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Taxonomy of an IIoT Device Based upon Production Functions

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Abstract

In this essay, we develop a decision model for the economic impact of Industry 4.0 technologies/IIoT devices on established business processes by testing two hypotheses concerning a decision model based on production functions. New methods to aid in the design and modeling of production systems that are able to rapidly reconfigure and that are self-adaptive in response to disruption (both by humans and for automated systems) are required (Sanderson, Chapin, & Ratchev, 2019). Mass customization, shorter product life cycles, smaller production batches and higher production variability lead to the requirement for manufacturing systems to be rapidly reconfigurable and self-adaptive in response to disruption. We propose to recover and apply available and established techniques to evaluate and assess the rationale of technologies before they are implemented to improve the decision process. We consider the investment into IIoT devices from a microeconomic perspective as a long-run problem for companies and therefore consider those problems to be reviewed with adequate methodologies to build a consistent decision model. Investing into a factor (such as an IIoT device) is only economically reasonable as long as this factor produces a benefit, otherwise the investment infringes upon economic feasibility (Fandel 2005).

Keywords: taxonomy, IIoT, device, production, functions

Introduction

A decision model is built upon objectives for the input factors and alternative decision options that depict different courses of action that are independent from one another and at the same time cannot be realized at the same time. The objectives define the factors for the alternatives as the optimal one (Schweitzer & Küpper, 1973). To encompass the alternatives and their consequences the theoretical model that we have tested and that we introduce below can be applied. In a standard case, applying IIoT technologies is going along with the execution of a digitalization strategy, a digital agenda or a digital roadmap within a company. This digitalization agenda is often based on strategic key performance indicators, such as growth, horizontal or vertical diversification and profitability. Contrary to the disruptive nature of the 4th industrial revolution, the calculation models to make an investment decision, stood the test of time and can be considered as traditional. Even though the 4th industrial revolution requires new ways of thinking and modified solutions we believe that existing calculation models are sufficient and can support the implementation process of IIoT devices within a company. We further feel certain that the calculation model that we apply for this essay is not only an industry specific methodology but also can be adopted for different industries such as automotive, banking and construction business. Nonetheless an industry specific adaptation is required, but due to the publicity and prevalent appearance of such calculation models they can be adopted fast to different industries and to different types of problem settings. We have chosen to investigate the *production function* of a specific IIoT device and to compare it with the well-established production functions, such as Leontief.

Production functions are particularly suitable to solve practical management decision problems or to develop an authoritative forecast. In most cases they can be considered as user-friendly because they represent linear functions with terminable influencing factors and are easy-to-apply decision making tools. The production functions provide a good

understanding of the input and output dependencies and allow a good approximation for the examined subject. The methodology of production functions can also be applied for research questions that exceed the sheer sector of investment decisions. It can be applied on research questions that go as far as the investigation of knowledge production functions (Pelegrino & Piva, 2019).

The IIoT device, that we applied has an expansive application spectrum. To make the final results even better comparable we decided to focus the use of the IIoT device on its capabilities in the area of training and support for all 3 investigated industries.

Motivation and Hypotheses

The 4th industrial revolution is affecting a wide range of industries. All of us are working in areas that are affected by the change that is driven by this revolution in a greater or lesser extent and we are required to deal with investment decisions in this field.

Making investment decisions and giving a substantial reasoning is a necessity in our daily business and we are confronted with this requisite constantly.

We developed two hypotheses to enhance the decision to invest into a certain technology or to be against an investment from a financial perspective while working together in a Corporate Social Responsibility engagement.

The first hypothesis emanates when discussing the different challenges and requirements of our industries within the IIoT. We believe that a comprehensive calculation model can be established based on long-time available models that have been tested numberless times.

Even though IIoT devices are considered often as "disruptive", its impact on the return on investment can be calculated with established and tested calculation models. No new calculation model is required even though the impact of an IIoT device is unknown and considered as disruptive.

Our second hypothesis originates from the specific industries that we are working in and that we believe that one model can be used for different industries. It is not necessary to develop dedicated models to calculate the return on investment for each single industry.

The model to calculate the return of an investment that is based on hypothesis #1 is independent from the industry it is applied on.

The second hypothesis is evidently showing that we expect a concatenation of the 3 investigated industries and we expected, depending on the timelines, a production model that is alike.

Experimental Set-Up

At first, we defined an IIoT device that is applicable for the industries we are working in. The industries we considered are a.) Formwork Construction, b.) Banking and Finance and c.) Electronic Production. Within those industries we further specified the area of application of the IIoT device, such as maintenance in the Electronic Production.

The device has to carry one specific function that is has been built for; in our case the collaboration of two participants that are physically separated and that are not at the same place at the same time. The supporter is guiding or assisting the applicant within a certain field of application.

We then identified the experts in those specific areas of application worldwide and discussed with them our hypotheses and the terms and definitions that are the foundation of production functions. Furthermore, we explained the IIoT device that we had chosen to be applied on a theoretical basis and held some further information meetings to ensure that the device is understood and its impact is considered in the right way.

Then we asked those experts to rate the impact of the IIoT device on a standard production function scale with the device on the axis of abscissae and the return on the axis of ordinates. Those ratings were then used to precede with an illustration of the production function in a graphic form and to then deduce the mathematical function from the graph which is used as an auxiliary.

First field of investigation – Formwork Construction

For the part of the survey on the implementation of IIoT device in construction industry, we selected a worldwide operating company in the construction supply industry.

For a variety of reasons, the construction supply industry, like the construction industry, is under the constrain to digitize its working processes and project management processes.

Unfortunately, however, the construction industry has not yet succeeded in integrating innovative technologies within its processes in order to keep pace with other industries, such as automotive and mechanical engineering (Cesterreich & Teuteberg, 2016). Due to the high degree of individuality of construction projects, constantly changing framework conditions and value chains, which continue through many different subcontractors, the construction industry cannot call itself a leader in the digitalization and industrialization of its project management.

Often the professional experience within construction is regarded as irreplaceable; and this is justified and proven in many cases. David Autor describes the professional experience as the "cognitive abilities" of a human being which are to be rated higher than the knowledge of the human being about the associated physical laws (Autor, 2014). The author further describes that the increasing automation and substitution of jobs due to digitalization will primarily affect routine medium-skilled tasks that follow an exhaustive set of rules (Autor, 2014).

Characteristic for this are cognitive and manual activities such as bookkeeping, office work and repetitive production tasks, but not just yet mechanization in the construction industry. In 2017, Daniel Kiel and colleagues examined in many case studies how shortened technology and innovation cycles affect increasing individualization and increased the volatility of demands (Kiel, Müller, Arnold, & Voigt, 2017). They came to the conclusion that a sustainable value expected by manufacturers from an investment in IIoT must meet economic, social and ecological objectives in equal measure (Kiel et al., 2017). However, the construction industry primarily expects investments in IIoT to maintain and strengthen its future global competitiveness. Due to the many subcontractor relationships, social and partly ecological goals are regarded as rather secondary. Technological change in the construction industry necessarily follows the Pareto principle (Autor, 2014). The author describes 3 factors that mitigate or amplify this approach:

Employees benefit from automation

The elasticity of final demand can either dampen or reinforce the gains from automation

The changes in the labor supply may also reduce wage increases

In 1997 David J. Teece, Gary Pisano and Amy Shuen raised in their article "*Dynamic Skills and Strategic Management*" the questions whether strategic theory is connected with the analysis of strategies at company level to maintain and secure existing competitive advantages, and how and why certain companies can build up competitive advantages in systems of rapid change (Teece, Pisano, & Shuen, 1997). The approach is particularly relevant with regard to the cognitive skills described by Autor (Autor, 2014) in performing simple activities in the context of innovation-based competition, price-performance rivalry, rising returns, and the "creative destruction" of existing competencies (Teece et al., 1997). As a competitive advantage, David J. Teece and his corresponding authors describe the recording of the imputed rents of decisive competitive advantages in the third paradigm of their remarks (Teece et al., 1997) and thus partially prepare the basis for the theory described in 2005 by Robert Gibbons in the Journal of Economic Behavior & Organization (Gibbons, 2005).

Gibbons wanted to answer the question: Which transactions of a company are carried out more efficiently? It defines and compares elementary versions of 4 theories of the enterprise, the theory of the incentive system, the adaptation theory, the property right theory, the theory of rent search (Gibbons, 2005).

Especially with the theory of the incentive system, in addition to purely calculable economic facts, there are rich reasons (soft skills) why a construction company should invest in innovative technologies such as IIoT. The increasing shortage of junior staff in all sectors of the construction industry requires more attractive and innovative jobs. This is true both for commercial activities on construction sites and for activities in management positions in the construction industry.

In *Marketing and Management of Innovations*, Zwerenz describes his findings regarding the crucial importance of presenting a construction project as an innovative brand and the consequences for the performance of employees, their identification with the project and the commitment of employees in construction projects (Zwerenz, 2019). The effects of

the introduction of IIoT devices on construction sites can thus not only be measured directly in monetary terms, but must also be assessed taking into account aspects of the attractiveness of projects.

The positive or negative influences are evaluated as an example of the introduction of a digital service of a worldwide leading manufacturer of concrete formwork, the Doka Group. Doka is one of the leading firms in respect of industrial casing and frameworks with a turnover of more than 1.5bn€ (www.doka.com).

The decisive factor for the evaluation of the number of IIoT devices to be invested here is the perspective of the manufacturer of concrete formwork (the service provider) in order to guarantee the service offered worldwide by the so called *Remote Instructor* (<https://www.doka.com/at/solutions/services/remote-instructor>).

In the Digital Services' business unit, the Doka Group is developing digital services and applications for the construction industry today and in the future. Doing so, the Doka Group is optimizing existing processes and establishes new and more efficient ones.

In a co-development with its customers, the company can respond in an optimal manner to their needs and also strengthen customer relationships. The *Remote Instructor* is a powerful video collaboration software for the remote support of problems on construction sites. Full order books with an acute shortage of skilled workers - a major challenge that the industry is currently facing. Time and again, uncertainties and mistakes lead to expensive downtimes. The *Remote Instructor* takes on this challenge. As a software solution for real-time collaboration specially developed for the building industry, intelligent video telephony provides location-independent support for rapid problem solutions. The product video is available under the following link: <https://www.youtube.com/watch?v=Mya0mY5B2o>

The smart glasses are therefore predestined to be applied for the *Remote Instructor* and to implement some of the digitalization issues that the Doka Group is working on.

Second field of investigation – Banking and Finance

The financial sector is one of the most important instruments of the economic system. In phases of digital transformation, the sector is able to implement changes. The development shows investments in projects for the implementation of innovative technologies. In particular, we are talking about the formation of virtual regionalism (Pajak K. et al., 2016).

The use of VR and AR in the financial sector demonstrated its benefits for the transfer of information and knowledge. Here a concept was used which learns from the interaction with a 3D environment. Virtual Reality enables the creation of virtual environments with features that represent a real situation. For viewers, visualization and interaction with virtual objects is closer to reality than previous abstract representations (Maad, S. et al, 2010).

The characteristic of the banking sector in Germany is the three-pillar structure via a strict separation into three columns, Cooperative banks (e.g. DZ Bank), Private commercial banks (e.g. Deutsche Bank, Commerzbank) and Public-law institutions (e.g. Savings banks). In our research work we will focus on the German saving banks. The savings banks are independent commercial enterprises in municipal ownership. Their task is to strengthen competition on the basis of market and competition requirements, primarily in their business area. Furthermore, their role is to ensure adequate and sufficient supply of all population groups, the economy, in particular of the middle class, and the public hand with monetary and credit-economic achievements also in the area (regional aspects). Saving banks support the task fulfillment of the municipalities in the economic, regional political, social and cultural area. At least savings banks promote the economy of savings and the accumulation of wealth of broad sections of the population and the economic education of the youth.

Many savings banks in Germany could miss the connection in the age of digital transformation. On the one hand, external influences such as customer behavior, customer expectations, technological change, willingness to pay and product life cycles are gaining in importance. On the other hand, the internal expectations of the employees, e.g. the acceptance of new technological solutions, the adaptation of new processes, are constantly increased. Due to low returns, savings banks are forced to digitize processes. In the future, we will experience a working world characterized by automation and digitization. As a technical revolution, this also encompasses many areas of the saving banks. Digitization has priority in order to be able to catch up the backlog for "digital capabilities". This forces the savings banks to modernize. To realize their ambitions, savings banks are well advised to create the necessary internal conditions. Innovative banking services must be tested for feasibility and then embedded in processes and appropriate technical architectures. It is an open secret that costs can be reduced through a higher degree of automation. The current and planned activities in the saving banks

financial group, which deal with new processes and digital tools, are correspondingly diverse. Examples of chatbots are the possibility of data analytics or the use of virtual reality (Giebe, 2019).

For our research, an example of the saving bank *Göppingen* shall be considered (<http://ksk-gp.future-banking.digital/de/>). The *saving bank* has a balance sheet total of approx. 6 billion euros, 1,080 employees and 67 branches. As early as 2015, the saving bank launched a comprehensive digitization project with the aim of strengthening digital competence within the company. A so-called "digital playground" was created in the customer center of the saving bank. Among other things, Hob-Lens were installed for customers and employees explained the digital transformation. In this 60 square meter innovation branch, customers will be able to experience the technical innovations together with the employees. Interested people can try out virtual reality glasses there and ride a roller coaster with them, for example. 3-D glasses make it possible to virtually view a property without having to take a step outside the door. In another section, screens and smartphones are available. There, customers can have online banking, the use of saving bank apps, mobile payment and photo transfers explained to them on the basis of test accounts. The digital playground is managed by ten saving bank employees. They act as important ambassadors of digitalization to customers and into their own company. The concept plans the regular exchange of gadgets (Müller, 2018).

The expert assessment is based on the described example "Digital playground" of the *saving bank Göppingen*. Beside a station with VR glasses there are further gadgets of digitalization. Customers have already been able to steer drones through the customer hall. In addition, a 3D printer was installed to produce edible chocolate figures. Since 2018 there have been so-called theme islands dealing with banking topics such as apps, online banking or online brokerage. Since ten employees work in this innovation branch and different stations can be visited, there is a decreasing benefit within the scope of the assessment. The top box value was not awarded, as the benefit is more likely to serve the understanding of technological innovations and the image. This means, for example, that no additional revenue or cost reduction is generated. The use of the glasses used is intended for the assigned station. This means that the glasses do not perform any other function and are not used elsewhere. If ten employees had ten glasses in use, the other stations could not be manned. This means that customers' requirements cannot be met holistically. A high impact was achieved with 1-3 glasses, a medium impact with 4 glasses. 5 glasses have a little impact, 6 and 7 glasses have a very little impact. Having 8-10 in use has no impact.

With regard to the effectiveness of the contents provided, it is known from studies that these were assessed as realistic. The participants could be given the feeling of being present in the respective environment. These conditions created a positive sympathy level as the participants could feel part of the content provided. The results also showed that the content provided could support the concrete learning experiences of the individual. When preparing VR environments, however, the study results include the possibility of long-term use of these technologies and a higher effectiveness of realistic contents (Yildirim, Eban & Yıldirim, 2018).

The 386 individual saving banks each have their own market area and are separate from each other. The regional principle, for example, makes personal communication possible without problems. Till August 2019, there was no centrally defined use of VR glasses in the Savings Banks Finance Group. If savings banks use VR glasses, they do so on their own initiatives. The case study of saving bank *Göppingen* was used as best practice part of this research because the background for using VR glasses is transparent.

However, the conditions described for the *saving bank Göppingen* show that the content provided has a playful character in order to explain digitization technologies using the example of virtual reality. In our opinion, this also holds potential for future use.

Third field of application – Maintenance

The automotive supplier industry is often organized in a decentralized manner and competences are unevenly distributed worldwide.

Different kind of very specific systems are produced within selected locations in one part of the world and shipped to many other locations worldwide to fulfill their purposes for a specific product at the production site. This is done due to cost competitive reasons and to benefit from local advantages in certain regions.

This approach confronts the automotive supplier industry with the problem of specific requirements to maintain and to repair this specific equipment. To do so, special knowledge and special training is in many cases required to keep the systems capable of running. The situation is aggravated by the just in time and just in sequence approach of the automotive industry.

The equipment is not allowed to be idle or out of use for a certain length of time, often only hours or a very short period of days.

The automotive supplier sector introduced different measures to react to this challenge, such as hotlines, service contracts, training and education for the own employees or went to such length to have a backup of systems on site.

With the development of smart glasses, the potential to support locations remotely improved dramatically. Now the specialist is enabled to interact with the employee on site and to give guidance and support in a more efficient manner.

Therefore, it was decided to examine the impact of the introduction of smart glasses into the maintenance systematic in this industry.

The maintenance teams consist of different experts and have an uneven need for support of the experts from other regions. The teams are connected to experts that can be located at different locations worldwide.

We talked to a number of maintenance experts and asked them how they rate the impact of smart glasses on their special field of accountability after they were taught about the systematic of our survey. Their feedback was then compared to the other industries.

The production functions

A production function depicts the relation between input and quantitative output by representing the aggregate output depending on the given amount of production factors (Lenk, 2017). The formula for the production function is the following:

$$Y = f(K, L, P, H)$$

The factors of production are:

K = Physical capital [capital, tangible assets (mobile and immobile)]

L = Labor (skilled and unskilled human workers)

P = Land (surface, subsoil and conjoined raw materials such as coal)

H = Entrepreneurship (the business intelligence and its quality)

The input factors of a production function can be reduced, for example to labor (L) and capital (K).

$$Y = f(K, L)$$

In respect of the variety of types of production many different production functions exist.

The model that we developed is an isomorphic mapping of the (real) observation state; the model is idealized but can be repeatedly applied at different industries in the type of embodiment that we have chosen. It facilitates the scientist or the engineer to understand and to chart the elements of the de facto application and its principles. This is true for the different industries that we investigated. Modeling an appropriate measurement, we provide the theoretical background that can be transferred for the further application of similar devices in different areas of application in different industries. The model is both, an explication of the well-defined and finite area of application and a tool to prognosticate the effect of the IIoT device.

Production functions, such as those that Wassily Leontjew developed while investigating the in- and outputs in the American economy, provide a reasonable model to recognize the right investment into a certain IIoT technology. The proverb "a lot helps a bit" was proven to be wrong in the beginning of the development of the production functions. "As much investment as necessary" from an economic perspective is the target, but it depends on the financed technology.

The investigation of a production function reduces uncertainty and helps the entrepreneur to improve her investment decisions, based on facts and figures.

Production functions have some well-known and thoroughly examined weaknesses in the long run; nevertheless, they work well in the short run and can be applied as a model to determine the effect and influence within a certain field of application in a confined environment.

We adopt the production function for a microeconomic practice to calculate the economic effect of a supportive IIoT device. This device is not changing the nature of production or the kind of organization; we set those factors as fixed. The device

is clearly an IoT device, but it is extending the way of working and is not disrupting it. From an innovational point of view, it can be seen as an *architectural innovation* due to the set-up of the single components.

For other devices, that enable a new way of working from an organizational perspective or change the nature of production (disruptive innovation) the application of our approach needs to be further investigated.

In our research we investigated the kind of production function we are dealing with; we expected it to be neither a substitutional production function nor a fixed proportion production function but a fuzzy production function because the device is applicable in several different sets of working. We decided to ostracize the fuzzy influence by restricting the field of application to avoid a misinterpretation at the end of the analysis. We further ostracized functions by the exclusion principle, based on their definitions in the economic literature. We ostracized the following types of production function: type B (after Erich Gutenberg and Wassil Wassilewitsch Leontjew), type C (after Edmund Heinen), type D (after Josef Klook), type E (after Pichler) and production functions that are dynamic ones (after Matthes).

A *type B production function*, the Gutenberg, Leontjew or Kijger production function, investigates the aftermath of changes in the labor market situation with the accompany of the adjustments of producer's goods for a given amount of capital goods and no change of the technical parameters (Albach 1989, Gutenberg 1952). Variables are the output per unit of time, the period of application and the number of the applied aggregates (Gutenberg 1952). For a type B function it is assumed that two transformation functions are valid, for one part of the used goods it is assumed that their amount is immediate with the output quantity. In many cases they represent Leontjew-functions, but their characteristic is that for some input factors the output depends only indirectly.

A *type C production function* (Heinen) is distinguished by the stratification of the production process in rudimentary combinations, the consumption of output related, indirect material depends on the intensity of the means of production. Because there is no indirect material in our model, we neglect the type C.

In the 1950s Pichler framed a specific Leontjew production function, the type D. In type D production functions command variables represent the variables, such as throughput or in-company constraints. Pichler production functions can be one- or multi-level production functions and he formulated those with a focus on chemical industries. The in-company constraints were able to exclude from our model and therefore exclude the Pichler production function.

The characteristic of a *production function of the type E* (Klook) are complex production structures with cyclical interdependences and, contrary to the other types, are not static. They rest upon the technical progress within a production process, e.g. a product on a higher production stage can only be produced when a product on a lower level (the input for the higher level) has been produced already and is available.

Further interdependences are the technological progress, newly created materials and/or improved production processes and machines. Also, the learning of the employees is considered as an interdependency in this production function.

The transformation functions are formulated in a general way, all other production functions can be deduced from this type by reducing or excluding the impact of the mentioned constraints, for instance by taking only a very small time period into account to reduce the timely correlation to a minimum.

Investigating our model and comparing it with the different production functions we set up the hypothesis that our production function is either a function of the standard profit law production function or a special case of the CES-production functions, a Cobb-Douglas production function.

At this point we were unclear if we can reduce the law of diminishing returns in our case to the argument that a.) from a certain amount of the variable factor (the IoT device) an under proportional increase of the return is effectuated or b.) if there is no maximum for the variable factor (the IoT device), with a non-linear correlation to the factor. We had to investigate the *standard profit law production function* and a special case of the CES-production functions, the *Cobb-Douglas production function*.

The characteristic of the *standard profit law production function* is that at first the output quantity x increases over proportional, then proportional and eventually under proportional.

A *Cobb-Douglas production function* (a special case of the CES-functions) is a commonly used substitutional production function within the macroeconomics and the national economy. The calculation model can be carried over to the

microeconomics, too. The variable factor is increasing the profit, but not in a linear manner. Increasing the factor will always increase the profit, but not proportionally.

The Cobb-Douglas function predicated on the findings of Johann Heinrich von Thünen, the founder of the scientific agricultural economics. Thünen searched for a natural and equitable income distribution and can be assigned to the classic economy. In the beginning of the 19th century he examined how to calculate the maximum profit of agricultural products using the method of abstraction. The maximum profit depends on an optimal utilization of the land surface and the cost for transportation. The price for the land decreases with the distance to the nearest market place and the transportation cost are directly proportional to the distance to the market place and the weight of the goods. He was able to test and to verify his findings on his own estate near Teterow which he bought in 1810 (Lins, 2014).

Paul H. Douglas was lecturing at Amherst College when he consulted Charles W. Cobb, a mathematician. Cobb suggested to adopt a simple homogeneous function that had been used by Wicksteed and Wicksell before.

$$P = bL^kC^{1-k}$$

Douglas (1976) explicates that with an influential article of David Durand (Durand, 1937) and the facilitation of Grace Gunn, a change of the formula was made.

The formula was changed to make the exponent of C independently determined instead of treating it as the residual in a homogeneous linear equation.

$$P = bL^kC^j$$

Douglas and his team applied the new formula to their precedent and actual data that they compiled from different industries; their findings strongly supported the formula. But the formula was criticized by prominent economists, such as Horst Mendershausen and Ragnar Frisch and from other senior American economists at the University of Chicago (Douglas, 1976). Scientists have tested the formula in almost every industry and have found that it can be misleading and has to be adapted to the special field of application (Assaf & Josassen, 2016) (Costa, Lopes & Matos, 2015) (Okob & Attaham, 2017).

Assumptions of the mathematical model

When testing our hypotheses, we based our assumption on the "traditional model" of a Cobb-Douglas production function, assuming that firms operate on a non-stochastic production function and maximize profit. Zehner, Kmenta and Dréze (1966) introduced a model of a Cobb-Douglas production function that left aside random disturbance terms of the econometrician which would make the model stochastic. Zehner et al (1966) argument that entrepreneurs are aware of the stochastic nature of the production process. We argument that the random disturbance of the model has to refrain from our model to expose the effect of the IIoT device by itself.

Assumptions of the IIoT device

We set limitations to the application of the IIoT device that were necessary to generate an abstract model to enable the model to be tested under factual conditions.

The IIoT device is the same for all use cases, there is no technological disparity between the devices

The level of training and the level of know-how of the applicants is inalterable, the learning curve is neglected

The number of utilizations for the device is constant and unchanging

The fundamental idea is that with the introduction of the IIoT device the quotidian expenses are reduced according to the theoretical yield curve.

Generalized graphical representation of the hypotheses

Our hypotheses are that we are either concerned with a Cobb-Douglas production function or with a standard profit law production function. Both graphs look quite different and are easy to be distinguished from one and another.

A dissemble cachet of the Cobb-Douglas production function is its indefinite growth, it does not have a maximum and will further increase when the variable is increased. Our limiting factor is here the user of the device, it is perspicuous that one employee cannot handle more than one of the above outlined devices at a time.

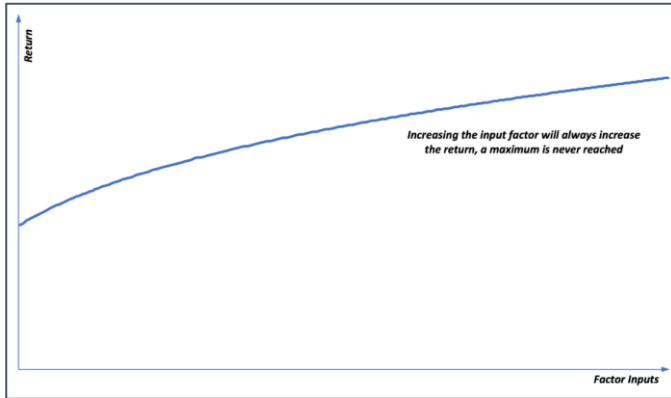


Figure 1 - Cobb-Douglas Production Function

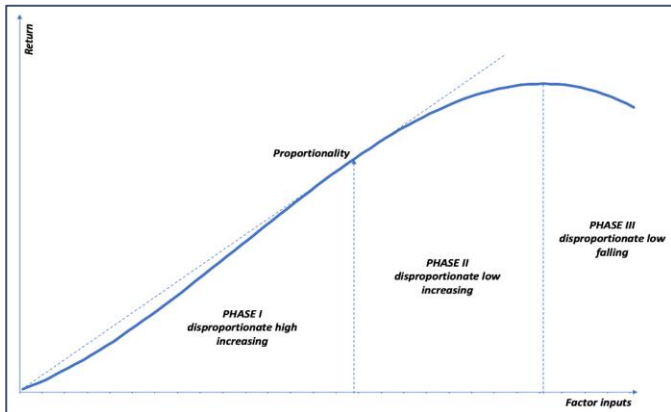


Figure 2 - Standard Profit Law Production Function

Contrary to the Cobb-Douglas production function the standard profit law production function does have a maximum and it will be reached at a certain time when a certain number of input factors are implemented.

Implementing the IIoT device increases the return in a disproportionate high manner. The first IIoT devices deliver a high return rate according to the standard model of the yield curve (figure 2, PHASE I). According to the standard yield curve

the return reaches the proportionality and enters PHASE II, in which the increase becomes disproportionate low. The third phase is the phase in which the return starts falling (PHASE III) due to the missing contribution of the device to the return.

The IIoT device is the factor that can be bought with money; therefore, it is the capital in the standard equation.

The Marginal Return

The marginal return is inextricably combined with the type of the production function. The marginal return of a Cobb-Douglas production function will fall, but will never be negative. In opposite to the Cobb-Douglas production function the standard profit law production function does fall and will eventually lead to a negative marginal return at a certain point.

To find out which progress the function is taking over time is of immediate utility before investing into an IIoT device and is

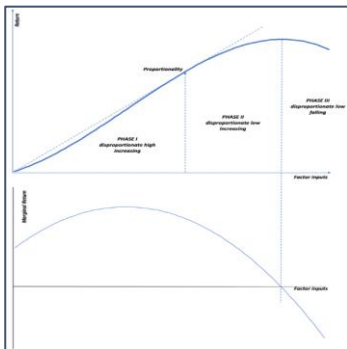


Figure 3 - Marginal Return of a Cobb-Douglas PF

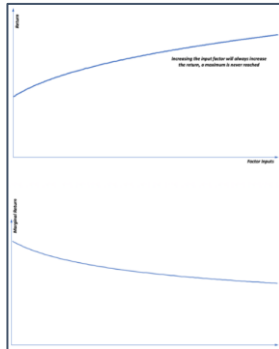


Figure 4 - Marginal Return of a Standard Profit Law PF

The IIoT device

The IIoT device is viewed in this case as the *means of production* that supports the transformation process of the working habits within a locally limited production center. It *cannot* be seen as an intrusion of a new state of industrial form of production, but as a completely new support device that can be considered as a production device or an expansion of the means of production.

The segregated field of application with a direct impact on the output of the process allows us to *factor in* the IIoT device and to *singularize its discrete impact* on the production function.

We have chosen to implement smart glasses as a relatively easy-to-apply IIoT device within existing service- and production environments.

There is a wide range of applications regarding augmented and/or virtual reality respective mixed realities. We intentionally reduced the range of the technological capabilities and the technological specifications (such as the CPU, the resolution per degree, connectivity, ergonomics, field of view, etc.) of the device for this survey to avoid a technical discussion with the interviewees.

The technological capabilities were reduced to particular features that are common for most of the devices:

Realtime connectivity

Ability to communicate with the applicant and the ability of interventions

Video demonstration capabilities

The device does not require a long-time training or asks for dexterity from the applicant. The software for the device is both installed in the local network of the applicant and in the network of the assistant.

The hardware needs to be on-site of the applicant; the applicant is the one who is supported by the person that has a deeper understanding and a wider range of knowledge of the supported technology.

When the applicant takes note of a problem, she is accountable for and that she cannot solve, she can contact with the supporter with the IIoT device. The IIoT device enables the supporter to gain a better overview of the on-site situation and to give more specific advices and is enabled to solve a problematic situation that in other case only would be solvable with an on-site appearance of an expert.

An inscrutable situation can be made clearer and the solution process can be accelerated, the dependences of the input and the output can be deduced empirically.

There are certain production functions for different technologies, we go as far as to assert that even within a certain cluster of technologies the production functions differ from one and another slightly.

The Survey

When we decided to uncouple our survey from other factors and to exclude certain ones, we also obtained the possibility to create a very specific questionnaire that focused on the chosen IIoT device.

# of IIoT Devices	No Impact	Positive Impact				
		Very little Impact	Little Impact	Medium Impact	High Impact	Extreme positive impact
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 5 - Rating of the Impact

The interviewed person was informed about the content and the background of the survey and received an easy to fill out spread sheet. The spread sheet asked for the impact of a single IIoT device and for a then following aggregation of the devices till the number of 10 devices (1 device, 1+1 device, 2+1 device, 3+1 device, ..., 9+1 device). To indemnify that we will have in any cases a sufficient number of devices we decided to set the maximum up to 10 devices; we made the assumption that in no single case a number of 10 devices will have an impact that is higher than what we labeled as *little impact*.

