TALLINN UNIVERSITY OF TECHNOLOGY
School of Business and Governance
Department of Economics and Finance

Sheyla Shamilli

# THE ROLE OF ICT IN THE FINANCIAL MANAGEMENT OF A COMPANY

Bachelor's thesis

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Supervisor: Mari Avarmaa, PhD, senior lecturer

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I hereby declare that I have compiled the thesis independently
and all works, important standpoints and data by other authors
have been properly referenced and the same paper
has not been previously presented for grading.
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Sheyla Shamilli 12.05.2022
(signature, date)
Student code: 195959TVTB
Student e-mail address: shsham@ttu.ee

Supervisor Mari Avarmaa, PhD, senior lecturer:
The paper conforms to requirements in force

……
(signature, date)

Chairman of the Defence Committee:
Permitted to the defence
……
(name, signature, date)

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# ABSTRACT

Information technology has cut its way into many parts of modern-day activities, from tiny to medium to huge applications and processes. The thesis delves into the concept of information and communication technology and explains how it is used in the context of financial management of companies. In addition, the influence of IT in financial management on company performance is investigated in this study. It was also conducted to examine the amount of contribution that these technologies may provide to a corporation from a financial management point of view. The analysis was carried out by research done in Azerbaijan on a sample of 38 all-sized Oil and Gas firms. A mail-out questionnaire was used as the major method of data collection, with additional interviews, phone and e-mail support provided as needed. Correlation analysis was used to investigate the relationship between the adoption of Financial Management supporting ICT and company financial performance indicators. The results were varied depending on the size of a company. For instance, large and medium firms were in all cases positively influenced, while small ones had some negative figures. However, after implementing ANOVA-single factor analysis, the picture has slightly changed. The best financial programs which suit companies by the size were also found based on Chi-square, annual financial reports and interviews information.

Despite the fact that studies on the influence of ICT use on financial performance of businesses have been conducted throughout the years, it is important to note that the end conclusion is still up for debate.



Key words: financial management, information and communication technology, company financial performance

# INTRODUCTION

Nowadays, the world is experiencing rapid changes in worldwide economies. These changes are the result of the transition from an industrial production economy to an information-based economy. Over the last few decades, the role of ICT has grown significantly. This influence may also be seen in the way businesses use information technology. Because of the ever-changing nature of business, corporate viability without information technology is almost impossible.

One of the most important functions of an organization is financial management, which has a significant impact on its success or failure. There are some main objectives of financial management: obtaining budget to finance the company's day-to-day needs, making a decision on the structure and allocation of these resources, making investment decisions, and eventually analysing, forecasting, planning, and managing all business activities while guaranteeing the company's financial stability (Alnaqabi, Nobanee 2021). As a result, information technology should be used to improve the managerial decision-making process in finance, in order to be competitive and successful in the market, to increase profitability and efficiency, to respond quickly to external factors, and to adapt and change in accordance with modern requirements (Jiang 2020)

The primary objective of this paper is to evaluate to what extent and how information technology is used in Azerbaijani large, medium, and small-sized businesses. The second goal is to see if using IT in financial management is linked to a company's financial performance. According to previous study of Cebisová in 2010, the use of information technology helps to a wider use of performance indicators in the organization and, as a result, to increased financial management efficiency. However, the research of same author in 2011 showed that regardless of the size, human, or economic potential of a company, purchasing and implementing advanced software solutions is not recommended to all companies. The general hypothesis in Cebisova work of 2019 was that using IT for Financial Management improves the company's financial performance.

**Research questions:**

- What is the role of information technology in an organization's financial management?
- How using ICT in financial management impacts company performance?
- Which ICT tools are leading to the improvement of companies' financial performance?

The goal of this thesis is to understand and systematize the ways ICT is used in financial management, as well as to identify its positive and negative effects on the financial performance of companies in Azerbaijan from little to big sizes of Oil and Gas and connected industries. Quantitative research method will be used to analyse the data from annual financial reports of the companies and provided questionnaires. This is supported by some qualitative data from interviews.

This research is organized into three chapters. The objective and problem of the academic study are introduced first in the thesis. The thesis moves on to the theoretical part after describing the context of the study's topic. This part explain the theory of financial management main functions, ICT role in it, financial perfomance indicators and summary of previous emperical works done. The methodology of quantitative and qualitative approaches is presented after the theoretical part. In this chapter, the research methodology and study subjects are discussed in further depth. Before the conclusion, the outcomes and results of the empirical study are evaluated and discussed. Furthermore, these findings resolve the study's problem.

The findings of the study, which aims to investigate the benefits of information technology to an organization's financial management, are expected to be very useful to those in charge of it once it is completed. This research will also be of considerable value to the management profession, as information technology will play a significant role in establishing an effective internal control system in a company. Azerbaijani oil and gas businesses were chosen to give a case study for the research. Because it is the most common in the author's own nation, this industry was picked. (Prikhno *et al.* 2021, 1)

# 1. THEORETICAL OVERVIEW

This chapter's goal is to provide background information on the financial management concept, its key functions, and a company's financial performance. In addition, a definition of ICT, the role of it in financial management of a company and its possible connection with company performance are also discussed in this chapter.

## 1.1. Main Functions of Financial Management

Finance is one of the fundamental underpinnings of all types of economic operations in the current money-oriented economy. The smooth handling of financial tasks is critical to the health of any corporate enterprise.

Financial management may be described as the management of a company unit's money or finances in order to achieve the firm's goal in a cost-effective manner. Financial management is a critical function of an organization since it oversees all of the company's financial assets and makes essential financial decisions. Financial managers' main responsibilities include planning an entity's financial budget, controlling, and implementing financial strategies that show how to effectively use the company's financial resources according to planning and budgeting in order to achieve the organization's financial goals and maximize shareholder wealth (Juneja 2015).

Financial managers must make critical judgments on the forms and fractions of various sources of financial resources after estimating the organization's necessary capital. Finance managers' primary goal is to reduce capital expenditures while increasing shareholder value. The organization's financial management will have a variety of options for increasing the company's earnings. However, they will only take advantage of possibilities that are really profitable and will boost the organization's profits while reducing expenditures. And, in the end, the wealth of shareholders will rise. Each of the organization's many activities necessitates a series of decisions based on relevant data, which can only be accomplished with the use of information and communication technology. Corporations have a massive amount of data that can only be

summarized using advanced computerized technologies. Financial management deals with increasing financial resources and ensuring that they are used effectively to achieve organizational objectives. Adoption of general management concepts for execution is part of financial management.

## 1.2. ITC role in financial management.

The terms "information technology" and "information and communication technology" are frequently used interchangeably in academic papers (Roztockia, Weistroffer 2015). In this thesis, "information and communication technologies" refers to all aspects of information technology and telecommunications, as well as media broadcasts, audio and video processing, and information transfer.

ICT is a broad term that encompasses a variety of computerized technologies that enable communication as well as the electronic capture, processing, and transport of data. Desktop computers, laptops, handheld devices, wired or wireless connectivity, corporate productivity software, data storage and security, network security, and other associated protocols are examples of these technologies (Ashrafi, Murtaza 2008 referenced in Imalingat 2015). By combining the capability of high-speed gadgets with high-speed communication networks conveying multimedia information, ICT has openly contributed to the elimination of time, distance, and space constraints in order to provide business activities with convenience and efficiency. Physical devices and software that connect with multiple hardware components and convey data from one physical location to another are referred to as communication technology. Finally, ICT is now widely recognized as the backbone of all organizations, from small to large, public to private, micro to macro scale, education to finance, and so on. (Alnafrah et.al. 2021) ICT can help many organizations improve, coordinate, and regulate their operations, as well as raise the usage of financial management. In general, information and communication technology are regarded as one of the most trustworthy techniques of establishing a solid foundation for an effective system of internal control over financial reporting. Physical devices and software that connect with multiple hardware components and convey data from one physical location to another are referred to as communication technology.

ICT has a critical role in reducing operational inefficiencies and improving decision-making in organizations (Krishnaveni, Meenakumari 2010). As a consequence of lower operational expenses, enhanced coordination, less inefficiency, and uncertainty, as well as increased revenues, ICT adoption leads to increased organizational capabilities and performance (Hengst, Sol 2001) According to Ben Attom (2012) ICT offers an enabling environment by integrating all financial activities using accounting software to generate financial reports that can influence new and current investors' decisions.

Considering the aforementioned criteria, information technology in financial management may be defined as the application of current technologies for the transformation of financial data or data required to make an informed financial choice. In looking at the consequences at the departmental level, the study of San-Jose et.al., (2009) gives a deeper understanding of the influence of ICT use on organizational performance. Increased use of information technology can improve the performance of highly diversified organizations by lowering these expenses, so leveraging the economic benefits of diversification (Shin, 2006)

As a result, information technology can be used to improve the managerial decision-making process in finance, in order to be competitive and successful in the market, to increase profitability and efficiency, to respond quickly to external factors, and to adapt and change in accordance with modern requirements. In compared to the conventional manual method, the emergence of ICT can increase the possibilities of improving financial management efficiency and effectiveness.

The major benefits of automating financial activity indicators for businesses should be an improvement in financial managers' productivity. Calculation automation enables for a faster calculation procedure and more time for interpretation and assessment of the acquired indicators, as well as the search for and validation of alternate solutions to complicated financial challenges. Finding financial and analytical information, as well as conducting research on it, is a lengthy and time-consuming process that necessitates the participation of a large number of specialists and a significant amount of various calculations, including and using economic and mathematical programming and forecasting methods. As a result, financial analysis process automation has become undoubtedly essential, and it has been made feasible by the rapid growth of information and digital technologies (Razzaque, Hamdan 2020). The automation of financial analysis in the organization can help to speed up the process of evaluating financial indicators, identifying

potential risks and threats swiftly and in the shortest time feasible, and planning subsequent steps to reduce losses and boost profitability.

By utilizing technology, financial management may be distinguished from traditional financial management. It offers substantial benefits in data processing due to the processing capability of IT. Enterprise users can utilize computers to improve the decision-making capabilities of financial management departments in statistics, collecting, and storage, as well as implement computer-assisted real-time financial management control. As a result, when relevant problems arise, it can handle them in the most efficient time possible, and IT can also give various schemes for the administration of an enterprise's financial management department via the use of various computer technologies. Various financial instruments may be employed online to better serve financial activities, thanks to IT.

Features and capabilities, simplicity of modification, compatibility and integration, pricing, and convenience of use are some of the factors to consider while choosing financial software. Another significant consideration is whether it can be modified to match the demands of the firm. Organizational needs should be identified first, and then the product that best meets those needs should be chosen. As a result, the most essential consideration for them is if the software is a good fit for their company (Hegazy, 2017). The software's functionality (capabilities) is seen as one of the most significant characteristics by users, and within this category, flexibility (customization) is regarded as the most important feature (Ivancevich et al, 2007 referenced in Wagdi, Hegazy 2017).

## 1.3. Company performance

Financial Performance - is a broad indicator of a company's overall financial health over time. *"You can't manage what you can't measure"* – William Hewlett. (Patscheke, 2011)

The financial performance of a company is measured by how much better off a shareholder is at the end of a period than he was at the start, and this can be determined using ratios derived from financial statements, primarily the balance sheet and income statement, or by using data on stock market prices (Baraza 2014). Financial success may be quantified using a variety of financial metrics, including profit after tax, return on assets (ROA), return on equity (ROE), earnings per

share, and any other widely accepted market value ratio (Yenesew 2014). The larger cash ratio indicates that the firm is better equipped to satisfy its existing obligations, resulting in bigger earnings, and attracting more investors to participate (Mindra, Erawati 2014).

Firm performance is a gauge of what a company has accomplished during a period of time in which it has performed well. The goal of accomplishment measurement is to gather relevant information on fund flow, fund usage, effectiveness, and efficiency. Furthermore, the knowledge might inspire managers to make the best decision possible (Amal *et al.* 2012). Every management pays close attention to good financial performance since it is so important to the structure and development of a company. However, numerous elements might sabotage that goal, resulting in a poor level of firm performance.

Profitability, sales turnover, return on investment, shareholders fund/net asset, profit before tax, profit after tax, and cash flow are also some financial indicators of an organization's financial performance (Akinrinade, 2020). Margaritis and Psillaki (2010) revealed that lower leverage had a beneficial influence on financial performance in French manufacturing firms. Coad et al. (2017) highlight the importance of profit forecasting for future growth. Leverage permits the investor to earn higher potential returns than would otherwise be possible, but it also increases the risk of loss: if the investment loses value, the loan principle and any accumulated interest must still be returned (Andy et al., 2002). Nastiti *et al.* (2019) studied the impact of working capital management on company profitability and how it relates to long-term growth. Working capital has a large indirect impact on long-term growth via business profitability. In order to increase profitability and achieve long-term growth in another study its was advised to better manage businesses' working capital (Şamiloğlu, Akgün 2016). The current ratio measures a company's performance and sustainability to pay short-term financial commitments by leveraging its assets (Wood, Sangster 2005). Shareholders are rewarded for their investment when the company does well financially (Ongore, Gemechu 2013).

