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## Table of Contents

<b>INDEX OF THE CYCLE OF MONEY - THE CASE OF LATVIA.....</b>	<b>5</b>
Constantinos Challoumis .....	5
<b>ONLINE MARKETING COMMUNICATION TRENDS IN SLOVAK HOTEL INDUSTRY .....</b>	<b>13</b>
Margareta Nadanyiova, <sup>1</sup> Jana Majerova, <sup>2</sup> Lubica Gajanova <sup>3</sup> .....	13
<b>PERCEIVED ORGANISATIONAL SUPPORT AS A MODERATOR IN THE RELATIONSHIP BETWEEN ORGANISATIONAL JUSTICE AND AFFECTIVE ORGANISATIONAL COMMITMENT.....</b>	<b>22</b>
<sup>1</sup> Evelyn Twumasi, <sup>2</sup> BelindaAddo .....	22
<b>DETERMINANTS OF BANK PROFITABILITY: CASE OF LATVIA .....</b>	<b>30</b>
Dace Krumina <sup>1</sup> , Ilona Lejniece <sup>2</sup> , Viktorija Skvarciany <sup>3</sup> .....	30
<b>EUROPEAN SEAPORTS INFORMATION SYSTEMS. THE IMPACTS OF DIRECTIVE 2010/65/EU .....</b>	<b>38</b>
Claudio Jose Pinto <sup>1</sup> , Pedro Fernandes Anunciacao <sup>2</sup> .....	38
<b>THE KEHLER MANAGEMENT SYSTEM: A HOLISTIC FRAMEWORK FOR THE ADMINISTRATION OF MUNICIPALITIES .....</b>	<b>50</b>
Roland Böhmer <sup>1</sup> , Uwe Busbach-Richard <sup>2</sup> , Britta Kiesel <sup>3</sup> .....	50
<b>ILLCIT TRADE AND HOFSTEDE’S CULTURAL DIMENSIONS .....</b>	<b>63</b>
Cassandra E. DiRienzo <sup>1</sup> , Jayoti Das <sup>2</sup> .....	63
<b>ACCESS TO FINANCE, INDIGENOUS TECHNOLOGY AND FOOD SECURITY IN NIGERIA: CASE STUDY OF ONDO CENTRAL SENATORIAL DISTRICT .....</b>	<b>75</b>
Akinwumi Sharimakin <sup>1</sup> , James Temitope Dada <sup>2</sup> .....	75

## INDEX OF THE CYCLE OF MONEY - THE CASE OF LATVIA

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### Abstract

**Research purpose.** This paper has established the index of the cycle of money. The index shows the level of the appropriately structured economy. According to the theory of the cycle of money, it is examined if an amount of money is recycled in the economy a lot of times or this amount of money is lost from an economy to other economies or banks abroad, because of inadequate structure of the economy of the country, then the purpose of the paper is to show an application of the case cycle of money, here in the case of Latvia. Therefore, this work aims to clarify how the theory of the cycle of money works to a real case scenario, and in general, how the cycle of money applies to an economy. Moreover, the index of the cycle of money shows how an economy could counteract to an economic crisis and how well-structured it is.

**Design/Methodology/Approach.** The methodology followed in this work is based on the mathematical application of the theory of the cycle of money. Then, the current results have as root the equations of this theory for the examination of the case of Latvia for the period from 2012 to 2017. Beyond the mathematical applications, the R.B.Q. model with the Q.E. method is applied to ensure the credibility of the results. Therefore, we have a real case scenario and a simulation case for the case of Latvia.

**Findings.** The results of the index of the cycle of money to the case of Latvia are compared with the global average index of the cycle of money. The results show, as expected, that Latvia is above the average global value. Latvia's findings show that it is a well-structured economy and can counteract an economic crisis.

**Originality/Value/Practical implications.** The results are original and show for the first time the cycle of money of Latvia through the application of this theory. This research is the first application of the cycle of money in the case of index calculations. So, it is a completely new concept based on the theory of the cycle of money.

**Keywords:** Latvia; the cycle of money; the structure of the economy; index of the cycle of money

**JEL codes:** E4; E5; C1

### Introduction

The concept of the cycle of money suggests that to an economic system, the taxes return to the society, to the case of the education and the health system. But the major rule is that the authorities must hold the taxes as low as plausible. Moreover, if something is plausible to be provided with the aid of medium or small financial units and enterprises, the government ought to protect those using very low taxes and, at the same time, put greater taxes on the larger companies. But in the case of the large agencies, if their purposes are not covered with the aid of small companies, there ought to be put low taxes. Also, factories and high technological know-how agencies must have low taxes. Then the principal idea is to have an economy with the best allocation of production. This means that larger companies should not offer the same product and services as smaller companies, as they can invest in economic fields that smaller companies cannot cover. In that way, an economy achieves its greater level. Additionally, the idea of the cycle of money indicates that with the best allocation of production units and of taxes, the money is cycled in the economy and is not misplaced from the economy, as this achieves the maximum use of the quantity of money in an economy. The research of this paper is about the determination of Latvia's index of cycle of money and the determination and therefore how well structured is the country's economic system (Challoumis, *The Keynesian Theory and the Theory of Cycle of Money*, 2018). The relevance of the research is based on the application of the theoretical background to a real case

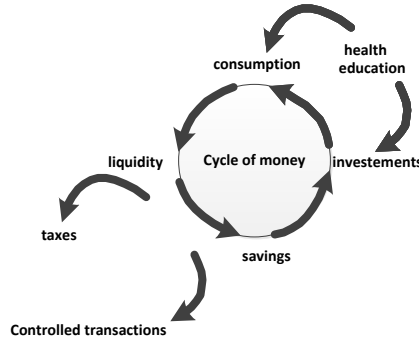
scenario of a country's economy and, at the same time, to answer to the goal of the study, which is the determination of the general index of the cycle of money of Latvia's economy. Therefore, the main hypothesis of this paper sought to estimate the index of the cycle of money of Latvia and to answer the question if it's close to the global average index of the cycle of money, with the simple index or the general index of the cycle of money. The applied method is based on mathematical estimations from the relevant theoretical background, and based on the results, the rate of the cycle of money of Latvia's economy is determined. The results showed that Latvia's economy is well structured, as it follows the general global index of the cycle of money; meaning that it is close to the value 0.5, which represents the average global case. The countries close to 0.5 and above this value have an appropriate distribution of money to their economic system. Therefore, the main hypothesis to clarify that Latvia's economy is well structured is confirmed by the results. The question of how the index of the cycle of money works in the case of Latvia is answered by the appropriate structure of its economy and the distribution of money to its economy. Besides, it needs improvements to have an even better index cycle of money, meaning to have lower taxes for small and medium enterprises, better reuse of money in the country's economy, and higher taxes for international companies that save their money out of the local banking system.

### **Literature Review**

The theory of the cycle of money is based on the concept of the bounded economy, meaning that in the economy, the money should be reused many times, and in this way, the economies are bounded but are not closed. Therefore, well-structured economies have a high index of the cycle of money, and on the other hand, an economy with a low index of the cycle of money shows an economy without an appropriate structure. The interpretation of this situation is that when the economy issues money to the system, there is a higher distribution of money between the citizens, and as the consumption increases, unemployment will decrease (Challoumis, *Methods of Controlled Transactions and the Behavior of Companies According to the Public and Tax Policy*, 2018).

The methodology used in the paper is an application of developed equations by the axiomatic method, which based on a prior simulation using the R.B.Q. (Rational Behavioural and Quantified) model. Moreover, the model uses the Q.E. method for the part of the simulation of R.B.Q. (Challoumis, *The R.B.Q. (Rational, Behavioral and Quantified) Model*, 2019) (Timothy, 2010). Therefore, in this paper, we have a real case scenario of the concept of the cycle of money based on these theories. Besides, expanding the acronyms of the R.B.Q. – the term rational is about the theoretical analysis, the term behavioural is about the non-mathematical aspects, pending on the behaviour of the taxpayers or the citizens, and the term quantified is based on the analysis of the quantity data. The three terms concretize a model that uses all the aspects of economic analysis. In this way, we have a secure and credible development of a concept (IMF, *World Economic Outlook Report*, 2018) (McKay, Nakamura, & Steinsson, 2016). In this paper, we take as base an already developed theory that is scrutinized with this model to proceed to the application of the index of the cycle of money. Therefore, in this paper, we have the next level of the cycle of money, meaning the establishment of the theory by the real case estimations (King, 2009) (IMF, World Bank, & WTO, *Making trade an engine of growth for all. Policy Paper*, 2017). In this way, the wealthiness of the structure of the economy in real data and case is represented for the first time (Zax, 1988).

The large agencies, whose functions are not blanketed with the aid of small companies, have to pay low taxes (Wilson, 1986). Besides, factories and excessive technological knowhow agencies have low taxes (Boland, 1991). Then, the major idea is to have an economy with the best allocation of production. In this way, an economic system achieves its greater level (Feinschreiber, 2004). Additionally, the theory of the cycle of money suggests that with the best allocation of production units and of taxes, the money is cycled in the financial system and is not misplaced from the economy; hence, this helps to achieve the maximum use of the same quantity of money in an economy.



**Fig. 1. The cycle of money** (Source: author's compilation)

From the prior scheme, we conclude that the cycle of money uses four basic terms, which are savings, consumption, liquidity and investments. Moreover, we obtain that taxes and controlled transactions, in general, diminish the cycle of money. On the other hand, health and education make the economy better, as they belong to sectors that enforce the terms of the cycle of money with the implication of better quality of economic units of a country's society (Challoumis, Transfer Pricing Methods for Services and the Policy of Fixed Length Principle, 2019).

The arm's length principle is the principle where the authorities are made to put taxes on international companies, and in general, on large companies (OECD, Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, July 2017) (OECD, Review of comparability and of profit methods: revision of Chapters-III of the Transfer Pricing Guidelines, 2010). The arm's length principle is a way to put taxes on these companies by the provided data and tax methodologies that are provided to the tax authorities (OECD, Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations, 2001). So, in many cases, the arm's length principle is difficult to find in the companies that are making controlled or uncontrolled transactions, as they provide similar data with that of the other companies that make uncontrolled transactions and are not hiding or avoiding to pay taxes (Erceg, Prestipino, & Raffo, 2018) (United Nations, 2013). Therefore, the authorities should apply the fixed-length principle rather than the fixed-length principle. The fixed-length principle shows that the companies of controlled transactions, and in general, the larger companies should pay a fixed amount of money to the governments that sell their products or services (Zax, 1988) (Meier & Rosenbaum, 2000). In that way, the cycle of money is enhanced, as the larger companies usually receive the money out of the society and the economy, and deposit them to third countries' banks, and retrieve that money form the society, making the consumption weaker (Bank de France, 2018). Then, with the fixed-length principle, the local enterprises that deposit their money to local banks have lower taxes and make the country's economic system robust (Helpman & Krugman, 1989).

### Methodology

Based on the Literature Review that was presented in the prior section, we can proceed to the analysis of the methodology used in this study. The method used in this paper is an application and calculation of a series of equations that are presented below. For the estimations of the cycle of money, the following mathematical equations are used:

$$c_y = c_m - c_\alpha \quad (1)$$

where

$c_m$  symbolizes the velocity of financial liquidity;

$c_\alpha$  symbolizes the velocity of escaped savings;

$c_y$  symbolizes the term of the cycle of money.

Therefore, we have the following equation as the index of the cycle of money:

$$c_y = \frac{dx_m}{dm} - \frac{dx_m}{da} \quad (2)$$

where

$a$  symbolizes the escaped savings;

$m$  symbolizes financial liquidity;

$x_m$  symbolizes the condition of financial liquidity.

It should be mentioned that for the definition of  $c_m$  and  $c_a$ , we examine them from the view of losing money by the authorities, but if we examine them from the view of gaining money, the definition would be inverted. Then, for the index of the cycle of money, we would have the following equation:

$$i_{cy} = Y * b_d \quad (3)$$

where

$Y$  symbolizes the national income or GDP for the certain case;

$b_d$  symbolizes the bank deposits of the country;

$i_{cy}$  symbolizes the cycle of money as an index, as  $c_y$  has and other expressions.

The application of equation (3) gives the following:

$$i_{cy} = \frac{\sum_1^t \sum_1^N (GDP_{capita\ i} * b_{d\ i})}{N} \quad (4)$$

where

$t$  symbolizes the period or year;

$N$  symbolizes the number of countries;

$GDP_{capita\ i}$  symbolizes the GDP of each country;

$b_{d\ i}$  symbolizes the bank deposits of each country.

We have a replacement of variable  $Y$  with the GDP, for the application of the theory to real economic data. Therefore, we can proceed to the estimation of the decimal values by the next form of type:

$$g_{cy\ Country} = \frac{c_{y\ country's}}{c_{y\ Average} + c_{y\ country's}} \quad (5)$$



where

$g_{cy\ Country}$  symbolizes the general index of  $c_y$  of the country;

$c_{y\ country's}$  symbolizes the index of  $c_y$  of the country;

$c_{y\ Average}$  symbolizes the global index of  $c_y$ .

$$g_{cy\ Average} = \frac{c_{y\ Average}}{c_{y\ Average} + c_{y\ Average}} = 0.5 \quad (6)$$

where

$g_{cy\ Average}$  symbolizes the general global index of  $c_y$ , as a global constant.

The cycle of money expresses the money that is kept to the economy and recycled many times without escaping from the country's economy, therefore, this happens according to this theory concerning the structure of the economy. If a certain amount of money is deposited in a bank out of the country, then this money is escaping from the economy and the liquidity is diminished and becomes weaker. The economy is a bounded but not closed system, this means that it is connected with other economies of other countries, but at the same time, it's appropriate structure is based on the principles of the theory of the cycle of money.

## Results

Using the methodology that we referred to earlier, we proceed to the estimation of the indexes to conclude how well structured is the economy of Latvia. We expect to be in an appropriate condition, therefore, at least to the global average cycle of money. This means that the economy doesn't have a lot of money that it is losing from the cycle of the economy, by the escape of money to other economies from the larger enterprises. Moreover, according to this theory, we expect Latvia to have appropriate consumption and circulation of money, as the larger enterprises are not fully overcovering the smaller ones. Hence, to conclude the behaviour of Latvia's economic system, we must proceed to the estimation of the global average index and after that Latvia's index.

Estimating the global average cycle of money, we can have a basis for further research of the case of Latvia, to the period between 2012 and 2017. Then we receive the following table:

**Table 1. Latvia's index of the cycle of money** (Source: author's compilation)

YEAR	BANK DEPOSITS GLOBAL AVERAGE (%)	BANK DEPOSITS LATVIA(%)	GLOBAL GDP PER CAPITA (\$)	LATVIA GDP PER CAPITA (\$)	INDEX OF GLOBAL AVERAGE Cy (\$)	INDEX OF LATVIA'S Cy (\$)
2012	52.48	36.62	16,653.01	13,847.79	873,949.96	507,106.07
2013	53.96	53.96	17,266.62	15,043.12	931,706.82	811,726.76
2014	55.81	39.44	17,159.02	15,740.33	957,644.91	620,798.62
2015	59.38	40.56	15,295.71	13,698.94	908,259.26	555,629.01
2016	60.77	42.32	15,330.03	14,153.42	931,605.92	598,972.73
2017	60.07	41.81	15,082.49	15,548.08	906,005.17	650,065.22
RESULTS					<b>5,509,172.04</b>	<b>3,744,298.41</b>

We obtain from the prior results that:

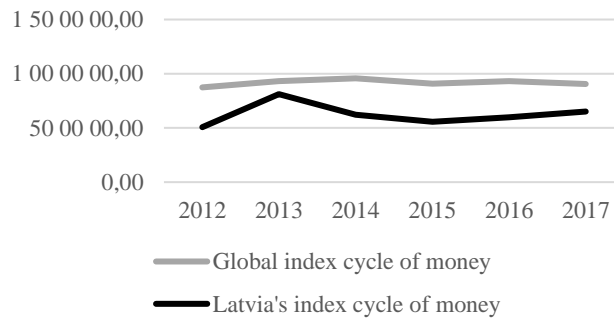
The index of global average  $c_y$  is **\$5,509,172.04**

The index of Latvia's  $c_y$  is **\$3,744,298.41**

Calculating the general index of the cycle of money for the case of Latvia and of global view, we have:

- The general index of  $c_y$  for Latvia is  $g_{cy\ Latvia} = 0.404$
- The general index of  $c_y$  of global view is  $g_{cy\ Average} = 0.5$

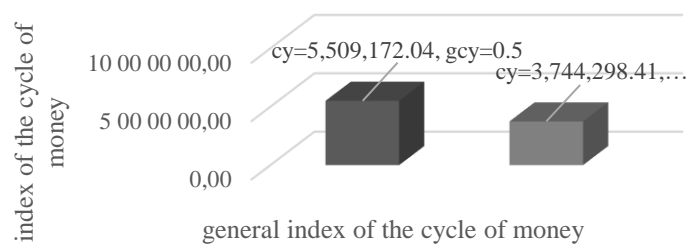
Then, it is obvious that Latvia's index cycle of money is near the global average cycle of money. Therefore, the dynamic of the economy belongs to the global average and the structure is close to the expected one. Then, we receive the following graph:



**Fig. 2. Diagram of the index of the cycle of money** (Source: author's compilation)

According to the prior diagram, we conclude that the index of the cycle of money of Latvia is very close to the global average of the index of the cycle of money. Then the global average index of the cycle of money is 0.5 from 2012 to 2017 and for the same period, Latvia has a value of 0.404. So, we can consider Latvia as a representative country of the global average of the cycle of money. Scrutinizing this result, we obtain that to be more protective of the economy, as part of the money of the economy liquid from the system and are not reused. Then, the government should be more protective of the small and medium enterprises establishing lower taxes, and at the same time, the larger companies should pay more direct or indirect taxes. In that way, the consumption and the banks of Latvia will have more money for the country's economic system. Also, in that way, people will have more prosperity and increased consumption.

Using the index of the cycle and the general index of the cycle of money, we receive the following chart:



**Fig. 3. Scheme of the cycle of money indexes** (Source: author's compilation)

To the prior figure, we perceive the combination of the index of the cycle of money with the case of the general index of the cycle of money. We confirm the close relationship between the global average indexes and Latvia's index. So, we can deduce that Latvia belongs to the countries that are representative of the global average index of the cycle of money, either if this is the simple index or the general index.

### Conclusions

According to the results as shown in Table 1, we conclude that Latvia is very close to the global average index of the cycle of money. Using Figure 2 and Figure 3, the index of the cycle of money is close to the global average of the index of the cycle of money, showing that Latvia's economy is well-structured. This means that the cycle of money of the country is at an appropriate level that allows the economy to function with an adequate distribution of money in the economy. The losses of the local banks are to a good level because the money is not excluded from the local economy by international transactions. The interpretation is that the economy belongs to the average cycle of money, then to the average economic dynamic, as the economic structure can be improved, with lower taxes to the small and the medium economic units, applying a higher tax to larger companies. Larger companies cover the production and the services that could be offered by smaller companies. The way to increase the cycle of money is to distribute and redistribute the money to the economy, diminishing the losses from the local banks' deposits and avoiding large companies to keep large amounts of money abroad that never come back to the economy, as saved to international accounts. Moreover, the larger companies should estimate production that smaller companies can't offer, then the government should have low taxes to high technological units and factories. Therefore, larger companies should not substitute smaller companies' activities. Then, larger companies should not offer goods and services that can be offered by smaller companies. The consumption and the general investments of a country are increased by the expansion of the distribution of money. A country with a well-structured economy is a country with a cycle of money at a good level concluding that this country can face more easily economic shocks and disturbances due to an economic crisis. The application of the fixed-length principle could enhance the index of the cycle of money, by the higher taxes to the companies that proceed to international transactions and substitute activities of smaller companies. Latvia's economy is close to the index of average GDP per capita, to the year 2017 was very close to the index of average GDP per capita. Moreover, we obtain that Latvia's structure of economy tends the last years to have higher reuse of money in the economy than to the past, as it tends to have closer characteristics to an economy that complies better with the concept of the cycle of money. Finally, Latvia's economic dynamic belongs to the global average cycle of money, showing that is a well-structured economy.

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## ONLINE MARKETING COMMUNICATION TRENDS IN SLOVAK HOTEL INDUSTRY

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### Abstract

**Research purpose.** Traditionally used communication mix as a part of company's marketing strategy, including advertising, sales promotion, personal sales and public relations, is gradually changing and expanding. Thanks to the development of new information-communication technologies, all these tools are constantly being transformed into the conditions of the Internet. This fact also affects consumer's lifestyle, and thus, their buying behaviour. As a large part of consumers are almost always online via fixed internet, WIFI or within data, companies in various sectors, especially in service sector such as hotel industry, have a better opportunity to reach a specific target group with online marketing communication. The main goal of the article is to provide a literature review on online marketing communication from the viewpoint of several foreign and domestic authors, analyse its trends in hotel industry and propose measures for the efficient online marketing communication in Slovak hotels.

**Design/Methodology/Approach.** To achieve the main goal of the article, general scientific methods as well as statistical methods such as descriptive statistics were used. The primary data were obtained from the questionnaire survey focused on the determination of the online marketing communication trends in the hotel industry by Slovak consumers. The size of the basic set was determined by using demographic statistics of the Statistical Office of the Slovak Republic and was consisted of inhabitants living in the Slovak Republic older than 15 years. In total, 390 respondents participated in the marketing survey. The survey took the form of computer-assisted web interviewing respecting the ICC/ESOMAR (International code on Market, Opinion and Social Research and Data Analytics). For the processing of the survey data, the quantitative assessment method was applied. The secondary data included domestic and foreign scientific works, statistical databases and annual companies reports.

**Findings.** Gradual changes in society, including the advent of new communication technologies, have an impact on the changing attitudes and behaviour of consumers, especially represented by the new generations, who prefer communication with companies in the online environment. However, there is still a large number of companies in Slovakia, including the hotel industry, that underestimate the power of online marketing communication, and their activity in the online environment such as social media is often inadequate. Based on the analysis and results of the questionnaire survey, it is thus clear that implementation of online marketing communication in business strategy of Slovak hotels brings many benefits, including brand building, improving relationships with customers and increasing their brand loyalty.

**Originality/Value/Practical implications.** Finally, measures for the efficient implementation of online marketing communication in the specific Slovak conditions are proposed, and opportunities for future research are recommended.

**Keywords:** Online marketing communication; hotel industry; brand loyalty; consumers; company

**JEL codes:** M30; M31

## Introduction

Sharing advertisement content via only traditional tools of marketing communication (such as advertising, sales promotion, personal sales and public relations), are no longer attractive for consumers. Consumers' buying behaviour and their decision making is affected not only by the development of information-communication technologies, but also ranking of values, changing lifestyle and leisure activities (Frey, 2011). Consumers are asking for the greater personal approach and dialog in communication (Nica & Taylor, 2017; Rypakova *et al.*, 2015). In this reason, online marketing as a progressive form of marketing communication represents an efficient way to build a strong and popular brand with a growing number of loyal customers (Moravcikova & Krizanova, 2019; Moravcikova & Kicova, 2018).

Currently, online marketing communication forms a significant part of the marketing communication in almost every company. It is particularly useful and visible in areas where advanced information technology is more widely used. It represents a process of identifying customers' needs and requirements in order to provide them with a product satisfying their needs. Thanks to online marketing communication, companies have the possibility of special care for each customer and the possibility of individualization of the product in all sectors, while it is especially obvious in services sector including hotel industry.

Nowadays, there are many new online marketing trends and strategies that are gradually evolving under the conditions of the high-tech industry (Reicher, 2018). Many companies successfully use them in their marketing communications (Kicova *et al.*, 2018).

One of the latest trends is to use artificial intelligence to analyse consumer behaviour, that takes the psychological aspects into account such as consumer's lifestyle, his social standing as well as his activities, interests and opinions. Next, it helps to gather information from social networks and to understand how consumers are searching for the products they desire (Wirth, 2018).

Another trend represents the personalization of products, that not only increases profit but also improves customer relationships and increases their loyalty. Currently, companies focus on creating personalized video, so called vlog. Conversely, the e-mail sending and telemarketing is beginning to decline. The popularity of social networks among consumers is steadily increasing, as is the number of companies using their services (Shareef *et al.*, 2019).

## Literature Review

Many foreign and domestic (Slovak) authors have dealt with the issue of online marketing communication.

Foret (2011) states that current society is characterized primarily by dynamics, gradual integration and constant expansion, while justifying the development by the development of information and communication technologies. According to him, the internet plays a dominant role, given that companies and customers are penetrating the issues of e-business, sales or purchasing, as well as online marketing. Prikrylova and Jahodova (2010) agree with this opinion; according to them, among all the media, no other has had such a major impact on the business world as the internet. Over the years, this global computer network and communication platform has become an important communication tool of the companies in all industries, government institutions, organizations, interest groups and individuals.

Janouch (2019) claims that traditional media have placed people in the role of passive consumers of products, opinions or entertainment. However, the online environment is directly inviting conversations, and companies are starting to adapt. Also, Mikulas (2017) highlighted the online marketing that it is among the most popular forms of marketing communication, and its use is still growing very fast. Similarly, Shankar and Batra (2009) have examined the rapidly growing importance of marketing communications through the online medium in their research.

Prikrylova and Jahodova (2010) state that online marketing communication represents a progressive tool with versatile use. It provides an effective and prompt communication by adapting the content to the target group.

It is clear, that recently, the importance of online marketing communication has been growing more and more. Thanks to this development, the new online PR tool was created in accordance with new trends, using all the opportunities and modern medias to reach different target groups (Oksiutycz & Kunene, 2018).