To express that a further input does not have any further positive impact on the output we labeled this point with *no impact*. This point would correspond with either the reversal point in the graph of a standard production function or would not be chosen by the interviewee when there is no reversal point as it is true for the Cobb-Douglas production function.

Results of the Survey

The graphs we received after the analysis reveal that the production function is following the standard law production function and by no means at all the Cobb-Douglas production function.

Therefore, we are in a position to determine that investments into the analyzed IIoT device is behaving according to the function of the standard production law and that investment decisions can be based upon those findings.

The process of elaboration was to collect the answers, converted those into the main database and create a general.

To display the result a X/Y plot was chosen and the dots were connected for each point.

The axis of abscissae displays the number of devices that are implemented in the described scenarios and the axis of ordinates displays the impact. For each graph an approximation was generated, too.

Results of the Construction Industry

For the construction industry we received a graph that evidently appears to fall straight from a very high level to the zero-impact level in a nearly straight line. The investigated implementation area of the IIoT device has for the construction industry the highest impact, two devices improve the situation extremely positive. The third device comes with a retrogression but still has a high impact. The number of devices for the implementation area with in the construction industry can be pointed out to be at 5 to 6 devices. A fast return on investment can be expected with 3 to 4 devices, which is a high number compared to the other investigated industries.

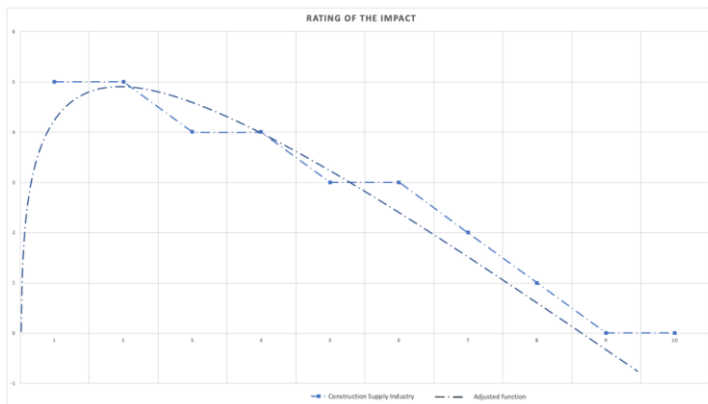
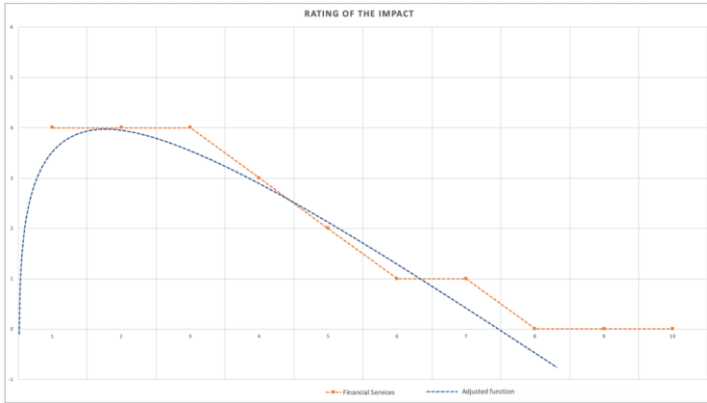


Figure 6 – Rating of the impact for the Construction Industry

Results of Banking and Finance

The investigated area of the saving banks shows a constant high impact, but never an extremely positive impact. The device seems to have a flat top level for the first 3 devices but then the impact starts to downfall continuously. An investment strategy could be to start with 2 devices and to validate the impact again. A third device seems to be a low-risk asset, the fourth device has to be observed closely.



Results of the Automotive Supplier Sector

Figure 7 – Rating of the Impact in the Savings Bank

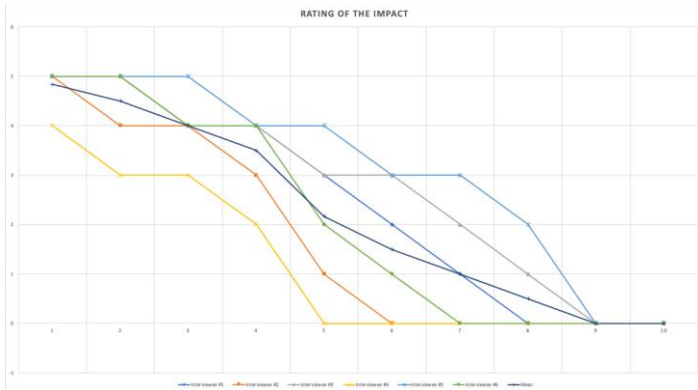


Figure 8 – Detailed Results of the Survey for Maintenance

Unlike the investigation within the construction industry and the saving bank sector the investigation within the automotive supplier maintenance area was conducted on a global basis. Therefore, the dataset had to be adjusted to the number of employees working in each area. After cleaning the data, we came to a presentation of the following:

Each graph represents an individual from a different region. Not surprisingly the graphs have different levels where they start from, but they all follow a very similar course.

The results were combined and a mean of the functions calculated. The adjusted function shows that the device has also a high impact right from the beginning on the maintenance but is declining in a similar way to the construction industry.

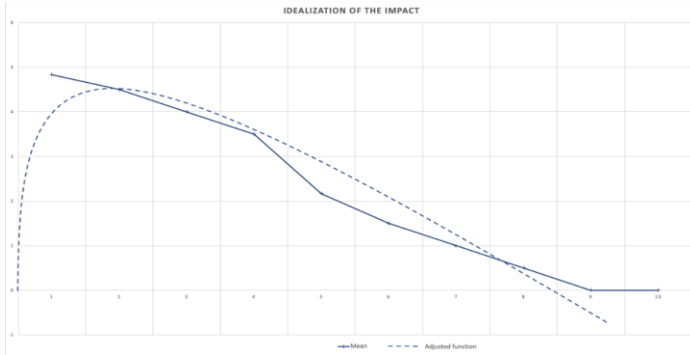


Figure 9 – Rating of the Impact of Maintenance in Automotive Supplier Industry
Subsumption of the 3 industries

Our main finding is, that all three industries show the behavior of a standard production function but that the investigated industries do have different adjusted progressions.

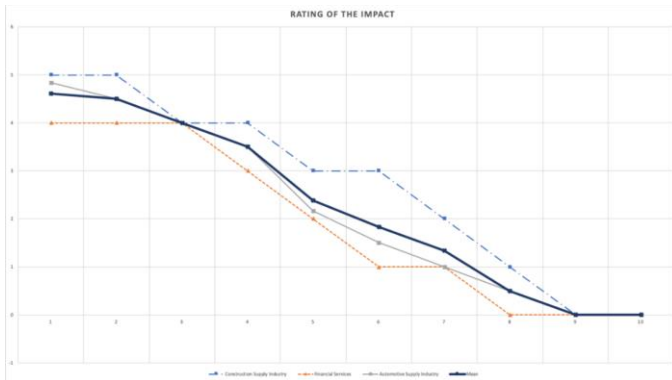


Figure 10 – Comparison of the Industries

The type of production functions of the different industries is akin with each other regarding its overall shape, but differs regarding the impact of the number of devices.

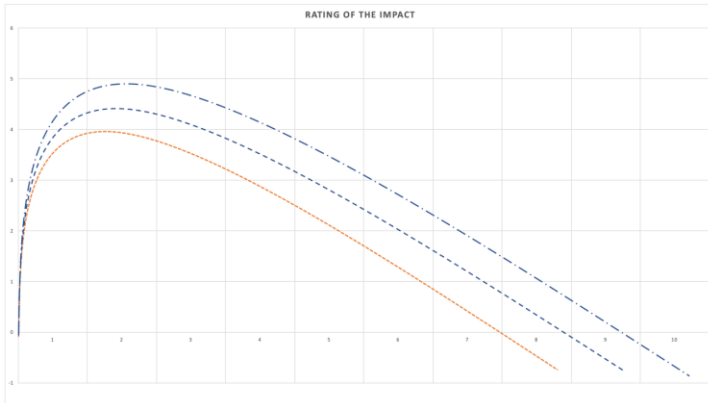


Figure 11 – Adjusted Rating of the Impact for the Industries

The adjusted functions draw an even clearer picture of the progression and the superordinated form of the behavior of the function.

All industries show that the use of smart glasses have a steep rise of the impact for the first glasses that are introduced. The decline is also similar in each of the industries and eventually results in a negative impact of the device, i.e. a further device cannot be applied lucrative.

Conclusions and recommendations

Production functions are significant for the functioning of economics and business management systems. To understand at what extent an investment is affecting the business environment can be an important success factor resp. can be developed to an advantage in competition.

Using the example of a disruptive device, we have shown that the disruptive effect of innovative processes, technologies, methods and devices on established industries can be integrated into the strategy process of such different industries as the banking sector, the automotive- and the construction-industry. Established models, that were applied in the second resp. third industrial revolution are powerful tools even today when applied on technologies that are considered being part of the fourth industrial revolution.

We therefore consider our first hypothesis as confirmed in the sense how we verbalized it in the beginning of this work.

For the industries that we examined we also consider our second hypothesis to be correct; the graphs in the 3 investigated industries have a very similar progression and, but a difference within the heights of the impact, it is industry specific.

The limitation of the explanatory power of the work is the methodology of using structured interviews to gain insights into the impact. The graphs and their progression have to be tested within the industries to strengthen the findings.

In addition to test the progression within the investigated industries, it is worthwhile to enlarge the survey to other industries, to examine the behavior of the IIoT device in those and to be able to build clusters for different industries as a model for prediction.

The know-how to develop technology specific graphs, as we have done it in this survey, is in most cases available in the companies and can become part of the preparation of a decision process.

We recommend to use the approach of a structured interview, considering the production function before investing into a technology as an internal exercise to improve the decision process.

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Disruptive Innovation on Competition Law: Regulation Issues of Online Transportation in Indonesia

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Abstract

Disruptive innovation such as online transportation business is a leap of innovations of in services that triggered chaos in field of competition law. The emergence of new cumbent with its disruptive innovation has disturbed the market that dominated by the incumbent. This chaos cannot be overcome by the same legal approach because it has a different business model. In fact, it also happened in Indonesia. This study aims to: (a) reviewing whether disruptive innovation infringes the principles and provisions of competition law and; (b) identifying and evaluating various regulations regarding online transportation in Indonesia. The method of this research is normative legal research, which examines various legal principles, legal theories, and legislation. Findings of this study are: First, disruptive innovation is not an unlawful act because it does not infringe any provisions in the competition law. And also, this innovation is not contravene with the public order; its using new business platforms that are different from old business models. Second, Indonesian government has regulated this disruptive innovation by issuing regulation which has been sued for judicial review and amendment. Finally, Indonesian government has formulated an accommodative regulation format, i.e., online transportation is equalized to the specialized rental transportation.

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Keyword: disruptive innovation, competition law, online transportation, regulation

Introduction

Technology has changed people's ways of life. It forced industries to constantly innovate, economic development through technology sharing has "forced" the emergence of dynamics in the business world (Geradin: 2015, p. 2). The growth of the sharing economy has attracted increased attention as the disruption of longstanding. The sharing economy represents a profound change in the way goods and services are exchanged. New technological platforms help connect consumers with goods and services providers and promote better utilization of assets and fuller realization of economic rights over resources (Kapinsky: 2018).

As the sharing economy continues to grow, and they are not without their negative impacts, however, leading to controversy and calls for regulation. Those regulation include the fundamental question of how best to characterize sharing economy businesses and newly crafted regulations, specifically targeting services.

This change affects free competition. There are many cases where large industrial business group are shifted because they were slow in innovating. For example, Nokia and Blackberry were hit by Apple and Samsung products, Yahoo, which lost to Google and Facebook, and the growth of online transportation modes in various countries.

Various innovations brought by new incumbent caused disputes between the new incumbent and the incumbent. This dispute arises because the consumers move to new incumbent and considered as a "disruptive innovation". In Europe and Asia, the issues of unfair competition led to massive demonstrations by taxi drivers and court judgments against Uber services. In 2016, France and Germany went against Uber due to unlicensed drivers, which is a violation of the local transport laws. Uber shut down its operation in Denmark following the introduction of new tax laws. In Korea and India, Uber failed to meet

safety standards. Thailand's transport authorities have begun a crackdown on drivers for the ride-hailing services Uber and Grab due to registration and payment systems that did not meet regulations. On another case, Uber was registered as a software company in Taiwan not a transportation services provider. Meanwhile, Uber was also facing tougher competition in Japan if it fails to partner with Sony, which partners with six local companies to build a new taxi-hailing system that was more sophisticated than that of Uber (Mutirin: 2019, p. 1).

In the other hand, the growth of Uber and Airbnb impact on changing of regulation, most regulation occurs at the municipal level, and their popularity and significant revenues made these two companies have been the prime targets of regulation (Brescia: 2016, p. 87).

As well as in Indonesia, the emergence of Go Jek online transportation has disrupted the conventional transportation business. Graph 1 below shows that there has been a drastic decline in conventional transportation industry.

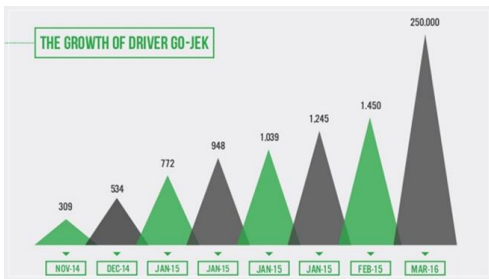
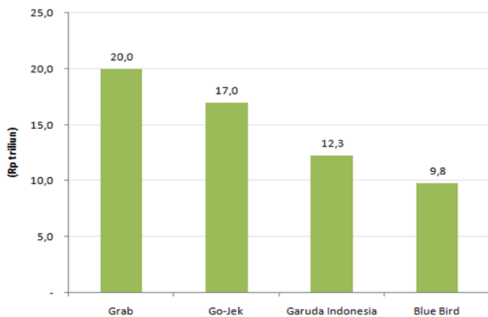


Figure 1. Data of an increase in Go-Jek drivers



Source: TechCrunch, Wal Street Journal, Bareksa

Figure 2. The Graph on the Comparison of Valuation between Online & Conventional Transportation Companies

The two graphs above show the number of GoJek partners increases year by year significantly, and asset valuation of GoJek exceeded and larger than conventional transportation companies. In March 2016, the losses of Express taxis reached 9.8 billion rupiah or dropped 148 percent compared to the same quarter in 2015, amounting to 20.3 billion rupiah.

In 2015, the Express taxi profit fell 72.7 percent compared to the previous year. Meanwhile, Blue Bird 2016 earnings also fell 61 percent.

Based on Law No 5 of 1999 on the Prohibition of Monopolistic Practices and Unfair Competition (Antitrust Law), there is no prohibition for businesses communities to develop product innovations. In fact, in free-market theory, Adam Smith said that "economic practice must have an element of business freedom, and the market has the role in regulating and creating its mechanisms, not the government policies" (Mula: 2012, p. 5).

This study aims to: First, identify the legal position of disruptive innovation on competition law perspective. Second, Evaluate and identify governments policies for the online transportation industry in Indonesia.

The method of this research is normative legal research, which examines various legal principles, legal theories, legislation and using secondary data in the form of legal documents obtained from the library research and primary data obtained from field research through interviews and observations. The data obtained will be analyzed in a prescriptive and descriptive method with a qualitative approach.

Discussion

The legal position of disruptive innovation on competition law perspective

The main focus of innovation is the creation of new ideas that will be implemented into new products and new processes. The main purpose of the innovation process is to provide and bring better customer value (Hartini 2012, p. 83). Lukas & Farel (2000) distinguish product innovation from three basic categories, namely "product line extensions", "me too products" and "new to the world product". Product line extensions are products that are relatively new to the market but not for the company. "Me too product" is a product that is relatively new to the company but is relatively well known in the market. "New to the world product" is a new product for both the company and the market. Many dominant companies have been replaced by new incumbent in both slow-moving and fast-moving industries. Disruption is the cause of that phenomenon, which an economist Joseph Schumpeter called "creative destruction" (Hartini 2012, p. 83).

The concept of disruptive innovation explains the reason for the leading companies often fail to stay on top of the industry when technology or markets change (Christensen: 1995). Identifying the effects of disruptive innovation on the market is relatively easy, but constructing the definition is quite difficult. One definition of disruptive innovation focuses on the quality of the functions and costs of innovation. This definition describes disruptive innovation as a "good enough" and "low-cost innovation" (Nagy: 2016, p.120).

Bower and Christensen make a difference between two types of innovation technology, namely Sustaining Innovation, i.e., an innovation that presents an increase in existing products but does not affect the market. Meanwhile, disruptive innovation has features that are completely new and different from the previous product. Gen M. Schmidt and Cheryl T. Druehl also classifying innovations into two; the differences are provided in the following table (Schmidt: 2008):

Type of innovation	Type of target / target	Description
Sustaining Innovation	high-end market	The product first targeted the high-end market and then spread to the low-end market
Disruptive Innovation	low-end market	The product first targeted the low-end market and then spread to the high-end market

Table 1. Differences between Disruptive Innovation and Sustaining Innovation

Sustaining Innovation, usually carried out by large companies, while Disruptive Innovation is usually carried out by a start-up company. Start-up company is a company that is looking for a new business model that is measurable, repeatable and profitable (Morris).

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Start-up companies are companies that have newly operated. Usually, it is in the form of a Limited Liability Company which has the legality of a trading license and tax ID number (Wijayanto: 2018, p. 73-157). This company is established and in the phase of development and research to find the right market (Wikipedia). The term "startup" became popular internationally when many dot-com companies were founded. This startup business is more synonymous with businesses that have elements of technology, web, internet, etc. From this understanding, it can be seen that business competition is not always competition between large companies and small companies. In fact, it is the competition between incumbents who use Sustaining Innovation with new incumbent that use disruption innovation.

Disruptive innovation takes place outside the value network of the established firms and introduces a different package of attributes from the one mainstream customers historically value (De Steet 2015). This innovation radically changes the existing business model, competing with incumbent competitors in the same market (Fang Wei 2015). Disruptive Innovation: "a new competitor creates radical change in an existing industry, launching a new product or service, often with some distinctly novel features or an entirely different business model" (Li Toh: 2016) Disruptive Innovation is like an invisible enemy for incumbent competitors. It came not through formal competition, like advertising on the billboard, or sales that sell goods from door to door. This new competitor suddenly enters directly into consumer rooms through the help of Information Technology (IT), offering the same product in different ways (Kasat 2017). The consumers are served by imitable business diversification. Rhenald Kasali calls a business model that changes with the term Great Shifting (Kasa 2018). Disruptive Innovation has a disruptive effect not only on the products or services they contribute to the market but also challenges for the law enforcer in responding to this new scenario globally (Fang Wei 2015).

To review disruptive innovation violates competition law or not, it can be seen from the following things:

First, if it is seen from the side of morality as the basis for norms to measure legal standards then, morality can be classified into two groups, namely: (1) Objective morality is a norm relating to all actions that are good or evil, right or wrong, which are put in the effort to defend life (the right to live is a human right). (2) Subjective morality is a morality which sees actions influenced by the knowledge and the background of the perpetrators that are related to good or bad intentions. From this explanation, disruptive innovation cannot necessarily be classified as a violation of moral values because, in fact, it gives a lot of benefits to the community as consumers by providing more varied choices for consumers and convenience for businesses to enter the market (no entry barrier principle) (Claassen: 2016). Therefore, philosophically, disruptive innovation does not violate the Competition Law. Second, juridically normative, it has been regulated in the standard legislation, in Indonesia, Law number 5 of 1999 on the Prohibition of Monopolistic Practices and Unfair Competition.

A product innovation both goods and services become wrong, if it infringes provisions regarding: (1) prohibited activities; (2) agreements that are not permitted; and, (3) abuse of dominant position. For example, predatory pricing, operation area, conspiring with other business actors to intentionally set up the prices of goods and services (Law No 5 of 1999).

In addition to these three things, the business competition must not violate the principles of fair business competition, which can be categorized into 2 (two), namely:

Unfair competition: this term is usually used to indicate intentional errors to confuse consumers about the source of the product (also known as misleading business practices).

Unfair trade practices: unfair trade practices and all other forms of unfair competition.

In Indonesia, the principles of unfair competition are: (a) competition must not be carried out dishonestly, i.e., by misleading or giving false information; (b) or unlawful acts, namely an legal act which damage another party which is in accordance with article 1365 of the Indonesian Civil Code; and (c) inhibiting business competition in an effort to prevent entry of competitors into the market (Nurhayati 2011). Business communities and the government make agreements or regulations that obstruct the entry of competitors. As like as the case of Aqua Vs Le Minerale, through the Decision No 22/KPPU-1/2016, KPPU decides Tirta Investama/TIV and Baha Agung Perkasa/BAP) are guilty.

The tentative conclusion from the above normal analysis is if there are innovations that produce a new product and service, there is no indication of those three prohibited things and do not violate the principle of unfair competition; then those innovations do not infringe competition law. Competition is a relatively simple concept. In a perfectly competitive market, there are a large number of buyers and sellers with comprehensive information, producing homogenous goods and services, and with no barriers to entry or exit to or from the market (Whish: 2012, p. 4). The market under ideal competition provides optimum allocative and productive efficiency. Unfortunately, perfect competition and the resultant perfect market are, for the most part, illusions, never to occur in the real world (Whish: 2012, p. 4).

Therefore, when the innovation presents a leap or chaos, the social disorder will occur. Norms are rules, provisions, order, or rules that are used as guidelines, controlling behavior (government and society). According to Kelsen, legal norms will determine which are legal and illegal (Kelsen: 2006, p. 4). Norms are realized to create justice, certainty and expediency (Afr 2002, p. 82-84). All of this is manifested in the form of public order (Mertokusumo: 2004, p. 11). It means a phenomenon is considered guilty by law when it results in social disorder. Thus, it is necessary to study further disruptive innovation, whether this innovation disrupts social order through the following discussion.

First, by answering the question of whether Disruptive Innovation is a legal event or legal action? This is to determine whether it should be measured by norms and legal conditions or not. "Legal fact" is an event in a society that moves a specific legal regulation, so that the provisions contained will be realized (Rahardjo: 2000, p. 35). Meanwhile, "legal acts" are any human actions that give rise to rights and obligations (Soeroso: 2011, p. 292). Therefore, an innovation that is applied in society is a legal act in a legal fact, because it provides various rights, obligations and responsibilities which are from the application of a legal provision.

The definition of public order in various regulations is an organized life as the reflection of no violations committed in public places against applicable regulations. Similar to the definition mentioned before, Iredel Jenkins said that: order refers to regular and determinate sequences that exhibited in the behavior of distinct entities that are so related among themselves as to constitute organized (Jenkins: 1980, p. 20). The vision of how society establishes and maintains social order determines the way that one interprets the nature and role of law within that order. Sociologically, the Durkheimian state that law belongs to the normative system that facilitates co-operation and makes it possible for complex societies to exist in a state of solidarity (Kurkchyan: 2013). Otherwise, from the perspective of legal aspect, Benjamin Cordozo stated that Law is the expression of a principle of order to which men must conform in their conduct and relation as member of society (Jenkins: 1980, p. 22). Based on various conceptions mentioned before, if the existence of disruptive innovation does not violate any law, it can be considered that disruptive innovation does not infringe social order.

Second, assigning disruptive innovation at the standard of the norm; what should happen, then innovation is something that should happen. Communities cannot live in a static state continuously. Naturally, human life in society must change and develop. Therefore, innovation is the right thing based on the standard of the norm. The issue of innovation is a sustaining change or has caused disruption to established business entities; it's just a matter of business competition, not a matter of norms. Kenneth Arrow even emphasized that competition is driving innovation (Fang Wei 2016). Thus, innovation must be given space by the government through regulation rather than being restricted or prohibited (Messi 2018). Nevertheless, Florian Baumann and Klaus Heine mentioned that if businesses entities introduce innovation too early, risks to consumers can occur at anytime (Baumann: 2012). From this point, the emphasis on the need for innovation regulations is more on the consequences that might endanger consumers, not on competition among business entities.

Third, if disruptive innovation cannot be normatively accused, what about the consequences of its implementation against social order? Disruptive innovation, in its outward form, has created chaos in the market system. Thus, based on this conventional view, disruptive innovation can be justified as "unlawful acts" according to the law because it has "disrupted the order" of the market. There are many facts of social conflict arising from this new business model.

For example, is the Air BnB business. It is not a hospitality business; it's only a business which provide rooms for people who need it. Then, this business does not require legal provisions regarding hospitality. Also, it cannot be mistaken legally for people who provide a place to take a rest. Another example is the electronic mall business, such as Bukalapak, Lazada, Amazon etc. The same licensing for conventional malls cannot be applied to that business. Although, in fact, there is the competition that occurs in the same market (Regulation of Trade Minister No 70/M-DAG/PER/12/2013). This phenomenon shows that there are differences in the principles of how to do business. For this reason, the same law cannot be applied necessarily.

The analysis needs to be criticized and reconstructed because disruptive innovation is established from an idea that is different from the logic of sustaining innovation, although it cannot be said to be part of an opponent or contradiction. Conceptually, the idea is established by a completely different way of thinking, even if it is not contradictory. Thus, an innovative legal logic is needed in providing standardization of wrong or true of an innovation.

Disruptive innovation is a business phenomenon that "disrupts" competition between new incumbent and incumbent but does not infringe any principles of competition law. Still, the regulations on these issues are urgently needed. The impact of all these technologies is unknown, even to a certain extent, it cannot be known. Disruptive innovation triggers a controversial political response. Disruptive innovation affects established business models and settled social norms. The focus rises in

the community is the way to regulate innovation. In the context of that uncertainty, the role of law, legislators, courts and regulators is very important (Kolacz: 2019, p. 1-3). Alexandre de Stree and Pierre Larouche stated that enforcement of competition law must adjust the methods in dealing with and protecting the innovation process. The adjustments can be made in the existing laws. The regulation must adjust to the literature on innovation by directing a change from static efficiency and price evolution towards dynamic efficiency and innovation incentives. The regulation also directs a shift in emphasis from the market definition against market behavior and the theory of lawlessness (De Stree 2015, p. 7).

These innovations lead to the need of the reassessment on the effectiveness of the existing legal framework, and if it is appropriate, the legal reforms will be held. Law has been defined by Fuller as the enterprise of subjecting human conduct to the governance of rules (Fuller: 1969, p. 96), and taken further as the human attempt to establish social order as a way of regulating and managing human conflict (Beyveld: 1986, p. 2). The latter definition it is suggested is particularly apt for antitrust, particularly when it is pointed out that competition law is attempting to combat 'two of the most innate propensities in human nature (Steuer: 2012, p. 543).

Law tends to regulate competition in three ways. First, rules that authorize an independent national competition institution (competition authority) to regulate anti-competitive business activities. Second, law enforcement for legal subjects of business entities who are competing to obey the competition law. Third, the criminalization of certain anti-competitive activities carried out by legal subjects of business entities in unfair competition. The three processes seemed to harm free market. By creating a competition law and competition authority, it is expected that the market can be free from the control of certain parties and there is no unfair competition.

Identification and Evaluation of the Policies on Online Transportation Industry Management in Indonesia

Disruptive Innovation in Indonesia often appear even has entered into the free-market competition. However, in this sub-chapter, the focus of the discussion is on the government's efforts to regulate online transportation (Go.Jek - Grab, and Uber), which has led to normative conflicts accompanied by riots between the incumbent and new incumbent. This phenomenon also happens in various other countries. On the other hand, legislators and regulators are also competing with time to ensure that the regulations can keep up this rapid market development. This makes the legislature and regulator get pressure from businessmen and consumers to regulate or even prohibit the implementation of Disruptive Innovation (Government Advocacy and Disruptive Innovations, Special Project Report International Competition Network Annual Conference, Singapore 2016).

Legislators deal with a difficult choice: let the judge decide according to current legislation, or issue new legislation. Even though both options are equally special, in fact, both options are overlapping. Therefore, the legislator let the judge impose a decision based on the existing legislation. After these new dynamic phenomenon can be understood comprehensively, a bill can be arranged, or the existing legislation can be amended.

European court of justice advocate general Macej Szpunar ruled that uber may be innovative, but it falls within the field of transportation. If upheld, the ruling would mean that uber would fall under national regulations and would be required to obtain the necessary licences and authorizations. As the grown uber, there are too many efforts to impose regulation the numerous jurisdiction employing a wide range of measures (Katz: 2015, p. 1067).

The next question that arises is "should Disruptive Innovation in the field of online transportation be specifically regulated?" There are two conflicting opinions on this question. Government Advocacy and Disruptive Innovations, Special Project Report International Competition Network Annual Conference summarizes the following reasons:

Disruptive Innovation needs to be regulated to address public problems. If traced back to the online transportation industry, there are non-compliance with existing laws and industry standards, insufficient insurance and workers compensation, lack of industrial relations arrangements and regulation of prices. For example, Uber has been accused by San Francisco and Los Angeles district lawyers for giving false guarantees to the public that the driver is safe. The accusation was revealed when the driver's background check system failed to screen out sex offenders, thieves, kidnappers and murder convicts in California.

Disruptive innovation needs to be specifically regulated for the sake of justice. New incumbent companies compete the incumbents without obeying the same standards and rules, even without any rules. For example, is the incumbent taxi company in Singapore, which revealed that the new incumbent taxi booking application should also meet the service requirements as imposed on the incumbent taxi company.

New incumbent companies also require legal certainty. This fact is expected to be able to define and validate the existence of their identity that is definite, relevant and not burdensome. In Singapore, Uber and Grab supported the steps of the Singapore Land Transport Authority to issue a regulation for the ridesharing platform industry. New incumbents argue that clear regulations are critical to increase investor trust and avoid mismanagement of platforms that can threaten the company's reputation and credibility.

There is also an opinion about Disruptive Innovation in online transportation does not need to be specifically regulated. This opinion is based on the following reasons:

Regulations imposed by the government are too high-cost, slow and rigid. On the other hand, some people believe that the rapid growth of Disruptive Innovation reduces the need for many regulations. Also, disruptive innovation provides products and services that are better at serving consumer needs. Self-regulation is a user rating and online review on the quality of products/services that can be a more effective way to overcome the problems that arise in many digital platform-based innovations rather than issuing laws. This statement arises because this business relies heavily on user reviews, where negative reviews will dramatically affect its popularity. According to Elinor Ostrom, government intervention might hamper progress rather than protect the parties.

Regulations do not always act to maximize social welfare. Regulations can be vulnerable to be implemented because they further emphasize the interests of the government rather than the public interest. Incumbents often oppose new regulations that are high-cost because they provide barriers to the entry of new competitors and the development of new businesses.

The Philippines was the first country to regulate Uber on a national basis; Uber has urged other countries to use the Philippines legislation as a model to create similar nationwide legislation (Aba: 2015).

The Indonesian government has arranged online taxis by issuing the Minister for Transportation Regulation No 32 of 2016 (*Peraturan Menteri Perhubungan/PM*) on the organization of public motorized vehicles transportation outside the route which then revised and replaced by the Minister for Transportation Regulation No 26 of 2017 on the organization of public motorized vehicles transportation outside the route.

