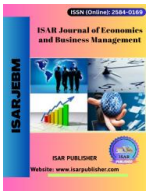
OPEN ACCESS



**ISAR Journal of Economics and Business Management**

**Volume 3, Issue 6, 2025, Page: 30-43**

*Abbriviate Title- ISAR J Econ Bus Manag*

ISSN *(Online)*- 2584-0169

https://isarpublisher.com/journal/isarjebm

# USAGE OF CLOUD ACCOUNTING IN BOSNIA AND HERZEGOVINA

**Faruk Unkić***

Associate Professor, University of Zenica, Kalošević 23, 74260 Tešanj, Bosnia and Herzegovina.

***Corresponding Author**

**Faruk Unkić**

Associate Professor, University of Zenica, Kalošević 23, 74260 Tešanj, Bosnia and Herzegovina.

**Article History**

Received: 29.04.2025
Accepted: 09.06.2025
Published: 30.06.2025

**Summary:** In today's business environment, digital transformation is becoming imperative to increase the efficiency and competitiveness of organizations. Cloud accounting, as part of this transformation, provides companies with a more flexible, accessible and often cost-effective approach to bookkeeping. This paper explores the level of awareness, technical readiness, security issues, cost aspects and legislative framework related to the implementation of cloud accounting solutions in Bosnia and Herzegovina. The research is based exclusively on secondary sources – statistical data, reports of IT companies (e.g. Datalab, Infosoft, Pantheon), market analyses and available literature. The goal is to provide insight into the current state of cloud accounting application in BiH, identify key obstacles and propose measures to improve its use. The results of the research show that although there is some progress in digitalization, the application of cloud accounting still faces a number of challenges, especially in the area of information and trust in data security.

**Keywords**: Cloud accounting, digital transformation, data security, accounting software, Bosnia and Herzegovina, Pantheon, Info soft.



## 1. Introduction

Digital transformation has become imperative for businesses around the world to improve efficiency, innovation and competitiveness. However, in Bosnia and Herzegovina (BiH), there is still a significant gap between the recognized importance of digitalization and its practical application. One aspect of digital transformation in finance and accounting is the shift to cloud accounting. Cloud accounting involves the use of accounting software that is not located on the company's local computers, but on remote servers that are accessed via the Internet.

**Research problem:** Current knowledge indicates low awareness and slow pace of adoption of cloud accounting in BiH. Most businesses in BiH still use traditional accounting methods, and the transition to *cloud* solutions is limited. According to a recent official survey, only about 20.7% of companies in BiH use paid *cloud* services, which suggests that less than a quarter of companies have adopted this form of digital accounting so far. This is well below the European Union average, where almost half of businesses use *cloud* services (Eurostat, 2023). This distinction highlights the importance of exploring the barriers and opportunities for a wider application of cloud accounting in BiH.

**Research goals: The** main goal of this paper is to examine the current state and perspectives of the use of cloud accounting in BiH, and to identify the reasons for the relatively low adoption rate. The research seeks to answer the questions of what is the level of awareness of cloud accounting among companies, what are the benefits and risks of switching to such systems compared to traditional accounting, and what obstacles (technical, security, financial, regulatory) stand in the way of wider application. Based on this, the paper will offer recommendations on how stakeholders (companies, institutions and the IT sector) can drive the digital transformation of accounting practice.

**Research questions:** In line with the stated objectives, the following key questions have been defined:

IP1: What is the current scope of use and level of awareness of cloud accounting in Bosnia and Herzegovina?

IP2: What are the advantages of cloud accounting compared to the traditional approach?

IP3: What are the obstacles and risks faced by companies in BiH when introducing cloud accounting?

IP4: To what extent are the technical and legal prerequisites for the application of cloud accounting in BiH met?

Hypotheses: The initial hypotheses of this research are:

H1: Awareness of the benefits and functioning of cloud accounting among companies in BiH is low, resulting in limited application.

H2: Cloud accounting provides significant advantages in terms of cost, flexibility, and data availability over traditional



**Cite this article:**

Unkić, F., (2025). USAGE OF CLOUD ACCOUNTING IN BOSNIA AND HERZEGOVINA. *ISAR Journal of Economics and Business Management*, *3*(6), 30-43.

accounting.

H3: The main obstacles to the wider application of cloud accounting are concerns about data security, lack of trust in cloud services, insufficient technical training and ambiguities in the legal framework.

H4: Increasing the use of cloud accounting in BiH requires systematic education and support, both from institutions and the IT industry, and adaptation of regulations to the digital environment.

In context, it is worth mentioning the findings of similar studies in neighboring countries. In Croatia, it was found that accountants are not sufficiently familiar with the benefits of *cloud* accounting, and the need for education about this technology was emphasized. In Serbia, in 2014, it was recorded that only 3.8% of companies use paid *cloud* services, with high costs (21.5% of respondents), data security concerns (19.4%), lack of knowledge about *cloud* services (17.2%) and legal uncertainty (12.4%) identified as the main reasons for low usage. These results from the environment point to similar problems that BiH is likely to face: insufficient information and trust, with fears related to the price of services and regulations. All these aspects are considered in this paper through the analysis of available literature and secondary data, with the aim of formulating concrete recommendations for accelerating the digital transformation of the accounting profession in BiH.

## 2. An Overview of Previous Research in BiH

**The literature** directly dealing with cloud accounting in Bosnia and Herzegovina is quite scarce. Unlike neighboring countries that have already published some research on this topic (for example, in Croatia and Serbia, as stated in the Introduction), BiH has not yet recorded a large number of papers that empirically examine the use of cloud accounting. This lack of literature is confirmed by a Croatian study, which in its conclusion emphasized the need to increase awareness of cloud accounting in Croatia, Serbia and Bosnia and Herzegovina – therefore, the problem of low representation of this topic is evident and regionally recognized.

