outlines three fundamental stages in the digital transformation process for financial organizations. Institutions that successfully navigate these phases will be well positioned to compete in the evolving financial ecosystem and take a proactive rather than reactive stance against new market entrants:

- **Competitive Response**  
The financial landscape is evolving into a diverse ecosystem where various entities collaborate and interact, creating numerous growth opportunities. Banks now share the stage with FinTech and technology companies. To maintain their relevance, banks must adapt to changing customer needs by introducing innovative products that strengthen their position in this new competitive environment.
- **Technology Modernization**  
The next phase involves implementing a comprehensive plan to upgrade technological infrastructure. Legacy systems need to be transformed into flexible, modular platforms capable of integrating new technologies and meeting rapidly changing business requirements. This modernized infrastructure should support automation across both back-office and front-office operations. By incorporating artificial intelligence and machine learning, institutions can offer tailored products and personalized advisory services, potentially enhancing customer satisfaction and loyalty.
- **Strategic Repositioning** While technological advancement is crucial for remaining competitive in the digital age, organizations that simplify their structures and operational models will stand out. These changes impact the entire organization, accelerating decision-making processes and fostering a culture of innovation. Strategies that can distinguish leaders in financial services include:

Collaborating with tech startups that bring fresh ideas and specialized skills  
Adopting agile development methodologies for rapid innovation and deployment  
Organizations that successfully implement these phases will be better equipped to lead rather than merely reacting in the evolving financial services market.

Following these stages, Piraeus Securities has created partnerships that allowed to act faster than competition and create efficient and economic from a time perspective, services.

A new portal was created for the onboarding process; It was redesigned and restructured to be concise and effective. It kept the traditional flow for the those that had been onboard in previous years. This allowed the customers to have access to all contracts and documents that had been uploaded previously and interact with the system without fail. A new process flow was designed from scratch. The new flow was using the newly created eGov-KYC service.

The eGov-KYC service offers a digital alternative to the presentation of supporting documents for the verification of citizen data to financial institutions, if required by law (Law 4557/2018). The extraction and disposal of citizen data from the information systems of public bodies requires their prior explicit and specific consent.

The categories of data that may be extracted and transmitted are the following:

- a) Identity data
- b) Contact data
- c) Income data
- d) Professional activity data of a public employee
- e) Professional activity data of an employee with a dependent employment relationship under private law
- f) Professional activity data of a self-employed person.

There are prerequisites steps that the person must have done in order this service to be available and ready to use by fintech or bank entity.

First, the customer should have previously entered the national Contact Registry. The procedure concerns the operation of the National Contact Registry (NCR). The NCR is the information system for managing the central database of unique registration of the contact details of all natural persons. In the NCR, the contact details of any natural person who has been assigned a Tax Registration Number (TIN), in accordance with article 11 of Law 4174/2013 (Government Gazette A' 170), may be registered. It is addressed to natural persons who meet the necessary conditions.

Second, TaxisNet credentials. TaxisNet is also known as [www.aade.gr](http://www.aade.gr) is a government portal that contains numerous digital sub-portals with specialized content and services available to citizens of Greece. A person having these two elements, the TaxisNet credentials and a registered mobile phone number, can enter and check all collected data from different agencies.

There are specific instructions available in this section of the onboarding process that guide the potential client to eGov-KYC services. Upon their authorization, the collected data are transferred to Piraeus Securities IT system and stored in a secure manner. The collected data is the minimum and absolutely required by national legislation. It is also always available to the customer at any time. The aforementioned services have created an error-free procedure for receiving this data without intermediaries and manual processes, in a timely manner that has no precedent. A depicted BPMN 2.0 diagram is attached below figure 3.

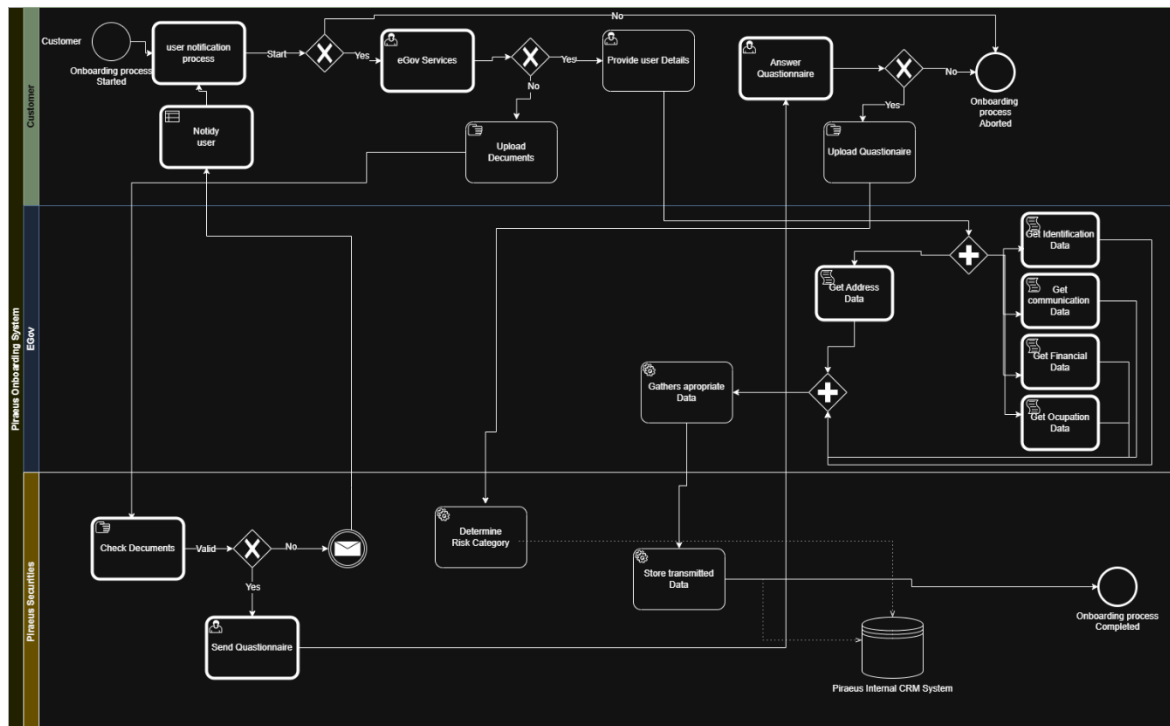


Figure 3. Onboarding process using eGov Services

#### 4.4 Additional digital transformations – products innovation

In addition to the previous digital transformation step, Piraeus Securities executives seized the opportunity to enhance internal processes and implement digital workflows wherever possible for the following case:

- Dematerialized Securities System (DSS) integration  
The service is addressed to investors-beneficiaries of Investor Shares and Securities Accounts in the natural and legal persons and provides the possibility to search electronically via the internet for the Number of the Beneficiaries Investor Shares and Securities Accounts in the DSS.