This Minister for Transportation Regulation was proposed for judicial review at the Supreme Court. The Supreme Court, through its Decree No 37 P/HUM/2017 decided to revoke 18 sections because these sections seem to inhibit the entry of new incumbents and violate the people's right to get a job (Indonesian Supreme Court Verdict No 37 P/HUM/2017). This Minister for Transportation Regulation was then abolished and replaced by the PM No 108 of 2017 on the organization of public motorized vehicles transportation outside the route. This regulation is expected to be the legal protection for online taxis or special rental transportation. This regulation is also the revision of PM No 26 of 2017, which has received material testing from the Supreme Court.

The Ministry of Transportation has issued a new regulation that regulates special rental transportation or online taxis. The new regulations are contained in the Ministerial Regulation No 118 of 2018. This regulation revokes the rules on the obligation to install stickers on online taxi glass, the KEUR test obligation, the obligation to have a vehicle storage area and the rules regarding online taxi operators must have at least 5 vehicles, suspend distribution into several criteria, i.e., light, moderate, heavy and very heavy and the predetermined lower limit rates and upper limit rates.

For taxibike, the government has arranged the bill of special regulation through the Ministry of Transportation No 12 of 2019 on the Safety Protection for Motorcycle Users for the Public Interest. According to Djoko Setiowarno, this regulation is appropriate because online transportation is not included in public transportation. However, this regulation is discretionary because online transportation is not public transportation; then, the Ministry of Transportation has no authority to regulate it.

For online transportation, the government has regulated and divided the lower and upper limit rates into 3 (three) zones in the Ministry for Transportation Decree of the Republic of Indonesia (KP) No 348 of 2019 on Guidelines for Calculation of Motorbike Services by Application for the Interest of the Community. Thus, the online transportation industry in Indonesia is currently legal.

The legality of this online transportation is regulated by the issuance of PM No. 118 of 2018 on the implementation of special rental transportation for online taxis, and PM No. 12 of 2019 on the safety protection for motorcycle users in the interest of the community for online transportation.

Some Regulations of the Minister for Transportation Regulation that was once applied and amended can be seen from the following table:

Point	The Minister for Transportation Regulation PM No 32 of 2016 on the organization of public motorized vehicles transportation outside the route	The Minister for Transportation Regulation PM No 26 of 2017 on the organization of public motorized vehicles transportation outside the route	The Minister for Transportation Regulation PM No 108 of 2017 on the organization of public motorized vehicles transportation outside the route	The Minister for Transportation Regulation PM No 118 of 2018 on the organization of special rental transportation	The Minister for Transportation Regulation PM No 17 of 2019 on the organization of special rental transportation
Type of License	Decree of permit to carry out transportation; Statement of ability to fulfil the obligation to carry out the transportation in accordance with the license; and supervision card	same	same	The license consists of: Decree of a permit for the implementation of Rental Transportation; and Service Standard Electronic Card	
Licensor	Director-General of Land Transportation	Head of Jabodetabek Transportation Management Agency (<i>Badan Pengelola Transportasi Jabodetabek/BPTJ</i>) for the area of Jabodetabek Governor for the area outside of Jabodetabek (Jakarta-Bogor-Depok-Tangerang-Bekas)	Director-General of Land Transportation for transport whose operations exceed provincial areas except for Jabodetabek/BPTJ untuk Jabodetabek Governor for transport whose operating area exceeds the district Regent for transportation operating in one district	The operating license for Special Rental Transportation is provided by: Minister, for Special Rental Transportation whose operational area exceeds 1 (one) provincial area and which exceeds more than 1 (one) provincial area in the Jakarta, Bogor, Depok, Tangerang, Bekasi area; and The Governor for Special Rental Transportation whose area of operation is in 1 (one) province as a deconcentration task.	License for Special Rental Transportation operation granted by the Minister is signed by: Director-General of Land Transportation on behalf of the Minister, for Special Rental Transportation whose operational area exceeds 1 (one) province, in addition to the Jakarta, Bogor, Depok, Tangerang and Bekasi regions; and Head of Transportation Management Agency Jakarta, Bogor, Depok, Tangerang, and Bekasi on behalf of the Minister, for Special Rental Transportation whose operational area exceeds more than 1 (one) province in the Jakarta, Bogor, Depok, Tangerang and Bekasi

regions.

Minimum Requirements	have at least 5 (five) vehicles with evidenced by Vehicle Registration Number (STNK) on behalf of the company and a letter of proof of passing the periodic test of motorized vehicle	have at least 5 (five) vehicles proven by STNK in the name of a legal entity and a letter of proof passing periodic testing of motorized vehicles	has at least 5 (five) vehicles proven by Book vehicle owners (BPKB) or STNK in the name of a legal entity or can be in the name of an individual for legal entities in the form of cooperatives	There are no special provisions
Driver License	employ drivers who have a driver's license (SIM) according to the vehicle class	Driving License (SIM) according to Vehicle class	Driving License (SIM) according to Vehicle class	Driving License (SIM) according to Vehicle class
Vehicle capacity	use public car vehicles minimum of 1300cc	Public Rental Transportation of at least 1,300 cc; Special Rental Transportation at least 1,000 cc	There are no provisions	There are no provisions
KEUR (KIR) Periodic test marks of the vehicle	Periodic test marks of the first motorized vehicle (KIR) are carried out using tapping	Periodic test marks for motorized vehicles (KIR) are carried out by embossing	Proved by showing the license	Replaced by periodic maintenance books for motorized vehicles in accordance with the standards of Brand Holder Agents (<i>Agen Pemegang Merek/ APM</i>)
Pool	permission to operate public transport must have a 'pool'	have/master the storage area of the vehicle that can accommodate the number of vehicles owned.	Same	There are no provisions
Garage	provide vehicle maintenance facilities (workshop) proven by ownership documents or cooperation agreements with other parties	provide vehicle maintenance facilities (workshops) as evidenced by ownership documents or cooperation agreements with other parties	Same	There are no provisions

TNKB/ Tanda Nomor Kendaraan (Motor Vehicle Number)	equipped with a vehicle registration number with a color base of the black plate with white writing given special code for STNK provisions on behalf of the company	Public Motor Vehicles that have black Motorized Vehicle Number (TNKB) are only rental vehicles; Special rental transportation nomenclature to accommodate online tax transportation services.	Same	There are no provisions
Supervision	Supervision is carried out at: a. tourist attraction; b. Roads; c. Place of departure or pool and d. transportation stop Supervision of Vehicles Public Motorized Transport by Motor Vehicle supervisors using equipment manually and / or electronically The supervisors are Civil Servant Investigators in the field of traffic and road transport, and / or Indonesian National Police Officers.	Provisions for supervision are supplemented by the obligation to provide digital dashboard access to the Director-General of Hubdat and the granting of licenses to administer public transport	same	Supervision of Special Rental Services carried out by motor vehicle supervisors carried out using equipment manually and / or electronically in accordance with the provisions of the legislation. Supervision is carried out on the Urban Area road section, and transportation stops in accordance with the operating area. The motorized vehicle supervisor, as referred to in paragraph (1) includes: a. Civil Servant Investigation Officer in the field of traffic and road transportation, and / or b. Republic of Indonesia National Police Officer.
Vehicle Registration Number (STNK) Provisions	STNK provisions on behalf of the company	STNK provisions in the name of legal entities; STNK which is still on behalf of an individual remains valid until the expiration	STNK in the name of a legal entity or can be in the name of an individual for a legal entity in the form of a cooperative,	There are no provisions

Sanctions	The licensor gives administrative sanctions. Administrative sanctions in the form of: a. suspending transport vehicle surveillance cards motorized; and b. Revocation of vehicle surveillance cards motorized.	Director-General, Head of Agency, Governor, Regent, or the Mayor in accordance with his authority provides administrative sanctions in accordance with the same authority. Administrative sanctions include: a. written warning; b. Administrative fines; c. Suspending motorized transport vehicle surveillance cards, and d. Revocation of vehicle surveillance cards motorized transportation.	Same Administrative sanctions include: a. written warning; b. Administrative fines; c. Suspending motorized transport vehicle surveillance cards, and d. Revocation of vehicle surveillance cards motorized transportation.	Same Type of sanction a. Written warning; b. Suspension of operating license; and c. Revocation of operating license.
Types of Violations	Administrative violations and restoration	Minor, moderate and severe violations	Minor, moderate and severe violations	same
Rates	payment of tariffs in accordance with the agreement between service users and transport companies	Transportation rates are listed on information technology-based applications	the amount of tariff stated in the information technology application with electronic documentary evidence	The amount of Special Rental Transportation rates is determined based on the calculation of direct costs and indirect costs and is listed in the application of information technology accompanied by electronic documentary evidence

Table 2: Development and Changes in the Regulation of Online Transportation in Indonesia

From the table, the following points can be analyzed:

First, online transportation regulations which are regulated through the Minister of Transportation Regulations (*Permenhub*) from No 32/2006 to No 17/2019 have experienced significant changes. In the initial regulation, online transportation was treated the same as conventional transportation in terms of permits, minimum requirements for vehicle capacity, KIR, pool, garage etc. This regulation indicates that the government does not understand yet the existence of a new business model with a ridesharing pattern. Thus, this regulation cannot be obeyed by online transportation businesses. This problem then led to several judicial reviews.

Second, the next regulations still indicate the same paradigm from the government in observing online transportation business as like as the other conventional transportation. This paradigm still exists even though the government has provided some easiness by eliminating the provision of KEUR, pool, workshop, TNKB, ownership of vehicle registration certificate. This regulation is different from the regulation made by the Philippine government. On 8 May 2015, Department of Transportation and Communication (DOTC) issued Department Order No. 2015-011, amending Department Order No. 97-1092 to promote mobility. Among the amendment is the provision of the Transportation Network Vehicle Service (TNVS), which refers to existing "ride-sharing" or "app-based ride-hailing" services like Uber and Grab. TNVS is private vehicles that can operate like PUV (general operators and are entitled to issue public vehicle license plates) and for liability purposes

are likely to be treated as public transport. With the implementation of MC No 2018-016, the Philippines suffered a "supply crisis," where the riding public agonized either a lack of or an insufficient supply of TNVS in the city due to regulatory restrictions. LTRFB announced on August 2018 that it would open 10,000 slots for new TNVS franchises to address the problems of slow bookings and higher fares, which TNCs have attributed to the lack of drivers (Mutarin: 2019).

Third: the last regulation, i.e., PM No 118 of 2018 and revised by PM No 17 of 2019 on the organization of special rental transportation has implemented a more accommodating change against online transportation by revoking many provisions and requirements as in the previous regulation. The provisions such as the Minimum Requirements for Vehicle Capacity, KEUR (replaced by regular maintenance books as the guarantee for passenger safety), Pool garage and others have been revoked.

Nevertheless, there are still some technical issues that could be obstacles, such as in Section 7 - 11 concerning the Establishment of Operational Areas and Public Motor Vehicle Needs Planning. This provision is contrary to Section 9 of Law Number 5 of 1999 on the Prohibition of Monopolistic Practices and Unfair Competition:

Business entities shall be prohibited from entering into agreements with their business competitors which have the purpose of dividing marketing territories or allocating the market for goods and services, which potentially causing monopolistic practices and or unfair business competition.

That policy is detrimental because it violates the right consumer to choose. However, in the context of PM No. 118 of 2018, the division of territory is regulated by the government based on Law No. 22 of 2009 on Road Traffic and Transportation. The technical problem is that what part is restricted? operational zone and routes of the platform? This issue needs to be studied and discussed more because the model of ride sharing based on online transportation is difficult to be subject by physical "restrictions."

Furthermore, in Section 11 - 20 PM No 118 of 2018 concerning the Special Rental Services where the definition is explained in article 1: a legal entity or micro business that organizes Special Rental Services. In Section 11, subsection (1) Special Rental Companies are required to have a license to carry out the Special Rental Transportation and must be incorporated as (a). State-owned enterprises; (b). Regional owned enterprises; (c). Limited Liability Company; or (d). Cooperative. (Section 12 subsection (1) and (2)).

This norm becomes difficult to be applied by online transportation drivers who work personally. These drivers run a business by ride-sharing with other people on freelance based. The provisions for establishing a legal entity will be both normative and empirical problems. Therefore, this study recommends further research to formulate rules that are ideal for online transportation.

Conclusion

From the discussion above, the conclusion can be observed as follow:

From the perspective of competition law, disruptive innovation can be concluded not to infringe competition law because: First, the innovation does not act that are prohibited in competition law, namely (a) prohibited agreements; (b) prohibited activities; and; (c) misuse of dominant positions, which results in market control. Second, these innovations do not cause unfair competition, so there are no unlawfulness. Third, these innovations are not opposed to public order. In fact, disruptive innovation is a legal fact and legal action that uses a new platform that is different from conventional business models.

Online transportation is part of disruptive innovation, which became a problem in many countries in the world. The Indonesian government has tried to regulate disruptive innovation for several times by issuing the Minister of Transportation Regulation, which experienced claims of judicial review. It is because the Indonesian government still sees the online transportation business with a paradigm that is equated with the conventional transportation business. Nevertheless, in the end, an accommodative regulatory format has been formulated, where online transportation is referred to and equated with the term special rental transportation.

Recommendations

Disruptive innovation is an inevitability, it couldn't be rejected or avoided. Government shall support any business innovation and ensure that these innovation are not infringe law. Indonesian regulation on online transportation deemed as the best regulation in South East Asia, though its still has weaknesses on provisions concerning areas and legal entity formed

Commented [I4]: Some recommendations can be given here.

business. These provision will restrict small and medium enterprise to enter this business and contradict with sharing economy concept.

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Casino Industry in the Transition Economy of Georgia

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Abstract

One of the most specific segments among the social-economic problems in the transition period of the market economy of Georgia is created by regulation of gambling (gambling business) and evaluation of its effect on a various part of society. Subsequently, the peculiar "triangle" is formed – "business – society – state" in which each of them has its interests, benefits and losses. One of the leading gambling businesses in the country is formed by the casino industry. The work deals with analysis and discussion of the role of casino industry and its importance in gambling business, objective and subjective factors of increase and development of the segment, effects of its positive and negative influence on stakeholders, fiscal determinants, financial-economic and social-economic problems of the sub-sector, proper recommendations have been developed on the basis of the theoretical and empirical analysis and conclusions.

Keywords: casino industry; gambling business; gambling regulation; effects and risks

1. Introduction

The volume of the market of casino industry is increasing globally with the modern gambling business, the Gross Gambling Yield (GGY) of which reached 125 billion US dollars in 2018 while it consisted of only 50 billion dollars in 2001 (Statista, 2019). In general, casino business is considered one of the most dynamic growing segments of gambling throughout the world.

Gambling was strictly prohibited by the legislation in soviet years of Georgian economy (the only exception was the lottery). From the beginning of the 90-ies of the 20th century, along with transition to market economy, the phenomenon of gambling games appeared and consequently, the first operative casinos, the activity of which was mainly spontaneous. As a result of the creation of relevant system regulatory legislation and grow of economic activity, their number, circulation, fiscal contribution, etc. is increasing, however, a number of problems related to social-public losses cause resulted from their activities have been highlighted, which advocates the necessity of development and implementation of a rational, balanced and governmentally acceptable policy. In general, gambling represents a specific segment of the business sector of the country and of the economy as well, with an ambivalent attitude towards it. Casinos, as the business entities, create a certain value in the economy and at the same time, their activity is related to certain social losses. Also, the attitude of different stakeholders towards this business is quite nonhomogeneous. Namely, the government and business circles are more likely to be in favor of it, than the wide layers of population; however, the mentioned approach is considered as general and varies in different countries (Williams, Rehm, Stevens, 2011, p. 7). For example, according to one of the public opinion researches conducted in Georgia (2014), which aimed to measure the engagement of population in gambling, the absolute majority of the population (92%) expressed negative opinion about gambling business, 63% of which considers it appropriate to prohibit it and 29% – restriction by certain regulations (TI, 2015). It should be mentioned that the gambling business in society of any country, including the functioning of casino industry is considered as one of the problematic issues. Georgia is no exception in this regard. One group of countries has solved this problem with a relatively rigid approach – banned the gambling business by legislation of the country, however in a number of countries, the flexible regulations have led to more or less development of this segment of the business.

2. Casino Industry's Place in Gambling Business of the Country

It is noteworthy that the different models (principles) are approved in organizational-functional arrangement of the gambling business (including the casino industry) in world practice. Namely, there are the general and zonal approaches (Meyer, Hayer, Griffiths, 2009, p. 252). The principle of zonal arrangement implies concentration of the gambling entities in pre-

defined territorial limits, which was based on development of peripheral and pre-selected areas. As to the general approach of arrangement of gambling business, in this case, gambling business entities can be established on any territory of the country, however, according to common practice, they are created in the regions and municipalities where there is a high demand for relevant services, the tourism-logistic infrastructure is developed or certain preferential terms are set. It should be noted that gambling business of the modern stage in Georgia operates in accordance with the latter approach.

Gambling is represented in several types by Georgian legislation. Namely, the state regulation of gambling business in the country is carried out by the structural subdivision of the Ministry of Finance – Gambling Business Policy Division, while the second largest structural unit – the Revenue Service issues the following permits in the following directions: 1. Arrangement of casino, 2. Arrangement of the salon of slot machines, 3. Arrangement of the gambling club, 4. Arrangement of bookmakers, 5. Arrangement of lottery, 6. Arrangement of bingo, 7. Arrangement of the promotional draw. It should be mentioned that among the types of gambling, the casino games are considered the most common and popular type together with the salon of slot machines (so-called the slot-club) and bookmakers. According to the official state data, namely according to the registry of gambling business permits, there are 20 casinos operating in the country, half of which operates in one of the most economically developed and infrastructurally growing region – Adjara (namely, in Batumi), 5 casinos – in the capital (Tbilisi), the rest of the casinos – in other self-governing units (MOF, 2019). It is noteworthy that legislation allows to arrange the casino in a system-electronic form (internet platform) only if the organizer owns a permit for a casino (the standard permit is issued for a term of five years) for which no separate permit will be issued. Furthermore, the casino must have at least seven gaming tables, including one gambling wheel (so-called roulette).

It should be emphasized that the development of the casino industry in Georgia is supported by the number of fundamental factors and comparative advantages, including: 1. Casino business promoting legislation (the relevant legislation of the country clearly defines the arrangement of the casino entities, issues related to issuing permits and operation); 2. Minimal restrictive and hindering regulations (related to zonal arrangement, advertising, online games, etc.); 3. Prohibitions and/or restrictions in neighboring countries regarding the gambling business (casino business in those countries is prohibited by law, such as Turkey and Azerbaijan, or is characterized by strict administration and imposed restrictions, for example, Russian Federation). It should be noted that the casino business is fully or partially prohibited in not neighboring but surrounding countries, such as Israel, Iran, Saudi Arabia, Kazakhstan, Tajikistan and other countries (WCD, 2019); 4. Increasing trends in tourism development (the casino business generates so-called "extra" tourism, attracting additional tourism flows and ensures chain generation of revenues in tourism industry, especially in high-class hotel segment); 5. Liberal visa policy (the visa-free regime with a number of countries and visa liberalization significantly facilitates access to gambling of relevant streams); 6. Attractive investment environment (which generates additional stimulus for development of gambling business infrastructure and making the investors of relevant profile interested in the issue).

3. Positive and Negative Effects of the Casino Industry

In order to be able to identify the role and importance of casino business as a specific segment of business sector, it is necessary to make systematic analysis of all positive and negative impacts on the mentioned business (Zheng, Wan, 2014, pp. 11-12). In this regard, positive effects can be attributed to the following: general economic, investment, fiscal, social, tourism supporting and chain (multiplication) effect. Thus, the positive effect generated from the casino business can be both – short-term and long-term. Establishment of the business entity can be considered as the short-term effect, or the results related to initial investment, while the long-term one implies multiple economic effects related to its subsequent operation (for example, payment of taxes, employment growth, re-investment, stimulation of other sectors, etc.).

The general economic effect implies that the casino, as one of the major and at the same time, specific segment of gambling business, creates specific value in the economy of the country, region or municipality and supports increase of the economic activity of the adjacent sectors and sub-sectors (we mean the total tourism industry).

The investment effect is the primary among the casino business effects, since the casino industry is one of the most important investment niches for investors. For example, the casino is one of the most profitable components of the hotel business and it is considered as the motive power of attracting investments in mentioned segment, however the casino investment can be carried out apart from the hotel complex as well. Thus, any type of such investment creates the favorable conditions for the growth of value of property assets in the respective area.

The fiscal effect of the casino business can be explained by its contribution to budget revenues. Namely, the mentioned entities are paying different taxes, which carry out formation of the budget of all three levels by different proportions. More

specifically, different fees of casino business and property taxes are generating the local budgets, the income tax paid by them – the budgets of the autonomous republics, while the profit/income tax – state budget.

The social effect is manifested by the fact, that the casino business entities create the new jobs, while in case of expansion – increase the created jobs. The mentioned segment is one of the leading fields against the background of the transition economy of low activity according to the number of long-term jobs and amount of average monthly salary.

The casino business is an important stimulus in the tourism industry. For example, in most cases, the casinos are providing their permanent clients with free accommodation in the hotels, which is very important for the accommodation facilities (we mean the high-class hotels with casino components), especially for overcoming the problem of seasonality. Research of the market of visitors on all four seasons of the year, held in the border region of high tourism potential – Adjara, is an indirect proof of above said, according to which the aim of 12-13% of the interrogated tourists during the “non-seasonal” period (I and IV quarters/autumn – winter) was gambling, unlike the period, overloaded by the foreign tourists – 7-9% (I and II quarters/spring-summer) (DTRA, 2016), which emphasizes the fact that the contribution of the attracted tourists by the service of casinos operating in hotels is significant in badging hotels, especially during the non-seasonal (autumn-winter) period from the touristic point of view. The contribution of the visitors attracted by the service of casinos operating in the hotels is also very important, which in turn, create preconditions for formation of gambling tourism.

Alongside with the abovementioned effects, the multiplication role of casino business is of no less importance. For example, casinos are mainly providing their permanent and main clients with food and beverages free of charge, by which they are stimulating the local economy by spending considerable sums in local trading centers. Thus, the attraction of visitors by casino business facilitates development of transport, restaurant, communication, financial and other services, as well as upgrading of relevant standards.

Despite the positive impact of the casino business on development of the economy, it is important to identify and systematize the negative effects caused by it in order to avoid the various disproportions and public-social losses. One can underline the following from the negative effects: social losses, effect of substitution, effect of leakage and other concomitant risks. According to the researches carried out abroad in this direction, the public-social losses caused by the gambling business is of non-homogenous nature, namely: addition to gambling (problem gambling), alienation of the person, growth in health expenditure, accumulation of debt, promotion of criminal background, engagement of vulnerable groups, etc (Reith, 2006, pp. 42-63). Furthermore, problem gambling is included in the list of American Psychiatric Association as an independent nosological unit (APA, 2018). The effect of substitution implies the potential losses, which occur from losing money by person in gambling, as he could use the mentioned sum for personal consumer expenditures or invest in a relatively stable activity or assets. As for the so-called effect of leakage, it is related to the probability that a person may not spend the sum won in gambling in local economy and carry out its repatriation or take abroad. This case may be characterized within the terms of high activity of non-resident visitors. The possibility of risks associated with money laundering can also be considered as a negative effect of the casino business (especially of its arrangement in system-electronic form), etc.

4. Quantitative Indicators of the Casino Industry

Assessment and analysis of the gambling business segment may be carried out by quantitative indicators along with qualitative ones. The system of quantitative criteria must include all potential indicators, the calculation is carried out by measurable indicators used at different levels of state governance.

As it is known, the role and significance of any sector of the economy of the country can be assessed by specific weight of the additional value in total additional value created by the mentioned sector. Use of this approach in relation to the gambling business did not allow for statistical obviousness due to the fact that, by statistical approach, namely according to the national classifier of the types of economic activities, the gambling business was not considered at the separate sub-sector of the economy (it was included in the sub-section of “other utility, social and personal service rendering”), which unlike the other sectors, complicated the direct measurement of the quantitative contribution of this segment of the business. According to the new version of classification, which is close to the methodological approaches of Eurostat and UNSTAT, gambling business was separated as classification unit (section R – art, entertainment and relax, department 92 – gambling activities), which allows us to measure the individual indicators of gambling business in relation to the overall volume of business sector, for example, the annual turnover of R-section of 2017, 95% of which comes on gambling (gambling business), amounted to 6 176,6 million GEL, which is 8,6% of the overall turnover of the business sector (GEOSTAT, 2018, p. 133). If we take into account the dominant role of gambling in given sector (6 050,1 million GEL), it turns out that

at about 8% of the overall turnover of business sector comes on the very gambling, the leading direction of which is the casino business.

Along with the statistical approach, analysis and assessment of the financial determinants of casino business is of no less importance. Namely, according to the applicable legislation of the country, the gambling companies, in particular, the casinos are paying charges, taxes and fines in favor of the state (central, autonomous republics and local budgets). For example, the sums received in the form of charge for gambling business in 7 major self-governing units amounted 24% of budget revenues in 2014 (TI, p. 8-9). It should be mentioned that the casino business is represented by the highest specific weight in budget revenues generated from casino business. This can be illustrated by the example of self-governing Batumi city, the gambling business charges received from the casinos in the budget of amounted 17 736.7 million GEL in 2016, which is 80% more than overall charges of the gambling business, while the fiscal contribution of the gambling business filed the municipal budget with 17.5% in the same year (BM, 2016, p. 3, 17).

Casino charges are of two types: one-time (annual) and multiple (quarterly). The one-time permit charge is paid by a casino permit seeker company and its amount is differentiated according to territorial signs (basic – 5 million GEL, lowered – 250 thousand and 100 thousand GEL and zero rate – in individual municipalities). The multiple permit charge is paid by the casino according to the gambling tables (from 20 to 40 thousand GEL per table / the local council is determining the amount of charge within the mentioned scope). In case of the salon of slot machines, the slot-club arrangement and slot machine charge is added to the above mentioned charges. As for the tax obligations of casino, as the subject to taxation, it is regulated by the general tax legislation, according to which the casinos are taxed with almost all taxes, except for exceptions. Namely, the tax and permit legislation of Georgia for casino business provides the following benefits: from the obligation of withholding of the income tax at source – in the part of the profit tax received from casino gambling; from value added tax – service providing by means of lottery, gambling and lucrative games, including casino gambling service. From the permit and privileges, release of casinos from casino arrangement permit charge on the territories of hotels of 80 and 100 rooms in separate municipalities during ten years from issuing casino arrangement permits is really worth mentioning. As well as the person, holding the permit for arranging the casino in the capital is exempted from obligation to pay the relevant permit charges for arranging no more than three gambling clubs on any territory of the country. As for the financial sanction, it is paid by casinos in the form of fine in case of unauthorized activity or non-compliance with permit conditions.

It should be also specified: the fact that 75% of casinos are territorially comprised in two major and economically developed cities of the country (Tbilisi and Batumi), underlines that the "geographical" distribution and loading of casinos are mainly conditioned by the following factors rather than the permit-tax privileges or other types of privileges: 1. Location of the gambling business entity, 2. Level of economic activity, 3. Tourism potential adoption level, 4. Well organized logistic infrastructure; 5. Urbanization level 6. The number of population.

One of the most important quantitative indicators for functioning of casino business is to divide the gamblers into local (resident) and foreign (non-resident) gamblers, which on the one hand, underlines addition of the local population to similar type of gambling, and the peculiar (gambling) interest of the foreign gamblers in given country on the other hand. From this point of view, it should be mentioned that Batumi, the city rich in casinos (in which 50% of casinos are operating), 81% of casino visitors come on the foreign gamblers, while 19% are the local gamblers (MOFEA, 2019). As for the age limit of the person (gambler) allowed to gamble in casino, which is considered as one of the indicators for regulation of casino activities – it is 21 years (in case of the salon of slot machines – 18 years). In this regard, the experience of the world "flag-officer", such as Macau is quite interesting, where the age limit of gamblers is differentiated and is much higher for local subjects (for their protection) than for non-residents (WCN, 2018).

5. Conclusion

Thus, according to all above mentioned, the state must have the long-term stable vision towards the given segment of business sector, rather than the short-term one, which should be based on creation of the predictable environment for casinos on the one hand and on the other hand, what is more important for its citizens, development of mechanisms for maximal protection of its citizens – the social capital of the country, as well as diversion from gambling. For this purpose, we consider it appropriate to carry out the following measures:

1. Close and crystaline cooperation between the state and the casino sector;
2. The in-depth study of the effects of the casino business (benefits) and anti-effects (risks) by the state;
3. Analysis of the best foreign experiences and practices of casino business operation;
4. Differentiation of age limits of local and foreign players;

5. Introduction of a permit card system based on periodic payments;
6. Study of the expediency of so-called zonal arrangement-layout of casinos;
7. Targeted and reasonable limitation of casino advertising;
8. Strict regulation of online casino games;
9. Formation and management of unified base of casino players (registry);
10. Deepening and improving statistical analysis of casino business.

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The Diffusion of M-Pesa in Developing Countries: Convergence Program Lead Vodafone Albania Sh.a, Tirane, Albania

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Abstract

The purpose of this study is to investigate whether this kind of innovative service was successful in all developing countries. Prior to the introduction and implementation of M-Pesa, people used a variety of formal and informal channels to save or send money to others. It is supposed that through mobile money technology, the population currently out of the reach of financial services will be integrated as formal players into the market and that informal ways of transferring money will be reduced (Jenkins, 2008). Financial inclusion is an issue that has gathered a lot of attention among policymakers and researchers and is referred to as a process that guarantees ease on access, availability and also the usage of banking services for all householders of a country (Sama, 2010). Without doubt, the introduction of M-Pesa in Kenya has deeply changed the way through which transactions occur. Based on the review of the literature but also the case-studies on the application of M-Pesa in Albania and other countries, at the end of the paper we give some important conclusions.

Keywords: M-Pesa, mobile money, developing countries, case-study, Kenya, Eastern Europe

Introduction

In the last decade, the mobile market has been one of the most rapidly-growing markets in the world and continues to grow fast. Some believe that this is just the beginning of data capabilities utilization in their mobile devices. Mobile technology is transforming the means through which economic activity is organized and directed, it greatly affects the way users interact with each other and is responsible for causing externalities for the economic activities that users conduct (Gruber & Koutrompis, 2010). M-Pesa¹ is an electronic money transfer product that enables users to store value in the SIM cards of their mobile phone. M-Pesa is a mobile account, in the form of electronic currency that can be used for multiple purposes including transfers to other users, payments for goods and services, and conversion to and from cash.