## 1.4. Summary of previous empirical works

There are different studies about IT and ICT impact on Financial Management and company's effectiveness. According to Ben Attom, ICT offers an enabling environment by integrating all financial activities using accounting software to generate financial reports that can influence new

and current investors' decisions (Attom E. B. 2012 referenced in Kirmani, 2015). Researchers discovered that about 70% of medium-sized businesses integrate ICT in their financial and accounting reporting (Clarke, Morgan 2009).

ICTs have considerably boosted the competitive advantage of numerous financial firms (Aigbiremolen, Atuma 2014). For them, ICT has proven to be a helpful strategic and tactical instrument in increasing their competitiveness. That's because information and communication technology is used in every department of a financial organization, including management, marketing, credit administration, administration, human resources, operational management, strategic management, procurement, accounting, and, of course, financial management. In addition, according to Brynjolfsson and Hitt (1998) , firms that use these systems have greater levels of investment returns in information technology, and IT is connected with increased productivity in the dimensions range.

In their scientific works, Nabatova and Malchevska (2020) investigate the theoretical underpinnings of automation of the enterprise's financial analysis and forecasting process, as well as instances of statistical programs and instruments that enable analysis (Nabatova, Malchevska 2020 referenced in Prikhno *et. al* 2021). Furthermore, these scientists contend that "analytical automation considerably enhances the quality and accuracy of the results, frees personnel from long and monotonous work, and elevates financial results management to a new level, as it leads to better informed and successful business decisions." Podolchak, Bilyk and Levytska (2021) in particular, examine the current status of digitalization and the major hurdles to the digital economy's rapid growth ( Podolchak, Bilyk, Levytska 2021 referenced in Prikhno *et. al* 2021).

A major determinant of the company's effective implementation of accounting information systems is training and education of accounting information system developers, managers, and users. Because of the complexity of accounting information systems and the wide range of financial activities that occur across the organization, reliable financial statements need careful and ongoing supervision (Onaolapo, Odetayo 2012, Hla, Teru 2015; Iskandar 2015 referenced in Hartikayanti *et.al.* 2018 ). In compared to other industries, ICT has a deeper and broader use in the financial sector since it may greatly increase financial institutions' operational efficiency (Cheng *et al.* 2021 referenced in Alnafrah *et.al*. 2021). FinTech, or the mix of finance and technology, is reshaping the global financial industry and having an influence on a wide range of other areas.

The figure 1 below illustrates a connection of two variables – one is characteristics of accounting software, independent, and the another is business performance, dependent variable. The same image can be accurate for financial software, because efficiency, reliability, ease of use, data quality and accuracy are also actual characteristics of financial IT tools.

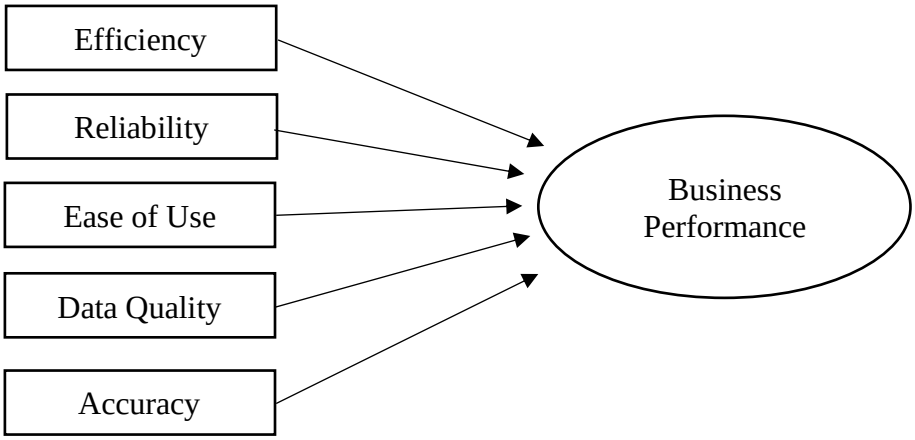


Figure 1: Impact of features of software on business performance
Source: (Chong, 2018)

The desire to improve labour productivity is one of the key motives for introducing information technology into a firm, hence the relevant indication was detected in the study of Cebisova in 2011. Financial systems are designed to make financial planning and commercial transactions easier. Budgeting, cash flow management, investment analysis, and making the best decisions are all aided by information technology. Tracking activities, generating financial statements on a regular basis, and generating reports (including balance sheets and profit-loss statements) kept by accounting information systems. This can assist managers in comprehending changes in a company's financial situation (Oz 2009). According to previous study (Cebisová 2010), the use of software technology helps to a wider use of performance indicators in the organization and, as a result, to increased financial management efficiency. Processing, acquiring, combining, storing, and manipulating data in many ways to provide excellent information is what information technology is all about.

Cebisova, in her research of 2011 on the use of information technology for financial management in Czech enterprises examined the impact of the adoption of software tools on the Financial Management function. The sample included 46 small and 39 medium-sized companies. All of the firms investigated were located in the Czech Republic. Interesting to note that not all the companies used ICT in their financial management. To be more precise, 17 small-sized companies

from the listed 46 did not use any IT tools, while for medium-sized companies the same indicator is just 14 from total 39 (Figure 2).

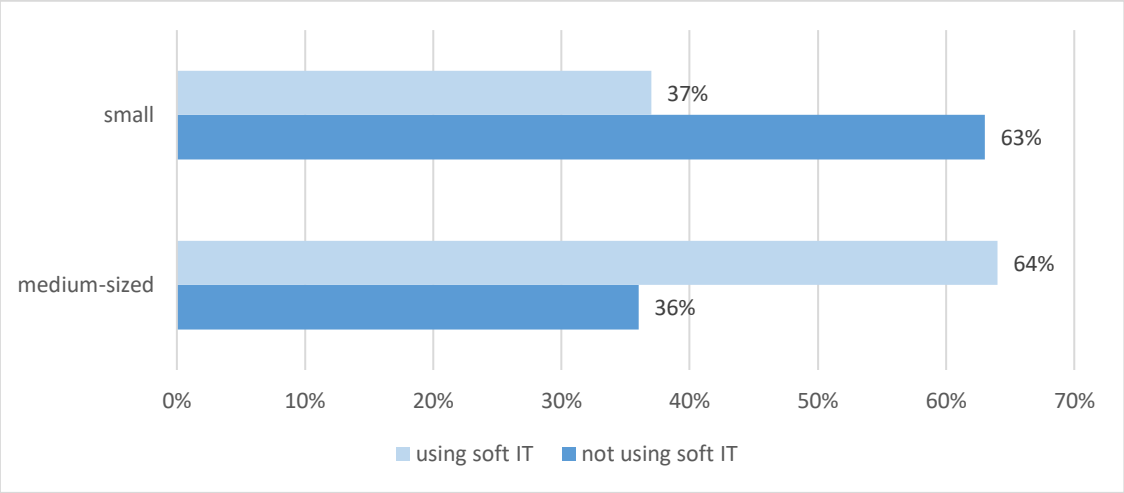


Figure 2: Usage of soft IT in small and medium-sized companies.
Source: Use of information technology for financial management in Czech enterprises (Cebisova, 2011)

According to Aldalayeen et.al. (2013) findings from suggest that while technology may not directly boost financial performance, it can help businesses perform better when combined with vertical disintegration and diversification.

The study becomes relevant to investigate the role of information technology in an organization's financial management based on this premise. However, in the study of Cebiseva (2011) only small and medium-sized companies were analysed. As a result, the thesis author has addressed this gap. Furthermore, the hypotheses concerning a link between ICT and financial performance of the organizations chosen for the present research were examined not just using Pearson correlation, as Cebisova did, but also using ANOVA-single factor to provide a more thorough overview of situation. The financial programs were also evaluated by company size, with the top ones for small businesses, medium businesses, and large businesses.

# 2. METHODOLOGY AND DATA

The methodology chapter focuses on the methods for collecting and analysing data. The chapter also introduces the companies based on which the research was conducted. The goal of this study is to see what kind of impact the use of information and communication technology in financial management has on corporate performance of firms, which industry is Oil & Gas and connected to it, located in Azerbaijan. Financial reports of the companies are used to investigate the potential impact of implementation of ITC tools in financial management on company performance.

## 2.1. Background information

Azerbaijan is the historical homeland of oil in the world. As the world's principal fuel sources, oil and natural gas are key sectors in the energy industry and have a significant impact on the global economy. Azerbaijan is a substantial crude oil producer (37.5 Mt in 2019 including natural gas liquids) as well as a significant natural gas producer (24.5 bcm in 2019). In 2018, Azerbaijan was the world's 24th-largest crude oil production, and the second-largest among EU4Energy priority nations after Kazakhstan. Oil and Gas companies located in Azerbaijan were selected to present a case for the research. This industry was chosen since it is the most common in the author's own home country. The main research question in this study is if employing ICT in financial management has an impact on the performance of all sizes of Oil and Gas companies in Azerbaijan. An additional research question is posed to determine which ITC instruments are leading to the chosen industry financial performance growth. (Guseynov, *et.al.* 2021)

ICT is the most important and promising tool for accomplishing the objective of creative development. ICT can have a synergetic and rapid influence on the country's economy, given the country's pursuit of new technology (Sharafat, Lehr 2017).

## 2.2. Methods of data collection

This research relies on a quantitative approach, whereby a survey is designed to gain a thorough understanding of the way whether and how ICT usage in Financial Management affects companies' performance. Qualitative approach is used as the secondary source of information in order to get more nuanced understanding of the attitudes of financial managers. Interview data will be utilized to better understand financial managers' perspectives and choose the best financial software.

The quantitative research technique was chosen because it enables for more data to be collected in order to study the facts and evaluate theories and hypotheses. As a consequence, when comparing qualitative and quantitative methods, quantitative is more appropriate to represent tested ideas since the researcher was ignorant of important factors to analyse and the sensitivity of data collection in relation to social situations. This form of research is more impartial and trustworthy since the researcher is unable to evaluate the findings of the study based on personal bias. (Creswell, 2003). To gather information from respondents, the study employed closed-ended questions. To extract the data or information, the questionnaire was constructed in a five-point Likert-scale format. Additional open-ended questions were utilized to gather more detailed information about using ITC in financial management of companies and analyse its impact on company performance. More detailed information about survey questions can be found in Appendix 1. A decision of adding the interviews was made after analysis of survey data in order to have a detailed discussion with the financial managers of chosen companies (Appendix 4).

Karanović in her research "Examining Financial Management Practices in the Context of Smart ICT Use" in 2019 broke down the questionnaire into four sections: Personal and demographic; Budgeting; Finance; Cash flow management; and ICT-enabled Business development. The author of this thesis will use the same logic to construct the questionnaire. The population of this study comprises a number of all Oil and Gas companies located in Baku, Azerbaijan. However, of the 89 administered questionnaires, only 41 were returned, and after filtering 38 were subsequently analysed. Some companies were not taken for the research as they did not have enough data in their annual financial reports. It's important to highlight that the findings reported in this study are

a representation of what happens in Azerbaijan, and because this type of research hasn't been done there previously, this study is important.

The quality of the research's interpretation is substantially determined by the sample selection. Non-probability sampling entails non-random selection based on convenience or other criteria, making data collection more practical. Selective sampling is a type of non-probability sampling in which researchers choose people of the public to participate in their surveys based on their own assessment. According to Etikan, I. *et al.,* selective sampling allows for the intentional selection of participants who are connected to the research (Etikan 2016, 2), in this example, firms were selected based on their industry and geography. Both primary and secondary data sources were used to meet the study goals. Questionnaires and interviews were used to gather primary data. Thirty-eight Heads of the Finance departments (Financial Managers) were surveyed and, because not all of them agreed, only twelve were interviewed. Secondary data was obtained from chosen firms published annual reports. However, some of the companies did not have this information on open resources and they were asked to share it via email. All the parts have agreed on anonymous research, the names of the companies will not be published.

The main idea of this research is to compare how the implementation of new ICT tools affected company performance. The purpose of survey in this study is to present and interpret the results on the financial management practices among companies located in Azerbaijan in relation to budgeting, raising capital, cash flow management, and the use of ICT tools for enhanced efficiency of their businesses. Range of 2017-2020 years of annual financial reports were chosen, during which the new implementation of ICT was made, and it is possible to analyse its impact. The questionnaire itself is in English and consists of 16 questions (closed, open ended and Likert scale), broken down in four sections: Personal and demographic; Cash Budgeting; Cash flow management; and ICT-enabled Business development. Most multiple-choice questions included the option of selecting 'Other' to see if the questions correctly captured all of the available responses. This gave respondents some freedom to provide their own qualitative answers that they thought could provide a better or more precise answer than the one already suggested. Data was gathered and entered into a database, after which economic performance metrics for selected years, which were chosen based on theoretical part of this paper, for each organization were obtained and added.