However, some insight can be provided by broader research on the digitalization of business and the use *of cloud* technologies in BiH, as well as official statistical data. The Agency for Statistics of BiH has recently been monitoring the use of information and communication technologies (ICT) in enterprises, which includes the use of *cloud* services. According to a 2023 report, 20.7% of companies in BiH use ***cloud*** services that they pay for online. This figure, although still relatively low, shows an increase compared to the middle of the previous decade. (For example, in 2014, this share in Serbia was only 3.8%, while official statistical data for BiH from that period were not kept or published.) This growth to 20.7% by 2023 suggests a gradual improvement in the awareness and availability of *cloud* solutions in BiH, but it still means that about four out of five companies *do not* use accounting (or other) cloud services.

It's an interesting way ***to change the size*** of your business. Large enterprises (over 250 employees) use the cloud significantly more – almost 44% of them pay for *cloud* services – while small businesses (10-49 employees) are far less involved, only about 17%.

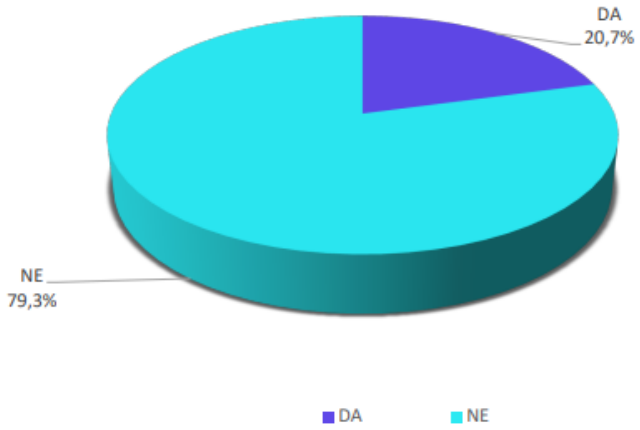



Figure 1: Share of companies in BiH that pay for *cloud* services (2023), by company size. *Large enterprises are significantly ahead in the adoption* of cloud *services compared to small ones.*

This structure suggests that small and medium-sized businesses (SMEs) are less informed or wary of *cloud* technologies. Larger enterprises, which often have stronger IT departments or are part of international corporate chains, are more likely to recognize the benefits of the cloud and have the resources to take advantage of them. SMEs, on the other hand, may face a lack of information, expertise or trust needed to move to a new accounting model. Also, it is possible that smaller companies believe that *cloud* solutions are not adapted to their scale of business or that they are too expensive for them, which can be a misconception that needs to be dispelled with education.

**Findings of previous research in BiH**: Although there are not many publications dedicated exclusively to cloud accounting, there are papers that touch on this topic in a broader context. Kozar et al. (2016) conducted research on the use of *cloud* computing and outsourcing in BiH. Their results show that almost ten years ago, a certain part of the BH. Companies started adopting *cloud* models: of the surveyed companies, about 34% used some form of *cloud* infrastructure – most often private cloud internally or within a group (19.6% of companies), while about 10.7% used the public cloud, and 8-9% hybrid solutions. This percentage includes the use of *any cloud* services, not necessarily accounting services. Interestingly, most companies that have entered the *cloud* have opted for a private cloud, which indicates that they prefer solutions where they retain more control (e.g. hosting applications on servers with a well-known provider or within their own data center), probably for security reasons. The authors state that the main motives of these pioneering companies were to achieve savings and improve business agility, while security risks were identified as the biggest obstacle to wider adoption *of cloud* technology. In other words, both those who used the *cloud* and those who did not, the prevailing opinion was that *the cloud* has economic and operational advantages, but there is caution due to data protection.

Looking more broadly at the digitalization of business in BiH, the research by Jerković et al. (2024) on the degree of digital transformation of companies in BiH indirectly confirms that many companies are just at the beginning of adopting modern IT solutions. In their research, as many as 76.8% of the surveyed companies use traditional ERP systems, but the application of more advanced digital tools (such as advanced analytics, artificial intelligence, electronic signature) was very low. This indicates that

although there is an awareness of the importance of digitalization, in practice it is dominated by basic solutions, while concepts such as *the cloud* (whether in accounting or other areas) have yet to come to life on a larger scale. At the same time, there is an almost unanimous view of managers that digital transformation is important for the future of their business. So, the paradox that is observed is: companies know that they have to keep up with digital trends in order to be competitive, but for various reasons (financial constraints, lack of staff, resistance to change, uncertainty of benefits) they postpone concrete implementation. Cloud accounting fits into this framework – a potentially very useful innovation that is slowly spreading in BiH practice.

**Literature on regulations and initiatives**: In the domain of professional articles and legal analyses, in the last few years, more attention has been paid to the legal framework of digital business in BiH. The new Law on Accounting and Auditing of the Federation of BiH (adopted in 2021) introduced some provisions to harmonize with modern practice, such as the recognition of electronic documents and the possibility of bookkeeping using IT systems, but the explicit mention *of cloud* services is absent from the law. According to experts, the focus of the new regulations was on documentation retention obligations, classification of entities and other classic aspects, while the issue *of cloud* technology remains implicit. In other words, the law did not prohibit *the use* of cloud accounting, but it did not specifically regulate it either. The absence of more detailed guidelines (e.g. requiring *the cloud* provider to guarantee the availability of data to the competent authorities in the territory of BiH, or an information security standard that must be met) means that companies and their auditors still have to interpret for themselves how to be compliant. Also, from conversations in the accounting community (e.g. seminars, publications), one can notice a certain amount of caution when mentioning *cloud* solutions – questions are often asked about where the servers are physically located, what if *the Internet goes down*, how to prove the authenticity of electronic statements, etc. These questions indicate that the transition to *the cloud* is not only a technical, but also a cultural and regulatory issue for accountants in BiH.