Mobile money services are being deployed rapidly across emerging markets as a key tool to further the goal of financial inclusion (Lal & Sachdev, 2015). A key component mobile money services share, is their ability to ensure financial inclusion and coverage for the poorest and others inhabiting remote, deprived rural areas (Lal & Sachdev, 2015; Gruber & Koutrompis, 2010; Bresnahan & Trajtenberg, 1995). Mobile Money is a service which by using mobile device offers access to financial services such as payments for goods, services, and bills, especially to the unbanked population (Dahberg et al., 2007). This technology, as being easy to use by people that have never been in touch with financial services, creates new opportunities to improve their livelihood. With mobile payment models, people can transfer funds to others, pay bills from their phone (Mbogo, 2010) and not by walking for days to pay them (in some rural areas of different countries this still happens), they can even deposit money and in some cases receive interest. Actually, these kinds of services are not new and have been offered earlier by others. This is why a clarification of the difference between Mobile Money and Mobile Banking is necessary. According to Porteous (2006), mobile payments are "financial transactions undertaken using mobile

¹M-Pesa is SMS-based money transfer system, where M stands for *Mobile* and *Pesa* means money in Kiswahili (Chigada & Hirschfelder, 2017)

device such as a mobile phone" (p. 3); meanwhile m-payment it is included in mobile banking, but it offers a broader range of banking services, so the mobile phone technology is used as a delivery channel for banking services. Another difference between these two technologies is the distribution channel (Jenkins, 2008). By distribution channels, we understand the agents, which play a vital role in mobile money functioning because they make it more easily accessible.

Emerging economies are more likely to use M-Pesa because they are mainly cash-dependent and almost all their citizens possess a mobile phone (Castrì, 2013).

The main reasons M-Pesa successes are: first, the widespread adoption of mobile phones including developing countries (Demish et al., 2012); and second, due to the low penetration of financial services in developing and poor economies especially in rural areas.

However, this study shows that M-Pesa is a strategy that does not work in all developing countries. Factors such as the size of the country, the development of the banking sector or banking electronic services, competition between operators, geographical distances, the predisposition of regulatory entities to support an innovation in the financial system and more should be taken into account during the M-Pesa feasibility study in a developing country.

Countries' Case-Studies

Everything starts with Kenya

M-Pesa was launched in Kenya 2007 as an alternative to established commercial banking services with the view of providing formal financial services to the unbanked population (Onsongo, 2017). In 2011, more than 14 million Kenyans had an M-Pesa account using services provided to them by Safaricom. With its rapid growth, the interest of businesses was great, a significant number began to adopt this service, by allowing their clients to perform different activities via mobile (Kendat, Maurer, Machoka, & Venard, 2011). It turned out M-Pesa was a great success in Kenya, though its replicability in other countries is questionable because it appears that Kenya had an appropriate environment for such a success. Environmental factors in Kenya were crucial because they set the scene for a successful development (Heyer & Mas, 2009), also the service design features served as facilitators for the rapid adoption of M-Pesa (Mas & Morawczynski, 2009). Another factor was the Safaricom's execution strategy (Mas & Ng'weno, 2010). M-Pesa's success in Kenya can be attributed to the favourable market conditions and to a presence of unmet needs (Heyer & Mas, 2009). Some of these enabling conditions were: demand for domestic remittances, a banking regulator that permitted Safaricom to experiment, poor quality of alternative financial services and the fact that Safaricom was the leader of mobile operators market.

M-Pesa diffusion in other countries

In fact, mobile banking services have been launched also in other countries, like Afghanistan, Mexico, Thailand, and Sudan in 2008; Colombia, Rwanda, Uganda and Tanzania in 2009; India in 2011; and Eastern Europe in 2014; but not all of them were as successful as Kenya's case (Flores-Roux & Mariscal, 2011). M-Pesa has the capability to take advantage of the economies of scale, from the demand for remittances to the support from banking regulator (Heyer & Mas, 2009). Actually, M-Pesa itself can be used as a benchmark for other mobile money launches and operations. Almost every new mobile money operator has tried to emulate the success that Safaricom achieved.

Sub-Saharan Africa was a perfect environment for the growth of mobile money industry (Hinz, 2014). The main reason was the large number of unbanked populations, the existence of many barriers for an individual to access formal institutions and a well-established market of mobile phones. However, these types of initiatives didn't follow the same path outside of Africa. First of all, it must be stated that mobile money services did not have a strong appeal to the majority of developed countries (World Bank, 2014). These countries do not have the same problems as the developing ones, and they might find the same services that mobile money platforms offer in other already existing providers. Citizens of developed nations already have access to financial services; they don't suffer from financial exclusion and are massive users of credit cards, which provide more than what M-Pesa's implementers have promised in developing countries. In addition, many believe that platforms such as M-Pesa won't ever reach the United States or Western Europe. Due to the lack of mobile banking existence in Eastern Europe, which is known for its cash dependence (Hinz, 2014), Vodafone, after a market analysis, decided to implement M-Pesa in Romania, aiming to reach about 7 million customers (The Economist Intelligence Unit, 2014), and later in Albania. In April 2015, the Central Bank of Albania approved and issued the license for electronic money service to Vodafone M-Pesa, being the second in Europe to do so.

M-Pesa, most recently

Vodafone marks the 10th anniversary of M-Pesa as the world's leading mobile money service provider. During 2018 were processed a record of 1200 M-Pesa transactions/second. Vodafone now offers M-Pesa services mainly in Asia and Africa in developing countries such as: The Democratic Republic of Congo, Egypt, Ghana, India, Kenya, Lesotho, Mozambique, Romania and Tanzania. As of the end of December 2018, M-Pesa served almost 33.4 million active customers through a network of more than 206.940 agents.



Despite the positive statistics from year to year, not all developing countries succeeded in implementing M-Pesa. The fact is that M-Pesa has to date never been able to duplicate the success it enjoys in Kenya, where it launched in 2007 and today has more than 15 million subscribers who transact as much as 60% of the country's GDP over the mobile platform. There are two reasons for this. Firstly M-Pesa's parent Safaricom, a mobile operator partly owned by Vodafone, has quasi-monopoly status in the Kenyan market. And secondly, M-Pesa was quick to establish a huge agent network, mostly mom and pop shops, where subscribers could easily cash in or out. No European country is likely to offer up this perfect storm of conditions, so Vodafone's M-Pesa had better prepare for an uphill battle (EUI, 2014).

During 2017 both countries in Eastern Europe abandoned this service as a result of the failure to meet the target objectives. The same had happened with South Africa on 2016. Vodacom, the provider of M-Pesa declared the service interruption due to failure to reach the target number of customers. In six years from the launch, M-Pesa has only 76,000 active users far away from the target of 10 million (BBC Africa Business Report, 2016).

Vodafone Romania, the second operator in the domestic market, decided to finish this service after "detailed assessment of its evolution". According to the Ministry of Finance, "Vodafone Romania M-Payments, the branch managing M-Pesa at country level, suffered a loss of EUR 2.5 million (Romania Insider, 2017.) One of the main reasons was competition with Romania's Orange operator, who had previously been mobilized with mobile money in other countries and has already conducted remittances circulation with different countries (Riecke, 2014).

On July 2017, Vodafone announced that it would terminate the M-Pesa service for their 250,000 customers (Monitor, 2017). The reason was never declared officially. Based on the authors' searches some of the causes M-Pesa failed in Albania were: 1) the existence and well-functioning of the domestic financial system as well as electronic payments, before the M-Pesa was involved in the services market; 2) the technology used for M-Pesa, (USSD), was old, unlike what Albanian operators offer, which are constantly upgraded and modernized and the same can be said for mobile devices; 3) the size of the country avoids the necessity to use M-Pesa for payments or other money transfers within the country; 4) emigrant remittances in recent years have been unsatisfactory compared to the expectations; 5) the culture and financial literacy.

Conclusions

When revising current findings and latest studies, it was interesting to analyse the process of M-Pesa's diffusion. Findings from Kenya's case were analysed and compared with other countries. Thus, it could serve as a reminder that even in similar environments and settings to those where mobile money services are implemented, not always situations show success. Mobile payments services such as M-Pesa have been most successful in economies with fragile institutional structures, including weak banking systems.

The great success of M-Pesa in some of the not much developed or still in development African countries, was not to be considered an assurance for its success in Albania. On the contrary, the failure to succeed in another European country such as Romania, almost at the same time, should be the confirmation that the country specific development conditions play a crucial role. Let's not forget South Africa, which interrupted M-Pesa, while many states around it continue to use it successfully.

Conclusively, the diffusion of Information and Communication Technologies has been proven to be a complex process that can also be viewed from four country-level aspects: economy, culture, technology, and politics. When specifically analysing Mobile Money diffusion, the main factors that influence were shown to be: regulation environment, existing alternatives, cellular market landscape and service providers' market share.

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Fiscal Policy Challenges for Countries that Join the EU

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Abstract

The choice of fiscal policy is one of the most controversial issues of the role of government in a country's social and economic life, not only by economists, but by a wider range of people. This article will discuss some of the issues on which the fiscal policy debate remains open. The analysis will focus on both the theoretical approach and the role that fiscal policy has played in our country, going further on some suggestions for the future. It will also analyze the status of fiscal policy in Albania seen in the context of fiscal sustainability. It will address the role that fiscal policy plays in social issues and the role of politics in the choice of fiscal policy. In a country with high level of poverty and an economy that requires large investments, the choice of fiscal policies is a controversial issue. This issue will focus on their impact on the economy of our country. The article concludes with conclusions and recommendations.

Keywords: Fiscal policy, Economy, Tax, Fiscal evasion.

Introduction

Fiscal policy is the use of government spending and taxes that affect economic activity. Fiscal policy is a very important topic in world literature. But also a difficult challenge for different countries, due to the competitiveness of the countries that have each other to attract foreign investment. But this challenge remains even more difficult for countries aiming to move towards the EU. Given the fact that Albania has been involved in the integration plans in recent decades and we are facing some dilemmas.

On one hand we aim for the EU but this will necessarily lead to fiscal policy approximation, not that we are directly asked for leverage or something like that, but it looks like the challenges will be the same, the need to raise revenue will be the same, and we also have a set of boundaries that will necessarily affect the different tariffs.

On the other hand, we aim for more foreign investment. But given this, we know very well that the biggest investors in our continent, but also very important in the world, are some of the EU countries. And as we are aligning policies with them, fiscal policy necessarily needs to be aligned with those of European Union countries.

Fiscal policy itself has several goals, such as: to reduce the impact of economic cycles on economic growth, in employment, and to assist in its growth in order to provide a higher level of employment.

Fiscal policy relates to government actions to change the composition of public revenues and expenditures, with the aim of managing aggregate demand to maintain sustained economic growth with relatively high employment, no inflation generation, no increase in public debt and a satisfactory balance of payments. When the government is in charge of fiscal policy, it preliminarily evaluates a large number of factors including the performance of key economic and financial variables and indicators, due to their impact on the amount of tax revenue collected to meet the financing needs of government programs.

The discussion surrounding the impact of fiscal policy on economic growth is very relevant, as the development of appropriate fiscal instruments leads to continuous and sustained economic growth. The purpose of this paper is therefore to analyze the relevance of fiscal policy to economic growth in the case of a small country with an open and developing economy - Albania.

Methodology

The methodology is selected in accordance with the purpose of the study and includes various ways and instruments for collecting the necessary information. A methodology consisting of a combination of primary and secondary data was used to carry out this study. A considerable part of the secondary data is provided through the use of electronic libraries. The theoretical review is based on the legislation on the fiscal policy system. Information from various literatures has also served for this study.

The Qualitative Method, through which we provide understanding and clarification of case studies, research objects, from a historical and philosophical perspective, gathering data and information for the purpose of comparing cases or based on a single case study.

The Quantitative Method is used for the processing of which we rely on numerical data that are commonly presented in the form of statistics.

The methodology and methods which are used are:

1. Deduction - this method enables us to achieve research goals, starting with the general and reaching the intended target, namely the particular. In this case, the functioning of the value added tax, which is applied in most countries of the world in general, has been studied and analyzed and the focus has been on fiscal policy analysis.
2. Descriptive - here we have collected various materials and reports that deal with the study of taxes in general and in particular value added tax in Albania. In this case, literature has been used by various internal and external authors, reports, studies by various agencies, and research published by organizations dealing with studies in this field. The design of this study is based on the following: Using local publications data from the: Ministry of Economy and Finance, Economic and Fiscal Council, Central Bank.
3. Comparative analysis - the materials used in this paper have been analyzed and compared with each other in order to be as objective as possible in the research.
4. Econometric model - is used to test the factors that affect it.

Hypothesis

"Reducing tax evasion is a key factor for the country's economic growth"

The hypothesis is an assertion expressed as a statement. The hypothesis should be considered as the formal version of the researcher's conjecture, which then he subjects this hypothesis to a complicated and detailed testing procedure, known as Hypothesis Testing. The hypothesis may predict a direction or express an acceptable relationship between variables.

What are known as basic or neutral hypotheses are very common, one case it might be "the average grade of a university depends on the average grade of high school", this is not true at all, there is no relation between the two parts of hypothesis. In this case the hypothesis is called null. The null hypothesis tells us that there is no correlation, whether similarity or difference between the subjects being compared.

Fiscal Politic

"... It is important to have the right monetary policy, but even more important is to have the right fiscal policy (*Warren Buffett*) because fiscal policy is expressed and based on relevant financial laws and consists of government intervention to meet the costs of the government through the administration of the revenue collected through the fiscal system. A typical and quite limiting problem that governments face in this area is fiscal evasion.

Fiscal revenue is the main source of revenue for a state. Fiscal policy has the initial objective of guaranteeing minimal budget revenues. But once the financial sustainability of the state is guaranteed, the state sets other fiscal policy objectives.

The great thing about fiscal policy is that it has a direct impact and does not require you to tie the hands of future policymakers! (*Paul Krugman*). Typically, there are two distinct and opposing attitudes in the area of fiscal policy, both of which depend on political options and each has its own limitations. On the one hand, we have a fiscal policy that relies on relatively high fiscal burden on large incomes, thus favoring a redistribution of income to society; its downside lies in limiting the cash that the "rich" can spend on investment, and this, in turn, limits economic growth. On the other hand, we have a uniform fiscal obligation, or "flat tax", that preserves investment, but with potential negative consequences on consumption,

namely the middle and poor classes, which make up the vast majority of consumers. The decrease in disposable income affects the reduction of demand in the market and consequently there is a restriction on supply and consequently on production, investment and economic growth itself.

Tax evasion

The meaning of the term tax evasion, according to the science of finance, relates to all actions intended to reduce or eliminate the fiscal contribution to the state offered by citizens or entities, in violation of specific fiscal provisions and norms. Tax evasion is the non-payment of tax liabilities arising from the law. Tax evasion has a devastating effect on the fiscal policy of the government causing the State a small loss from its fiscal revenue.

Tax evasion is possible through several actions that take place in very different situations:

- performing sales operations or services without issuing a regular invoice for the action taken against the citizen / consumer (so-called "black" sales);
- completion of false declarations of income resulting from inadequate or misstatement of the fiscal statement that results in the missing payment of real liabilities;
- conducting an economic activity outside any rules: for example, "after work in the black" by employees (public or private);
- albeit in regular working reports, receiving part of the remuneration in undocumented, consequently non-taxable form through cash (the typical form of integration or remuneration used in micro or small enterprises);
- after being subject to an agreement between the employer and the employee, changing the nature of the items accompanying the payroll, for example, by giving false (non-taxable) transfers in order to eliminate taxable items (for example, payments
- covert agreements with the client of the enterprise or the autonomous worker to reduce or completely eliminate invoices or change the nature of the items;
- filing fiscal documents to entities that are not real so that they can be accounted for at cost (in order to fictitiously reduce the taxable amount);
- non-payment of taxes or duties for the benefit of services or non-compliance with mandatory requirements, for example non-payment of TV, local service taxes, etc.

To give a quantitative measure of the magnitude of the tax evasion phenomenon, both at the individual and collective level, in addition to giving the total amount of evasive funds, the evasion index can be defined and calculated as the ratio between evasive funds and total of funds that the State should receive from taxes and levies. Another index, the macroeconomic index is the ratio between total evasive funds and GDP.

There is also a much heavier variant of evasion, fiscal fraud, which is carried out with sophisticated mechanisms that create a regular apparatus under which evasion is kept secret, making the task of controlling financial management more difficult. A typical instrument of fiscal fraud is the accounting for fake purchase invoices to reduce the taxable amount. Revenue from tax evasion and tax fraud goes into the so-called "underwater economy".

Tax evasion is punishable by fines and above a certain limit on the reduction of the taxable amount, even criminally. Fiscal fraud is punished far more severely by simple evasion, depending on the degree of economic damage and risk.

The Econometric Model

In this doctoral thesis I have built an econometric model based on independent and dependent variables that are oriented on the key components that build and implement fiscal policy. As a dependent variable we have received tax revenues which we study and analyse

In this model I used the Dickey - Fuller test, the Granger Causality test, and the regression model.

Augmented Dickey-Fuller

The Dickey-Fuller test tests the null hypothesis that a unit root is cored in an autoregressive model. Alternative Hypothesis is Variable depending on which version I try is used but it is stationary or stationary trend. This is a version I testify to

Dickey-Fuller for a great band and honors me with your timely model. Dickey-Fuller statistics (ADF), the test used, is a negative number. The more negative I get, the stronger the rejection of the hypothesis that there is a unit root at some level of belief.

Null Hypothesis: Tax Revenue has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	1.059766	0.9929
Test critical values:		
1% level	-4.297073	
5% level	-3.212696	
10% level	-2.747676	

*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations and may not be accurate for a sample size of 10

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(TAX REVENUE)

Method: Least Squares

Date: 06/03/19 Time: 21:57

Sample (adjusted): 2009 2018

Included observations: 10 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TAX REVENUE (-1)	0.106434	0.100432	1.059766	0.3202
C	-18303.35	32154.72	-0.569227	0.5848

R-squared	0.123105	Mean dependent var	15491.33
Adjusted R-squared	0.013494	S.D. dependent var	13138.40
S.E. of regression	13049.46	Akaike info criterion	21.96774
Sum squared resid	1.36E+09	Schwarz criterion	22.02825
Log likelihood	-107.8387	Hannan-Quinn criter.	21.90135

Null Hypothesis: PBB has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=1)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-0.161840	0.9152
Test critical values:		
1% level	-4.297073	
5% level	-3.212696	
10% level	-2.747676	

*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 10

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(PBB)

Method: Least Squares

Date: 06/03/19 Time: 21:58

Sample (adjusted): 2009 2018

Included observations: 10 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PBB(-1)	-0.009718	0.060045	-0.161840	0.8754
C	67004.59	80337.16	0.834042	0.4285

Since hypothesis testing is done using the time series of economic variables then the variables must first be tested for the statistic and the possibility of co-integration, that is, the presence of a long-term relationship between them. Constant variance and auto-covariance that are not dependent on the time^t, that is, the time series tends to move toward the long run average.

Granger Causality Tests

Y The Granger causality test is a statistical hypothesis test to determine if one time series is useful in predicting another. Usually regressions reflect correlations simply but Granger argued that causality in economics could be tested by measuring the ability to predict future values in one time series using previous values of another time series. Since the question of "true causality" is profoundly philosophical and due to the post hoc ergo propter hoc error of the assumption that one thing before another can be used as a proof of causation. A Time Series X BY Granger - causes Y if it can usually be shown through a series of tests t and F tests for residual values of X (and with residual values of Y also included), that these values of X provide statistically significant about future values.

Pairwise Granger Causality Tests

Date: 06/03/19 Time: 22:00

Sample: 2008 2018

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
TAX REVENUE does not Granger Cause PBB	9	4.23015	0.1031
PBB does not Granger Cause FISCAL REVENUES		0.13557	0.8771

The **Granger Agility Test** is based on the premise that the future cannot cause the present or the past by using the concept of autoregressive model. This test attempts to determine how past values of one variable help predict changes in another variable. This test depends entirely on the observed or otherwise stated variables.

Regression

Regression Analysis is used to predict the value of the dependent variable based on an independent variable. The dependent variable is the projected or estimated variable. The independent variable is the variable that provides the basis for evaluation.

Dependent variables are variables that we want to predict or explain. While independent variables are the variables we use to expedite the dependent variable.

Dependent Variable: TAX REVENUE

Method: Least Squares

Date: 06/03/19 Time: 22:02

Sample: 2008 2018

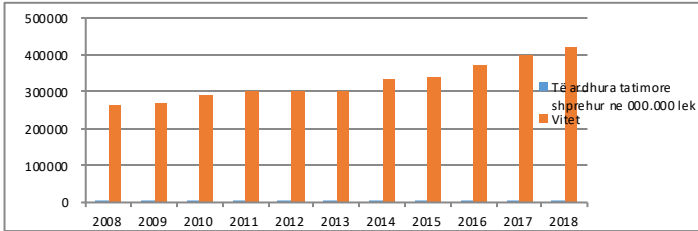
Included observations: 11

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-83963.84	37621.32	-2.231815	0.0525
PBB	0.302423	0.027519	10.98947	0.0000
R-squared	0.930646	Mean dependent var		326774.1
Adjusted R-squared	0.922940	S.D. dependent var		51290.27
S.E. of regression	14238.04	Akaike info criterion		22.12819
Sum squared resid	1.82E+09	Schwarz criterion		22.20053
Log likelihood	-119.7050	Hannan-Quinn criter.		22.08259
F-statistic	120.7685	Durbin-Watson stat		0.688469
Prob(F-statistic)	0.000002			

Regression analysis is a statistical technique that uses the observed data to relate the dependent variable to the independent variable. The objective of regression analysis is to construct a regression model (or predictive equation) that is used to predict or control the dependent variable based on the independent variable.

Referring to the budget data, regarding the tax revenues and expenditures that affect the economy of the country, we graphically present the following:

Figure 1 - Tax Revenue

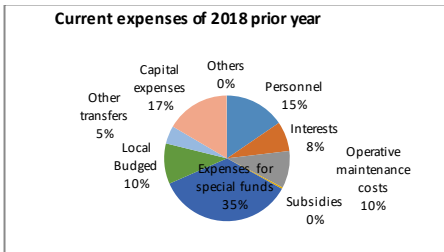


Tax revenues are the main item of revenue in the state budget. Tax revenues in the state budget consist of tax and customs revenues, revenues from local government and revenues from social funds (contributions). Tax and customs income consists of value added tax, profit tax, excise tax, personal income tax, national tax and customs tax. During 2008-2018 there have been significant fluctuations and changes in tax revenues, for various reasons.

Tax and customs revenues are revenues collected from all types of taxes and duties levied by the central government. Responsible for their collection are the Directorate General of Taxation and the Customs.

In recent years the General Directorate of Customs has had a steady increase in revenue collection which is its competence. In recent years it has had the highest growth in 2017 compared to previous years where tax and customs revenues have increased by 18.9%. Tax and customs revenues have taken into account all the main factors influencing the budget, including the effect of economic growth and price index. New fiscal policies have led to steady year-on-year economic growth that has impacted the country's economic growth.

Figure 2- Expenses of 2018-n



The figure above shows the structure of state budget expenditures. We see that the largest percentage is spent on special funds. Expenditure on special funds is the main item in this category. In 2018, according to the consolidated budget data, this share is 35% of total Budget expenditures. There are three main components of Special Fund expenditures: social security costs, health insurance costs, and owner compensation. The largest share is occupied by 17 percent of capital spending. Capital expenditures are expenditures that will result in some fiscal periods being otherwise considered investments. From the data in the Consolidated Budget, 17% of capital expenditures were made. Personnel costs are the third most important item in terms of weight. Consolidated Budget 2018 staff costs are 15%. According to the data, with 10% we have the local budget and operating and maintenance costs, then we have other items that have a relatively smaller percentage. The largest share is spent on special funds and capital expenditures, which play an important role in the country's economy.

Conclusions

- Fiscal policy affects the improvement of the economic structure.
- The state intervenes through fiscal policy instruments to regulate the balances needed for a better economy.
- Fiscal policy is a component of state economic policy that is used for macroeconomic purposes to influence the level of output, employment and prices.
- The state's intervention in economic flows through fiscal policy is justified by the adjustments made to eliminate the phenomena that impede the maintenance of the general welfare of society.
- Fiscal policy is one of the components of state economic policy that is used for macroeconomic purposes affecting the country's economy.
- Governance by applying fixed fiscal policy instruments has a positive impact on the country's economy. Political stability, economic efficiency, fair management of public finances, implementation of development fiscal policies and the promotion of fairness and equitable distribution of income can then be said to be the path to successful economic growth.
- The orientation of taxation in these countries generally reflects an improvement of the personal system, making it more efficient in both tax collection and further tax management. This has resulted in an increase in public revenues and a decline in national evasion.

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Economic Function and Financial Literacy of Modern Family

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Abstract

The economic function of the family is expressed in the provision of material subsistence for its members, in the provision and consumption of subsistence. The paper looks at the post-modern urban family's placement in terms of means of production and its consumption role. How are the functions of the modern family related to providing and meeting the needs of members? Is there a model for economic insurance of family income that builds its stability and sustainability? How to realize the family's desire to raise their standard of living? What are the forms of economic cooperation within the family? These and other issues related to fulfilling the economic role of the family is the subject of an analysis in the paper on the basis of several elements and issues that are constantly relevant. The paper particularly recognizes the importance of financial literacy for family members. How to develop and on what grounds to base people's financial cognition? What is the knowledge to create and manage a family budget as a detailed overview of finances? The formation of economic and financial education is perceived as the basis for improving personal and family finances. At what level and by what methods can the financial knowledge of family members be improved? Financial literacy limits the opportunities for growth, development, and satisfaction of the needs of the family and its members. The paper analyzes the role of the educational institutions in raising the economic and financial literacy of the members of the modern family that is of interest to any society. The economic function of the family is also considered in the context of constant social changes and external influences that limit the possibilities of family members. Only educated and skilled individuals can manage social processes and influence standard-raising.

Keywords: family, economic function, financial literacy, family finances and personal finances

1. Introduction

The family can be perceived and analyzed from many aspects. In a social sense, the family is a social community of its members, mostly parents and children, although there are a number of single parent families, followed by families without children and family communities, which are members of several generations. Common to all families, regardless of the number of members or the number of generations living in them is the fact that members live in the community. Any person living alone (single household) with no household elsewhere is also considered a household.

The so-called collective household is also considered a household. Collective household, i.e. a household made up of people who live in institutions for the permanent care of children and adults, in monasteries of solitary confinement and in hospitals for the treatment of the incurable. Living is usually within the same housing unit or within the same household, although there are a number of families whose members are temporarily separated (for study, distance work, etc.).

The family members are referred to each other, living in a community, sharing a living space, together contributing to the family's income and expenses, commensurate with age, status and opportunities.

In a sociological societal sense, the family as part of a community has the responsibility of its members, their participation, behaviour and action in the immediate environment. Family relationships are very important for good functioning and even for the survival of the family. The family is said to be the foundation or base of every society and only stable families create a stable society as a whole.

According to separate estimates, two or more persons living in the community constitute the household, although according to terminology and one family community is often equated with the concept of household. The organization and functioning

of the family are largely influenced by cultural contexts, educational opportunities, demographic and many other characteristics.

Every family, regardless of the number of members, has certain income and expenses that are related to some of the family members as well as the family as a whole. Some family members are carriers of income, while all family members are carriers of expenditures.

In addition, family members have certain funds and property that are generally available to all family members.

Therefore, the family can also be seen as an economic community that provides a range of functions and opportunities for cash flow analysis, property and resource management, and family investment activities.

2. The family as a consumer community

Every family, regardless of the number of members, is in some way a consumer community. Family members, regardless of age and gender, are consumers of various goods and services.

Individuals from the point of view of individual economic entities in the macroeconomic sense are generators of aggregate demand and as such are an important part of the overall economic activity. In support of this thesis are two of the most conflicting concepts regarding measures to reduce the negative effects of the global economic crisis that has shaken the world economy in recent years.

One group of authors argues that the recovery of the world economy may be based on the concept of increased demand, which presupposes measures that are opposed to saving and abstinence from consumption. Another group of authors believes that savings are the only activity that can provide long-term economic growth and increase social output.

Both concepts are fundamentally closely related to the finances of individuals, and thus to family finances.

The first concept stimulates consumption. This means that economic policy-makers, through various measures, laws and regulations, create an environment in which wage and pension restriction is kept to a minimum. This concept recognizes individuals as end users of goods, services, consumers, and demand-makers. All products and services, directly or indirectly, are designed to meet the specific needs of consumers, i.e. individuals.

By stimulating consumption, the final consumers of goods and services, or individuals at the retail price, also pay taxes, that is, value added tax. Greater consumption means higher inflows into the state budget. In addition, the reduction in wages commensurately leads to lower amounts of taxes and contributions, and any restriction and reduction of wages has a negative impact on the inflow into the state budget. This concept explains the close links between personal finance and measures to foster economic growth.

The second concept, or the concept of savings, provides for greater accumulation and prudent credit debt. This leads to a limited ability to stimulate consumption by stimulating economic activity and by increasing inflows into the state budget. And this concept, like the first one, recognizes the importance of financing individuals in the economic system as a whole. The second concept more recognizes the importance of responsibility in managing personal finances arising from modesty and with less credit debt.

Consumables for most families are the most important element of total spending, which is very important when planning a household budget. Given that the family is made up of its members, the sum of their needs represents the needs of families that are funded by family members who have income. Families plan their costs, investments, accumulation as an economic community, and to some extent and characteristics of a specific economic entity.

3. Balancing family finances

The finances of individual family members can also be analyzed through financial flows. The fact is that all the inflows and outflows of family members cannot be related to one single person, a family member (in families with multiple members). Needs, consumption, and investments do not have to be directly related to a particular member of the household, but to all members of the family.

The modern family as a community is usually composed of three to four members. In the past the number of family members was significantly higher (after several generations living in the community, with a larger number of employers, etc.)

In modern times, the family usually consists of carers and dependents (parents and children, but it can also be the elderly as carers or dependents, or both).

The financial flows of the family can be different. The basis of family income is the personal income of the guardians. It is assumed that the guardian (parent) is employed, and on that basis, the family may have regular incomes. If a family member is a pensioner, the pension is another regular monthly allowance (although there are cases where the pension may be the sole source). In addition to these inflows, there are others on a variety of grounds: rental income, capital gains, work contracts, copyright revenue, securities trading income, family business income (family stores, activities and enterprises...).

All the aforementioned earnings vary in amount and in regularity. Rent may be a regular inflow, depending on the lease agreement, while capital gains may be in greater amounts but not regular. Interest on savings deposits is regular but with a smaller amount (the amount of interest remaining after paying the capital gains tax on individuals). Income from work contracts is regular inflows, but they are a good addition to regular inflows.

Revenue from trading in securities is less represented as the securities market depends on supply and demand and the number of participants.

A family business can be a significant regular income stream but also an outflow, which needs to be analyzed separately.

Family expenditures comprise current family life expenses as well as possible investment costs (for various purposes) if the family generates sufficient free funds to decide on an investment activity.

Managing family finances implies the process of planning the inflow and outflow of family funds on all bases and at different time intervals. Inflows and outflows of assets are possible in different forms, different ways of financing property and assets, thereby creating the opportunity for family finances to be balanced (presented in balance).

4. Economic function of the modern family

The economic function of the family is expressed in securing the material subsistence of its members, in securing and spending their livelihoods. The modern urban family often lacks the means of production. It is no longer a "producer community", that is, a production unit as in the patriarchal family, but rather consumption, consuming unit, i.e. "Consumer community".

In order to be able to fulfil other functions qualitatively, the modern family with its work and income must provide for and satisfy the existential needs of its members. The economic security of the subsistence, that is, the income of the family, plays an important role in its stability.