According to Scott (2010), online marketing communication is a useful tool for more efficient customer relationship management. He also examined the effectiveness of SEO in search engines. His research also brings much useful advice for using social media and networks, instructions on how to communicate directly with customers with the help of the Internet, increase the level of sales and improve the brand loyalty.

Quite valuable is also the contribution of Gurau (2008), who dealt with the internet as a part of integrated marketing communication. He proposed the communication model for aligning the company's communication strategy with the company's philosophy and target groups.

In terms of liability, according to Jensen (2008), company should be responsible for its online communication strategy. It is necessary to take attention especially on the online interactive communication and customers relationship. Similarly, Radionova-Girsa (2019) focused her research on the determination how business-to-person communication affects long-term customer's relationships and their loyalty. The research results can help to understand the customer and his reactions to the particular online communication tools.

Janouch (2010) defines the advantages of online marketing compared to offline marketing:

- Monitoring and measurement – companies have much more data available
- Continuously operation
- Individual access to each customer
- Dynamic content – the offer can change at any time depending on the needs of customers

It is obvious, that online marketing is very useful, it helps to identify individual customers' requirements, provide them with a tailor-made product and well targeted communication, and thus gain their loyalty. Online marketing communications offers a variety of forms that differ in their goals.

According to Prikrylova and Jahodova (2010), online communication tools include:

- Optimized website
- Online PR campaigns
- Google business profile
- Search Engine Optimization
- PPC Advertising
- Online Advertising campaigns
- Blog
- Email marketing
- Social networks
- Banners
- Viral marketing (Prikrylova & Jahodova, 2010).

As is clear from the above, the issue of online marketing communication is still actual. Several authors have also researched its impact on the brand as well as brand loyalty.

Wang (2011) has aimed his research on the impact of online communication on the consumer brand relationship quality perception, including brand loyalty. Similarly, El Gazzar and Mourad (2012) examined how online marketing communication affects the brand image of universities. They found out the strong correlation between the online marketing communication strategy and the brand image of the university that was reflected in positive brand loyalty. In contrast, the wrongly chosen online marketing communication can be quite contra productive. In this context, Bambauer-Sachse and Mangold (2011) examined negative impacts of online marketing communication on brand.

According to Ion and Cismaru (2018), companies are focused to constantly change their communication strategy in order to be in the trend with the social and technological development. In their study, they aimed on organizational and social factors that influence online communication strategy of brands and the brand loyalty.

Oksiutycz and Kunene (2018) focused on how the online corporate communication influence brand reputation amongst the target group – Millennials – and its impact on company image. They found out that Millennials get most of the information about the brand just through online communication, and this fact also influence their brand loyalty.

Moravcikova and Krizanova (2017) identified strategies of the transmedia storytelling concept (in comparison of various media online and offline platforms) in the context of branding, which should result in increasing brand value and gaining brand loyalty.

The transformation of consumers and audience media attitude and buying behaviour can be described as such an output of the evolution of the technology and the fall of communication barriers between companies and their target. It is not otherwise in the case with luxury goods, where marketers and communication managers are facing new challenges, to increase brand loyalty with online communication tools (Mosca & Casalegno, 2016).

In the case of hotel industry, it can be said, that information technologies created new medium in the relationship with selling hotel services. Thanks to the digital technology, customers can receive quality information on the products and brands more easily. Optimization of marketing communication has become a main goal for hotel industry, for example, by using the mobile apps (Parvez *et. al*, 2018).

The necessary and effective marketing communication tool in hotel industry also represents social media. In their research, Jung *et al.* (2013) found that online social networks provided opportunities to improve the relationship with customers and increase their brand loyalty while they identified recommendations for hotel marketing practitioners with regard to addressing consumers' needs.

Based on the above mentioned, we can say, thanks to the development of new information technologies representing online marketing communication an efficient tool for brand promotion (Kicova *et al.*, 2019), and its mostly positive impact on brand loyalty is also evident in global and as well as in particular sectors (Janoskova *et al.*, 2019).

## **Methodology**

The main goal of the article is to provide a literature review on online marketing communication from the viewpoint of several foreign and domestic authors, analyse its trends in hotel industry and propose measures for the efficient online marketing communication in Slovak hotels. Based on the analysis and results of the questionnaire survey, benefits of online marketing communication implemented in the business strategy of Slovak hotels are identified, including brand building, improving relationships with customers and increasing their brand loyalty. Finally, measures for the efficient implementation of online marketing communication in hotel industry in the specific Slovak conditions are proposed.

To achieve the main goal of the article, general scientific methods as well as statistical methods such as descriptive statistics were used. The secondary data include domestic and foreign scientific works, statistical data and annual companies' reports. The primary data were obtained from the questionnaire survey focused on the determination of the online marketing communication trends in hotel industry by Slovak consumers.

In order to calculate the minimum sample size of respondents, we used the freely available Sample Size Calculator of the research software Creative Research Systems. The size of the basic set was determined by using demographic statistics of the Statistical Office of the Slovak Republic. The selection of the respondents in the sample set took place at random and as mentioned, was based on the number of Slovak inhabitants older than 15 (4,594,153) because of their legal working subjectivity. The level of significance was set at 0.05, which corresponds to a probability of assertion of 95% with a permissible error of the estimate of 5%. It follows from the above, that the size of the minimum sample was 384 respondents. In total, 390 respondents participated in the marketing survey,



that is, the requirement of a minimum sample size was met and the respondents' answers to individual questions asked during the surveys on the basis of determined reliability coefficients with a permissible error estimate can be considered relevant.

The questionnaire consists of three parts. The first part covered the general socio-demographic profile of respondents. The second part was focused on the detection of which marketing communication tool do consumers use when looking for accommodation. The last part dealt with the consumer's perception of online marketing communication in hotel industry. The survey was conducted during the second half 2019. The survey took the form of computer-assisted web interviews respecting the ICC/ESOMAR (International code on Market, Opinion and Social Research and Data Analytics). For processing of the survey data, quantitative assessment method was applied.

Through scientific methods, such as excerption, description, comparative analysis, deduction and induction, we extracted the data obtained from the questionnaire survey into the desired information needed to meet the information needs we set. When presenting the results of the questionnaire survey, we used quantitative assessment method, that is, data were processed empirically as absolute numbers and percentages according to generational groups – Baby Boomers, Generations X, Y and Z.

## **Results**

In the research, we focused on the determination of online marketing communication trends in the hotel industry by the Slovak consumers.

Except for the last period due to the COVID-19, we can state, that the demand for accommodation services in Slovakia is strong, especially during the summer and winter seasons. Price is one of the decisive factors in the process of buying decision of Slovak consumers, and due this fact, the current trend includes accommodation and discount portals (e.g., Booking, Airbnb, Trivago, Zlavomat, etc.), which have a large impact on the demand for accommodation. We can also observe the increasing interest in quality services (at optimum price) and the sharing of feedback by Slovak consumers regarding their satisfaction with the hotel services. In this reason, Slovak consumers have become accustomed to searching for information about accommodation facilities through online tools and, over time, trust these much more than ever. Companies in all fields, including the hotel industry, find that customer satisfaction is a key factor in business growth, branding and customer loyalty, and for this reason, online marketing communications have become an important means of promotion.

Of the total number of 390 respondents who participated in the questionnaire survey, 248 (63.6%) were female and 142 (36.4%) male. Regarding the age of respondents, they were divided in generational categories as follows:

- Baby Boomers (aged 55–73 years) – 32 respondents (8%)
- Generation X (aged 40–54 years) – 68 respondents (17%)
- Generation Y (aged 24–39 years) – 162 respondents (42%)
- Generation Z (aged less than 24 years) – 128 respondents (33%)

The survey results show that regardless of which generation the respondents belonged to, the majority (321 respondents – 82%) use the internet to find and buy accommodation and only a small group of respondents (69 respondents – 18%) do not use it.

Respondents most frequently look for accommodation through accommodation portals (Generation Y – 48%; Generation Z – 44%; Generation X – 42%, Baby Boomers – 25%), search engines (Generation X – 38%; Baby Boomers – 32%; Generation Y – 30%; Generation Z – 18%) and accommodation websites (Baby Boomers – 32%; Generation X – 15%; Generation Y – 13%, Generation Z – 8%). Unlike the others, generation Z frequently look for accommodation through social networks (37 respondents – 29%).

Except for Generation X (41 respondents – 60%), respondents almost never clicked on the paid advertising links about accommodation displayed in the search engines.

Majority of respondents, regardless of age (312 respondents – 80%), indicated that they have a negative attitude to sending newsletters about hotel services via e-mail.

Active communication through social networks of the hotel is important especially for Generation Z (116 respondents – 91%) and Generation Y (131 respondents – 78%). The reason was mostly feedback, fast handling of accommodation requirements, possibility to get important information quickly, fast and more personal communication, news about accommodation, accommodation reviews, building relationship with the customer and so on. For social network communication, most of the respondents indicated Facebook (Generation X – 82%; Baby Boomers – 74%; Generation Y – 65%; Generation Z – 58%) and Instagram (Generation Z – 41%; Generation Y – 32%; Generation X – 10%; Baby Boomers – 5%).

The questionnaire survey also showed that most of Generation X (51 respondents – 75%), Generation Y (100 respondents – 62%) and Generation Z (77 respondents – 60%) noticed the ads of accommodation on social networks. However, regardless of which generation the respondents belonged to, 40% respondents indicated this fact did influence their buying decision making.

When investigating how the use of online marketing communication tools affects customer relationship with the hotel as well as the brand, most respondents (312 respondents – 85%) indicated that they prefer a hotel that uses online marketing communications (especially generations X, Y and Z), and they regularly returned to such a hotel (148 respondents – 38%).

### **Conclusions**

Based on the analysis and results of the questionnaire survey, measures for the efficient implementation of online marketing communication in the specific Slovak conditions are proposed.

Of the world's population, up to 4.2 billion people use the Internet. Of these, on average, one in five people has a social network account and spends about two hours a day on it. This is the reason why companies including hotels have decided to promote their brands online. In Slovakia, 80% of households have the Internet, while digital literacy is constantly growing. Thus, it is obvious, that social networks are a part of lifestyle of many consumers (Hitka *et al.*, 2017). They spend a lot of time there and it is, therefore, a great place where hotels can spread their content. In Slovakia, the most used social networks in the case of influencer marketing include Facebook, Instagram and YouTube. Currently, there are more than one billion active users on Instagram. Brand engagement rate is 10 times higher on Instagram than on other social networks. It is also a great social network to reach young audiences, because 71% users are younger than 35 years. Up to 60% of registered users log in to their account every day, most of them are 18–29 years old. An average user spends about 53 minutes of his online time on Instagram (Sykorova, 2019). Facebook is used by 2.6 billion active users worldwide, from which 1.73 billion people on average log into Facebook daily and are considered as daily active users. A huge growing number of Facebook users are active and consistent in their visits to the site, making them a promising audience for the marketing efforts of the brand. Therefore, Facebook is the third most visited website outranked only by Google and YouTube (Noyes, 2020). According to Pew Research, a 2019 study survey showed that among the U.S. adults who use Facebook, 74% visit the site at least once a day (Gramlich, 2019). YouTube is the second most used search engine in the world (after Google) with more than 1.9 billion active users. On average, 80% users are aged 18–49 years; they mainly use mobile browsing and the average time per opening is more than 40 minutes. 60% users prefer online video over live TV. Total number of active users per day is more than 30 million, including YouTube TV paying subscribers of 1 million. The number of videos watched per day is up to 5 billion. On YouTube, there are 50 million users who create content, and more than 400 hours of video content is uploaded every minute (Jurickova, 2019). Also, according to the result of our questionnaire survey, most respondents actively perceive ads posted via social networks. And 40% of respondents even stated that such advertising motivated them to make a purchase. For many consumers, the active communication of hotels via social networks is a sign of their reputation and of building customer relations. The social networks that attracted consumers most were Facebook and Instagram. Consumers enjoy watching posts, photos, videos, competing, commenting and sharing. These activities should be the basis of the activities of hotels on social networks. However, it is important to develop regular activity. Consumers also often like to express their opinions. It is essential that the hotel responds to these views, whether positive or negative. The consumer must have the impression that his voice is heard and that everything is done to meet his

requirements. As social networks are constantly evolving and new features are being added, we encourage accommodation to respond flexibly to these changes and stick to current trends on these platforms. The current popular tools are social stories on Facebook and Instagram. Stories are mostly posts or photos, but they only appear to the users for a short time. The younger respondents like these new trends and use them to share their own content. Posting short stories that can communicate important information easily and briefly to users can be one form of communication that could attract new users' attention and deepen the relationship between both parties.

Accommodation and discount portals are among the popular ways consumers use to find and purchase accommodation. Their attractiveness lies in the simplicity and clarity of the offers displayed. The main benefits of finding services through accommodation portals are the ability to compare multiple accommodations in one place based on reviews, photos and prices. This information is very important for consumers and has a great influence on their buying behaviour. Concentration of offers in one place and clear processing significantly reduce search time, which is nowadays a decisive factor for consumers. Registration on these portals offers consumers better deals, such as additional discounts on stays, later check-out and so on. Many portals reward their members for the number of orders they have made. Since the offers of accommodations are visible to a large number of visitors, they will get to people's awareness much faster. In addition, most portals provide their partners with statistical information, such as visit-to-purchase ratio. They display offers posted on portals as well as on other websites. It is therefore attractive for the accommodation to register at the accommodation and discount portals, and to offer its services there as well.

For hotels, websites are an essential and very useful communication tool. Results of the questionnaire survey have shown that many consumers use websites to create an opinion about accommodation. In order for visitors to make a reservation, the website should not miss photos of the accommodation, basic information such as address, telephone and e-mail contact, social networks' profiles where the accommodation is active. It is attractive for guests to post reviews of the services provided in a dedicated section of the website. Customers are given the opportunity to express their opinion, and the accommodation gets space to deal with the customer. New visitors have the opportunity to see the solution of the particular situation by the hotel, which can positively influence their decision-making process. If the hotel has been awarded for its services or has a long history in the market, it is useful to present this information on a website where it is visible to the visitors. It is also advisable for the hotel to respond to ongoing events in its vicinity. One way is to create a blog section on a website. The role of blogs is to increase brand awareness and brand loyalty. Hotel representative can post on a variety of topics, such as attractions close to the hotel or various inspirations for their visitors. The blog can be created as part of a website from which it can be easily accessed by those interested in accommodation. It should also be linked to social networks where these blog posts can be shared.

The efficient application of online marketing communication in hotel industry (as well as in other fields) may strengthen the competitive position of the company and bring other advantages, such as:

- Increase in website traffic and fans on the social networks
- Increase the number of customers and thus sales
- Increase consumer awareness
- Strengthen the market position
- Strengthen the brand value
- Improve brand image
- Achieve customer loyalty and thus increase the brand loyalty

It is clear that our examination of the online marketing communication trends in Slovak hotel industry has several limitations that create interesting opportunities for future research in deeper qualitative and quantitative level. The next investigation could be aimed at improving knowledge of the modern online marketing communication tools and comparison of their impact on brand loyalty in particular industries. Another possibility includes determination of how other progressive marketing communication tools affect the brand loyalty.

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## PERCEIVED ORGANISATIONAL SUPPORT AS A MODERATOR IN THE RELATIONSHIP BETWEEN ORGANISATIONAL JUSTICE AND AFFECTIVE ORGANISATIONAL COMMITMENT

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### Abstract

**Purpose:** This study aimed to explore the relationship between organisational justice and commitment and how the combined influence of organisational justice and perceived organisational support (POS) impacts on commitment.

**Research Methodology:** Data were obtained through questionnaires administered to 124 teaching and non-teaching staff, who were conveniently selected by the researchers from Ghanaian public universities. Descriptive survey design was adopted for this study.

**Findings:** The results from regression analysis of data collected showed a significant positive relationship among the dimensions of organisational justice and affective commitment. Furthermore, POS was found to moderate the relationship between organisational justice and commitment, as the effect of justice on commitment increased when POS was added to the model.

**Practical Implications:** The present study supported the expected relationship among justice, POS and organisational commitment and implied that higher level of fairness and support from the organisation can favourably influence the commitment level of employees.

**Originality:** The current research examines the moderating role of POS on organisational justice–commitment link using samples from the Ghanaian higher education institutions. Thus, it makes relevant contribution to the existing literature by modelling both organisational justice and support and analysing its effect on organisational commitment.

**Keywords:** organisational justice; perceived organisational support (POS); affective commitment

**JEL codes:** M1

### Introduction

Organisations all over the world are troubled with generating policies and protocols that allow their staff to be involved and inspired as well as willing to stay. To be able to achieve such important effects, the starting point of most organisational research has focused on organisational leadership, human resource management as well as organisational culture, so as to warrant the right treatment of employees in accordance with standard labour and anti-discriminatory laws. According to Cropanzano et al. (2007), a key model relating to this line of thought is the notion of organisational justice at the workplace, which explicitly states the ways and manner of doing things in the workplace are thought of being fair by its human resources. It has been reported in literature that perceptions of organisational justice have constantly been related to organisational outcomes by researchers (Colquitt et al., 2001). For instance, Cohen-Charash and Spector (2001) reported that perception of justice and equal right makes employees satisfied with their job, show increased commitment as well as reduce turnover rate, and get actively involved in citizenship behaviours (Chen et al., 2008), and safety policies at the workplace are well obeyed (Gyekye & Haybatollahi, 2015). On the other hand, employees who had been treated unfairly in the organisation showed reduced satisfaction with their job, management mistrust and their commitment levels in the organisation were poor (Ambrose & Schminke, 2009; Beugre & Baron, 2001; Brockner, 2002; Chen et al., 2008; Rego & Cunha, 2010).

Most of these researchers have used the social exchange theory in providing the rationale for organisational justice and its related outcomes (Blau, 1964; Glouder, 1960).

The social exchange theory, operating on the basis of reciprocity, explains that employees' perception of fair treatment causes them to feel obligated to recompense their employing institutions with positive behaviours. However, when employees experience unfair treatment, they exhibit negative behaviour, which impacts the organisation. Adopting social exchange theory in this current study, it may be stated that employees may demonstrate increased commitment to the organisation in exchange for the fair treatment received. Perceptions of fairness by employees are a key determinant of behaviour in an organisation.

With respect to the aforementioned theory, measures undertaken in an organisation have significant implications on employee behaviour. Astonishingly, how the perceptions of organisation justice and work environment factors (perceived organisational support [POS]) together affect the behaviour of employees (commitment) is sparsely explored in sub-Saharan Africa, especially in Ghana.

Two probable means in which examination of the joint effect of organisational justice and POS is relevant are explained in this study. In the first scenario, organisational justice and the work environment features have improved outcomes. In that, aside the role played by perception of justice in employees' behaviour as indicated in literature, other work environment features like POS when added to justice could lead to an increased impact on work-related outcomes. Secondly, work environment features and organisational justice lead to replicative outcomes, which becomes possible if justice has partial dependency on employees' perception of the work environment.

Therefore, the aim of this study is to examine the moderating role of POS on organisational justice–commitment link using samples from higher education institutions.

## **Literature Review**

Overall, Bartlett (2001) thought of organisational commitment to mean the level of attachment felt towards the organisation in which one works for. Thus, it could be inferred that individuals committed to their organisation believe in the course being chartered by their employers, such that they have a strong will not to turnover, but are passionate about exerting additional energy for the well-being of their institution. Organisational commitment is a manifestation of an individual's existence as a person characterised by a strong belief in and acceptance of the organisation's goals and values, a willingness to exert considerable effort on behalf of the organisation and a definite desire to maintain organisational membership. Committed workers contribute more to the organisation than less-committed ones because of their ownership of the goals of the organisation which makes them work hard in pursuit of business objectives. Originally, Mowday et al. (1979) reported organisational commitment as a unidimensional construct which was measured with a single scale. However, Meyer and Allen (1997) reported that commitment is multidimensional in nature and constitutes three components: affective, continuance and normative commitment, described as an emotional attachment, identification and association of an employee with the organisation in which he/she is working. Meyer and Allen (1991) defined the three components of commitment as: 'affective commitment relating to the psychological attachment to an organization, continuance commitment refers to the costs associated with leaving the organization, and normative commitment associated with the perceived obligation to remain with the organization'.

Review of literature (Colquitt et al., 2001; Meyer et al., 2002) indicated an established relationship between perceptions of organisational justice and organisational commitment from different contexts and geographical locations. With regard to the justice–consequence relationship, Colquitt et al. conducted a meta-analytic review of 25 years of organisational justice research and reviewed 183 studies in 2001. Their results showed an overall and unique relationship among distributive, procedural, interpersonal and informational justice and several organisational outcomes of which organisational commitment was a part. Gyekye and Haybatollahi (2015b) supported the impact that justice had on organisation outcome when in their study on organisational justice, a cross-national comparative study of Ghanaian industrial workers and their Finnish counterparts made the assertion

that from previous research works, employees who are optimistic about fairness in their workplaces demonstrates more commitment as well as loyalty to their organisations, and obey safety policies.

The findings of other researchers also provided support for a positive significant relationship between organisational justice and commitment. For instance, Ajala (2015) studied the influence of organisational justice on employees' commitment in manufacturing firms in Oyo State, Nigeria and the implications of industrial social work and reported that all the three dimensions of justice were significantly related to organisational justice. Jointly, the independent variables ( $F = 163.165$ ;  $p < 0.05$ ) significantly predicted the dependent variable. The results from the studies portray the need for managers to pay attention to fairness in treating employees at the workplace in order to get employees committed to the course being championed by the organisation. It is essential to have committed employees as it has so many benefits: employees become more loyal and have strong will to stay and see the organisation achieve its objectives, and they are more engaged to the organisation, which ultimately leads to improved productivity and thus organisational growth. Further, in demonstrating that organisational justice is a factor that aids in employee commitment at the workplace, Fatt et al. (2010) analysed the impact of distributive and procedural justice on organisational commitment from the Malaysian companies' perspectives and found a positive significant relationship among the various dimensions of organisational justice and commitment. This implies that to influence a positive attitude and behaviour among employees, it is essential for organisations to develop policies that ensure fair treatment in procedures used in handling and deciding on the outcomes for employees. However, research findings from Lee et al. (2017) demonstrated a different perspective on the justice–commitment nexus. The study predicted organisational justice with the three dimensions of organisational commitment, where interpersonal justice related positively and significantly with affective commitment, whereas it had an inverse relationship with continuance commitment. Meanwhile, distributive justice only predicted normative commitment. A comprehensive empirical research by Perreira et al. (2018) studied the relationship among interpersonal justice, affective commitment and turnover intentions and reported that interpersonal justice is positively related to affective commitment. In corroborating the assertion that organisational justice has influence on commitment, Edeh and Ugwu (2019) investigated the relationship between organisational justice and employee commitment of private secondary school teachers in Nigeria using survey design. The study concluded that organisational justice measured in terms of distributive justice, procedural justice and interactional justice enhances employee commitment in selected private secondary schools in Nigeria.

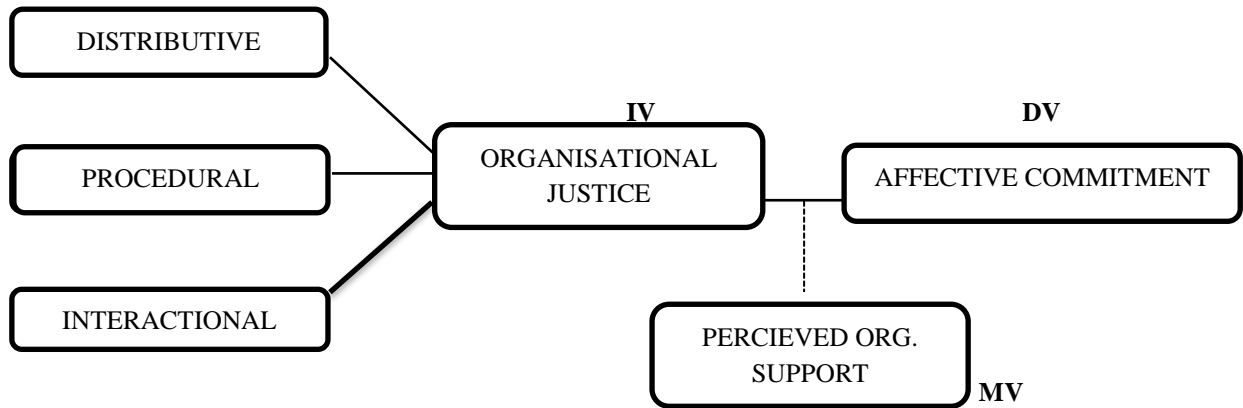
POS denotes workers' general perceptions regarding their management's contributions and concern for their well-being (Eisenberger et al., 1990). There exist some previous studies (e.g. Kim, 2009; Jordan et al., 2008; Pack, 2005; Pack et al., 2007; Lee et al., 2017) on POS–commitment nexus, but subjects were from different national cultures and context. For instance, Pack et al. (2007) researched on POS, employee satisfaction and retention of student workers in recreational sports department from Mid-Western University and reported that POS has significant relationship with affective commitment, normative commitment and job satisfaction, with 46.2% of affective commitment, 39% of normative commitment and 53.3% of job satisfaction being explained by POS. These results implied that exchange relationships do exist for student workers of recreational sports departments (Lee et al., 2017). Evidence for a positive link of POS with affective organisational commitment has well been established in various research works. For instance, Rhoades et al. (2002) have made known using a cross-lagged panel design that POS is positively related to changes in affective organisational commitment over time. These results are an indication that institutions that provide support for their staff will reap the benefits of having employees who are committed to the course of the institution.