## 3. Research Methodology

This research was conducted using the method of analysis of secondary data sources (desk research). No primary data was collected through surveys or interviews; instead, it relied on existing statistical reports, published papers, and expert sources to gain insight into the topic. Key sources of information included:

**Official statistics and reports**: Primarily reports of the Agency for Statistics of BiH on the use of ICT in companies (especially data on the use of *cloud* services), as well as relevant data of the Tax Administration and other institutions, if available (e.g. information on electronic submission of financial statements, number of registered software users, etc.).

**Academic and professional literature**: Research papers from the region (Croatia, Serbia) were comparatively reviewed, which served as a framework and for identifying factors relevant to BiH. Also, papers that analyze digital transformation and the application of *cloud* computing in BiH were used, in order to draw implied conclusions about the accounting sector. The literature on the legal framework (laws, commentaries and analyses) has served to understand the regulation.

**Industry sources and case studies**: Information provided by IT companies active in the domestic market, such as Datalab BH (manufacturer of ERP/accounting software Pantheon), Infosoft Sarajevo (local provider of business software) and others, were reviewed, especially in the part where they published data on their *cloud* services and user experiences. For example, the Pantheon Cloud solution has been offered in cooperation with BH Telecom since 2017, which is an interesting example of infrastructure support for the local *cloud* ecosystem. Such resources (e.g., case studies of successful implementations or blog articles on the benefits *of cloud* accounting) were used as a complement to qualitative insights. It should be noted that this kind of information is taken with a critical dose of caution (because it can be promotional in nature), but it is useful to illustrate the availability of technology on the market.

**Secondary datasets**: International sources such as Eurostat statistics were also used for comparison (e.g. the average of EU companies using *the cloud*), and reports by organizations such as the OECD and the World Bank on the digital economy in the Western Balkans, in order to place BiH in a broader context.

The collected data were analyzed descriptively and comparatively. Within the analysis, several criteria were singled out that are relevant for assessing the state and potential of *cloud* accounting: (1) level of information and representation (*awareness* and use in practice), (2) technical readiness of companies (infrastructure, internet penetration, availability of solutions), (3) security and trust (attitudes and concerns related to data security and privacy), (4) cost aspect (financial profitability, transition costs and savings), (5) flexibility and operational benefits (impact on productivity, speed of reporting, remote work), and (6) legislative framework (compliance with regulations, standards, and regulations that affect the cloud). The results of the research are presented through these thematic units, supported by statistical indicators (graphs, tables) and references from the literature.

It is important to note that the limitations of this methodology include dependence on the availability of data – if a certain aspect (e.g. a specific number of companies using cloud accounting software in BiH) is not covered by secondary sources, our analysis relies on approximations and analogous application of findings from related areas. However, by combining different sources, we try to form a complete picture and identify trends and relationships that will answer research questions. In the next chapter, we will present the results according to the above criteria.

## 4. Research Results

This part of the paper presents the findings of the research structured according to key aspects of importance for the application of cloud accounting in BiH. The results are presented through indicators and observations on: information and level of use, technical equipment for *the cloud*, security and trust issues, costs and economic side, business flexibility, and legislative framework. Where possible, tabular or graphical representations were given to illustrate the situation, citing relevant sources.

### 4.1 Awareness and representation of cloud accounting

The general level of awareness of cloud accounting in BiH is correlated with the relatively low level of its actual use in practice.

As already pointed out, only 20.7% of BiH companies currently use any cloud services (according to the definition that includes e-mail, data storage, and even financial/accounting applications). This data implies that the majority (almost four-fifths) of companies are still outside the *cloud*. While the use of *cloud* services does not necessarily mean the use of cloud accounting, we can assume that the percentage of companies that have moved their accounting to the cloud is even smaller (because many of those 20.7% companies may only use *the cloud* for email or file storage, and not necessarily for key business applications such as accounting). This is supported by more detailed data: among companies that use *cloud* services, the most common service is cloud e-mail (84.6% of them use it), followed by various office software (about 70%), antivirus protection and database hosting (about 63-64%), while cloud applications for finance or accounting are used by about 59.3% of those Enterprises. Translated into the overall sample, this means that only about 12% of all companies in BiH use accounting or financial software through *the cloud* platform (0.207 * 0.593 ≈ 0.123, or ~12.3%).

Such indicators confirm the low level of awareness and still insufficient understanding of the benefits of cloud access among a wide range of business entities. A large number of managers and accountants are probably not fully familiar with how *cloud* accounting works or what benefits it can bring. Regional research further emphasizes this problem: in Croatia, a hypothesis has been set (which has been confirmed by research) that accountants are not sufficiently informed about the benefits of cloud accounting and the impact it can have on the company's business. It is not unrealistic to assume that a similar situation applies in BiH, given the common language of the profession and often related educational programs. Younger generations of economists and accountants in BiH are just getting acquainted with the concept of *cloud* business during their studies or professional seminars, while older staff mostly have experience only with local (desktop) accounting programs.

It is important to note both the generational and cultural aspect of being informed. Many accounting agencies in BiH are small firms run by experienced accountants who have been accustomed to working in one way for decades. For them, *the cloud* can be an unknown or something they are skeptical about ("Why change something they do?"). Also, traditionally in our business culture, keeping trade secrets "under lock and key" is valued – the idea that confidential financial data is stored on a remote server requires a high level of trust in the technology and service provider, which is built over time. Therefore, it is not surprising that *cloud* accounting is now expanding mostly through educational efforts and promotions by IT companies and enthusiasts. In the past few years, several webinars and presentations on this topic have been organized (e.g. the University "Vitez" Travnik organized a webinar in 2020 "What is cloud accounting? Advantages and disadvantages."), which contributes to the expansion of consciousness. However, such events reach a limited audience. For example, there has not yet been a national conference or initiative of accounting associations that would systematically promote *cloud* accounting as part of the profession.