The first aim of the research was to determine the level and types of information technology that are used in small, medium, and large-sized companies in Azerbaijan. Moreover, not less important part was to recognize if chosen ITC software were included in financial management work process during 2017-2020. The software represented by various software solutions is the most important instrument in ensuring that the financial analysis automation process is carried out correctly (programs, packages). Because of the large number of such software items on the market, it was necessary to organize them according to the following criteria (Prikhno et al, 2021):

1.Professional software: SAS (Statistical Analysis System) is a tool that allows you to evaluate spreadsheets, do statistical analysis, create predictions, access data, and prepare reports. Depreciation, compound interest, cash flow, hyperbolic functions, factorials, combinations, and mechanisms are just a few of the built-in mathematical and financial functions in the application.

2.Mostly used:
1) It's simple to demonstrate Excel's role in the seamless operation of worldwide company. According to Forrester Research, 81 percent of firms worldwide use Excel. It is used to analyse the financial health of domestic businesses. This application is a spreadsheet that includes pre-built mathematical formulae that are represented by a reasonably sophisticated mathematical apparatus, as well as the ability to construct formulas in the cells of the table to automate the computation. Tables can be connected together to process a vast quantity of data while including several metrics.

2) "1C: Enterprise" is a collection of programs that are all part of the same platform and are represented by different packages based on the business's needs and requirements. This tool enables you to automate the financial reporting of businesses in a variety of industries, as well as different types of ownership, sizes, and more. Since 1997, 1C franchisees have been operating in Azerbaijan. A large number of diverse enterprises saw the appeal and logic of automated accounting and rushed to become clients of this firm. (Kobzeva, 2020)

3. Business processes:
1) ERP stands for enterprise resource planning, and it is a sort of software that businesses use to handle day-to-day operations including finance, procurement, project management, risk management and compliance, and supply chain operations. (Liu 2021).
2) Customer Relationship Management (CRM) is a term that refers to the process of managing customer relationships. It's a piece of software that helps you manage your contacts with clients

and prospects. A customer relationship management system assists businesses in strengthening client connections and streamlining operations in order to boost sales, enhance customer service, and boost profits. (Lawrence, *et. al* 2006)

3) Employee Assistance Program (EAP) provides the Financial Services program to assist you in achieving financial stability. The EAP's Financial Services program is designed to assist you in achieving your financial objectives by providing impartial, focused information on a variety of topics. (Leon 2012)

4) SAP is one of the world's major software developers for business process management, creating systems that enable efficient data processing and information flow across organizations. (Wang, 2013)

In addition, respondents could add their own answers, which are not available to choose, so the variable "Other" was added almost in each question as an answer. Because there has been no previous study on the most often used financial programs in Azerbaijan, the author chose to include those that he is familiar with from personal experience in the chosen country.

The main aim of interviews was to understand the opinion of Financial Heads about ICT usage and its effect on company performance. The questions were mainly focused on reasons of using chosen software solutions and thoughts about the relationship of ICT tools in Financial Management and company performance. Questions for the short interviews were designed after the first draft of analysis of survey results, in order to fill the gaps with all needed additional information. Overall the interviews were made with a total of 12 companies, inside which 3 are large, 5 are medium and 4 are small-sized. The interviews were conducted in English, Russian and Azerbaijani based on preferences of financial managers. The author translated everything into English. The interviews were organized in WhatsApp, Teams or Telegram, depending on the choice of an interviewer. The author prepared three open ended questions and two statements, to which the respondednts had to agree, disagree or stay undecided. The time of interviews was chosen by each participate individually based on their work schedule.

During the short interviews the following questions were mainly asked:

- "Does a company use computer system for its financial operations? If yes, do you switch to new programs sometimes or you just choose one and stay with it?"
- "Do you think ICT tools really can make easier everyday financial operations?"
- "Which software do you think is the most important in financial management work? What are your top three software solutions?"

## 2.3. Methods of data analysis

Analysis of survey results was made by creating tables, charts and graphs in Excel Microsoft, as well as by using descriptive and inferential statistics. These methods were chosen in order to visualize all the replies and have a general overview. Transcribing and grouping replies were used to analyse data from interviews.

The second aim was to find out how the use of ICT for Financial Management correlates with economic performance of a company. In order to understand it, Financial Statements and Annual Reports of chosen companies were analysed during stated period of time, which is 2017, 2018, 2019 and 2020 years. 38 companies have successfully passed the questionnaires answering all needed questions and have made all needed statements available. Correlation analysis was used to investigate the relationship between the adoption of Financial Management supporting information technology and company economic performance. Indicators of company performance were chosen based on theoretical framework, which are: gross and net profit margin ratio (Profit／Total revenue x 100), working capital ratio (current assets / currents liabilities), current ratio (current assets/current liabilities), leverage (total assets/total equity). After gathering and calculating all needed data, the correlation process started. The companies were divided to three groups by their sizes and correlation between number of ICT tools and performance indicators one by one was made. The number of ITC tools was employed as a proxy for increased ITC usage since it is expected to indicate a wider range of functions covered by IT tools. The companies were asked to choose only the programs, which are actually actively used by companies – the ones that are just purchased and available for use, but in fact are unused were not chosen at all. For example, correlation between gross profit margin and number of ICT tools used was made for all large-sized companies, after that in the main table (it will be discussed in Empirical Results chapter) the average value of all correlations between gross profits margins and number of ICT software used was presented as a final result. The author is aware of the potential shortcomings of the proxy of number of IT tools, however, it was used due to constraints of data availability.

At the 0.05 level of significance, Pearson Correlation, Chi-square and ANOVA-single factor were utilized to test the hypotheses using this device. Frequency, mean, and response percentages will be also used to analyse the data.

# 3. EMPIRICAL RESULTS

The general notion is that using ICT for carrying out Financial Management improves the company's financial performance. The following economic performance metrics were used to validate the benefits: gross and net profit margin, working capital ratio, current ratio, leverage. Data was gathered and entered into a database, after which economic performance metrics for each organization were obtained and appended. For the years 2017, 2018, 2019 and 2020 the economic figures were processed.

A total of 89 listed businesses were to be sampled; however, comprehensive data for 38 of these companies was available. As a result, the data analysed was for the 38 of firms that returned the questionnaire that was sent to them. This study examined 11 small companies with employees less than 25 and annual turnover no more than 200,000 AZN (around 108,000 euro), 14 medium-sized companies which number of employees is between 25 and 125 and annual turnover is in range between 200,000 and 1,250,000 (around 108,000 and 680,000 euro), and lastly 13 large enterprises with more than 125 employees and annual turnover greater than 1,250,000 (around 680,000 euro). Categorization of enterprises is indicated based on Governmental Statistic Committee of Azerbaijan. All studied companies are related to Oil and Gas industry and operating in Azerbaijan. The primary method of data collection was surveys and in-depth interviews with some of the companies. Questionnaires were sent to 89 of companies located in Azerbaijan but the response rate was about 46% or 42%, if taking only the ones that were analysed.

## 3.1. Survey Findings

The results of the survey are presented in the following chapter using descriptive statistical expressions. Descriptive statistics were used to characterize and summarize the properties of a sample or data collection, such as the mean,  or frequency (mode) of a variable.

When the question was asked about whether Financial Managers use ICT software tools for companies' financial operations, such as cash budgeting, cash flow statements and etc., all

participants responded that they are using the tools. However, the choice of ICT was different. The survey results indicated that about 38 or 100% of participants have a place of ICT software tools usage in their every-day financial actions while filling in the questionnaire.

Respondents answered the question about liquidity management methods employed for cash budgeting quite predictable (Figure 3). It was possible to choose more than one option and the most popular selection was "Fully computerized accounting system", with valid percent of 40% (26 selections) from all answers and around 68% from total number of companies, as a method for cash budgeting. However, Excel spreadsheets, as the second most frequently chosen method, is not far from the fully computerized accounting system with 21 selections (~32% from all answers or ~55% from total number of companies). However, the fact that respondents may select more than one variable explains why multiple tools are in use in parallel

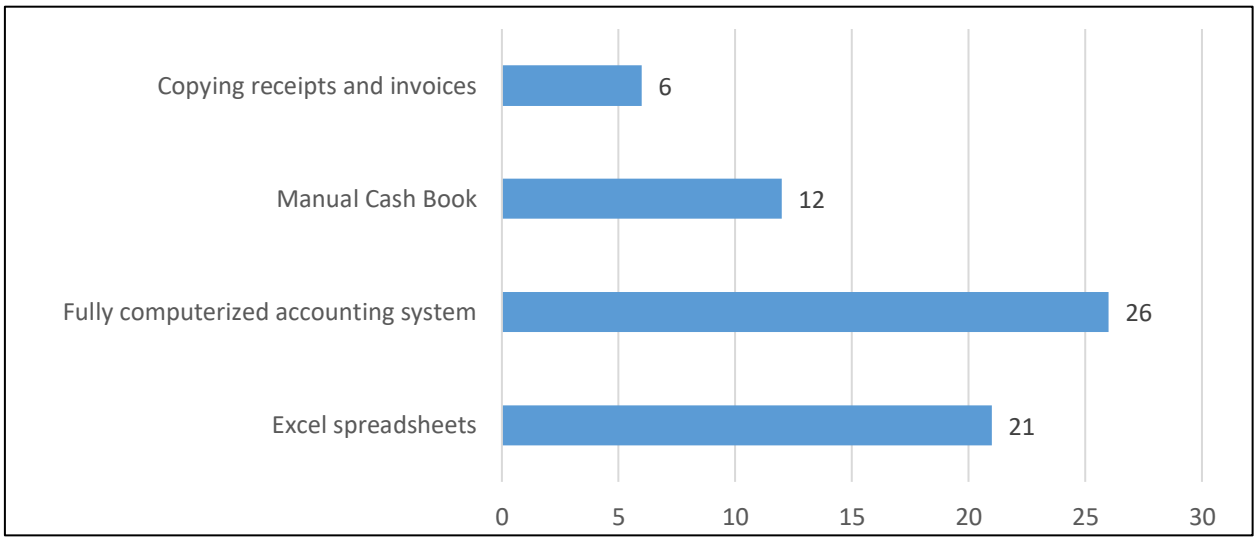


Figure 3. Liquidity management methods employed for cash budgeting process used by Oil & Gas companies located in Azerbaijan.
Source: Completed by author.

Next question was a detailing of previous, asking which ICT tools exactly used for Cash Budgeting and here the possibility of choosing several options was also applied (Figure 4). Not surprisingly again most of participants (around 45%) have chosen Excel (17 selections), however here it is clearly seen that some other software is also frequently used. After Excel, Financial Managers prefer to use 1C (15 selections or around 39%) and SAP (14 selections or 36%).

ERP and GSP, accordingly with 8 and 12 selections (respectively 21% and 31%), are also moderately used across financial managers in cash budgeting process. Additional open-ended question was about a year when the chosen programs started using by company, and two other variables, Sage and One stream, were quite new for Azerbaijani companies as they both were started using only during last two years. Therefore, One Stream was chosen 7 times, which is around 18%, and Sage was chosen 5 times, which is around 13% from all researched companies. Others software were chosen once or twice.