The family strives to raise living standards. Living together requires sufficient food, clothing, footwear, housing, and means of sustaining biological and spiritual life. Sociologist George Peter Murdock, who is sympathetic to the nuclear family community, (quoted by Haralambos and Hoborn (2002)) "... admires the division of work within the family, namely the specialization of husband and wife for certain activities ... "Such economic cooperation within the family not only largely fulfils the economic role, but also gives spouses who work together, a number of positive experiences that strengthen their community."

In general, the idealization of the family as an irreplaceable, ideal community comprised of mother, father and their children is contained in Murdock's explanation. In contrast to Haralambos and Hoborn (2002) in his critical review of Murdock's explanation of foundational functions, family functions are mentioned as "in his enthusiasm for the Murdock family, he has not seriously considered the possibilities that they may also have aggressive behaviour in the family. To the participants - all these are functions that can be performed in other social institutions, so it did not consider the possibility of an alternative family ... That is, the nuclear family is an extremely harmonious institution in which a man and woman have an integral division of work and enjoy life together."

Transferring family functions to other social institutions is a very subtle and sensitive area. Work is about the so-called socializing-educational function of the family, which, in modern conditions, can also be performed by a person or organization outside the family. From there, the economic function of the family needs to be considered more narrowly, but also in the wider context of the community because of constant social change.

5. What is a family budget?

The budget is, by definition, a tabular overview of all inflows and outflows, that is, of all household income and expenditure over a given period of time.

We can talk about monthly, semi-annual, annual and multi-annual budget.

Every family should have knowledge and manage the family budget as a detailed overview of the inflow and outflow of finances. It does so at the state level both in companies and institutions.

Planning and managing finances is especially important if the family is planning more financial activities such as buying an apartment or house, household and more significant household needs, traveling, sending family members studies, various important expenses, purchasing securities, and so on.

It takes several steps to determine a family's income and expenses over a period of time.

For the revenue side, if it is a month, all incomes that are realized and made during one month should be reviewed. Income can come from a variety of sources besides salary, it may be from allowances, dividends, income from property or from copyright contracts, rents, etc. The amounts are deducted on a monthly basis, which gives an overview of the income and the actual spending opportunities that the family has as a potential sum of money.

For expenses, or the expenditure side of the budget, a precise record or list of regular monthly expenses should be made starting from the bills for water, electricity, steam, rent, food, clothing and other overheads incurred by the family. No expense on loans, interest, phone bills, kindergarten, school or college for children and more should be left out.

On the expense side of the family budget, there may always be some extra expense associated with events in the daily life of the family, a celebration (wedding, circumcision, baptism), and some adverse events such as illness, penalties, death, burial and more. Various sources can be used to determine costs, such as bank statement of expense, monthly expense accounts, personal records, and more. Whatever the source of the information, it is important to consider all costs on a daily, monthly or yearly basis.

6. Revenue vs. Expenditure

After a detailed overview of revenue (outflow) and expenditure (outflow) it is necessary to compare or contrast these two categories to obtain a result that can be positive, negative or zero. Comparisons can be made at different times.

If the result is positive, i.e., the income exceeds the expenditure, it means that the family budget has room for a certain level of savings. If the savings accumulate, it can help cover an unplanned expense or meet a specific need of a family member.

If revenue and expenditure are equidistant then a way to reduce costs and find an additional source of revenue to enter a positive spending space should be checked or found.

If spending outweighs income, it is a sign that the family is living beyond its means and must find a way to cut costs and increase income. This is possible with extra work, a contract or a royalty, but at the same time cutting down on unnecessary expenses or proper family budget planning.

7. How to create a family budget

Creating a family budget is a very important financial strategy for those who want to achieve financial freedom and economic stability. Whether your monthly income is 1,000 Euros or 100,000, financial planning is very important. It is like a map that should guide you to the right destination in life. So how to create a family budget is essential for those who want to meet their needs and overcome the financial difficulties they may encounter. It is important to have a plan and to respect it.

Some people, especially new couples, find it difficult to create a family budget plan. It should be remembered that anyone can learn how to create a family budget with practice and motivation. Therefore, one should not have excuses not to make a strategy. There are a number of things that need to be done in order to comply with a financial plan:

Make a list of all sources of funding - Write down all the things that have to be bought, as well as the sources of your income. Extra contingencies should be listed.

List all monthly expenses - Loans, credits, repairs, charitable donations, travel, gasoline, hairstyle and manicure, and even the smallest ever-increasing costs, etc. All costs should be covered, as anyone who wants to create a family budget should not lie to himself. You have to be honest and impartial.

Compare Income to Costs - Subtract Costs from Family Income. The amount left over for a given month doesn't mean you have to spend it on unimportant things. Plan how you will spend them. You can set aside funds for occasional dinners, outings, the whole point is to know where your money is going, for what purpose and at what times.

After comparing income with expenses, many are confused and even shocked, as it is often concluded that in certain months, they spend more than they earn. This is an important issue that needs to be resolved to achieve financial stability effectively in the future.

Study the budget This is also important because costs that are forgotten can be added to the list. Expenditures that can be reduced or eliminated need to be carefully considered. Families who want to achieve financial stability should set goals for the next six months.

It is important to establish a savings routine. It is a gradual process that can take time. But do not give up and stick to the plan.

8. Marriage and partnership ways of organizing and managing

Money, like marriage, can be organized in different ways, or not at all. The five most common ways in which spouses organize and manage their finances are in different environments, in different countries and based on different bases and degrees of trust.

In principle, spouses use one of the common family financial management systems:

1. He gives his wife the salary and responsibility to manage their money while she gives him a budget for his own consumption.
2. He manages the finances, and gives the wife a budget in scale to meet household needs and her personal consumption.
3. The money they make is completely separate. Everyone independently manages their finances for themselves.
4. There is agreement and consent that some of the money be allocated and used for household needs, but with the remainder of the money each spouse independently disposes.
5. A common system in which both partners' incomes are pooled and money is managed jointly.

The question arises whether there are other forms of organizing and managing family income, resources and expenses. There are, of course, a number of nuances that can, for the purposes of analysis, be reduced to the five systems outlined.

Research has been carried out that raises several questions:

- Which of the more complex systems provides a higher level of satisfaction for the needs of the family,
- Do some of these organizational forms lead to disruption of family relationships, displeasure with other members of the family community,
- In which system the position of the woman or the man is better,
- Is it easier to manage when revenues are higher or lower,
- Which systems are suitable for couples who have more money and those for those who have minimal amounts of money.

The results of the research showed that the fifth system or the existence of a joint system or fund of funds is the most acceptable solution for both spouses in marriage. The most unacceptable is the solution or system number two (in which the husband gives the woman a certain amount of money). Observations have shown that most of the systems listed above give preference to men.

The system in which a man gives a woman a pocket money, people associate with families who have more money, and a system 1 (in which a woman controls money and gives a man a pocket money) usually connects to families with less money

In order to benefit from the use of mutual fund and joint money management, both partners need to have a bit of trust in each other, a commitment and a willingness to work together. Such a system is also culturally conditioned and is very common in all developed countries, except in Japan, and in up to 75% of marriages.

The second system in which a man gives his wife "pocket money" bothers men because they take over the financial power, and thus the responsibility and care of money. Women, on the other hand, dislike this system because they feel that men have a last word in the financial matters. Interestingly, though it does not fit on either side, this system is most common in high-income couples, highly educated, and couples who have traditional understandings of the role of spouse.

Women are not too happy either with completely separate funds, or the system shown in item 3, or with a partially mutual fund (item 4), because they feel that men benefit much more from them, while men are generally neutral. On average, men make more money, and in these systems they keep more money for themselves, while women pay half of their family bills and eventually use their money for household and family expenses.

With the solution of point 1 women are usually not very happy, because such a system is associated with scenarios in which families have to "make money" in the best possible way. Then women see money management as an additional obligation in the house, not as a source of power and control while other family members put their needs above their needs. Unlike other developed countries where common funds and joint money management are common, this system is most common in the family in Japan.

9. What is financial literacy?

Financial literacy is the most important tool for anyone who intends to become a business owner or professional investor. The sophisticated investor should be able to read numerous financial documents, primarily reports such as income statement and balance sheet.

Financial literacy means knowledge of the financing of individuals, families, companies and the state. The money that is earned should be spent wisely, invested and increased, and the acquired profits to be kept and used for own needs and development.

Today's complex financial services market offers clients a wide range of products and ways to meet their financial needs. This degree of choice requires clients to be equipped with the knowledge and skills to evaluate options and identify those that best serve their needs and conditions. The financial literacy is especially needed to help people to understand how to protect themselves from entering into transactions that are financially destructive.

Being financially literate does not just mean being successful in building a business, investing in securities, or other opportunities offered by the market. Offers from banks, savings houses, stock exchanges and brokers, insurance and leasing companies and other financial and non-financial institutions are so diverse that knowledge of how to handle and manage family finances and resources is needed.

Every individual who earns, by definition, spends. **A group of people** spend as much as they earn. It's certainly better than borrowing, but are these people confident in the future? Are they confident in their workplace? What if they lose it tomorrow? **The second group**, of course, are those who live beyond their means and borrow without taking into account whether it is necessary at all and whether they are able to repay the loans. **The third and rarest group** of people are those who think about their future and invest in it. They are considered to be financially more intelligent and literate people who manage their money so that the mind makes money, property buys property, business buys business. The rule does not apply to them: it takes money to earn and make a living.

10. Financial literacy and education of family members

The education of young people in finance is particularly lagging behind in how to manage personal and family finances. It is important because educated future generations will be able to achieve financial success and become active in the field of the entrepreneurship and business.

If young people acquire the knowledge, skills and confidence they will be able to make real financial solutions for personal, family or business needs. The goal is to get financially literate and responsible citizens and entrepreneurs. In this function, education on how to create a business plan for those who are considering starting their own business is of particular importance. The author's many years of experience confirm financial ignorance rumours, especially among students from non-economic faculties and universities that require serious action in this regard.

Why is this necessary? The need for financial education exists and is increasing as debt to citizens and families increases. Young people are often not financially educated on how to deal with problems. Essential money management lessons have been missing for a long time, and debt to citizens and families has increased several times. The youth unemployment rate is high in most countries. It is obvious that the younger generation must make wiser and more responsible financial decisions and create more job and job opportunities.

Therefore, it is necessary to introduce financial literacy, personal and family finances education in secondary schools, and especially at the faculties (non-economic). It is a need and a democratic right of the citizens. This enables generations to come up with the latest trends and financial products that exist and are offered on the market.

Young people are faced with money, but the money is not a topic discussed in front of children in the family, kindergarten and school. The education system does not offer basic financial education and many young people do not know how to assess the challenges and risks of the financial market. They do not perceive the consequences of ignorance in time and therefore make bad business decisions that lead to a decline in revenue, debt and ultimately job loss.

The OECD countries in 2005 proposed introducing financial literacy in schools and many countries are attempting to do so by introducing systematic financial education in primary and secondary schools, as well as through programs promoting financial literacy of children and young people. Together with the World Bank, the OECD has established an international network of financial education that includes 150 institutions from 75 countries.

With financial knowledge, decisions are made with smaller or reduced risk in working and family life. Financial literacy builds competent people or strengthens human capital in these areas of human life.

11. How is financial literacy acquired?

Education is the foundation of every progress. It has been shown throughout history that only educated persons can manage growth and development and systemic processes at the micro and macro levels. The knowledge brings changes defines strategic goals and rationalizes their realization. Therefore, education about financial phenomena and their importance to the members of each family is necessary.

Is the rule 90/10 known? That means 10% of people earn 90% of the world's wealth, and 90% of people live in financial shackles. Why is that? The answer is simple: they belong to the third group of financially intelligent people who think about their future and invest.

So everyone should ask themselves the question: how much do I earn and how much do I spend each month? Are you spending more than you earn? If so, is debt probably formed? Can you still refrain from spending this month and save? It does not require large financial resources to get into the third group of financially more intelligent people. Saving is an introduction to financial well-being, but it is illusory to expect that if you eat cans and pasta every day and put aside less money, you will get rich.

You need to start changing your mindset by asking the answer to the question: What can I do to increase my income? Respecting and re-valuing the wisdom of the oldest generations, the wisdoms that were used as a system of values in the times of our grandparents, is becoming a necessity. The practical wisdom of the new generations and the practical application of everything that is long-lasting to the existing system of functioning of the world of finance is also a necessity. It means applying sophisticated new knowledge and wisdom in personal and family finances with modern knowledge, techniques and technologies in the world of existing and multi-stakeholder finance.

Financial literacy and educated human capital create financially free and independent people who move the family and society in a positive direction.

With financial literacy, each individual can best manage their income and expenses, investments and ventures as well as build plans for their own benefit and the well-being of the family members. This ensures the usefulness of financial literacy, which in addition to education is gained through the daily practice of money management, with diversification of investments, loss minimization and so on.

12. The Need for Entrepreneurship Education

More and more young people will have to create their own business opportunities, rather than waiting for them to plan and recruit for public or private employment. The young people are facing many challenges, from acquiring personal skills such as communication, management and presentation, to writing business plans and understanding financial statements.

Young people are the future of every society. Acting for changes and promoting responsible youth behaviour towards money and sensitizing the public about the importance of young people's financial freedoms ensures their secure financial future.

How can this be done? By creating programs in the state in which individuals can:

1. Understand their role in the market for financial products and services, gain knowledge of their rights and obligations and have an active attitude towards the use of financial funds and resources.
2. By educating them on how to manage personal or family finances in order not to get into debt that they cannot repay and therefore end up in poverty,
3. Recognize the need to save for old days or retirement, and to overcome unforeseen cash outlays.

All of these uses experiences and accomplished financial education programs from around the world, as well as models for financial education of children and young people. It enables the promotion of partnerships with the public and private sectors, financial institutions, communities and associations and other stakeholders. The sustainability and availability of financial education depends on the power and variety of preparation, initiation, realisation and evaluation of education implementation.

Topics of interest besides family resources and finances include savings management, banking, pensions, investments, insurance, taxes, and all of these topics that may be of particular interest to young people, families, and individuals who are exploring these phenomena.

13. Household Budget Management Model

Editing a family budget is no easy task. The hardest thing is to look at the truth and put all revenue and expenditure on paper (or computer) and balance all accounts. This can be simplified in a spreadsheet with careful and detailed maintenance costs. Keeping track of family expenses allows for later planning. They cannot be planned unless the funds are known both as a reality and what is spent. Those who do not like the word planning for some reason or dislike may replace the word management.

Over time, persons get a sense of how to plan revenue and expenditure.

Cost management is not an end in itself, and saving time is not wasted unless planning to save or invest. Automatically tracking how much money you spend will not change your habits because at the end of the month the goal is to have more money.

What enables tracking information is actually how much money is spent and whether one wants to continue to spend so much money on a particular category of needs. It is about personal preferences, which need to be recorded in order to be able to plan in advance the budget and the money that will be put aside and invested. Higher annual costs can be predicted in advance for the relevant month and thus avoid unpleasant "surprises".

Mandatory day-to-day management of finances If not only personal finances, but also the whole family's records are to be kept, the costs should be entered on a daily basis. It is almost unlikely that at the end of this month, you will not know where 50, 100 and more Euros are missing when comparing the actual expense accounts.

At the end of the month, your balance must always be zero if all costs and revenues are entered. A daily sheet can also be created which can be used to record daily expenses.

Household Budget Management Programs Simple tables have been created and classic records can be replaced by specialized computer programs. Some of them have gone so far that one can read data from online banking or stock market prices, so that at any time one can obtain a statement of their investment and earnings. This can also prepare the tax return, given the accuracy of the programs.

Everyone, just about everyone, but needs to know where it is heading, in other words, it needs to have a **Plan and a Strategy**. There is no one who does not have a plan and strategy, because those who do not have them actually have a poverty plan and strategy! Everyone has a plan, as he himself has chosen. Did you know that only 3% of the world's population has their own financial plan and strategy? And do you know how many rich people there are in this world? Yes, exactly 3%. And did you know that those 3% have more wealth than all 97% together?!

14. Money and marriage

Many marital problems arise because couples do not communicate well enough. Some of the problems in marriage regarding money can be solved by talking. The vast majority of money problems in marriage are not because spouses do not earn enough money, but because they do not talk about money.

Not only do they have to look at the bills and costs, but they also have to talk about the goals they jointly create. Having the same mindset or having a similar financial outlook on things will make money talks much easier. Many of the problems that arise in marriage are because couples are not in the same direction as to where the financial needs are and how to get them done.

Money is one of the leading causes of divorce. In fact, a SunTrust Bank survey found that 35% of respondents who experienced stress in their relationship were due to money. According to a CreditCard.com survey, one in five Americans say they spent \$500 or more and did not tell their partner.

For many people, discussing money can be difficult and uncomfortable. No matter what the fact is, money is one of the biggest parts of any marriage. They can make the connection stronger or it can move it in the opposite direction.

Instead of letting the money lead your marriage, educate yourself and use your finances. It is better to take control of money to improve marriage relationships, which can have a huge impact on other areas of family life.

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Analysis of the Digital Skills in the Eu Labor Market. a Case Study of the Banking Sector.

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Abstract

The digitisation of the economy has been a global trend in the last decade and more significantly during the last five years. The European Union recognises that digitalisation changes the structure of the labour market, affecting employment and income distribution. Over the last ten years, digital technologies have entered more and more sectors of the European economy. Over 40% of EU workers have been involved in changing and/or replacing the technologies they use at work. Structural changes in the labour market in Europe are closely correlated with the very high demand for advanced digital skills in the coming years. This paper analyses the political, economic, socio-cultural and technological factors affecting the development of digital skills in the European Union (PEST analysis), with a focus on the banking sector.

Keywords: digital skills; digital competences; ICT; labour market; digitalisation

JEL Classification: J24, O14

Introduction

There is no common definition so far of "digital skills" or "digital competences". In the literature, different terms are used, sometimes with different interpretations, with the general understanding that they refer to the skills of using information and communication technologies. They include "computer literacy", "ICT literacy", "digital literacy", "digital competences", "ICT skills", "electronic skills", "technological literacy", "literacy in the media", and "information literacy" (Chinién-Boutin, 2013).

The first definition was "knowledge in ICT" (Frailon et al., 2013). As information and communication technologies have become more complex and new applications have developed, broader definitions have emerged covering cognitive, behavioural, social and emotional skills. Over time, a series of overlapping (sometimes partial) definitions such as "computer literacy", "internet literacy", "media literacy" and "digital literacy" have emerged (Mutka, 2011). In 2006, the European Commission adopted the definition of "digital competence" as "the critical use of ICT for work, rest, learning and communication", considering digital competence one of the eight key competences for lifelong learning (European Commission, 2006). However, this concept is still fluid, susceptible to change and continuing to expand and change because of the rapid evolution of information and digital technologies (Ihmaki et al., 2011).

Through analysing the literature, three main categories of digital competences can be identified that are used in various models for measuring or developing digital competences. These three categories apply to different types of abilities and users (European Commission, 2017):

- a) **basic digital skills** that are, in fact, digital literacy for both personal and work use;
- b) **digital skills related to employment**, which include the basic skills to add the necessary knowledge to the workplace, mainly the use of ICT applications; and
- c) **digital competences for ICT professions**, which, in addition to the first two categories, also include the specialised knowledge required in the ICT sector, as well as an innovative component and the ability to develop new digital solutions, products or services.

Digitalisation has just started. The scale and consequences for the whole of European society are impossible to assess with precision. We are truly facing a new industrial revolution that will dramatically change our way of life and the workforce.

The European Commission has grouped digital skills into categories (European Commission, 2018):

digital skills for all—developing digital skills to enable all citizens to be active in our digital society;

digital skills for the labour force—developing digital skills for the digital economy, e.g. upskilling and reskilling workers and jobseekers and giving career advice and guidance;

digital skills for ICT professionals—developing high-level digital skills for ICT professionals in all industry sectors;

digital skills in education—transforming the teaching and learning of digital skills in a lifelong learning perspective, including the training of teachers; and

digital skills for girls and women—taking actions to develop digital skills for women and girls.

In this paper, we focus on **digital skills for the labour force** in the EU-28, with a more detailed view of these competences in the banking sector.

Methodology

The research methodology employed in this paper can be divided into two principal stages:

(1) secondary research. We conducted a thorough review of academic literature. We also reviewed public policies and programmes and market research reports; and (2) data analysis, studying political, economic, socio-cultural and technological factors (PEST analysis).

Factors determining the development of digital skills for the labour market in the EU. PEST analysis

1. Political factors

1.1. EU policies and programmes for digital skills for the labour market

With the digitisation of the economy as a global trend in the last decade and more significantly during the last 5 years, the European Union recognises that “the digital transformation is structurally changing the labour market and the nature of work. There are concerns that these changes may affect employment conditions, levels and income distribution”¹.

During the last 10 years, the European Union has launched a series of programmes and political initiatives to boost the digitisation of the economy, only to realise that the area of digital skills and competences for the labour market is lacking. According to the data of the European Commission, “currently (in 2018-n.a.), 44% of European citizens do not have basic digital skills. 37% of people in the labour force—farmers, bank employees, and factory workers alike—also lack sufficient digital skills, despite the increasing need for such skills in all jobs”².

Consequently, the European Commission issued a number of political documents, programmes and actions aimed at improving the digital skills of the workforce.

In 2008, the European Commission issued the document “New Skills for New Jobs”³ (COM (2008) 868) because of the growing need for digital competences in Europe. In this document, the European Commission recognises the increasingly important role of digital literacy and basic and advanced digital skills.

In 2010, the European Commission launched the **Digital Agenda for Europe**⁴ (COM (2010) 245), setting out a strategy for the development of a European Digital Europe 2010-2020. The Digital Agenda for Europe outlines what actions need to be taken by the EU, one of them being “Improving Digital Skills, Competences and Inclusion”.

In 2013, the European Commission launched the “**Grand Coalition for Digital Jobs**”⁵, a multinational and multisectoral platform, including public and private organisations, companies and education providers with the aim to develop digital competences in Europe and job vacancies in information and communication technology.

¹ <https://ec.europa.eu/digital-single-market/en/policies/digital-skills>

² <https://ec.europa.eu/digital-single-market/digital-skills-jobs-coalition>

³ <https://ec.europa.eu/social/main.jsp?catId=88&eventsId=232&furtherEvents=yes&langId=en>

⁴ <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A52010DC0245R%2801%29>

⁵ <http://www.digital-europe.org/Our-Work/Projects/Grand-Coalition-for-Digital-Jobs2>

In 2015, the European Commission drew up the strategy for a **Digital Single Market in Europe**¹ (COM (2015) 192), which underscores the need to create, *inter alia*, an inclusive digital society in which citizens have the digital skills they need to benefit from the opportunities offered by the online environment, but especially to increase their chances of getting a job.

In 2015, the European Commission also launched **The Digital Competence Framework 2.0**² (DgComp 2.0), which identifies 5 key components of digital competence for citizens: (1) information and data literacy; (2) communication and collaboration; (3) digital content creation; (4) safety; and (5) problem-solving. These are basic digital skills individuals should have for personal internet/online use. These skills are also more and more required in the workspace as general "default" competences.

In 2016, European Commission launched the **Digital Skills and Jobs Coalition**³, which brings together Member States, companies, social partners, non-profit organisations and education providers to tackle the lack of digital skills in Europe.

In 2016, the European Commission also launched the **New Skills Agenda for Europe**⁴ (COM (2016) 381). This agenda emphasises the importance of developing human capital through the development of digital competences beginning in primary education. It also highlights the need for lifelong learning to prevent lagging behind in terms of skills, especially digital ones, which are constantly developing. The new Competence Agenda introduced the "Competency Guarantee" with the objective of helping low-skilled adults acquire a minimum level of numeracy and digital literacy and/or to access a secondary level of education.

Also in 2016, the European Commission published a communication on **Digitising European Industry**⁵ (COM(2016) 180 final). A part of this document discusses digital skills, with a focus on preparing the human capital for the digital transformation of the workforce. Digitalisation is profoundly changing the labour market and the nature of work, with a significant impact on employment, income levels and income distribution.

In 2018, the Digital Skills and Jobs Coalition launched the following initiatives.

- The **Digital Opportunity traineeships scheme**⁶ is a pilot project under Horizon 2020⁷ and Erasmus Plus⁸, giving students and recent graduates an opportunity to get hands-on training in digital fields such as cybersecurity, artificial intelligence, coding or digital marketing.

- The **European Digital Skills Awards**⁹ will recognise initiatives that have improved the digital skills of Europeans at school, at work, for ICT specialists, for girls and women and for society in general. The European Commission is particularly looking for success stories that could be scaled-up and replicated in other cities, regions, countries and sectors.

1.2. Qualifications framework

The **European Qualifications Framework**¹⁰ (EQF) is a common European reference framework intended to make qualifications more readable and understandable across different countries and systems, useful, for example, in cases of professional mobility across EU countries. The core of the EQF is its eight reference levels that are defined in terms of learning outcomes, i.e. knowledge, skills and autonomy-responsibility. Learning outcomes express what individuals know, understand and are able to do at the end of a learning process. Countries are developing national qualification frameworks (NQFs) to implement the EQF.

The **International Standard Classification of Education**¹¹ (ISCED) was issued by the United Nations International Family of Economic and Social Classifications. ISCED is designed to serve as a framework to classify educational activities as defined in programmes and the resulting qualifications into internationally agreed-upon categories. The basic concepts and

¹ <https://ec.europa.eu/digital-single-market/>

² <https://ec.europa.eu/ef/eu/dg-comp/digital-competence-framework>

³ <https://ec.europa.eu/digital-single-market/en/digital-skills-jobs-coalition>

⁴ <https://ec.europa.eu/social/main.jsp?catId=1223>

⁵ <https://ec.europa.eu/digital-single-market/en/policies/digital-skills>

⁶ <https://ec.europa.eu/digital-single-market/en/digital-opportunity-traineeships-boosting-digital-skills-job>

⁷ <https://ec.europa.eu/programmes/horizon2020/en/>

⁸ <https://www.erasmusplus.ro/>

⁹ <https://ec.europa.eu/digital-single-market/en/news/european-commission-launches-european-digital-skills-award-2018>

¹⁰ <https://ec.europa.eu/ploteus/en/content/descriptors-page>

¹¹ <http://uis.unesco.org/en/topic/international-standard-classification-of-education>

definitions of ISCED are therefore intended to be internationally valid and comprehensive of the full range of education systems.

While the European Qualifications Framework (EQF) and the ISCED-2011 refer to the levels of education (for example, primary education, secondary education, bachelor's level, master's level, doctoral level), the ISCED-2013 focuses on the fields of education and training. Thus, the banking sector falls under ISCED-2013-04 Business, Administration and Law, 0412-Finance, banking and insurance¹, i.e. "the study of planning, directing, organising and controlling financial activities and services". Nothing is mentioned about the digital competences necessary nowadays for banking and financial activities.

To compensate, banks refer to the certifications issued by the International (European) Computer Driving Licences, but they are general and non-specific to the sector.

European Computer Driving Licence² (ECDL) is the European arm of the International Computer Driving Licence (ICDL)³, a computer skills certification platform offering basic, intermediate and advanced modules. The ECDL programme defines the skills and competences necessary to use a computer and common computer applications that are most relevant to educational and professional requirements, thereby creating an ECDL profile for the user.

2. Economic factors

2.1. Employment—digital skills of the general workforce

The last decade has pushed digital technologies and digitisation into more sectors of the economy, not only in Europe, but also globally. A recent survey of competences and jobs in Europe, Cedefop (Cedefop, 2018) shows that 43% of EU workers have been involved in changing and/or replacing the technologies they use at work (i.e. machines and systems IT) over the past five years. At the same time, 47% of EU workers mentioned changes in current work patterns and processes, and more than half of the workers in Ireland, Malta, Slovenia, Finland, Sweden and the UK said they were affected by digital changes in their work environment (Cedefop, 2018). These changes have occurred, for example, in the way products and services are made (product/service innovation) and how they interact with customers.

It is true that most of the digitisation changes occurred in the ICT sector (with 57% of jobs being affected by digital technologies). However, digitisation is rapidly spreading to more economic sectors, as the Manka (2015) report found in the United States. A similar study conducted in 2014 by Cedefop in Europe (Cedefop, 2015) shows that roughly the same economic sectors are affected by digitisation in the EU and the United States. Digitisation is global and affects the worldwide economy accordingly, albeit with different rhythms of change.

Approximately one-quarter of EU staff consider that it is likely that over the next five years, their skills and use at work will no longer be up to date. The proportion of employees in this situation varies according to the economic sector in which they work: 29% in the ICT sector, 24% in the financial and insurance sectors and 23% in the professional, scientific and technical services sector (Cedefop, 2018). According to the same study, about 10% of jobs in the EU run a very high risk of becoming irrelevant because of the (digital) skills of employees. The most affected EU countries are Estonia (23%), Slovenia (21%) and Czech Republic (19%) (Cedefop, 2018).

2.2. Digital labour market prospective in the EU

It is estimated that structural changes in the labour market in Europe are closely correlated with the very high demand for advanced digital skills in the coming years. There is a strong correlation between the estimated number of jobs that will increase in the next ten years and the need for advanced digital skills to be applied in these occupations. In a survey conducted by Cedefop in 2015, 71% of EU employees mention that they need basic and intermediate ICT/digital knowledge to carry out their work and 14% of workers say they need advanced digital skills at work (Cedefop, 2018). Among the EU-28 countries, Denmark, Ireland and Sweden are those where over 80% of the workforce need basic digital skills to work, while in Greece, Cyprus and Romania, this percentage is 60% (Cedefop, 2018).

According to World Bank data (2016), the labour market in Europe is characterised by a strong polarisation of digital competence needs, so that whole population groups are virtually excluded from society and the digital economy. Thus

¹ <http://uis.unesco.org/sites/default/files/sd/documents/ternational-standard-classification-of-education-fields-of-education-and-training-2013-detailed-field-descriptions-2015-en.pdf>

² <http://ecd.org/>

³ <http://icdl.org>

some European workforce categories do not really need ICT/digital knowledge to work (56% of workers in simple occupations, 25% of service and trade workers, 33% of workers in agriculture and 29% in hospitality and catering). For these categories of workers, manual skills are much more important. This is related to the use (or lack thereof) of digital knowledge in society. If an individual does not need and often does not use digital skills in the workplace, it is unlikely to require such skills for social activities. This can be explained, for example, by the relatively high percentage of the EU population with low digital literacy or lacking internet use. In particular, some EU population groups, such as the elderly, low-skilled workers and some female workers, do not occupy jobs requiring advanced ICT/digital skills.

To offset the exclusion of certain categories of citizens from the use of information and communication technology and digital technologies, many EU countries have developed and implemented compensatory learning and ICT training programmes, actively promoting digital inclusion and access to ICT. These programmes, however, mainly relate to the development of basic digital competences, and recent studies show that advanced digital skills, especially programming and code writing, will soon become essential requirements for employment (Berger & Frey, 2016). Even now, employees who use advanced ICT/digital skills at work have an hourly gain of about 3.7% more than those who only use basic ICT/digital competences (Cedefop, 2018).