The Investor Share and Securities Account details are sent via email to the beneficiary's email address registered in their Investor Share in the DSS

This integration with the core ERP of Piraeus Securities, is capable of perform all required action on behalf of onboarding client for the following processes:

- Create new DSS account for the customer with Piraeus Securities as handler on this account
- Update customer's static data in the DSS system on their behalf
- Update customer's registry data on their behalf

It provides a seamless and transparent flow and offers unique automated customer experience. This integration saves hundreds of working hours per year from the customer service department

and is supported by a limited number of employees. Piraeus Securities showed remarkable willingness to incorporate new digital services that offer flexibility and availability 24/7 with added value to their customers. A depicted BPMN 2.0 diagram is attached below figure 4.

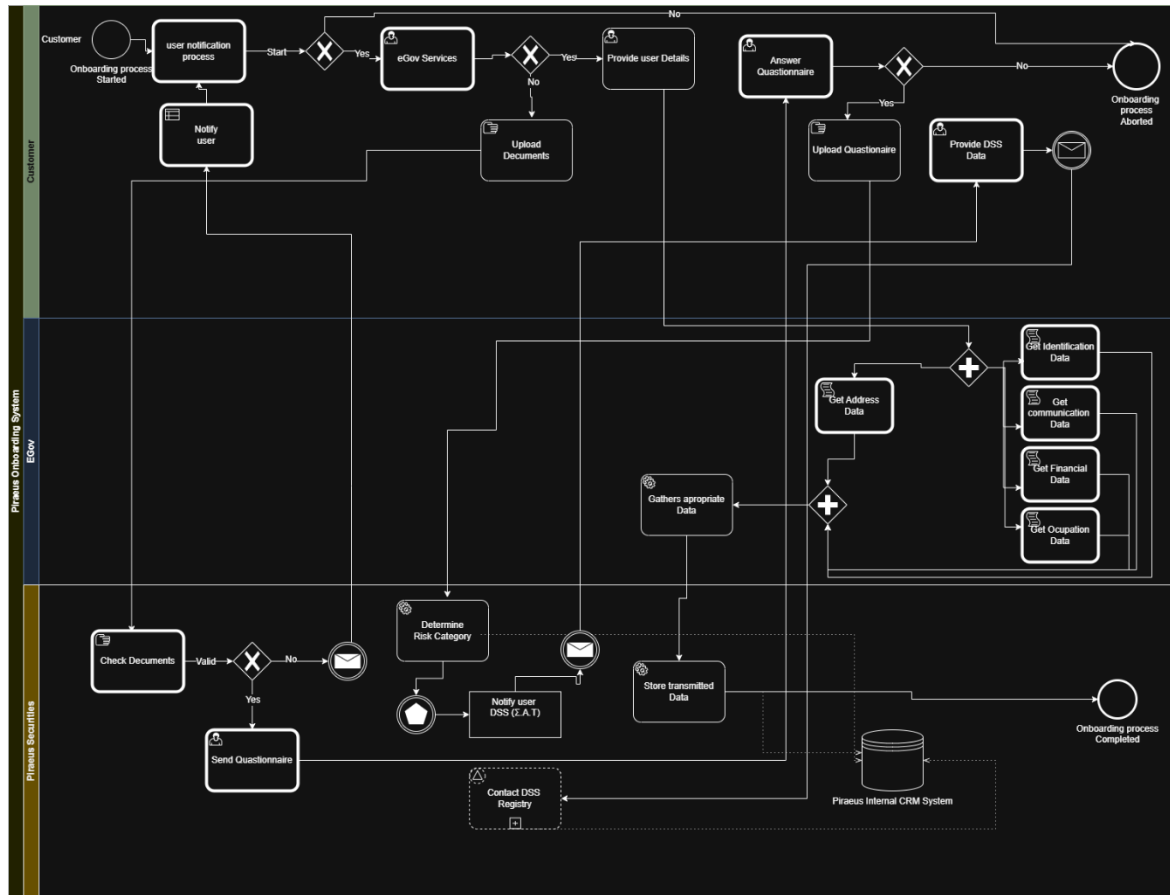


Figure 4. Dematerialized Securities System (DSS)

## 4.5 Going Digital

### 4.5.1 Market Challenges

Nowadays, most young people that are between 18 and 30 years old are using their mobile to execute banking or investment transactions.

The landscape in the Greek banking industry has changed significantly the recent years, especially after Covid19 pandemic, imposing a shift to digital transformation. The main reasons are:

- Customer expectations: Customers, especially younger and Gen Z, demand seamless mobile, 24/7 services
- Competitive pressure: All Greek Banks and of course neobanks, are trying to gain more clients and market share, thus creating intense competition.
- Cost reduction: digital platforms reduce operating costs.
- Revenue growth & personalization: data-driven pricing, cross-sell and new digital products increase fees and lifetime value.

- Agility & speed-to-market: modular, API-driven architectures enable faster product launches and partnerships.
- Long-term viability: transforming now preserves relevance and shareholder value as the industry shifts to platform-based banking.