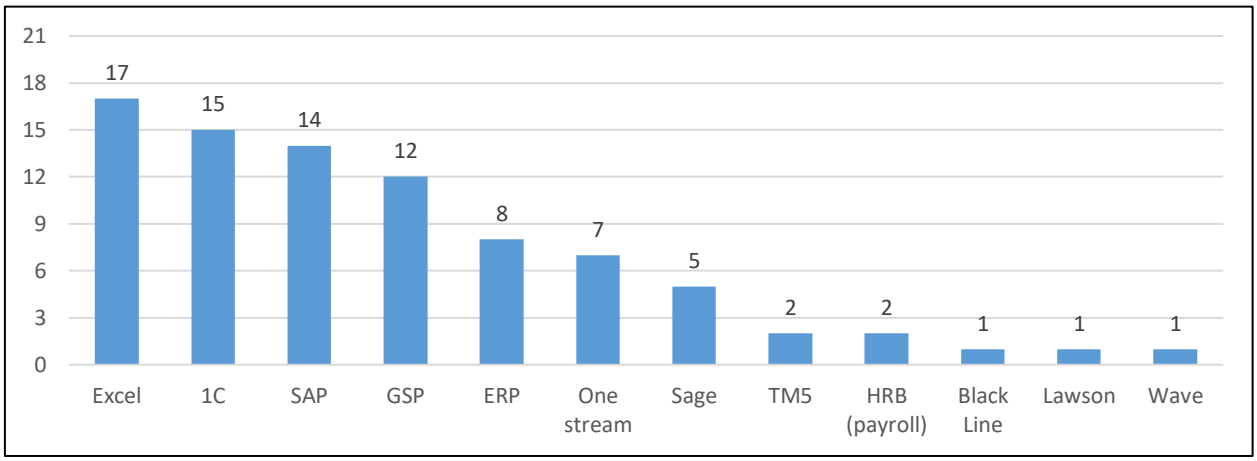


Figure 4: Types of ICT tools used by Financial Managers of all-sized Oil and Gas companies located in Azerbaijan in Cash Budgeting.
Source: Completed by the author

The second more detailed question was about tools using for creating Cash Flow statements of a business. The situation here is pretty similar, as again most of the respondents pointed out the usage of Excel (19 selections or exactly 50% from total number of researched companies) but surprisingly the second mostly chosen program was added by many financial managers manually into the variable "Other" – ZIP forecasting was chosen 15 times (around 39%), while 1C has 14 selection (around 36%).

Another new software, Concur, was selected 11 times (around 28%). Other software tools were chosen just several times. As it was conducted before, the companies had to select the programs that are actually in active use. Therefore, a number of ICT tools shows that a company has different areas of financial management for which the implementation of the chosen programs has place and even required. TM5 and Sage had the smallest number of selection, respectively 2 (around 5%) and 3 (around 7%). One Stream, a quite new software for Azerbaijan, was selected for cash

flow statements creating only 4 times, which is around 11% from total respondents. GSP, which is quite old financial program for Azerbaijani companies, was chosen 11 times ( around 29%).

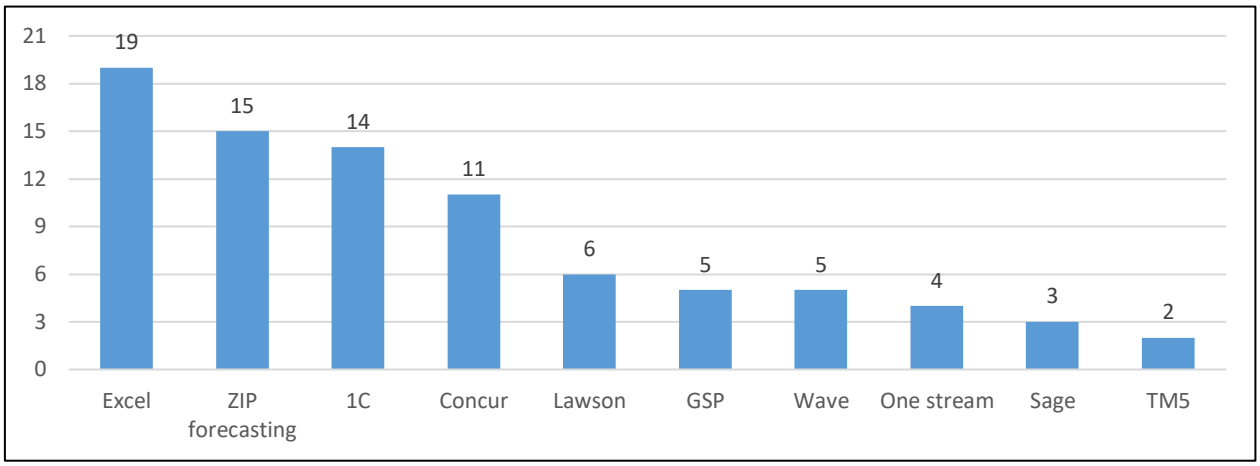


Figure 5: Number of ICT tools used by Financial Managers of all-sized Oil and Gas companies located in Azerbaijan in Cash Flow statements creating.
Source: Completed by the author

Following graph (Figure 6) illustrates total financial programs used by all respondents.

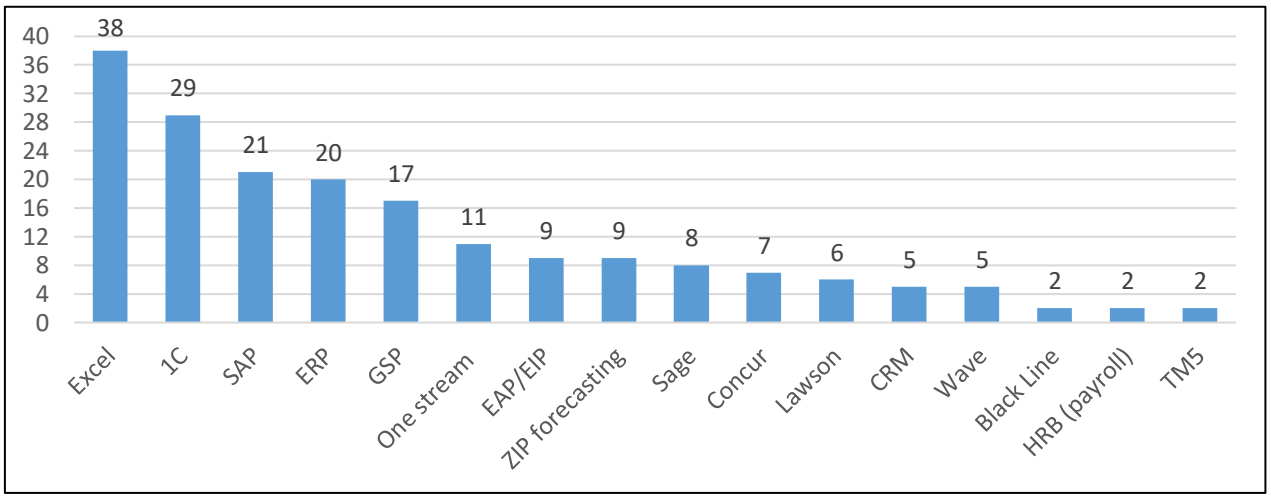


Figure 6: Number of ICT tools used by Financial Managers of all-sized Oil and Gas companies located in Azerbaijan.
Source: Completed by the author

Based on questionnaire, all 38 companies (100%), regardless of the size, have mentioned the usage of Excel Microsoft. The second most popular Financial Management software is "1C: Enterprise", which is used in 29 companies (~76%) from total of 38. SAP and ERP have almost the same amount of selection which is 21 (55%) and 20 (52%) respectively.

Additionally, to all questions focused on which ICT tools are used in different areas of Financial Management, the respondents were also asked to evaluate the role of ICT usage in Financial Management and its impact on company's performance. In this case the Likert scale was used.

Almost all participants totally agreed that usage of ICT tools has reduced the time spent in preparing financial statements; most of them agree that ICT promotes openness, transparency and accountability; the last two statements were the most argued – big and medium-sized companies were mostly neutral about ICT impact on sales turnover and agreed about increase on organizational profit because of ICT usage, however small-sized companies were in most cases totally disagree with these two last statements. (Figure 7)

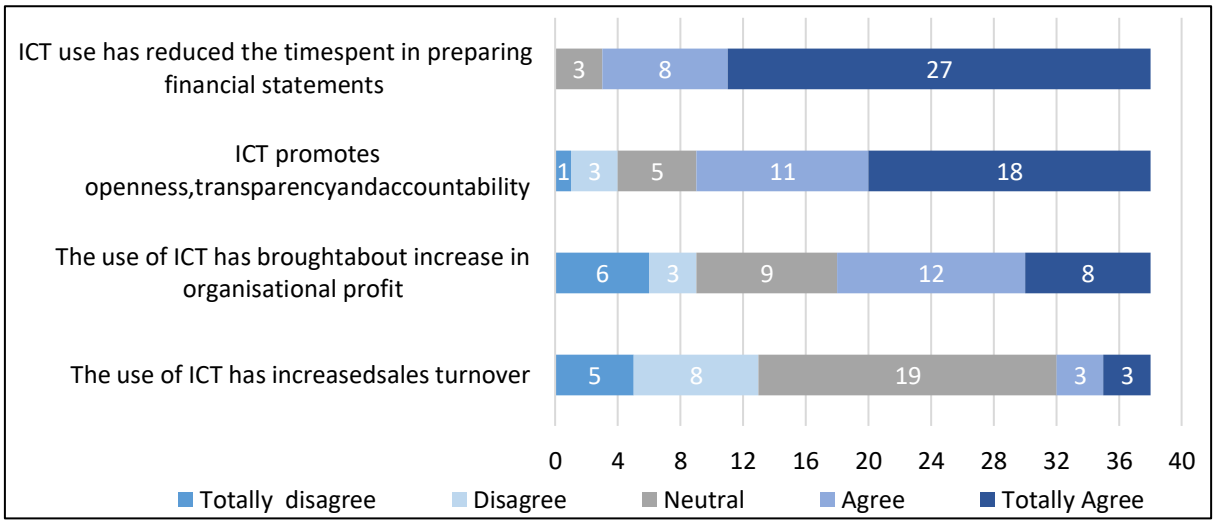


Figure 7: Benefits of ICT tools used by Financial Managers of all-sized Oil and Gas companies located in Azerbaijan.
Source: Completed by the author

Following question was about a connection between some of the main financial management functions and ICT tools used. The indicated in the question variables, which describe a connection, were converted into numerical in a following way: 1- negative (the more ICT tools are used, the worse the quality of a function); 2-slightly negative; 3-neutral; 4-slightly positive; 5- positive. The mean values were taken in order to illustrate all sizes in one graph (Figure 8). It is interesting to note, that profit maximization has a smallest outcome, additionally profit related financial performance indicators of the companies will be analyzed in more detailed way using correlation and ANOVA-single factor analyses. On the other hand, "analysis" variable is the most agreed by all-size researched companies to have a strong direct connection with ICT tools usage. After that,

cash flow is the second function of financial management which also have a direct connection with ICT tools. It is also interesting to note, that large-sized companies have equally chose analysis and cash flow management.

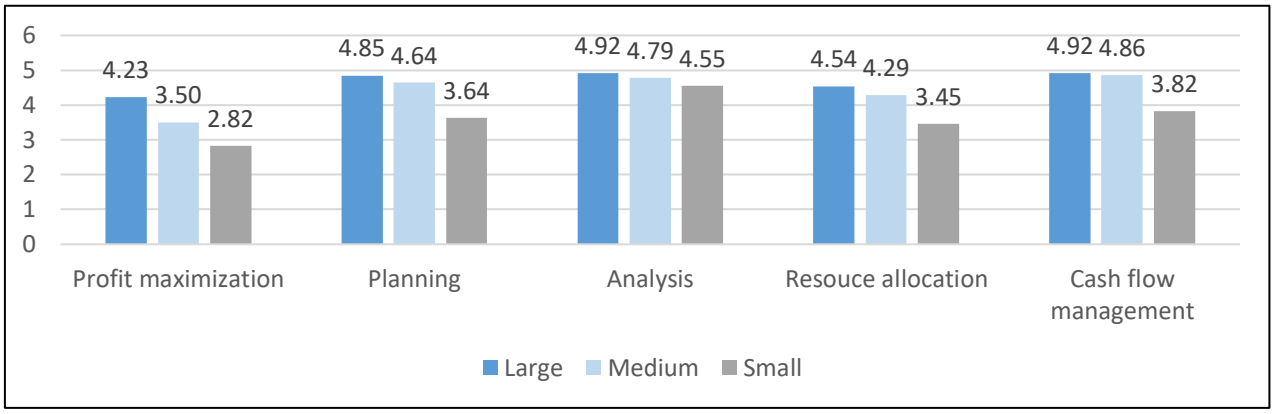


Figure 8: Connection between most-common functions of financial management and ICT usage by Financial Managers of Oil and Gas companies located in Azerbaijan.
Source: Completed by the author

The last question, which was open ended, was asking if the participant agrees that the integration of technology tools can help company development from financial management side. Here are some comments from participants:

- *"Effective integration of technology is achieved when everyone is able to select technology tools to help them obtain information in a timely manner, analyse and synthesize the information, and present it professionally. The technology should become an integral part of how the business grows."*
- *"Yes, instead of manual systems (like excel spreadsheet) process automation through different systems and ERPs enables companies to save money, time, and resources."*
- *"Integration of technology tools definitely provides for improved accuracy of the historical data for analysis as well as forecasting. It reduces time, provides for uniformity and improves control structure to maintain high standard of accounting, reporting and forecasting"*
- *No, I think it is connected to management & employees.*

Not all respondents replied to this question as it was not a mandatory one. Only 9 (or around 24%) from a total number of 38 financial managers left their comments on that question. In general, almost all of the companies were in the opinion that integration of ICT tools positively affects the

company itself. Only one respondent, which was a representor of small-sized company, negatively commented the statement, pointing out that ICT is connected only to management and employees.