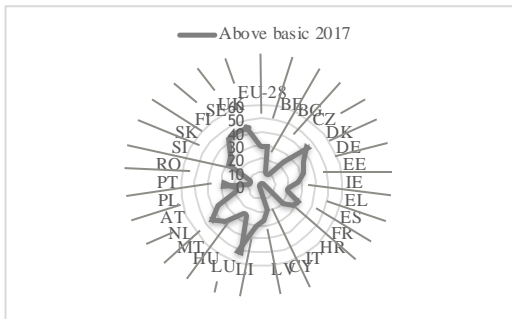
3. Socio-cultural factors

3.1. Education level in the EU with regards to digital skills

The internet and mobile penetration is significant, their use by individuals is important, and there are many education and training programmes in place at European and national levels. However, there are still disparities between the EU Member States in terms of digital skills.

- **Individual level of digital skills.** According to Eurostat, in 2017, the countries with the highest percentage of their population having above basic digital skills were Luxembourg (55%), Netherlands (48%), Denmark (47%), Sweden and United Kingdom (both with 46%) and Finland (45%) (Figure 1).

Figure 1. Individual levels of digital skills in 2017



Basic or above basic overall digital skills represent the two highest levels of the overall digital skills indicator measured by Eurostat, which is a composite indicator based on selected activities performed by individuals aged 16-74 on the internet in four specific areas (information, communication, problem-solving, content creation). It is assumed that individuals having performed certain activities have the corresponding skills; therefore, the indicator can be considered a proxy of the digital competences and skills of individuals.

- **ICT graduates.** Over the period 2014-2016 (the latest data available on Eurostat were recorded for 2016), the EU countries with over 10,000 ICT graduates as a cumulative number over the three years were United Kingdom, Germany, France, Spain, Poland, Italy, Romania, Finland, Ireland and Czech Republic (Figure 2) (Source: Eurostat). The numbers

reflect the graduates of tertiary education levels 5-8, according to ISCED-2011. No data were available in the Eurostat database for Netherlands for years 2014 and 2016.

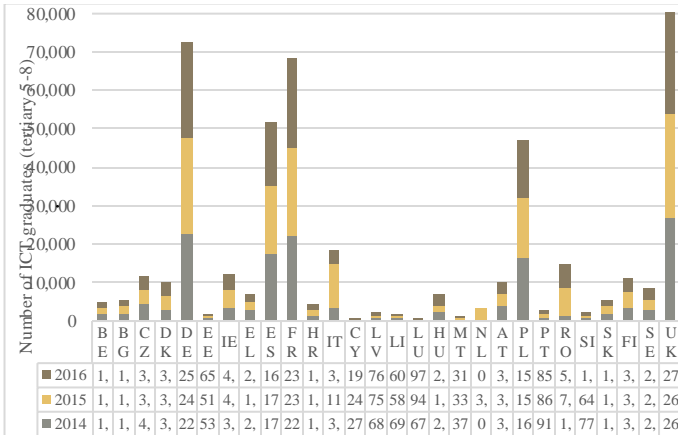


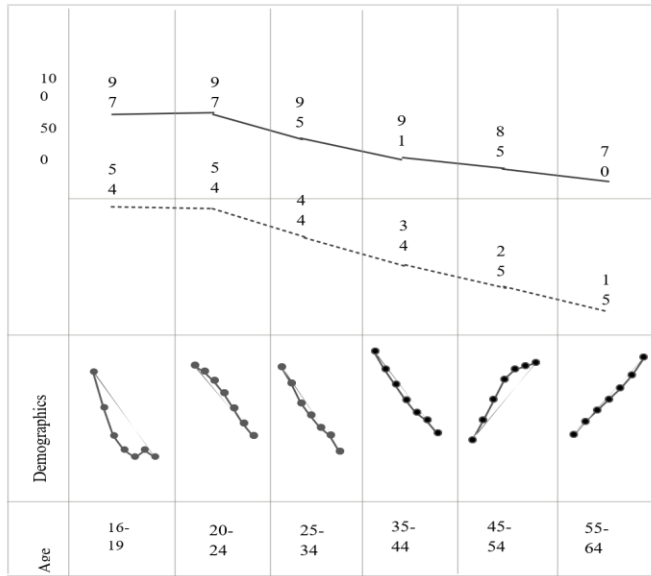
Figure 2. Number of ICT graduates (levels 5-8 ISCED 2011)

A first observation of the data in Figure 2 is that in most EU countries, the number of ICT graduates has increased from 2014 to 2016, in good correlation with younger generations more skilled and more interested in information and communication technologies. On the other hand, when the number of ICT graduates is correlated with the labour market and economic productivity across Europe, it can be noted that some countries do not reap the full benefits of the ICT training and ICT specialists they educated. At a macro level, this phenomenon leads to Europe still lagging in ICT/digital technologies at a global scale.

According to Atkinson (2018), with the emergence and rapid adoption of digital technologies (artificial intelligence, robotics, the Internet of Things), the fact that Europe still lags behind US economic growth shows that ICT—as both operation technologies and skills—are inefficiently used in different EU countries. Moreover, Atkinson says that the adoption of ICT, especially the digital technologies connected to the 4th industrial revolution, is key to fixing Europe's lagging productivity. This cannot be achieved without adequate digital skills and ICT training.

The younger generations possess the highest level of digital skills and use internet the most, but the demography shows that these age groups are shrinking (Figure 3) (Source: Eurostat). The only age groups with increasing numbers are 45-54 and 55-64 years old, those who are still employed and those who face the rapid transition to a digital workplace. However, these demographics show the lowest values in terms of both digital skills and internet use (Figure 3). Based on data from Eurostat, we calculated the demographic evolution for the period 2011-2017. We also calculated the central tendency for individuals with above basic digital skills (as a percentage of the total population) and of individuals using the internet over the last 3 months prior to the Eurostat survey (as a percentage of the total population). The values for the indicators "Above digital skills" and "Internet use last 3 months" are calculated as central tendency (mean).

Figure 3. Synthetic view of digital abilities per age group (2011-2017)



3.3. Attitudes towards digitalisation and digital skills

In 2017, the European Commission published the results of a survey carried out in March 2017 across all 28 Member States about the perceived impacts of digitisation¹. Some 28,000 EU citizens from different social and demographic categories were interviewed face-to-face at home in their native language. The data collected by the Eurobarometer survey are public, and for the purpose of this paper, we analysed it using the database published on the EU Open Data Portal².

- **Attitudes towards the digital technologies.** Most of the EU citizens surveyed have a positive attitude towards digital technologies and their impact on the economy (75% of respondents), quality of life (67% of respondents) and society (65% of the respondents). The countries that consider that the digital technologies have a very positive impact on the economy are Malta (40% of respondents), Lithuania (30% of respondents), Germany, Czech Republic, Slovenia, Cyprus (29% of respondents in each country) and Bulgaria (28% of respondents). We also observed that individuals with higher levels of education have a more positive attitude towards the impact of digital technologies.

- **Attitudes towards digital skills.** Most respondents (71%) of all countries consider they have sufficient basic digital skills for daily life activities. However, only 47% of the age group 55-64 have basic digital skills needed for daily life, compared to 81%-92% among younger respondents.

In terms of digital skills for the labour market, most respondents (80%) across Europe consider they have sufficient digital skills to do their jobs. We made here the same observation as for the case of digital skills for daily activities (consistent with

¹ <https://ec.europa.eu/digital-single-market/en/news/attitudes-towards-impact-digitalisation-and-automation-daily-life>

² http://data.europa.eu/euodp/en/data/dataset/S2160_87_1_460_ENG

the analysis presented in Figure 3). Only 67% of respondents aged over 55 consider they have enough digital skills to perform their current jobs, compared to 79%-85% of younger respondents.

Facing the necessity of continuous training for updating and improving their digital skills for the labour market, most respondents in the EU (64%) consider themselves sufficiently skilled to benefit from digital and online learning opportunities with the same notable difference between the age groups: 40% for respondents over 55 compared to 72%-89% of younger age groups.

Younger respondents consider they have appropriate digital skills to be able to change their jobs and use digital technologies in the new jobs (85%-72% compared to 47% of those over 55). Moreover, the respondents with higher levels of completed education feel more prepared and are more confident about using digital technologies in a new workplace (84% of those with the highest education level compared with 40% of those with the lowest education level).

4. Technological factors

4.1. Internet penetration

In 2017, the EU countries with the highest percentage of households having internet access were Netherlands (98%), Denmark and Luxembourg (97% each), Sweden (95%), Finland and United Kingdom (94% each) and Germany (93%) (Source: Eurostat).

4.2. ICT usage in companies

Integration of internal processes. Information and communication technologies (ICT) are increasingly used by organisations in Europe as part of their internal operational processes, such as radio frequency identification (RFID) technologies and/or enterprise resource planning (ERP) software. For example, RFID technologies are used for after-sales product identification or as part of the production and service delivery process, for person identification and access control, for monitoring and control of industrial production, for supply chain and inventory tracking and tracing, and for service and maintenance information and asset management. Enterprise resource planning software is used to share information on sales/purchases with other internal functional areas. Other ICT-type technologies used by enterprises are customer relationship management (CRM) to analyse information about clients for marketing purposes and to capture, store and make available clients' information to other business functions.

An analysis of the use of ICT in companies across Europe in 2017 (all enterprises—10 persons employed or more, not in the financial sector), shows that countries with a high ICT integration in the internal processes are Belgium, Finland, Germany, Spain, Cyprus, Netherlands, Luxembourg and Austria (Table 1) (Source: Eurostat).

Table 1. Enterprises integration of ICT technologies in internal processes (calculated as percentage of enterprises for 2017, 10 persons employed or more, not in the financial sector. No data are available for the financial sector)

Country	RFID	ERP	CRM
EU-28	12	34	33
Belgium	21	54	43
Bulgaria	18	23	19
Czech Republic	8	28	19
Denmark	9	40	36
Germany	16	38	47
Estonia	12	28	24
Ireland	11	28	33
Greece	7	37	20
Spain	15	46	37
France	11	38	28
Croatia	14	26	20
Italy	13	37	31
Cyprus	14	35	42
Latvia	9	25	17
Lithuania	10	47	33
Luxembourg	18	41	39
Hungary	7	14	14
Malta	15	29	26
Netherlands	18	48	47

Country	RFID	ERP	CRM
Austria	19	40	43
Poland	9	26	23
Portugal	11	40	24
Romania	7	17	14
Slovenia	15	30	25
Slovakia	18	31	24
Finland	23	39	39
Sweden	12	31	35
United Kingdom	8	19	32

Integration with customers. Companies engage much more easily and faster with customers by employing ICT and digital technologies. Thus, companies send and receive invoices that are suitable for automated processing, and they automatically link their business processes to those of their suppliers and/or customers. Data are incomplete in Eurostat, but from the information available, it is apparent that in 2017, the EU countries that were sending invoices suitable for automated processes were Spain (32% of all enterprises with more than 10 persons employed), Lithuania (24%) and Estonia (20%) (Source: Eurostat). No data were available for financial services.

Cloud computing services. More and more companies use the internet as a source for services or delocalised work. Companies can buy cloud computing services from shared servers or service providers, for example, e-mail or office software (e.g. word processors, spreadsheets, etc.). Equally, companies can use cloud computing to buy hosting for the enterprise's database, storage of files, finance or accounting software applications, customer relationship management software and computing power to run the enterprise's own software.

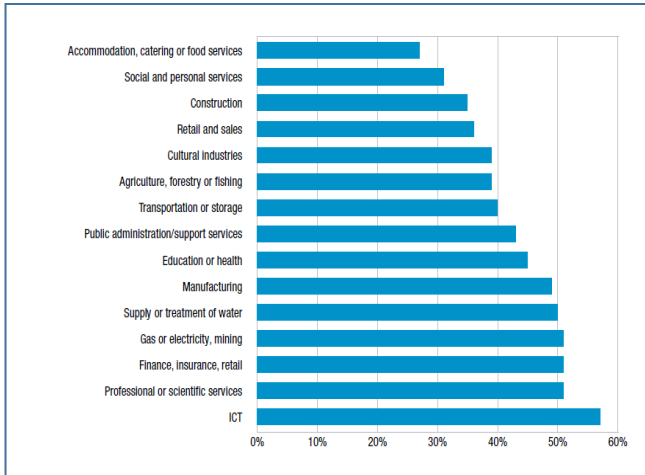
According to Eurostat, in 2018, companies in Finland most intensively used cloud computing (65% of enterprises with more than 10 persons employed, not in the financial sector), followed by Sweden (57%), Denmark (56%), Netherlands (48%) and Ireland (45%). The highest increases in using cloud computing services by enterprises from 2016 to 2018 were registered for Denmark and Netherlands (Source: Eurostat).

Big Data analysis. Nowadays, data are collected from all possible sources. The challenge, in terms of skills and abilities, is how to analyse and interpret them. Companies can collect and analyse Big Data from any data source or can analyse their own Big Data generated by smart devices and sensors, geolocation of portable devices, social media or other sources. The analysis of Big Data can be done by the company's own employees and/or by an external service provider. Studies show that jobs such as "Big Data manager" or "Big Data interpreter" are very much needed, but they are, in fact, in short supply.

Case study—Digital skills for the banking sector

Regarding the banking sector, both McKinsey (studies in the US) and Cedefop (studies in the EU) show that financial banking and insurance areas will be strongly impacted by digitalisation not only on the operation side, but mostly regarding their workforce (Figure 4a, b) (Source: Cedefop, 2018; Manka, 2015).

Figure 4a. Economic sectors in which digitalisation determined job changes affecting the workforce



(Source: Cedefop, 2018)

At the April 2018 conference of the international Bank Governance Leadership Network, the banking workforce in the digital era was a priority topic. International bank leaders recognise that emerging digital technologies and applications, especially intelligent automation, are already changing the banking workforce and are expected to have a profound impact within 3-5 years (Tapestry Networks & EY, 2018). Many bank leaders expressed their points of view.

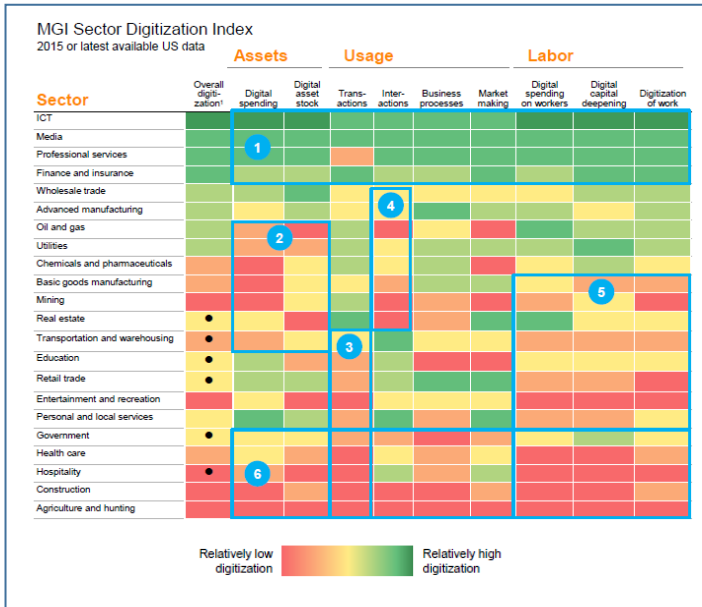
"There is going to be digitisation of the workforce in a way we have never seen before. In 10 years, probably less, we will have substantially fewer employees, and the ones we do have will be significantly different from what we have now." (Dredor)

"We will not know what the bank of the future will be like until we feel our way there. It is clear, however, that one of the big governors of success will be our ability to bring in tech people and integrate them into the guts of the business." (Director)

At the global level, banks are using more IT and digital technologies to improve both operating effectiveness and the customer's experience. Consequently, banks will need significantly more technology expertise than they have today. For example, the next challenge for the Australian banking sector is resources; according to Westpac CIO, the biggest roadblock for banks as they shift to digital models is finding the employees to do it (Brookes, 2018).

Finding, hiring and retaining talented and skilled bankworkers have become essential to competing and innovating in the global environment. Banks fight for skilled people not only with their traditional sector rivals, such as financial and economic, but also against a new wave of competition from big technology companies and start-ups. Thus, it becomes obvious that the workforce is also changing in the banking sector, and bank leaders and managers are being forced to think differently about strategies to acquire talented and skilled workers.

Figure 4b. Digitalisation of various economic sectors in the US in 2015 according to McKinsey Global Institute



(Source: Manka, 2015)

According to the international bank leadership network, banks are now in the early stages of planning for workforce transformation (Tapestry Network & EY, 2018). Three challenges are considered essential for the hiring strategy: (1) preparing for technology-driven disruptions that could require massive retraining; (2) identifying the skills and expertise needed to compete in the future; and (3) attracting and retaining the people with those skills.

Digital labour market prospective in the banking sector

Due to emerging and invasive technology, the nature of work in general and in the banking sector is changing. The change affects the number of workers that will be needed, the kind of skills necessary for working in banks and the banking career. Traditionally, bankers have followed a straight line up through one business or hierarchy. Nowadays, it is said that "We fully expect people to have four or five careers within the bank" (Participant) (Tapestry Network & EY, 2018).

In the banking industry, employment is becoming more fluid. Most analysts expect tenure with any single firm to continue to decline. In the United States, the median tenure in 2016 for workers ages 25–34 was less than three years, compared with more than 10 years for workers in the 55–64 age bracket (US Bureau of Labour Statistics, 2016). Across Europe, there is variation in job tenure by country, but even so, between 2000 and 2014, job tenure for millennials trended downward (European Political Strategy Centre, 2016).

In the near future, bank workers who can perform different functions will be very valuable. In 2018, bank leaders recognised the need to “focus on people, not roles”, emphasising the importance of creating agile teams with different mind-sets and skills.

Attitudes towards digitalisation in banks

A PwC survey of approximately 4,000 consumers in the US carried out in 2018 shows a continuously growing trend for online banking activities. In previous years, people were choosing a digital interaction with their bank irrespective of the hardware, i.e. laptop, tablet or smartphone. The survey in 2018 shows, however, that people are choosing to use their smartphones more to digitally interact with their banks, what the PwC report calls “online-dominant consumers are becoming mobile dominant consumers—and everyone else is shifting that way, too” (PwC, 2018a).

According to another study of PwC from 2018, banks are facing a change of customer behaviour towards digital interaction (PwC, 2018b). The shift in consumers' attitudes is determined by factors such as more and better expectations, more information and more choices (PwC, 2018b). However, in addition to the attitude change, banks should consider other factors when designing their digital strategy. For example, people's preference for online and digital activities is globally pervasive. Moreover, generation Y (the so-called “digital natives”) are now at the age of choosing their financial service providers, and for them, digital interaction with the banks is a decisive factor.

Conclusions

The scale and consequences of digitalisation for the whole of European society are impossible to assess with precision at this time. We are truly facing a new industrial revolution that will dramatically change our way of life and the workforce. With the digitalisation of the economy as a global trend in the last decade and more significantly during the last five years, the European Union recognises that digitalisation changes the structure of the labour market, affecting employment and income distribution.

In the last decade, the European Union has launched many programmes and initiatives to encourage individuals to acquire digital skills necessary for both social and professional life. However, despite all efforts, according to the data published by Eurostat, currently 44% of people lack basic digital skills, while 37% of employees do not have the digital skills that would help them at work.

Over the last ten years, digital technologies have entered more and more sectors of the European economy. As a result, in 2017, 43% of EU workers were involved in changing and/or replacing the technologies they use at work (i.e. machines and systems IT). It is estimated that structural changes in the labour market in Europe are closely correlated with the very high demand for advanced digital skills in the coming years. There is a strong correlation between the estimated number of jobs that will increase in the next ten years and the need for advanced digital skills in these occupations.

The financial, banking and insurance areas will be strongly impacted by digitalisation not only on the operation side, but mostly regarding their workforce. At the global level, banks are using more IT and digital technologies to improve both operating effectiveness and the customer's experience. Due to the emerging and invasive technology, the nature of work in general and in the banking sector is changing. The change affects the number of workers who will be needed, the kind of skills necessary for working in banks and the banking career.

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Use of Recyclable Materials in the Interior Design

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Abstract

This paper is the subject of the Bachelor's Degree by Albina Dervishi under the guidance of the lecturer Dr. Otjela Lubonja. Through this study, it is intended to show what is recycling, what is its impact on nature and society. As an efficient process for the handling and reuse of materials, which promotes innovation and an important and long-term economic growth. Equally important are both social and environmental benefits because it promotes the sustainable use of our natural resources and fosters community development, saving of new land use, pollution prevention, energy conservation and reduction of greenhouse gas effects. To tell us at what stage of our recycling is our country and whether we have it or not as a culture. To explain what it means to use indoor and outdoor recyclable materials and what these materials are. The paper continues to detail how recyclable materials are selected in detail from their chemical and structural composition as these materials can be applied to the interior and exterior. In practice, it is unlikely to achieve this ideal in the near future most of the construction companies in Albania. However, a significant contribution that the society itself, but also the construction industry can do, is to link design and ecology to building buildings and buildings without harming the environment. So use the design in such a way as to make possible the reuse and recycling of the materials used. The work at the current stage was supported by secondary data, the study at a second stage could be extended to public policy presented as a project for its realization, in public institutions such as municipal units, city hall. Through this paper, UET draws the attention of the country's scientific opinion and beyond to the opportunities created for in-depth studies in the field of Architecture and Design Sciences.

Keywords: *recycling, impact, society, environment, ecological, material, composition, interior, exterior.*

Introduction

Student Albina Dervishi managed to work during this time in a company that deals with the recycling of various materials (especially wood pallets) using them in interior and exterior. This was one of the main impulses that she made this study and as a leader of her graduation thesis. The work started with the concept of the term "recycling" based on the ending and resumption of the life cycle of a material or product. How does the recycling process affect the environment, especially in the environment of a developing country such as Albania where pollution is high because it promotes the sustainable use of our natural resources and fosters community development, saving new land use, preventing pollution, energy conservation and reduction of greenhouse gas effects. I could not leave without including the impact it has on the economy as the recycled materials and facilities have lower costs but also create opportunities for more jobs. The use of recyclable materials in architecture would bring a lot of benefits by reducing the effect of concrete. While society values the improved living standards that the best buildings bring, it also sees that environmental impacts can have a detrimental effect on our overall quality of life. To clarify what is meant by the use of recyclable materials in the interior and exterior and what these materials are.

The paper continues to detail how recyclable materials are selected in detail from their chemical and structural composition as these materials can be applied to the interior and exterior. One of the most commonly used materials in Albania but massively larger in the exterior, is the wood pallet used for import / export of goods.

The main reason is that this material is easily recyclable and without the need for a recycling company anyone can create objects and furniture as desired and environment by creating a modern and innovative décor. The main idea of this work is that you can create and make art with any material, just have the will and the desire.

Purpose and Objectives: The main purpose of this study is to analyze and recognize more closely the recycling and use of recyclable materials in interior design as it affects the environmental life of our society. In this way, this study contributes to the awareness of society, as the first study in the field of interior design in Albania.

Presentation of the problem: Recycling and its use in interior design. We have found that recycling is in slow pace in Albania, creating problems in developing the country and creating a broad game in the field of architecture.

This study takes a deep analysis of recycling in interior design. It explores and highlights many other elements by analyzing precisely the factors that influence the selection of recyclable materials in interior design as well as improving the lifestyle of the individual and the environment.

-First, the study aims to critically evaluate and analyze recycling.

-Secondly, he intends to draw on some of the data obtained as to how recycling in the environment and in the life of each individual affects.

-Third, find out what are the recyclable materials used in the interior and where the focus is on people's tendencies and preferences. And recently, the aim is to provide valuable knowledge, conclusions, and suggestions to each individual regarding recycling and intertwining it in interior design. In this context, this study will be of interest not only to the design architects but also to the entire population, which requires more detailed information on the use of recyclable materials in everyday life and mainly in home furnishings or space their free.

ORGANIZATION OF THE STUDY

The entrance, which is the prelude to the study. Here are the reasons for selecting the topic "Using recyclable materials in interior design. Purpose and objectives of the study, research questions and hypotheses raised in this paper.

Literature: taken into consideration, setting out the main points on the concept of recycling, foreign literature and various objects.

The recycling process (history) The recycling process in Albania is being developed and whether or not culture is in our country, it also poses some points to why it is in the interest of society.

Methodology: It examines in detail what are the recyclable materials, how the recycling process of these materials is used in the building industry used in the interior and exterior, coupled with examples and a work in the interior, also included a case study.

Conclusions and Recommendations: In this chapter we have attempted to carry out a qualitative and quantitative empirical analysis by conducting a questionnaire dealing with the analysis and interpretation of data, the statistical techniques used in the study.

RESEARCH QUESTIONS AND HYPOTHESES

Main research question:

How Does Recycled Materials Affect in Interior Design?

RESEARCH QUESTIONS:

What is recycling and how does it affect the environment?

What are recyclable materials?

What recycled materials can we use in the interior?

Can we use recycled materials in the exterior?

HYPOTHESES

Hypothesis 1: The recycling term is quite popular in Albania and its impact on the environment is great.

Hypothesis 2: The most recyclable material in Albania is wood. Hypothesis 3: The most rare material in recycling is glass.

Hypothesis 4: Recyclable materials in Albania prefer to use more in exterior than in interiors.

REVIEW OF LITERATURE

Recycling as Concept.

Recycling is a series of activities that include: collection, separation and waste return process as raw material in the process of producing useful products, saving energy.

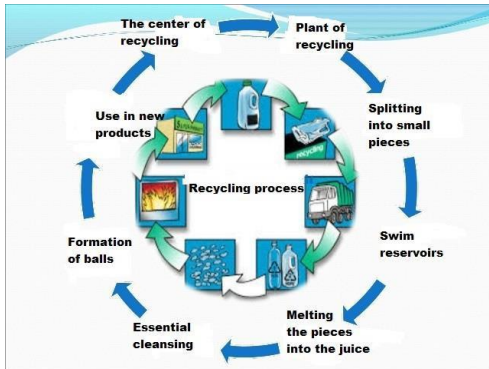


Figure 1.1. Recycling process

Source (Guri, M. 2008)

Recycling means that procedure, with the help of which old materials and waste are prepared so that they can be used in a new material (recyclable) or in combustible energy-efficient combustion devices. So recycling is the process of refining the waste into a new product and without changing the chemical structure of the material. But recycling is not a new concept. Recycling practice has been used for thousands of years. However, it has been largely affected by the supply and demand as it is today.

For example, archaeological evidence shows that mosques from Byzantine imperial times were recycled in the ancient town of Sagalassos, located in Turkey today. There is also evidence that the early Romans recycled bronze coins and used them to build statues that were sold at an even higher monetary value than the original coins. In difficult times (for example, in war time), metals from everything, like jewelry and coins, melted into weapons or other necessary goods. Archaeologists concluded from the remnants of recycling history - that recycling was a practice used during difficult times.

IS RECYCLING NEEDED?

The dominant reason for the reuse or recycling of materials and goods is to reduce the impact of our society on the environment - the world we live in (Berge, 2001). Construction industry activities, in response to the company's demand for a better standard of living (new housing construction and renovation of old ones), have been seen to have a major impact on the environment.

THIS IMPACT CAN BE MANIFESTED IN MANY WAYS

In the exhaustion of non-renewable natural resources - of minerals and fossil fuels

In air pollution from production processes and road transport

In degradation of the natural landscape - quarries, loss of forest surfaces, landfill sites.

While society values the improved living standards that the best buildings bring, it also sees that environmental impacts can have a detrimental effect on our overall quality of life. In recent years, this conflict has led to increased pressure from many directions, both inside and outside the construction industry, to increase the reuse and recycling of goods and materials.

Four Reasons Why Recycling Is Necessary:

Recycling saves energy. Recycling saves energy, as the manufacturer does not need to take and consume the first natural resource to create a product. Using recycled production materials contributes to reducing energy consumption, which lowers the cost of production.

Recycling protects natural resources as well as wildlife. By recycling, we reduce the need for raw material, which deals with destroying the natural habitat of animals, especially wild ones. Moreover, paper recycling protects millions of trees from destruction.

Recycling is a positive factor for the economy. Recycling and buying recycled products also leads to increased demand for such products. During their production, products made up of recycled materials need less water, create less pollution and consume less energy. How and save taxes.

Recycling helps in climate issues. Recycling produces a very low level of carbon, a fact that significantly reduces the level of gas emissions that create the effect of the greenhouse, not at all healthy for us and our planet.

RECYCLING AND COMMUNITY

The impact society plays in raising awareness and improving the environment is enormous. Which means that the more informed about the recycling and the benefits it offers, the more they are willing to recycle. Many people consider recycling to be something that we all need to do. It's good for the environment, reuse materials instead of creating new ones, reducing storage, and the list goes on. But a great benefit that people often underestimate is the impact of recycling programs that they may have in a community.

Strong programs of recycling can contribute to a healthy, united community. Some of the many benefits of recycling are the prevention of greenhouse gases and supporting local economies by creating jobs and tax revenues. Recycling programs can also help improve the quality of water, air and building sustainable blocks for growing communities. The main reason is that recycling programs encourage people to recycle. The easier it is for community members to recycle, the more likely they are to commit to recycling.

Therefore, if a community invests in a solid and reliable recycling infrastructure, more material can be recycled instead of being burned or going to landfills that have adverse environmental impacts. While waste disposal simply points to their transfer to storage, recycling gives new life to these materials, thus creating opportunities for new jobs. The more a recyclable material has been used before, the greater the number of jobs that can be created. These jobs also include some industries and include a variety of skills, such as commodity marketing, material separation, handmade furniture etc.

METHODOLOGY

To accomplish this paper, this working methodology was used: *Primary research* - which is based on data and field information. The source of this information is the closer observation of the implementation of recycled materials in the interior, based on information obtained from real data. *Secondary research* - which is used to study theoretical concepts of the construction industry regarding recycling and its involvement in interior design. Numerous study articles have been used for this purpose.

ANALYSIS, DATA INTERPRETATION- ALBANIA IN RECYCLING PROCESS

Albania's economic and social development over the last decade has recognized and increased the recycling industry. Today, there are counted over 30 companies of considerable size mainly concentrated in the Korça - Ebasan - Tirana - Durres axis, but also other regions such as Berat, Shkoder, Gjirokastra, Fier or Dibra have been reclaiming the recycling process. These companies are associated with large collection centers which are their primary suppliers.

Municipal waste generated in Albania is not formally separated into recyclable components, although efforts are being made. This situation has brought about a system organization with at least four links (abet not all formalized) in the recycling industry chain which includes several sectors such as: ferrous metals (aluminum, copper, bronze, zinc, lead), metals Ferrous

(iron, stainless steel), plastics (polyethylene, polypropylene, PET), paper and batteries, electrical and electronic equipment (re-use only), glass (reuse only). The most developed sector is that of metal recycling, but other sectors have also developed in recent years (although glass recycling still lags behind). In Albania, about 386,728,650 kg of waste is generated per year, which means that on average each person generates 126 kg mixed waste a year. The composition of municipal solid waste in Albania is: 5.66% metals, 8.97% paper, plastic 10.72%, glass 4.55, organic 51% and the rest of other waste. There is a growing tendency to generate waste and, consequently, recyclable materials. The simplified linkage scheme in the recycling industry is composed of: recycling or exporting companies, large collection centers of recyclable materials, small collection points and individual, mostly individual collectors.

