

Ministry of Education and Science of Ukraine
Ukrainian-American Concordia University
**Department of International Economic Relations, Business &
Management**

Bachelor's Qualification Work
Regulation of new electronic payment services in EU
(on the basis of YAPI Merkezi Construction)

Bachelor's student of

Field of Study 29 – International Relations

Specialty 292 – International Economic Relations

Educational program – International Business

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Abstract

The modern world is innovatively progressive, it brings new challenges to modern state regulatory processes, so it is essential to develop a system of innovative regulations. Since 2007, the European Union countries have been actively engaged in creating a secure payment system. The primary tool for ensuring a secure payment system is the Payment Service Directive. This directive aims to develop the electronic payment market and allow consumers to use innovative banking services. The European directive of the payment service formed the basis of payment settlements in many countries, particularly Ukraine. This work profoundly analyses the adoption and improvement of payment system regulations in the European Union and studies the regulatory and legal regulations of the financial technology industry in Ukraine.

Key words: innovation, payment settlement, payment service directive, international innovation framework.

Сучасний світ є інноваційно прогресивним, він приносить нові виклики сучасним державним регуляційним процесам, тому дуже важливо розвивати систему урегулювань інновацій. З 2007 року країни Європейського Союзу займаються активною діяльністю стосовно створення безпечної платіжної системи. Головним інструментом забезпечення безпечної платіжної системи є директива платіжного сервісу (Payment Service Directive). Ця директива має у собі мету розвинути ринок електронних платежів та дозволити споживачам користуватися інноваційними банківськими послугами. Європейська директива платіжного сервісу лягла в основу платіжних урегулювань багатьох країн, зокрема України. Ця робота глибоко аналізує прийняття та удосконалення

урегулювань платіжної системи в Європейському Союзі, вивчає нормативно-правові регулювання галузі фінансових технологій в Україні.

Ключові слова: інновації, платіжні урегулювання, директива платіжного сервісу, міжнародні рамки інновацій.

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**TASK
FOR BACHELOR’S QUALIFICATION WORK**

Yana Roshchepko

1. Topic of the work

Regulation of new electronic payment services in EU

(on the basis of YAPI Merkezi Construction)

Supervisor of the work

Associate professor, Dr. Nataly Amalyan

Which approved by Order of University from “22” December 2022 №22-12/2022- 1c

2. Deadline for bachelor’s qualification work submission **“19” May 2022**

3. Data-out to the bachelor’s qualification work:

Materials received during the internship and consultations with the representatives of the company YAPI Merkezi Construction

4. Contents of the explanatory note (list of issues to be developed)

There are four main topics to investigate:

- Fundamentals of innovation and their regulation;
- Implementation of PSD2 in YAPI Merkezi Construction;
- Payment Service Directive (PSD) - European regulation for electronic payment services; Prospects of payment service regulation in Ukraine.

5. List of graphic material (with exact indication of any mandatory drawings)
 Graphic presentation of the types of innovation, the regulatory governance cycle, different formalities for setting up a business, Sphere of projects of YAPI Merkezi Holding AS, service types defined in PSD 2 and Scheme of purchase of goods without PISP and with the service provider on initiation of payments.

6. Consultants for parts of the work

| Part of the project | Surname, name, position | Signature, date | |
|---------------------|-------------------------|-----------------|----------|
| | | Given | Accepted |
| 1 | Nataly Amalyan | | |
| 2 | Nataly Amalyan | | |
| 3 | Nataly Amalyan | | |

7. Date of issue of the assignment

Time Schedule

| № | The title of the parts of the bachelor's qualification work | Deadlines | Notes |
|----|---|--------------------|-------|
| 1. | I chapter | 14.02-13.03.2022 | |
| 2. | II chapter | 14.03-10.04.2022 | |
| 3. | III chapter | 11.04-24.04.2022 | |
| 4. | Introduction, conclusions, summary | 25.04 – 01.05.2022 | |
| 5. | Pre-defense | 07.06.2022 | |

Student _____
 (signature)

Supervisor _____
 (signature)

Conclusions: The bachelor qualification work was designed according to the requirements, it contains all the necessary parts of scientific research and the practical recommendations. The paper was written on the basis of thorough analysis of specific aspects of the operations of the Turkish company YAPI Merkezi Construction (the base of internship), which gave the student an understanding of modern business development. Analysis of implementation of the European payment service directive enabled the author to define similarities and differences between the Ukrainian and the EU payment service regulation. The practical recommendations were formulated correctly; of special interest are the prognosis of how the European payment service directive can help to improve Ukrainian payment service regulation.

Supervisor 
 (signature)

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Introduction

Throughout history, innovation has had a positive impact on humanity's prosperity. However, since the first industrial revolution, humanity have has been provided regulation on the innovation activity. In fact, the regulation helps people to make innovation to serve the common goods.

The effects of government regulations on innovation can be as positive as well as harmful. They wisely regulated innovation activity leading countries to greater sustainability, economic prosperity, and wellbeing. While unregulated innovation can lead to new inequalities and impinge on privacy and other freedoms, regulation reform in OECD countries is one of the primary goals of enhancing the positive regulation effects leading to innovation. Regulatory reform should ensure that regulations across all spheres of economy, society, and technology can fully respond to changes in economic, social, and technical conditions that surround them. In order for regulations to have a legitimate effect on innovation, they must take into consideration both the implications of technological change and the effects of regulation on innovation. The regulation innovation interface is mutual and it is dynamic. This interface is crucial to regulatory reform because it is crucial to successful reform.

A recent study analyzes the complex and varied relations between regulation and innovation and implementation of PSD 2 in YAPI Merkezi Construction. The development of regulations and regulatory reform can affect technological progress in sectors as diverse as biotechnology to banking and the process of innovation, from research to the diffusion of technologies.

This work is divided into three sections: fundamental of innovation and its regulation, implementation of PSD 2 in YAPI Merkezi Construction company, and Payment Service Directive. The first section is about the fundamentals of innovation and regulation that introduces the definitions and types of regulation and innovation. Additionally, the first section illustrates the

relationship between innovation and environment, health, business, and intellectual property. The second section, "Implementation of PSD 2 in YAPI Merkezi Construction company", provides general information about YAPI Merkezi Construction company and the organizing payments system throughout the European Union payment service directive (PSD 2). The second section of this work describes YAPI Merkezi Construction's implementation of PSD2. In addition, it summarizes general information about the company and its approach to implementing the payment service directive (PSD2) throughout the European Union. The third section defines what Europe Union's Payment Service Directive is. Also, it provides an analysis of the regulation of financial technologies in Ukraine and the European Union.

The **relevance** of this work is defined by the rapid progress of innovation that is taking place in the international frameworks of innovation activity regulation.

The **aim of the bachelor thesis** is to study and analyze the regulation of new electronic payment services in the EU and its effects on Ukrainian frameworks of innovation payments regulation.

In order to achieve this aim, the following **tasks** were set:

- developing an understanding of regulation and innovation;
- learn to understand how regulation affects innovation in Environment, Health, Business, and Intellectual property;
- provide an understanding of modern business development by completing an internship at a Turkish company (YAPI Merkezi Holding A.Ş) and analyzing its implementation of the European payment service directive;
- study the impact of payment service directive on the EU
- conduct research into understanding how the European payment service directive can help to improve Ukrainian regulation.
- find out the similarities and differences between the Ukrainian and the EU payment service regulation.

The **methodological basis** for this work is comprised of peer-review journal articles, acclaimed internet publications, and personal data analysis.

The **research objects** are international frameworks of innovation activity regulation and regulation of new electronic payment services in the EU.

The **research subject** is a set of theoretical, methodological and practical approaches to establish the payment service regulation in Ukraine and the Europe Union and define the accomplishment of payment regulation in "YAPI Merkezi Holding A.Ş".

The master thesis consists of an introduction, 3 chapters, a conclusion, and a list of references. Work is carried out on 66 sheets containing 3 tables, 2 figures and 4 charts. References include 36 literature sources.

Chapter 1: Fundamentals of innovation and their regulation

This section will address the definition and types of innovation and regulation. Then, as a next step, we will examine the principal European regulation relating to electronic payment services, the Payment Service Directive.

1.1 Innovation: definition and main types

The term “innovation” is used in various ways in different fields in government, industry, academia, and service provision. *Innovation* can be defined as a process or outcome, depending on the context. The most applicable definition of innovation was published in the reporting of innovation called Oslo Manual.

According to the Oslo Manual, an international guide for collecting and using data on innovation published by the Organization for Economic Co-operation and Development (OECD), innovation is a new or improved product, or process (or a combination thereof) that differs significantly from the unit’s previous products or processes and that has been made available to potential users (product) or brought into use by the unit (process) [1]. Innovative products and processes can exist both on and off the marketplace, including among end-users, without the need to go through extensive research and development.

In the 1st edition of the Oslo Manual (2005), innovation is divided into four categories: process innovation, product innovation, organizational innovation, and marketing innovation.[2] Process innovation is implementing new or upgraded production or delivery methods that include significant variations in techniques, equipment, and software. One example of process

innovation is a Climber Hotel. It is the first hotel which uses big data for a decision-making approach. Product innovation is a newly developed or significantly improved product or service, which may include changes in technical specifications, components and materials, software in the product, user-friendliness or other functions. It should be noted, however, that product innovation does not necessarily involve improvements to all functions or performance specifications. An improvement or a new feature can be merged with the loss of one feature or downgrading of another specification. The LOGO company, for example, has been using oil-based biodegradable plastics in the production of its famous bricks. Organization innovation is new organizational methods employed in business practices, workplace organization, or external relations. To illustrate the first companies who started using the power of technology and allowing employees to work from home (depending on their role) incorporated the power of digital technology into their practices. *Market innovation* is a new marketing strategy that involves significant changes in the design or packaging of the product, the placement of products, or the promotion of products. One example of market innovation is a new waste-free container from the Haagen Daz. Table 1 in detail shows the types of innovations.

| Name of type | Components |
|--------------------|---|
| Process Innovation | Production Distribution and logistics Information and communication systems |
| Product Innovation | Goods, Services, Goods and services include knowledge-capturing products, and combinations thereof. Includes the design characteristics of |

| | |
|---------------------------|---|
| | goods and services. |
| Organizational Innovation | Administration and management |
| Marketing Innovation | Marketing, sales and after- sales support |

Table 1: Types of innovation

Source: "Guidelines for Collecting, Reporting and Using Data on Innovation, 4th Edition", Oslo Manual 2018, October 22, 2018.

Another distinction in the economic literature is essential in relation to disruptive and incremental innovation. The disruptive emerge as the result of technological and behavioral advances during the last several decades. Innovations of this type are more based on the market than on any specific brand, product, or service. This can be honed through products or services that a company offers and, as a result, gains a name, but, in general, it is a scalable change that reaches many people at the same time. As an example of disruptive innovation, Netflix has disrupted the movie and television markets previously dominated by companies such as Blockbuster. The company began by renting DVDs by mail, but later embarked on an innovative endeavor. The company started to offer subscription-based video streaming services, which caused Blockbuster to exit the market. The innovation provided Netflix with predictable monthly revenue in addition to being innovative.