Since literature has indicated organisational justice predicts organisational commitment and POS also predicts organisational commitment, it is expected that together, the presence of both variables would be able to better predict organisational commitment. Thus, to authenticate this assertion, the study has the following hypotheses:



1. *There will be a significant positive relationship between organisational justice and affective commitment:*
  - 1a. *Distributive justice would significantly predict affective commitment*
  - 1b. *Procedural justice would significantly predict affective commitment*
  - 1c. *Interactional justice would significantly predict affective commitment*
2. *POS would moderate the organisational justice and affective commitment nexus.*

The conceptual framework is used to represent the formulated hypotheses:



IV = independent variable; DV = dependent variable; MV = moderating variable

**Fig. 1 Conceptual Framework** (Source: authors' developed)

## Methodology

The study participants were selected from three public universities in Ghana. The three universities were chosen based on their similarities in structure and operation. Conveniently, questionnaires were administered to 200 participants. Out of the 200 questionnaires delivered, 124 were returned ( $N = 124$ ). Majority of the respondents were within the age range of 34–40 years; 66.1% of them were male and 33.9% were female. In total, 49.4% of the sample group had more than 5 years of experience in the university. Additionally, 21.8% were teaching staff, while 79.2% were non-teaching staff employees of the universities.

In the words of Eisenberger et al. (1990), POS constitutes workers' general perceptions regarding their management's contributions and concern for their well-being. In this study, POS was measured with the short version of Eisenberger et al.'s (1990) scale. The scale consisted of eight items and assessed workers' evaluations of organisational issues that affected their well-being. Sample items were 'The organisation values my contribution to its well-being' and 'Help is available from the organisation when I have a problem'. The total coefficient alpha score was .97.

**Organisational justice** was measured with the scale of Colquitt (2001). The instrument had 15 items and measured respondents' views of fairness in three proportions: (i) distributive justice (sample item: 'My work load and responsibilities are fair':  $\alpha = .84$ ); (ii) procedural justice (sample item: 'All job decisions are applied consistently to all workers':  $\alpha = .93$ ) and (iii) interactional justice (sample item: 'When decisions are made about my job, my supervisor shows concern for my rights as an employee':  $\alpha = .93$ ).

To ascertain **affective commitment**, Allen et al.'s (1993) measure was adopted. The affective commitment had six items (e.g. I feel a strong sense of belonging to my organisation;  $\alpha = .82$ ).

Moderated hierarchical regression analyses were undertaken by the researchers to assess the nature and strength of the associations among distributive justice, procedural justice, interactional justice, POS and the dependent variable, that is, affective commitment. Initially, the identified controlled variables were entered into the process. Subsequently, the main effects for distributive justice, procedural justice, interactional justice and POS were added to the process. The researchers entered the three different two-way interactions between the centred variables entered in the second step in the third stage. To end the analysis in the fourth step, the three-way interaction term between the centred variables was added.

Before analysis, the data collected were checked for completeness and consistency. A regression model was used to analyse the data collected from the questionnaires to establish the relationship between organisational justice dimensions and organisational commitment dimensions. However, the moderating role of the POS in the organisational justice and commitment nexus was analysed using moderated regression analysis by Hayes (2013).

## Results

IBM's Statistical Package for Social Sciences (SPSS) version 22.0 was used for data analysis. The statistical tests employed included Pearson product moment correlation coefficient and hierarchical multiple regression analyses. An alpha level of .05 was assumed for all the tests. Prior to the hierarchical regression, Pearson correlation was conducted to explore the relationship among the study variables as shown in Table 1. Affective organisational commitment correlated with distributive justice ( $r = .427, p < .001$ ), procedural justice ( $r = .345, p < .001$ ), interactional justice ( $r = .502, p < .001$ ) and POS ( $r = .570, p < .001$ ). Distributive justice was related to procedural justice ( $r = .599, p < .001$ ), interactional justice ( $r = .565, p < .001$ ) and POS ( $r = .572, p < .001$ ). Procedural justice correlated with interactional justice ( $r = .501, p < .001$ ) and POS ( $r = .622, p < .001$ ). Finally, interactional justice was related to POS ( $r = .592, p < .05$ ). Therefore, the correlational analyses results suggest that in general, the variables in our study were significantly correlated in the expected directions. Further, the correlation coefficients among the study constructs did not exceed .85, indicating that multicollinearity is not a problem (Kline, 2005).

**Table 1: Results of Pearson correlation** (Source: authors' compilation)

	Gender	Age	Tenure	Status	Affective Commitment	Distributive justice	Procedural justice	Interactional justice	Perceived organisational support
Gender	1	.150	.415	.250	.151	.092	.069	.089	.047
Age		1	.506*	-.268**	-.222*	.183	.061	-.098	.159
Tenure			1	.186*	.075	-.012	.042	.059	.178
Status				1	.396**	.416**	.238**	.408**	.510**
Affective commitment					1	.427**	.345**	.502**	.570**
Distributive justice						1	.599**	.565**	.572**
Procedural justice							1	.501	.622**
Interactional justice								1	.592**
Perceived organisational support	1	.150	.415	.250	.151	.092	.069	.089	.047

\*\*= $p < 0.01$ ; \* $p < 0.05$

**Table 2: Results from hierarchical moderated regression analyses** (Source: authors' compilation)

	DV = affective commitment			
Predictors	$R^2$	$R^2$ change	$F$	Beta
Step 1: Control variables	.245	.245	10.309*	
Gender				.313*
Age				.190
Tenure				.231*
Rank				.380*
Step 2: Main effects	.451	.206	11.825**	
Distributive justice				.171
Procedural justice				.182
Interactional justice				.341*
Perceived organisational support				.353*
Step 3: Interaction effect	.611	.159	12.629**	
Distributive justice $\times$ POS				.260*
Procedural justice $\times$ POS				.378*
Interactional justice $\times$ POS				.405*

\*\*= $p < 0.01$ ; \* $p < .05$

Further, to allow for a more sophisticated exploration of the interrelationship among the variables, hierarchical moderated regression analyses were conducted, the results of which are presented in Table 2. In the first step, gender, status and length of service contributed significantly to the estimated model ( $F = 10.309$ ,  $p = .0$ ;  $R^2 = .245$ ) and explained about 25% variation in the dependent variable (affective commitment). Gender, tenure and status were significantly related to affective commitment. However, age did not contribute significantly in predicting affective commitment ( $\beta = .190$ ,  $p > .05$ ). In step 2, the study tested for the main effects of POS, distributive justice, procedural justice and interactional justice on affective commitment. These variables were also significant in predicting affective commitment ( $F = 11.825$ ,  $p = .0$ ;  $R^2 = .451$ ;  $\Delta R^2 = .206$ ). Together, POS, distributive justice, procedural justice and interactional justice accounted for approximately 45% variation in affective commitment. In analysing the individual contributions of the independent variables in predicting the dependent variable, the standardised coefficient betas were provided in Table 2. POS and interactional justice significantly predicted affective commitment ( $\beta = .231$ ,  $.380$ ;  $p < .05$ ) respectively. Thus, hypothesis 1c was supported. However, distributive justice and procedural justice were not able to significantly predict affective commitment.

In the third stage, the interactional role of the moderator (POS) was estimated. Inferring from Table 2, the third model was also significant ( $F = 12.629$ ,  $p = .0$ ;  $R^2 = .611$ ;  $\Delta R^2 = .159$ ), where the interactional variables together accounted for approximately 61% of the variation in affective commitment. Thus, it implies that POS was able to moderate the relationship between organisational justice and affective commitment. Although distributive justice and procedural justice on their own did not predict affective commitment, the interactional role of POS in the third stage of the model strengthened the predictive ability of all the three dimensions of organisational justice; thus, hypothesis 2 was supported.

The study which used social exchange theory as a guide aimed at investigating organisational justice (distributive, procedural and interactional) and affective commitment and, at the same time, how POS moderated the organisational justice–commitment relationship. Analysis of results provided support for two hypotheses (1c and 2); interactional justice was significantly related to affective commitment, and also, POS significantly moderated organisational justice–commitment relationship. The present results corroborated the findings of Tetteh et al. (2019) which emphasised the roles of interpersonal

fairness and affective commitment in organisations, where affective commitment increases as a result of an increase in interpersonal fairness and makes the employees have an intention to stay. Also, the findings are in line with established research. For example, Pack et al. (2007) researched on POS, employee satisfaction and retention of student workers in recreational sports department from Mid-Western University. The results from their study indicated that POS had significant relationship with affective commitment, and it accounted for 42.6% of the variation in affective commitment. The results also support the social exchange theory and imply that exchange relationships do exist among the employees of Ghanaian public universities, wherein the employees interpret the support provided by their employer as a commitment towards them and this, in turn, enhances their commitment to the organisation. Additionally, when the employees perceive the processes used in making decisions in the organisation to be fair, they intend to get more emotionally attached to the company, and this invariably leads to an increased output from the employees. The results are important as committed employees perform beyond their call of duty and are highly motivated to work to the best of their ability. This attitude is essential for improved organisational growth, employee retention and loyalty.

### Conclusions

The findings of this study showed the individual relationship of organisational justice on affective commitment as well the role of (POS) which acted as a buffer in the link between organisational justice and affective commitment were supported (hypotheses 1c and 2). However, on their own, distributive and procedural justice (hypotheses 1a and 1b) were not significantly related to affective commitment. Accordingly, the study indicates that institutions must have in place policies that ensure fair treatment of employees along the lines of procedures used in managing them, outcomes given to them and the relationship that exists between superiors and subordinates. Additionally, structures must be in the organisation to provide support for the employees to get their commitment. The findings from the research support the need to promote enhanced conditions of work for the employees, as reflected in the opportunities for control and provision of social support. This is essential as POS strongly predicted affective commitment in the present study. Also, perceptions of justice and organisational support when put together strengthened their predictive ability of affective commitment. Thus, there is a need for organisations (management) to direct efforts both on organisational practices and policies to promote the perceptions of fairness and increase efforts to ensure good working conditions in order to achieve the combined benefits of both justice and organisational support.

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## DETERMINANTS OF BANK PROFITABILITY: CASE OF LATVIA

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### Abstract

**Research purpose.** The goal of the current paper is to investigate the impact of internal factors on bank performance. All the performance indicators and explanatory factors have been distinguished from the scientific literature.

**Design/methodology/approach.** To investigate if there was an effect of the distinguishing factors on Latvian banks' performance, correlation-regression analysis was applied. To test the developed models' accuracy, determination coefficient, Durbin–Watson coefficient, variance inflation factor (VIF), Cook's distance and p-value were computed.

**Findings.** The findings revealed that there was a relationship between all the dependent and independent factors, except return on assets (ROA) and return on equity (ROE). ROA has a significant positive relationship only with net commission income, and ROE, with net interest margin and net commission income. Moreover, two regression models were developed and showed that total assets and number of automated teller machines (ATMs) affect the profitability, represented by earnings before interest, taxes, depreciation, and amortization (EBIDTA) and bank value.

**Originality/value/practical implications.** The current findings contribute to the scientific literature dealing with commercial banks' performance issue and could be used by the banks to develop strategies for maximising profitability.

**Keywords:** Bank performance; performance factors; banking sector; commercial banks.

**JEL codes:** G21

### Introduction

Commercial banks' performance has been investigated in a wide range of studies (Haris et al., 2019; Barra & Zotti, 2019; Fang et al., 2019; Doku et al., 2019; Yang et al., 2019), but despite that, it still remains one of the core scientific questions. Many researchers analyse performance through profitability and raise the research problem on how to enhance the profitability of commercial banks (Adnan, 2019; Titko et al., 2016; Athanasoglou et al., 2008; Dietrich & Wanzenried, 2011; Keliuotytė-Staniulėnienė & Smolskytė, 2019). There is a viewpoint that bank profitability increases the level of economic stability (Neves et al., 2020). Hence, it is vital for commercial banks and for the countries they are located in to raise the profitability of those banks, as a stable banking sector could have an impact on the well-being of society and is an essential indicator of the development of the national economy.

To maximise the profitability of commercial banks, it is necessary to investigate the factors affecting it. Knowing those factors influences the development of the banking sector (Dogan & Eksi, 2020). Scholars analyse different factors of bank profitability, including internal and external factors (Batten & Vo, 2019; Utomo & Anggono, 2020; Abate & Mesfin, 2019; Dang & Vong, 2019; Adelopo et al., 2018). However, it is believed that different groups of factors should be analysed separately. Hence, the current study aims at investigating the impact of internal factors on performance of Latvian banks.

The research question is “what internal factors affect bank performance in Latvia?” Internal factors are proxied by bank-specific measures. Indices describing customer base, balance sheet items and income

statement items were regressed against bank performance ratios. SPSS software was used for data processing.

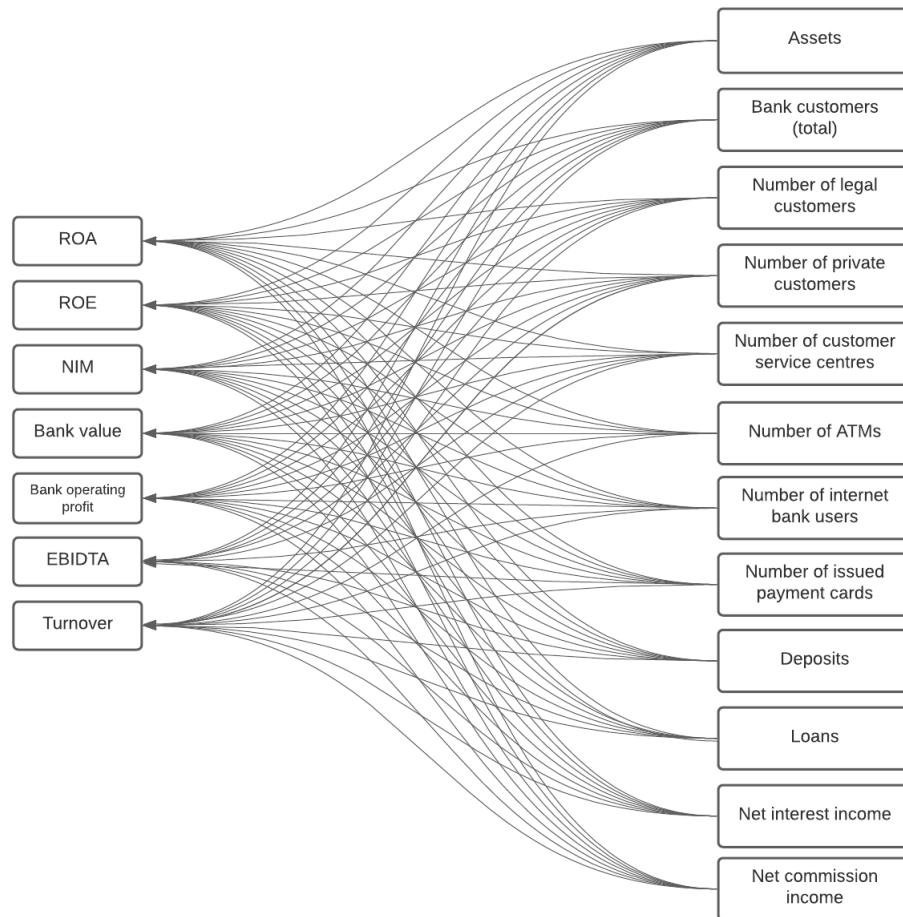
### **Literature review**

Currently, there are 13 banks in Latvia, and the major part of the market is occupied by three banks, that is, Swedbank (37%), SEB bank (25%), Citadele bank (22%).

The first stage of the research is an in-depth literature analysis to select the appropriate factors and associated indicators. First of all, it is necessary to determine the factors by which profitability is measured. The most widely used profitability indicators are return on assets (ROA) and return on equity (ROE) (Boussaada & Hakimi, 2020; Domanovic et al., 2018; Ndlovu & Alagidede, 2018; Titko et al., 2014). Another frequently used bank profitability measure is net interest margin (NIM) (Adelopo et al., 2018; Angori et al., 2019; Dinc, 2018; Gupta & Mahakud, 2020; Haris et al., 2019). There are scholars measuring profitability via bank value. Fouche et al. (2008) claim that the value of bank could be maximised via different factors, such as optimal choices of loan rate and supply, provisions for deposit withdrawals and bank profitability. Elsas et al. (2010) argue that higher bank profitability translates into higher market valuations, which, in turn, has a positive influence on bank value. Consequently, it could be stated that profitability and bank value move into one direction, and because of that, in the current paper, the value is selected as the indicator of profitability. Another factor measuring bank profitability is bank operating profit, as it is described as bank profitability before taking into account taxes and interest. Another profitability indicator that is believed to be one of the most important is earnings before interest, taxes, depreciation and amortization (EBITDA), despite the fact that it has been analysed only by few scholars (Królikowska & Sierpińska-Sawicz, 2016; Neerza & Tripathi, 2019). Asset turnover is treated as a bank profitability measure as well (Duho et al., 2020; Neerza & Tripathi, 2019). All in all, there are seven dependent variables in the study representing bank profitability, and they are as follows: ROA, ROE, NIM, bank value, bank operating profit, EBITDA and asset turnover.

The second step of the literature review is to determine the internal factors that could have an impact on profitability indicators. As it was mentioned in the introduction part, the current study focuses only on the internal factors. The first factor that should be mentioned as the independent one is the bank's assets. Owusu and Alhassan (2020) state that assets are the item that could generate the highest return on profitability. Undoubtedly, the number of customers is also a vital factor, as it directly influences the profitability of a commercial bank. There are two main types of bank customers – private and legal customers. Thus, the current study seeks to investigate if the total number of customers has an impact on profitability, as well as private and legal customers, could be considered separately as influencing factors. Authors researching bank profitability issues claim that number of automated teller machines (ATMs) could improve profitability (Akhisar et al., 2015; Jegede, 2014; Le & Ngo, 2020; Ramila & Gurusamy, 2016; Salimi et al., 2013; Turkoglu & Genevois, 2017). In line with ATMs, the number of payment cards could play a vital role in maximising bank's profitability, as they are used to reach customers via a point of sale (POS) and ATMs; hence, the number of payment cards is considered to be another independent variable (Hamdi et al., 2017; Le & Ngo, 2020). Another factor that should be mentioned is the number of customer service centres. In fact, the great part of services are available online; still, it is important for clients to have the ability to solve the arising problems face to face. Hence, this factor is considered as the item that could have an impact on profitability. As online services have been mentioned, one more factor influencing profitability is internet banking users. Actually, the commercial bank provides online services not only for their work optimisation, but it also helps to reach new customers (Onay et al., 2018), which, in turn, helps to boost the profitability. Chen (2020) has also investigated bank profitability issues and stated that there is a relationship between loans and deposits and bank profitability; consequently, these items are also included in the current study. Apart from that, there is a large number of pieces of research investigating net interest income as a possible factor of profitability (Altavilla et al., 2018; Babajide et al., 2020; Borio et al., 2017). Naruševičius (2017) investigates the relationship between bank profitability and net commission income; hence, this indicator is studied in the current paper as well.

To sum up, seven dependent variables, representing a commercial bank's profitability, and 11 independent variables, describing the factors that could increase the profitability, were distinguished. To check if the influence exists, the hypotheses have been raised. The tested relationships and impacts are depicted in Figure 1.



**Fig. 1. Research model** (Source: created by authors)

### Research methodology

Before describing the selected methods, the variables used in the study are provided (see Table 1). It is worth mentioning that some of the variables were log-transformed to convert highly skewed variables into more approximately normal.

**Table 1. Variables and their measures** (source: authors' compilation)

Variable	Measure	Notation
Profitability	Return on equity	<i>ROE</i>
	Return on assets	<i>ROA</i>
	Bank value	<i>Value</i>
	Operating profit	<i>OpProf</i>
	EBITDA profitability	<i>EBIDTA</i>
	Net interest margin	<i>NIM</i>
	Turnover	<i>Turn</i>
Assets	Total assets	<i>lnTA</i>



Customer base	Total number of customers	<i>NoC</i>
	Number of legal customers	<i>NoLC</i>
	Number of private customers	<i>BoPC</i>
Customers service centres (CSC)	Number of CSC	<i>CSC</i>
ATM	Number of ATMs	<i>ATM</i>
Internet bank	Number of internet bank users	<i>IBank</i>
Payment cards	Number of issued payment cards	<i>PC</i>
Deposits	Total deposits	<i>lnTD</i>
Loans	Total loans	<i>lnTL</i>
Bank interests	Net interest income	<i>NII</i>
Bank commission fees	Net commission income	<i>NCI</i>

For relationship analysis, Pearson correlation coefficient was employed with significance level  $\alpha = 0.05$ . After the correlation coefficients are calculated and tested for significance, the regression models were developed. All the models were tested for accuracy by using the following statistical parameters were used:

- Cook's ( $D_i$ ) distance was used to reveal if there were any outliers in the initial data. The observation is considered to be an outlier if  $D_i > 1$ .
- The determination coefficient ( $R^2$ ) was employed to reveal which part of the dependent variable distribution could be described by the independent variables. The model is treated to be applicable if  $R^2 > 0.25$ .
- Variance inflation factor ( $VIF$ ) is used for identification of multicollinearity problem. The multicollinearity problem exists in case  $VIF > 5$ .
- A  $p$ -value is used to find out if the correlation and regression coefficients are statistically significant. The coefficient significantly differs from zero in case  $p$ -value  $< 0.05$ .

Calculations were made based on the data of five largest Latvian banks (Swedbanka, SEB banka, Citadele bank, BlueOrange bank and Rigensis bank). Period of 2012–2019 was covered.

## Research results

The first step of research is correlation calculations between dependent and independent variables. The computed correlation coefficients are presented in Table 2.

**Table 2. Correlation coefficients** (source: authors' calculations)

	<i>lnTA</i>	<i>NoC</i>	<i>NoLC</i>	<i>NoPC</i>	<i>CSC</i>	<i>ATM</i>	<i>IBank</i>	<i>PC</i>	<i>lnTD</i>	<i>lnTL</i>	<i>NII</i>	<i>NCI</i>
<b>ROE</b>	0.179	0.099	0.146	0.102	-0.039	0.001	0.098	-0.111	0.255	-0.190	0.245	.371*
<i>p</i> -value	0.270	0.541	0.367	0.530	0.812	0.993	0.546	0.501	0.113	0.246	0.128	0.018
<b>ROA</b>	0.237	0.135	0.193	0.132	0.088	0.228	0.165	-0.137	0.297	-0.089	.362*	.317*
<i>p</i> -value	0.141	0.405	0.234	0.418	0.588	0.157	0.308	0.405	0.063	0.591	0.022	0.046
<b>Value</b>	0.922**	0.913**	0.924**	0.899**	0.909**	0.962**	0.940**	0.890**	0.891**	0.930**	0.899**	0.802**
<i>p</i> -value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>OpProf</b>	0.862**	0.832**	0.862**	0.822**	0.780**	0.868**	0.858**	0.823**	0.861**	0.837**	0.847**	0.848**
<i>p</i> -value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>EBITDA</b>	0.946**	0.936**	0.946**	0.925**	0.919**	0.962**	0.959**	0.917**	0.919**	0.947**	0.922**	0.829**
<i>p</i> -value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>NIM</b>	0.318*	0.331*	0.321*	0.328*	0.413**	0.375*	0.337*	0.203	0.348*	0.241	0.522**	0.134
<i>p</i> -value	0.046	0.037	0.043	0.039	0.008	0.017	0.033	0.216	0.028	0.140	0.001	0.410
<b>Turn</b>	0.998**	0.984**	0.985**	0.979**	0.913**	0.875**	0.985**	0.987**	0.990**	0.970**	0.971**	0.913**
<i>p</i> -value	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

\* correlation coefficient is significant at level 0.05

\*\* correlation coefficient is significant at level 0.01

From Table 2, it could be seen that the most correlation coefficients significantly differ from zero, that is, the null hypothesis is rejected. However, ROA and ROE do not have a linear relationship with internal profitability factors. For ROA, there is only one statistically significant relationship, and for ROE – two. For other profitability proxy measures (Value, EBITDA, OpProfit, NIM and Turn), all the correlation coefficients are statistically significant.

From the developed regression equations, only two models met all the requirements and are considered to be significant. The Model 1's summary is presented in Table 3.

**Table 3. Model 1 summary** (source: authors' calculations)

Model Summary						
R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Sig.	Durbin–Watson		
0.984	0.967	0.966	0.000	1.167		
Coefficients						
Model 1	Unstandardised coefficients		t	Sig.	Collinearity statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	5.576	0.784	7.108	0.000		
<i>lnTA</i>	0.411	0.060	6.842	0.000	0.219	4.569
<i>ATM</i>	0.005	0.000	9.103	0.000	0.219	4.569

As it could be seen from Table 3, the determination coefficient is very high and exceeds 95 per cent ( $R^2 = 0.967$ ), which means that the developed model explains 96.7 per cent of profitability variation. Profitability, in that case, is represented by EBIDTA (see equation (1)):

$$EBITDA = 0.411 \times \ln TA + 0.005 \times ATM \quad (1)$$

From equation (1), we could see that total assets and the number of *ATMs* are the variables that have an impact on a commercial bank's profitability. If the *ATM* variable is fixed, then for each change of 1 unit in *lnTA*, *EBIDTA* changes 0.411 units. If *lnTA* is fixed, then for each change of 1 unit in *ATM*, *EBIDTA* changes 0.005 units.

The results of the second developed model are presented in Table 4.