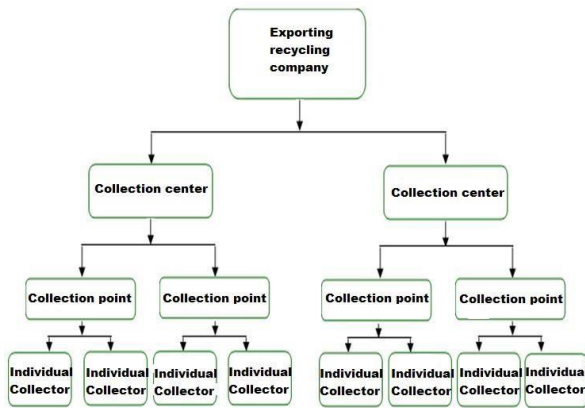


Figure 2.1 Simplified linkage scheme in the recycling industry

Source (Guri, M. 2008)

Large collection centers of recyclable materials (about 5,000 m²) are large private companies distributed throughout the territory of Albania that collect and trade these materials depending on the best price either to the recycling companies or to the exporting companies. They also have their own basic tools and equipment needed for loading, unloading, cutting or transporting recyclable materials. Almost all these large centers also have their collection points ranging from one to several points for a center.

The collection points (or scrap yards) typically about 500 m² each, are mostly family businesses that serve as a link between individual collectors and large collection centers coordinating their activity. Each collection point also has a dedicated number of individual collectors who supply it regularly, although they are not always sustainable because they tend to leave and sell their materials to the point that also offers the highest price.

3.1. AIS RECYCLING CULTURE IN OUR COUNTRY?

Waste management in Albania is at a very low level. Solid waste collection systems have been provided only by cities, but not by rural areas. Very little recycling is practiced. Most of the waste is disposed of on site. There are no collection systems in rural areas and small towns. Much of the waste in these areas is deposited on rivers or roadways

that are transported by the waters and thus relocated to another part of the land and finally to the watercourses. Today's waste management system is controlled by local government. Waste collection and removal systems are inefficient and ineffective. Decisions for their collection and removal can not be made in the absence of reliable information. There is no genuine tradition of treating and removing waste. Financial and technical resources are very scarce. The society lacks information regarding the risk that is caused by waste management. Environmental specialists explain that the biggest problem in waste management in Albania is not lack of laws but lack of planning of institutional, technical, human capacity, financial resources, infrastructure investments, lack of economic tools used for Waste management, poor communication between local and central government on waste issues, lack of networks to collect and process them. There is a fee type for waste known as the "Cleaning Fee" set by local government units under the Local Tax Law. These taxes are different for municipalities in different countries and only concern the cleaning of the city, collection, transportation and removal of urban waste from the respective holes.

3.2. RECYCLING IN THE INTEREST OF SOCIETY.

It is a fact that many natural resources and our Earth are not renewable and this is one of the main reasons why recycling is an important process in our lives. As an efficient process for the handling and reuse of materials, it promotes innovation and an important and long-term economic growth. Equally important are both social and environmental benefits because it promotes the sustainable use of our natural resources and encourages community development, saving of new land use, pollution prevention, energy conservation and reducing greenhouse gas effects. Approximately 60% of our waste can be recycled today but there are still many people who do not know, e.g., that the plastic bottles of water that we drink are made from oil. This is the same diesel used to produce benzene, it is the same diesel for which there is great demand and is not an unlimited source. But it is the same fuel that, when burned, causes the emission of greenhouse gases.

Today, most commonly recycled products are paper, cardboard, plastics, glass and aluminum products. Recycling can be done at home as well as in conjunction with local government programs, associations and business. Many businesses pay for iron scraps or beverage cans we use every day, thus increasing the cost of their products. Aluminum recycling saves 95% of the energy it needs to produce from raw materials. The energy saved from recycling an aluminum ton is equal to the amount of electricity that a household uses for almost 10 years. Recycling an aluminum can saves energy by using a 100 watt bulb for 20 hours, a computer

for 3 hours, or a TV set for 2 hours. Put another way, recycling 20 cans requires the energy of producing a new can. So one in twenty (EPA-Environment Protection Agency, 2008). By recycling a plastic bottle, it not only saves 100-1000 years on landfill storage but also saves greenhouse gas emissions from the production of new bottles and the oil to be used in the environment. Produce these bottles. A ton of plastic materials to be recycled are equal to the amount of energy used by two people for a full year, the amount of water used by one person over two months and the saving of oil. 26 PET bottles, if recycled, are equal to the production of a polyester suede. 5 PET bottles are enough to produce a synthetic sweatshirt.

RECYCLED MATERIALS.

The materials range from their recycle properties, such as paper, glass, plastic, metal pieces and waste tires. The most recyclable are the metal remnants in a relatively clean form, so the metals are melted and reused in other useful components. Among the least recyclable materials are mixed polymers or ingredients that can not be separated. The chemistry of some of the polymers is such that once formed of monomers can not be dissolved and re-formed in another useful form. We divide these materials into three categories:

The first category of recycled materials consists of elements that are not retail but used in different forms hinder recycling. Wood is a typical example. At least those pieces of wood that are used in buildings that are then damaged can and should be recycled. The best example of this class is the letter. Paper fibers can be recycled over five times and are of such a nature that facilitates recycling. More than a third of the world's paper product is recycled and this fraction will increase over 50% in the coming decades. The main cause of paper recycling is not the need for wood to produce virgin paper but the growing need for waste paper storage. Factors that complicate paper recycling include adhesives, paints, caps, grease and other impurities as well as tendons that have recycled paper fibers to become more stretched, less solid and drier than new-Produced from trees.

The second category of recyclable materials consists of those elements, mainly metals, whose world stocks are low. Chromium, platinum and the whole group of precious metals are examples of these elements. By giving maximum

recycling opportunities, especially through high-priced mechanisms, it appears that natural resources of these metals will not be exhausted thanks to recycling in the near future.

The *third* category of materials to be considered in recycling consists of parts and appliances such as parts of the machinery discussed above (the category of metals). In many cases these parts are repaired and reused even if this is not possible, deposits for these products serve as a recycling supply point.

10. RECYCLING OF PLASTICS

Since World War II, plastics have become a major problem in urban waste. Much of the plastics do not biodegrade well or at all and their contribution to solid waste is great in the areas of garbage collection even after biodegradation of other wastes. Due to the variety of composition, impurities, constituent pigments and other factors recycling plastics in solid urban waste is a promising goal. Post-consumer recycling technology has been developing faster than recycling technology for other half-century materials. However, only the last five years of the last decade, high-density polyethylene (HDPE) and polyethylene terephthalate (PET) post-consumer products are considered recyclable. These two products, especially the HDPE bottles of milk bottles and clean PET, now in the market occupy an important place. The plastic market is less developed between recycling markets due to late recycling capabilities. However, many plastics are coated, roled, bundled or chopped and later sold to converters. Plastics are divided into two classes, which greatly influences their recycling.

Thermoplastics are the ones that become fluid when heated and harden when cooled. While they can be heated, melted and reshaped many times, thermoplastics are highly recyclable. Recycled thermoplastics include:

Polyalkenes (polyethylene and low and high density polypropylenes), Polyvinylchlorides (PVC), used in large quantities to produce plastic tubes, household products and other resistant materials. Polyethylene, polystyrene and terephthalate. Plastic packaging mainly is made of thermoplastic and potentially recyclable. Fortunately from the point of view of recycling, thermoplastics make up the largest amount of used plastics.

Thermo-resistant plastics are plastics, which are formed by the bonds between polymeric units when heated. These bonds form the edges of plastics that do not soften when heated. Although thermo-resistant plastics can not be recycled they can be burned to obtain heat from them. An important class of thermosensitive plastics are epoxy resins that are characterized by an oxygen atom located between two neighboring carbon atoms (1,2-epoxide or oxirane). Epoxides are widely used in mixed materials combined with glass fiber or graphite. Other thermosensitive plastic materials include phenolic crosslinked polymers, some types of polyesters and silicones. Plastic contaminants should be considered, for example, the color used to paint plastic objects is a typical pollutant, different types of dressings of different types may be behaving as pollutants. Materials of this type can weaken the recycle properties of the material or become gas when plastics heat up for recycling.

SKIN

A recyclable material is also the skin. Synthetic polymers that are already manufactured produce large amounts of leather and rubber stored in different locations. Synthetic rubber and synthetic leather is a hydrocarbon polymer that can also contain other materials such as black filler carbon. Some types of skins can be buried / recycled. A major complication in burning and recycling of leather and tires is the presence of iron rings in many radial tires. Iron present hampers shredding equipment and conveyor mechanisms both in recycling and combustion processes.

CARDS

Corrected letters and manufactured papers are purchased and sold between a network of local processors and commissioners and put these materials on sale and export to paper factories. Factories also buy materials directly from collectors. As improved (regenerated) paper are classified:

newspaper papers, corrugated cardboard,

mixed papers (newspapers, jars and boxes of cards), high level of whitening (white paper of offices), and dough substitute (usually thick cardboard).

Paper mill manufacturers, the majority of improved paper users, use raw materials to produce recycled paper and paper products, such as newsprint, cardboard shreds, average paperboard, letterheads money. Shredded paper can be used to make animal layers, hydro-products, the late-produced paste of dough, as well as cellulose insulators or protectors.

GLASS

Recycled glass markets provide little pollution. The recycling program organizers should aim at the high quality of recycled glass. Alternative glass markets include glass-asphalt, glass art, sand and post-industry melting, window glass, and glass coatings (protection). Improved glass markets are centered and insist on brown glass and clear packaging.

METALS

Iron or non-ferrous metals can be prepared for sale through some combination of treatments by laminating, bunding, and shredding. Through a well-aid, well-grounded treatment and recycling network, recycled metals are used for household uses and exported over the last century. Iron residues include those of cars, household appliances, various equipment and appliances, bridges, and other iron and steel products. Non-ferrous waste includes aluminum, copper, lead, cans, and precious metals. Iron, iron and non-ferrous metals can be prepared for sale on the market by combining the processes by rolling, bending and shredding. In some cases, handlers melt iron in molds or ingots before selling it to the final market.

TIRES AND CARS

Car tires represent a new challenge to solid waste and recycling program management. In the past, most of the tires were retreaded, but with the occurrence of the radiant steel belt and the newest cheaper tires, there are fewer tires today. The use of broken tires or parts of them as a source of fuel is growing. Energy regeneration enterprises, paper and cellulose factories, and cement kilns are the most common users of these auto tire waste.

Recycling in Interior

When materials are recycled their new life begins as a raw material for a production process and the main concern is to know the ingredients or the chemical composition of the material. For this reason, an essential requirement for recycling is that the materials should be clean, durable and as unpolluted as possible, for example a crushed masonry that does not contain any wood or plastic composition. With the exception of the crushed aggregate used to make concrete that the recycling of materials is not done at the construction site. Wood, plastics and metals are all recyclable, in specialized or industrial factories, outside the construction industry. In the case of recycled materials there should be no link between first and second use. Wooden window frames can be recycled and used to make kitchen cabinets. Plastic bottles can be recycled to make plastic drainage pipes and car tires can be used to make acoustic insulation. Reclaimed materials from a destroyed building or construction waste can be recycled and used outside the construction industry, and recycled materials used in construction products may have been reclaimed from outside the construction industry. Circumstances in which recycling can be a practical proposition vary from material to material and product to product (Rayner, 2002). Many large producers recycle post-industrial waste as a normal part of their process and have been doing since the start of production. For example, the waste materials generated have been used in the manufacture of plasterboard wall used in the interior. And that can be recycled at the plant. It's a different kind of recycling process when plasterboard surpluses are back from the factory building site and re-enter the production process. This can be done depending on how clean and unpolluted the materials.

WOOD

Wood is used in a wide variety of building components and building elements, the material is used in various shapes that differ from structural wood that can be hundreds of years old, of modern products such as chipboard and fibreboard, which are made from small wood particles tied to a resin adhesive.

The function of wood products is widespread, from substantial beams and roofs to create elements such as rails. Large quantities of wood used in building construction and the ease with which it can be evaluated makes it a good candidate for reuse and recycling.

As wood, the use of wood to mold concrete accounts for a substantial part of all wood cut board products (such as plywood) used in building construction. Opportunities for reuse wood in construction vary greatly depending on the type of wood product and its intended use. Softwood is very prone to be damaged during the deconstructive or demolition process.

However, reclaimed timber has many opportunities for reuse and recycling, depending on its shape: it is sold on the basis of the length or volume for reuse as a structural or non-structural timber; reuse to make casing and shuttering in

the construction of concrete; recycling for use in furniture or kitchen production; recycling like wooden pallets and used as an enhancer.



Figure 3.1. Kitchen with recycled wood Figure 3.2 Recycled work desk with recycled pallets

Source:
https://www.google.at/search?q=interior+recycling&source=hms&tbm=isch&sa=X&ved=0ahUKewiv6Ku9I3UAhVHuBQKHbNTBEsQ_AUICgB&biw=1024&bih=638

RECYCLED WORK DESK WITH RECYCLED PALLETS

Old wood can often be of higher quality than modern wood with few defects, seasoned and available in size, length and composition that today can be difficult to produce from sustainable sources (Ross, 2002 Yeomans, 2003).



Figure 3.3. Bedroom with Recycled Pallets.

The newest interior trend is now the use of recycled pallets.

Metals

All metals require a lot of energy to extract them for minerals and their production in facilities. This results in higher prices compared to non-metallic materials used in building construction. Metals are often easy to separate from each other and from other materials. Some metals are easy to separate from mixed wastes - iron and steel can be separated by electromagnetics as well as aluminum and copper can be separated using other electromagnetic processes.



Figure 3.4. Coffee table made from metal parts of an outdated tractor

Source: https://www.google.at/search?q=interior+recycling&source=hms&tbm=isch&sa=X&ved=0ahUKEwi8Kiu9I3UAhVHuBQKHbNTBEsQ_AUICgB&biw=1024&bih=638

Finally, metals can often be separated from each other and other materials using a fluidized bed that isolates the materials by density. Finally, metals are easy to recycle simply by melting in metal furnaces. For these reasons only a small amount (but still important) of metal finds its way to the warehouses; Metals that are highly related to other low-value materials that make non-economic separation, for example some composite panel products and lightweight devices.



Figure 3.5. The coffee with metal flooring

In the re-melting process, metal properties have been fully restored, though not always easily, regardless of their physical or chemical form. The final product, thus the metal obtained, is effectively new and this means that the metals can be recycled indefinitely. Metals are divided into two categories: ferrous and non-ferrous metals.

Ferrous Metals (Cobred)

Ferrous metals include hundreds of different iron bonds, including wrought iron, cast iron, soft steel, stainless steel, erosion steel, high-elastic steel, and so on. Different bonds include at least 80 percent iron with up to about 5 percent carbon. The remaining percentage consists of other elements such as copper, chrome, manganese and many more.



Figure 3.6. Recycled steel bar

Generally steel has high value reuse or recycling. One reason is that structural steel is divided into standard parts. This means it is likely to be used for second-hand use. Also, steel sections are very versatile and structural beams from buildings and can be reused in projects of various interiors and exteriors. There are widespread environmental benefits in reusing steel beams and columns as energy is stored twice - initially the energy that will be needed to re-melt steel in an oven, and secondly, energy stored without having the components made of new steel.

Non-ferrous metals (colorless)

Copper, brass, aluminum, zinc, tin and lead tend to have a higher value than ferrous metals and thus have a great potential for recycling. However, a similar story applies to the use of non-ferrous recycled metals, as applied to steel - relatively little metal is cast as waste and the demand for new metals exceeds the supply of used metals. There is still a requirement for virgin metal even if it is mixed with recycled metal.

Mosque

There are three general types of glass that can be a source for reuse and recycling of glass - from windows to a single sheet of glass and glass panels made of toughened or laminated glass from facade or dressing systems. In addition to the risk of damage, the most difficult obstacle to overcome is the demand for increased thermal and acoustic insulation in building construction. This means that the only 4-6mm glass sheets are no longer likely to meet the thermal performance requirements. Dual-glass units can be disintegrated, cleaned up, united, allowing proper insulation, if necessary.



Figure 3.7. Office with recycled glass

Source: https://www.google.at/search?q=interior+recycling&source=hms&btn=isch&sa=X&ved=0ahUKEwiv8Ku9t3UAhVHuBQKKhNTBESQ_AUICigB&biw=1024&bih=638

An important obstacle to the reuse of glass sheets is the potential for accidents during its removal. Often the amount of glass that is shifted to reuse or recycle proves to be insufficient to justify the cost of a split product and this

rarely proves to be cost-effective to recycle glass waste. This may change when buildings that have followed the recent fashion for large glass facades require replacing or recycling their facades when they are damaged.



Figure 3.8. Recycled glass sink

Glass is one of the easiest materials to recycle though its reworking is a process that requires intense energy. Also, there are many different uses for recycled glass. Today most of the recycled glass is crushed and used in the production of new glass containers or for fiberglass insulation. Very few such products are used in the construction industry.

Plastic



Figure 3.9. Furniture made of recycled plastic

The industry of construction is a large user of plastics, accounting for about a quarter of the annual consumption and second only to the packaging industry. Although some plastics can not be recycled (because of their chemical composition), many can and the plastics industry is already along the way to having a developed recycling sector.



Figure 3.10. Chairs made entirely of recycled plastic

Many products are available for use in the industry of construction that are made entirely or mainly of recyclable plastic. Among this wide range of recycled plastics products currently available are: geotextile and land maintenance products; insulation materials; window frames; roof covering materials; various types of pipes and ducts; panel products for making cupboards and cupboards; carpets, tiles and other floor coverings; street, park, outdoor furniture and accessories made of plastic lumber; Synthetic surfaces for sports grounds and sports fields; acoustic screens and barriers made from recycled rubber tires.

Regarding the use of recycled materials in the interior Albina has presented her first work in this field as follows.



Figure 3.11. Programming office with recycled pallet Source: (Author)

This project consisted on recycling of pallets, which means: demolition, grinding, building them in different objects and painting depending on the requirements (here also included their painting). In this project we have built an office desk for six people, a small corner table, an angle, a closet, a lampshade with flower pots and palettes, we used the pallets as a separating wall in the office environment and placed it on the wall (constructed in various forms) for decor.

Recycling in the exterior

Outdoor furniture is needed to be safe, time resistant and durable. The outer landscape of a building is often open to public use and thus the materials must be as durable as standard installations. Some recyclable outdoor cast iron furniture are available painted with graphite for low maintenance cases.



Figure 3.12. Exterior furniture constructed with recycled pallets.

Safety is also an important issue that equipment and furniture can not be stolen and transported. Reusing a component is appropriate depending on the condition of the object. Most components will require visual, structural, and safety testing to determine the work required before installation. A full specification is needed to ensure that appropriate work is done and the complications that may arise with the costs. The component will be required to be safe, low maintenance, and resistant to climate change. Roads and parking areas around the buildings offer the opportunity to use recyclable materials. Their sub-base can be made using crushed walls recycled from ruins. Coated surfaces can be made using mixed concrete with recyclable aggregates, concrete blocks made with recycled aggregates, or recycled asphalt with crushed glass filling. Asphalt is available to contain a small proportion of recycled asphalt (10-15 percent), which will reduce the demand for virgin aggregates used to make asphalt. Recycled car tires can be included as a cord in order to increase the content of recycled material up to 30 percent or more. Children's play areas and artificial surfaces for various sports can be made from products that include recyclable gums that are usually taken from car tires and wooden pallets.



Figure 3.13. Recycled and used dummy car tires.



Figure 3.14 Car tires used as vases.

A large number of recycled products for outdoor use are available with recyclable polymer materials. These are often called "plastic materials" and are available in a variety of colors.



Figure 3.15. Exterior with recycled pallets

Source: https://www.google.at/search?biw=1024&bih=638&btm=isch&sa=1&q=exterior+recycling+home+decor&oq=exterior+recycling+home+decor&gs_fimg.3...5345.7510.0.7848.0.0.0.0.0.0.0.0.0.0.0.0...1.1.64.img..0.0.0.UB3B5C8C1D0

Examples include hedge fencing, barriers, armchairs, picnic tables, playground equipment, playgrounds and sports grounds and decorations.

Some typical examples are:

Synthetic surfaces made up of used tires (85-95 percent of the tire after consumption) which are available for outdoor and sports areas, for tennis, hockey, soccer and so on, as well as for children's playgrounds.

A wide variety of garden furniture such as fences and doors, decoration and decorative features used in garden settings can be made with 90-100 percent recyclable polymer materials. This plastic or plastic wood material is very durable. Available in many colors and does not require maintenance. Producers often point to the economic benefits of woody plastic products compared to natural wood or alternative metals. Its strength and hardness

varies according to the type of polymer used. Density and strength can be increased by including up to 50 percent of post-industrial wood fibers with recycled polymer. An even stronger material is obtained by mixing 20 percent of recycled polymer glass fiber to create a reinforced plastic fiber.

Recycled polymer products, made from old carpets for example, can be used for various applications in car parks, such as wheel, traffic and pedestrian barriers. They have advantages over concrete because the cars are not damaged by small blows.

Case study by Bill Addis.

(Building C.K Choi, University of British Columbia, Canada)



Figure 3.16. Externally reclaimed bricks, C.K Choi Building

During the short preparation of the project for the building C.K. Choi at the home of the Asian Research Institute, the University of British Columbia decided it should be a green building demonstration that would set new standards for sustainable design, construction and operation. Building materials were one of the seven green design categories and the targets were determined that 50 percent of building materials should be reclaimed or recycled and that 50 percent of the materials should be recyclable.

It was accomplished soon enough to accomplish this objective it would be important to include a considerable amount of reusable material on a large structural and surface level of the building. Architects established a connection network with local demolition contractors and buildings visiting and planning looking for potentially useful materials. Once the materials are available, then research is needed to determine their suitability and acceptability within existing building codes, material testing, long-term sustainability, and technical

aspects detailed with older or alternative products. The design process is necessary to be flexible to accommodate materials to be reused as in the previous building. Actual sizes, quantities, and orientation are often not known until materials are taken. Therefore, the design process is prone to resemble the process of renovating a building. For each element used in construction as reuse / recycling, there was evidence to test their durability. The reasons why some options are excluded for Choi's construction (but may be applicable to other projects) include:

Inadmissible by the university building department, for example crushed glass for filling, carpet made of recycled polyethylene terephthalate (PET);

Unknown to the local construction industry, for example the use of crushed concrete as filling;

Lack of information about recyclable materials, such as aluminum window frames;

The product is not approved by the contractor's association, therefore it is not acceptable for the construction of the university department, for example roof insulation using recyclable plastics

Inadmissible performance, for example wind from carpet carpet; New materials used in preference to reclaim and provide warranty.

CHAPTER IV (EMPIRICAL DATA ANALYSIS)

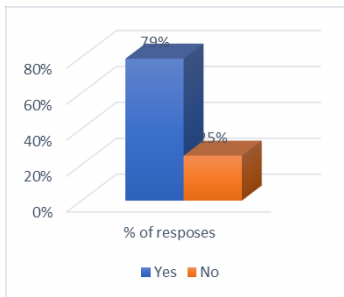
Questionnaire

Have you ever encountered the term "Recycle"?

	Yes	No
% of responses	75%	25%

Table 1 % of responses to the term "Recycling"

Graph:



Graph 1. % of responses to the term "Recycle"

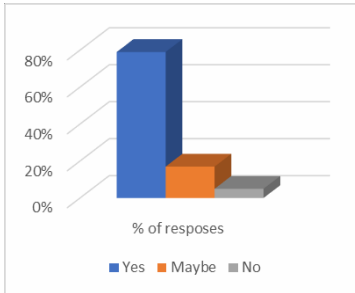
Conclusions: According to the graph above, about 75% are familiar with the recycling term and its function, while 25% have not previously heard this term or what function it has.

Do you think recycling affects the environment?

	Yes	Maybe	No
% of responses	79%	16%	5%

Table 2. % of responses to the impact of recycling in the environment

Graph:



Graph 2. 1% of responses to the impact of recycling on the environment.

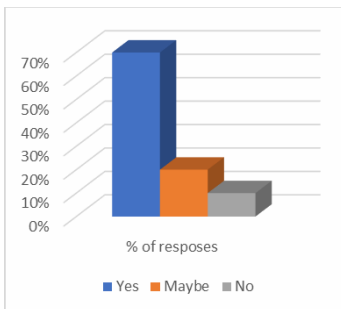
Conclusions: Based on statistics, 79% confirm that the impact of recycling on the environment is very important, 16% think that the impact is minimal and 5% that recycling does not cause any kind of impact on the environment.

Do you know what are recyclable materials?

	Yes	Maybe	No
% of responses	70%	20%	10%

Table 3. % of material-related responses

Graph:



Graph 3. 1% of responses to material recognition

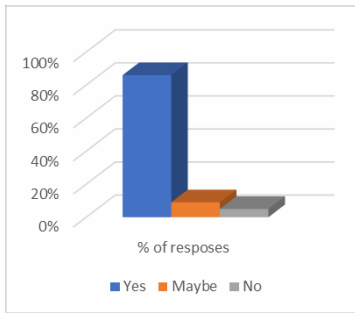
Conclusions: As can be distinguished from the above study, 70% are aware of the materials that can be recycled, 20% confirmed they knew very little of such material, while 10% had no information.

Do you think that Albania, as a developing country, should use recyclable materials in the interior and exterior?

	Yes	Maybe	No
% of responses	86%	9%	5%

Table 4. Table of % response to the use of interior and exterior materials

Graph :



Graph 4. % of responses to the use of interior and exterior materials.

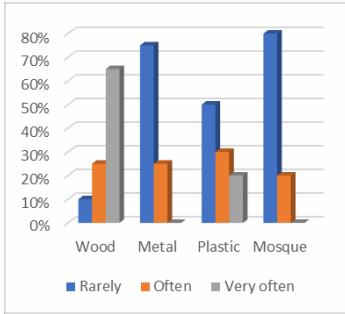
Conclusions: As can be distinguished from the study above, 86% think that Albania should use recyclable materials in architecture, then we have 9% who think it is difficult to realize but not impossible. Lastly, 5% are against the use of these materials.

What recycled material is most often used in wood, metal, plastic or glass?

	Rarely	Often	More often
Wood	10%	25%	65%
Metal	75%	25%	0%
Plastic	50%	30%	20%
Mosque	80%	20%	0%

Table 5. % of the answers for most used materials

Graph:



Graph 5. 1% of responses for most used materials

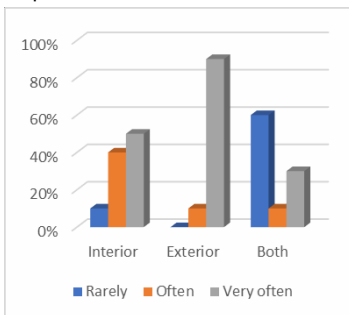
Conclusions: According to the statistics obtained from this interview, the most used materials are wood with 65% and plastics with 20%. This is because of the ease that these materials offer during the recycling process. While 75% metal is very rare in its use in interior or exterior, with glass which has 80% of use very rarely.

Is the use of recycled materials preferable to interior or exterior?

	Rarely	Often	More often
Interior	10%	40%	50%
Exterior	0%	10%	90%
Both of them	60%	10%	30%

Table 6. % of responses to where the use of recyclable materials is preferred

Graph:



Graph 6. 1% of responses to where the use of recycled materials is most preferred

Conclusions: As it seems, the Albanian population is still preferring the use of recyclable materials. Based on static statistics, 90% prefer the exterior of recyclable materials without leaving the interior with 50%, it is also worth noting that a 30% share of the population preferred to use recyclable materials both in the interior and exterior.

Questionnaires:

Number of respondents: 100 persons, who were of different professions. Number of women 58 and men 42. Their average age of 37 years.

CONCLUSIONS AND RECOMMENDATIONS

The recycling policy has been used for thousands of years and continues to be used today, has been largely affected by the supply and demand as it is today.

It is evident that recycling as a process has an impact on the environment. This impact can be manifested in many ways: the exhaustion of non-renewable natural resources - of fossil minerals and fuels; in air pollution from production processes and road transport; degradation of the natural landscape - quarries, loss of forest areas, Landfill sites.

Recycling saves energy. Recycling saves energy, as the manufacturer does not need to take and consume the first natural resource to create a product. Using recycled production materials contributes to reducing energy consumption, which lowers the cost of production.

Recycling protects natural resources as well as wildlife. By recycling, we reduce the need for raw material, which deals with destroying the natural habitat of animals, especially wild ones. Moreover, paper recycling protects millions of trees from destruction.

Recycling is a positive factor for the economy. Recycling and buying recycled products also leads to increased demand for such products. During their production, products made up of recycled materials need less water, create less pollution and consume less energy. How and Saves Taxes.

Recycling helps in climate issues. Recycling produces a very low level of carbon, a fact that significantly reduces the level of gas emissions that create the effect of the greenhouse, not at all healthy for us and our planet.

Albania's economic and social development over the last decade has recognized and increased the recycling industry. Today, there are counted over 30 companies of considerable size mainly concentrated in the Korça - Ebasan - Trana - Durrës axis, but also other regions such as Berat, Shkodra, Gjirokastra, Fieri or Dibra have been reclaiming the recycling process.

Materials should be clean, durable and as unpolluted as possible. Wood, plastics and metals are all recyclable, in specialized or industrial factories.

From the completed questionnaires, we conclude that around 75% are familiar with the recycling term and its function, while 25% have not previously heard this term or what function it has.

As can be distinguished from the study above, 86% think that Albania should use recyclable materials in architecture, then we have 9% who think it is difficult to realize but not impossible. Recently, 5% are against the use of these materials.

The most used materials are wood with 65% and plastics with 20%. This is because of the ease that these materials offer during the recycling process. While 75% metal is very rare in its use in interior or exterior, along with the glass which has 80% of the use very rarely.

Albanian population is still preferring the use of recyclable materials. According to static statistics, 90% prefer outdoor materials with recyclable material without leaving the interior with 50%, a share of 30% of the population prefer to use recyclable materials both in the interior and exterior.

Reclaimed materials from a demolished building or from construction waste can be recycled and used outside the construction industry, and recyclable materials used in construction products may have been reclaimed from outside the construction industry.

RECOMMENDATIONS

It is recommended to be possible to improve the programs of external facade objects that should be seriously invested by the Albanian state, enabling the assessment of relations and possible correlations to external architectural changes to improve appearances of existing buildings and the economic effect of these changes.

It is recommended to design a program around facades of different objects, to enable the creation of a more advanced technological environment for human needs.

In the Albanian reality, it has become necessary to restore some of the exterior façades of different buildings, the need to expand the restoration work and the restoration profession.

In the present historical conditions, when Albania hosts more than ever foreign visitors or tourists, it is necessary to care for the preservation of buildings, mainly of their external façades, the good administration and restoration of the monuments of our cultural heritage.