Incremental innovation is a further development of an existing innovation already implemented by a brand, which adds value to employees, customers, or other aspects of the business. Gmail is an example of incremental innovation since it was initially created with the aim of sending emails quickly. However,

changes have been made to improve the customer experience and increase its utility and competitiveness over time.

1.2 Regulation: definition, main types, and regulatory government cycle

In general, the term "regulation" refers to the government enforcing rules along with penalties intended to alter the economic behaviour of individuals and firms in the private sector. There are various types of regulations. The factors commonly considered are price, output, rate of return (such as profits, margins, or commissions), disclosure of information, standards, and ownership ceilings.[3]

There are several different ways in which regulation can respond to market failures. In the European Commission, ex-ante impact assessments have led to the definition of a variety of "types" of regulatory intervention over time. Throughout this paper, we adhere to a simplified taxonomy [4].

The *regulation through information* is a light-touch regulation which aims to influence consumer and firm behaviour by increasing the accessibility of information on the market.

Self-regulation includes a variety of practices, standard rules, codes of conduct and voluntary agreements by which economic actors, social players, non-governmental organizations, and organized groups establish themselves voluntarily to regulate and organize their activities. A self-regulatory framework can provide superior speed, responsiveness, and flexibility since it can be established and amended more quickly than legislation; however, it must be clear and transparent to avoid a collision.

The *co-regulation* is a method that involves a legislative act of the Community entrusting the accomplishment of the objectives that the legislator defines to parties who are recognized in the field (such as economic operators,

social partners, nonprofit organizations, or associations). This form of co-regulation combines the benefits of a binding law with a flexible approach to implementation that encourages innovation and utilizes the expertise of parties interested. The main disadvantage of co-regulation is the need to establish monitoring mechanisms.

The standardization approach can serve as an alternative to legislation or partially replace detailed regulations when it refers to European Standards. Therefore, the European Standards Organisations CEN, CELENEC and ETSI must participate in this process at the EU level. The Commission may assign standards-writing assignments to ESOs, thereby officially recognizing those standards as fulfilling particular (health, safety, environmental) objectives in EU regulation. As a result, companies have much greater certainty because only a few (performance) standards must be met for access to the entire internal market to be granted. Furthermore, the standards are always voluntary, which allows for more innovative solutions. The European Standards Organisation should also be consulted if a proposed policy option refers to European Standards and if any of these might need to be modified.

The *market-based instrument* influences the behaviour of players by offering positive or negative incentives or by guaranteeing a set of basic rules. There are several alternative types of offsets:

- i) marketable offsets that allow producers to handle regulatory compliance among themselves, rather than having it enforced across the board;
- ii) market-based permits;
- iii) fees or taxes;
- iv) liability and property rules;
- v) limitations on prices and quantities (licenses, quotas, etc.).

The *prescriptive regulatory actions* include incorporating mandatory requirements into legislation (regulations, directives, or decisions) in the form

of regulations or directives. According to the European Commission Impact Assessment guidelines:

- Traditional "command and control" policies. The use of a specific technique, technology, or design is specified. It has the advantage of being relatively easy to monitor and enforce. However, one disadvantage of these types of standards is that they tend to be less cost-effective, and they are unlikely to encourage innovative solutions or higher standards of quality respectively.

- Performance-oriented requirements. It specifies the performance requirements of the target population (for example, specific tolerances). Rather than detailing how compliance is obtained, they specify the criteria to be followed in order to accomplish it. It is generally preferred to use standards rather than engineering or design standards because they allow for greater flexibility in achieving the targeted outcomes. This kind of requirement should be able to aggregate or offset across different plants or agents, including regionally or nationally, as long as the outcome is not unacceptably affected.

The following sections discuss the precondition for regulation, namely the existence of a regulatory governance cycle, and briefly introduce the various phases of regulation, with a particular focus on EU regulations.

A number of legal systems around the world contain special provisions that facilitate cohesion and governance of policymaking. The regulatory governance cycle uses two distinct cycles to oversee their responsibilities, one for the life of individual rules and another for better regulation tools they use to ensure that the provisions of their legal framework are consistently high quality and delivered effectively. As seen in Figure 1, the policy cycle is illustrated as well as the cycle of better regulation tools that accompany each phase. There are four phases in the life of a legal rule, symbolized by the outer circle [5]:

The *agenda-setting* phase of regulation is when the preparation and adoption of the primary documents are accomplished. At this stage, the main preparatory documents (at the EU level, Green Paper, White Paper, Communications) are prepared and approved. In addition, preliminary documents, strategy papers, communications, and umbrella regulations (e.g. framework regulations) can all be included in this category. However, further implementation measures must be adopted before the agreement can be legally binding.

The *drafting* of regulation is often considered to be a crucial phase since it is possible to formulate a legal provision in clear terms, and that leads to legal certainty, which can have an economic impact, both in terms of public knowledge about rights and obligations, and also in terms of reduced litigation and enforcement costs.

Regulations and delegated acts can serve as secondary legislation measures in the implementation stage. The setting of standards in this phase can typically refer to a process maintained or modified throughout the lifespan of a legal rule. In some cases, implementation measures might be required by private organizations as part of a co-regulatory agreement, depending on the type of regulatory alternative selected.

The *monitoring* phase is not solely a regulatory stage but instead includes a set of actions and behaviours that must be carried out by the targeted participants when they are required to comply with regulations. In the following, we present an illustration of how different types of regulatory interventions may significantly affect innovation.

The *enforcement* phase refers to the process of securing compliance with the rules. In many cases, local administrations are involved, who carry out inspections and may impose sanctions if compliance is not achieved. Depending on the type of regulatory framework chosen, this phase can also be delegated to agencies or private parties.

Among the most popular global instruments to assess policy impacts on the "inner circle" are ex-ante assessments, interim and ex-post evaluations, and stakeholder consultations that are conducted throughout the policy development process. In addition, the use of instruments to analyze both the "stock" and the "flow" of law is becoming increasingly common among governments: these include programs to measure and reduce administrative burdens and compliance costs, analyses of cumulative and interactive costs of legislation in specific domains, etc.

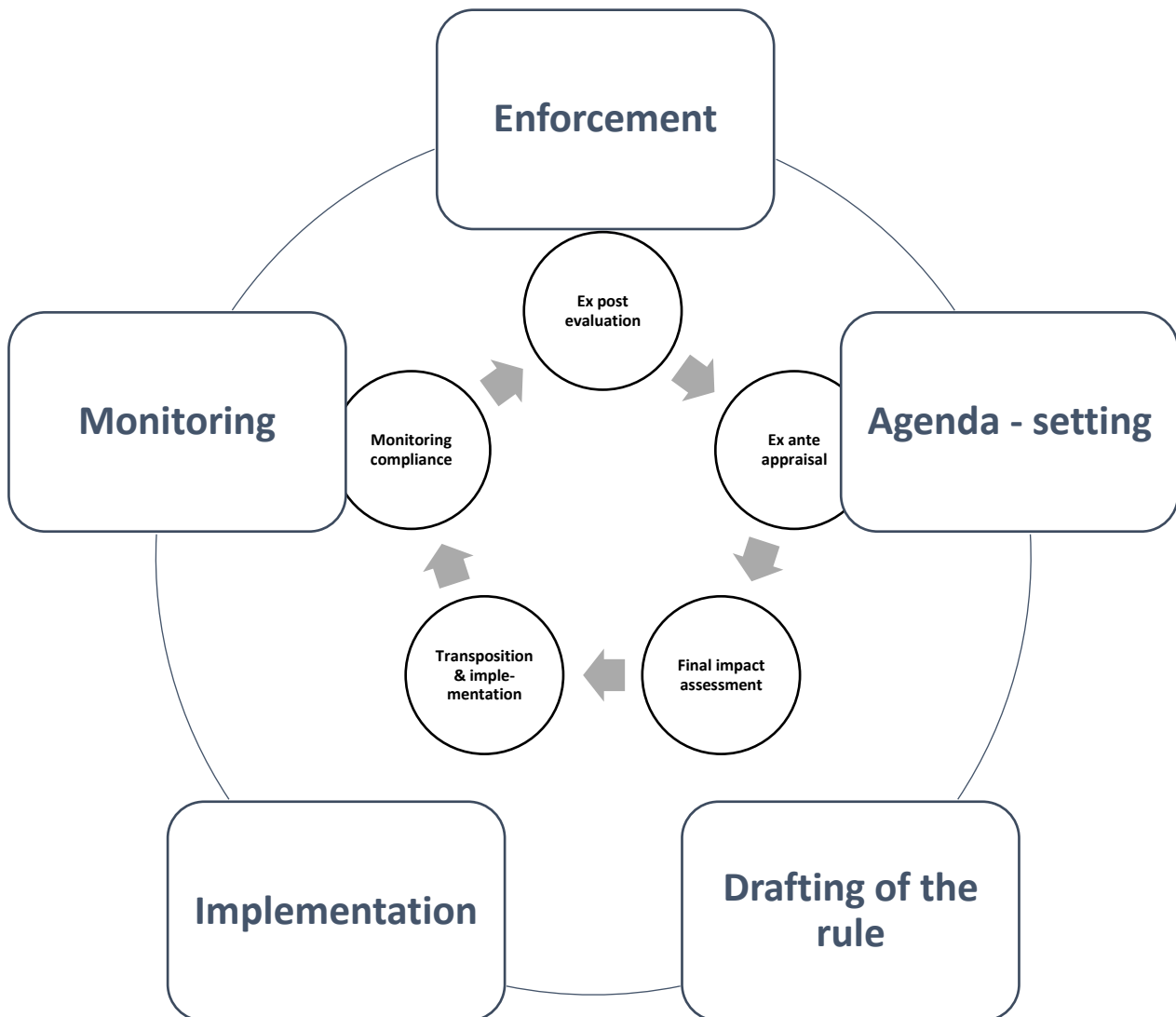


Figure 1: The regulatory governance cycle

Source: “Best practices in legislative and regulatory processes in a constitutional perspective: the case of the European Union”, Andrea Renda, Senior research Fellow, Centre for European Policy Studies, 2015.

Having analyzed Figure 1, we can see that the "inner circle" has constantly used instruments such as ex-post evaluation, ex-ante appraisal, final impact assessment, transposition and implementation, and monitoring compliance, while the "external circle" does not.

1.3 Correlation between Innovation and Environment, Health, Business, Intellectual Property

The environmental regulations involve a series of policies and measures adopted by the government to protect the environment [6]. The environment has played an essential role in preventing the destruction of enterprises by the environment by providing environmental regulations [7]. Generally, scholars have studied how environmental regulations impact businesses from the perspective of the enterprise. According to them, appropriate environmental regulations can help enterprises gain competitive advantages and drive enterprises to improve performance [8]. Nevertheless, environmental regulations have increased the operating costs of enterprises, which may negatively impact their operational conditions and hinder performance growth.