**Table 4. Model 2 summary** (source: authors' calculations)

Table 4 Model 2 Summary (Source: authors' calculations)						
Model Summary						
R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Sig.	Durbin–Watson		
0.999	0.999	0.999	0.000	1.005		
Coefficients						
Model 2	Unstandardised coefficients		t	Sig.	Collinearity statistics	
	B	Standard error			Tolerance	VIF
lnTA	0.827	0.007	114.651	0.000	0.2398	2.514
ATM	0.001	0.000	2.813	0.000	0.398	2.514

As it could be seen from Table 4, the determination coefficient is very high as in the previous model and exceeds 95 per cent ( $R^2 = 0.999$ ), which means that the developed model explains 99.9 per cent of commercial bank's value (see equation (2)):

$$Value = 0.827 \times \ln TA + 0.001 \times ATM \quad (2)$$

From equation (2), it could be stated that total assets and the number of *ATMs* are the variables that have an impact on a commercial bank's profitability represented by the bank's value. If the *ATM*

variable is fixed, then for each change of 1 unit in  $\ln TA$ ,  $Value$  changes 0.827 units. If  $\ln TA$  is fixed, then for each change of 1 unit in  $ATM$ ,  $Value$  changes 0.001 units.

The direct positive relationship between the volume of assets and bank performance is obvious. Assets (considering the traditional model of banking business in Latvia, loans) are the primary source for profit generation. In turn, the developed network of ATMs can also be a valuable income-generating factor, because of the commission fees. Not all the banks have ATMs in Latvia, and the customers are forced to use ATMs of other banks for money withdrawal. Cash transactions are still quite popular among Latvian citizens (according to Statista, more than 60 per cent of transaction in 2018). Thus, the banks with an expanded network of ATMs have a significant competitive advantage.

## Conclusions

The goal of the current paper was to research the influence of internal factors on Latvian banking sector profitability. The profitability was represented by seven determinants, which were distinguished from the literature, and they are as follows: ROA, ROE, NIM, bank value, bank operating profit, EBIDTA and asset turnover. The mentioned seven variables were treated as dependent variables. The factors that could influence profitability were highlighted from the scientific literature as well and are as follows: total assets, the total number of customers, number of legal customers, number of private customers, number of customers service centres, number of ATMs, number of internet bank users, number of issued payment cards, total deposits, total loans, net interest income, net commission income.

First of all, the relationship between the factors was calculated. The results revealed that there was a statistically significant relationship between all the dependent and independent factors, except ROA and ROE. ROA has a significant linkage only with net commission income, and ROE – with NIM and net commission income.

Secondly, regression models were developed. It is worth noting that only two models were considered to be accurate according to the statistical parameters. The models show that total assets and number of ATMs have an effect on the profitability, represented by EBIDTA and bank value.

Construction of such predictive models is an attempt to help bank executives to properly manage bank performance, focusing on factors that may be undervalued. The current research is limited with data of only five banks, and this shortage could be eliminated by expanding the database.

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## EUROPEAN SEAPORTS INFORMATION SYSTEMS. THE IMPACTS OF DIRECTIVE 2010/65/EU

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### Abstract

**Research purpose.** The European Union recognizes the importance of information systems for improving the performance of trans-European transport network ports by promoting a set of initiatives focused on their use. The Directive 2010/65/EU obliges the provision of electronic services for the reception and treatment of declaratory acts necessary for the entry and exit of ships into the European Community and opens the way for future harmonization in the European Union of such services. The research purpose is to analyze and assess the degree of adequacy of European seaport information systems relative to the requirements of the European Directive to the availability of electronic services. Are they complying with the directive?

**Design / Methodology / Approach.** The objective of the study was to characterize the current situation of the main European seaports regarding the impacts of the European Directive. In this sense, it was decided to construct a survey to facilitate the identification and characterization of the options and actions taken by each country regarding the implementation of the Directive 2010/65/UE. This study was attended by the main EU Members and Norway.

**Findings.** From the analysis of the results of the European survey on the implementation of the Directive, we can conclude that the implementation of the Directive is carried out by entities of the State sphere. Member States show a low priority to the exchange of information between the Member States and the majority has not taken any action in this direction. With respect to the Single Window development model, the mixed model is the one adopted in most Member States.

**Originality / Value / Practical implications.** The central objective of Directive 2010/65/EU is to simplify and harmonize the administrative procedures required for maritime transport through electronic means. This Directive is seen as an opportunity to facilitate trade and administrative barriers through harmonization and standardization of the European Seaports Organization. The analysis of directive adoption represents an opportunity to increase scientific knowledge in this economic sector.

**Keywords:** Directive 2010/65/UE; Information; Interoperability; Seaports; Maritime transport; Single Window; Port Community System

**JEL codes:** M21; L91

### Introduction

The main role of a port is to provide services for the movement of ships and goods (UNCTAD, 2004). Seaports are also places of cargo transfer from one means of transport to another and the transshipment has an important rule in the interaction with its hinterland (geographical area that uses the port for the flow of import and export of goods) (Notteboom, 2008) (Carbone & Martino, 2003). Actually, seaports are important players in global logistics chains, and they should be considered as a cluster of organizations in which different transport and logistics operators are involved in the adding value to the final customer (Carbone & Martino, 2003).

According to the OECD/ITF (2008), the three main factors of change in the organization of maritime transport are the containerization of cargoes, the emergence of global logistics chains, and the growing importance of container transshipment terminals. Containerization of cargo has led to a significant

degree of standardization of a seaport service (OECD/ITF, 2008), which has led to increased competition between seaports within the same area of influence. This trend has been enhanced by using increasingly larger ships with a large capacity container, reducing, on one hand, the number of ship scales and, on another, the range of ports with the capacity to receive them. The emergence of logistics chains on a global scale has led to a greater concentration of business (GS1, 2007). The third factor inducing change, referred by OECD/ITF (2008), is related to the growing importance of transshipment seaports. According to this organization, more than 20 of the world's 100 largest seaports are transshipment ports. According to the OECD/ITF (2015) this dynamic of transshipment traffic conditions the distribution pattern of maritime traffic in Europe. A hub-and-spoke network (load concentration at main terminals (hub) and redistribution on a smaller scale for target ports (spoke)) corresponds to a lower concentration of cargo in the destination ports and a more dispersed land transport.

Seaports are the main gateway to Europe's internal and external trade, playing a key role in Europe's economic growth and competitiveness (European Commission, 2009). According to the European Commission (2013a), 74% of goods imported and exported, as well as 37% of trade in the Union are carried out by seaports. This reality shows the European Union (EU) is a strong dependence on seaports not only from a commercial point of view but also as a guarantee of the cohesion of the European area. By ensuring regional and local maritime traffic services, linking peripheral and island areas, ports ensure the territorial continuity of the EU.

The preponderant role of seaports in the EU implies that these infrastructures are well developed and efficient. However, this is not a reality or, at least, is not the common denominator in the network of seaports in the EU. The European Commission (2013b) identifies disparities in port management in the EU compared to seaports ranked among the best worldwide in terms of efficiency. Most present serious structural problems, damaging and removing competitiveness to the regions that they serve and a whole EU. The disparities help to understand the reason why 20% of goods arriving by sea to Europe pass through only three seaports.

European Commission considers that there is a need to promote the high-performance seaports activities through strategic actions to connecting seaports to the trans-European network, modernizing port services, attracting investment, promoting social dialogue, improving the environmental profile, and encouraging innovation. And, through the Directive 2010/65/EU, the EU aims to increase the opportunity to facilitate trade and administrative barriers through harmonization and standardization of the European Seaports Organization.

The main objective of this research work is to evaluate the current situation of the European Seaports Organization and analyze the adequacy of their Information Systems to the requirement of the Directive.

### **European transport policy**

The development of transport infrastructure in the EU has always been supported by the trans-European transport network policy (TENTEC). As mentioned by the European Commission (2011), this policy has been further developed since 1992 with the publication of the White Paper on Transport, the inclusion of the specific legal basis for the trans-European transport network in the Maastricht Treaty, and also with the approval, in 1994, at the Essen European Council, of a list of 14 priority projects.

Currently, the defined goals are still valid: contribute to the provision of efficient and effective transport systems to enable a high level of mobility for individuals and businesses, protect the environment, innovate and establish contacts at the international level. Factors such as EU enlargement, changes in the transport sector, innovation and new technologies, environmental commitments, energy consumption, or the permanent threat of terrorism have influenced successive revisions of European transport policy. Thus, in 1996 the European Parliament and the Council adopted the first guidelines for TENTEC policy and infrastructure planning. A significant revision of the guidelines was undertaken in 2004, considering EU enlargement and expected changes in traffic flows.

As part of the recommendations of the 2011 White Paper entitled "Roadmap to the single European transport area - Towards a competitive and resource-efficient transport system", the European Commission published, in December 2013, the latest revision of the guidelines for the development of TENTEC. As mentioned by the European Commission (2014a), this last revision defined for the first time the main network of transport infrastructure, which comprises all modes of transport, having defined the year 2030 as a deadline for its implementation. It is also mentioned by the European Commission (2014a) that the most difficult issues in the creation of the trans-European transport network are cross-border infrastructures, technical interoperability, and the integration of different modes of transport. To overcome these issues, the new guidelines introduce the concept of "core network corridors", whose implementation, within the above-mentioned deadline, has as its central concern the modal integration, interoperability, and coordinated development of infrastructures.

As mentioned by the Commission (2014b), this requires an ambitious policy needs and ambitious budget to accelerate its implementation. In this sense, the TENTEC has been allocated a budget of 26,250 million euros for the period 2014-2020, the financing of which is regulated by Connecting Europe Facility (CEF). Although this budget has tripled over the period 2007-2013, its value is insufficient compared to the identified needs of around EUR 250 billion for core networks. The CEF intends precisely to use the available financial resources in the priority axes defined in its regulation: projects for the construction or modernization of cross-border sections, elimination of «bottlenecks» on the main European traffic routes and implementation missing connections on the network.

### **The centrality of Information Systems in port management and competitiveness**

In the port sector and maritime transport, Information Systems (IS) and Information and Communication Technologies (ICT) are essential tools in the management and efficiency (Mobility and Transport Authority, 2016) (Lee-Partridge, 2000). In this area, two concepts have gained importance, the Port Community Systems (PCS) and Single Window (SW). The latter, through EU policies, is now strongly encouraged to be extended to the entire European area and begins to be applied throughout the entire logistics chain.

The World Bank notes that 82% of the world's economies provide some form of electronically submitting to customs documents relating to the import, export, or manifests of goods (Doing Business, 2011). In the same publication, World Bank says that economies are taking additional steps in the implementation of Single Window systems involving all stakeholders of trade and freight. Single Window solutions are also being adopted at the regional level. The best example of regional initiatives is the ongoing project in the Asian sub-continent, involving both public and private stakeholders. The Association of Southeast Asian Nations (ASEAN) has an ongoing project ("ASEAN Single Window") which will connect several countries in the region with the aim of sharing the customs information required to retrieve their orders and licenses (ASEAN, 2013).

The EU strategy focuses on encouraging less efficient seaports to apply best practices and management methods (European Commission, 2013a), to mitigate the structural performance gaps between the various European seaports and to materialize the challenge of a fully integrated transport network. To this end, strategic actions include connecting ports to the trans-European network, modernizing port services, attracting investment, promoting social dialogue, improving the environmental profile of ports and encouraging innovation.

In addition to the structural asymmetries between seaports, in different moments and contexts, it is mentioned that the administrative burden imposed on maritime transport has the consequence of less attractive seaports, damaging its overall performance. Cost reduction and simplification of procedures are, therefore, a key factor for the promotion of maritime transport in the EU, and information systems can be important tools to achieve these objectives. The initiatives proposed by the European Commission (2013b), for which information systems can make an important contribution, fall within the strategic objective of modernizing seaport services regarding administrative simplification and their integration into logistics chains.

To this end, the European Commission (2013a) has decided to continue to develop its actions in:



- the Blue Waist Initiative, which aims to reduce the administrative burden on EU prices transported by sea between EU ports to a level comparable to other types of transport, by further simplifying customs procedures;
- strengthening harmonization and coordination of the implementation of Directive 2010/65/EU, by establishing guidelines on national single points of contact;
- the e-maritime initiative, which aims to promote the use of electronic data in the conduct of business and reduce the administrative burden; and
- the e-freight initiative, which aims to facilitate the exchange of information along multimodal logistics chains and which will contribute to improving the efficiency of seaports, which are important multimodal platforms.

Whereas IS must be built with a clear understanding of the organization, including its surrounding environment (Laudon & Laudon, 2010), in the case of Single Window or Port Community Systems solutions, this framework contains enormous challenges related not only to the technological aspects but also from an organizational, inter-organizational, management, political and legal point of view. In this context, Anunciação & Zorrinho (2006) defend the concepts of Organizational Urbanism and Architecture as a way of managing this complexity. According to these authors, the implementation and governance of IS solutions must be carried out in a sustained way, with the efficient and effective management of available resources, ensuring the alignment between the development of the IS and the business strategy (Architecture) considering the national and international context to guarantee long-term success (Urbanism). These authors also underline that, although the architecture is the structural element of Urbanism, it is the responsibility of Urbanism to give context to architecture so that the architecture can respond to the specific requests of each system and organization. The only architecture allows alignment between business and IT (Hermans, 2015) (Rosa & Oliveira, 2015) (Rodrigues, 2014) (Josey, 2011) (Lankhorst, 2005). Its value depends on the ability to integrate different perspectives and views (Zachman, 2016) (Zachman, 2008) (Sessions, 2007) (Pereira & Sousa, 2004).

### **Port Information Systems – Port Community Systems and Single Windows**

According to Long (2009), PCS has played an important role in mitigating the natural ports «bottlenecks», facilitating the movement of goods. Investment in this type of capacity easily competes with traditional investments (such as equipment, port docks, etc.), which are more easily perceived by the port community (Bezic *et al.*, 2011). However, there is a growing interest in the investment of the seaports in these tools, to achieve greater efficiency and competitive advantage (Competition Authority, 2015). Dating to the decade of 80 of last century the appearance of the first applications in the European ports. The main benefits of PCS arising from its use are (Long, 2009): data entry manual work reduction; redundancy elimination in data entry and storage; and time reduction to obtaining the necessary orders for the movement of goods.

PCS is different in all seaports. The scope of services provided depends on the type of the seaport, the nature of the operations it carries out, its port community (Smit, 2014), the diversity of entities and needs that constitute a port community served by a PCS, which makes it a complex system (Tijan *et al.*, 2009).

A Port Community System can be defined as:

- a holistic system, geographically delimited, that serving the interests of heterogeneous collective entities in a port community (Srouf, van Oosterhout, van Baalen, & Zuidwijk, 2007);
- an electronic platform linking multiple systems, operated by a variety of organizations, which constitute a port community (Rodon & Ramis-Pujol, 2006);

- a neutral and open platform enabling public and private stakeholders to exchange secure and intelligent information in order to improve the competitive position of the airport and maritime port communities (IPCSA, 2011);
- an instrument to increase port efficiency (Carlan, Sys, & Vanelslander, 2015);
- a capability that allows all parties involved in trade and transportation to present, in a standard way and at a single point of contact, the information necessary to comply with the regulatory requirements inherent in the import, export, and transit (UN/CEFACT, 2005);
- the collecting, disseminating and exchanging information related to the movement of ships, with rules and data structures defined in a common way and management of access to information (European Commission, 2015).

The World Customs Organization (WCO), based on the definition presented in Recommendation No. 33, introduces the term Single Window Environment and adds the intelligent attribute to that definition (WCO, 2008). As clarified by the WCO the term Single Window Environment is used instead of the term Single Window, as it best translates the practical expression of its implementation. That is, the various existing implementations of this concept translate into the union or federation of several interdependent systems, interconnected by mutually agreed interfaces and collectively adopted business processes. The intelligent term is introduced because the Single Window Environment is not just a hub, switch, or gateway for a set of services, nor a mere web portal (UNECE, 2011). On the contrary, intelligent presupposes a set of value-added services for government entities and economic operators (WCO, 2011).

### **The European Parliament and the Council Directive 2010/65/EU**

The central objective of Directive 2010/65/EU is to simplify and harmonize the administrative procedures required for maritime transport through the electronic means for their transmission (in the reception and distribution). This Directive is seen as an opportunity to facilitate trade and administrative barriers through harmonization and standardization as European Seaports Organization (ESPO, 2014) (ESPO, 2010) corroborates the Commission's objectives. Also, the International Port Community Systems Association (EPCSA, 2013a) (EPCSA, 2013b), underlines its line with the European policy on maritime and port sector, particularly with the recognition of the need for more simplification in helping ports to modernize the services offered through the use of electronic exchange of information.

This statement has an intrinsic complexity which implies the need to evaluate the following aspects: analyze the impacts and requirements in the organization (to "simplify" and "rationalize"), perform an analysis of the gap between formalities, identified in the Directive and those currently required (to harmonize and standardize), and to define the technological solutions that will achieve the objectives of the Directive (enabling "electronic transmission").

The Directive sets out four key requirements for its implementation: providing a single platform for data transmission by ships through the adoption of the SW concept, simplified and harmonized electronic transmission of reporting formalities in each EU Member States and between the EU Member States, declare the individual data only once, and information security.

### **Research methodology**

The objective of the study was to characterize the current situation of the main European seaports and assess the degree of adequacy of information systems relative to the requirements of the Directive 2010/65/UE. The research question was: Are they complying with the requirements of the European Directive?

In this sense, it was decided to construct a survey to facilitate the identification and characterization the options and actions taken by each country regarding the implementation of the Directive 2010/65/UE.

This study was attended by the main EU Members and Norway. The survey was carried out not only for the entities responsible for implementing the Directive in each EU Member but also for the clients of the seaports, using, for this purpose, associations of shipping agents or equivalent entities.

The preparation of the survey was based on the standards, guides and recommendations of the *International Organization for Standardization* (ISSO), *International Maritime Organization* (IMO) and *European Maritime Safety Agency* (EMSA), with closed answers, and was divided into five parts, namely:

- Identification of the respondent – identification of the entity, characterization, functions, and organization;
- Organization and management – characterization of the trends and options regarding the responsibility for implementing the Directive, and the scope and the way it has been implemented in the various countries (the central aspects analyzed were: the responsibility for SW governance, the need for reorganization, the need for process reengineering, the description of SW implementation, the entities integrated with the SW, the government benefits, the benefits to the business, the responsibility for financing the system, the Service Level Agreements (SLAs) with the SW service provider, the existence of Service Desk service, the existence of change management procedures, the number of entities managed, the number of users managed, the current project development phase, the level of compliance with the harmonization of the Directive in the country, and the level of compliance with the harmonization of the Directive at European level);
- Information – identification of the scope of information processed and the references used to share it: the declarative acts identified in the Directive and considered within the scope of SW implementation, the additional services provided by SW beyond those of the Directive, the standards and guides adopted for the exchange of information, the types of executive orders made available to the industry, the relevant options in the context of the exchange of information between the Member States, the agreement with the re-use of information in the business context, the accordance with the need for authorization of the information owner for the exchange of information between the EU Member States, the sharing of current information with another EU Member State;
- Technology (Architecture, Integration, and Communications) – characterization of the technological solutions implemented, with respect to the model (s) adopted for the architecture of the solutions, the role of the PCS in this architecture, the use of cloud concepts, the type of interfaces used to exchange information between partners and the use of solutions for mobile platforms (namely, the model that characterizes your SW implementation, the point of contact for respondents, the number of different PCS used by respondents, the adoption of the cloud-ready concept in SW development, the purpose in the use of SafeSeaNet at a national level if SW is supported in the cloud, the types of models used, the use of cloud service types (IaaS, PaaS or SaaS), the characterization of SW in the respective country, the interfaces available to respondents and Authorities, the channel(s) used in stakeholder interconnection, the entities integrated between systems, the technologies used to exchange information between stakeholders, the redundancy of SW support infrastructure, and the planning mobile application development;
- Technology (Security) – identification of the approach of the various countries with regard to information security, measures and methodologies adopted (namely, the existence of an Information Security Management System (ISMS) for the scope of the Single Desk, the certification of ISMS according to ISO 27001, the existence of an information security plan, the conducting internal or external audit actions, the existence of security incident management procedure(s), the existence of disaster recovery plan, the technologies used to protect communication channels, and the use of the digital signature mechanism for declarative acts, or other services offered in SW.

## Research results

As regards the first part of the study, identification of respondents, all Member States with a maritime border were invited to participate. We obtained responses from 11 countries (Belgium, Denmark, Germany, Italy, Latvia, Norway, Portugal, Slovenia, Spain, Sweden, and the Netherlands). The countries participating in this study are representative of European maritime goods traffic. In this respect, with the exception of France and the United Kingdom, the main European players representing 70% of the maritime traffic of goods in the European space, to which the only three European ports of the world top 20, in relation to the handling of containerized cargo, and nine seaports of the European top 10, of the same cargo segment.

Regarding the remaining chapters under study, the results show the following:

- Organization and Management Chapter:
  - 75% of countries identify government structures and Public-Private Partnerships as responsible for SW governance. In 82% of cases, it is the responsibility of the State to finance the SW. Only Italy assumes the charge of some type of fee on the services offered in SW;
  - 90% of respondents say they have set up structures to coordinate SW implementation. However, only 50% have implemented a formal change management process. It is also verified that 50% of the respondents affirm that a process re-engineering was not carried out;
  - 90% offer a Service Desk. However, only 40% have established a service level agreement;
  - 70% state that the implementation of SW considered not only the requirements related to the means of transport but also those related to the movement of the goods transported in them. Only one country states that it does not identify with the options presented to characterize the scope of SW. The results obtained also demonstrate that the scope of most implementations is focused on the management of the declarative acts provided in the Directive;
  - only the Port Authority and the Border Authority are involved in all the implementations;
  - in only 4 countries (Spain, Italy, Portugal, and Sweden) are all the authorities involved;
  - most solutions generate less than 1,000 entities and between 500 and 5000 users;
  - 20% of the answers obtained affirm that the project of implementation of SW solutions is finished;
  - there is a good degree of satisfaction with the benefits achieved (Figure 2). Regarding the private or business sphere (Figure 3) the results obtained is more modest;
  - only Latvia claims to have achieved the harmonization objective in the Directive, both at the level of its country and in Europe;
  - 70% claim, at the national level, partial compliance with harmonization. At European level, even considering a partial fulfillment of this objective, the answers are modest (30%);
  - the main success factors in the implementation of SW and Directive 2010/65/EU in the respective countries are the cooperation with another member state in the specification of an excel for bulky data, a single entity responsible for implementation, the good collaboration between stakeholders and member states, the re-use of existing capacity with regard to PCS, the well-defined project management structure, the formal tests, and the full-time project manager;

- the main obstacles in the implementation of the SW and Directive 2010/65/EU in the respective countries are the lack of integration and common specifications at the EU Member States level, the lack of agreement/collaboration at the European level, the failure of internal project coordination due to the internal organization of an MS (regional and/or federal differences), the absence of the reengineering process (implementation of solutions that only intend to "computerize the paper"), the ignorance about computer project management, the Part C of the Directive lead to a lack of harmonization, the lack of commitment and knowledge of shipowners on the development of projects, and the short implementation time.
- Information Chapter:
  - not all declaratory acts identified in the Directive will be considered within the scope of SW implementation in all EU Member States (immediate or future). This is particularly evident for declaratory acts «Ship's store's declaration», «Crew's effects declaration», «Maritime declaration of health», and «Entry summary declaration». It is also clear that there is no motivation to add services other than those of the Directive;
  - maneuver services are included in the solutions of four countries and that only 2 countries include billing services and utilities;
  - there is no harmonization between the Member States. Not considering UN/EDIFACT standards, the two other options that are most identified are "custom" specifications (AnNa - Advanced National Networks for Administrations, specifications presented by the consortium of 14 MS-or own). The same trends occur in the exchange of information with the reporting entities and other entities, in particular with the authorities;
  - the declarative acts related to information about the goods are those that do not appear in the preferences for the exchange of information between the Member States. It should be noted that 70% of the responses indicate that this information exchange should be kept at the governmental level and 75% of respondents indicate that the reporting agent should give explicit permission to share this information with another Member States. Finally, it is verified that only 25% exchange some information with another Member States.
- Technology Chapter (Architecture, Integration, and Communications):
  - there is no predominant architecture model. The purely decentralized model is the least used (18% of cases), with mixed and centralized models being the most predominant;
  - 70% of countries confirm the availability of a single point of contact for respondents. It should be noted that responding countries using more than three PCS belong to some of the main European ports (Germany, Belgium, and Spain);
  - the cloud concept in the implementation of SW is still little used in the solutions implemented in the various countries. 67% of the answers indicate that SW was not developed under the concept of "cloud-ready";
  - 67% of responses point to the hybrid model and no one considers using the public model alone. Still, on this topic, 67% of respondents say that they do not use any cloud service (IaaS, PaaS or SaaS);
  - SafeSeaNet systems are used in most countries to exchange information between authorities;
  - most of the solutions are built on a 3-tier architecture, there is no clear predominance between programming languages (.Net or Java). The predominant communication protocol is SOAP and that the use of technologies associated with process management and orchestration services have little expression;

- the applications for mobile solutions are still the type of interface less available;
  - the type of interface mostly available corresponds to the web applications. Already for the exchange of information with the Authorities, the type of interface mostly available is the integration between systems;
  - the Internet is the channel used for the exchange of information. There are few cases where they additionally use dedicated lines for the purpose;
  - it is clear the option to use web services (69%), against the use of FTP, email or other technologies;
  - there is a greater development in the integration between systems with the authorities and less with the service providers and other actors in the transport chain. Regarding the authorities, this type of integration is more widespread with the Border and Seaport Authority;
  - 67% of respondents have redundant SW support plans or infrastructures;
  - The results show that mobile applications in the context of SW are a trend with little preponderance. Nevertheless, among the answers that claim to have developed this type of applications it turns out the Android system, has greater relevance.
- Technology Chapter (Security):
    - only 44% have an Information Security Management System (ISMS) defined for the SW, and only 10% of those have their ISMS certified based on ISO 27001;
    - all countries that do not have an ISMS implemented, do not have in their plan to do so either;
    - only 30% have plans implemented for training and awareness, audits and management of security incidents;
    - in the case of training and awareness and management of security incidents, this percentage increases of around 55% and 80%, respectively, if we take into account the plans for the future;
    - 60% have a disaster recovery plan;
    - 50% claim to use the digital signature mechanism;
    - the https protocol represents the most used technology options for security of the communication channels (60%), followed by the VPN (20%).