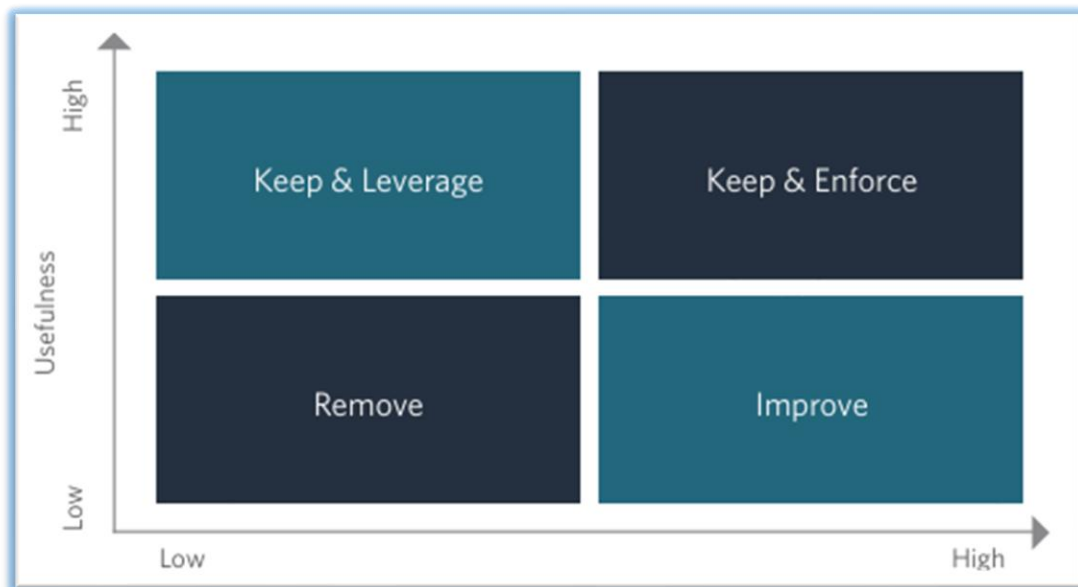
Given this, Bank's management understands the urgent need to digitize its services, resulting in investing in new technologies themselves and improving the overall experience of their customers (end to end). Piraeus Securities executives perceive these metrics and decide to heavily invest in new IT infrastructure and processes to be pioneers in providing new products from a native mobile application, especially designed for targeting this promising segment of potential clients.

#### 4.5.2 Going Digital – Mobile first

Prior to the adoption of new technologies, Piraeus Securities executed a comprehensive analysis to evaluate the potential impact on personnel and operational processes. This preliminary assessment ensured the early identification of necessary integrations, which were subsequently incorporated into either immediate deployment strategies or long-term roadmaps. The organization mandates that all incoming technologies adhere to open API specifications, preferably underpinned by vendor-agnostic data standards, to ensure efficient data retrieval and storage. Consequently, the strategic focus has shifted toward integrating and leveraging data within existing ecosystems, thereby avoiding the implementation of isolated platforms that engender data redundancy.

#### 4.5.3 Re-engineer the software API stack

An assessment of core processes, particularly project management, is essential (as illustrated in Figure 5). To enhance technology development, organizations frequently adopt agile methodologies, which utilize time-boxed iterations to improve efficiency and responsiveness. This approach empowers cross-functional teams with the authority to define, develop, and test solutions independently, facilitating faster change implementation compared to traditional hierarchies. Additionally, a staggered development strategy addressing less resource-intensive processes first ensures that adequate time and resources remain available for complex process development.



**Figure 5. Redundant processes**

In this stage, all involved processes are re-engineered in the way that no duplicates exist, for instance, a current API is refactored to be agnostic who the caller may be, to segregate the software stack layers as much as possible. In this way, the software principle Do Not Repeat Yourself (DRY) is the main virtue to accomplish smooth integration on multiple systems (e.g. Web, native mobile App, third party integrations for white labeling) without breaking the existing flow. This approach allows to introduce new features easily and be diverse if needed. While maintaining architecture boundaries, it is easy to perform software maintainability and unit testing.

The company developed a new digital customer onboarding process in native mobile application by outsourcing the project to a strategic external software partner. This new freshly designed mobile app was released simultaneously for both iOS and Android platforms.

The project relied on comprehensive development tools and a focus on detailed UX design. By mapping out user personas and journeys in detail. In this phase, a thorough paper-testing conducted early on.

By executing this demanding step, the partners were able to identify and resolve logical errors and poorly designed flows before even actual development began.

#### **4.5.4 Introduce Online ID Verification Service**

After evaluating multiple solutions, a critical requirement was the implementation of a reliable and robust identity verification mechanism. Consequently, Entrust is a market leader in the identity verification industry and was selected. Entrust provides customizable solutions that simplify the verification process for citizens and customers; by offering a comprehensive, flexible, and trusted experience, it allows organizations to onboard genuine users seamlessly while combating fraud. Notably, Entrust has recently acquired Onfido ([www.entrust.com](http://www.entrust.com)).

The business and technical teams at Entrust designed a tailored business case for Piraeus Securities that addressed the stringent requirements of Greek legislation. Following a thorough evaluation of the business model, the test-bench workflow prototype underwent extensive testing, yielding excellent results. As an outcome, a fully digital identification process emerged, as depicted in the

BPMN figure 6.