Most scholars focus on the content and objectives of green innovation when researching the meaning of green innovation. Based on their understanding of content, Chen and other scholars [9] believe that green

innovation includes innovation in green production processes or green products, including pollution prevention, energy saving, waste reduction, environmental management, and product design. According to scholars such as Driessen [9], green innovation is a solution that can significantly improve environmental benefits. Green innovation is one which aims to reduce the adverse effects of production and operation activities on the external environment through the prevention and control of pollution, product design, and waste utilization. Generally, current research on green innovation focuses on two aspects from an enterprise perspective. The article addresses the dynamic factors of green enterprise innovation on the one hand. Enterprises are driven to carry out green innovation by stakeholders such as suppliers, consumers, and competitors. According to institutional theory, the pressure of environmental regulations drives enterprises to engage in green innovation. Natural resource theory argues that management capabilities, organizational capacities, and managerial involvement contribute to green innovation [10]. The other aspect of green innovation is how it affects business performance. Some scholars argue that green innovation will increase enterprise resource investments, spread already scarce enterprise resources throughout the enterprise, and not lead to higher enterprise performance [11]. However, as Porter and others have demonstrated, green innovations at companies can improve the utilization rate of resources at businesses and reduce production costs businesses, thereby increasing the performance and income of the businesses [12].

There are a number of critical aspects of environmental regulations that are crucial for the implementation of green innovation within manufacturing enterprises. First, Porter's theory suggests that environmental regulations stimulate firms to invest in R&D and innovation and improve their technical capabilities and competitiveness. According to Yang, environmental regulations can lead to green innovation by enterprises by virtue of the compensation effect [13]. The second benefit of environmental innovation is that it regulates the

relationship between environmental regulations and environmental performance and provides valuable guidelines for corporate managers when developing environmental innovation strategies. To reduce pollution and comply with environmental regulations, manufacturing enterprises will improve their pollutant discharge capacity and reduce environmental pollution by developing green technologies. The implementation of this measure increases the enterprise's environmental protection capabilities, as well as promotes green innovation in its production processes and products. In addition, while environmental regulations may have a detrimental effect on enterprises for a short period of time, they may also facilitate technological advancement [14]. Due to environmental regulations, enterprises have experienced increased costs, and through green innovation, they can increase profits without polluting the environment. Under this premise, enterprises are able to increase profits and promote their green innovation capabilities.

Safety and health legislation is designed to protect the public by controlling products and workplace hazards. These concerns are related to the fact that consumers and workers generally have less information about the quality of products or workplaces than the industry does. Safety and health regulations, like environmental regulations, are not in question, and the issue is not one of deregulation but of achieving regulatory objectives more efficiently. Additionally, just as in the case of the environment, the challenge is to establish rules that will encourage innovation in the workplace while not stifling it. A number of product standards related to safety and health have also hindered the development of products on the international market, where there is more room for innovation if there is greater competition.

The challenge of maintaining a balance between protecting human safety and health and promoting economic efficiency is difficult. The biotechnology industry is a prime example of need for a product approval process that provides sufficient regulatory guarantees but does not stifle innovation. The companies in

the biotechnology industry are most concerned about the long regulatory procedures, in addition to the lengthy testing and certification procedures that stall approval of products that have a short life cycle.

A large proportion of the European biotechnology industry believes that regulations affect product testing, development, and labelling, leading product developers to make decisions based on existing technology and leading them to locate research and development activities outside of the European Union. With the European Union approach, the production method is more important than the intended use of a product. In the survey of biotechnology companies, product approval delays accounted for 70 per cent of regulatory problems, inadequate patent protection accounted for 60 per cent and planning or site approval accounted for 35 per cent [14]. Moreover, in 1994, the United States, which takes a different regulatory approach, led Europe in virtually every biotechnology-related category: the number of biotechnology companies was 1,300 versus 485, patents 65% versus 15%, and R&D expenditures 8 billion ECU or US\$8.85 billion versus 2.2 billion ECU. As a result, some are worried about the future of innovation in the biotechnology sector in Europe, even though it has traditionally been a significant force in this area [15].

It is crucial to remember that product approval procedures may differ significantly from country to country. Europe established a centralized procedure for granting marketing authorizations for medicinal biotechnology products across the EU to solve this problem. There are still differences between OECD countries regarding the nature and level of regulation of biotech products, especially whether there is a need for separate procedures for genetically modified organisms. As outlined by the industry, an innovation-promoting approach in biotechnology would:

- Be based on the characteristics and risks of the products themselves rather than the processes they are manufactured.
- Be designed to minimize the burdens on producers.

- Emphasize performance rather than design.
- Reflect rapid technical developments in the biotechnology area.
- Incorporate mutual recognition procedures.

The purpose of labor regulations is to protect workers' interests and safeguard their rights as workers. As part of this, there are a number of rules regarding recruitment and dismissal, overtime restrictions, working hours, part-time work, temporary work, and legislation regarding child labor and women's rights. Labor regulations are as necessary as other forms of social regulation, as they ensure the well-being of workers. The problem, however, is that labor laws sometimes can discourage innovation by making it harder to introduce new technologies or new ways of organizing the workplace. Workers' protection is essential, but studies have indicated that an appropriate degree of flexibility in the labor market is beneficial for employment and innovation.

Labor laws, for example, can hinder the adoption and implementation of new process technologies, especially if the workers are concerned that this will adversely affect their employment, despite the fact that there will be positive long-term productivity and growth effects. However, this requires a flexible and adaptable workforce in the short term. For example, employment regulations that are not sufficiently flexible can make it more difficult for companies to respond to structural and technical changes and make it more time-consuming for them to conduct research. Ultimately, this can stifle innovation and progress in the economic sector globally.

The European Car Assembly Association calculated that a project begun in 1995 in Germany and scheduled to be completed in 2002 in the United States would be updated 1.25 years earlier than Japan, with the organizations and efficiency levels being the same. There are many reasons why Germany is not growing as quickly as other countries, which can be mainly traced to shorter working hours and less flexible working conditions, both of which are heavily influenced by employment regulations. According to the European Car

Assembly Association, auto assembly firms in other countries that have different labor regulatory frameworks are better able to exploit new technologies, shorten product lifecycles, and meet consumer demands for more fashionable and technologically advanced products [16].

A high-performance workplace is a prerequisite in today's knowledge-based economies, where the stress is on "flexible" enterprises and high-performance workplaces. Technology adoption, the advent of new occupational classes, an emphasis on employee participation and teamwork, and continual experimentation with work organization are transforming traditional notions of job-based compensation and favoring wages based on performance and knowledge. People are more likely to work part-time, and the timing of their work varies more. The trend of outsourcing, decentralization, and downsizing, together with their consequences for the integrity of the labor market, is becoming more prevalent. More emphasis is placed on the training and upskilling of workers. The reform of labor rules can be a powerful catalyst for the emergence of more innovative and flexible companies in many OECD countries. Regulation efforts include

- enforcing more flexible rules about wage levels and dismissal costs,
- expanding the range of employment contracts,
- They are increasing the availability of part-time and flexible working arrangements as well as encouraging greater occupational and geographic mobility.

Nevertheless, the situation varies based on the country. There is a broad range of possibilities for the future of labor relations. In particular "market-driven" countries, employers may assume more responsibility and invest more resources in training and job security; in other "relations-based" countries, employers may be more open to non-standard and flexible work arrangements, while in countries with a "consensual" approach, flexibility and mobility of workers may be more critical. [17].

There are different types of administrative regulations which comprise the rules governing the establishment and operation of businesses as part of the government's oversight of producer-consumer relations. Small and medium-sized enterprises (SMEs) have particularly difficult times complying with these rules, despite the fact they are one of the most technologically dynamic firms, as studies of innovation and firm size indicate. Among the areas thought to be particularly detrimental to the innovation process are the rules concerning establishing a company, which have the potential to discourage the start-up of new technologies-based companies. Establishing a business and securing a team can take months and be time-consuming in some countries, as well as incurring astronomical costs (Table 2).

| Country | Number of procedures | Number of days | Estimated costs |
|----------------------|-----------------------------|-----------------------|------------------------|
| France (SARL) | 15 | 28-56 | 1900-4600 |
| Germany (GmbH) | 8 | 56-168 | 750-2000 |
| Greece (EPE) | 24 | 21-70 | 750-2000 |
| Italy (SPA) | 2 | 154 | 700-7000 |
| Ireland (ULC) | 6 | 14-28 | 300-700 |
| United Kingdom (PLC) | 8 | 42 | 500-1000 |

Table 2: Comparison of formalities for setting up a business

Source: Green Paper on Innovation. European Commission (1995)

There are many countries that have now taken innovative approaches to streamline regulations so that they will become less of a burden to businesses in the long run. However, the instructions multiplied and duplicated in many cases as the range of government operations expanded and became more specialized. Many countries have now taken innovative approaches to streamline regulations so that they will become less of a burden to businesses in the long run. Moreover, the instructions multiplied and duplicated in many cases as the range of government operations expanded and became more specialized. However, it has gone without saying that the regulatory process often fails to keep up with the evolution in government, economy, and technology that has taken place in recent years. Therefore, it is particularly pleasing to note that recent innovations in the regulatory process have demonstrated potential usefulness for small and medium-sized enterprises. Some of these approaches are:

Administrative reviews. Over the past few years, many countries, including the United States, the United Kingdom, Japan, Canada and others, have initiated sweeping revisions of the rules and regulations in each and every sphere with the aim of reducing, rationalising, and (as US officials would say) "reinventing government".

They are vetting new regulations. In order to better understand the costs and benefits of new regulations before they are implemented, governments are now attempting to weigh them carefully. Among them might be a "litmus test" for small business regulations to ensure that they do not impact smaller businesses.

Assistance centres. Governments establish centralised centres, which serve as one-stop shops for businesses to acquire information about all administrative regulations and administrative process formalities. For this purpose, governments are also beginning to use information technology to disseminate information on business regulations through electronic networks and interactive websites.

Intellectual property and innovation

Regulations made by administrative agencies can include provisions related to intellectual property rights (IPR) or the degree of protection given by the government to innovators and creators through administrative regulation. Technical advances can be credited to these "appropriability conditions", which are embodied in patents, copyrights, trademarks, etc. Patents must strike a delicate balance between i) rewarding inventors by limiting appropriation of inventions and increasing the returns to research and development; ii) protecting the interests of business and the public by allowing some use of inventions and facilitating technology diffusion.

Weak intellectual property protection, such as a limited patent period, and extensive compulsory licensing, may lower innovation incentives during this trade-off. It is the objective of an innovator, on the one hand, to carry out R&D, but on the other hand, to seek at least some personal return on investment. Private decisions will lead to underinvestment in research if a large portion of a company's R&D benefits others. In contrast, it can be very easy to abuse or misuse monopoly power when IPR protection is overly strong. The benefits of innovation may be more significant if they are disseminated more widely through society, increasing the allocative efficiency and the productivity efficiency of economies in general. Thus, regulators have a difficult task in maintaining an equilibrium between the interests of innovators and those of the public at large.