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Triple Helix, as an acceleration model of Sustainable Development Goals

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Abstract

This paper analyses the inter-relation between the Triple Helix Model (THM) and the advancement of the Sustainable Development Goals (SDGs) – both focused on positively affecting the socio-economic development through bringing together creators, implementers and enablers in a setting of multi-stakeholders collective actions. In the same line with Triple Helix model, SDGs call on governments, private sector and academia to collaborate in new ways to make our world a better place to live in. By bringing together the three dimensions of sustainable development into one framework, the Triple Helix model enables broad, cross-sector, and long-term analyses of the impacts through innovative policies, research, and implementation joint actions. This paper gives a brief overview of the triple helix model and its potentials of implementation in Albania. It also provides a critical analysis of the Albanian context in terms of this model application when combined with the country ambitions to accelerate the pace towards SDGs. More specifically, the paper analyzes and examines the relations between the academia and the business sector, as well as the role of the government in initiating the whole process of sustainable innovation. The paper concludes that the Triple Helix structures have a significant role in engaging collective actions, also in line with SDG 17, despite the country current weaknesses, adding more value to the leading role of the universities.

Keywords: Triple Helix, Sustainable Development Goals, collective actions

Introduction

Economic growth and the welfare of nations depends on basic innovations states (Etzkowitz, H., Leydesdorff, L., 1998). Based on this concept, this paper engages to analyze the Triple Helix model, as described by both Etzkowitz and Leydesdorff on the dynamism of university – business and government relations in the framework of country sustainable development and in regard to the Agenda 2030 and its Sustainable Development Goals. The Triple Helix model received great attention in the Western world as a means to foster innovation and growth implying “the creation of climate and certain attitudes that enable coordination between the agents directed to achieving innovation”, as argued by Cook, P, GM Uranga and G Etzebarria (1997). In emerging economies, such as Albania, the concept is almost unknown and consequently, an embraced rhetoric about Triple Helix hardly exists.

The purpose of this research is to review a number of recent reports on research and innovation in Albania and further look for new ways of increasing the impacts on R&I investment which, according to this model, will be simultaneously accompanied by an improvement of business innovation performance and directly influencing the country socio-economic sustainable development influencing the acceleration of the 2030 Agenda and the 17 SDGs.

This paper empirically analyses the actions taken in three dimensions: government, private sector and academia, as main contributors to the acceleration the 17 SDGs in Albania.

Theoretical framework of the Triple Helix Model

The concept of the Triple Helix model was initiated in the 1990s by Etzkowitz (1993) and further studied by Etzkowitz and Leydesdorff (1995), encompassing elements of precursor works by Lowe (1982), Sabato and Mackenzi (1982). The conceptualization of this system is provided by a three-dimensional vector space, so called Triple Helix of university-private sector –government inter-action model (Ivanova & Leydesdorff, 2014).

The Triple Helix model assumes that the driving force of economic development is the production and dissemination of socially organized knowledge. In the same line, (Stehr, 1994) states that the source of economic growth and value-added activities increasingly relies on knowledge. Science, technology and innovation are considered to be fundamental factors

for a knowledge-based economy. They are important at all stages of development, notwithstanding of different forms and ways. A knowledge-based economy refers to one that focuses on production and management of knowledge (Coole & Leydesdorff, 2006). Capacities to develop basic and applied scientific research, to adapt and implement technologies in economic structures, to creatively develop new products and services, using innovative technology and disseminate them to the public, are fundamental for developing a competitive economy.

The OECD (2002) defines innovation as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations"

The Oslo Manual (OECD, 2005) identifies four factors that influence the effectiveness of the innovation process (i) framework conditions (ii) science and technology institutions (iii) transfer mechanisms (iv) firm-specific innovative drives. General framework conditions such as the macroeconomic environment, the fiscal system and access to finance shape the activities of the companies and their ability to conduct innovative activities. The efficiency of science and technology institutions drives the accumulation of knowledge. Transfer mechanisms enhance flows of information and skills between the various stakeholders in the innovation system and are crucial to ensuring that innovative ideas are actually brought to the market and contribute to the economic growth. Finally firms themselves need to seek, identify and exploit the potential for innovations to reinforce the innovation process. These four factors correspond to specific areas of policy interventions. The Manual highlights that highlights that the governments need to design measures to address potential barriers in each of these four domains and, most importantly, decide on the priorities that need to be set.

Triple Helix Model prospects in Albania

[16] According to the Global Innovation Index 2019, Albania ranks 83rd out of 129 countries where innovation has been measured. Based on this report, Albania is the least innovative country on a European level for the year 2019. (GII 2019). The Western Balkans countries are also low positioned in the Global Innovation Index (2019) and while analyzing this performance in a comparative approach, the historical background cannot be neglected. The relationship between the state, industry and higher education in the former communist countries including Albania is in line with Etzkowitz and Leydesdorff's (2000) Triple Helix I model. In this model, the state encompasses both industry and academia. It is however noticed that the two exist separately and experience no independent interaction. During the communist regime, universities became major tools of state domination over society. The ruling national communist parties did greatly subdue academic freedom, asserting their monopoly of power over universities by assigning campus party organisations leading roles in both administrative and academic issues (Srinov, 2008).

The emergence of transition economies in the early 1990s coincided with the beginning of the transition of scientific systems. As such, the transition countries have not had time to adapt their science and higher education systems to the new concepts in science and innovation that yielded such models as new knowledge production (Gibbons, 1998), the triple helix (Leydesdorff and Etzkowitz, 2000), the entrepreneurial university (Clark, 1998), innovation systems (Nelson and Winter, 1982; Freeman, 1987).

According to the latest UNESCO estimates (2018), Albania has only 245 researchers per million of population, representing less than 10 percent of the EU average of 3,166 researchers per million of population. The country does not have yet a business incubator, or any science or technology parks. There are few institutional support services promoting innovation or linking universities and research centers with innovative SMEs, including an OECD-supported Triple Helix Competition in 2015-16 and the Swiss Entrepreneurship Programme for Western Balkans.

The low level of innovation in economy limits the potentials of the country to increase the productivity and engage in medium to high value added products.

A report on Evaluation on EU Support to SME Competitiveness in Enlargement and Neighbourhood Countries (2017), highlighted that despite the necessary strategic documents exist or are in preparation, Albania faces key challenges as a limited institutional support infrastructure to promote innovation within SMEs, while funding remains a bottleneck, becoming a vacuum in case of seed funding for start-ups and early-stage businesses.

In addition, if on one hand on the demand side there appears to be a shortage of potential new entrepreneurs and start-ups (the pipeline is weak, particularly among women), on the other hand physical space, where to transform ideas into tangible prototypes and products using state-of-the-art smart tools, still remains a big challenge.

In order to support the Innovative ecosystem - incubator/start-ups, two are the key institutions assigned for scientific research and innovation in Albania: the National Agency for Funding in Higher Education (NAFHE) and the National Agency for Scientific Research and Innovation (NASRI). NAFHE is responsible for the distribution of public funds which support activities performed by institutions of high education, including scientific research activities. NASRI evaluate, monitor and manage programs and projects in the fields of science, technology and innovation in Albania; it aims to fund projects in the field of small and medium business as well as transfer, modernization and renewal of their technologies. The Business Relay and Innovation Centre, which operates under AIDA, owns limited resources.

Some private-led initiatives are starting to appear in Tirana, providing institutional support to SMEs and innovation, but their scale is fairly small. Among them, *Oficina* is an Open Society Foundation for Albania initiative to support sustainable growth to innovative start-ups through decent pre-acceleration and acceleration programmes; CEBE (Center for Economic and Business Education) in an NGO that managed a UNDP programme for entrepreneurship, a pre-accelerator action that showed some good results, including in rural areas. The existing technology transfer offices (TTOs) operate under the auspices of the Ministry of Agriculture and act as consulting centers to the agricultural sector rather than as typical TTOs.

Sustainable Development challenges in Albania – where does it stand with SDGs and Agenda 2030?

Sustainable Development Goals are a collection of seventeen global goals set by the United Nations General Assembly in 2015. The SDGs are part of Resolution 70/1 of the United Nations General Assembly: "Transforming our World: the 2030 Agenda for Sustainable Development." That has been shortened to "2030 Agenda." Unlike the UN's previous global development goals, the SDGs have been signed up to by almost all countries around the world, including the so-called developed countries in Europe and elsewhere, by the emerging different kind of economies world-wide. The SDGs were also developed through intense and widespread consultation, involving a large number of organisations drawn from all sectors, including governments at all levels, civil society, businesses and academia.

Following the adoption of the 17 Sustainable Development Goals as a part of 2030 Agenda for Sustainable Development by world leaders in September 2015, it came officially into force on 1 January 2016. The Government of Albania has endorsed this Agenda 2030 on 25 September 2015 and it is actually aiming to embark upon a comprehensive implementation in line with the National Strategy for Development and Integration 2015-2020 (NSDI II) and the EU integration agenda. In accordance with such commitment, the Government of Albania has explicitly aligned its main strategic document, NSDI II to the SDGs. A set of 21 governance indicators along with targets, baselines and sources of data are integrated into the NSDI II pillars. Since the country's main ambition is EU integration agenda, UN and the Albanian government have sought to insert the SDGs into the development discourse in the country and interweave it with the EU agenda in several ways.

Agenda 2030 is a transformative agenda based on the "Leave No One Behind" concept. Such goals can not be achieved without the significant contribution of the private sector. UN advocacy (2017) aimed to convey the message that the SDGs represent a historic opportunity for business, as it can use the goals as an overarching framework to shape and communicate their strategies, goals and activities.

At the same "collective-actions" approach, university research in strategic areas of development can help inform good policies and find sustainable social, economic, environmental and technical solutions to existing problems. Universities are best placed to pioneer innovation and set an example to other sectors and businesses. (UN, 2016)

How can Triple Helix cooperation influence SDGs acceleration in Albania?

Various recent reports pay much attention to the relationship between the economy and human development in the regions by applying knowledge as a necessary condition for a sustainable future and accelerated realization of Sustainable Development Goals (Knowledge for Development Partnership, 2017). At the empirical context, Albania is in the process of taking the THM approach in its actions from government, private sector and academia, as main contributors to the acceleration the 17 SDGs.

At the government level an inter-ministerial committee on SDGs chaired by the Deputy Prime Minister and featuring membership of development partners, civil society, academia and the private sector is launched. Furthermore, an inter-institutional working group for achievement of SDGs is established by the Prime Minister in May 2017. Both structures are mandated to provide an inclusive long-term approach to sustainable development, including policy direction, planning, implementation, financing and reporting. Additionally, the Albanian Parliament unanimously passed a resolution on commitment to Agenda 2030 and the SDGs, outlining their commitment to promoting, financing and monitoring achievement

of the SDGs and its positive relationship to EU integration. This is planned to be achieved through a network of focal points positioned in each and every parliamentary commission, and through Parliament's power to convene inclusive discussions with the Albanian public, civil society and academia. Albania attended the High Level Political Forum in New York in July 2018 and presented Albania's Voluntary National Review on Sustainable Development Goals - a report which outlines Albania's Path towards achieving Agenda 2030 and SDGs, progress achieved with factual data on the achievement of targets and indicators, as well as reflections on what steps should be taken to achieve the Global Goals by the set deadline.

To catalyze the overall attainment of the Sustainable Development Goals, ground-breaking partnerships with the private sector were established. Practical examples vary from aired spots featuring well-known world personalities from science, technology, philanthropist, innovators, who talk about the Goals and call on people to play their part and be the first generation to end extreme poverty, fix climate change and reduce inequalities – to using ICT and telecommunication companies for campaigns advocating among the public on the importance of Agenda 2030.

As part of the efforts to engage academia, partnerships with 25 Albanian universities have been signed through the Declaration of Commitment, as a contribution to play an active role in advancing the Agenda 2030. This commitment is a collective response to further the critical role that knowledge institutions can play in delivering the Sustainable Development Goals Agenda. The universities from their sides provide scientifically-sound advice to the National Committee on SDGs. They also commit to use the potential of data, through cooperation with National Institute of Statistics and other data generation sources to develop new analytical frameworks and tools to harness the complexity of the sustainable development agenda.

This empirical use of the Triple Helix model is borne out of a need to join efforts of researchers, policy makers, and private sector to discuss how to affect positive change on a social, economic, and environmental level through bringing the creators, implementers, and enablers of innovation together in research collaborations, policy initiatives, and political actions in society.

Conclusions

One of the main lessons learned from previous similar UN programs such as Millennium Development Goals, was that collective global actions should include, besides governments, a more active involvement of private sector and academia. In line with the concept of Triple Helix, a model to achieve innovation outcomes for the socio-economic good through collaboration with multi stakeholders within academia, industry and government, different organizations under different helices must join efforts to accelerate the attainment of SDGs and Vision 2030 and provide solutions to different SDG Goals.

Albania has progressed in this national commitment and mapped out different stakeholders, by establishing partnerships and a coordination framework by using the multi-sectoral approach. Still, there is a need to sensitize and advocate for the implementation of the SDGs, to mobilize resources from development partners and other players for the SDGs acceleration roadmap as well as to conduct capacity building for SDGs for key delivery institutions.

An integrated further analysis is required to balance social, economic, and environmental development in Albania. By bringing together the three dimensions of sustainable development into one framework, the Triple Helix model enables broad, cross-sector, and long-term analyses of the impacts of innovative policies, research, and implementations.

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Household Economy in the Rural Sector of the Border Region between Ecuador and Colombia and Alternatives to Over come Poverty

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Abstract

This research examines the present-day reality in the rural area on the border between Ecuador and Colombia, focusing on the current situation of the rural women; this study looks at the process of self-awareness, validation and empowerment of these women in this border region. As a consequence, the fundamental objective is to analyze and evaluate the participation and empowerment of rural women and to identify their contribution to alleviate the worst conditions of poverty. This study also examines the ability of these rural women to influence the public policy process and to improve gender equity and quality of life. Rural women are confronted with a wide array of economic, social, political and cultural challenges. These women lack stable employment opportunities; their incomes are variable and depend on a livelihood based upon agriculture and livestock. Their common characteristics include low educational attainment level, gender disparities, relatively higher unemployment rate, exclusion from decision-making circles, lack of opportunity, lack of institutional support, sexism, androcentric domination, inappropriate workplace behavior and domestic violence; All extremely unfortunate outcomes that both derive from and are exacerbated by low income levels and increasing levels of poverty among this rural population.

Keywords: Public Policies, Poverty, Household Agriculture, and Public Partnerships.

INTRODUCTION

The problems confronted by rural women are diverse, at the economic, social, and cultural levels. At the economic level they do not have stable employment opportunities; their incomes are variable since they depend on agricultural and livestock work. They have lower levels of education. They are confronted by gender inequality, unemployment, and exclusion in decision-making, lack of opportunities, and lack of institutional support. They live in an androcentric culture in which they work largely in the informal sector and are faced with domestic abuse and violence. All of which tend to exacerbate the primary problem, that of extremely low levels of income of the rural population.

The central concern of this research is the following: Does the participation and empowerment of rural women contribute to alleviating their high levels of poverty and contribute to the design of public policies that improve their standards of living and quality of life? As an investigative hypothesis, it is proposed that their participation and empowerment contribute to improving and overcoming conditions of poverty among rural women.

The general objective is to analyze the participation and empowerment of rural women and their contribution to reduce poverty and design public policies that improve gender equity. More specific objectives include identifying the factors that strengthen or hinder the participation and empowerment of rural women in a municipality on the border of Ecuador and Colombia; Analyzing the strategies that allow for the reduction of poverty conditions among rural women in the border region and identifying the contribution of public policies in reducing poverty conditions of rural women in the municipality.

1. BACKGROUND

In order to advance the current research, a literature review was undertaken on public policies that benefit rural women and the rural sector, as well as the different thematic fields that this research addresses. This allowed us to understand and identify the successes and failures in the field of policy formulation that, despite good intentions, had little impact on the quality of life of the rural population. In Ecuador and Colombia, public policies have been formulated with the purpose of benefiting rural women; however, monitoring of their implementation has not been carried out, nor has there been an adequate evaluation of their effectiveness with regard to their improvement on quality of life.

It is understood that living in a rural environment contains elements of territorial and geographical isolation compared to a more urban and cosmopolitan environment. It is a space that possesses a natural wealth; environmental and cultural resources, particular ecosystems, and various forms of production. Where social relations are intertwined with particular cultural views; these elements give it a specific particularity. It is constituted in a complex system where the different dimensions of social and cultural life interact and where a territorial identity is supported. It is the space where social relations are interwoven, where a social and productive organization coexists.

1.1. FAMILY AGRICULTURE

There are essential features that distinguish rural modes of agricultural production such as the exclusive or majority use of family labor, whether provided by one or more members of the family. In this way, rural agriculture can be more exploitative when the amount of work contributed by family members is greater and the number of family members involved in the work process is increased (Gómez and González, 1999: 28).

In the Ecuadorian and Colombian cases, family farming is recognized as a peasant economy; family agricultural units with rural producers, containing the following characteristics: low levels of education, intensive use of family labor, insecurity in health, scarce technological development, hiring of seasonal labor, especially during harvest periods. Family farming contributes significantly to the food security of peasant families; and it is a source of supply for urban environments.

In the economic activity of family farming there is diversification of crops and rotation of them, there is no planning in production to guide the crops that are planted. Failure to take market supply into account can lead to a situation that creates a decrease in the price in the market, affecting the income of the producers. Family farming knowledge is derived from agricultural practice that occurs within a specific cultural environment that relies upon traditions and customs in production and marketing. There exists an historical context that links rural women to family farming. In fact, one of the most salient characteristic elements of the workload performed by rural women is the combination of domestic household work coupled with agricultural activity.

As Bock (2006) points out, the structure of agriculture and the reality of rural life has irrevocably changed, starting from the liberalization and globalization of markets, these changes have a direct impact on the quality of life of agrarian rural families, because with this competition and globalization has come a considerable effect on household income. The result has been both a lowering of the level of product prices in addition to an increase in production costs. Subsequently, this has forced many families in the rural areas to move to the city.

2. METHODOLOGICAL PROCEDURES

Qualitative research is interested in the perspective of the subjects themselves (Milan 1974: 38). The focus of the research approach allows for a perspective from the subject's point of view. It is framed in a research model with greater focus on social change because it is based on a recognition and acknowledgement of the intrinsic value of the knowledge of the reality in which the subjects live. It is a systematic process of learning, since it implies that people carry out critical analysis of the situations in which they are immersed.

An approach was made through participant observation, sharing the circumstances, from the daily life of the social subjects, their activities, interests and preferences. Participant observation can be considered the quintessential example of capturing the nature of reality, rather than alternative techniques of qualitative research methods (Calep, 2002).

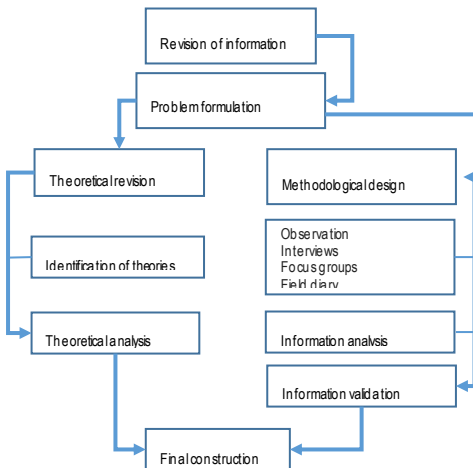
Field visits were conducted where the life situation of rural women, their economic, cultural and social conditions, the way of life in rural areas, working conditions, productive activities and daily life were observed. An in-depth interview was conducted, like an ordinary conversation, with some particular characteristics of participant observation applied (Calep, 2002). It is about capturing the meanings in an open dialogue that encourages conversation. The interview allows access to the universe of meanings from the perspective of the actors, not only the texts but the situations of the context from the vision and cultural approach of the same. In order to carry out the interviews, it was necessary to establish preliminary contacts, coordinate the times and agree on places, in an attempt to accurately capture the reality of the subjects, so as not to interrupt their daily lives.

Each interview lasted approximately 3 hours, listening to their stories, their hopes and despair in a warm conversation. The women who participated belonged to organizations in the rural sector, linked to productive activities. An interview script was designed in which each one of the variables corresponding to the proposed objectives was addressed.

Discussion groups were held for their dynamism and the possibility of capturing the opinions of the interest group, a meeting with an open and semi-structured group interview, where the discussion is encouraged from personal experiences, with respect to the guiding questions posed in the research. This allows for the establishment of an open conversation, a dialogue from the perspective of rural women. The preparation for the event was arranged beforehand, the rural women of the selected areas were invited, and the logistics were prepared, including identifying the meeting site. Discussion groups for this study were based on the possibility of building and understanding, from the dialogue with the interviewees, the significance of participation and empowerment from rural women. A dialogical approach enabled the construction of the significance and meanings, through an unstructured, free, and spontaneous, group discussion that was both facilitated and stimulated through a reflective discourse.

The duration of each group was 3 hours which allowed sufficient time to address the pertinent questions that serve as the basis for this research. The research questions were developed based upon the variables of participation and empowerment. The interviews were guided by a survey discussion script to facilitate a conversation that would yield responses to the variables being studied. The dialogues and discussions generated in the participation groups were recorded on sound tape and transcribed in magnetic writing. The coding and categorization were done by disaggregating the text, thus achieving greater description, understanding and interpretation of the categories that emerged. This, in turn, led to the reconstruction of new meanings and insights.

Figure 1: Research design



Source: self-made.

Table 1. Profile of the people interviewed Profile of interviewees

Profile of interviewees	No.	Duration	Dates
Women who participate in II-level organizations (networks).	10	3 horas	The interviews were conducted in the following periods:

Rural women leaders	10	3 horas	Interview women municipality of Pasto – Colombia and Tulcán – Ecuador 2017 – 2018 Interview women municipality of Pasto – Colombia and Tulcán – Ecuador 2017 – 2018 Interview women municipality of Pasto – Colombia and Tulcán – Ecuador 2018 – 2019
Leaders of grassroots social organizations	10	3 horas	
Women from savings fund organizations	10	3 horas	
Total	40		

Source: self-made.

Table 2. Analysis categories

Categories	Description	Indicators
Aspects of Participation	a. Concept about participation	Recognition of the participation of women Factors that enhance Factors that hinder
	b. Organizational forms	Organizations
Empowerment of women	a. Concept on empowerment	Recognition of empowerment Empowerment factors
Poverty conditions of rural women	a. Economic activities	Productive activities Domestic activities Labor activities
Public policies	a. Policies and rural women	Incidence of policies Benefits of public policies

Source: self-made.

3. CHARACTERISTICS OF THE NARIÑO DISTRICT COLOMBIA

The district of Nariño is located in southwestern Colombia. The district has agricultural potential, due to its strategic geographical location, derived from its thermal terrain, there is a large number of areas inhabited by peasant farmers, which allows for both alternative family employment and as a source of income for rural women who are linked to these activities.

The rural situation is characterized by: low levels of technology of production, scarce marketing channels, low levels of income of the peasant population, and limited production in some areas due to the conditions facing the agricultural sector. Public policies do not provide protection nor opportunities to small rural producers. They are totally disconnected from the social, cultural and economic reality of the sector; likewise, no appropriate strategies are designed for the promotion and strengthening of rural condition to benefit local inhabitants.

The department has had to face a series of social and economic problems, many of these structural, such as poverty, situations of violence and armed conflict that cause displacement of the rural population to the city, generating an increase in the level of unemployment and conditions of marginality. This increasing marginalization, both social and economic in nature, is reflected in the various social indicators.

One of the most important characteristics of the economy in Nariño is related to the existence of family farming; a production system where the family participates, with the contribution of labor, for work, especially rural women, who contribute to the generation of income.

The municipality of Pasto is located in the south west of Colombia, in the middle of the Andes mountain range in the mountainous mass called Nudo de los Pastos. The city is located in the Atriz Valley at the base of the Galeras volcano, close to the border with Ecuador. There is a high fractionalization of property, small tracts of land, which is subdivided even further as the nuclear family continues to grow. Rural women play an important role in the family economy.

CHARACTERISTICS OF THE CARCHI DISTRICT ECUADOR

The district of Carchi is located in the north of Ecuador, in the geographical area known as the interandes region or mountain range, mainly on the slopes of the pastures to the northeast, the Chota basin in the south and on the outer flanks of the western mountain range in the west. Its administrative capital is the city of Tulcán, which is also its largest and most populated city. Tulcán, located in the district of Carchi, is near the Colombian-Ecuadorian border, which is one of the areas most affected by the armed conflict in Colombia.

The district of Carchi has agricultural potential due to its geographical location. It is nearly identical to the south of Colombia. It is a border region in which agriculture is one of the main activities that generates resources for the inhabitants of Carchi. Among the products that are best grown are: potatoes (they generate a very important and significant percentage of the national supply of the tuber), beans, peas, corn, wheat, barley, oats; to the northwestern yuca, banana and tropical fruits. Trade from the bridge of Rumbhaca, door that joins commercially and touristically Ecuador and Colombia.

Agriculture is a representative social factor and its impact on vulnerable population there are more people involved in this economic agricultural activities, the transport factor has a high influence between Ecuador and Colombian border commerce. The presence of transnational armed groups such as the FARC's dissidents still maintains its presence in territories of the Ecuadorian-Colombian border, such as San Lorenzo and Tumaco, and this presence is conditioned by the development of relations between Ecuador and Colombia on issues of fundamental political agenda such as border security where armed and drug trafficking actions have transcended borders, increasing the insecurity and violence of this border region.

The rural situation has experienced the same as the Colombian reality: low levels of technology of production, scarce marketing channels, low levels of income of the peasant population, and limited production in some areas due to the conditions facing the agricultural sector. Public policies are focused on the central government AND there is a big center-periphery disparity in relations between Quito and Bogota and their respective border regions.

8. CONCLUSIONS

Rural Territory

The rural development model is shaped by the following characteristics: a) inequitable and exclusionary, due to the presence of armed groups in Colombia that leads to innumerable rural conflicts, b) failure to recognize the differences among social actors, and c) does not consider the environmental resources and potential of these rural areas. The current development approach does not allow for the generation of a model that accommodates the convergence between the rural and the urban areas.

This present situation allows for the development of: a) a relatively non-competitive rural sector, b) a land tenure system in Colombia and Ecuador that has many litigation conflicts, c) most of the properties are without formal or adequate legal documentation; the peasants do not possess legal property titles. This hinders greatly the necessary access to and involvement with public policies that might support rural areas (access to credit, etc.).

Public Policies

The policies that are formulated do not consider the true daily situation of women, especially rural women, the different policies for the rural sector, nor the lack of follow-up on their implementation and impact on the poverty conditions of rural territories. No progress has been made in the construction of conditions or opportunities that allow the rural population to influence the decision-making scenarios or real participation in the formulation of public policies. The low levels of participation lead to policy proposals that are out of sync with reality and employ strategies that do not adequately address the conditions of rural women. It is required that the design of social policies for the rural sector consider the cultural, social and economic contexts, development of adequate infrastructure for the improvement of economic conditions and the overcoming of poverty. Policies should make it possible for women to acquire greater economic autonomy.

Rural Women

Women report that one of their main problems is the low levels of income from economic activity, caused by the intermediation in marketing, as well as the deficient conditions in production. Rural women mention that the problems of the market of agricultural products are related to: a) inexistence of stable prices, b) high costs of production inputs, 3) intermediaries, and d) low prices for products caused by excess supply in the local market.

However, rural women have developed mechanisms to face their situation from productive initiatives. These women have developed the ability to participate in organizational spaces, contributing to empowerment as rural women.

Participation and Empowerment

It is recognized that women's participation in social organizations has advanced and that the knowledge of their interests and rights has improved. However, the ignorance and defense of their interests persists from a gender perspective. Rural women who participate in social organizations have developed mechanisms to face their situation through productive initiatives. The success of social programs and projects implemented with rural women has been propitiated by the strengthening of social capital. Social capital can be understood as the ability of social organizations to act collectively in common development purposes. Rural women through associativity have managed to improve their income levels, carry out collective actions and learn to work together; linked in network, they have been trained and have acquired skills and competences for entrepreneurship.

The active participation of rural women generates social empowerment and participation. These are factors that enhance the experiences of rural development allowing the inclusion of rural women in the improvement of living conditions. The reinforcement of autonomy and self-esteem are closely linked with social empowerment. Women have found that if they work together, in groups or networks, they gain access to the goods and services they need to expand their opportunities.

9. RECOMMENDATIONS

Strengthen research on rural development

In the dynamics of research, and especially the sense of education, it is necessary to bring the professional, the student, and the volunteer together to build science and promote development with the farmer. Whoever manages to understand this dynamic will be able to identify the needs inherent to the field and thus could intervene to improve the quality of life.

Strengthen empowerment and promote the participation of rural women

Promotion of community participation in the structuring and implementation of social programs and projects in the territories is a fundamental element to generate economic, social and cultural sustainability. Strategies should be implemented that allow the empowerment of rural populations, so that they become agents of their own development.

Formulation of public policies with a gender focus

Monitoring of public policies aimed at women requires that there be an effective political will. Political will implies not only carrying out programs and projects that have them as a target group but also applying a gender approach. The analysis of public policies must recognize the current situation of women and both allow and encourage them to participate in their design and implementation. This makes possible a) a rapprochement between the objective of the policy and its practical achievements, b) a comparison of the formulation in accordance with reality, and c) an ability to analyze how they affect the social, economic, cultural, and environmental or political issues that gave rise to said policies with a gender focus.

Generation of skills and abilities in rural women

It is critical to search for and identify the mechanisms by which training generates skills and abilities in rural populations so that they manage their development in a sustainable manner and can access services. It is necessary for the local institutions to continue to foster development of skills and abilities in the rural population. Training programs should include creation of an information system that allows for an appropriate follow-up to the different social policies supported by public and private entities. It is critical to both measure and monitor the changes in the quality of life of rural women. It is necessary to strengthen skills and abilities in women entrepreneurship and allow rural women to advance business and economic developments in rural areas. This includes strengthening of agro-industry for the generation of added value and promoting the articulation of organizations around productive economic development.

An agrarian reform that contemplates the gender perspective

It is fundamentally important to consider rethinking and proposing an agrarian reform with a gender perspective for Ecuador, Colombia and Latin America that focuses on women. An agrarian reform with a gender perspective that includes social justice and equity will contribute to build political stability, improve productive activity in rural areas, and help enormously to provide sustainable economic development.

Inter-institutional articulation to promote development

Articulation of local and regional actors to promote economic development with a gender perspective is essential. If public and private entities continue in a disarticulated work with regard to development, it will not be possible to achieve successful transformations. It is necessary to design programs with articulated inter-institutional actions to support women and aid the transformation and alleviation of poverty conditions of rural women.

Financing programs for the rural sector

One of the problems of the rural sector is the difficult access to financing by small producers, due to the low capacity to manage and share irrigation, and the lack of special lines of credit that adjust to the differentiated conditions of their agricultural activity. This makes it extremely difficult to market their commerce and to generate added value to the production of small producers. This problem is exacerbated by the absence of infrastructure for storage and transportation as well as organization and associativity of producers to minimize intermediation.

Strengthening the Urban - Rural Focus

Food security in urban areas depends directly on rural areas, from which the city is supplied; it is considered in the same way that the water supply depends on the natural resources of the rural areas. The rural cannot continue to be considered as an isolated and disconnected territory of the urban, marginalized, with little development. On the contrary, rural areas should be seen as a territory that has economic, social, cultural and environmental potential that can help to promote a comprehensive policy that understands rural dynamics and articulates urban development projection.

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