## 3.2. Choice of financial program depending on size of a company

Companies were asked to rank the most significant aspects of good financial programs while filling out the questionnaire. The aspects were chosen based on the author's point of view after reading descriptions of all programs included in the methodology chapter.

The chosen variables were converted into numerical in a following way: 1-not important at all; 2-not so important; 3-neutral; 4-important; 5-very important. The most chosen feature regardless size of companies was automation of ICT tools (Figure 9).

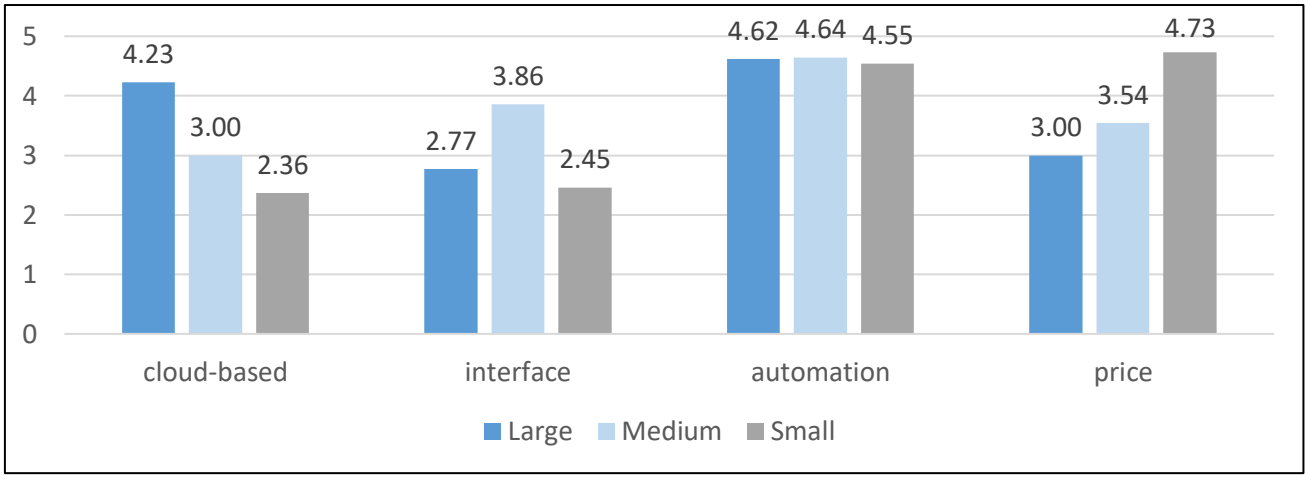


Figure 9: Rating of most-common characteristics of financial programs by Financial Managers of all-sized Oil and Gas companies located in Azerbaijan.
Source: Completed by the author

Large, medium and small-sized companies all agreed that automation is the most important feature of a good financial software, which is actually the main point of using it in everyday financial operations. Second choice of large companies was “cloud-based” feature, after that the third place was given to “price” and lastly to “interface” features. The same cannot be said about medium companies, for which an interface was the most important feature after automation. The first commonly chosen by small companies feature was indicated to be a price, however, it is interesting to note that overall it was mostly chosen only by small and medium companies, while large

companies did not pay much attention on it. It can be explained by the fact that large companies have more budget which was allocated specially for the needed programs.

It was also found that based on the size of a company, the characteristics of preferred financial programs differ. Because of this fact, previously put RQ3: “Which ICT tools are leading to the improvement of financial performance?”, was decided to be modified into “Which ICT tools are leading to the improvement of financial performance of industries *based on their size*?”

Therefore, new some hypothesises were stated:
H0: There is no relationship between a company size and the type of ICT tools it is using
H1: There is a relationship between a company size and the type of ICT tools it is using

The P-value from the Chi square test and Cramer's V were utilized to test the hypotheses (Table 1). The Chi-square test was used to investigate if there was a link between the size of the company and the financial programs it used. The P-value was used to determine whether or not to reject the null hypothesis. The results of the study are shown in Table X. The p-value is 0.037, which is less than 0.05, it means that the null hypothesis can be rejected, and Cramer V is 0.334, indicating a strong relationship between variables.

Table 1. Chi-squire test and Cramer’s V

| Chi-square test & Cramer’s V | | |
|---|---|---|
| df | p-value | cramer’s V |
| 30 | 0.037 | 0.334 |

Source: author’s calculations based on data from Appendix 3

Based on above analysis, it can be conducted that a type of financial programs companies use relates to their sizes. In the data from Appendix 3, it is clearly seen that some programs used mostly by large-sized companies, sometimes by medium-sized and never by small-sized. This information provides the conclusion that some programs are not required for all size companies.

## 3.3. Influence of ICT usage on Financial Performance

As it was mentioned before, the second aim of this study was to find out if the use of ICT for Financial Management correlates with financial performance of a company. In order to comprehend it, hypothesis testing with two hypothesises was selected:

H0: There is no significant relationship between Investments in ICT in Financial Management and Financial Performance of Companies in Azerbaijan
H1: There is significant relationship between Investments in ICT in Financial Management and Financial Performance of Companies in Azerbaijan

Financial Statements and Annual Reports of selected organizations were examined during a certain time period, which included the years 2017, 2018, 2019, and 2020. The Heads of Financial Departments were asked to point out when the company started using the chosen in survey ICT software tools (not taking into consideration a time of education and trial usage). The correlation analysis was made to identify if the amount of technologies started using in the previous year somehow affected company's gross and net profit margin, working capital ratio, current ratio and leverage. The indicators were chosen based on the ones that identify company financial performance according to theoretical framework.

After gathering all needed information and putting it in Excel file, correlation process started. The companies were divided in 3 sections: small, medium and large-sized, in order to find if the size of a company matters in this research.

The following is a summary table showing the findings for all-sized oil and gas firms (Table 2). It was established that for Gross and Net Profit margin of large-sized companies correlation is respectively $r(13) = 0.264$ and $r(13) = 0.221$, indicating a weak degree of positive correlation. A correlation between working capital ratios of large companies and number of ICT tools are used in their financial management was $r(13) = 0.270$, which is also considered as a weak correlation, but already closer to moderate. Better results appeared in the two other evaluated indicators, which are Current ratio and Leverage, respectively $r(13) = 0.367$ and $r(13) = 0.436$. Leverage result indicates almost a strong degree of positive correlation, as it is close to 0.5. It might be argued that the usage of specific information technology in large-sized businesses helps to improve economic performance and, in particular, decrease leverage ratio (less the leverage value, better the financial

performance). However, because the link is weak for the gross and net profit margin ratio and working capital ratio – correlation is not strong or even moderate comparing to other figures, other factors can have moderate impact on company performance. Total Performance correlation, which was found by calculating average value of all sums of correlations individually for companies, is 0.307, which is also moderate.

The results for medium companies are also displayed in Table 3 below. Correlation for Gross and Net Profit margin, Working Capital ratio and Current Rate are respectively r(14) = 0.141 , 0.104, 0.178 and 0.2570, indicating weak degrees of positive correlations. However, again a result for leverage, r (14) = 0.387, is better and can be considered as moderate. The result of average correlation for medium-sized companies is calculated as 0.216, considered to be weak.

Working capital ratio and current ratio correlates positively, but because for working capital ratio result is r (11) = 0.067, it is insignificant. For gross profit margin (r (11) = -0.102), Net Profit margin (r (11) = -0.194) and Leverage (r (11) = -0.042) the correlation is negative. As a result, a weak, if not non-existent, connection has been established between the usage of specific technology and a company's financial performance. A total average correlation for small-sized companies was found out as r (11) = -0.030, which is again negative, but still not significant.

Table 2: Correlation analysis between number of ICT tools in Financial Management of 38 all-sized companies located in Azerbaijan and financial performance.

| Pearson correlation | | | | | | |
|---|---|---|---|---|---|---|
| | gross profit margin | net profit margin | WC ratio | current ratio | leverage | average result |
| Large companies | 0.264 | 0.221 | 0.270 | 0.367 | 0.436 | 0.311 |
| Medium companies | 0.141 | 0.104 | 0.178 | 0.270 | 0.387 | 0.216 |
| Small companies | -0.102 | -0.194 | 0.067 | 0.122 | -0.042 | -0.030 |

Source: Completed by the author

The premise that IT improves financial performance in small enterprises cannot be confirmed at all, whereas the hypothesis was only partially confirmed for medium businesses. Because the link between small businesses and software is weak, if not even negative, using software tools provides little economic advantage and can even have the opposite impact. The same cannot be said about big companies. The outcomes show that the hypothesis was confirmed as relationship is moderate

and for one indicator is even close to strong. Therefore, interpreting ICT software tools is beneficial for big enterprises and brings improvements of financial performance indicators.

ANOVA statistics testing (Table 3) was used to check the hypothesises in more detailed way. 5 large, 4 medium and 4 little-sized companies were selected randomly for the method trial. All before mentioned indicators, which are gross and net profit margins, working capital ratio, current ratio and leverage, during four earlier selected years (2017 – 2020) were taken for this analysis. An analysis was done based on same-sizes companies (large-sizes between large-sizes and etc.), in order to have a right picture of situation. The list of companies included a various number of ICT tools they are using; the point was to understand which hypothesis can be rejected.

The hypothesises for this ANOVA single factor analysis were chosen as follows:

H0: Financial performance indicators of a company does not vary because of number of ICT a company uses in its Financial Management
H1: Financial performance indicators of a company vary because of number of ICT a company uses in its Financial Management.

The null hypothesis for the first two indicators, gross and net profit margins, may be rejected for large enterprises since F (2.446) and F (1.406) are both smaller than F critical (3.056). However, the same statement of rejection cannot be applied for the remaining three financial performance measures. Therefore, working capital ratio, with F (6.061), current ratio, with F(5.702), and leverage, with F(9.656), are all larger than F-critical (3.056). It means that the null hypothesis cannot be rejected. The same logic was applied for medium and small-sized companies. In the case of medium-sized companies, the difference between F (2.698) for net profit margin and F critical (3.056) is less than it was previously for large-sized companies, however it still means that the null hypothesis is rejected. Positive results were found only for current ratio and leverage which F values are respectively 5.574 and 8.327, and both larger than F-critical (3.056). Lastly, for small-sized companies only one indicator showed positive result, it is again current ratio with F value (5.759) relatively higher comparing to F-critical value for small companies (4.256).

Based on ANOVA-single factor analysis, it was conducted that null hypothesis about the impact of ICT usage on financial performance can be rejected based on indicators such as working capital

ratio, current ratio and leverage for large-sized companies; such as current ratio and leverage for medium-sized companies; and such as current ratio only for small-sized companies.

Table 3: ANOVA: Single Factor analysis - large-sized companies financial performance indicator (net profit) and the number of ICT tools used by these companies (ordering).

| | | F-values | | | | |
|---|---|---|---|---|---|---|
| | F-critical | gross profit margin | net profit margin | WC ratio | current ratio | leverage |
| Large-sized | 3.056 | 2.446 | 1.406 | 6.061 | 5.702 | 9.656 |
| Medium-sized | 3.056 | 1.859 | 2.698 | 1.120 | 5.574 | 8.327 |
| Small-sized | 4.256 | 1.016 | 3.693 | 2.381 | 5.759 | 2.827 |

Source: Completed by the author

## 3.4. Interview results

After finding out that the vision of an ideal ICT tool was different for each size of researched companies, it was decided to conduct some interviews with the financial managers of some participated in research companies. During the study's interviews, all of the organizations examined acknowledged that ICT is used in financial department; nevertheless, it was observed that the extent of computerization of the information system varies. Therefore, 12 firms were interviewed, with 3 being large, 5 being medium, and 4 being small. Based on the preferences of financial managers, the interviews were done in English, Russian, and Azerbaijani. Everything has been translated into English by the author. The interviews were conducted by WhatsApp, Teams, or Telegram, depending on the interviewer's preference.

First of all, interviewers were asked about the usage of ICT tools and switching from old ones into new when more developed software is available. Then the question was focus on the advantages from using the selected financial programs, and the main point was that regarding the size of an interviewed company, the gains from using ICT was contrasting.

*" Absolutely, we have a fully automated system,"* said one large-sized company financial manager. *“But, when the need arises or better technology becomes available, we will continue to improve*

*our system"*. Most of participants were responding the same. However, small companies, in which number of employees is less than 25, mostly argued: *"Because management does not place a high value on information technology, our firm does not have an IT department. All of our IT responsibilities have been delegated to a business that comes in on an as-needed basis."* . As a rule, all the companies that answered in such a way have pointed only usage of Excel Microsoft and maximum 1C as an ICT tool for Financial Management operations.