It is clear that the era of globalisation and rapid technological change has produced a number of concerns over the ability of traditional intellectual property regimes to promote innovation while also promoting the diffusion of technology. There remains a strong connection between intellectual property law and national culture. Differences in national approaches result in difficulties

for multinational companies seeking to patent inventions in multiple countries as well as for companies investing abroad. Many countries in the Organization for Economic Co-operation and Development (OECD) apply this "First-to-file" rule, which provides that the first patent applicant has priority over any subsequent applicant. A number of countries, including the United States, adhere to the so-called "first-to-invent" rule, in which applicants must prove that they invented the innovation. Therefore, regulations across countries are quite likely to differ, and this suggests a need for greater global harmonisation.

Throughout history, there has been a continual debate about whether or not patents are valuable in protecting inventions and their role in the innovation process. According to a study that compared patent values across OECD countries based on market size and patent costs, the total value of patent rights created by the OECD countries equals more than 20 per cent of their R&D expenditures. Germany and the United Kingdom share this value roughly proportionate to their respective GDPs, while Japan has a lower share. The patenting activity of American inventors is comparatively high in their own country. A higher proportion of foreign patents are granted in Japan, Sweden, Switzerland and Austria than in other countries.

Chapter 2: Implementation of PSD2 in YAPI Merkezi Construction

In this section, we will consider who YAPI Merkezi Holding A.Ş is and how this company complies with the rules of the Payment Service Directive (PSD2).

2.1 General Familiarization with YAPI Merkezi Construction

YAPI Merkezi Holding A.Ş is a private Turkish company founded in 1965. Its headquarters are located in Istanbul. It is necessary to admit that the company is engaged in many areas, for example, the design and construction of buildings, transportation, railway systems, tunnels, bridges, shopping malls, hotels, residential complexes, and other related services. YAPI Merkezi is ranked 68th in the list of top 250 construction companies in 2021 and has more than 18000 employees. The company is also well-known for building railway stations for urban mass transit systems and suburban, high-speed railway projects such as Dubai Metro Tunnels, Istanbul Metro, Morocco Casablanca Tramway, Algeria - Bir Touta - Zeralda Railway.

YAPI Merkezi Holding A.Ş invests heavily in human resources, knowledge, and technology as well as new management systems and always bases its development on this method in order to be competitive, achieve better risk management and deliver products and services on time, within budget and with the assured quality.

YAPI Merkezi Construction and Industry was founded by Ersin Arioglu and Koksal Anadol as the first company of YAPI Merkezi Group. Today, YAPI Merkezi Holding A.Ş owns the assets of YAPI Merkezi Construction, YAPI Merkezi Prefabrikasyon Grubu, Yapiray, YAPI Merkezi Gayrimenkul Grubu, SUBOR, Freysaş, YAPI Merkezi İDİS (Monitoring Control & Communication Systems) Inc, Nekaş.

YAPI Merkezi Construction and Industry was established in 1965 as the first company of the YAPI Merkezi Group. In the early years of its operation, the company focused on designing and constructing industrial facilities. Since the 1980s, the company began to work as a general contractor on a large scale, especially in the design and construction of metro and tram projects. Since the day of its establishment, the company has emphasised quality, technology, and the accumulation of knowledge. In this regard, the company has acquired particular expertise and published more than a thousand papers and reports in the fields of earthquake engineering, structural engineering, concrete technology, prefabrication, tunnelling, urban planning, reinforcement rehabilitation and Turkish civil engineering. As a result, the company's engineering efforts have been recognised many times by national and international scientific authorities. In addition, YAPI Merkezi Construction is a world brand in the field of railway technologies. In 2004, ESTRAM (Eskişehir LRTS) was awarded "Light Rail Project of the Year" by UITP (International Association of Public Transport), while Kayseray (Kayseri Light Rail System) was awarded "2010 Best Urban Integration Project of the Year" by UITP and "Worldwide Project of the Year" by the British Light Rail Transit Association, both of which were implemented by YAPI Merkezi.

Furthermore, the Casablanca Tramway, which became operational in late 2012, was awarded "Highly Recommended" by the Tramways & Urban Transit Organization in the category of "Best World Class Rail Transit Project of 2012". Today, YAPI Merkezi Construction has risen to a leading position in the design and construction of railway systems thanks to its extensive experience in Turkey and abroad. YAPI Merkezi Construction strives to continue its universal contribution to the construction sector by undertaking and successfully executing important tasks in construction projects in Turkey and worldwide.

Since 1968, YAPI Merkezi has been actively operating in the local and international markets. Moreover, the company has made a name for itself in the

construction industry. The main construction activities of the company can be divided into the following sectors:

- Industrial construction;
- Public service buildings; transportation; Electromechanical
- Highway systems;
- energy irrigation and infrastructure;
- Heavy construction;
- Strengthening and restoration;
- Environment projects.

From Chart 1 below, we can see the clear correlation between one industry to another.

Sphere Projects of Yapı Merkezi Holding AS

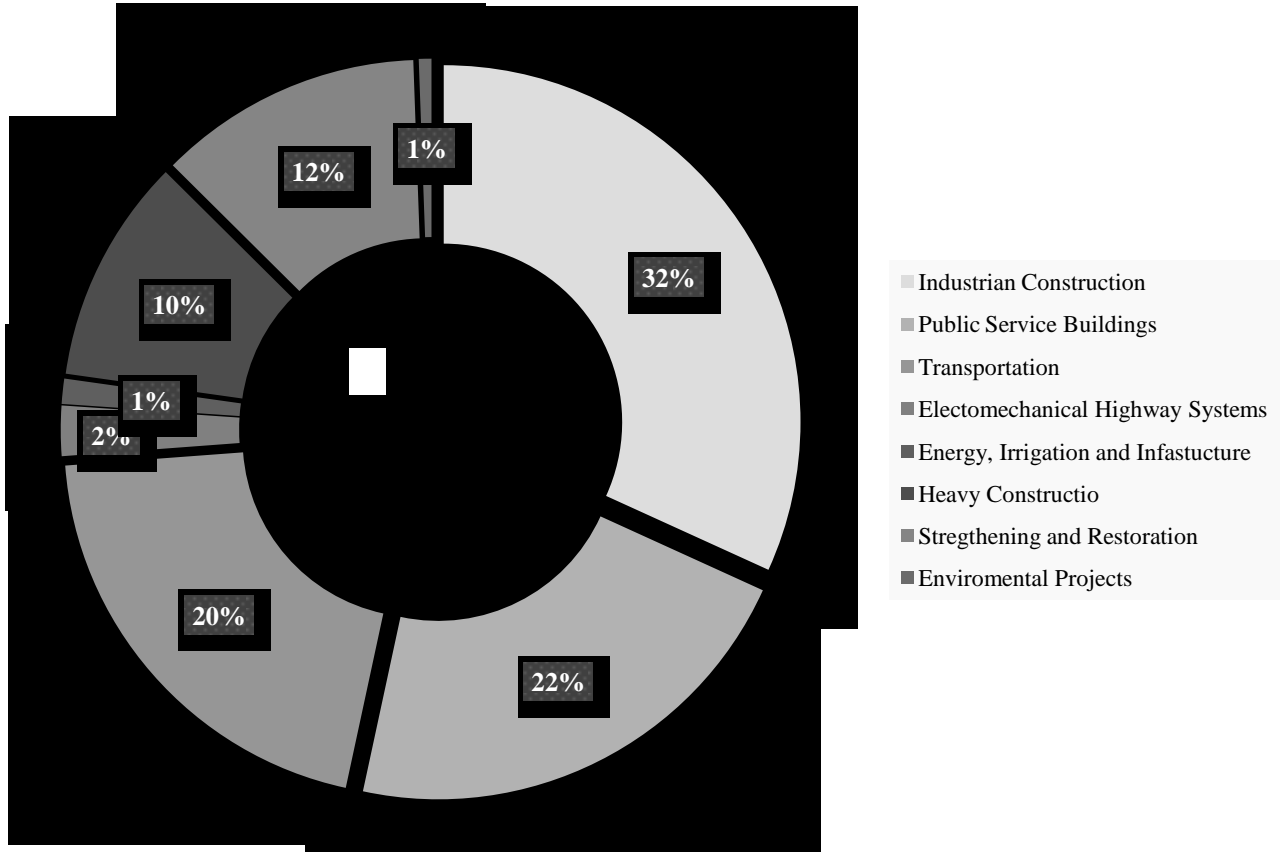


Chart 1: Sphere of projects of YAPI Merkezi Holding AS
Source: created by the author

From the diagram above, we can see that the main construction activity of YAPI Merkezi is industrial construction. It occupies about 32% of the total activity. Also, a considerable part of the activity is occupied by public service buildings 22% and transportation 20%. At the same time, the environmental projects and energy sectors take only 1%.

YAPI Merkezi company has been working in Industrial Construction since 1968. Therefore, we can divide this industry into the following projects such as industrial estates, workshops, and factories.

YAPI Merkezi company has been working in Industrial Construction since 1968. According to Chard 1, we can divide this industry into the following projects such as industrial estates, workshops, and factories.

In total, in Industrial Estate, from 1968-to 1989, about 11 works were carried out on the territory of Turkey. However, since 1990, the YAPI Merkezi company has not worked in this area.

From 1965 to 2012, the YAPI Merkezi company completed 32 projects, of which 1 project was in Algeria.

The workshop was active from 1986 to 2012. In total, 13 works were produced in this area, the list of which includes the construction of a workshop in Dubai, Casablanca, Algeria, and Africa.

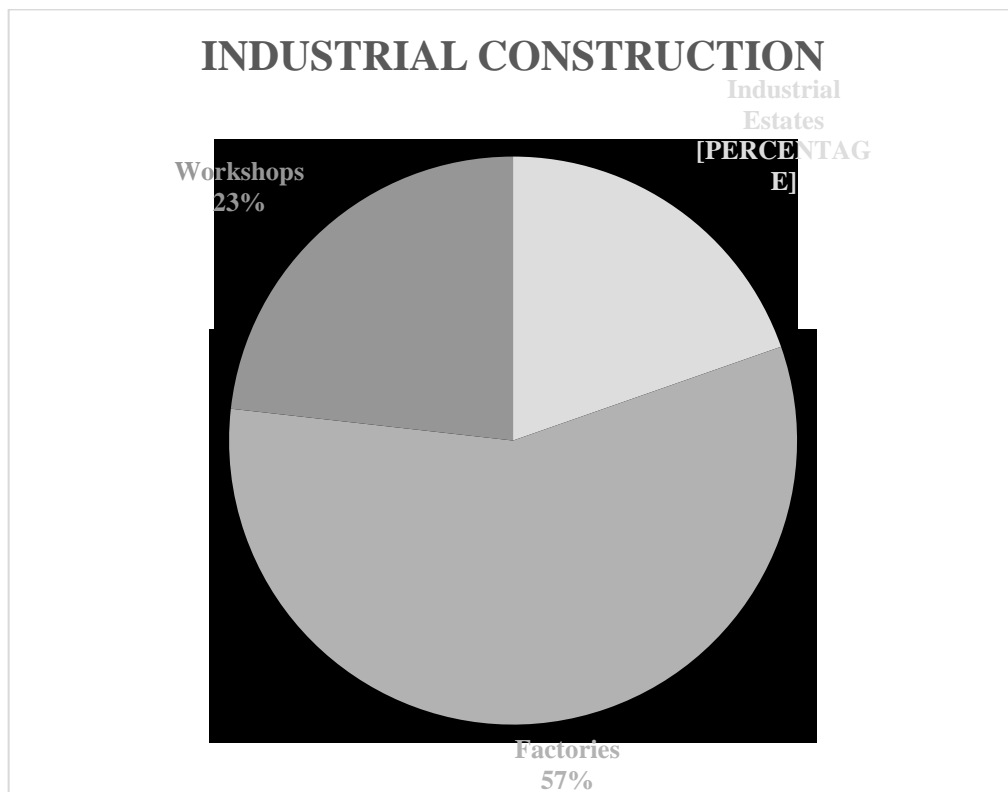


Chart 4: Transportation

Source: created by the author

Despite the metro category occupying only 14% of the entire industry, it includes some of the most popular Dubai metro projects. However, transportation has become famous for the metro and railway categories. In total, 15 projects were carried out in the railway category, of which only 2 were carried out in Turkey.