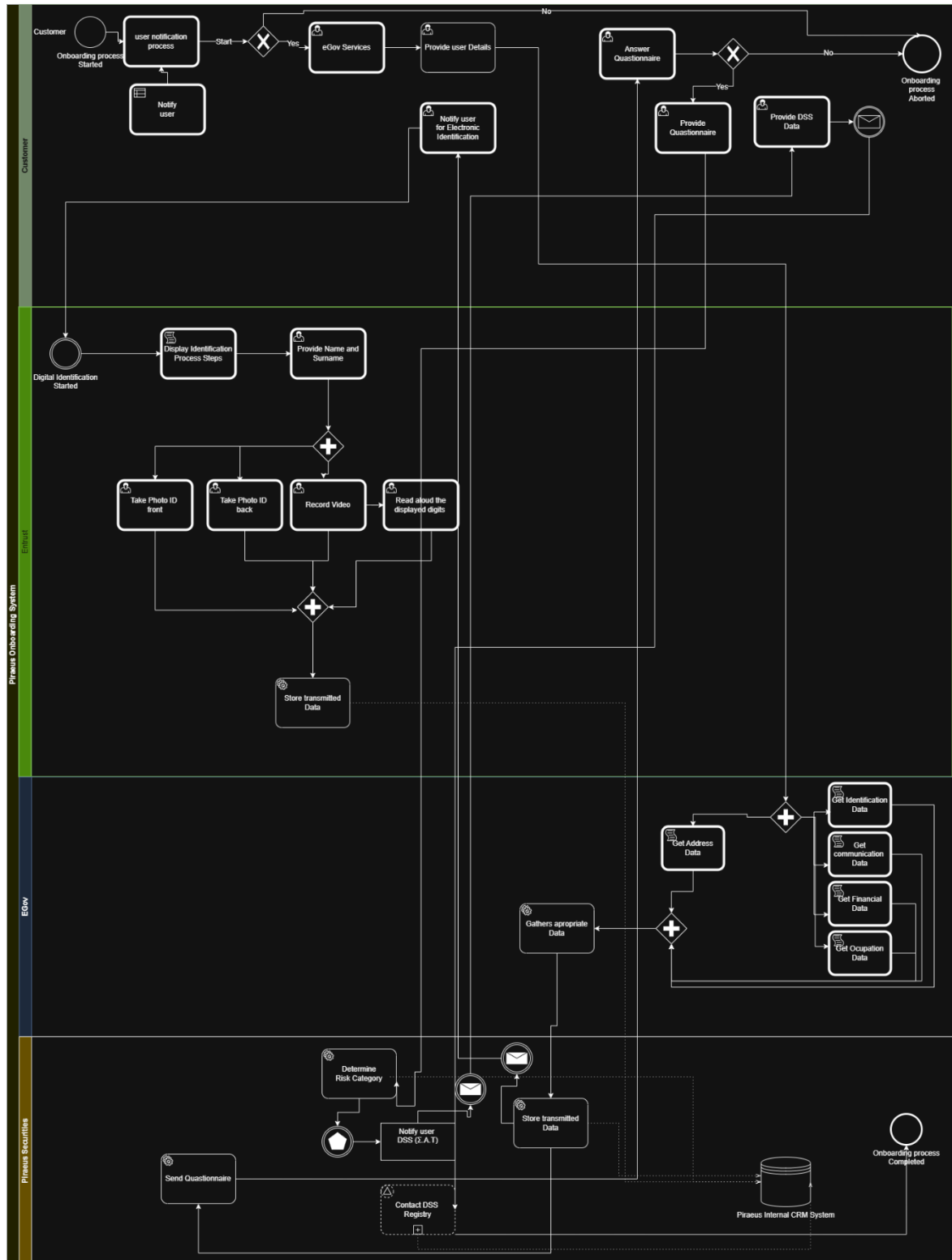


Figure 6. Onboarding with Entrust Identification Services

#### **4.5.5 Introduce Robo Advisor application digital product (brainy)**

In mid-2025, Piraeus Brainy was introduced to the investment community as the first exclusively Greek digital investment management platform. The application was designed to democratize access to portfolio management, enabling investors with limited disposable income to leverage the expertise of Piraeus Group's professional managers via mobile technology.

Piraeus Brainy operates as a 'robo-advisor,' an affordable digital financial service that utilizes technology to automate investment strategies based on an individual's capital, financial goals, and prevailing stock market trends. The platform automatically constructs and rebalances user portfolios, which are comprised of a global mix of Exchange Traded Funds (ETFs), ensuring alignment with shifting market conditions.

The term 'robo-advisor' denotes the primarily digital nature of the service, where interaction occurs through smartphones or computers rather than traditional face-to-face consultation.

By combining advanced technology with Piraeus's investment expertise, the platform creates diversified portfolios tailored to the user's specific risk profile and preferences. Since its launch, the product has undergone significant enhancements to maintain technological competitiveness and address user demands. Notable updates include the introduction of custom portfolios alongside predefined options, as well as strengthened security measures incorporating One-Time Passwords (OTP) in addition to biometric authentication. (<https://www.piraeus-sec.gr/en/individuals/piraeus-brainy>)

#### **4.5.6 Enhance RF payments– instant money put up**

Another use of new technology services is the introduction of deposits using DIAS RF payments in Piraeus' financial ecosystem.

According to DIAS, Consumers can make payments to businesses, organizations and public or private sector entities using a payment code (RF/QR), without knowing the IBAN, and using the channel of their choice (web banking, mobile banking).

The RF payment code is a unique 25-digit code that enables payment via credit transfer. Alternatively, it can also be displayed as a QR code, allowing payments to be completed simply by scanning it through the mobile banking app of participating banks. Indicatively, payment codes are used by tax authorities for tax payments (e.g., vehicle tax), social security funds, energy providers, telecommunications companies, insurance providers, pharmaceutical companies, courier companies, car dealerships, private educational institutions, and retailers in apparel and cosmetics. (<https://www.dias.com.gr/en/services/rf-qr-payments>)

Prior to implementation, a comprehensive business analysis was conducted to optimize the integration of this payment method. To support the new functionality, extensive modifications were required across the entire software stack, necessitating the development of end-to-end workflows spanning mobile and web applications, as well as the internal front-office and back-office systems.

Technically, the process is initiated upon the creation of a user portfolio, which triggers the automatic generation of a unique RF (Reference) Code within the back-office system. This identifier is propagated via an internal API through various subsystems, ultimately displaying it on the user's client interface. The principal advantage of this architecture is the facilitation of real-time fund settlements, ensuring that capital is immediately available for investment upon user request. Furthermore, this mechanism significantly mitigates the risk of transaction errors. In the event of a discrepancy, the system allows for efficient traceability and correction. To ensure data integrity, an automated daily reconciliation process is executed to verify the accuracy of all user-initiated transactions.