Small-sized companies, because of using not a wide range of programs, had pointed out mostly "less time consuming" and "easily avoiding mistakes" as main advantages, however medium and large-sized companies preferred to focus on transactions and reports making. In addition, some managers, regardless the size of their companies, also mentioned that because of avoiding manual work, with a great help of the used programs, now it is preferable to do another part of their work – which is more creative and requires focused work of a professional. For example, one of the respondents said that now she/he can think about profit maximization, because achieving optimal profit is one of the main role of financial manager. Another person noted that now it is much easier to make needed meeting with the employees.

The main aim of providing the interviews was to understand what is the perfect financial software for a company to use based on its size. Therefore, the next step was to ask about companies most preferred financial information technology tools, detailing their top-3. After analyzing the interviews (Appendix 4) it was found that the most often chosen program by large and medium companies is 1C: Enterprise. In addition, 36% of small companies also stated that they have 1C: Enterprise in their list of financial programs. This software has various additional applications with different purposes and prices. As a rule, large and medium companies have several versions of the program, while small companies have only one general version. SAP was also chosen several times by large and medium sized companies to be inside their top-3. During the interview, almost all medium sized companies, to be more precisely 4 from 5, have mentioned GSP program. It was found that this program is now quite old for large companies, as they admitted that it was used before switching to the new one, usually to One stream. Small companies all have mentioned Excel, one of them even stated that is not using anything except Excel Microsoft. The reason is that they just do not need special features and it is totally enough to use just one simple program.

Based on this question results from the interviews and previous analysis results, the author made a possible list of the best financial programs for companies depending on their sizes. Financial

performance metrics of particular firms are also taken into account. Unfortunately, the agreement to use the statistics anonymously does not allow to share the numbers.

Because of the fact that currently, 1C: Enterprise is used by all-sized companies widely and successfully, it will be included in each list. However, an advice for small companies would be not to have all variety of versions, as they need just a general one. One Stream was put on the first place for large companies, because the financial performance indicators of the companies who used this program were highlighted from the others ones. This software is still new for Azerbaijan, however, most of the large companies already have it. The same cannot be said about medium and especially for small companies. GSP was decided to be the second-best option for medium sized companies. The reason is that the program is already old enough for large corporations, however its functionality is still suitable for medium firms. Even though Excel is quite simple software, it is still very good for small companies to use in financial management. Lastly, the third place for small companies was given to ZIP-forecasting, which performs its functions quite well. SAP is the third best program for large and medium-sized companies. SAP's popularity among firms comes from the fact that it provides a comprehensive set of integrated, cross-functional dealing procedures. As a result, SAP is preferred by worldwide enterprises of all sizes, in our case only of large and medium sizes.

Table 4: The author's opinion about advisable ICT tools for each sized companies

| Top-3 ICT tools | 1st preference | 2nd preference | 3rd preference |
|---|---|---|---|
| Large companies | One Stream | 1C: Enterprise | SAP |
| Medium Companies | 1C: Enterprise | GSP | SAP |
| Small companies | 1C: Enterprise | Excel | ZIP-forecasting |

Source: Completed by the author

During the interviews two statements, which are similar to the ones that were asked in the survey before. Interviewers had to agree, disagree or stay undecided about them, in addition they were asked to comment. The Statements which were discussed during the interview are:

- The use of ICT has brought about reduction in administration cost
- The use of ICT has brought about increase in organisational profit

Surprisingly large-sized companies mostly agreed or stayed undecided to all above mentioned statements while small-sized companies almost always disagreed to the same statements. Financial managers of medium-sized companies had different opinions – to the first statement, they were equally agreed and did not know, only one person disagreed. The same cannot be said about the second statement, respondents' opinions divided into two sections – 60% agreed that the use of ICT brings an increase in organization profit, and 40% disagreed. Following additional comments of interviewers, it was determined that the use of ITC tools in small businesses costs money, and because this cost is obvious due to the lack of large profits, there is essentially no change in chosen for research financial performance indicators. After further discussion it was concluded that in small-sized companies ITC tools usage costs money and because of not huge profit this cost is visible, and that is the reason why there is almost no change in administrative cost. On the other hand, a great decrease in numbers was indicated in Financial Reports of 2020 for all the companies in this survey. Interviewers concurred that 2020 because of all its events negatively affected the numerical figures of the industries not only in Azerbaijan, but in the whole world's economic. "Suffice it to say that no one in the oil business will be sorry to see this year finally come to a merciful end." - David Blackmon, Forbes, 2020.

## 3.4. Discussion and Recommendations

The use of information and communication technology (ICT) in financial management varies per firm. In this research, it was found out that the impact of information and communication technology on financial management of Oil and Gas companies located in Azerbaijan depends also on a size of these companies.

When the respondents were asked to evaluate the role of ICT usage in Financial Management and its impact on company's performance using Likert scale, almost everyone agreed that using ICT tools had shorten the time spent compiling financial statements. (Figure 7). Moreover, most of them agree that ICT promotes openness, transparency and accountability. These two statements may seem too obvious; however, it was interesting to see how most of the small-sized companies could not pick the highest option (totally agree). It can be explained by the fact that small businesses do not believe in the influence of ICT on a company's financial work.

While making an analysis, it was clearly seen that the way large companies look at financial software is far away from the way small companies do. After making the Chi-square test the null hypothesis, which says that there is no relationship between a company size and the type of ICT tools it is using, was successfully rejected. Moreover, while analysing the computed Cramer' V, it was found that the relationship is strong. This information can provide a conclusion that some programs are not required for all size companies. Large industries prefer to use more diversified financial programs, as they fit the operations of such big companies. On the other hand, small companies, which financial operations can be done in more simple IT tools. That is the main reason, which was discussed during provided interviews, why the choice of programs differs.

Additional Pearson correlation and ANOVA-single factor analyses were studied to understand the impact of using a certain number of ICT tools on financial performance of different sized companies. Companies' representors, at the same time financial managers, pointed out that all programs chosen in the questionnaire are used for individual purpose. Therefore, the fact of taking a number of the tools is one of correct ways to analyse the impact of them on company. In small organizations, the hypothesis that IT enhances financial performance in most cases cannot be verified at all, as the correlation figure was negative. Even though it was positive for two indicators (WC ratio, current ratio), the result is still too weak. However, in larger businesses, the hypothesis was only partially validated. Because the link was minimal, if not negative, for small businesses, using software tools provides little economic advantage and can even have an opposite effect. The same cannot be true about large corporations. The results demonstrate that the hypothesis was correct, since the link is moderate, if not strong, for one indicator. As a result, implementing ICT software solutions is useful to large businesses and leads to increased financial performance. Economies of scale can be one of the possible explanations. By increasing output and cutting expenses, companies may achieve economies of scale.

Medium companies' results were either weak or moderate, which means that there is a positive impact of implementing ICT on financial performance, however, the choice of the programs has to be made more providently. ANOVA-single factor was implemented to check the hypothesises in more detailed way – based on the results previous correlation analysis was confirmed. Therefore, as earlier, the null hypothesis regarding profits margins could not be rejected for all size companies. It means, that ICT usage either does not directly affect profit of a company, regardless the size, or needs to be looked at in a longer run as the effect is not fully evident immediately. In addition, from the author point of view, financial programs indirectly can affect profit indicators,

based on interviews information. Other chosen financial indicators have positive results for large companies, so the null hypothesis can be rejected for them. Moreover, the hypothesis was rejected also based on current ratio and leverage for medium-sized companies and based on only current ratio for small-sized companies.

Recommendation based on current results would be that large-sized companies should consider implementing ICT software tools in their Financial management as it helps to increase financial performance indicators which are: working capital ratio, current ratio and leverage (in case of leverage: decrease the ratio, as less the leverage better the financial performance of a company is). Medium-sized companies should find programs that suit them most, based on interviews, it was found that companies prefer to stay with an old program and not switching to the new version or to the completely new software. It can be a mistake in some cases, because even new versions of the old programs are developed in a way to make a work easier and faster. Medium-sized businesses frequently run the risk of learning something entirely new. Lastly, small companies' figures were better for the ones who implement only one or two financial programs. At the same time, the ones who take all the time new tools "just to try", in most cases have worse financial indicators. Considering that the industry and company sizes are identical, the solution here may be to develop those that are currently accessible, rather than taking the new ones.

For example, program 1C: Enterprise has different versions for different purposes, which were also discussed in this paper. Perchance, it would be better to widen the group of programs companies have, instead of going to completely new ones. Additional surprising fact is that small-sized companies, which are using comparingly more programs, selected the ones that medium and large-sized usually do not pick.

To sum up, based on this research, financial performance of a company can be improved if correctly using information and communication technology tools. It is important to find a balance and the ones that perfectly fit a company, depending on its size. Though since Azerbaijani Oil and Gas companies operate in a competitive market, they should explore different and cutting-edge technology that can help them stay competitive. Companies, taking into consideration their size, should focus more on technology improvement to take advantage of such changes in order to simplify their work in terms of information technology, software programs, and performance measurement. While large and medium corporations are able to use and try the new software, small ones have to be more careful.

# CONCLUSION

In recent years, the use of information technology in businesses has risen. The goal of this thesis was to report and evaluate the findings on Azerbaijani Oil and Gas firms' financial management practices in terms of budgeting, cash flow management, forecasting, and the use of ICT technologies to improve their businesses' performance. The information was gathered from a group of 38 financial managers, whose responses reveal a lot about their understanding of financial concepts in the context of smart ICT use. The research another aim is to understand which ICT tools lead to increase financial performance of a company based on its size. The interviews were also provided to understand the opinions of financial managers of researched companies.

The hypothesises selected for Pearson correlation analysis were successfully tested. As a result, large and medium-sized companies all had positive correlation figure, which means that the null hypothesis was rejected. The same cannot be said about small-sized companies, for which only two financial performance indicators corelated positively with number of ICT tools used in their financial management. Even though, the connection was slight. After having the results from Pearson correlation, the ANOVA-single factors analysis was carried out with the same hypothesises in order to have a more detailed picture. Consequently, the null hypothesis was rejected for three performance indicators with large firms, for two with medium firms and only for one with small firms. To sum up, the usage of ICT in financial management of a company has positive results for large-sized corporations, a little bit less positive for medium-sized companies, and even sometimes slightly negative for small-sized firms.

A Chi-square analysis was implied to check some additional hypothesises, which say that depending on the size, companies choose different types of financial programs. The null hypothesis was again rejected, as the calculated p-value $< 0.05$. Cramer figure was calculated in order to see the amount of influence, which turned out to be strong. Moreover, based on all collected information, the author of the thesis provided personal opinion about the best ICT tools for each size companies separately.

Finally, a question about the best financial technology programs based on sizes of companies was answered by the author. To have a clear picture, the author looked individually through all respondents' annual financial reports and compared them with ICT tools using in financial management of the firms. It was founded that some financial programs positively affect financial performance of the companies: for example, two selected small companies had similar performance indicator in year X. However, when the first company implemented a certain program, its performance raised comparing to the second one, which stood the same. Using the same scheme, all-sized companies were analyzed and a list of the best financial software was developed.

The limitation of this study includes the sample size and population it was drawn from, the sample was collected from companies which industry was particularly Oil and Gas. Most of companies were chosen by snowball methodology, as the author's known people were working there. Short-term performance, for four years, was analysed in this study. Future studies focusing on the impact of ICT on financial management of companies located in Azerbaijan might take a longer period and more companies for the research. Additionally, the relationship between how much was invested into ICT by companies and the financial performance of them can be analysed for a better picture. Unfortunately, while making this research the information about investments into ICT was not available. Moreover, as it was found later on during the interviews, a year of 2020 was unsuccessful for most of the large companies, that's why the results might be not reliable. Nevertheless, the founded from analysis figures for large corporations are still mostly positive, this error might be only in impact force. Other factors that may have influenced the conclusion of the analysis may have been omitted. Regression analysis might be used in the future when additional data is available.