Based on the data above, we can state that YAPI Merkezi company is focused on the activities of three primary industries, namely industrial construction, public service buildings and transportation. Thus, we can assume further growth of projects directly in these industries.

2.2 YAPI Merkezi Construction Payments throughout PSD2

YAPI Merkezi Construction on the Slovenian project Divača-Koper Railway uses the progress payment system. According to the Farlex Financial Dictionary. A progress payment is an act or practice of paying a contractor in instalments as different stages of work are completed, rather than providing a single lump sum at the completion of the project. Progress payments reduce the client's working capital needs for the project [18].

The progress payments play an essential role in recovering the expenses of YAPI Merkezi Construction during this project. Moreover, the progress payments protect the company from late or non-payment by the client. It is essential to notice that YAPI Merkezi Construction may decide to stop working on the Koper – Divača Railway project until payment is received.

The progress payment method in YAPI Merkezi is based on the percentage of work that is done. This payment system was written and agreed upon in the construction contract by all parties 2 DTK (customer of Koper – Divača Railway project), UniCredit Bank, and YAPI Merkezi Construction. Furthermore, determining when invoices will be sent and when the payment will be reflected are essential considerations. According to the construction agreement, the process payments include:

- The total amount of the contract belonging to the project
- Any approved changes as well as adjusted debt amount
- Total amount calculated up to the particular point
- The current project is the completion percentage of the project completion balance

The progress payment method in European Union is applied according to the Payment Service Directive 2 (PSD2). This directive focuses on electronic payments that are more efficient than cash payments. In addition, PSD 2 provides information on obligations for payments to third and third countries where one of the payment service providers in the Europe Union is located.

Chapter 3: Payment Service Directive

3.1 European regulation for electronic payment service

The Payment Service Directive (PSD) is a European regulation for electronic payment services. In 2007, the first Payment Service Directive was adopted, which provided the legal foundation for European Union's single market for payments to establish safer and more innovative payment services across the Europe Union. The objective of PSD was to make cross-border

payments as easy, efficient, and secure as 'national' payments within a Member State [19]. Furthermore, due to Payment Service Directive was created, the Single Euro Payment Area (SEPA). The SEPA project aims to develop standard Union-wide payment services further to replace current national services regarding payments denominated in euro [20].

In 2016, the Payment Service Directive 2 (PSD 2) No. 2015/2366/EU was adopted. However, the implementation of the directive's proposals in the national legislation of the EU member states began on January 13, 2018. The main objectives of PSD 2 [21]:

- Contribute to a more integrated and efficient European payments market;
- Improve the level playing field for payment service providers (including new players);
- Make payments safer and more secure;
- Protect consumers;

The Payment Service Directive 2 supports competitiveness and innovation in retail payments and enhances the protection of consumer data and the security of payment transactions. This directive is a technical standard for clarifying the technical details developed by European Banking Authority (EBA). European Banking Authority ensures the consistent application and interpretation of the directive, strengthening consumer protection, increasing the transparency of the activities of payment organizations, and improving the quality of interaction and exchange of information between the competent authorities of the EU member states. Furthermore, the directive limits the capabilities of existing financial and credit institutions and rigidly directs the development of the financial sector in a single direction, which contributes to the development of competition in the banking market.

The Payment Service Directive 2 consists of six sections and applications [22]:

1. Subject matter, scope, and definitions
2. Payment services providers
3. Transparency of conditions and information requirements for payments service
4. Rights and obligations in relation to the provision and use of payment service
5. Delegated acts and technical regulatory standards
6. Final Provision

The main idea of creating this directive by the European Union is to build a single market for the movement of goods, services, capital, and labour. There are two lines of PSD2 that will have significant and monumental consequences: retail lines of business and open banking. Retail lines of business involve consumer savings and settlement accounts, car loans, mortgage loans and lending to small and medium-sized businesses, as well as payments (card payments, corporate payments, credit transfers, direct debit, etc.). This concept improves the quality of customer service and enables third parties to use and analyze data from financial and credit institutions.

Next, we will highlight the essential components of the directive that give impetus to the development of competition in the banking market in EU space.

The first section of the directive established the categories of payment services:

- a) Credit institutions
- b) Electronic money institution
- c) Post office giro institutions
- d) Payment institutions
- e) European Central Bank and national central banks
- f) Member states or their regional or local authorities

PSD2 expands the concept of payment service as any activity that includes the following:

1. The cash deposit service to the payment account
2. Cash withdrawal services
3. Execution of payment transactions, including money transfers to the payment account opened by the payment service provider serving the customer or another payment service provider.
4. Execution of payment transaction at the expense of the credit facility represented by the payment service user.
5. Issue of instruments and/or security receipt of payment instruments (acquiring).
6. Money transfer services
7. Payment initiation service
8. Financial information aggregation services

The Payment Service Directive 2 does not cover issues related to services: payments through a telecom operator (if the amount is up to 50 euros) to pay for tickets, charitable contributions, purchases of digital content, tools intended for use in a limited number of outlets, as well as for paper checks, cash settlements, etc., therefore, depending on from the national legislation of the EU member states, this can form the cash flow of non-bank sector organizations.

In the second section of the directive are introduced, providers. In comparison to PSD, the number of providers in PSD 2 did not change:

1. Credit institutions
2. Post office institutions
3. Payment institutions
4. European Central Bank and national central banks
5. Member states or their regional or local authorities
6. Electronic money institution

However, the specifics of payment institutions are determined: they receive permission to operate, not a license. According to the type of service, the amount of authorized capital and own capital requirements may differ. Thus, the requirements for non-banking organizations to enter the market are reduced banking services, which increases the possible number of participants in the payment market.

National registries shall contain information on permits issued and revoked with a list of payment services, as well as information on branches if they provide services in other European Union member states. Besides, data from the national register are duplicated in the European register, based on European Banking Authority. This innovation increases the transparency of the banking services market. Furthermore, in addition to providing payment services, payment institutions have the right to provide limited loans to their customers, as well as the right to other activities. By this clarification, developers add financial stability to institutions through permission to conduct (perform) non-payment activities, for example, retail trade or the implementation of telecommunications services.

It is important to note that the directive increases the costs of payment institutions by obliging a mandatory state audit of annual and consolidated reports unless otherwise specified in previous directives.

One of the sections of the PSD2 explains the possibility of exercising the right to establish and freedom to provide services on the territory of another member state EU. To obtain such an opportunity, the organization needs to present the supervisory authorities of the country of registration with a statement and a set of relevant documents. However, after this opportunity, the authorities of the country of registration supervise the payment institution, and the host country has the right to demand periodic reports from the organization. This regulation allows not only for expansion of the sales market but also

increases competition in the national markets of the member countries of the European Union at the expense of non-resident organizations.

The Payment Service Directive 2 has a section that prescribes the exemption of small organizations from regulatory requirements, for example, for payment institutions with an average monthly volume of transactions (for the previous 12 months) to 3 million euros (the norm can be lowered or increased by decision national authorities). Therefore, lowering regulatory requirements for organizations makes it easier to enter the market, thereby increasing competition.

In accordance with DSP2, the payment institution can only be a legal entity, and the payment service provider providing financial information aggregation services can be legal and individuals exempt from part of the regulatory requirements. The definition of “payment provider services” prescribed in the PSD2 increases the number of possible market participants for this service.

The third section of the directive provides a detailed list of information that the provider must disclose to the customer. However, a payment instrument may be exempt from disclosure requirements if, for example, only individuals use it for payments less than 30 euros, the total limit is 150 euros, or the maximum balance is not greater than 150 euros.

According to the fourth section of the directive Payment Service Provider has the right to demand a fee from the user for fulfilling his obligations but prohibits charging additional fees for using payment instruments for which European regulations regulate the interbank commission. This provision reduces banks' income from using credit or debit cards and payment services, which are based on payment orders or requirements, depending on the type of payment (domestic, cross-border).

The PSD2 introduces new opportunities for payment instruments issued by one organization and customer accounts opened elsewhere. On this issue, the

directive prescribes the obligation of the account service provider to provide the provider who issued the card. This duty is in immediate confirmation of whether the customer has sufficient funds to complete the transaction. Hence, the client has the right to choose payment instruments from the entire spectrum of the banking market without reference to the bank where the account is opened, which also leads to competition.

Payment Service Directive 2 legally embodies the concept of Open banking. Namely, it establishes the obligation of organizations where the client has an account to provide access to their information systems to intermediaries-services for initializing payments and aggregating financial information, without concluding an agreement between the intermediary and credit and financial institution, and discrimination against information intermediaries are prohibited.

The directive contains the following types of services (Table 2):

- Payment Initiation Service Provider (PISP) initiates a payment from the payer's bank account and facilitates the transfer of funds to the recipient's bank account.
- Account Information Service Provider (AISP). Payment services (for example, banks) are obliged to provide access to the balance sheet and transaction data in the payment accounts of their customers through Application Programming Interface (API)
- Payment service provider's issue is card instruments.

| Service provider | Description | Example |
|---|---|---------|
| Account Servicing Payment Service Providers (ASPSP) | These are banks that store customer accounts and need them PSD2 for | Banks |

| | | |
|---|---|------------------------------|
| | access to these accounts via the Application Programming Interface (API) | |
| Payment Initiation Service Provider (PISP) | PISP focus on e-commerce transactions by linking the merchant to the customer account | Banks or other organizations |
| Account Information Service Provider (AISP) | AISPs act as aggregators of the financial information of the agreeing customer in all accounts and financial services institutions, allowing this aggregated information on any customer-facing faceplate | Banks or other organizations |

Table 3: List of service types defined in PSD 2

Source: created by the author

Having analyzed Table 3, we can notice that the Account Servicing Payment Service providers provide services only for banks, while PISP and AISP provide services for both banks and organizations.

Based on the company Accenture [24] research results, we will draw the following conclusions: more than 50% of consumers will use the PISP product, which is safe and offers extensive retail options. Furthermore, by 2020, one in three debit card payments and one in 10 credit card payments were expected to be made in the PISP.