#### **4.5.7 Digital Questionnaires and contracts in native mobile application**

The long-standing investor suitability assessment framework, a critical component of client onboarding and portfolio allocation, underwent a comprehensive re-engineering process. This revision was primarily driven by two key imperatives. First, it aimed to ensure stringent compliance with evolving regulatory requirements. As one of the top companies in its sector (Piraeus Securities Investment Firm S.A.), the institution is mandated to adhere to rigorous legislative standards, necessitating the establishment of robust controls and comprehensive policies across all operational processes, including the fundamental risk profiling methodology. Second, the re-engineering sought to achieve seamless digital and mobile integration. The objective was to deliver an optimized user experience across all digital platforms, providing an intuitive interface and robust functionality on mobile screens. This design approach specifically prioritized ease of use and error mitigation, allowing users to accurately complete the assessment with minimal friction, a marked improvement over previous iteration.

#### **4.5.8 Digitally signed Documents**

A significant contemporary technological development is the adoption of remote document signing. Documents requiring customer authorization can now be executed digitally using established technology stacks that comply with the eIDAS regulation, such as those provided by Adacom and Eurosign.

Electronic signatures utilize high-level encryption to ensure that digital attestations are legally verifiable and binding, carrying the same weight as traditional handwritten signatures. A critical component of this process, particularly within frameworks like Eurosign, is timestamping. In accordance with eIDAS regulations, a timestamping service provides more than a chronological record; it electronically seals the document to guarantee its integrity and legal validity. Timestamping is essential when a document's history and non-repudiation are paramount, such as in the dating of intellectual property, proving deadline compliance in legal documents, validating online transactions, and issuing invoices or payslips.

Furthermore, long-term archiving involves electronically sealing a document with a signature and timestamp to prevent modification, subsequently storing it in an eIDAS compliant environment maintained for the client. A complex application of this framework is utilized by Piraeus Securities. Their system manages investment profile questionnaires which determine a customer's risk category, as well as binding contracts and ad hoc legal documentation required during the client onboarding process.

#### **4.5.9 Users retain continuous access to their documents and data**

However, in compliance with General Data Protection Regulation (GDPR) legislation, they may request the complete erasure of their information. Several scenarios may necessitate such a request, including the "offboarding" process where a client terminates their business relationship, or instances where technical issues render the onboarding process incomplete or ambiguous. Furthermore, in adherence to regulatory retention schedules, all data stored within Piraeus Securities' IT systems is systematically and irretrievably purged after a designated period.

#### **4.5.10 AI chatbot**

Piraeus Securities decided to provide continuous, twenty-four-hour support for customer onboarding and related processes, an AI-driven chatbot agent was introduced. Formally known as conversational agents, Artificial Intelligence (AI) chatbots represent a paradigm shift in Human-Computer Interaction (HCI). Unlike traditional, rule-based systems that rely on rigid decision trees and predefined scripts, modern AI chatbots leverage Natural Language Processing (NLP) and Machine Learning (ML) to simulate human-like conversation. Contemporary development approaches focus on creating systems capable of interpreting intent, context, and nuance, rather than merely engaging in keyword matching. In the specific case of Piraeus Securities, a specialized model was developed and tested thoroughly to guide users through the onboarding lifecycle. Furthermore, a continuous monitoring protocol is in place to ensure the agent retrieves and utilizes the most current and valid contextual information.

#### **4.5.11 Introduce a new web site**

The development of a web-based interface was a requisite progression following the introduction of the Piraeus brainy mobile application. This platform provides real-time synchronization with the mobile app, establishing a unified view of user assets. The development team transposed the intuitive design architecture of the mobile experience into a secure web environment, implementing rigorous safety protocols. In contrast to the mobile interface, where information display is constrained by physical device size, the web application exploits the larger display area to provide a more ergonomic and detailed presentation of financial data.

## 5 Project oriented challenges

### 5.1 Project management methodologies

Project management methodologies provide structured approaches for controlling, monitoring, and reviewing project outputs in relation to the benefits expected by an organization. Projects are consequently approved and executed based on these anticipated benefits. While traditional project management constraints such as cost, time, and scope remain significant, they are no longer considered the sole determinants of project success.

### 5.2 Project methodology

Contemporary organizational environments require a shift from traditional management approaches to project-based management, which emphasizes the alignment of project results with strategic organizational objectives, including the realization of benefits and improved customer satisfaction.

According to *Managing Successful Projects with PRINCE2®* (2017 Edition), a project is defined as “a temporary organization that is created for the purpose of delivering one or more business products according to an agreed business case” (*Managing Successful Projects with PRINCE2®, 2017*). Similarly, the Project Management Institute (PMI) defines a project as “a temporary, purposeful activity or attempt, planned to deliver specific outputs within defined constraints such as time, cost, and quality, through which the intended objectives are ultimately achieved” (A guide to the project management body of knowledge (PMBOK guide), 2017).

In this regard, a project constitutes a temporary organizational structure established to deliver outputs aligned with a validated business case. Although a project may or may not form part of a broader program, the conceptual distinction is clear: programs are primarily concerned with outcomes, whereas projects focus on outputs.

Both definitions underscore that projects extend beyond the execution of scheduled activities. Fundamentally, a project aims to support organizational change that is justified by the business case, which articulates the expected business objectives. This leads to a critical distinction between project outputs and project outcomes. Project outputs refer to the products or services produced, while project outcomes represent the measurable changes that occur within an organization as a consequence of utilizing these outputs. Distinguishing between outputs and outcomes is essential for evaluating whether delivered outputs generate the intended benefits. Consequently, modern project managers focus not only on conducting activities within predefined constraints but also on making informed decisions and necessary adjustments to enhance performance, delivery quality, and benefits realization.

### 5.3 Project management

Project Management must therefore be integrated with benefits realization management, which is grounded in the project mandate and business case. Benefits realization begins with the definition of business objectives during project initiation, continues through monitoring and adjustment during execution, and remains relevant after project completion through a structured benefits realization plan.

In contemporary practice, key project artifacts include not only project schedules but also the business case and the benefits realization plan. These documents specify the expected outcomes of

the project, the means by which they will be achieved, the timeline for delivery, and the subsequent actions required to ensure that the organization can effectively utilize the delivered products or services to obtain the anticipated benefits. (Managing Successful Projects with PRINCE2®, 2017) states that “the purpose of the business case theme is to establish mechanisms to judge whether the project is and remains desirable, viable and achievable as a means to support decision making in its continued investment.”