While the results are valuable, they may not be robust enough to stand the test of time. Nonetheless, the author believes that this study has pushed the limits of finance research in the proper direction and will bring further information about Azerbaijan to the academic community

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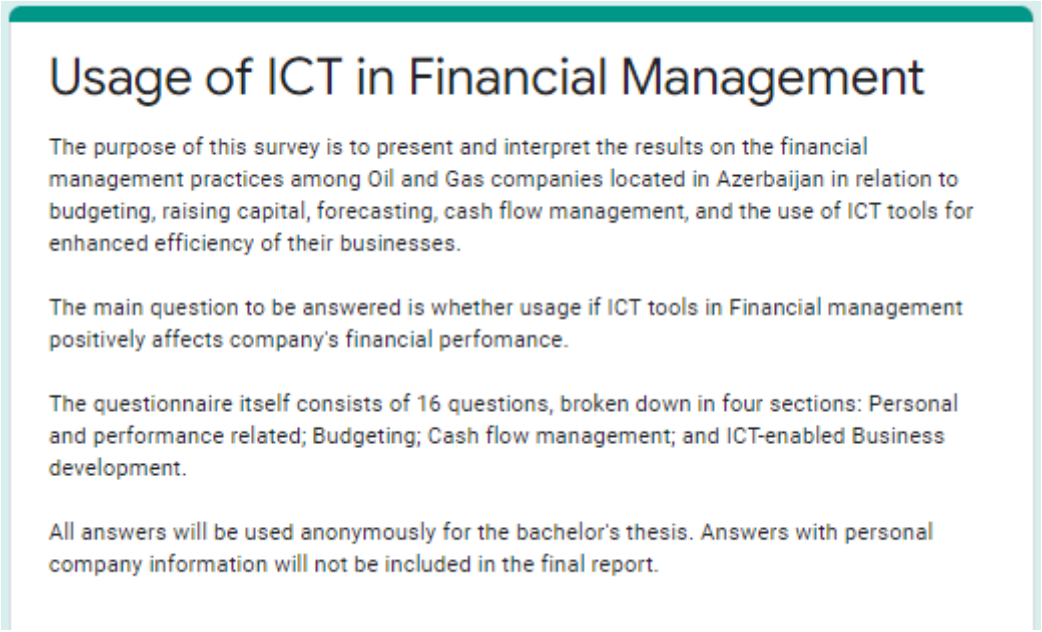
# APPENDICES

## Appendix 1. Survey questions



Usage of ICT in Financial Management

The purpose of this survey is to present and interpret the results on the financial management practices among Oil and Gas companies located in Azerbaijan in relation to budgeting, raising capital, forecasting, cash flow management, and the use of ICT tools for enhanced efficiency of their businesses.

The main question to be answered is whether usage if ICT tools in Financial management positively affects company's financial perfomance.

The questionnaire itself consists of 16 questions, broken down in four sections: Personal and performance related; Budgeting; Cash flow management; and ICT-enabled Business development.

All answers will be used anonymously for the bachelor's thesis. Answers with personal company information will not be included in the final report.

**FIRST SECTION**
Personal and performance related questions.

Company name: *

Teie vastus

1.1. What is the size of your company, based on table below? *

| Categorization of enterprises relating to their size | Number of employees | Annual turnover (AZN) |
|---|---|---|
| Small enterprises | < 25 | < 200 000 |
| Medium-sized enterprises | 25 < 125 | 200 000 < 1 250 000 |
| Large enterprises | 125 < | 1 250 000 < |

- ◯ Small
- ◯ Medium
- ◯ Large

1.2. Number of years the business is running *

Teie vastus

1.3. Number of employees *

Teie vastus

## SECOND SECTION

The aim of the second section is to delve deeper into budgeting practices adopted by the respondents. This part of the survey was designed to investigate the manner with which company's budget is created, as well as to identify the tool most frequently used for liquidity management.

2.1. Liquidity management methods employed for cash budgeting (you can choose several or add your own): *

- [ ] Excel spreadsheets
- [ ] Fully computerized accounting system
- [ ] Manual cash book
- [ ] Copying receipts and invoices
- [ ] Muu: _____

2.2. The use of ICT tools in the sector of Cash Budgeting (you can choose several or add your own): *

- [ ] Excel
- [ ] ERP
- [ ] SAP
- [ ] None
- [ ] 1C
- [ ] GSP
- [ ] Muu: _____

If the integration of tools from previous question was during 2017-2020, please add a year when the company started using it

Teie vastus

## THIRD SECTION

The third section examines cash flow management knowledge and practices. As the old adage claims, cash is the lifeblood of the business and the fuel that keeps the engine running.

3.1. The estimation methods used for cash flow? (you can choose several or add your own) *

- [ ] Consensus of expert opinion
- [ ] Computer simulation/ Tool/Application
- [ ] Bookkeeper
- [ ] Accountant
- [ ] Muu:

3.2. The tools used to prepare cash flow statements? (you can choose several or add your own): *

- [ ] Excel spreadsheets
- [ ] Zip Forecasting
- [ ] Concur
- [ ] None
- [ ] GSP
- [ ] 1C
- [ ] SAP
- [ ] Muu:

if the integration of tools from previous question was during 2017-2020, please add a year when the company started using it

Teie vastus

## FORTH SECTION

ICT tools stand for Information Communication Technology tools. The ICT tools means to digital infrastructures like computers, laptops, printers, scanners, software programs, data projectors, and interactive teaching box.

4.1. What type of ICT tools (software) is used in the company's financial management? (you can choose several or add your own): *

- [ ] Enterprise Resource Planning (ERP)
- [ ] Customer Relationship Management (CRM)
- [ ] Enterprise Application and Information Portals (EAP/EIP)
- [ ] MS Excel
- [ ] 1C: Enterprise
- [ ] One Stream
- [ ] SAP
- [ ] Ciel
- [ ] None
- [ ] Muu:

if the integration of tools from previous question was during 2017-2020, please add a year when the company started using it

Teie vastus

Evaluate following statements: *

| | Totally Disagree | Disagree | Neutral | Agree | Totally Agree |
|---|---|---|---|---|---|
| ICT promotes openness, transparency andaccountability | ○ | ○ | ○ | ○ | ○ |
| ICT use has reduced the time spent in preparing financial statements | ○ | ○ | ○ | ○ | ○ |
| The use of ICT has increased sales turnover | ○ | ○ | ○ | ○ | ○ |
| The use of ICT has brought about increase in organisational profit | ○ | ○ | ○ | ○ | ○ |

How following statementes fit to your vision of the best financial management software?

| | Not important at all | Not so important | Neutral | Important | Very important |
|---|---|---|---|---|---|
| It is cloud-based | ○ | ○ | ○ | ○ | ○ |
| Simple interface | ○ | ○ | ○ | ○ | ○ |
| Automation of processes | ○ | ○ | ○ | ○ | ○ |
| Price of software (long term ~10 years) | ○ | ○ | ○ | ○ | ○ |

How following characteristics of financial management are connected with ICT tools used

| | Strong opposite connection | Slightly opposite connection | Neutral | Slightly direct connection | Strong direct connection |
|---|---|---|---|---|---|
| Profit maximization | ○ | ○ | ○ | ○ | ○ |
| Planning | ○ | ○ | ○ | ○ | ○ |
| Analysis | ○ | ○ | ○ | ○ | ○ |
| Resource Allocation | ○ | ○ | ○ | ○ | ○ |
| Cash Flow Management | ○ | ○ | ○ | ○ | ○ |

4.2 Do you agree that the integration of technology tools can help company development from financial management side? Please give some comments.

Teie vastus

Saada ära

Tühjenda vorm

## Appendix 2. Data from the questionnaire

| Question | Answer | Frequency of response |
|---|---|---|
| What is the size of your company, based on table below? | Small | 11 |
| | Medium | 14 |
| | Large | 13 |
| Liquidity management methods employed for cash budgeting | Excel spreadsheets | 21 |
| | Fully computerized accounting system | 26 |
| | Manual cash book | 12 |
| | Copying receipts and invoices | 6 |
| The use of ICT tools in the sector of Cash Budgeting (you can choose several or add your own) | Excel | 17 |
| | ERP | 8 |
| | SAP | 14 |
| | 1C | 16 |
| | GSP | 10 |
| | One Stream | 7 |
| | Sage | 5 |
| | HRB | 4 |
| | Black Line | 3 |
| | TM5 | 2 |
| | Lawson | 1 |
| | Wave | 1 |
| The estimation methods used for cash flow? (you can choose several or add your own) | Consensus of expert opinion | 3 |
| | Computer simulation/Tool/Application | 34 |
| | Bookkeeper | 2 |
| | Accountant | 11 |

| | | | |
|---|---|---|---|
| The tools used to prepare cash flow statement? (you can choose several or add your own) | Excel spreadsheets | | 14 |
| | 1C: Enterprise | | 27 |
| | Zip Forecasting | | 16 |
| | Concur | | 7 |
| | One Stream | | 7 |
| | GSP | | 12 |
| | Lawson | | 6 |
| | Wave | | 5 |
| | Sage | | 3 |
| | TM5 | | 2 |
| What type of ICT tools (software) is used in the company's financial management? (you can choose several or add your own) | Enterprise resource Planning (ERP) | | 20 |
| | Customer Relationship Management (CRM) | | 5 |
| | ZIP forecasting | | 16 |
| | GSP | | 17 |
| | Wave | | 5 |
| | Information Portals (EAP/EIP) | | 9 |
| | Lawson | | 6 |
| | HRB | | 4 |
| | Black Line | | 3 |
| | MS Excel | | 38 |
| | 1C: Enterprise | | 29 |
| | One Stream | | 11 |
| | SAP | | 21 |
| | Concur | | 7 |
| | Sage | | 8 |
| | CRM | | 5 |
| | TM5 | | 4 |
| Evaluate following statements | ICT promotes openness, transparency and accountability | Totally Disagree | 1 |
| | | Disagree | 3 |
| | | Neutral | 5 |
| | | Agree | 11 |
| | | Totally Agree | 18 |
| | ICT use has reduced the time spent in preparing | Totally Disagree | 0 |
| | | Disagree | 0 |

| | | | |
|---|---|---|---|
| | financial statements | Neutral | 3 |
| | | Agree | 8 |
| | | Totally Agree | 27 |
| | The use of ICT has increased sales turnover | Totally Disagree | 5 |
| | | Disagree | 8 |
| | | Neutral | 19 |
| | | Agree | 3 |
| | | Totally agree | 3 |
| | The use of ICT has brought about increase in organizational profit | Totally Disagree | 6 |
| | | Disagree | 3 |
| | | Neutral | 9 |
| | | Agree | 12 |
| | | Totally Agree | 8 |
| Do you agree that the integration of technology tools can help company development from financial management side? Please give some comments | Open question, was not mandatory to answer | | Effective integration of technology is achieved when everyone are able to select technology tools to help them obtain information in a timely manner, analyse and synthesize the information, and present it professionally. The technology should become an integral part of how the business grows. |
| | | | I believe the ICT can help company for fin management by providing clear picture of business processes |
| | | | Yes, instead of manual systems (like excel spreadsheet) process automation through different systems and ERPs enables companies to save money, time and resources. |

| | | |
|---|---|---|
| | | Yes, agree. It will help to organize your working day and safe more time |
| | | For sure, better/newer technology used, better quality of the financial management is |
| | | No, I think it is connected to management & employees. |
| | | Integration of technology tools definitely provides for improved accuracy of the historical data for analysis as well as forecasting. It reduces time, provides fir uniformity and improves control structure to maintain high standard of accounting, reporting and forecasting |
| | | Certainly, It improves Better Decision-Making, increase Manufacturing Productivity, improve Customer Service and Financial Performance. |
| | | Yes, I believe that integration of new technological, more advanced tools can help company to develop and compete with other suppliers. |

## Appendix 3. Data collected for analysis.

Rating of most-common characteristics of financial programs by companies' sizes

| Large companies | Not important at all | Not so important | Neutral | Important | Very important |
|---|---|---|---|---|---|
| Cloud-based | 0 | 1 | 2 | 3 | 7 |
| Interface | 2 | 3 | 5 | 2 | 1 |
| Automation | 0 | 0 | 1 | 3 | 9 |
| Price | 0 | 7 | 2 | 1 | 3 |

| Medium companies | Not important at all | Not so important | Neutral | Important | Very important |
|---|---|---|---|---|---|
| Cloud-based | 2 | 1 | 7 | 3 | 1 |
| Interface | 1 | 2 | 1 | 4 | 6 |
| Automation | 0 | 0 | 1 | 3 | 10 |
| Price | 0 | 1 | 6 | 5 | 2 |

| Small companies | Not important at all | Not so important | Neutral | Important | Very important |
|---|---|---|---|---|---|
| Cloud-based | 5 | 2 | 0 | 3 | 1 |
| Interface | 2 | 4 | 4 | 0 | 1 |
| Automation | 0 | 0 | 1 | 3 | 7 |
| Price | 0 | 0 | 0 | 3 | 8 |

| Observed data for performing chi-square test on financial programs used by companies by their size | | | |
|---|---|---|---|
| Using programs | large-sized | medium-sized | small-sized |
| ERP | 11 | 9 | 0 |
| 1C | 12 | 13 | 4 |
| Excel Microsoft | 13 | 14 | 11 |
| CRM | 2 | 3 | 0 |
| EAP/EIP | 5 | 4 | 0 |
| SAP | 11 | 10 | 0 |
| Black Line | 1 | 2 | 0 |
| Lawson | 2 | 4 | 0 |
| Sage | 5 | 2 | 1 |
| Wave | 4 | 1 | 0 |
| GSP | 4 | 8 | 5 |
| TM5 | 2 | 2 | 0 |
| ZIP forecasting | 9 | 6 | 1 |
| HRB | 2 | 2 | 0 |
| Concur | 6 | 1 | 0 |
| One Stream | 9 | 2 | 0 |

## Appendix 4. Interview transcription.

Companies A present large organizations, while B and C present medium and small-sized companies respectively. Overall the interviews were made with a total of 12 companies, inside which 3 are large, 5 are medium and 4 are small-sized. The interviews were conducted in English, Russian and Azerbaijani based on preferences of financial managers. The author translated everything into English. The interviews were organized in WhatsApp, Teams or Telegram, depending on the choice of an interviewer.