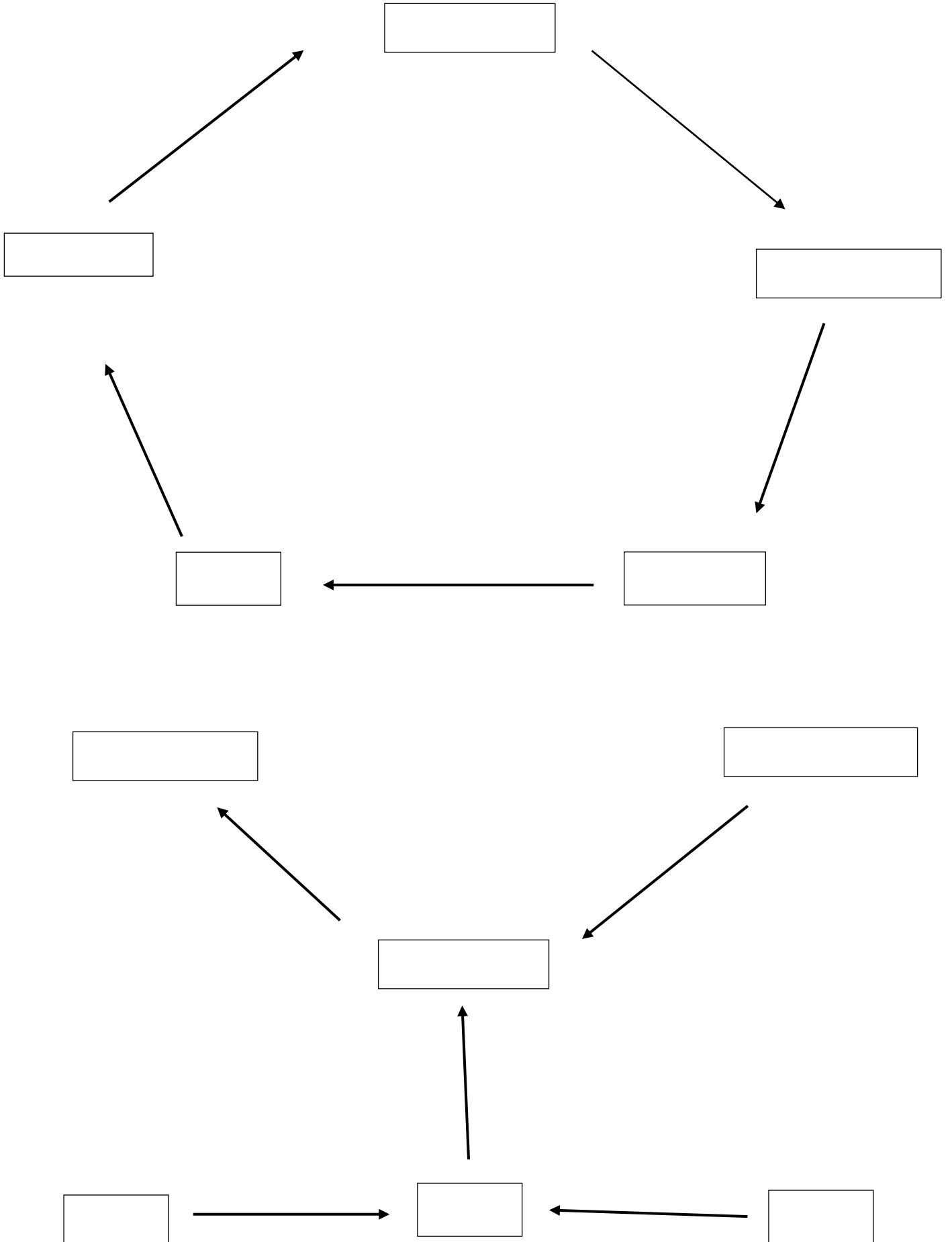


Figure 2: Scheme of purchase of goods without PISP and with the service provider on initiation of payments (Payment Initiation Service Provider — PISP)

Source: “Fintech in Europe: Promises and Threats”, Chikako Baba, Cristina Batog, Enrique Flores, Mr. Borja Gracia, Ms. Izabela Karpowicz, Piotr Kopyrski, Mr. James Roaf, Ms. Anna Shabunina, and Xin Cindy Xu, 2020.

Having analyzed Figure 2: Scheme of purchase of goods without PISP and with the service provider on initiation of payments, we can mention that the PISP simplifies the payment procedure.

The directive prescribes the speed of money transfers, namely, money on payments in euros, within government payments, and cross-border payments between EU countries should be available to the recipient no later than the end of the next working day. However, periods increase by one business day if a payment transaction using documents takes place in paper form. After it, the funds must be immediately credited if they are deposited in cash in the personal account. Despite its shortcomings, the directive does not show any disregard for issues related to the security of payments and data protection: the obligations of providers are not specified, and it takes some time for them to provide information to the European Commission on significant security incidents.

Section 6 reflects the complete harmonization of national legislation with the principles of the directive. By January 31, 2021, the European Commission submitted to the European Parliament, the Council, the European Central Bank and the European Committee on Social and Economic Affairs for consideration a report on the application of the PSD2.

Thus, PSD2 is a set of rules for banks, payment services and other players in the EU market; this document does not apply to financial market participants.

3.2 Consequences of implementation of PSD2

According to the implementation of the Payment Service Directive, we can highlight the following consequences that stimulate increased competition in the banking sector:

- Solving the challenges of cross-border banking consumer transactions by driving and driving innovation in banking and payments and targeting global companies in the US and Asia.
- Accelerating development and innovation in the banking sector in the European Union.
- Creation of a single market for consumer payments and, as a result, for banking services.
- Improving Payment Services in Europe Union by providing a number of PSD1 improvements in mobile and online payments.
- Price harmonization and security between all organizations of the EU Member States.
- Changing the rules of participation in the banking and payment industry.

- Opening borders between national payment markets of EU member states.
- Ensuring a level playing field for payment service providers.
- Increase in retail players in the banking market through an open banking standard supply.
- Increasing market transparency for both suppliers and users.
- Standardizing rights and obligations service payment providers and users in the EU, with customer protection.
- Operating Cost Savings activities, regulatory reports, real-time interbank settlements, and customer identification.
- Minimizing client verification time.
- Reducing regulatory requirements for organizations for access to national markets.

From the facts above, we can conclude that with the introduction of PSD2 in the banking services market, the number of participants will increase several times. The implemented cost-oriented development strategy largely determines the competitiveness of the organization. Therefore, in order for banks to remain competitive, attention must be paid to carefully assessing changes in a number of areas: security, lines of business communication, data management, partner ecosystems, outsourcing agreements, as well as guided by ethical norms and methods of fair competition in economic activities.

After the PSD2 comes into force, banks will face a choice of strategic development directions. The competitive behaviour of professional companies has been modelled at the strategic level well before it takes the form of operating procedures, responses to situations, and direct actions. There are several concepts in competitive behaviour strategy theory. In this case, we will highlight three options:

1. *Minimum compatible* banks are banks that strive to meet PSD2 requirements in local changes with minimum cash investments. In the long run,

this means a loss of market share and customer lifetime value (CLV). In addition, competition from financial institutions and startups will provide more cost-effective solutions, such as instant mortgages, financial management tools, and paperless approval procedures for certain consumer loans.

2. *Digital Starters* are banks that have begun exploring the possibility of opening customer data, as well as implementing their APIs. These approaches can only succeed in the short- to medium-term.

3. *Digital Innovators* are banks that will become leaders in the field of open APIs and, in particular, they will finance teams by business, serve customers by segment or fully, and partner with technology firms. Besides adhering to API PSD2, digital innovators are expanding into the service sector, developing their products with a focus on data monetization and artificial intelligence with minimal human intervention. For instance, Robo-advisors robotic advisor is a platform that provides financial advice or investment management.

Next, we will highlight the main consequences of the implementation of the "Second Payment Service Directive" for banks of the European Union:

1. *Increased competition for revenues in the existing customer base.* Competitors are expected to appear, for example, financial organizations and other financial institutions will sell products to bank customers

2. *Bankruptcy or takeover.* If the bank is not able to respond in time to the innovations of the PSD2, it will lose the monopoly on payment services.

3. *Revenue decline.* Over time banks and payment providers will lose significant revenues for PISPs, eliminate card surcharges and waiver provisions for credit card payment transactions.

4. *High IT costs.* Banks will spend tens to hundreds of millions of dollars implementing APIs, retrofitting them into legacy systems, and complying with enhanced security requirements. For instance, Uber Technologies Inc. has grown rapidly from a small startup to a global

organization, competing with taxis in many states through the use of API-based partner opportunities to locate customers and track drivers and integrate Google's cloud messaging API for instant messaging and PayPal's Braintree API to capture travel fees. Moreover, Amazon, eBay, Facebook, Salesforce, and Twitter have used APIs to strengthen their capabilities and build businesses.

5. *Implications for regulatory reporting and risk management.* Banks are losing to new participants in banking services, financial organizations, and startups. On the one hand, AISPs are not subject to any restrictions, and they are not required to hold capital in reserve. However, on the other hand, PISP helps banks successfully defend their interests in the competition against financial organizations and startups. Therefore, it is necessary to ensure superiority over rivals and prevent the superiority of rivals above the report regulations.

Therefore, regulation needs to revise the development strategy in terms of a cost-oriented approach and the following issues:

- a) Simplification of the payment system. It Works with an interested third the parties to simplify payments through various interfaces.
- b) Ecosystem development. Banks should work to create intelligent ecosystems in conjunction with technology organizations, not only offering payment services but also using customer data to offer tools for personal financial planning.
- c) Driving innovation. Driving innovation makes real-time cross-border payments that are "seamless," reliable, and cost-effective for corporations, organizations, and individuals.
- d) Monetization of behavioural analysts. Banks have a large volume of customer data, and this information needs to be monetized through retailers who need the data to improve their understanding of the behavioural rhythms of their potential customers. As a result, sellers will have a real opportunity to improve loyalty programs and increase competitiveness.

- e) Digitalization. Using knowledge from a more dynamic range of consumer payments, banks should offer their business customers the same experience in various fields: bank transfers and mobile cash management services.
- f) Customer focus. It is necessary to transform banks' business processes toward the client and constantly improve based on his needs.

Therefore, for Ukraine to be able to stand on a par with the Europe Union on innovations in banking services, it is necessary to take into account the principles of directives in national legislation.

3.3 Prospects of payment service regulation in Ukraine

The development of financial technologies has significantly influenced the transformation of the financial services market structure. The monopoly of banks in Ukraine has wavered due to competition from small companies and startups, demonstrating high flexibility and adaptability to customer requests. Moreover, global trends in the development of the world economy are marked by the active use of information-intellectual and digital technologies and characterized by the active introduction of digital conservation technologies. However, banks still hold positions due to significant financial resources that small and medium-sized businesses do not have. Besides, virtual banks fight against physical competitors for client deposits. The main advantage of small and medium-sized businesses is a high level of accessibility and comfort, which is forcing the traditional banking sector to cooperate with financial technologies [24].