Pioneering businesses: On the other hand, ~12% of businesses already using cloud financial applications in BiH represent an important proof *of concept* for the domestic market. These are mostly more technologically advanced companies or subsidiaries of international companies that wanted to *achieve certain benefits by switching to the cloud* (e.g. standardization of the system with the parent company, or easier consolidation of reports). Their experiences (if positive) can serve as case studies for the wider community. At the moment, however, such stories are not sufficiently promoted in public.

The size disparity (Figure 1) clearly suggests that information and resources go hand in hand. Large companies have the capacity to explore new technologies and educate their staff, while small ones often have neither dedicated IT staff nor time to look for better solutions – they often stick to what they are familiar with. That is why the goal to increase awareness is precisely the focus on SMEs, because this is where the biggest gap is.

### 4.2 Cloud Readiness and Infrastructure

In order for *cloud* accounting to come to life, companies must have a certain level of technical readiness: a reliable internet connection, appropriate IT equipment for users, and the availability of quality *cloud* solutions on the market. The analysis shows that infrastructure prerequisites in BiH are generally not the main obstacle – in fact, the technical basis is solid, although there is room for improvement in terms of internet speed.

According to the data of the Agency for Statistics of BiH, as many as 99.9% of companies with 10 or more employees have access to the Internet, and the vast majority use a fixed broadband connection (ADSL, cable or fiber optic internet). Almost all of the businesses that can be potential users of *cloud* services are already online. This is an important distinguishing factor compared to the period 10-15 years ago when internet penetration could be a limiting factor – today it can be said that connectivity basically exists. Furthermore, internet speeds are on the rise: telecom operators in BiH are offering increasing broadband speeds and the expansion of fibre optic networks. Statistics (same-2023) show that the largest share of companies (over 70%) had a maximum internet speed above 30 Mbps, and a significant part over 100 Mbps (the figures vary depending on the size of the company, where larger companies usually have faster internet).

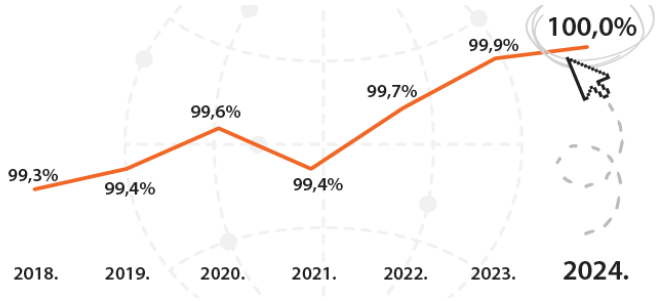



Figure 2: Enterprise have internet access, in percent, by year[1]

These speeds are quite enough for smooth use *of cloud* applications, including those that work with larger databases. Of course, in practice, there are differences between urban and rural environments – companies in larger cities have access to better infrastructure, while those in smaller towns sometimes suffer from a weaker telecom network. Nevertheless, the general trend is

[1] Agency and Communication Technologies in BiH, 2024" – statistical bulletin (IKT_00_2024), data on the use internet.

improvement and this gap will decrease as investments in networks continue.

Another aspect of technical readiness is the prevalence of computers and the digitalization of business in general. Over 98% of companies use computers in their daily work, and 96% have their own web or e-mail domain. This means that basic digital skills and habits (using computers, the internet, basic programs) have long been adopted. Also, a large proportion of companies use standard business software: for finance and accounting, many companies have some form of ERP or accounting program (either developed in-house or purchased from local suppliers). Data from regional surveys state that about 77% of companies in BiH use ERP systems, which implies that accounting records are already digital in these companies, the only question is where these applications "live" – locally or in the cloud. Therefore, the transition to *cloud* accounting for such companies would not mean digitization from scratch, but the migration of the existing digital function to the new infrastructure.

The availability of cloud solutions on the BiH market is no longer as questionable as before. 5-10 years ago, one of the questions was: can domestic businesses even find *cloud* accounting software adapted to local tax regulations and language? Today, the answer is – yes, they can. There are several options:

**Pantheon Cloud (Datalab)** – a regional ERP solution that has localized versions for BiH, also available in *cloud* mode. Datalab BH, in cooperation with BH Telecom, offers Pantheon as a service that clients can use without purchasing a license, for a monthly fee, while the application and databases are located on BH Telecom's servers (local *data center*). This practically represents *cloud* accounting of "domestic production", which also addresses the issue of trust because the data is held by a reputable domestic telecom company.

**Local software through hosting:** Some of the popular domestic accounting programs (such as FINsoft, E-count, etc.) can be set up on a hosting server and accessed via a remote desktop or web interface. Although it is not a *cloud* in the narrowest sense (it is more of *a hosted* solution than a real SaaS application), for the end user the effect is similar – the ability to work remotely and without worrying about infrastructure.

**International *cloud* software:** Large global platforms such as *Oracle NetSuite, Microsoft Dynamics 365, SAP S/4HANA Cloud* are also available and several larger companies in BiH use them (usually international companies that introduce the same system in all branches). There are also smaller *cloud* tools for certain segments (e.g. invoicing) that are localized.

**Open source and alternative solutions:** There are also open-source ERP/accounting systems (e.g. Odoo, ERPNext) that can be used in the cloud and adapted to local needs, which some IT companies in BiH have started to offer as an implementation service for SMEs.

From the above, it can be seen that technological possibilities exist – cloud accounting in BiH is not limited by the lack of technology or the Internet, but more issues lie on the demand side (the willingness of users to accept it). This is supported by the fact that some domestic companies from the IT sector have already recognized the opportunity and established infrastructure specifically for cloud services. BH Telecom, as the largest telecom operator, has invested in *data center* capacities and offers "Infrastructure as a Service" packages for enterprises, and the partnership with Datalab shows a focus on creating a local *cloud ecosystem*. Other operators (Telemach, Mtel) have similar offers. The very existence of these offers implies that the technology base is ready to receive users – now the challenge is to fill that cloud with customers, which goes back to the problem of information and trust.