### **Conclusions and recommendations**

From the analysis of the results of the European survey on the implementation of the Directive, presented in the previous points, we can conclude as the most relevant aspects evidenced by the Member States the following:

- the implementation of the Directive is carried out by entities of the State sphere, which is responsible for its financing;
- practically all member states have established structures to coordinate SW implementation. However, only half of the MS have adopted change management methodologies and process reengineering;
- most Member States closes the solution around the reception of declaratory acts of the Directive and in the respective Declarants and Authorities;
- Member States are more confident of the benefits achieved in the governmental sphere than in the sphere of business. It should be noted that the Member States believe more in achieving benefits in terms of efficiency and transparency and less in reducing costs;

- generally, Member States do not include coverage of the entire scope of the Directive with regard to reporting formalities, and it is also clear that there is no motivation to add other services in their solutions (operations, billing, payment, among others);
- all solutions provide some sort of executive orders from the authorities. However, the solutions covering the various executive orders are a minority;
- there is no harmonization regarding the references used for the specification of electronic messages for the sharing of information between actors, there being a fair distribution between the adoption of industry standards and own specifications;
- Member States show a low priority to the exchange of information between them, and the majority has not taken any action in this direction. Regarding this issue, the Member States express reservations about the scope of the information exchanged and even that which they admit to exchanging with the other Member States mention that it should be confined to the governmental sphere;
- with respect to the SW development model, the mixed model is the one adopted in most Member States. However, there is no predominance of any of the models;
- there is a clear difference between the countries to which the main European ports belong and the remaining ones, as regard the solution adopted for the reception of reporting formalities. In the first, the various PCS in the ports were used, while in the seconds it was decided to provide a Single Point of Contact;
- the integration between systems, for information sharing, has greater expression among Authorities. Respondents use mostly web applications for data entry;
- the Member States evidenced no plans to adopt new trends in ICT (cloud or mobile applications) in the solutions developed for the SW;
- in spite of some actions implemented in the scope of Information Security, the majority of MS do not show a systematic treatment of this issue.

Lastly, it should be pointed out that the MS is adamant that the objective of the Directive on the harmonization of reporting formalities has not been achieved, internally in each MS and especially at the EU level.

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## THE KEHLER MANAGEMENT SYSTEM: A HOLISTIC FRAMEWORK FOR THE ADMINISTRATION OF MUNICIPALITIES

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### Abstract

**Research purpose:** Especially against the background of a globalised world, municipal managers are confronted with increasingly complex tasks. Furthermore, the range of tasks of a municipality and its stakeholders are very heterogeneous. While repetitive work processes are basically characterised by a clear starting position and objectives and the resources required to achieve these objectives are known and available, these manageable prerequisites are usually not present in complex public administration systems. The transfer of purely management ratio-based approaches from the business management sector is difficult for public administration, since not profit but the common good is the prioritized target. Municipal managers need a holistic approach that addresses the municipal council, the population, companies, administrative organization and budget management in order to be able to control municipalities within a diagnostic framework.

**Design/Methodology/Approach:** First of all, a brief insight into the history of the new municipal budget law in Germany is given. The aim of the budget law is to reform the budget and accounting system, but above all, to strengthen municipal control through goal orientation. After an overview of the current diagnostic frameworks, it becomes clear that a holistic approach is missing. To develop such a framework, success factors for municipal control are identified. These are then combined into success clusters to create a more manageable, holistic structure for implementation – the Kehler Management System (KMS). A survey and two case studies, which were conducted within two years in the municipality of Ottersweier, empirically prove the practical relevance of the KMS approach.

**Findings:** 36 success factors were identified, which were structured into six success clusters. One success cluster addresses the trusting cooperation between politics and administration (in short: politics and administration). A culture of leadership and cooperation within the administration is another cluster of success (in short: culture of leadership and cooperation). Sustainable human resources management forms the third cluster of success factors (in short: human resources management). A further cluster could be identified in the strategic area (in short: strategy). A fifth cluster of success relates to the conversion to a modern budget and accounting system, which considers resource consumption (in short: municipal accrual accounting as a control instrument). The last success cluster addresses changes in the administrative environment (in short: learning organization). The six success clusters are not independent, however, these have a causal order. The municipal accrual accounting as a control instrument and the integration of the strategy are fundamental for the other four success clusters, which address the implementation of the reform process.

**Originality/Value/Practical implications:** In 2015, the framework of the KMS was evaluated in a survey of 115 municipalities with up to 50,000 inhabitants and was considered coherent and helpful by the municipal executives. In individual communities like Ottersweier, detailed diagnostic analyses based on the Kehler Management System were conducted with various internal stakeholders, which led to strategy development, resource-oriented budget management, operational implementation, and a continuous improvement process. However, only the internal view of the municipal administration is currently addressed. In an extension of the KMS, further research aims at integrating the external view of citizens and companies into the framework.

**Keywords:** Performance analyses of municipalities; resource-oriented budget in municipalities

**JEL codes:** H72; H83

## **Introduction**

In 2003, the interior ministers of the German states decided on a reform of local budget legislation to overcome information and governance deficits in traditional cameralistics. Unlike in most Anglophone countries, the local government in Germany has large areas of competence that directly affect the citizens' wellbeing. Therefore, reforms that have been implemented since the 1990s in many countries under the name 'New Public Management' from the national level downwards have been particularly well received in German municipalities as the lowest level of government. In Baden-Württemberg, the New Municipal Budget Law (in German Neues Kommunales Haushaltsrecht; abbreviation - NKHR) came into force in 2009. It is intended to fundamentally change municipal control, supported by the introduction of municipal accrual accounting and new output-based budgets. The term municipal control (management) means the management activities of planning, decision making, execution and control that are used to gear a municipal administration towards specific objectives, taking into account the political, economic, social, technological and ecological framework conditions. At least two types of objectives can be distinguished: political and financial objectives.

The principle objectives are set by the constitutions of states. Baden-Württemberg's municipal constitution, for example, calls for orientation towards the common good of the residents of the municipality (for a reflection on policy making for the 'common good,' see Boston J. (2013)), the fulfilment of the tasks assigned by the federal and state governments, and economical and efficient budget management. In the municipal policy process, these normative objectives are concretized in terms of the current problems and opportunities and corresponding public products and services (output). The processes of setting objectives, selecting measures to achieve them, and choosing products and services and monitoring success can be more or less formalized or 'managed' – however, they take place in any case.

The state legislator wants to strengthen both sides, political and financial with the NKHR, that is, through formalization. The output structure of the budget and the specification of KPIs are intended to focus the political planning process and to keep the objectives in the minds of decisionmakers and service providers throughout the year. Meanwhile, accrual accounting enforces a transparent and sustainable budget management.

However, it is questionable how this new information is used for decision making in practice. For with a few exceptions, their use is neither prescribed nor predetermined. Even if objectives are written down, it remains open what role they play in the planning, decision making and evaluation processes. In other words, while the NKHR introduces useful instruments and procedures, these are not in themselves a guarantee of successful local governance.

Empirical studies do indeed draw a rather pessimistic picture of the implementation status, especially in small and medium-sized municipalities. 'There is a control gap,' a nationwide survey summarizes (Fischer & Lasar 2014). Strategic targets are characterized by a horizon of several years, their overarching character and their impact orientation. Provided initial political will, the biggest problems arise rather in updating and implementing strategies between strategic and operational management than in strategy development itself.

Legal requirements are not enough to reach the objectives. Management approaches should focus less on defining and imposing formal structures and more on facilitating local institution-building processes (Leach & Lowndes 2004).

## **Literature review**

Concepts and frameworks for analysing and improving the performance of organizations and for measuring their performance have been available in business management for some time. Most private sector tools single out financial performance, most explicitly in the Shareholder Value approach. The first and best-known approach to seriously tackle this imbalance in business management was the Balanced Scorecard (BSC) with four dimensions, that is, customer, finance, learning and development, and process (Kaplan & Norton, 1992). However, the implementation to private sector practice has been somewhat less successful, and the BSC can serve as a good example to explain why. One

important reason for the low implementation success rate is that of behavioural performance factors (Manville, 2007), which can have a negative impact on the efficient execution of the performance management system, are too often ignored. Even though it is an improvement from purely financial KPIs, the cause-and-effect relationships of the BSC focus strongly on the financial dimension. The results for the 'upstream' three dimensions aim to lead to performance improvement in the fourth, 'downstream' dimension, that is, the financial results. This concept clearly identifies finance as the endpoint of the BSC's performance management objectives. This viewpoint seems to contradict the multi-dimensional objectives of most public sector organizations and is even not sufficient for a holistic view to private sector practice.

A restructuring of the cause-and-effect relationships so that different dimensions and multiple objectives are in the focus of performance measurement seems necessary. Concerns about the existence, nature and verification of BSC-cause-effect relationships are discussed in the general BSC literature (e.g., Brignall, 2002; Nørreklit, 2003; Davis & Albright, 2004; Bukh & Malm, 2005; Malina et al., 2007), but with regard to the public sector, there is a research deficit as to whether the BSC can be considered a useful performance verification tool in this area of application.

Another problem is that the BSC is still private-sector oriented and has little weight on the involvement of service users, risk management or the need to work across organizational boundaries (Moullin, 2006). Moreover, public sector reforms have 'implications for social and political dimensions that are not taken into account in private sector frameworks' (Cordella & Bonina, 2012).

One attempt at a KPI model that reflects the complexity of the municipal world better has been the Public Sector Scorecard (PSS) (Moullin, 2017). The PSS addresses seven perspectives. Leadership is seen as the basis for innovation and learning as well as people, partnerships and resources. Based on this, service delivery is developed, considering service users and stakeholders on the one hand and finances on the other. This leads to the achievement of the strategic performance targets, which must be defined at the beginning. PSS addresses the cultural level and the learning organization to a certain extent. However, the PSS lacks the cultural dimension of politics and administration and their different rationalities.

The Organizational Performance Management (OPM) approach was specially developed to evaluate municipal administration. The focus of OPM in municipalities is on the adaptability and complex interrelationships between the measurement and management of quality, productivity, innovation and profitability in terms of improving the performance of the whole organization. The role of performance management includes responsibility for behavioural, motivational and process improvements. This leads to five 'universal criteria' for OPM implementation: leadership commitment, strategy focused on performance objectives, stakeholder involvement, continuous monitoring, evaluation and feedback, and building a culture of performance in delivering high quality outputs and outcomes (Fryer et al., 2009). A normative approach to OPM identifies three areas to be addressed: Political-philosophical values and principles, scientific values and principles and managerial values and principles (Jessa & Uys, 2013). However, questions of conceptual and operational interrelationships both between these three areas and the five 'universal criteria' mentioned above remain unanswered. Furthermore, the cultural level of cooperation between politics and administration and the trust necessary for this is only addressed to a limited extent.

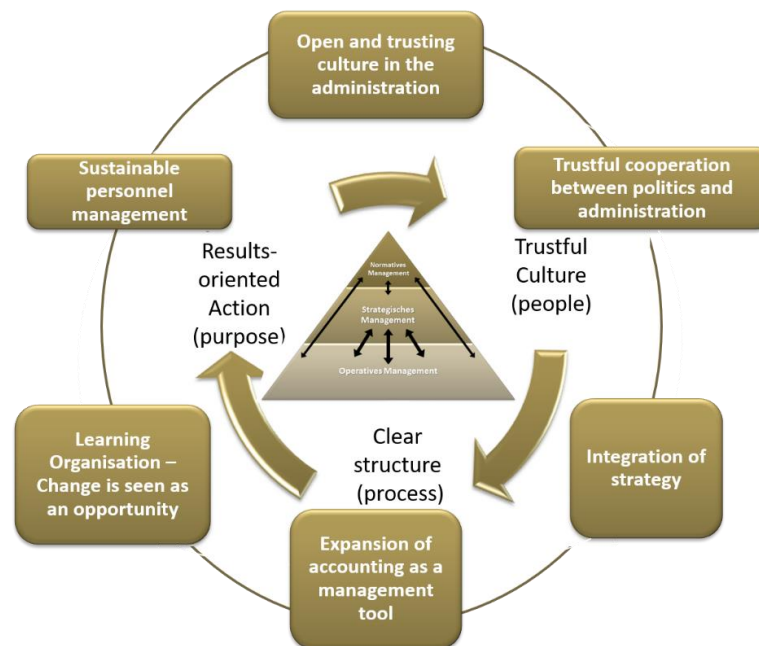
Other performance measurement approaches were the EFQM model, adapted for the public sector in 1994, the Common Assessment Framework specifically developed for the public sector (Best, 1997), the performance measurement approach for developing nations of the World Bank (Cannon & Fry, 1992) or the concept of public value (Moore, 1995).

To sum up, experience with the implementation of NPM have been around since the 1990s (Hood, 1991; Boston et al., 1996). For a comprehensive analysis of developments in New Zealand as the world's first mover in this field, see Yui and Gregory (2018). Due to serious criticism of the economization of the public sphere, the focus has been shifting from efficiency to effectiveness. All frameworks for the analysis of urban administrations mentioned above try to reflect this criticism but have in common that effectiveness and cooperation culture between politics and administration are only looked at in a limited way.

## Research methodology

The Kehler Management System (KMS) addresses effectiveness in a holistic and integrated way since it is open for different rationalities. Due to the diversity of numerous actors in a municipality – citizens, administrative leaders, politicians, companies and so on – different interests and world views are leading to different expectations and actions. Structural, personnel and cultural conditions determine success (Schedler & Proeller, 2007). The Kehler Management System reflects these essential ideas and integrates research results and practical experience in a practice-oriented framework for a holistic municipal control and management system, including not only goal orientation and formal structure of the organizations, but also their culture. The KMS is particularly suitable for small and medium-sized municipalities since it provides understandable, low-threshold analysis tools for a quick check. On this basis, tailor-made measures can be developed to optimize the effectiveness and efficiency of administrative management.

The core of the KMS is an (open) list of success factors of municipal management, each of which is further concretized by questions/elements. The success factors are weighted differently: There are indispensable, important and complementary success factors. The success factors are not fixed, but can be exchanged, expanded and their weighting adjusted based on empirical studies. Of course, the KMS itself is not capable of learning, but it allows for a simple and flexible adaptation. With the aim of making For KMS to be easy to understand and manage in municipal practice, 36 success factors have been recorded to date, which have been condensed into six success clusters. On the other hand, 178 questions have been assigned to the success factors to enable a detailed analysis of the performance of a municipality in relation to the success factors.



**Figure 1. Kehler Management System Cycle**

Figure 1 illustrates the structure of the KMS. The pyramid shows that the three management levels (operational, strategic and normative management) are linked to optimal processes – shown by the arrows – in an organization. The processes are based on target-oriented actions, a trustful culture and clear process structures. On the outside, the six success clusters are shown as *superordinate areas of the KMS*.

**Success cluster 1: Integration of strategy** - Municipalities align their actions – ideally against the background of an individual mission statement – with a strategy. To do so, the following success factors must be addressed:

Implementation of a broad-based mission statement development process (normative level), Development of an individual strategy for the municipality (strategic level); Operative actions are aligned with the strategy and are made transparent through targets and measures (operative level); Strategic planning is integrated into the steering cycle; Strategic planning is integrated into the budget; Contract management and the annual accounts; Strategic planning is the guiding principle for managing investments; Strategic planning is integrated into the core processes; Strategy, decisions, and implementation are linked together in a target-oriented manner; Strategically oriented organizational development; Strategic financial management forms the framework and opens scope; Municipal action is gradually geared to impact targets; Participation – involvement of third parties and so on.

***Success cluster 2: Expansion of accounting as a management tool*** - This success cluster relates to the conversion to a modern accrual accounting and budget system, which considers resource consumption and output orientation. A stakeholder-oriented reporting system must be implemented that covers the information needs of managers and politicians in line with requirements:

Migration to a modern budget and accounting system; Implementation of a stakeholder-oriented reporting system; Formulation of meaningful impact, performance and financial targets, including appropriate key figures and indicators for an accurate measurement of the achievement of objectives; Management support through the expansion of an impact and results-oriented controlling system; All the processes are supported by efficient and user-friendly technology; Decentralization based on the principle of covering tasks, competence and responsibility, and so on.

***Success cluster 3: A trustful cooperation between politics and administration*** - As mentioned, one characteristic of a good municipal management system is that it takes into account the complexity resulting from numerous actors with different views and motivations. The rationality of administrative management compared to political rationality is the typical example in this context and is therefore mapped out as a success cluster:

Good culture of trust and information; Politics and administration help each other and understand each other's role (political rationality versus rationality of administrative management); The wishes of politicians (political rationality) are considered through appropriate measures and so on.

***Success cluster 4: Open and trusting culture within the administration*** - The leadership and cooperation culture within the administration is another success factor and is characterized by trust and passion and is open to change:

Managers are aware of their role and they act accordingly; Managers are enthusiastically committed to common targets; Regular confidence-building measures within the administration are a matter of course; Regularly informing employees about current developments in the administration and its environment; Employees and managers form successful teams focused on the jointly agreed targets and so on.

***Success cluster 5: Sustainable human resources management*** - This success cluster focuses on sustainable human resources management, which is particularly evident in transparent and successful personnel selection, development and retention:

The personnel strategy supports the strategic orientation of the community; There is a personnel development concept based on this strategy, which enables the early development of core competencies; Employee appraisals are conducted regularly; Employees are regarded as the most valuable resource; A high level of employee satisfaction is aimed for and so on.

***Success cluster 6: Learning organization - change is seen as an opportunity*** - The last success cluster deals with the 'learning system' that is characteristic of a good municipal management system. Changes in the administrative environment are recognized and used as opportunities for learning and improvement:

Continuous improvement processes are culturally implemented; Based on impulses from its internal and external environment, the city administration can identify necessary changes at an early stage and

react quickly and appropriately; Changes are recognized as opportunities and used for early adaptation; Adaptation of habitual patterns to the new management culture and so on.

In a case study on strategic management in the district of Lörrach, Germany, it was shown that these six clusters can be brought into a causal order (Kientz, 2012). The development of accrual accounting system into a fully functional control instrument within the framework of NHKR and the integration of the strategic perspective into the central control processes of the municipality (especially budget and output planning) can be regarded as fundamental objectives. They enable effective, economical and target-oriented management. Effects and impacts are what local government and politics ultimately want to achieve; however, resources are limited. This implies that not only target-oriented but also sustainable, consumption-oriented resource management is required. The four remaining clusters are of great importance to the success or failure of the NHKR reform process. With a culture of cooperation, personnel and change management, they describe structural and cultural conditions that increase the probability of professional management and consistent and sustainable target orientation of municipal action. In small to medium-sized municipalities, an individual culture develops based of tradition, personal relationships, mutual trust, and a sense of community. This is reflected in both administration and politics. The KMS takes this characteristic into account, by explicitly addressing trustful cooperation and internal administrative culture in two success clusters: open and trusting culture within the administration and trustful cooperation between politics and administration. Cultural aspects also play an important role in the success clusters learning organization and sustainable human resources management.

A summary of the KMS' three-layer approach – success clusters, success factors, subordinated questions – is illustrated in Table 1.

**Table 1. KMS' three-layer approach**

<b>Success cluster</b>	<b>Number of success factors</b>	<b>Number of questions</b>
Integration of strategy	3	9
Expansion of accounting as a management tool	5	39
Trustful cooperation between politics and administration	13	58
Open and trusting culture within the administration	6	26
Sustainable human resource management	5	29
Learning organization – change is seen as an opportunity	4	17
<b>Sum</b>	<b>36</b>	<b>178</b>

Small to medium-sized municipalities usually do not have sufficient resources to implement comprehensive approaches and frameworks for outcome assessment. This and the approaches' complexity discourage administrators and politicians. Here, the KMS offers a low-threshold service, as the success factors with their subordinate questions can be queried in a so-called Quick Check. Advisory support needed is low. The results are a first, initial analysis. This offers many small and medium-sized municipalities the opportunity to identify weaknesses and potential for improvement to initiate improvements in a targeted manner and depending on the available resources. The Quick Check can also be used to check at regular intervals without considerable effort whether and to what extent the desired improvements have been achieved. This has two positive consequences. Firstly, possible undesirable developments of the improvement process can be identified at an early stage. Secondly, stakeholder motivation can be increased if improvements achieved are identified and communicated.

The KMS currently addresses primarily the internal view by looking at the interplay between administration and politics, among other things. However, this is not sufficient for the successful development of a community. For this reason, the further development of the KMS will address an external view as opposed to the internal view. For this purpose, six success clusters are being developed, which address the demands of citizens, associations, local businesses, other state authorities and neighbouring municipalities, and the side of the investors. For the analysis of the clusters, subordinated questions will again be used to compare the services provided by the municipality with the requirements. The two views will be linked by a cause-and-effect chain that analyses different services in the form of products, projects and programs.

### **Research results**

In 2015, the Kehl University of Applied Sciences carried out a survey covering the 115 municipalities and cities in Baden-Württemberg that had already converted their budget and accounting systems to the NKHR at that time and whose total population was less than 50,000 inhabitants (Böhmer & Schwalb, 2016). The questionnaire was used to measure both the implementation status in the municipalities, the estimated relevance and weighting of the success factors of just over half of the success factors and subordinate questions currently recorded in the KMS. The response rate was 75%.

***Success cluster 1: Integration of strategy*** - 39% of the municipalities and cities surveyed had or were developing a medium to long-term strategy with the Council. In addition to the larger cities, the small municipalities with less than 5,000 inhabitants proved to be particularly progressive in this respect. Among the reasons that led the majority of municipalities not (yet) to develop a strategy, disinterest on the part of the municipal council (30%) and doubts on the part of the administrative management about the added value of a strategy (28%) ranked in the top places. Of the chamberlains surveyed, 78% believed that strategic targets were 'indispensable' or 'important' for successful management. However, the assessment of the relevance of a strategy adopted and documented by the Council was strongly related to whether the municipality itself worked with strategic targets ( $\gamma = 0.44$ ). This indicates that, as a rule, no disillusionment arises after the introduction of formal strategic planning.

***Success cluster 2: Expansion of accounting as a management tool*** - In 2015, almost 2/3 of respondents denied whether the budget explicitly states performance targets and the measures and resources to pursue them. The plausible assumption that the inclusion of performance targets in the budget is only a matter of time was not supported by the data ( $r \approx 0$ ).

***Success cluster 3: A trustful cooperation between politics and administration*** - Almost all respondents believed that the trust of the council in the administration, the reliability of the council, a cooperative and fact-oriented discussion culture in the committees and a clear division of responsibilities between politics and administration are 'important' or 'indispensable' for the successful management of a municipality. The quality of cooperation between politics and administration was already rated as good to very good in most of the municipalities surveyed in 2015. However, the perceived reliability of the municipal council and the perceived trust of the council in the administration tend to be rated lower with increasing municipal size, which is particularly noticeable in the decreasing proportion of extremely positive feedback. This could be explained by the information asymmetry between politics and administration, which increases with the size of the administration. It is also possible that the party-politicization of local politics in the (larger) cities plays a role.

***Success cluster 4: An open and trusting culture within the administration*** - According to the results, there hardly seem to be any municipalities in which cooperation between organizational units is a serious problem. Most respondents (61%) said that cooperation was 'good' or 'very good'.

***Success cluster 5: Sustainable human resources management*** - From the point of view of those surveyed, high employee satisfaction and personnel continuity were 'important' or 'indispensable' (92% and 95% respectively) and decisive points in the changeover process. Against this background, it was sobering to note that more than 3/4 of those surveyed believed that the administrative management should make more effort to ensure employee satisfaction (79%), especially in smaller municipalities.



**Success cluster 6: Learning organization – change is seen as an opportunity** - In the view of the respondents, the most important factor for the successful development of a municipality is that the top management actively and purposefully pushes ahead with planned changes. 61% consider this factor to be ‘indispensable’; if one considers only those municipalities that are strategically managed, the proportion rises to 76%. This finding should not come as a surprise, given that the implementation of the New Steering Model within the NKHR is a process of change. In addition to a pronounced information and communication policy – see success cluster 4 – the commitment of the management proves to be one of the central success factors of all organizational changes (Sirkin et al., 2005).

**Conclusions for the practice of municipal management and its reform** - In conjunction with the results of the survey, three explicit recommendations for a successful reform of local government, as defined by the NKHR, can be derived from the KMS:

1. Identification - the top management must stand behind the planned changes and actively represent and promote them.
2. Trust - trust is the ‘lubricant’ of good cooperation between the council and the administration.
3. Transparency – the employees must be informed to such an extent that they can understand and support the change decisions and processes.