It is vital to notice that market trends dictate the need for large banks to adapt to realities, optimize their strategies and increase attention to the digital

segment. Hence, reducing the banking sector and public trust in the banking system formed a significant potential for the development of financial technologies in Ukraine [25]. The transformation of the current economic system of Ukraine is carried out in accordance with the Sustainable Development Strategy "Ukraine-2020". It is conditioned by the provisions of the Association Agreement between Ukraine and the EU, according to which, in particular, there are processes of liberalization of financial markets and gradual bringing into line with current national laws and future legislation to the EU acquis. In accordance with Article 133 of the Association Agreement between Ukraine and the EU, the Parties of the Agreement recognize the importance of approaching the current legislation of Ukraine to the legislation of the European Union, which begins from the date of signing the Agreement and gradually extends to all elements of the EU acquis specified in Appendix XVII to the Agreement [26].

According to the Association Agreement between Ukraine and the EU, the list of financial services subject to liberalization in Ukraine includes insurance services, banking, and other financial services. The insurance services sector includes directly insurance services, namely: direct insurance (in particular, mutual insurance), where the object of insurance relations is life and insurance other than life insurance; reinsurance and retrocession, as well as insurance-related services, such as insurance mediation, in particular brokerage operations and agency services and services that are auxiliary to insurance, in particular consulting activities, actuarial services, risk assessment services and claims resolution services [26].

Traditionally, banking innovations include banking products in new market segments; innovations such as the development of activities in new spheres of the financial market; new methods of cash management and use of new information technologies; modified financial mediation services aimed at reducing operating costs and more efficient asset and liability management; new

products in traditional segments of borrowing capital [27]. Thus, it is essential to track the parallels between the innovative services of banks and banking and other financial services subject to liberalization, in accordance with the Agreement, which includes:

- services for accepting deposits and other funds to be returned from the population.
- lending services of all types, including consumer credit, loans secured by real estate, factoring, and financing of commercial transactions.
- financial leasing.
- all payments and money transfer services, including credit, settlement and debit cards, travel checks and bank expenses.
- services for the provision of guarantees and sureties.
- concluding transactions on personal behalf or behalf of clients on the exchange, outside of it or in any other way regarding the instruments of the money market (including checks, bills of exchange, deposit certificates), currencies, derivative instruments, including futures and options, but not limited to exchange rate and interest instruments, including instruments such as swaps and forward interest rate agreements, transfer securities, other working instruments and financial assets, including precious metals in bullion;
- participation as an agent in issuing all types of securities, particularly underwriting and placement (both open and closed) and providing services related to such issues.
- intermediary services in the money market.
- property management services, including cash or non-cash management, all forms of collective investment management, pension fund management, trust storage, depository, and trust services.
- clearing and financial property management services, including securities, derivative instruments, and other working instruments.

- provision and transfer of financial information, processing of financial data and related software.
- advisory, intermediary, and other supporting financial services for all activities listed above, including lending capacity and credit analysis, research and advice on investment and securities portfolio, acquisition and corporate restructuring advice and strategies [28].

The definition of the particular term "new financial service" is considered appropriate in the Agreement, which can indirectly be attributed to the interpretation of the product concept of financial technologies and under which it is necessary to understand services of a financial nature, in particular services that are associated with existing and new tools or with the method of supplying such tools, which are not provided by any financial services provider on the territory of one of the Parties, but which are provided on the territory of the other Party [26].

Innovative financial services and their development is an essential indicator of technological changes in a particular country, and the gradual process of consolidation of traditional and innovative financial sectors is a balanced model of relevant trends, which minimizes the risks of subversive technologies and radical innovations that can supplant dominant business models or technologies when creating new markets [29].

According to the European integration course of Ukraine, the country has presented a number of state initiatives to support and develop the field of financial technologies. First of all, in this context, it is necessary to introduce the adoption of the Concept for the Development of the Digital Economy and Society of Ukraine for 2018-2020 and the approval of the action plan for its implementation. The concept is to create market incentives, motivations, demand, and formation needs for the use of digital technologies, products, and services among Ukrainian sectors of industry, spheres of life, business and society for their efficiency, competitiveness and national development, growth

of high-tech production and well-being of the population [30]. Creating an appropriate ecosystem endowed with these distinct components will have favourable conditions for the further dynamic development of the financial technology industry in Ukraine.

Another decisive state initiative for the development of financial technologies in Ukraine is the transition to digital document circulation and the introduction of electronic signatures. In this context, comparing the legislation of Ukraine and the EU, it should be noted that the domestic regulatory regulation of the collection and processing of personal data has very similar features to EU legislation in this area, namely - with the requirements of the GDPR - General Data Protection Regulation - Regulation of the European Parliament and the EU Council 2016/679 of 27 April 2016 on the protection of individuals in connection with the processing of personal data and the free movement of such data (General Data Protection Regulation).

According to clause 39 of Regulation [31], any processing of personal data must be legal and legitimate. Individuals should be aware that their personal data is collected, used, discussed, or otherwise processed, as well as the extent to which personal data is processed or processed. Moreover, the person for whom the collection, discussion, use or otherwise processing of the data takes place must be informed about the identity of the controller (according to Ukrainian legislation - the manager and owner of personal data), the purpose of processing and what kind of data is to be processed. Individuals should be aware of the risks, rules, guarantees and rights to process personal data and how to exercise their rights in connection with such processing. Besides, personal data must be sufficient, appropriate, and limited to what is necessary to achieve the goals for which they are processed. Accordingly, the period during which personal data is stored must be reduced to an absolute minimum.

Similar norms are contained in the Law of Ukraine "On Protection of Personal Data" of June 1, 2010. In accordance with clause 2 of Article 8 of the

Law, the subject of personal data has the right, in particular, to know about the sources of collection, location of his/her data, the purpose of their processing, location, or place of residence (stay) of the owner or manager of personal data. Furthermore, according to clause 3 of Article 6 of the said Act, the composition and content of personal data shall be appropriate, adequate, and unreasonable in relation to the specified purpose of their processing [32]. Regarding the period of processing of personal data, the Law of Ukraine "On Protection of Personal Data" (clause 8 of Article 6) states that personal data are processed no longer than necessary for the legitimate purposes in which they were collected or further processed.

In order for the processing to be legal, in accordance with the Regulation, personal data must be processed based on the consent of the relevant data subject or another legal basis established by law or the Regulation, or in another EU legal act or member state [31]. Furthermore, according to the provisions of the Law of Ukraine "On Protection of Personal Data" (clause 5 of Article 6), the processing of personal data is carried out for specific and legitimate purposes determined by the consent of the personal data subject or in cases stipulated by the laws of Ukraine, in the manner established by the legislation of processing [32].

The primary regulator of financial technologies in Ukraine is the National Bank of Ukraine (NBU). Taking into account current trends in the financial market and international practice of making payments using an electronic payment means (payment cards), first of all - the EU Directive 2015/2366 of the European Parliament and the Council of 25.11.2015 on payment services in the domestic market (PSD2), the regulator has improved the procedure for banks to issue electronic payment means (payment cards) and transactions with their use. For this purpose, Resolution of the Board of the NBU dated 29.11.2019 № 142 "On Amendments to Certain Normative Legal Acts of the National Bank of Ukraine" amended the Regulation on the Procedure for Issuing Electronic

Payment Means and Performing Transactions with their use, approved by the Resolution of the NBU Board of 05.11.2014. № 705.

Thus, the NBU amended the regulatory regulation of the following provisions:

- the procedure for using the payment application by the user.
- the activity of information and technical intermediary.
- the right of an individual who carries out independent professional activities to use a corporate payment card.
- the right to issue an electronic payment instrument in the name of the natural person's legal representative (guardian) in the name of the individual recognized by the court as incapacitated.
- the right of the bank to transfer the payment card to the user through its agent, who is given the right to identify/verify customers.
- the obligation of the bank to provide for the procedure for issuing/transferring an electronic payment instrument to the user in a contract with the client.
- requirements for the right of the client's trustee to receive a payment card, but without the right to use it and the obligation of the payment service provider to inform users about the cost of their services before starting the transfer [33].

Resolution 142 of the NBU introduced new legal definitions to the legislation on the regulation of financial technologies in Ukraine:

- Information and technical intermediary are the operators of payment infrastructure services, which provides information and technological services for money transfer and information about which is included in the Register of payment systems, payment systems, participants of these systems and operators of payment infrastructure services [34]. Analysis of EU legislation in the field of financial technologies allows to carry out the corresponding analogy with the definition provided by the NBU

and the definition of financial services subjects by the PSD2 Directive - Payment Initiation Service Provider and financial information aggregation service providers are Account Information Service Providers.

- Payment application is a software tool located in the hardware and software environment of the electronic payment means (magnetic band, contact/contactless chip), through which payment and other transactions are provided for in the contract [34].
- Payment application - software installed in a technical/mobile device allows the holder to initiate payment or other transactions using an electronic payment instrument [34].

According to the innovations, the list of internal bank rules is expanded depending on the peculiarities of the bank's activities. In addition, the procedure of the bank's activities in connection with the issue of electronic payment means and acquiring, the procedure for performing payment transactions, the establishment of the exchange rate purchase and sale, exchange of foreign currency during transactions with the use of electronic payment means, must contain the procedure for transferring the holder/representative of the electronic payment instrument to legal entities, individuals - entrepreneurs and individuals, to whom the bank has the right to identify and verify the clients of the bank - individuals (agents), and the procedure for monitoring the compliance with this procedure by agents.

Another common trend in the legal regulation of financial technologies in Ukraine and the EU is Anti-Money Laundering (AML) regulation. ALM is the regulation of issues to prevent the use of the financial system for the purpose of money laundering and financing terrorism [35]. The relevant rules appeared, in particular, in the NBU's analyzed resolution, where, according to clause 9, the requirements for banking institutions for identification and verification of clients who open accounts in the bank, users who carry out transactions on the

account to which the electronic payment instrument is issued and the user's representatives who receive the electronic payment instrument by trusteeship.

It is vital to notice the state initiative for the implementation of universal digital identifiers Bank ID and Mobile ID. Bank ID and Mobile ID are implemented following the pan-European trends in the development of the financial sector and correspond to the need to provide adequate banking supervision, which requires an analysis of the whole range of information of supervision objects. [36] .

Thus, a comparison of the regulatory regulation of the financial technology industry in Ukraine and the EU revealed similarities in the applied legal approaches. Ukraine follows the European trends of creating an open banking zone in the payment infrastructure and brings its regulatory framework in line with EU legislation. Accordingly, Ukraine is a close model of the EU, according to which the domestic legal system is developing, particularly in the direction of regulation of financial technologies. It should be noted that given the versatility of the concept of financial technologies, simple copying of the EU experience will be insufficient to regulate all areas of the financial technology industry in Ukraine. One of the typical characteristics of a country with a continental system of law is the detailed regulation of various spheres of public relations. It is also an objective reality for Ukraine. Therefore, when implementing regulatory regulation of financial technologies, it is necessary to take into account the appropriate regulatory obstacles. An overly liberalized approach can lead to negative manifestations of financial fraud, such as the creation of financial pyramids, etc. On the other hand, excessive regulation will inhibit the development of financial innovation. Hence, it is necessary to maintain a reasonable balance in the process of rulemaking and enforcement, taking into account the national mentality and other features.

The new Law of Ukraine, "On Payment Services" No. 1591-IX (Law No. 1591-IX), was adopted on 30.06.2021 but will come into force only on July 22, 2022 [37].