### 4.3 Security and trust in cloud solutions

The issue of data security and trust in cloud solutions turns out to be a central topic in almost all discussions about cloud accounting. In BiH, as elsewhere, many companies are expressing concerns: "What will happen to my data if I move it to the cloud? Are they safe from hackers? Who can have access to it? "Where are these servers physically located?" These concerns are justified given the sensitivity of financial information, but they can often be exaggerated due to a lack of knowledge of how *cloud* security works.

Respondents' attitudes: Surveys in the region show a high dose of distrust. A survey in Croatia has already been cited, where 44% of accountants strongly opposed the idea of entrusting business data *to a cloud* service. In BiH, concrete data from the available literature is the finding of Kozar et al. (2016) that security aspects are named as the main limiting item for *cloud* computing adoption. Also, in surveys among IT professionals and managers in BiH (which are not specifically about accounting, but about the cloud in general), data security and privacy are often put in the first place among concerns. This includes the fear of: unauthorized access (hacking), data loss, misuse of confidential information, industrial espionage, etc. In the local context, there may be an additional element – the memory of data loss in emergency situations. For example, during the floods of 2014, some companies in Maglaj and Doboj (BiH) lost all their computer equipment and data, which is often cited as an argument *for* the cloud (because in the cloud this data would be stored). Yet, paradoxically, many people find it intuitively "safer" to physically keep data in their office than "somewhere online."

**Objective security vs subjective feeling:** Experts point out that reputable ***cloud*** providers provide high levels of security, often more than the average company can achieve internally. *Cloud* services have constant monitoring, encryption, multiple copies of data, certificates (npr. ISO 27001 for security management) and teams of experts dedicated to cyber protection. On the other hand, a small business in BiH may be keeping its data on a single computer without any backup or protection – which is actually far more risky. However, the problem is in perception: when an incident happens *to a large cloud* provider (which attracts media attention), it affects the perception of hundreds of companies that then say "you see, they stole data from such and such *a cloud* company, we better keep our files locked".

So far, there has not been a single public scandal related to cloud accounting in BiH (because there are not many users), but there are known cases of data loss in some companies due to viruses, ransomware or human error. These cases are sometimes an argument in favor of the cloud (because a good *cloud* backup would prevent that), but until awareness is raised, most will look at cloud security with skepticism.

**Trust in the provider and the location of the data:** A special aspect of trust is the *issue of confidentiality and location of the data*. Many businesses in BiH will prefer a *cloud* service if they know that their data is stored within BiH or at least in a trusted

country. This is one of the reasons why local *cloud* data centers (such as BH Telecom) are emphasized – this is a message to clients that their data remains "in the state" and is subject to domestic laws. While geographic location doesn't really affect technological security, it does affect the sense of control. Some industries, such as banks and telecommunications, have strict policies by the nature of their business that data must be in a particular jurisdiction. There is currently no explicit legal obligation for accounting data to be in BiH, but many would feel safer if they were.

In terms of providers, trust is built through reputation and references. Global providers (Microsoft, Oracle, Amazon) are technologically powerful, but for a local company they sometimes seem "distant" and impersonal – it is difficult to imagine, for example, that a small company from Tešanj can call Amazon and ask for help. This is where local providers see an opportunity: Datalab, Infosoft and others offer domestic support in our language, direct contact of the staff with the client, which increases the subjective sense of security ("I know who keeps my data and I can call them personally if I need something"). Such *a personal* element is not negligible in building trust in the cloud, especially in a culture where business relationships are based on face-to-face trust.

**How to raise security and trust:** The results show that multi-faceted action is necessary. On the technological side, *cloud* providers should continue to invest in top-notch security and communicate this fact to customers (e.g. by issuing certificates, periodic security reports). For users, education is key: they need to be explained security protocols, shown that their data is not a "public matter" in the cloud but protected by multiple layers, and convince them that the risk of data loss is lower than with the traditional approach (e.g. the Maglaj and Doboj case – in the cloud, the data would be saved). One practical approach is to conduct pilot projects: companies can test some less sensitive data in the cloud and make sure of security gradually, before entrusting the most critical information.

Also, the role of references and recommendations is very important. If a reputable local company announces that it uses *cloud* accounting and is satisfied with security, it can be a turning point for the trust of others. In the discussion and recommendations (Chapters 6 and 7), we will consider in more detail what can be done to overcome security fears.

### 4.4 Cost Analysis and Financial Effects

The economics of moving to *cloud* accounting involves analyzing the costs and benefits of such a move. The results show a twofold picture: on the one hand, *the cloud* model promises significant savings and cost rationalization, while on the other hand, there is a perception of some companies that *cloud* services are *expensive*.

**Lower fixed costs and subscriptions vs. capital investments:** Cloud accounting eliminates the need for large upfront investments in servers, licenses, and supporting infrastructure. Traditionally, a company would have to buy a server computer (or several) for a new accounting system, pay a one-time software license, and possibly additional SQL licenses, backup devices, etc., which is a significant financial investment for small businesses. In contrast, *the cloud* allows all this "package" to be obtained through a monthly fee, often without a contractual obligation in the long term. The cost is converted from capital expenditure (CAPEX) to operating expenditure (OPEX), which is more convenient for many companies, especially those that do not have excess cash to invest. Christauskas & Miseviciene rightly point out that *cloud* accounting has lower fixed costs precisely because of the lower investment in hardware/software and the absence of local storage costs. Also, there are no costs for future upgrades – in the traditional model, after a few years, a new version of the software is released that needs to be purchased, while in *the cloud* subscription this is included.

**Maintenance and personnel costs:** In addition to the procurement itself, there are also ongoing costs of maintaining the system. With the traditional approach, the company must have an IT person (or hire an external service provider) to maintain servers, databases, backups, virus protection, etc. This is *a hidden cost of* the accounting system – it may not be recorded directly as an accounting cost, but it is part of the cost of doing business. In *a cloud* scenario, most of these activities go to the service provider. This means that the cost of IT support per user is distributed more efficiently (the provider has economies of scale, one engineer takes care of the system for hundreds of clients). Consequently, the total IT costs of the company can be reduced or redirected to other activities (e.g. instead of server administration, IT staff can deal with data analysis, etc.). This rationalization is especially felt in smaller companies that may not have a full-time IT expert – instead of the head of finance dealing with the role of a "computer technician" for the software, it is taken over *by the cloud* provider.