The business case therefore serves as the primary justification for undertaking a project. It contains information on scope and cost, but also on how project outputs are expected to lead to outcomes that confirm the realization of benefits. As a dynamic document, the business case is updated throughout project execution, delivery, and even post completion. It typically includes cost–benefit analysis, impact assessments, risk evaluations, and investment appraisals, all intended to justify the organization’s investment in the project.

Recognizing the critical role of execution in achieving successful outcomes, Piraeus Securities has adopted a strategic framework for project management. Within the financial services sector, rigorous project management is indispensable due to an operational landscape defined by stringent regulatory requirements, robust risk controls, intense market competition, and ongoing digital evolution. Consequently, effective project oversight is vital to ensuring that strategic initiatives are implemented reliably, securely, and in strict accordance with corporate objectives.

## **5.4 Integration with legacy systems**

The dichotomy between maintaining robust, albeit antiquated, legacy infrastructures and integrating agile, cloud-native architectures presents significant friction. The challenge lies in minimizing 'technical debt' while establishing seamless API connectivity between siloed data repositories and modern front-end applications without disrupting critical operations.

Enforce privacy directives navigating the regulatory technology (RegTech) landscape requires ensuring that critical decision-making systems and core companies systems remain transparent and auditable (White-Box).

A critical project constraint is designing systems that are not only efficient but also compliant with evolving frameworks regarding data privacy (GDPR/CCPA) and financial reporting standards. Piraeus Securities put enormous effort to handle this demanding project aligned with these strict legislations about privacy.

## **5.5 Build new company culture**

The efficacy of digital transformation is frequently undermined by organizational inertia and a misalignment between technological capabilities and human capital readiness. The project faces the challenge of managing change resistance among stakeholders accustomed to traditional trading workflows, necessitating a structured change management strategy to bridge the skills gap.

## **5.6 Being secure by design**

The expansion of the digital perimeter via mobile trading platforms and open banking APIs has exponentially increased the attack surface for cyber threats. Consequently, a central challenge lies in embedding 'Security by Design' principles into the development lifecycle (DevSecOps) to mitigate risks, such as ransomware, phishing, and insider threats, without compromising system latency or user experience.

Following the implementation of critical systems, a comprehensive security threat analysis and

risk scoring exercise were conducted to fortify the overall architecture. Furthermore, penetration testing is performed annually by specialized third-party vendors. All findings are prioritized according to criticality and remediated in alignment with industry best practices and expert recommendations.

## 6 Business process modeling

### 6.1 BPMN Definition

Business Process Model and Notation (BPMN) represents a widely adopted standard for process modeling, initially conceived by the Business Process Management Initiative (BPMI). Stewardship of the standard was later transferred to the Object Management Group (OMG), culminating in the significant release of version 2.0 in January 2011.

The core intent of BPMN is to provide a graphical notation that bridges the communication gap between business process design and implementation. It offers a standardized visual language that is sufficiently intuitive for business users yet robust enough to handle the intricacies of complex process orchestration. Consequently, BPMN facilitates a common understanding among key stakeholders, including the business analysts who define the processes, the technical developers who implement the underlying systems, and the business managers who monitor execution. It functions as a unifying framework connecting the conceptualization of business strategies with their technical realization.

### 6.2 BPMN 2.0 Elements

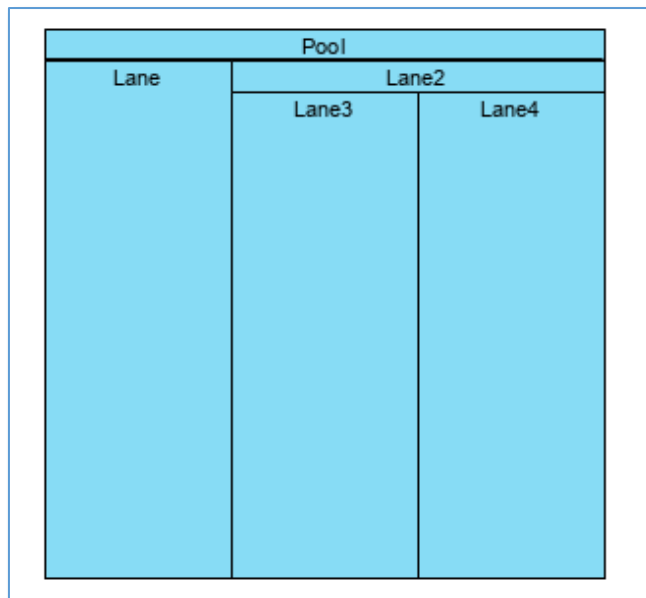
Visualizing business processes through graphical notation significantly enhances the comprehension of internal workflows and inter-organizational transactions. By explicitly mapping these procedures, organizations improve their visibility into collaborative efforts with external partners. This clarity fosters organizational agility, enabling firms to respond more effectively to dynamic market conditions and evolving business environments.

The major elements that BPMN use in most cases are:

- **Pools and Lanes**

In BPMN, a Pool graphically represents a participant in a collaboration, typically acting as a container for a single process. Pools may be subdivided into Lanes, which are used to organize and categorize activities within that process, often representing specific departments, roles, or systems. Tasks are placed within these lanes to explicitly identify the entity responsible for their execution. When a model involves interactions between two or more Pools, it is classified as a collaboration

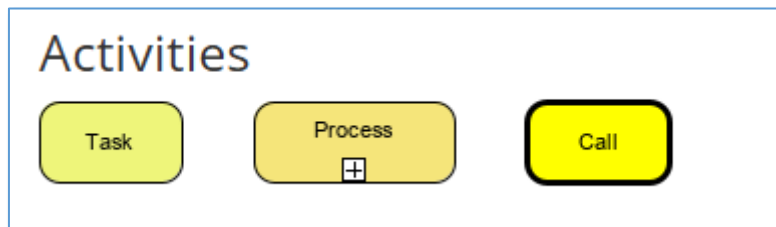
diagram, a core diagram type defined by the BPMN 2.0 specification.