The purpose of the this law adoption is to change approaches to the legal regulation of the payment market, expansion of the range of payment services providers and arrangement of their activities in the payment market, establish rules for the provision of payment services in Ukraine, and establish requirements for payment service providers, strengthening the protection of the rights of consumers of these services, increasing the security and efficiency of payment services, promoting innovation and bringing Ukrainian legislation in line with EU legislation.

The draft Law of Ukraine "On Payment Services" is aimed at implementing the provisions of the EU as mentioned earlier Directives and proposes to introduce nine types of payment services, seven of which are financial payment services, and two of which are non-financial, which are becoming common in the EU states and require separate regulation, namely:

1. Services for crediting cash to users' accounts, as well as all services related to opening, servicing and closing accounts (except for electronic wallets);
2. Services for withdrawing cash from users' accounts, as well as all services related to opening, servicing, and closing accounts (except for electronic wallets);
3. Svices for performing payment transactions with the user's funds from the user's account to the user's account (except for payment transactions with electronic money), including:
 - execution of a credit transfer;
 - execution of debit transfer;
 - execution of another payment transaction, including using payment instruments;

4. Services for performing payment transactions from the account or to the user's account (except for payment transactions with electronic money) provided that the funds for the payment transaction are provided to the user by the payment service provider on the terms of the loan, including:
 - execution of a credit transfer;
 - execution of debit transfer;
 - execution of another payment transaction, including using payment instruments.
5. services for issuing payment instruments and acquiring payment instruments;
6. money transfer services without opening an account;
7. services for issuing and performing payment transactions with electronic money, including opening and servicing electronic wallets;
8. services for initiating a payment transaction;
9. services for providing information from accounts.

The adoption of the draft law will allow:

- to adapt Ukrainian legislation to EU legislation and form a legal basis for the integration of Ukraine's payment system with the EU payment system;
- will give the right to non-bank institutions to issue payment cards, issue e-money, open and service payment accounts
- to give the right to state authorities to provide certain types of payment services without a license
- to establish the rights and responsibilities of participants of the payment market of Ukraine, transparent distribution of responsibility of users and providers of payment services during the execution of payment transactions;

- to establish rules for the functioning of the regulatory platform for testing services, technologies and instruments in the payment market based on innovative technologies.

Before the Law № 1591-IX, only banks and non-bank financial institutions could provide payment services, subject to participation in payment systems. With the adoption of Law № 1591-IX, it will be able to do postal operators, payment institutions, branches of foreign payment institutions, institutions of electronic money, etc. At the same time, different payment service providers have different requirements for obtaining a license and including it in the register of payment infrastructure:

- Banks have the right to provide payment services based on an existing banking license and without being included in the register of payment infrastructure.
- Payment institutions (including small payment institutions), postal operators and electronic money institutions have the right to provide all or more financial payment services, subject to obtaining a license and being included in the register of payment infrastructure.
- Branches of foreign payment institutions have the right to provide all or individual payment services, subject to their accreditation in Ukraine.
- Based on a license to provide financial services, financial institutions have the right to provide a money transfer service without opening accounts and acquiring services.

It is crucial to note that a non-bank financial institution will not need to use the services of the payment system to make a transfer; they will be able to do it independently.

Non-financial payment services providers. A legal entity carries out the activities of providing all or separate non-financial payment services without obtaining a license but after being included in the register of payment infrastructure.

The National Bank of Ukraine has the right to provide payment services without obtaining a license respectively and without being included in the register of payment infrastructure.

State authorities and local governments have the right to provide separate payment services within their competence without obtaining a license but after being included in the register of payment infrastructure.

Also, the New Law of Ukraine "On Payment Services" № 1591-IX provides for such a concept as "limited payment services" (payment for tickets, travel, telecommunication services, etc.) that even mobile operators can provide. The number of transactions per calendar month for one user cannot exceed one minimum wage.

At first glance, it may seem that all persons described above, after the introduction of the law, will immediately be able to transfer funds without intermediaries, independently issue payment cards, and immediately take advantage of banks. However, the Law № 1591-IX has a formal part, which must also be observed.

1. The size of the authorized capital and sources of origin of funds.

The minimum authorized capital of the payment service provider should be 1 million UAH, 3 million UAH, 5 million UAH and 10 million UAH depending on the type and number of services provided. The amount of the authorized capital must be maintained at this level from the moment of submission of the application for the issuance of the license and throughout the service. Such a requirement is not a novelty for institutions because the license conditions for other financial services (not payment) also establish similar amounts of authorized capital. This is done in order to cover the financial risks that arise during the provision of payment services. It is essential to mention that it is not enough to deposit funds into the authorized capital. It is also necessary to confirm that they received legally (wages, dividends, income from the sale of

property, income from investments, inheritance, etc.) and provide relevant documents.

2. Saving user funds.

Payment service providers are obliged to separate user funds from their funds and other users' funds (account them on different accounts).

Also, they have the right to ensure their liability to users in case of inability to fulfil financial obligations to users.

3. Disclosure

Financial services providers are obliged to disclose:

3.1. National Bank of Ukraine: financial statements; corporate governance report (for joint-stock companies); list of all banks, insurance companies, etc., whose services are used to ensure the safety of user funds.

3.2. At the request of users: information on financial performance and economic condition; list of managers of the payment services provider and its separate divisions; list price/tariffs of payment services provided; the number of shares of the payment service provider owned by the members of its executive body and the list of persons whose shares in the authorized capital of the payment service provider exceed 5 per cent.

3.3. By placing the following information on the personal website: identification data of the payment service provider; list of payment services provided, information about participation in payment systems; information about the owners of significant participation; information about the composition of the supervisory board and executive body; information about separate units; information about licenses and permits; annual financial and consolidated financial statements, etc.

Thus, the introduction of Law № 1591-IX terminates the monopoly on payments to payment systems and the issue of payment cards from banks.

The payment services market will increase, and consumers will have more choices and better conditions for service.

However, do not forget the apparent advantage of banks over other institutions: balances on payment accounts in non-bank financial institutions will not be guaranteed by the Individual Deposit Guarantee Fund. In contrast, the fund guarantees each depositor of the bank a refund for his deposit of at least 200 thousand hryvnias.

Conclusion

In order to ensure positive regulatory effects on innovation while at the same time not jeopardizing the original regulatory objectives, we can reach several conclusions.

Inspiring regulatory reforms have been driven in part by technological change. In specific industries, technology changes the underlying costs and competition structure, which leads to the need for new regulatory regimes. From banking to environmental policy to retail, regulatory reform can stimulate innovation in a variety of fields. It is possible, however, that new regulatory changes may be necessary due to resulting technical developments. For example, the adoption of new regulatory reforms may result in possible abuses of monopolistic positions, such as by new computer software companies or financial companies; environmental hazards, such as urban sprawl caused by giant shopping malls; or unforeseen safety hazards. Moreover, additional government oversight may be necessary to ensure regulatory reform's success. Therefore, technical change must always be considered when drafting regulations.

Regulatory requirements are a heavy administrative burden on companies, particularly small and new ones, and the time spent on

administrative work is often lost to innovation. As technology evolves, speed is becoming an increasingly important factor determining the success of business activities. Repetitive and inefficient regulation can no longer be tolerated. As part of the regulatory review process, all regulations on particular sectors or products should be accounted for, benefit-cost or cost-effectiveness analysis of significant regulations should be done, automatic expiry clauses should be included without assessment, and centralized information and administrative centres should be offered to assist firms.

Given their different economic, social, and cultural backgrounds, it is not possible to harmonize all the regulations across countries. Despite this, countries should continue to pursue greater compliance with regulations in order to improve economic efficiency and increase innovation. It is not only possible for regulatory differences to be barriers to market access, they can also prevent technological advance and technology diffusion, as in the case of conflicting competition, financial and intellectual property laws. Divergent policies and enforcement can lead to uncertainty among firms, which reduces investment in research and innovation. In addition, governments should work together to minimize regulatory competition by encouraging companies to locate in markets with the most favourable regulatory conditions.

Having analyzed the information above, we can distinguish the following conclusion:

1. The transformational processes of the payment market in the EU today contribute to the creation and development of new institutions for the provision of financial services, giving them equal rights and powers compared with traditional financial institutions of the banking sector. At the same time, the primary legal document on the regulation of financial technologies in the EU is the Directive PSD2 - Payment Services Directive 2015/2366 - EU Directive, which requires payment service operators to

operate transparently and protect consumers and promote the innovative development of the payment market.

2. Creating an open banking system in the Europe Union was not unimpeded. Implementation of the PSD2 Directive in the EU Member States has faced some difficulties in the different Member States. First of all, this affected such technical peculiarities as the failure of the technical support of the open banking system by software not due to the lack of its quantity but due to the complications of its implementation, legal legalization, and commercialization. Thus, the technical standards underlying the 2015 Directive were finalized only in September 2019.

3. The significant obstacle to the implementation of the Directive into the national legislation of the EU Member States was the distrust of users (clients) of the newly established non-bank payment institutions and their reluctance to provide non-bank institutions with access to their accounts, including transaction history and cost structure, as well as their private information and financial data.

4. In general, the PSD2 Directive is of great importance for the development of the financial technology industry throughout the European space and beyond, providing equal opportunities in the financial market to traditional financial institutions and ambitious digital companies and startups through the introduction of obligations for financial institutions (first of all, banks) to provide access to data in relation to which it has the status of an administrator of information about its customers through ARI and use this data in order to create new products and manage finances, provided the customer agrees.

5. As a result of the adoption of the PSD2 Directive, EU financial market participants received apparent advantages. According to the new legislation, payment institutions - financial service providers have access to the data of banks' clients (subject to the appropriate licensing and evaluation described in this subsection above) and, accordingly, the ability to significantly expand the customer base and provide better and more efficient financial services. Furthermore, by consolidating with promising startups, traditional banking institutions have gained opportunities to develop and implement innovative technologies and products to the system of providing traditional financial services. This form of incorporation of the traditional banking sector with innovative companies represented by service providers for the initiation of payments and aggregation of financial information also contributes to the distribution of financial risks from the point of view of IT development by connecting new partners and reducing the cost of IT development within the bank by connecting third parties and providers.

6. The transformation of the current economic system of Ukraine is carried out in accordance with the Sustainable Development Strategy "Ukraine - 2020" and is conditioned by the provisions of the Association Agreement between Ukraine and the EU, according to which, in particular, there are processes of liberalization of financial markets and gradual bringing into line with current national laws (in particular in the field of payment services) and future legislation to the EU acquis.

7. The analysis of the regulation of financial technologies in Ukraine and the EU revealed similarities in the applied legal approaches of these countries. Ukraine follows the European trend

of creating an open banking zone in the payment infrastructure and brings its regulatory framework in line with EU legislation. Accordingly, Ukraine is a close model of the EU, according to which the domestic legal system is developing in particular in the direction of regulation of financial technologies.

8. While applying the EU experience in the process of regulatory regulation of financial technologies, it is necessary to maintain a reasonable balance in the process of rulemaking and enforcement, taking into account national mentality and other features.

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