**Cost flexibility and scaling:** Another important aspect *of the cloud* model is the ability to scale costs according to needs. If a company is doing well and growing, it can easily increase the number of user licenses or cloud space and will pay more, but grow proportionally. If there is a drop in workload, the subscription may be reduced. This is in contrast to the traditional model where, once you invest in equipment and software, these costs are fixed regardless of whether you are using a 50% or 100% system. Studies state that *the cloud* allows the user to increase or decrease costs according to their own needs and thus increase the efficiency of investments. In other words, you pay *as much as you use*, which is especially useful for companies with variable workloads (e.g., accounting agencies that have much more work to do during the period of annual final accounts than the rest of the year – they could scale the subscription plan).

**Perception of "cloud is expensive":** Despite these objective advantages, in practice some businessmen still perceive *cloud* services as expensive. Why? There are several possible reasons:

Not knowing the cost structure: Some people only compare the visible cost of a subscription with the invisible costs they currently have. For example, a small business owner sees that *cloud* software costs, for example, 50 EUR per month, and thinks "that's 600 EUR per year, too expensive", forgetting that a few years ago he paid 1000 EUR for a license (which he has already depreciated) or that he pays an IT service technician occasionally, etc. If not all aspects are taken into account (cost of electricity for the server, time spent on backup, The risk of data loss, etc.), *the cloud* may seem more expensive at first glance.

**High cost of internet for reliable operation:** Although most companies have internet, for critical systems it is often recommended to have *two independent links* (primary and backup) for business continuity. This means an additional cost for another internet

subscription, which some consider too much of a burden. In BiH, the prices of business internet connections (with guarantees of availability) are even higher than in the EU, so a smaller company calculates whether it is worth it.

**Price of local *cloud* solutions:** It should be admitted that some *cloud* solutions, especially international ones, are expensive for our circumstances. If a company wanted to use, for example, SAP cloud, it would be far beyond the budget of most domestic SMEs. However, it is crucial to choose an adequate solution here – there are also *affordable cloud* solutions for small businesses. But the perception is formed on the basis of information: if you read somewhere an example that a company paid tens of thousands of KM to switch to cloud ERP, it can reject others, although there are cheaper options.

**Unprofitability for very small companies:** Micro enterprises (with 1-2 employees) often do not even have a classic ERP, but manage finances in Excel with the help of an external accountant. For them, switching to any software (even the cloud) brings a new cost that they did not have. In such cases, as long as there is no pressure (legal or market) to modernize, they will see *the cloud* as an unnecessary expense. Only when they grow to a certain size or when regulation forces them (e.g. electronic invoicing) will they consider that investment.

**Empirical findings:** The aforementioned research in Serbia showed that 21.5% of companies considered the high cost ***of cloud*** services to be the main obstacle. This suggests that almost a quarter of managers perceive that *the cloud* is not worth it. However, it is important to emphasize that this is the situation from 2014 – since then, *cloud* offers have multiplied and become cheaper, competition has increased, and awareness of the overall cost structure has improved. In BiH, we do not have precise data on the perception of the price, but we can assume similar attitudes among a part of the business community.

**Benefits that bring savings:** In addition to reducing direct costs, *cloud* accounting can also bring indirect financial benefits:

Faster and more accurate financial reporting leads to better financial management, identification of savings, and the like. For example, if the management has up-to-date data on receivables and payables at all times through *the cloud* system, it can better manage cash flow and avoid unnecessary interest or delays. It's hard to quantify these benefits, but they exist as efficiency improvements.

Less downtime and data loss – although we look at security as a cost, in fact, better security means less risk of costly incidents. Loss of accounting data can be catastrophic (both financially and reputationally), so investing in the *cloud* can prevent potentially large unexpected data recovery costs or defaults penalties due to loss of records.

**Focus on the core business:** When a company leaves IT care to a cloud provider, it can focus resources on its core business. In theory, this leads to better productivity and therefore a better financial outcome.

### 4.5 Flexibility and Impact on Business Processes

Cloud accounting not only brings benefits in terms of cost and technique, but also has a transformative impact on the flexibility and agility of business processes. The results indicate that companies that have adopted *cloud* models are seeing improvements in the form of easier adaptation to change, accelerated communication, and better integration of business functions.

**Remote work and business continuity:** One of the most prominent benefits of *cloud* access – especially demonstrated during the COVID-19 pandemic – is the ability to work remotely smoothly. While businesses with traditional on-premises accounting systems faced the problem of how to allow employees to access data from home in 2020 (many improvised VPN connections, remote accesses, etc.), *cloud* accounting businesses continued to operate almost without interruption. Employees can log in to the system from home as well as from the office. This experience has opened the eyes of many to the value of flexibility: *cloud* solutions allow businesses to adapt more quickly to extraordinary circumstances. Whether it's a pandemic, a natural disaster or simply a CEO's journey, the *cloud* offers real-time availability of key information, which preserves business continuity.

**Faster communication and collaboration:** Cloud accounting also affects how different participants in the process collaborate. If, for example, an accountant in an accounting agency and his client use the same *cloud* system, the update of data by one is automatically visible to the other. No more sending USB sticks with databases or exporting data from programs – all parties have a common insight. This reduces the time it takes to prepare reports, queries, and checks. Studies show that the use of cloud collaboration tools improves the flow of communication internally and externally. In the context of accounting, this means, for example, that management can see up-to-date financial indicators at any time, while an external accountant can simultaneously post documents while an internal controller reviews them – scenarios that previously required the exchange of emails and file versions, now take place dynamically on a single platform.