*Q1: "Does a company use computer system for its financial operations? If yes, do you switch to new programs sometimes or you just choose one and stay with it?"*

Company A1: " Absolutely, we have a fully automated system; but, when the need arises or better technology becomes available, we will continue to improve our system. We are always ready to new challenges in order to make improvements in financial condition of our company!".

Company A2: "Yes, of course. We also always improve computer system with new programs that are actual now to be, I would say, "in trends". It is important for us to try something new all the time and learn new things."

Company A3: "Basically yes, the most part of financial operations are done using some financial programs. When the head of IT has some offers of new developed tools, we are happy to try them. I am personally really like to learn and go into new features. I think it is interesting and advantageable for the stuff, not only for the company."

Company B1: "Sure, we use some programs but honestly do not update them and taking something new. We do not have an information technology department, and I guess we all are good with what we have now."

Company B2: "Almost all of main functions are done using some programs as 1C and GSP, for example, because they make the process much easier and faster. We always agree to new changes but when we used to one or two programs, sometimes it is hard to switch to new ones so often. That's why we prefer to stay with some chosen and do our work as we think that the quality is still good enough."

Company B3: “Oh, actually using IT programs make our “financial life” much and much easier, so I even cannot imagine the daily activities in financial department without using them. Updating them actually is not so easy as it can be seen from the side. It takes a lot of time and financial investments, so in most cases we decide to stay with what we have”

Company B4: “Sure, for example we cannot survive now without Excel and SAP, One Stream recently also is one of unreplaceable subject as a financial program. About switching to new programs – again we switched recently to One Stream and so happy with that”

Company B5: “I think every firm now uses at least one program for their business financial operations, so the answer would be yes, of course, we also use them and even not one as I have already admitted in your questionnaire. We also update them time to time but I would say that we prefer to stay with one program and just update the version of it rather than go into completely new ones”

Company C1: “Because management does not place a high value on information technology, our firm does not have an IT department. All of our IT responsibilities have been delegated to a business that comes in on an as-needed basis."

Company C2: “I use programs to complete most of the operations in financial management but do not honestly even try to switch to new ones. I think that for current situation of our not so big company we do not need to have some extra programs, we are totally OK with what we have now”

Company C3: “The number of programs I am using is not so wide but yes sure our company uses the ICT tools in everyday financial operations. So as I have said before, I use not a lot, to be more detailed just two programs – Excel and 1C, and because our firm is still not so big we do not need any more”

Company C4: “I am, as a financial manager of our company, using only Excel and as a specialist I can say that it is enough for the company with size as ours. I can manually and without any problems put all needed data into Excel spreadsheets and it will take some time to prepare the statements and so on.”

*Q2: “Do you think ICT tools really can make easier everyday financial operations?”*

Company A1: “Totally agree with that thought! The introduction of information technology has made computation simple, and financial statements are created faster than in a manual method. It

also helps to avoid manual mistakes which can be occasionally done when doing something by yourself. Also, it is easy to add some new transactions rather than redoing everything again and again."

Company A2: “Of course. It is very time consuming and with help of these tools it is easier to avoid mistakes. Sure, you have to try several to understand what is done better and where, but for sure I will conduct that after you studied it is more convenient to use your favorites”

Company A3: “Taking into consideration what we have done in 10 or more years ago, now looking at our everyday activities inside these programs, I would 100% say that it is easier now.”

Company B1: “Yes! For example, now reports may be prepared with only one click. And if something went wrong, we do not have to start again, we just need to find a mistake and the end result will be again correct"

Company B2: “I am so grateful to the persons who developed these programs! It made a life of financial specialists much easier. I can do all the reports without checking million of times and it is so important for financial managers, because now I can use my time for other responsibilities that need to have a full concentration and cannot be done by programs”

Company B3: “Yes as I have mentioned on my first answer it makes the work itself so much easier! Our stuff always is ready to improve their knowledge and help the company to develop. I think that nowadays without ICT it would be almost impossible to operate successfully a company”

Company B4: “Undoubtedly! I claim that with no programs it would be even also not so interesting, because manual process doesn’t require any creativity”

Company B5: “Oh sure, I can do more now and without any difficulties rather than it was several years ago. I guess for everyone IT overall brought easier life”

Company C1: “I would say yes. Now it is not so time consuming. Personally talking, before implementation our accountants could make a thing for a week which is now can be done in couple of hours just by adding needed information into a program”

Company C2: “Yes, of course. The programs let me to think more about another important things which cannot be done by computers.”

Company C3: “Well actually implementation of 1C helped me a lot, what cannot be currently said about Excel, because there I still do a lot of things manually. But 1C now helps me to make transactions and report them without any problems”

Company C4: “Well sure while comparing what can be done without Excel and what is now, with it, I even cannot imagine how I am doing all required reports on paper. But Excel I guess is one of the most commonly used not only by companies but also by students and all people when they need to calculate something. However, I still think that people underestimate Excel, because they do not know all the functions it has. Even I am all the time learning something new.”

*Q3: “Which software do you think is the most important in financial management work? What is your top 3?”*

Company A1: “Interesting question, especially taking into consideration that our company uses a lot… My personal favourites are 1C and all SAP additions. They are not new in our company but I used to do my work in them since I was just a Financial Analyst in this company. Now we have several new versions of 1C, for example 1C: Payroll, 1C: Salary and Personnel Management, 1C: Accounting and others. Maybe I am used to them, but I cannot imagine doing everything I do in these programs manually. The third one for me is ERP”

Company A2: “Well 1C is now widely used in the whole country I guess, we personally use all features and versions of it, I guess it is my top 1 around all the programs, as it has a lot of different versions, many things can be done in it, but of course not all of them. Basically, we use all of the mentioned programs in your survey, so all of them are important in our financial processes. But to answer your question based on my own criteria, which is also the interface of a program, I would also admit ZIP forecasting or Concur for cash flow statements, as I like to use both of them equally, and lastly SAP.”

Company A3: “Well as we are always trying something new, and there is no program that we are not using, it is very interesting to rate them. But I would say that we are using all the programs more or less equally. SAP is my favourite, then 1C goes, because I really like it functions but it needs a great education first, it would be difficult to understand everything in this program just by yourself without any courses. And lastly we started using One Stream, it is really interesting but I still find it a bit much difficult than it needed to be”

Company B1: “Oh we use 1C a lot. The second one I would say is GSP, I know it is old but we are going to change it soon to One Stream. The last one I would for sure say Lawson. It is not so difficult and it doesn’t require any strong education for our workers, that’s why it is usable for our company. However, as I have mentioned before we will use One Stream soon and for that program, we will send our employees to study it”

Company B2: “I think that almost everyone already answered like that, but my favourite is 1C. In Azerbaijan it became very popular during last several years and I understand why. It has a lot of functionalities and not so difficult to use, in my opinion. Also, I like to use GSP and Sage.”

Company B3: “This program is really old now but I like to use GSP. The next my favourite is 1C, I adore different sides of it but of course it needs some study, because it is not such easy as GSP, it is a little bit tricky. I also know that there are a huge number of different daughter programs of 1C, but we use only two. And the last one, let it be HRB, which we use for payroll.”

Company B4: “1C: Enterprise is the first choice of mine. All my employees like to use it and with a big pleasure studied all needed features of it during training. Our company does its best to use all additional programs of 1C, but now we have just three, probably will add one more next year. Next I also like to use ERP - Financials, supply chain, operations, reporting, and other aspects of a company's activities are all managed by it. And of course, SAP for our business transactions”

Company B5: “That is actually so difficult to choose because I am into all of them, we use everything based on needed aim. But still if I need to choose, the first one will be 1C, at the beginning I was not sure that this program fits our company, but after education and involving it into the financial activities I understood that I was wrong. Secondly, I like SAP, we use it for the last five years and lastly GSP”

Company C1: “As you know from my survey response we are not using much, I guess I have chosen only three software tools in the questionnaire… They were an original 1C: Enterprise, GSP and Excel. So that is my top three from three possible variants”

Company C2: “I do not use a lot, so I would say that the best ones for me are ZIP forecasting, Sage and Excel”

Company C3: “So basically as I have mentioned before, I use only two: Excel and 1C. Just to rate these two, my first choice would be 1C, only one general version, and then Excel.”

Company C4: “Well, here I cannot give you a lot of information, because I use only Excel in this company. But personally, I really like 1C, which I have used in my previous work place. But as you ask for this company, it is just Excel”

*Q4: “Great. Now I will conclude some statements and you should say “agree”, “not agree” or “do not know”. You can comment if you want to. First statement is “The use of ICT has brought about reduction in administration cost””*

Company A1: “I would agree with that statement. Honestly because we are using these technologies, we do not need some workers to be here, it means that we do not pay to them. Yes, sure we have to educate our staff when updating and starting using new tools, but I am sure that it worth it...”

Company A2: “I would strongly agree. Just few comments – even considering the fact that we pay for the programs and not a small amount of money for long-term use, it is still very advantageable.”

Company A3: “Sure, we recently could downsize the company, I mean cut the stuff, because we understand that by making right settings a person can be replaced by a program”

Company B1: “I would not say that I agree or disagree with that statement. I don’t think that because we are using some tools our administrative costs go down, but maybe just a little bit. But not so much that I could notice a great change.”

Company B2: “I do not know for sure. Maybe sometimes, year to year, it can be seen that costs are reduced”

Company B3: “I would rather agree than disagree, because the fact that I am doing some things in a certain program give me more time to think about maximizing the profit of a company and wide it.”

Company B4: “Disagree, I do not thing that implementing ICT tools directly impacts on administrative costs”

Company B5: “I agree, yes, it affect the administrative costs”

Company C1: “Disagree. I even cannot imagine it; how usage of ICT can reduce my administrative costs? Maybe because of the fact that we are not using many, and for bigger companies it can be seen well… But we do not need them at all, our company is not big enough.”

Company C2: “I don’t think so honestly. There is a balance I would say because we pay for program and it balances with other our gains and losses”

Company C3: “Well, I even will say that it sometimes affects negatively overall. Because during last years we have some losses and I would say that it is because we have a contract for some years and we are paying for 1C each month”

Company C4: “So as I use only Excel I will not say for sure something important, but sure if comparing with no use of it and use of Excel, of course Excel choice is better, so I would say that I agree”

*Q5: “Thank you. The next statement is “The use of ICT has brought about increase in organizational profit”. Agree?”*

Company A1: “Yes, I would also agree here. I think that time costs money, as I have mentioned earlier now it is not so time consuming as it was before. That is why our employees can do other work instead of doing this manual thing! Our team is so creative, in this new free time we are doing meetings, discussing new goals of the company and thinking how we can finish our aims. If not going far from finance, I decided to let my employee study to upgrade their qualification”

Company A2: “I do not know for sure, but from my point of view yes there is a connecting for sure, and in positive way connection. I still have some extra time which I also spend on another important work responsibilities.”

Company A3: “Oh yes, sure. Previously what I was saying is also actual in this statement.”

Company B1: “Here I would rather agree than disagree. You know that these tools give a possibility to do everything much faster than manually. So, it also gives an opportunity to work on other projects and doing more during a month”

Company B2: “I guess I disagree here. I don’t think that in our company a profit is connected to the fact of using financial programs.”

Company B3: “No, in my point of view there is no connection between these two. Maybe there are some side effects which positively affect it.”

Company B4: “Basically yes. There is a strong connection, I guess. Because we see the differences while doing our own research each year.”

Company B5: “Agree. Totally agree. Sometimes we are providing a research to analyze what we should change to grow up later, and we see real improvements in all the related figures including net and gross profit”

Company C1: “Sometimes yes sometimes no, but I would say that I disagree. It is not directly increase it, but helps to do more in one time”

Company C2: “Not at all, there is no negative effect of course but also I don’t see a positive and strong relation”

Company C3: “I don’t think so, because as I have mentioned before we faced some losses and it is sometimes also because of payments for this program”

Company C4: “Again if I would compare either using Excel or using nothing, yes it is profitable to use Excel”

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