**Figure 7. BPMN 2.0 Pool and Lanes**

• **Activities**

Activities represent the specific units of work performed within a business process. An activity is a generic term that can refer to either an atomic task (a single unit of work) or a sub-process (a compound activity containing its own internal sequence of steps). They constitute the core building blocks of the process flow.



**Figure 8. BPMN 2.0 Activities**








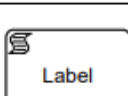
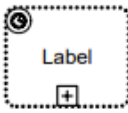
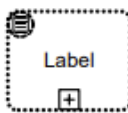
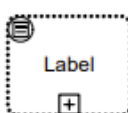
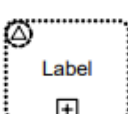
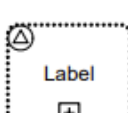
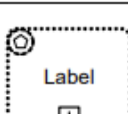
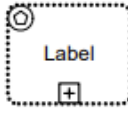
Kind:	Depiction:	Specific Depiction Resolution:	
		bpmnElement:	BPMNShape Attributes:
Abstract Task		Task	None
Service Task		ServiceTask	None
Send Task		SendTask	None
Receive Task		ReceiveTask	None
User Task		UserTask	None
Manual Task		ManualTask	None
Business Rule Task		BusinessRuleTask	None
Script Task		ScriptTask	None

Figure 9. BPMN 2.0 Tasks

Interrupting - Timer - Event Sub-Process - Collapsed		SubProcess where triggeredByEvent is true and the one-and-only start event has one EventDefintion of type TimerEventDefintion and isInterrupting is true.	None or isExpanded is false
Non-interrupting - Conditional - Event Sub-Process - Collapsed		SubProcess where triggeredByEvent is true and the one-and-only start event has one EventDefintion of type ConditionalEventDefintion and isInterrupting is false.	None or isExpanded is false
Interrupting - Conditional - Event Sub-Process - Collapsed		SubProcess where triggeredByEvent is true and the one-and-only start event has one EventDefintion of type ConditionalEventDefintion and isInterrupting is true.	None or isExpanded is false
Non-interrupting - Signal - Event Sub-Process - Collapsed		SubProcess where triggeredByEvent is true and the one-and-only start event has one EventDefintion of type SignalEventDefintion and isInterrupting is false.	None or isExpanded is false
Interrupting - Signal - Event Sub-Process - Collapsed		SubProcess where triggeredByEvent is true and the one-and-only start event has one EventDefintion of type SignalEventDefintion and isInterrupting is true.	None or isExpanded is false
Non-interrupting- Multiple - Event Sub-Process - Collapsed		SubProcess where triggeredByEvent is true and the one-and-only start event has multiple EventDefintions and isInterrupting is false.	None or isExpanded is false
Interrupting - Multiple - Event Sub-Process - Collapsed		SubProcess where triggeredByEvent is true and the one-and-only start event has multiple EventDefintions and isInterrupting is true.	None or isExpanded is false

**Figure 10. BPMN 2.0 Sub elements**

• **Events**

Events signify occurrences that happen during the course of a business process. These are categorized based on their timing: Start Events initiate the process, Intermediate Events occur during execution, and End Events mark the conclusion of a path. Events are crucial because they typically have causes (triggers) or impacts (results) that directly influence the flow and progress of the process.

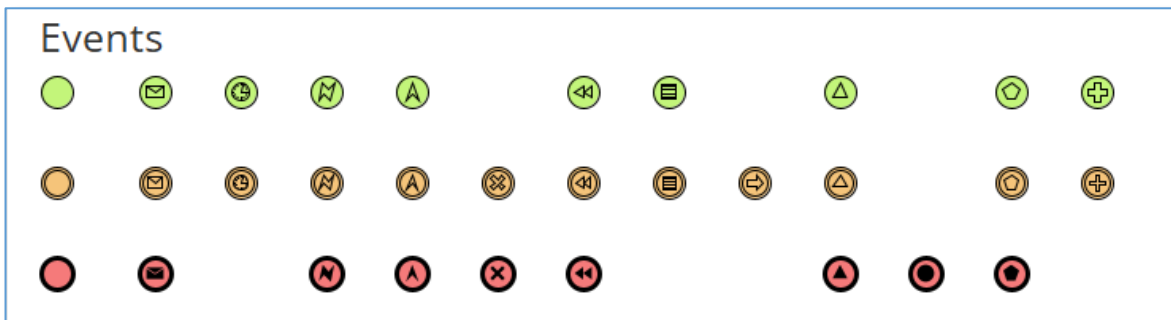


Figure 11. BPMN 2.0 Events

• **Gateways**

Gateways serve as the primary control mechanisms within a Business Process Model and Notation (BPMN) diagram. Represented graphically by a diamond shape, gateways are responsible for controlling the divergence and convergence of sequence flows. They determine how a process path branches, merges, or joins based on specific conditions or events. Unlike activities, which represent work being performed, gateways represent decision points; they act as the logic gates that dictate the path of the process, ensuring that the workflow adheres to defined business rules.

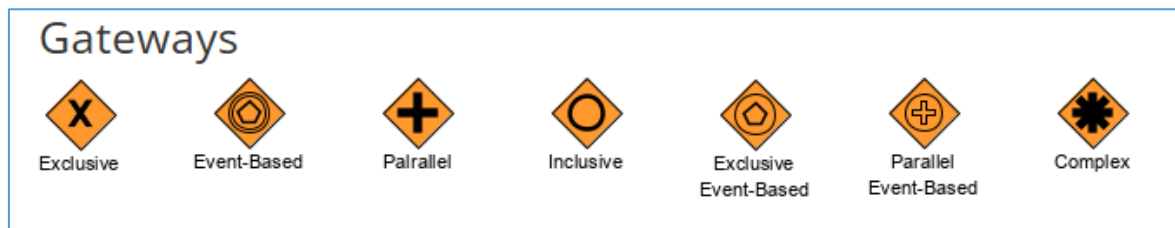









Figure 12. BPMN 2.0 Gateways

• **Data Semantics**

Data semantics delineate the mechanisms by which information is represented, manipulated, exchanged, and persisted across the lifecycle of a business process. Although Business Process Model and Notation (BPMN) is primarily cited for its control-flow capabilities, its data semantics are critically significant, particularly within executable models where data dictates routing, decision-making, and system integration. The BPMN 2.0 specification establishes a rigorous framework comprising data objects, stores, inputs, outputs, and associations. This framework provides a standardized methodology for modeling information consumption and production, ensuring that diagrams can be effectively translated into executable workflows capable of interacting with concrete data structures, databases, and external systems (Business Process Model and Notation (BPMN), 2011).