**Faster reporting and decision-making:** When data is centralized in the cloud and updated continuously, financial reports can be generated faster and more frequently. Instead of waiting for the end of the month, some metrics can be tracked on a daily basis. This allows managers to make more informed decisions. Example: a company can track sales, costs and margins on a daily basis through a cloud system and notice trends earlier, while in a traditional system they might wait for a monthly report. Such agility in access to data contributes to adaptability – the company can react to market changes almost in real time. According to one survey, 93% of managers in BiH agree that digital transformation (which includes the transition to *real-time* systems) is important for the future of business. Cloud accounting is actually one of the ways to realize this *real-time* vision in practice, at least in the field of finance.

**Interoperability and integration:** Modern cloud accounting systems often offer APIs and modules for integration with other software (CRM, inventory management systems, e-commerce platforms, etc.). This means that a single cloud platform can connect multiple business functions that were previously separate. In BiH, an example of integration is the connection of cloud accounting with electronic invoicing systems or internet banking (e.g. some software allows direct import of bank statements into accounting). This shortens the time for manual work and reduces errors. Greater flexibility of the system also means that it is easier to scale business processes – if a company opens a new branch, it

only adds new users and locations in the cloud system, without the need to install new servers in the field.

**Workforce flexibility:** Cloud accounting also allows for more flexible staffing. A company can more easily use outsourcing services (because an external consultant can securely access the system from the outside), hire an accountant to work from home, or hire an expert from another city without the need to relocate. This flexibility of work can increase the availability of qualified staff – which is relevant given that BiH has a deficit of certified accountants, so companies sometimes hire experts remotely. The cloud serves the purpose of enabling such a model.

**Empirical evidence of the benefits of flexibility:** The literature states that moving to the cloud gives companies the opportunity to design new work strategies and increase workforce mobility, but that the transition should be carefully planned to overcome any integration difficulties. In other words, if the cloud is implemented thoughtfully, the benefits are manifold: from speeding up the process to a cultural change in the way we work. These qualitative benefits are somewhat more difficult to measure than the costs, but they are certainly visible.

**Flexibility vs. challenges: It** should be mentioned that the transition to cloud tools can also have challenges in the form of change management. Some employees have to adapt to new workflows (e.g. instead of taking the paper to a colleague in the office next door, now the document is attached to the system). According to research by Jami Pour & Hosseinzadeh (2021), moving to *cloud* tools can create challenges of integration with existing systems and requires careful planning to avoid disruption. This means that in order to fully realize flexibility, the company needs to make an effort to train staff and optimize processes around the new system. In BiH, these changes may be even greater than in Western countries due to the long-standing practice of working "on paper" in many procedures. Still, once the barriers to transition are overcome, the benefits of flexibility are long-term.

Overall, the results suggest that cloud accounting significantly increases the operational flexibility of companies. The ability to access data anytime, anywhere, faster information exchange and process integration contribute to agility – a trait that is vital today in a dynamic business environment. For BiH businesses, which are often slow to adapt (as evidenced by the Digital Readiness Survey: most of them are just at the beginning of their transformation), *cloud* technology can be one of the catalysts to accelerate and catch up with competitors.

### 4.6 Legislative framework and compliance

Legal and regulatory considerations are important factors when deciding on the introduction of cloud accounting. Businesses want to be confident that by using *cloud* solutions, they will remain compliant with all applicable regulations, especially those related to accounting, financial reporting, document retention, and data protection. The results indicate that the legislative framework in BiH is still in the phase of adapting to the digital era, and that there are certain ambiguities that may slow down the faster adoption of *the cloud* model.

**Accounting Laws:** In BiH, accounting regulation is primarily regulated by entity laws (FBiH and RS have their own laws on accounting and auditing, and Brčko District follows one of the entity laws). The latest amendments to these laws (FBiH 2021, RS 2016) introduced some novelties, but none of the laws explicitly mentions *cloud* accounting. Traditionally, laws prescribe the obligation to keep business books and keep documentation, which meant keeping in paper or electronic form on the spot. The new legal solutions allow electronic storage of documentation under certain conditions – e.g. to ensure authentic reproduction and legibility at a later date. This opens the door to the digitization of archives (scanning invoices, storing PDF documents instead of paper). However, the question arises as to whether the storage of these documents "in the cloud" meets the requirements. According to the letter of the law, it is not prohibited, but the legal entity is expected to ensure the availability of such documentation at the request of the competent authorities (e.g. tax inspection) within the prescribed period. Thus, if it opts for *the cloud*, the company must have an internal act or contract with the provider that guarantees that in case of control it will be able to present the documents. In practice, this means providing yourself with the ability to quickly download all the necessary data from *the cloud* system locally if needed (most *cloud* software has *export* or report generation options that meet this purpose).

Tax regulations and electronic filing: BiH is moving towards e-Government in the tax segment – for example, in the Federation from 2021, some tax returns can be filed electronically, and in the RS, financial statements have been submitted electronically for a long time. This is important because, as public administration becomes digital, there is also pressure on businesses to digitize their records. Electronic filing of financial statements and tax forms means that businesses must have these reports in digital form. Cloud accounting can make things easier here – many *cloud* systems already have integrated formats for e-filing or at least the ability to easily extract the necessary data. So, although the law does not say "use the *cloud*", indirectly the new procedures are pushing them towards more modern software that is easier to connect to tax administration portals.

**Personal Data Protection Act and Regulations on the Transfer of Data Across Borders:** This is a sensitive area. Accounting data contains personal information (about employees, directors, sometimes about clients – e.g. personal identification number, salaries, transactions), so they are subject to the Law on Personal Data Protection of BiH. This law (which was modeled on the old EU directive, not fully GDPR) stipulates that personal data can only be transferred to other countries if those countries have an adequate level of protection or if there is a person's consent or other justified grounds. Cloud providers can have servers outside of BiH – say in the EU or the US. The question arises whether a company is allowed to bring a database with personal data of employees to the cloud, which is, for example, in Germany? Formally, Germany has an adequate level of protection (as an EU member under the GDPR), so that's probably fine, but the procedure requires the company to notify data subjects and possibly sign standard contractual clauses with the provider. Few of the SMEs in BiH are familiar with these details, so this legal uncertainty discourages the adoption of cloud solutions.