The introduction of the NKHR was not only intended to change the style of accounting to the municipal accrual accounting system to improve municipal economic performance, but also to optimize municipal policy performance. To promote this goal, the KMS was introduced within a case study in the municipality of Ottersweier in 2017. This included an analysis of the current situation and a proposal for improvement tailored to individual needs for the further development of the municipality. When assessing an individual municipality, the survey is carried out by the actors of the municipality in self-assessment. The results are presented in a gap analysis. After discussing the results with the administration management, professors of the University of Applied Sciences Kehl as project coordinators develop an individual concept for the further development of the community. This includes tailor-made measures aimed at fulfilling the success factors and ultimately at the common good. To check the success of the implemented measures as well as all success factors, a new survey with the diagnostic tool should be carried out every 1 to 2 years.

As already mentioned, the success factors in KMS are divided into 3 categories: indispensable, important and complementary. When assessing an individual municipality, the relevance of these categories depends on the size of the municipality: small municipalities - up to 4,000 inhabitants, medium-sized municipalities - up to 10,000 inhabitants and large municipalities with more than 10,000 inhabitants. It is possible that a success factor has a different relevance for a small municipality than for a large municipality. Depending on the degree of implementation, these will then receive points that are weighted according to relevance.

The municipality of Ottersweier is in the region of Central Baden with 6,357 inhabitants (as of 31.12.2018). In the KMS classification, it is a medium-sized municipality. The mayor has overseen the administration since 1999. The organization has three subdivisions: Main office, accounting and real estate office as well as building office/building yard. At the time the KMS was introduced, Ottersweier had 18 municipal councils.

In 2017, the municipality of Ottersweier was the first pilot municipality to carry out an analysis with the KMS. In this first case study, the KMS and the diagnostic tool developed for it were to be tested for their practical suitability. Problems that arose during the first application of the diagnostic tool were solved and tested in the run up to the new survey.

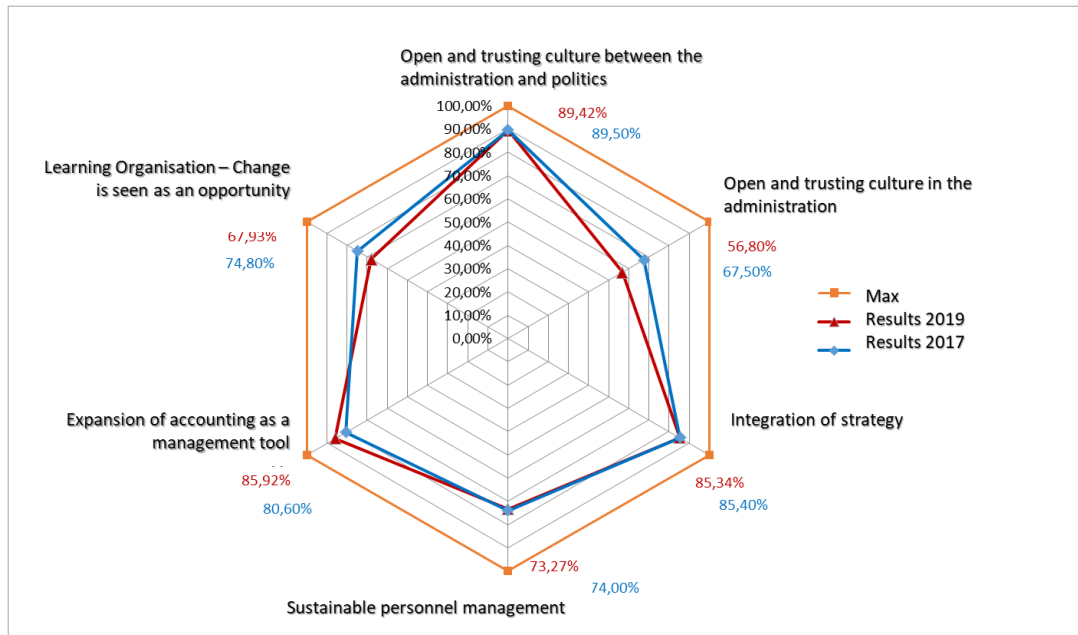
**Review of the first survey in the municipality of Ottersweier in 2017** - For a municipality to achieve meaningful results, it is advisable to use as many different perspectives (politicians, managers, employees, citizens, etc.) as possible. The municipality of Ottersweier decided in 2017 that all employees of the municipal administration and the building yard as well as the municipal councils should be included in the survey. The potential users were divided into the following 3 groups: local councils, employees and managers. The group of managers included the mayor, the heads of the offices and their deputies, resulting in a group of 9 users. The group of employees was assigned 30 persons. In addition, there were 18 municipal councils. In total, 57 potential users were thus available for the survey. The survey was carried out in paper in spring 2017. Results were anonymized within the various groups.

In 2017, it was decided that the 175 questions of the diagnostic tool should not be answered by all participants, but should be assigned to the groups that are expected to be able to answer the questions (at least by a majority). For the group of employees and the group of local councils, this assignment led to a reduction in the scope of the survey.

A brief explanation of the evaluation will be given here to be able to classify the results. If at least 80% of the maximum score is achieved, a cluster of success can be considered fulfilled and there is little or no need for action in this area in terms of KMS. The value is based on the existing evaluation systems and on the Pareto principle. Following the survey and the analysis of the actual situation, the results were evaluated to check whether there are weak points that are in need for action in terms of KMS. If this is the case, a project is designed and managed in the community, and supervised by professors from the University of Applied Sciences Kehl. If deficits are identified in the essential success clusters of culture ('politics and administration'; 'leadership and cooperation'), these success clusters must first be improved so that the potential of other success clusters can then be used. In the municipality of Ottersweier, good to very good results were achieved in the success clusters, with values between 67.5% and 89.5% of the maximum score when the diagnostic tool was used for the first time (Böhmer & Zimmermann, 2018). In the totality of all the questions, 79.0% of the possible points were achieved in Ottersweier. The success clusters 'politics and administration' (89.5%), 'strategy' (85.4%) and 'information needs for accrual accounting' (80.6%) can be considered fulfilled in the sense of the KMS approach. In these areas, there is little or no need for action. Only in the success clusters, 'Leadership and Cooperation' (67.5%), 'Personnel Management' (74.0%) and 'Changes' (74.8%) did the municipality of Ottersweier fall just short of the target rating. Although in the latter success clusters more potential for improvement can be derived from the survey, good results were also achieved here. For the municipality, this means that its existing management already largely corresponds to a municipality oriented towards the common good and sustainable management in the sense of the KMS. After solving the few problem points, it can also have a certificate issued on request.

Due to the good results in the as-is analysis, there were only small opportunities for improvement in the community of Ottersweier, which were directly incorporated into a project. For example, the target value of at least 80% for the success cluster 'Sustainable Human Resources Management' was only just missed at 74%. It was agreed that a corresponding bachelor's thesis would be written and supervised for the purpose of targeted optimization. A similar approach has been adopted for the other success clusters, where the degree of fulfilment was below 80%. This means that existing potential for improvement in a community will be resolved, if possible, with the help of the students, via bachelor theses, study projects, seminar papers and so on.

A second survey was carried out in April and May 2019 with 55 participants from the council (18 members), management (5 persons) and employees (32 persons). Again, in 2019 Ottersweier reached good to very good results with values between 62.7% and 89.9% of the maximum number of points in the individual success clusters (Belz & Böhmer, 2020). In the success clusters 'Personnel management', 'Change' and 'Leadership', 80% could not be achieved. The values are still in a good range but offer more potential for improvement. At 78.8% overall, the result of 79.0% from 2017 was repeated. The results of the individual success clusters are visualized using the following spider network diagram and compared with the results of the 2017 survey (results: 2017 blue; 2019 red).



**Figure 2. Comparisons of two case studies in Ottersweier**

When comparing the values of 2019 with the values of 2017, the municipality of Ottersweier reduced some very good to good results. While the success cluster 'Management Information' improved by almost 5 percentage points, the success clusters 'Politics and Administration', 'Strategy' and 'Human Resources Management' remained constant at the values already achieved in 2017. The success clusters 'Leadership' and 'Change' recorded a decline of 4.8 and 6.4 percentage points, respectively.

There is not a single success factor with a score of less than 50 % of the score. On closer inspection, however, individual questions on the success factors scored significantly less than 50%:

- Are there formulated personnel and management principles that describe the desired behaviour? (34.4%)
- Does my manager convey visions and can inspire for targets? (50.0%)
- Are noticeable consequences drawn from the results of the employee interviews? (39.7%)
- Is the daily work in the administration characterized by a noticeable team spirit, in which 'us' is preferred over 'me'? (40.5%)
- Are the results of the appraisal interviews recorded in writing? (45.2%)
- Are there transparent decision-making structures in which employee participation is firmly anchored? (40.9%)

The greatest potential for improvement lies in the 'Leadership' success cluster. A comparison with the 2017 figures shows that this success cluster suffered a slump of 4.8 percentage points. For a differentiated analysis, the questions of the 'Leadership' success cluster were used, which were rated worst with less than 50%:

Only 39.7% were able to answer the question 'Are noticeable consequences drawn from the results of the employee interviews and surveys?' with 'Yes.' Also, the question 'Are the results of the employee interview recorded in writing in order to achieve the targets?' could only be answered in the affirmative by 45.2%. Employee interviews in which 'employees and managers talk about work tasks, workplace design, cooperation and development prospects' have not been held in the Ottersweier community to date. There are only annual talks as part of the performance evaluation.

As the question 'Is the appraisal interview an instrument firmly anchored in the municipality, the use of which is expressly demanded by the administrative management and the implementation of which

is clearly regulated in a guideline?’ was answered in the affirmative with 70%, it can be assumed that the term ‘appraisal interview’ was misinterpreted by many of the survey participants and confused with the annual performance evaluation interviews. However, the results of the individual questions on the appraisal interview show that no or hardly noticeable consequences are drawn from interviews taking place, such as those on performance assessment, and that no results are recorded. This crushes motivation, which has a negative impact on the working atmosphere.

From the comments on the ‘Leadership’ success cluster, it must be concluded that many employees are frustrated. To improve communication and cooperation between the management and employee levels, the introduction of ‘appraisal interviews’ was suggested. The appraisal interview, which is to be held once a year between employees and management, is a solution-oriented development discussion about personal targets. These must be jointly formulated and recorded in writing in a protocol. It offers the opportunity to reach mutual agreements on work tasks, working environment, cooperation and leadership. Constructive criticism should be an opportunity for further development.

Since the appraisal interview can create clear structures, lead to target-oriented action and develop a culture of trust through communication and constructive exchange, the introduction of this management instrument is of great importance with regard to the optimization of the existing management system in Ottersweier. Not least because the municipality of Ottersweier has set itself the target of communication as an elementary success factor on a normative level. A prerequisite for successful employee appraisals is broad acceptance among the workforces. The implementation of the appraisal interviews must be prepared carefully and carried out sensitively. The Ottersweier community was therefore recommended to support the process by providing appropriate training for managers and, if necessary, employees.

The pilot project has shown that with the help of the KMS, a successful analysis of the status quo of a medium-sized municipality can be carried out. The municipality of Ottersweier was then able to submit a practical suggestion for improvement tailored to its needs. Since the municipality of Ottersweier, measured by the analysis of the KMS, is a successful municipality, works sustainably and is oriented towards the common good, it was awarded the KMS certificate as a pilot municipality for the first time.

### **Final remarks and conclusions**

The introduction of the new NHKR is expected to fundamentally change municipal control, supported by the introduction of municipal accrual accounting and new product budgets. Although new information can be obtained through this new system, it is questionable how this information will be used in practice to make decisions to improve the performance of a municipality.

The KMS supports municipalities by providing a holistic, low-threshold approach to an as-is analysis that identifies areas for performance improvement. A three-layer-approach – success clusters, success factors, subordinate analysis questions – enables regular self-assessments with the diagnostic tool Quick Check. The result is an internal administration view of its performance. It can be compared with the opinions of the stakeholders of the respective municipality (citizens, associations, clubs, companies, etc.). For a more objective analysis of this external view, the KMS will be extended by a diagnostic tool such as the internal Quick Check.

Further case studies and surveys will be conducted to improve the comprehensibility and targeting of the individual questions per success factor by adjusting their weighting. A database for storing cause-effect chains will be implemented. This historical data can be used as a basis both for predicting future events and for planning projects to improve performance.

The two case studies of Ottersweier have shown that KMS already provides a useful framework for small to medium sized communities through self-assessment, which identifies both the occurrence of improvements and newly emerging problems through repeated application.

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## ILLICIT TRADE AND HOFSTEDE'S CULTURAL DIMENSIONS

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### Abstract

**Research purpose.** Growth of illicit trade has markedly increased and caused damage to a multitude of economic, socio-economic and environmental outcomes. The purpose of this paper is to examine the impact of Hofstede's country cultural dimensions on the attitudes towards illicit trade and the political will to counter the crime across countries.

**Design/Methodology/Approach.** The 2018 Global Illicit Trade index published by the Economics Intelligence Unit for 62 countries is empirically analysed. Six hypotheses are built and tested across Hofstede's six cultural dimensions.

**Findings.** The results indicate that countries that are culturally more individualistic, have greater uncertainty avoidance and have a stronger long-term orientation have a stronger structural capacity to protect against illicit trade on average.

**Originality/Value/Practical implications.** In reference to originality, the paper adds to the scarce research on the fight against global illicit trade and empirically explores the role that culture plays in driving the attitudes towards illicit trade and the political will to fight the crime. In reference to practical implications, anti-illicit policy initiatives are likely to be more challenging in collectivist countries with lower uncertainty avoidance and a short-term orientation. Policymakers need to tailor their anti-illicit trade efforts in these countries as these societies will not likely place the same value on countering illicit trade as the countries that are culturally more individualistic, have greater uncertainty avoidance and have a strong long-term orientation.

**Keywords:** Illicit Trade; Culture; Corruption; Global Illicit Trade Environment Index

**JEL codes:** O57; I31

### Introduction

Illicit trade has existed since ancient times, but over the last three decades, the growth of illicit trade has markedly increased. Given its clandestine nature, precise measures of the extent of illicit trade are challenging to obtain; however, the illegal economy has been estimated to be between 8% and 15% of the world's gross domestic product (GDP; Mashiri & Sebele-Mpofu, 2015). As Shelley (2018, pg. 2) describes, '(o)ld forms of illicit trade persist, but the newest forms of illicit trade tied to computers and social media, operate as if on steroids'. The advancements in technology and the cyber arena have opened new sectors of illicit trade and these sectors are growing at an alarming rate. In 2017, an estimated \$5 billion was lost to ransomware and an estimated \$15.4 billion was lost to identity theft (Shelley, 2018). This raises questions as to governments' preparedness, capabilities and political will to combat illicit trade.

Recently, The Economist Intelligence Unit (EIU), commissioned by the Transnational Alliance to Combat Illicit Trade, created The Global Illicit Trade Environment (GITE) index. The GITE index measures the enabling environment for illicit trade that economies create through both action and inaction across the four categories of government policy, supply and demand, transparency and trade and the customs environment (EIU, 2018). In short, the index is designed to capture the ease of illicit trade in 84 countries. One of the primary factors facilitating illicit trade identified in the literature is corruption, as corrupt officials enable the exchange of a variety of illicit goods from cultural artefacts to human trafficking victims (Mashiri & Sebele-Mpofu, 2015; Shelley, 2018; Fisman and Wei, 2009; Basu, 2014). Corruption along with measures of cybersecurity preparedness, intellectual property

protection, tax burdens, international reporting, customs clearance and inspections, among a host of other quantitative factors designed to measure the illicit trade environment, are accounted for in the GITE index.

This study takes one step back and asks the question, what makes a country more (or less inclined) to dedicate resources to counter illicit trade? What are the factors that drive the political will to counter illicit trade? We argue that culture, as measured by Hofstede's six cultural dimensions, plays a significant role in driving the attitudes towards illicit trade and the political will to fight the crime. Before the theoretical arguments for the hypothesised relationship between Hofstede's cultural dimensions and illicit trade are presented, the following section offers a background and literature review of illicit trade and its relationship with culture.

## **Literature review**

### *What is Illicit Trade?*

Before a theoretical argument can be made linking culture to the illicit trade environment, it is important to first clearly define what is meant by illicit trade. As Shelley (2018) describes, illicit trade is much broader in scope than illegal trade. The Organisation for Economic Co-operation and Development - OECD (2016) states that defining illicit trade is challenging as countries, and even regions within the same country, do not always agree on what goods can be legally traded. Nonetheless, the OECD (2016) describes illicit trade as trade in '...goods and services that are deemed illegal as they threaten communities and societies as a whole'. The World Health Organization (2003) offers a more comprehensive definition of illicit trade as '...any practice or conduct prohibited by law and which relates to production, shipment, receipt, possession, distribution, sale or purchase including any practice or conduct intended to facilitate such activity.' There is not a single marketplace for illicit trade, since it can be conducted in the physical market, the virtual market or a mix of the two markets where stolen goods are sold on sites such as Amazon and eBay (Shelley, 2018).

The kinds of goods and services transacted through illicit trade are extensive. In terms of fish and wildlife, illicit trade involves overfishing and the poaching and overhunting of endangered species, including the rhino horn trade, which is threatening the extinction of the species (Mashiri & Sebele-Mpofu, 2015; Shelley, 2018; Basu, 2014; OECD, 2016). In the environmental sector, illicit trade includes the dumping of toxic waste, illegal harvest of timber, illicit carbon trade, illicit pesticides and counterfeit seeds (Mashiri & Sebele-Mpofu, 2015; Shelley, 2018). In the goods sector, illicit trade involves the exchange of counterfeit or illegal pharmaceutical drugs, tobacco, alcohol, narcotics, currency, automotive parts, weapons and food, as well as stolen antiquities and cultural artefacts (OECD, 2016; Shelley, 2018; Simmers and Schaefer, 2015; Stumpf and Chaudhry, 2010; Staake et al., 2009; Mashiri & Sebele-Mpofu, 2015; Joossens et al, 2010; Fisman and Wei, 2009; Brodie, 2003; Basu, 2014). In the cyber sector, illicit trade includes the many forms of ransomware and identity theft (Shelley, 2018). Finally, and essentially by definition, illicit trade includes the sale of human trafficked victims for sexual and/or labour exploitation (OECD, 2015; Shelley, 2018).

### *What are the Consequences of Illicit Trade?*

The negative consequences of illicit trade are widespread and damage a multitude of economic, socio-economic and environmental outcomes. Shelley (2018) states that the illicit economy is threatening the future of the planet by destroying the quality of the air, sea, soil and land. Human life is threatened not only through the atrocities of human trafficking, but also by illicit trade which facilitates drug addiction and provides harmful counterfeit medications and agricultural products that hinder food security and health (Shelley, 2018). As Mashiri and Sebele-Mpofu (2015, pg. 41) state, illicit trade has 'enormous costs' that include the destabilisation of society, which not only endangers the environment, human life and wildlife, but also harms economies at all levels. Specifically, Mashiri and Sebele-Mpofu (2015) describe how illicit trade distorts local economies, reduces productivity and diverts resources from the legitimate to the illegitimate economy. Considering the global illicit cigarette trade alone, Joossens et al. (2010) state that eliminating this trade would save millions from premature death and recover billions in government revenue. Mashiri and Sebele-Mpofu (2015, pg. 42) describe the four major costs of illicit trade as '...lost revenue, distortion of market prices, collapse



of local industries leading to unemployment and the social costs that endanger the health and safety of nationals, destroy vital habitats and ecosystems and threaten the tourism industry'. Thus, it is logical to assume that, given the extent of damage illicit trade inflicts on economic, environmental and socio-economic outcomes, establishing strong counter measures to combat illicit trade would be a priority for policymakers.

### *Illicit Trade and Culture*

The EIU (2018, pg. 8) states that the GITE data measures economies on their structural capacity to protect against illicit trade and is based on the '...laws, regulations, systems and effectiveness of governance that contribute to the political and regulatory environment that indicates an economy's potential to combat illicit trade of different kinds'. The GITE data reveal that the illicit trade environment varies significantly across countries, with some dedicating substantial resources to prevent illicit transactions while other economies seemingly placing a lower value on thwarting the transactions. Thus, there appears to be differences in the political will needed to establish the policies and protection measures necessary to combat illicit trade across countries. In reference to the illicit trade of stolen material from archaeological sites, Brodie (2003) states that the simple answer as to why the trade exists is the lack of political will to prevent such transactions from occurring. What then drives the political will to dedicate resources and implement policies to counter illicit trade?

It is argued that in order to obtain political will to counter illicit trade, the 'issue' of illicit trade must first be created and 'issue creation' is cultural (Post et al., 2008; Burstein, 1999). As Burstein (1991) describes, an issue must be first defined as a problem before it can become a public issue. As an example, Burstein (1999) notes that environmental pollution and child abuse were not always considered public issues, and states that the process of issue creation is cultural. In the context of political culture and political preferences, Laitin and Wildavsky (1988) state that culture instills points of concern. Concerning social policy, Van Oorschot (2007, pg. 129) describes culture '...as consisting of the values, norms, and beliefs of welfare state actors', which Baldock (1999) states is a key variable in understanding social policy. Political behaviour, as Berman (2001) describes, is an outcome of an actor's motivations, interest and preferences, all of which are influenced by culture. In Steinberg (1984), Douglas and Wildavsky argue that environmental movements have directly shaped American political culture and Lantis (2002) describes an emerging consensus in the literature that culture significantly affects national security policy in terms of grand strategy and state behaviour.

Given this backdrop, the primary objective of this study is to explore the underlying relationship between countries' illicit trade environment and culture. If culture influences political issues, which can then garner the political will to confront and subsequently result in policy implementation, it is logical to conclude that cultural values and attitudes towards illegal trade will influence the political will to counter the trade and ultimately the country's illicit trade environment. This hypothesis is empirically tested using cross-country data from 62 countries from the new GITE data in addition to Hofstede's cultural dimensions. A description of the data and the specific hypothesis follows.

### *Illicit Trade*

The GITE index is based on four categories: government policy, supply and demand, transparency and trade and the customs environment. The *government policy category* is designed to capture the extent to which countries have comprehensive anti-illicit trade laws and considers factors such as the extent of corruption among public officials, intellectual property protection and commitment to illicit trade-related treaties, cyber security and money laundering laws among other factors (EIU, 2018). The *transparency and trade category* measures the degree to which a government makes itself publicly accountable in anti-illicit trade efforts and considers factors such as its ability to track and trace consignments, governance in free trade zones, the extent to which the government reports on anti-human trafficking, intellectual property infringement and drug trafficking efforts, among other factors (EIU, 2018). The *supply and demand category* captures the institutional and economic variables that can facilitate or hinder illicit trade flows and includes factors such as labour market regulations, measures of organised crime, tax and security burdens and the quality of state institutions (EIU, 2018). Finally, the *customs environment category* measures a country's effectiveness in managing trade facilitation while preventing illicit trade and considers factors such as the percentage of shipments

physically inspected, the number of hours for customs clearance and inspection, among other assessment measures. The GITE is a weighted average of these four categories and is normalised on a scale of 0–100 with higher scores reflecting environments that more strongly restrict illicit trade.

In sum, the GITE captures the ease of conducting illicit trade across countries. In the context of this study, it captures the end result of political efforts across countries to fight illicit trade, a process that begins with the creation of illicit trade as an issue that garners political will and leads to anti-illicit trade policies. As the GITE data indicate, the result differs significantly across countries. Finland, the United Kingdom and the United States received the highest GITE scores of 85.6, 85.1 and 82.5, respectively, and represent environments in which illicit trade is most difficult to conduct. Greece, South Africa, Columbia and China are in the middle of the spectrum with GITE scores of 61.7, 61.7, 61.6 and 60.9, respectively. Iraq and Libya received the two lowest scores of 14.4 and 8.6, respectively, and represent environments in which there is relative ease of conducting illicit trade. The wide range of scores suggest, at least in part, varying degrees of political will to combat the trade. It can be argued that these differences in political will are, at least in part, due to differences in cultural attitudes towards illicit trade.

### *Culture*

Hofstede (2011, pg. 3) defines culture as the ‘...collective programming of the mind that distinguishes the members of one group or category of people from others’. From 1967 to 1973, Hofstede (1980) collected survey data on work-related values from over 117,000 IBM employees working in 40 different countries. Using this data, Hofstede (1980) originally identified four statistically distinct cultural dimensions which he labelled as ‘power distance’, ‘individualism’, ‘masculinity’ and ‘uncertainty avoidance’. He later extended his work to include approximately 70 countries and two additional cultural dimensions of ‘long-term orientation’ and ‘self-restraint’ (Hofstede et al., 2010).

Hofstede’s (2011) six dimensions of national culture are used to measure the culture within a country. Nonetheless, it is important to note that any quantitative measure of culture, which is qualitative in nature, cannot be expected to precisely capture all cultural nuances and Hofstede’s cultural dimensions have been criticised in the literature (Steenkamp, 2001; Schwartz, 1994; Brett and Okumura, 1998). However, Drogendijk and Slangen (2006) find that over time, Hofstede’s cultural dimensions have been validated in studies such as Van Oudenhoven (2001) and Søndergaard (1994).

### Power Distance

Hofstede (2010) defines the power distance dimension as the degree to which the less-powerful members of a society accept that the power in society is unequally distributed, and notes that the underlying issue of this cultural dimension is how a society handles inequalities among people. Hofstede (n.d.) describes that in societies with a high degree of power distance, people accept a hierarchical order in which everybody has a place and no further justification for this order is needed. Alternatively, in a low power distance society, people strive for an equal distribution of power and demand justification when power inequalities are identified (Hofstede, n.d.).