Kind:	Depiction:	Specific Depiction Resolution:	
		bpmnElement:	BPMNShape Attributes:
Data Object	 Label	DataObjectReference where dataObjectRef unspecified or is pointing to a DataObject where isCollection is false.	None
Data Object Collection	 Label	DataObjectReference where dataObjectRef is pointing to a DataObject where isCollection is true.	None
Data Input	 Label	DataInput where isCollection is false.	None
Data Input Collection	 Label	DataInput where isCollection is true.	None
Data Output	 Label	DataOutput where isCollection is false.	None
Data Output Collection	 Label	DataOutput where isCollection is true.	None
Data Store	 Label	DataStoreReference	None

**Figure 13. BPMN 2.0 Data**

## 7 Conclusion

### 7.1 Introduction

This dissertation has explored the critical role of digital onboarding in modern organizational strategy and user experience at Piraeus Securities.

As the digital landscape evolves, the initial interaction between a user (or employee) and a platform the onboarding process has shifted from a mere administrative necessity to a pivotal moment that defines long term engagement and retention.

This chapter summarizes the key findings of the case study, discusses their implications, acknowledges limitations.

### 7.2 Summary of Key Findings

The study set out to analyze the efficiency, user satisfaction, and adoption rates associated with current digital onboarding process.

**Speed vs. Clarity:** While users value speed, the facts indicates that reducing friction must not come at the cost of clarity.

Processes that were too streamlined often led to higher support ticket volumes later in the user journey.

**The Role of Personalization:** Onboarding flows that utilized data to personalize the welcome experience showed significant increase in user retention after 30 days compared to generic flows.

**Trust and Security:** In this sector like banking/fintech, visible security measures (such as biometric verification) during onboarding actually increased user trust, despite adding friction, challenging the assumption that "less friction is always better."

**Mobile-First Expectation:** A significant majority of participants abandoned onboarding processes that were not fully optimized for mobile devices, highlighting that mobile responsiveness is no longer optional but mandatory nowadays.

### 7.3 Theoretical and Practical Implications

From a theoretical perspective, this dissertation contributes to the Technology Acceptance Model (TAM) by suggesting that "Perceived Ease of Use" from the beginning of interaction is the primary predictor of "Perceived Usefulness."

Practically, the findings from previous implementations offer a blueprint for UX designers and product managers. The feedback suggest that organizations should move away from rigid, "one size fits all" tutorials and toward "progressive disclosure" models, where information is revealed only as the user needs it. Furthermore, the study validates the investment in AI driven identity verification tools, not just for compliance, but as a mechanism for building consumer confidence.

## 7.4 Limitations of the Study

This study is subject to certain limitations. The research focused on a series of evolving digital onboarding processes, where each iteration possessed distinct operational dynamics. Consequently, these variations introduced complexities that were difficult to quantify using standardized performance metrics.

## 7.5 Recommendations

Based on the dissertation, the following recommendations are proposed:

- **Implement Progressive Profiling:** Collect essential information first and gather secondary data as the user engages deeper with the platform.
- **Gamification Elements:** Incorporating subtle progress bars and achievement markers during setup can significantly reduce drop off rates by providing a sense of completion.
- **Omnichannel Consistency:** Ensure that if a user starts boarding a desktop and switches to mobile, their progress is saved and the experience remains consistent.

## 7.6 Concluding Remarks

Digital onboarding is not a static gateway but a dynamic conversation between the system and the user. As this dissertation has demonstrated, a successful onboarding process is one that balances security with convenience and education with speed. As technology advances, the most successful organizations will be those that view onboarding not as a one time setup, but as a continuous cycle of engagement and value demonstration.

At the time of writing this dissertation, Euronext has acquired Hellenic Athens Exchange (ATHEX). This will open a huge product variation to the domestic customers as a significant expansion of its pan European footprint, Euronext announced on November 19, 2025, the successful integration of the Athens Stock Exchange (ATHEX) Group. The acquisition was carried out via a tender offer that resulted in Euronext obtaining a majority stake (74.25%) of ATHEX. The move creates a foothold for Euronext in Southeastern Europe, a region identified by the group as having strong growth potential.

Beyond the immediate transfer of ownership, the acquisition entails substantial operational restructuring, including the harmonization of post trade technologies and the establishment of a new support and technology hub in Athens or elsewhere. Euronext leadership framed the transaction as a means to connect local Greek issuers with global markets while enhancing the competitiveness of the Greek capital market. The transaction, fully cleared by regulators, moved to the settlement phase on November 24, 2025, marking the official entry of the Athens exchange into the Euronext family.

Euronext operates as a vertically integrated European capital market infrastructure, managing the complete value chain from listing and trading to clearing, settlement, and custody. As of December 2025, the group administered regulated exchanges across Belgium, France, Ireland, Italy, the Netherlands, Norway, and Portugal. The platform hosts over 1,700 issuers with a combined market capitalization of €6.7 trillion, accounting for approximately 25% of European lit equity trading. Euronext's portfolio extends beyond equities to include fixed income via MTS, power markets

through Nord Pool, and clearing services via Euronext Clearing and Central Securities Depositories (CSDs) in four nations. (Euronext , 2025).

It is evident that the transition of ATHEX into the Euronext ecosystem will necessitate significant modifications, which will have profound implications for all existing members. Furthermore, the customer onboarding framework is expected to undergo continuous evolution in the coming years.

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