Husted (2000) states that high power distance societies are more susceptible to paternalism, a system in which those in higher ranking positions give favours to subordinates in exchange for their loyalty. Seleim and Bontis (2009) extend this assessment and state that in high power distance societies, there is an expectation that subordinates will be obedient to their superiors. As Husted (2000) discusses, when there is a high degree of power distance within a society, decision-making is not based on merit, rather it is based on a balance of favours and loyalty structure. These studies suggest that corruption is not only more likely to be found in high power distance societies, but is also more likely to be accepted as a means of decision-making and doing business. Getz and Volkema (2001) argue this relationship between power distance and corruption and describe how officials in high power distance societies are more likely to demand or accept bribes given their higher rank in society. Yeganeh (2014) offers empirical evidence of the relationship and concludes that, after controlling for socio-economic development, Hofstede’s higher power distance is significantly correlated with greater levels of perceived corruption. Further, studies conducted by Park (2003) and Davis and Ruhe (2003) lend additional support for the positive relationship between high power distance and higher levels of corruption. Corruption plays a significant role in illicit trade and is included in the GITE index (EIU,

2018). Bribery is used to smuggle illegal drugs, weapons, trafficked persons and stolen goods, among many other illicit goods, through customs inspections. Kickbacks and bribery are employed, so that officials will not report overfishing and overhunting of wildlife, overharvesting of timber or the illegal dumping of waste.

In sum, in high power distance societies, corruption tends to be more prevalent, the less-powerful members of society do not challenge inequities and decision-making is not based on merit. Thus, it is logical to assume that compared to a low power distance society, it is considerably less likely that a high power distance society will define illicit trade as a societal issue and garner the political will to affect change. The first hypothesis is thus stated:

*H1: The greater the country's power distance, the lower its structural capacity to protect against illicit trade.*

### Individualism

Hofstede (2010) describes the individualistic societies as preferring loose ties between individuals and social networks. In individualistic societies, people are expected to take care of themselves and family, but not beyond their immediate family (Hofstede, n.d.). Hofstede refers to the opposite end of the spectrum as collectivism and states that collectivist societies prefer a tightly knit societal framework in which individuals are integrated into strong, cohesive groups that are expected to protect group members in exchange for unquestioning loyalty (Hofstede, 2010; Hofstede, n.d.). As Tavakoli et al. (2003) discuss, individualism can be described as an employee's independence from the organisation and in individualistic societies, individual achievements are prioritised rather than group achievements.

In a study comparing Taiwanese and American auditing students, Brody et al. (1999) find that Taiwanese auditing students, who are more collectivist, are less likely to whistleblow than American auditing students, who are more individualistic. Brody et al. (1999) argue that the difference in the willingness to whistleblow stems from difference in the perceived importance of 'saving face'. As Brody et al. (1999) describe, Taiwanese place a greater value of protecting ingroup members than Americans and are comparatively less likely to whistleblow and expose a problem with their workgroup. In a cross-country study, Armstrong (1996) offers empirical evidence that more individualistic cultures perceive ethical problems as having greater relative importance than collectivist cultures. Further, Seleim and Bontis (2009) discuss that in highly collective societies, individuals are more willing to break rules and legal procedures to protect and assist ingroup members. This finding is supported by Banuri and Eckel (2012) who state that collectivist societies are more susceptible to corruption as individuals are more likely to break laws that contradict group moral codes, and by Getz and Volkema (2001) who note that public officials are more likely to demand or accept a bribe as the bribe can be used to support the official's ingroup.

In sum, in collectivist societies, whistleblowing is less likely to occur, ethical problems have a lesser weight and corruption tends to be more prevalent. Thus, it is reasonable to assume that compared to an individualistic society, it is considerably less likely that a collectivist society will define illicit trade as a societal issue and garner the political will to affect change. The second hypothesis is thus stated:

*H2: The more collectivist the country, the lower its structural capacity to protect against illicit trade.*

### Masculinity

Hofstede (n.d.) describes masculine societies as being competitive and having a preference for achievement, heroism and assertiveness. On the other end of spectrum, Hofstede (n.d.) states that feminine societies are consensus oriented and place a strong preference for cooperation, modesty, caring for the weak and quality of life. Banuri and Eckel (2012) state that corruption is more prevalent in masculine societies as material success is valued over the quality of life, and Getz and Volkema (2001) note that because more value is placed on material achievement than the means by which it was obtained, the ends can justify the means in masculine societies. Further, Yeganeh (2014) offers empirical evidence that, after controlling for socio-economic development, masculinity is significantly correlated with greater levels of perceived corruption. In a study of consumer ethics, Swaidan (2012) finds that consumers who score low on masculinity are more likely to reject questionable activities

than consumers who score relatively high on masculinity. In a study comparing Taiwanese and American sales agents, Blodgett et al. (2001) find that masculine individuals are less sensitive to the interest of one's company, customers, competitors and colleagues than feminine individuals.

In sum, masculine societies place a lower value on the quality of life and care of others. Previous research has associated masculine societies with greater corruption and as having individuals who are less likely to reject questionable activities and be sensitive to the interests of others. It is, therefore, logical to assume that compared to a feminine society, it is considerably less likely that a masculine society will define illicit trade as a societal issue and garner the political will to affect change. The third hypothesis is thus stated:

*H3: The more masculine the country, the lower its structural capacity to protect against illicit trade.*

#### Uncertainty Avoidance

Hofstede et al. (2010) describe uncertainty avoidance as the degree to which members feel uncomfortable with uncertainty and ambiguity. Hofstede (n.d.) states that the underlying piece of the uncertainty avoidance dimension is how society addresses the fact that the future cannot be known. Is it best to try to control the future or just let the future unfold? Countries with high uncertainty avoidance tend to have rigid codes of beliefs and behaviour (Hofstede et al., 2010). Chase (1997) notes that the desire to avoid uncertainty leads to a strong structuring of activities and processes. In a cross-country study, Armstrong (1996) offers empirical evidence that cultures with higher levels of uncertainty avoidance perceive ethical problems as having greater relative importance than cultures with low uncertainty avoidance. In reference to corporate takeover decisions, Frijns et al. (2013) offer empirical evidence that uncertainty avoidance plays a significant role in relatively large takeovers, and that CEOs from high uncertainty avoiding countries are less likely to engage in cross-border or cross-industry takeovers.

In sum, there is a desire to control the future and reduce ambiguity in high uncertainty avoidance societies. These societies attempt to control the future by establishing a structure that is grounded in rigid codes of beliefs and behaviour, and previous research has found that high uncertainty avoidance is associated with less risk-taking behaviour and higher ethical standards. It is, therefore, reasonable to assume that compared to a high uncertainty avoidance society, it is less likely that a low uncertainty avoidance society will define illicit trade as a societal issue and garner the political will to affect change. The fourth hypothesis is thus stated:

*H4: The less uncertainty avoidance within a country, the lower its structural capacity to protect against illicit trade.*

#### Long-term Orientation

Hofstede (n.d.) defines societies with a long-term orientation as those that encourage thrift and education as means for preparation for the future. Payne et al. (2016) describe societies with long-term orientation as those that encourage values towards future rewards such as perseverance and thrift, and Buck et al. (2010, pg. 224) note that long-term orientation '...is arguably the most important cultural dimension through its strong association with a nation's propensity to save (and) invest...'. Alternatively, societies with short-term orientation maintain time-honoured traditions and norms (Hofstede, n.d.). Payne et al. (2016) describe short-term orientation societies as those which foster values associated with a respect for tradition, saving face and fulfilling society expectations. In a review of accounting literature, Khlif (2016) concludes that long-term orientation has been positively associated with social environmental disclosure and Park and Lemaire (2011) find that long-term orientation has a strong positive influence on life insurance demand.

Thus, societies with long-term orientation have values associated with future rewards and encourage preparation for the future through education, investment and saving. On the other hand, societies with short-term orientation foster respect for tradition, including saving face and fulfilling society expectations. The focus on the preparation for the future through saving and investment in long-term orientation societies suggests that it is more likely that these societies will define illicit trade as a societal issue and garner the political will to affect change as illicit trade has severe negative effects on the future. The fifth hypothesis is thus stated:

*H5: The greater the short-term orientation within a country, the lower its structural capacity to protect against illicit trade.*

#### Indulgence

Hofstede's final cultural dimension is indulgence versus restraint. Hofstede (n.d.) defines indulgent societies as those allowing for relatively free gratification of basic and natural and human desires such as enjoying life and having fun. Alternatively, societies that value restraint are typically governed by strict social norms which discourage gratification of needs (Hofstede, n.d.). As Kraman et al. (2018, pg. 28) describe, indulgent societies have '...a culture willing to fall into a pit of impulses and desires'. In an empirical analysis of national culture and carbon dioxide emissions and economic growth, Disli et al. (2016) find that a higher level of indulgence in a country will shift its carbon dioxide Environmental Kuznets Curve upwards. Disli et al. (2016, pg. 421) note that the indulgence cultural dimension has not been widely tested, but '...it is expected that indulgent societies are characterized by a more wasteful and extravagant lifestyle...'. It is, therefore, logical to assume that societies that are more likely to give into impulses to gratify present desires are less likely than a restrained society to define illicit trade as a societal issue and garner the political will to affect change. The sixth hypothesis is thus stated:

*H6: The less restrained a country, the lower its structural capacity to protect against illicit trade.*

### **Research methodology**

The above six hypotheses are tested using regression analysis. A list of countries included in this study is presented in Table 1.

**Table 1: Countries Included in Analysis**

Algeria	Denmark	Japan	Philippines	South Korea
Argentina	Estonia	Latvia	Poland	Spain
Australia	Finland	Lithuania	Portugal	Sweden
Austria	France	Luxembourg	Romania	Taiwan
Belgium	Germany	Malaysia	Russia	Thailand
Brazil	Greece	Malta	Saudi Arabia	Trinidad and Tobago
Bulgaria	Hong Kong	Mexico	Serbia	Tunisia
Canada	Hungary	Morocco	Singapore	Turkey
Chile	India	Netherlands	Slovakia	United Arab Emirates
China	Indonesia	New Zealand	Slovenia	United Kingdom
Colombia	Ireland	Pakistan	South Africa	United States
Croatia	Italy	Peru		Uruguay
Czech Republic				Venezuela
				Vietnam

For proper model specification, the following control variables are included in the analysis.

#### *Control Variables*

A country's ability to build the necessary infrastructure to protect against illicit trade will largely depend on its level of economic development. While a country can develop the political will to address illicit trade, it will not be able to effectively counter the transactions without extensive resources. Further, greater economic development is associated with lower levels of corruption (Ata and Arvas, 2011). The level of economic development is controlled for using the GDP per person, which is available from the World Bank.

The degree of economic freedom enjoyed is also controlled for in this analysis. Economically free countries have governments that allow economic, business and financial transactions to transpire with less regulation and restriction and corruption is not needed to facilitate transactions. Alternatively, countries with little economic freedom are more likely to observe rent-seeking behaviours (DiRienzo, 2019; Ata and Arvas, 2011). The Heritage Foundation (2016) describes economic freedom as a measure of the overall health of a country, as it is strongly correlated with a multitude of economic and social development factors. The level of economic freedom enjoyed by a country is controlled for in this analysis using the Heritage Foundation's Economic Freedom Index.

A total of 62 countries have data measures for the above cultural and control variables. Table 2 provides a summary and the descriptive statistics of the data used in this analysis.

**Table 2: Data Summary and Descriptive Statistics**

Variable	Data Source	Mean	St. Dev.	Min.	Max.	<i>n</i>
Illicit trade environment	2018 Global Illicit Trade Environment (GITE)	65.8	12.54	28.1	85.6	62
Economic development	2017 GDPPC, World Bank (GDPPC)	25,871.40	21,597.78	1155.4	109,453.0	62
Economic freedom	2017 Economic Freedom Index, Heritage Foundation (EFI)	67.2	10.68	27.0	89.8	62
Power distance	Hofstede's Power Distance (PDI)	60.2	20.59	11.0	104.0	62
Individualism	Hofstede's Individualism (IDV)	45.8	23.04	12.0	91.0	62
Masculinity	Hofstede's Masculinity (MAS)	50.1	19.42	5.0	110.0	62
Uncertainty avoidance	Hofstede's Uncertainty Avoidance (UAI)	67.0	22.82	8.0	112.0	62
Long-term orientation	Hofstede's Long-term Orientation (LTO)	49.0	22.66	12.6	100.0	62
Indulgence	Hofstede's Indulgence (IND)	46.6	21.57	0	100.0	62

#### *Models*

Regression analysis is used to test the above hypotheses using *GITE* index as the dependent variable. Model 1 is the baseline model that establishes the expected coefficient signs and significance of the control variables, economic development (*GDPPC*) and economic freedom (*EFI*).

$$GITE = \beta_0 + \beta_1 GDPPC + \beta_2 EFI + \varepsilon \quad (1)$$

Model 2 adds the culture variables to the baseline model. The cultural variables are denoted as follows: power distance (*PDI*), individualism (*IDV*), masculinity (*MAS*), uncertainty avoidance (*UAI*), long-term orientation (*LTO*) and indulgence (*IND*).

$$GITE = \beta_0 + \beta_1 GDPPC + \beta_2 EFI + \beta_3 PDI + \beta_4 IDV + \beta_5 MAS + \beta_6 UAI + \beta_7 LTO + \beta_8 IND + \varepsilon \quad (2)$$

Recalling that higher values of GITE reflect countries that have a greater structural capacity to protect against illicit trade, the above-stated hypotheses indicate that  $\beta_3$  is expected to be negative,  $\beta_4$  is expected to be positive,  $\beta_5$  is expected to be negative,  $\beta_6$  is expected to be positive,  $\beta_7$  is expected to be positive and  $\beta_8$  is expected to be negative, in addition to the positive coefficients on both control variables.

## Results

Table 3 provides the estimated regression results for models 1 and 2.

**Table 3: Regression Results** (Dependent Variable *GITE*)

	Model 1	Model 2
Intercept		
coefficient estimate	13.11*	7.08
Standard deviation	7.37	9.36
p-Value	0.0791	0.4532
<i>GDPPC</i>		
Coefficient estimate	0.00039***	0.00013**
Standard deviation	0.0000592	0.000053
p-Value	<0.0001	0.0179
<i>EFI</i>		
Coefficient estimate	0.597***	0.552***
Standard deviation	0.122	0.091
p-Value	<0.0001	<0.0001
<i>PDI</i>		
Coefficient estimate		-0.032
Standard deviation		0.052
p-Value		0.5381
<i>IDV</i>		
Coefficient estimate		0.181***
Standard deviation		0.0443
p-Value		0.0001
<i>MAS</i>		
Coefficient estimate		-0.011
Standard deviation		0.040
p-Value		0.7685
<i>UAI</i>		
Coefficient estimate		0.081**
Standard deviation		0.0345
p-Value		0.0228
<i>LTO</i>		
Coefficient estimate		0.097**
Standard deviation		0.0407
p-Value		0.0212
<i>IND</i>		
Coefficient estimate		0.050
Standard deviation		0.0460
p-Value		0.2864
$R_a^2$	0.6667	0.7912
<i>F</i>	82.0***	29.90***
<i>N</i>	82	62

Note: \*Significant at 90% confidence; \*\*significant at 95% confidence; \*\*\*significant at 99% confidence.

As shown in Table 3, the analysis results indicate that there is empirical support for *H2*, *H4* and *H5* in addition to the expected signs on the control variables. Culturally more individualistic countries have a greater uncertainty avoidance and a stronger long-term orientation, as well as a stronger structural capacity to protect against illicit trade on average. Although not statistically significant,  $\beta_3$  and  $\beta_5$  have the expected negative sign, indicating that countries that are more masculine with greater power

distance have a lower structural capacity to protect against illicit trade. An *F*-test comparing Model 1 to Model 2 indicates that the cultural variables add statistically significant explanatory power. Overall, the analysis results lend support to overarching argument that culture affects the relative importance a society places on the issue of illicit trade and the political will to counter the transactions.

## Conclusions

Illicit economy is threatening the future of the planet (Shelly, 2018). The trade harms the environment, human and wildlife and slows economic development, and is estimated to account for up to 15% of the world's GDP (Shelly, 2018; Mashiri & Sebele-Mpofu, 2015). It is imperative that policymakers continue to combat these illicit transactions; however, it is argued here that policymakers – especially those working in the global arena – need to be mindful of the impact that culture has on a country's attitude towards illicit trade. Pre-existing cultural mindsets often play a key role in influencing a country's political will and desire to address matters such as illicit trade and acknowledge its widespread harmful impact.

In sum, anti-illicit policy initiatives are likely to be more challenging in collectivist countries with lower uncertainty avoidance and a short-term orientation. Policymakers need to tailor their anti-illicit trade efforts in these countries. It needs to be recognised that these societies will not likely place the same value on countering illicit trade as the countries that are culturally more individualistic, have greater uncertainty avoidance and have a strong long-term orientation. It can be argued that the relative importance of illicit trade as a problem clearly differs across countries, and that these differences are based on differences in culture. Countering illicit trade requires a global commitment and in order to garner this commitment, each society must perceive illicit trade as an issue – it is a basic societal problem that needs to be addressed. As widespread global efforts are made to counter illicit trade, the results of this study suggest that there is an increased need to be cognizant of the role of culture in anti-illicit trade efforts before implementing a one-size-fits-all methodology to mitigate the presence and spread of illicit trade across countries.

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## ACCESS TO FINANCE, INDIGENOUS TECHNOLOGY AND FOOD SECURITY IN NIGERIA: CASE STUDY OF ONDO CENTRAL SENATORIAL DISTRICT

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### Abstract

**Research purpose:** Food security remains a major component of economic development. Many developing nations are facing challenges of food insecurity, which had contributed to starvation and other societal problems. With adequate food intake, human healthy living is assured. This study investigates the impact of access to formal finance and indigenous technology and knowledge on food security in Ondo central senatorial district in Ondo state, Nigeria.

**Methodology:** In total, 216 farmers were sampled, and data were collected through a well-structured questionnaire and focus interviews. Data collected were analysed using descriptive statistics and logit estimation technique.

**Findings:** Descriptive statistics show that there are more male farmers (61.1%) than female counterparts (38.9%), with most of the farmers (42.7%) in their ages 56 years and above and with 51.9% having primary education. Majority of the farmers (65.7%) engage in arable crop farming, while 15.2 and 19.1% engage in cash crop and livestock farming, respectively. The econometric model reveals that age, income, gender, education, marital status, religion, family size, assets owned and distance are major determinants of a farmer's decision on account ownership, savings and borrowing. Indigenous knowledge of soil fertility, disease-resistant and quickly-growing crops, food storage, local weather, water management, pest and diseases control are significant determinants of food security in Ondo central senatorial district. Likewise, account ownership, savings and borrowing from formal financial institutions are significant determinants of food security.

**Practical implications:** It is, therefore, important that efforts to ease access to formal financial services and improve indigenous technology to serve as complement to modern farming techniques to achieve food security be made a priority by government and private institutions.

**Key words:** Indigenous technology; Food security; Access to formal finance

**JEL:** Q12; Q14; Q16

### Introduction

The importance of food and how best to secure it has created a desire for many policy formulations across the globe. Food security has remained a top agenda for countries all over the world, particularly in developing countries where a significant proportion of the population suffers from malnutrition and other problems associated with food production, availability, affordability and utilisation (Allen, 2013; Lang and Barling, 2012). As stated by the Food and Agricultural Organisation (FAO), "food security is a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (FAO, 2010, 2008). The above definition of food security by FAO could be summarised as three As: availability, affordability and accessibility (Lang and Barling, 2012). Food insecurity, on the other hand, could be described as non-availability, non-affordability and non-accessibility of food.

In Nigeria, food insecurity has been considered as one of the major causes of poverty (Osabohien *et al.*, 2018; Amaza *et al.*, 2009; Omotosho *et al.*, 2008; Okuneye, 2001). Human capital development in terms of health and education are hindered with inadequate food intake both in quantity and quality,

which in turn, adversely affect the natural output and economic growth. Improved food security is crucial in the alleviation of poverty, promotion of people's health and labour productivity. It also contributes to the political stability in a country and ensures sustainable development of citizens (FAO, 2010). Attainments of food and nutritious security have been the top agenda for countries all over the world. Food security is attainable when regular and adequate food is available, accessible and contains the maximum nutrient for daily dietary requirements to live a healthy and active life at all times (FAO, 2010). The importance of food security as a tool for poverty alleviation and economic growth is also entrenched in the Sustainable Development Goals (SDGs) (Dada, 2020; Gil *et al.*, 2019; Mukhtar and Haruna, 2018; Perez-Escamilla, 2017; Griggs *et al.*, 2013).

Access to finance and technology, especially indigenous technology, is an important factor that increases productivity and enhances food security in developing countries (Tweheyo, 2018; Osabohien *et al.* 2018; Chang, Chatterjee and Kim, 2014; Abdu-Raheem and Worth, 2011; Shiferaw, Hellin and Muricho, 2011; Kristjanson *et al.* 2005). In the literature, access to finance has played a positive role in increasing the standard of living, self-confidence and also in the diversification of livelihood strategies and thus increasing their productivities and income (Osabohien, *et al.* 2020; Onyiriuba, *et al.*, 2020; Dejene, 2019; Kopparthi and Kagabo, 2012; Anyiro and Oraku, 2011 Bauchet *et al.* 2011). As noted by Bauchet, *et al.* (2011), access to formal finance to peasant farmers is a veritable tool to meet a farm's needs (purchase of farm implements), improve farmers' productivities, thus enhancing food security. Acquired funds could also be used to diversified farming operations, which tend to increase income base of farmers and consequently increase productivities and food security (Dejene, 2019; Tenaw and Islam, 2009). Sustained increase in farm productivities (consequently, food security) is enhanced, and farmers are able to smooth consumption if they have access to formal credit (Osabohien, *et al.* 2020; Anyiro and Oraku, 2011). Amazingly, the agriculture sector, which is the major driver of food security, has received less access to finance in developing countries due to high credit risk (Chang, Chatterjee and Kim, 2014; Kopparthi and Kagabo, 2012).

The importance of indigenous knowledge as a key component of inclusive development is documented in the literature (Kamwendo and Kamwendo, 2014; Awuor, 2013; Kalpana Sastry Rashmi and Rao, 2011; Jera and Ajayi, 2008; Agrawal, 1995). Agrawal (1995) sees indigenous technology as a powerful aspect for sustainable resource use and balance growth. It is a dynamic way in which the people of a particular area understand their natural environment and how they organise folk knowledge of flora and fauna, cultural beliefs and history to enhance their livelihood (UNESCO, 2016). Ingram (2011) submitted that inclusion and usage of indigenous knowledge of particular people by any developmental agency always yields sustainable and positive results. Claxton (2010) argues that biodiversity, indigenous technology and sustainable development are highly related. A farmer's local technology gives opportunity to continuous cropping all year round without the use of chemicals and does not, in any way, degrade the environment.

With indigenous knowledge, people are able to make the right and correct decision on the type of soil to cultivate, when to cultivate such soil, type of crop to plant, food storage type and best way to process particular crop/foods. This, no doubt, positively affects agricultural productivities and nutrients of crops, as well as the income of farmers. Indigenous technology/knowledge on food security involves knowledge about soil fertility, disease-resistant and quickly germinating and growing crops, best way to conserve soil, pest and disease control, best method to preserve food, best/adequate storage and water management techniques (Kamwendo and Kamwendo 2014). Food insecurity can be addressed by sustainable agriculture, which has been described as an agricultural system adapted to a particular area so that crop and animal produce do not decline over time and are reasonably stable over normal fluctuation of weather (Troeth and Donahue, 2003). Agriculture in Nigeria is subsistence-oriented; households in the agricultural sector mostly produce on the basis of their demand on the household level. To achieve the objective of food security and nutrition for all and to reduce poverty through improving income of rural households, there is a need to progressively transform the agricultural sector away from subsistence-oriented production towards a large-scale production. This transformation process can be fuelled by agricultural productivity growth through easy access to formal finance (Khaki and Sangmi, 2017) and appropriate application and use of indigenous knowledge. This study, therefore, seeks to examine the role indigenous technology and access to

finance play in food security in Nigeria. The rest of the paper is sectioned as follows; section 2 provides a detail explanation of the theoretical framework, section 3 focuses on the methodology and data sources and measurement, section 4 reports the empirical results, while section 5 presents the concluding remarks.

### **Literature review**

This study explores a post-development theory developed in the 1980s as a critique to development theory and practices. Post-development theorists view all development as an imposition by the west on other continents of the world. The theory argues that the entire concept of development is a constructed reality in that 'development' is a western standard whereby the west is labelled as 'developed' and the rest of the world is perceived as 'underdeveloped' (Zial, 2007; Matthews, 2004). It is assumed that western world is having an ideal norm that serves as a standard for measuring the success of all other countries of the world, particularly the third-world countries (Parfitt, 2002). The development theory is a top-down and centralised approach to development, which believes in a universal standard for living and understanding life. Development theorists believe in a common measure of development, progress and growth, which are used to classify countries of the world. Countries that fail to meet greater percentage of these standardised criteria are classified as underdeveloped. However, post-development theorists argued that some of the yardsticks for measuring development may not be realistic or achieve desirable objectives for other population in other continents of the world. In fact, some measures of development are viewed as an intentional attempt to exterminate some indigenous values, norms and culture, thus forcing people to become dissatisfied with their ever-rewarding mode of life (Curry, 2003). People now see themselves as inferior to those in the first-world countries. Governments, particularly in third-world countries, wanting to achieve 'development', initiate and execute projects that are assumed to bring 'development' in accordance with the development theory without due recourse to meeting the potential need of the local populace. In most cases, developmental projects initiated by governments are not what are needed to improve the welfare of people. Development projects in most times fail to consider the cultural and economic values of people, thus leading to non-achieving the desire results. In other words, people need to be carried along to know their need before any project is undertaken for them. Post-development theorists argued that the assumed ideal value of progress/development is not universal and is actually 'modelled upon the European experience of progress' (Kippler, 2010). They argued that the traditional concept of development is authoritarian in nature and technocratic in execution. Whoever decides what development is and how to achieve it is typically in a position to tell which country had achieved it or not. Post-development theorists faulted the development theory that it relies on the universal standards for classifying and evaluating societies and, in fact, subordinates countless different perceptions and values of other people (Zial, 2007). Furthermore, post-development theorists argued that the development discourse has incorrectly removed the topic of development activities (poverty, food security, access to finance) from the political sphere and placed it in a scientific situation. By removing development issues from the political sphere and putting them into the hand of the technocrat or development expert, one is ignoring the root cause of inequalities and instead treating merely a symptom of an inequitable power distribution. To a post-development theorist, food security, poverty, access to finance, technology and famine are issues of power in Nigeria, and one cannot totally de-politicise it. Thus, access to productive assets, land, labour, water and, ultimately, formal finance is controlled by complex systems of tribal and local law, state intervention and development institutions (Smith, 2003). The post-development theory emphasises that the aspirations of development practices do not necessarily reflect the needs and aspirations of the population. Therefore, the aspiration of population should be sought and integrated into developmental practices and projects.

### **Research methodology**

In the literature, there is no consensus on the universal measurement of food security. Agencies attempting to record food security often have difficulty differentiating between varying community, household and individual levels of food security (Webb *et al.*, 2006). Some measures of food security

include agricultural production, food storage levels, caloric intake, per capita income or nutritional status (Ballard, Kepple, Cafiero and Schmidhuber, 2014; Allen, 2013; Hoddinott and Yohannes, 2002). Measures such as food balance sheets, household budget and spending survey, individual food intake survey and anthropometric and biochemical assessment have also been used in the literature (Chang, Chatterjee and Kim, 2014; Headey and Ecker, 2013). These measures, however, only inform on the consequence of food insecurity, rather than measuring it. For the purpose of this paper, food security was measured based on the perception of the source discussing food security. This is in consonance with the post-development theory, which argues for democratic involvement of the targeted recipients on developmental project (i.e., individual values) (Curry, 2003). Respondent farmers were allowed to subjectively rate and give the level of food security in their household with a set of structured questionnaires administered on them.

A multi-stage sampling procedure was used to select the sampled villages. Three villages were randomly selected from each of the six local government of Ondo central senatorial district, making a total of 18 selected villages. And, 12 farmers were selected from each village with a purposively sampling technique, totalling 216 farmers across the senatorial district.

Questionnaires were prepared on the variables of interest and administered to the selected farmers in survey studies. Necessarily, data were collected from the sampled farmers by interviewing them and translating the questionnaires written in English language into the farmers' native languages. Responses were collected and analysed using both descriptive and logit regressions. Logit regression was explored to analyse the factors that influence the decision to access and use financial services by farmers. It also analysed the effect of use of indigenous technology on food security.

Logistic regression is used in this study to find the association between a categorical dependent variable and a set of independent (explanatory) variables. It is a predictive analysis used to describe data and to explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval, or ratio-level independent variables. Logistic regression is best used when both the dependent and independent variables have large number of zeroes. It is a model that can effectively tackle the problem inherent with censored variables, and it can incorporate both discrete and continuous components (Greene, 2008). In this study, the likelihood of taking a certain decision by a farmer is estimated assuming a logistic distribution. Logistic distribution is deemed fit for the study, not only that it can effectively assess the determinants of farmer decision as regards formal market participation and likelihood of achieving food security, but can also help to solve the problem of heteroscedasticity that usually beset cross-sectional data. The baseline model for access of finance on farmer is specified thus:

$$y_{ij}^k = \beta_0 + \beta_1 x_{1ij} + \dots + \beta_n x_{nij} + \alpha_1 H_{1ij} + \dots + \alpha_n H_{nij} + \varepsilon_{ij} \dots \dots \dots (1)$$

$$i = (1 \dots \dots \dots 216), \quad j = (1,2,3), \quad k = (1,2,3)$$

where  $y_{ij}$  is the probability that a farmer  $i$  in village  $j$  has  $k$  number of financial services.  $k$  is decomposed into account ownership, savings and credit in formal banks, each as dependent variable of account ownership, savings and credit.  $x_{1ij} \dots x_{nij}$  are the socio-economic and demographic attributes of farmer  $i$  in village  $j$ ,  $H_{1ij} \dots H_{nij}$  are the household characteristics of farmer  $i$  in village  $j$ .  $\varepsilon_{ij}$  is the error term, which is normally distributed  $(0, \sigma)$ .

The model on the effect of indigenous technology on food security is specified below:

$$FS_{i,v}^k = \gamma_0 + \gamma_1 x_{1iv} + \dots + \gamma_n x_{niv} + \alpha_1 F_{1iv} + \dots + \alpha_n F_{niv} + \phi_1 P_{1iv} + \dots + \phi_n P_{niv} + \dots + \varepsilon_{iv} \dots \dots (2)$$

$k = (1 = \text{food availability}; 2 = \text{food accessibility}; 3 = \text{food utilisation})$ ,  $FS_{i,v}^k$  is the probability of achieving food security. Food security was proxied by availability, accessibility and utilisation.  $x_{1iv} \dots x_{niv}$  are the socio-economic and demographic attributes of farmers  $i$  in village  $v$ ;  $F_{1iv} \dots F_{niv}$  are the indigenous knowledge/technology of farmer  $i$  in village  $v$ ,  $P_{1iv} \dots P_{niv}$  are formal financial services,  $\varepsilon_{iv}$  is the error term that is normally distributed. Indigenous knowledge/technology of farmer consists of knowledge on fertility of local soil, local soil conservation, food preservation, local food

processing, food storage, disease-resistant and quickly growing crops, water management techniques (Kamwendo & Kamwendo, 2014).

**Dependent variables:** The dependent variables in equation (1) are in three categories representing farmers' access to and use of formal financial services. These services are account ownership, savings and credit. Account ownership represents the probability of having account in a formal bank. It is one ( $y = 1$ ) if farmer has account in formal bank and zero otherwise ( $y = 0$ ). Savings and credit denote the probability of using formal bank because a farmer may just open account without using it. Therefore, the probability is equal to one ( $y = 1$ ) if farmer saves, also one ( $y = 1$ ) if farmer borrowed from a bank in the last 12 months and zero ( $y = 0$ ) otherwise.

The dependent variable in equation (2) consists of components of food security. Food security is decomposed into three categories, namely: food availability, food accessibility, food utilisation:

1. Food availability is defined as the type and amount of food produced locally. It is also an amount of particular food that is available to a certain group of people at a specified time.
2. Food accessibility: This depicts the ability of household (farmer) to have access to available quantity of food. It is defined as the price of food against household farmer's purchasing power. It is having the necessary resources for the purchase of good and varieties of food for consumption.
3. Food utilisation depicts the nutritional values (vitamins, mineral, proteins) contained in the food consumed. It involves the nutritional security, which guarantee adequate dietary intake that helps the body to resist and recover from disease. People have to be assured of safe and nutrition food. The food consumed has to provide sufficient energy to enable the consumer to carry out routine physical activities.

**Independent variables:** These are variables that are expected to influence the dependent variables. These variables are commonly used in the food security literature (Khaki and Sangmi, 2017; Ali and Erenstein, 2016; Chang, Chatterjee and Kim, 2013; Ibnouf, 2011; Ratcliffe *et al.*, 2011; Yen *et al.*, 2008). The variables are age of the farmer, gender, marital status, religion, educational status, family size, farm size, distance to/from bank, asset owned, account ownership, saving and credit. For regression on the probability of achieving food security, additional independent variables, namely, knowledge about local soil fertility, knowledge about disease-resistant and quickly growing crops, capacity to forecast local weather, usage of indigenous preservation, usage of indigenous food processing and food storage are added. Each of these variables takes the value of 1 if a farmer reports having knowledge and/or using them, and 0 if otherwise.

Data on food availability, food accessibility and food utilisation were generated from questionnaire.

## Research results

The section describes the results of the main findings of the study. The descriptive statistics and the logistic results are explained.

Table 1 shows the demographic attribute of the farmers' participants. There are more male farmers (61.1%) than female counterparts (38.9%). A significant proportion of farmers were in the age of 56 and above. This is followed by farmers in the age bracket 45–55. This reveals that farming is mostly practised by old people, while the younger generation prefer other economic activities to farming (especially white-collar jobs). With respect to education, more than half of the farmers interviewed (51.9%) obtained primary education. This is followed by those having secondary education (30.1%). Only 9.7% farmers attained tertiary education, and 8.3% never had formal education. With regard to the type of farming activities, farmers were found to engage in different farming activities to widen their chances of having and maintaining food security and to reduce the risks of depending on one form of farming activity. This is in consonance with the findings of Tweheyo (2018) and Eyong (2007) that engaging in a variety of farming activities protects farmers against cultural, economic and social shock as well as increases a farmer's income.

Table 2 summarises the indigenous method used for storing a farm's produce. Various methods were identified. In all, local stores constructed with local technology were found to be mostly used. This was followed by the use of basket, sack, clay pot and granaries. Reasons cited for using these traditional methods include ease in construction, production of healthier food/crops, cost effectiveness and cultural conformability.

**Table 1. Demographic characteristics of farmers** (Source: authors' computation from fieldwork, 2020)

Character	Frequency	Percentage
<b>Sex</b>		
Male	132	61.1
Female	84	38.9
<b>Total</b>	<b>216</b>	<b>100</b>
<b>Age</b>		
15–22	-	-
23–33	15	6.9
34–44	32	14.8
45–55	77	35.6
56+	92	42.7
<b>Total</b>	<b>216</b>	<b>100</b>
<b>Education</b>		
No formal education	18	8.3
Primary	112	51.9
Secondary	65	30.1
Tertiary	21	9.7
<b>Total</b>	<b>216</b>	<b>100</b>
<b>Farming operation</b>		
Arable crop farming	182	65.7
Cash crop farming	42	15.2
Livestock	53	19.1
<b>Total</b>	<b>277</b>	<b>100</b>

**Table 2. Food storage method** (Source: authors' computation from fieldwork, 2020)

Methods	Frequency	Percentage
Granary	16	7.4
Clay Pot	20	9.3
Basket	62	28.7
Sack	43	19.9
Local store constructed with indigenous technology	75	34.7
<b>Total</b>	<b>216</b>	<b>100</b>

Table 3 shows the coefficient and marginal effect on the decision by a farmer to use formal financial services. The result from Table 3 shows that there exists a significant relationship between age of farmer, income, gender (male), education, marital status (married), religion, family size, farm size, asset owned and distance with account ownership. The results reveal that the probability of owning a formal bank account by farmer reduces with family size and distance, but increases with age, income, gender (male), higher education attainment, married, Christian and larger farm size. This corroborates the findings of Johnson and Zarazua (2011) and Efobi *et al.* (2014) who found that the probability of owning an account by women reduces because the income of women is slimmer compared to their male counterparts.



**Table 3: Logistic regression results on decision on financial services by farmers** (Source: authors' computation from fieldwork, 2020)

Independent variable	Dependent variables					
	Account ownership		Saving		Credit	
	Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect
Age	0.0402*	0.0835	0.072*	0.0084	0.2432*	0.0047
Income	0.0921*	0.0621	0.0865*	0.0025	0.624*	0.0793
Gender	0.3524**	0.0025	-0.2061**	0.0015	0.725**	0.0006
Education	0.1024**	0.0021	0.0271**	0.0041	0.085**	0.0201
Marital status	0.067*	0.0231	-0.0621*	-0.0021	0.0921**	0.0321
Religion ( <i>Christian = 1</i> <i>Others = 0</i> )	0.0015**	0.0011	0.0331**	0.0129	0.0816**	0.0006
Family size	-0.2401**	-0.0013	-0.0426**	0.0036	0.4083**	0.0241
Farm size	0.0645**	0.0200	0.0523**	0.0076	0.4256**	0.4327
Asset owned	0.6042*	0.0052	0.1321*	0.0212	0.0214*	0.0008
Distance	-0.2837**	-0.0032	-0.7214**	-0.0621	-0.0752**	-0.0021

where \*, \*\*, \*\*\* are 10, 5 and 1% level of significance, respectively. All models have been checked for multicollinearity.

Women are usually overburdened with household expenses, which further reduces their meagre income. In addition, the result reveals that farmers who are Christian are more likely own a formal account than other religious believers. With respect to savings, variables such as age, income, gender, education, marital status, religion, family size, farm size, asset owned and distance were all significant in the model. The results are not unexpected because with increase in age, income, education and asset owned, farmers are more enlightened to put their wealth in a safer place. Surprisingly, our results show that women farmers do save than male counterparts. This seems to contradict many findings in the literature but supported by the work of Ibnouf (2011) who found that a female farmer saves more than the male counterpart in the western Sudan region. However, this might be as a result of higher family demand pressure on male farmers that hinders them to save. Greater proportion of male income is spent on family need and consumption, with almost nothing left to save.

There is a significant relationship between age, income, male, education marital status, religion, family size, farm size and distance with borrowing. As farmer grows older in age, there is higher likelihood to have increased family and village responsibilities. To cope with this, an additional income and income base to support the family are needed, thus necessitating the need for additional money (loan). Besides, the marginal effect of credit constraint is higher at younger age since bank requirements for loan are sometimes unaffordable at younger age. This is in line with the finding of Kereta (2007) that young people in Ethiopia are less likely to access credit than the middle aged. Result in Table 3 also shows that farmers with relatively large family have higher probability to demand for credit. This might be attributed to pressure on household consumption from higher dependence, thus necessitating the need for credit (Chen and Chivakul, 2008). Likewise, the results reveal that Christians are more likely to demand for loan than Muslim and other religious believers. This might be as a result of Islamic belief of non-interest banking, which pushes them away from approaching formal banks to procure an interest-yielding loan.

As hypothesised, married farmers are more likely to demand for loan than unmarried farmers due to greater family size, which had resulted in higher family expenditure on consumption. With respect to education, the results conform to the hypothesis that educated farmers are more likely to demand for credit. Educated farmers have the potential to expand income and thereby own assets necessary for collateral, better able to appreciate the need of credit and have less cost as they face fewer difficulties in collecting and evaluating the information needed to apply for loan (Magri, 2002). Farmers with larger farm size have higher likelihood to demand for credit in a formal bank. The larger the cultivated farm size, the more the farmer utilises more farm input such as labour, fertiliser and other farm inputs, and the more the needs for more finance, which can be obtained from banks. Table 3 shows that farmers with higher income are more likely to borrow from a formal bank than those with low income.

Besides, banks are more willing to give loan facilities to farmers with higher income, particularly those with large and many farmlands and other farm assets. This is to ensure an easy and greater opportunity to recover their loans in case of default. Likewise, as a farmer's income increases, there is tendency to have increased saving and investment. Investment results in increasing the economic activities, which sometimes require large capital and running expenses, which can be obtained through loan from formal banks. As expected, the probability of obtaining credit from formal bank reduces with distance. The farmers reported that long distance to formal bank was not the only problem, but that roads were not motorable and worse during the rainy season, which could keep them stark in villages for weeks because vehicles could not come to their villages. This is supported by the finding of Dejene (2019) who examines the impact of micro-credit on food security of rural smallholder farmers in Gesha District of southern Ethiopia

Apart from the financial inclusion of the farmer discussed above, the likelihood result of the effect of indigenous technology and access to finance on food security are shown in Table 4. The coefficients as well as the marginal effects are shown in the table. The pseudo  $R^2$  values of 0.532, 0.603 and 0.516 for food availability, food accessibility and food utilisation, respectively, imply that almost 53.2, 60.3 and 51.6% variation in the likelihood to achieve food security (availability, accessibility and utilisation) in Ondo central senatorial district is explained by the explanatory variables included in the model. It reveals that essential variables that influence food security were captured.

**Table 4: Logistic regression on food security** (Source: authors' computation from fieldwork, 2020)

Independent variable	Dependent variable					
	Food availability		Food accessibility		Food utilisation	
	Coefficient	Marginal effect	Coefficient	Marginal effect	Coefficient	Marginal effect
Age	0.0306*	0.0241	0.0532*	0.0204	0.0021*	0.0101
Gender	0.0351**	0.0324	0.0326**	0.0106	0.0602**	0.0204
Education	0.0624**	0.0003	0.0062**	0.0203	0.0031**	0.0245
Marital status	0.0321	0.0012	0.0030	0.0604	0.0602	0.0121
Religion	0.0106	0.0321	0.0072	0.0312	0.0214	0.0046
Family size	0.3201**	0.0046	-0.0123**	0.0603	-0.0301**	0.0060
Farm size	0.6021**	0.0782	0.0254**	0.0236	0.0623**	0.0547
Knowledge own soil fertility	0.1024*	0.1264	0.0321*	0.0906	0.0051*	0.1572
Knowledge on disease-resistant and quickly growing crops	0.0324*	0.1168	0.0602*	0.0824	0.0421*	0.1205
Indigenous food preservation	0.1074*	0.0667	0.0301*	0.1172	0.1062*	0.0852
Indigenous food storage	0.6261**	0.1416	0.0651**	0.1260	0.3051**	0.1029
Ability to forecast weather	0.3210**	0.0062	0.0008**	0.0517	0.0562**	0.0842
Local water management techniques	0.0072**	0.0001	0.0308**	0.0121	0.0721**	0.0705
Pest and disease control	0.3901*	0.1020	0.0643*	0.1002	0.0804*	0.0821
Account ownership	0.0140*	0.0102	0.0203*	0.1001	0.0062*	0.0310
Savings	0.0233*	0.0342	0.0036*	0.0321	0.0214**	0.0301
Credit	0.0301*	0.0102	0.0023*	0.0601	0.0143*	0.0602
Pseudo $R^2$	0.532		0.603		0.516	
Loglikelihood	-512.230		-502.338		-423.01	
Probability	0.000		0.000		0.000	
Observations	216		216		216	

where \*, \*\*, \*\*\* are 10, 5 and 1% level of significance, respectively. All models have been checked for multicollinearity.

The results in Table 4 show that all the explanatory variables, except religion and marital status, are statistically significant in achieving food security in the Ondo central senatorial district. Importantly, all the variables on indigenous technology are positively significant in influencing food security. The

results further express that age, gender, education, family size and farm size are significant determinants of food availability, food accessibility and food utilisation. The bigger the farm becomes, the higher the likelihood to increase farm productivities, which results in more farm products. With respect to family size, a bigger family size has more workforce for farming operation, which results in more farm produce. However, higher family size with a significant number of dependants exerts consumption stress on the household limited income, thus making accessibility to food difficult. This is also applicable to household food utilisation.

With respect to indigenous knowledge on soil fertility, there is higher likelihood to have security in terms of food availability in the Ondo central senatorial district. This is not surprising because the knowledge on soil fertility will assist the farmer to know the type of crops that are most suitable on different soils to yield maximum output. This also guarantees the nutrient value of the crops (food utilisation). The probability of having adequate food production also increases with indigenous knowledge on 'disease-resistant and quickly growing crops'. Farm produce increases when 'disease-resistant crops are planted and monitored'. Likewise, regular and timely supply of food crop to market is always guaranteed when crops having the shortest time maturation with good quality are planted. Evidence had shown that disease-resistant crops contain more nutrients than other crops (Louette & Smale, 2000). Food accessibility is also made feasible with regular food supply to the market with reasonable prices. Indigenous technology of food preservation does not only increase the likelihood of adequate food supply, but also ensures better nutrients in food/crops. Smoking of food, for instance, does not only prolong food shelf-life but also preserves it from contamination. The results also indicate that an increase in the likelihood of having food accessibility and utilisation is highly associated with indigenous technology of food storage. This corroborated the submission of Aregu (2014) that meat that is preserved with local technology contains less fat and more nutrients needed for healthy consumption. Traditional granary food storage and other indigenous knowledge of food storage increase the likelihood to have adequate food supply, ensure food accessibility and utilisation (Okoye and Oni, 2017). Crops like maize, millet and grains such as bean are stored in granaries. Awuor (2013) corroborated that grains encourage farmer to work harder to have more granaries, thus gives them assurance of food security.

The likelihood of having adequate food availability supply, substantial nutrients in food for healthy consumption is found to increase with increased use of indigenous food processing at 5% significant level. This further stresses the importance of indigenous food preservation and storage. In addition, the ability of farmers to forecast local weather was found to have a positive impact on all the components of food security in the Ondo central senatorial district. An increase in the quantity and quality of food crops might be a result of good weather forecast that helps farmers to know the specific period and location to cultivate land, plant crop, apply pest control and harvest crops.

The probability of having adequate food supply, better access to food and improved crop nutrients is also found to increase with indigenous knowledge of water management techniques. The likelihood of having adequate food production, easy access to food and required nutrients in food crops increase with farmer's local technology of managing water in food processing, preservation and storage. This is in consonance with the finding of Irving (2011) that nutrient security involves the knowledge of the right feeding process, cooking practices, clean environment and safe drinking water that guarantee adequate dietary need, which help the body to resist and recover from disease.

The marginal effects of the logit results show that all the indigenous technological methods were not only statistically significant but impact greatly on all the components of food security. Keeping the other variable constant, the probability of having adequate food supply, easy access to food and required nutrient from food consumed will increase by 12.6, 9.06 and 15.7%, respectively, with the indigenous knowledge of soil fertility. Likewise, the ability of a farmer to know and use disease-resistant and quickly growing crops will increase food supply by 11.6%; it will also increase the likelihood to access food by 8.24 and 12.05% for food utilisation. With respect to knowledge on food preservation, there is 1.67% likelihood for food adequacy, 11.7% likelihood increase for easy access to food and 8.5% probability in food nutrients. This probability of achieving food security in terms of availability, accessibility and utilisation were found to increase by 14.2, 12.6 and 10.3%, respectively, with indigenous knowledge on food storage. This reveals a great impact of local methods of food

storage on having adequate food supply, easier affordability of food and higher likelihood of having food with better nutrients for dietary need.

The probability of having adequate food supply for consumption also increases by 6.7% with indigenous knowledge of food preservation. Also, the likelihood of having the required dietary nutrients in food crop/supply increases by 8.52% with local food preservation. This is not unexpected. Local food processing was found to be more hygienic and devoid of contamination (Idachaba, 1991). Food processed with local methods contains healthier nutrients for human consumption (Admire and Tinashe, 2014). This is confirmed with the magnitude of the marginal coefficient of food availability and utilisation. Indigenous ability to forecast weather increases the likelihood of food availability, food accessibility and utilisation by 0.6, 5.1 and 8.4%, respectively. From Table 4, indigenous knowledge on local water management technique and its application, on average, increases the probability of food availability, food accessibility and utilisation by 0.01, 1.2 and 7.05%, respectively. Likewise, the use of indigenous pest and disease control, on average, enhances more food availability supply than other method by 10.2%. Better access to food is also guaranteed by using indigenous pest and disease control. The probability of having better access to food increases by 10.02%. More dietary nutrients are assured with indigenous use of pest and diseases control by 8.21%.

Furthermore, in Table 4, there exists a significant relationship between account ownership and food availability, food accessibility and food utilisation. The probability of having adequate food production, easy accessibility and required dietary food nutrients increases with account ownership. With respect to formal saving, the probability of having adequate food production, easy accessibility and required food nutrients all increase by 34.2, 32.1 and 30.1%, respectively. Likewise, there is a significant relationship between the likelihood of having adequate food supply, better access to food and having greater nutrients in food crop/consumption and formal borrowing. This reveals the impact of indicators of financial inclusion (account ownership, savings and credit) on food security in the Ondo central senatorial district, Nigeria. A reasonable rationale for this is that having an account enables a farmer to save; have access to credit facility, which gives opportunity for farmer to acquire necessary resources to expand farming operation; and consequently, increased farm productivities. This ensures adequate food production and supply with affordable prices.

## Conclusions

This research study was undertaken to investigate the impact of access to formal finance and use of indigenous technology on food security in the Ondo central senatorial district of Ondo state, Nigeria. The research was chosen purposely to address the problem of food security on which data were not usually available, particularly in the Ondo central senatorial district and in virtually all states in Nigeria.

The study explores the post-development theory to establish the fact that food insecurity among the poor rural community was highly attributed to policies that do not consider the resource base of the poor and that favour commercial farmers among other factors (Tweheyo, 2018). The study shed more light on the determinants and importance of a farmer's access to formal financial services and usage of local technology on achieving food security. Food security was disaggregated into three components, namely, food availability, food accessibility and food utilisation on which data were collected with a structured questionnaire and interview from the sampled farmers. The results reveal that a significant proportion of the farmers do not have account in formal banks. While, those who have were found not to actively use them. They still rely on informal means of savings and borrowing. Therefore, there is an urgent need for banks' branches, agents or correspondent banking system in rural communities to facilitate easy access to basic financial services. The findings from the study show that farmers still considered indigenous technology as an environmentally friendly and cost-effective way of food production, processing and storage. Farmers still prefer to rely and use local seed, processing and storage methods because they have lived, tried and tested them. Finally, the research reveals the importance and contribution of indigenous knowledge/technology on food security. Components of food security were positively influenced by all methods of indigenous technology. This confirms the role indigenous technology plays in achieving food security. Effort should, therefore, be made to improve local technology to serve as complement to modern farming techniques. Rural farmers should

be adequately consulted and actively involved in any developmental projects to improve food security because local farmers are more familiar with local need and challenges of their respective communities.

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