**Jurisdiction and dispute resolution:** If there was a dispute with *a cloud* provider – say, loss of data or service interruption that caused damage – the question arises: which court has jurisdiction, under whose law is it resolved? Most global providers specify a foreign jurisdiction in their contracts (e.g., Irish law for EU customers with Microsoft). For domestic companies, this means the unknown and potentially more difficult to exercise their rights. With local providers, the situation is simpler because contracts can be governed by local law and disputes can be litigated in domestic courts. Again, for most small businesses, this is a theoretical issue

– they won't go into litigation with providers – but psychologically it does have an impact. In the aforementioned survey for the territory of Serbia, 12.4% of respondents cited *legal uncertainty and jurisdiction* as a limiting factor, which confirms that managers also think about these things when evaluating *the cloud*.

**Standards and regulators:** Currently, there is no specific regulation or standard in BiH that directly regulates *cloud* service providers (such as standards in the EU for cloud service providers in the public sector). However, regulators such as the Insurance Supervisory Agency or the RS Banking Agency have given some guidelines to banks and insurance companies regarding the use *of cloud* services – mainly in the sense that they must assess risks, notify the regulator if they keep data outside the company, etc. These guidelines have not been made public in detail, but it is known that highly regulated sectors need to be more cautious. For the real sector, there is no such obligation, but the voluntary adoption of standards (such as ISO 27001 or ITIL for IT services) can help companies gain trust.

In general, the legal framework is not an obstacle that says "you must not go to the cloud", but it is not an incentive either. He is somewhat neutral/conservative – he does not prohibit innovation, but he does not encourage it either. Therefore, companies rely on their own risk assessment. Most will opt for safety as long as they do not receive clear signals to the contrary. One of the signals that could motivate the transition to the *cloud* would be, for example, that the Tax Administration or some authority officially says that it accepts electronic books from the *cloud* system as valid. In some countries, tax administrations have even established their own "mini cloud" systems for connecting to taxpayers' books (e.g. in Italy, the SDI system for e-Invoices). BiH is not yet at that level, but if it goes down that path (e.g. introduces mandatory electronic invoicing, which requires digital systems), the regulatory environment will indirectly enable the development *of the cloud*.

In the meantime, companies are advised to put in order their internal acts regarding electronic bookkeeping and the use of *cloud* services. By doing so, they show attentiveness and try to harmonize themselves with the spirit of the law. For example, an internal rule to download a backup from *the cloud* system to a local disk on a daily basis and store it can be a form of reducing legal risk (because the company always has its own copies of the data).

## 5. Discussion

The analysis of the collected results sheds light on the picture of the slow, but still begun path towards the adoption of cloud accounting in Bosnia and Herzegovina. In this discussion, we look at the key findings critically and put them in a broader context, while identifying the main obstacles and potential for future development.

**Low adoption rate and its causes: Starting point** H1 *has been confirmed* that the level of awareness and use of cloud accounting is low – only about 12% of companies (estimated) use cloud accounting applications. This slowness of adoption is not unusual when it comes to disruptive technologies in conservative industries. Accounting is by nature a cautious profession, prone to proven methods. As an analogy, a similar situation was with the transition from manual (paper) accounting to computers a few decades ago – it took time for most companies to dare to take this step. Today, *the cloud is* this new paradigm whose benefits are understood by only a minority of "early adopters".

The main causes of poor adoption, according to the research conducted, can be grouped as follows:

**Lack of knowledge and resistance to change:** Many businesses simply aren't knowledgeable enough about what *cloud* accounting is or what it would bring them. Without clear information, inertia prevails – "it's better to stay on your proven software". This resistance is often reinforced by the fear of complications if they change the system (fear that the transition will be expensive, time-consuming, or risky). This thesis is supported by the fact that in the Croatian research the hypothesis of insufficient information was substantiated, and the work was completed with recommendations for education. Therefore, the region recognizes that it is necessary to work on raising awareness of the profession. In BiH, we have not yet seen professional initiatives of this type, which leaves most small businesses out of the circle of the informed.

**Security and legal fears:** H3 confirms that safety concerns and ambiguities around regulation are key obstacles. Companies are primarily concerned about data protection (confidentiality and integrity), and they are additionally concerned about compliance with regulations. This psychological-legal barrier is highly pronounced – literary and empirical evidence is consistent in this (over 40% of experts do not trust *cloud* data, ~19% in Serbia cited security as a barrier, etc.). Interestingly, global studies also note similar trends: e.g. research by Rao et al. (2018) points out the lack of security of financial data in the cloud as one of the disadvantages, and that many accountants are not aware of the advantages and do not use them. This points to the universality of these concerns, but also to the fact that with the passage of time and education, these fears can be reduced (because in countries where *the cloud* is mainstream, trust is higher).

**Perception of costs:** Although we have stated that the cloud can be profitable, some companies (especially smaller ones) still perceive the cloud as an "additional cost" that they do not absolutely need. This is also somewhat related to the lack of knowledge – they do not see the whole *cost-benefit* picture. In a discussion with accountants, one often hears the argument: "We are small, it is not worth it for us to pay monthly, it is easier for us to have our program that we once bought." Such an attitude ignores some hidden costs, but it is understandable from the point of view *of cash-flow of a small business. Especially accounting agencies that work with small margins can be sensitive to any new expense. This is a challenge for both the economic model of the cloud offer* (perhaps more flexible pricing for micro-companies is needed) and the communication of values.

**Potentials and positive developments:** On the other hand, significant potentials that cloud accounting can realize have been identified, which supports *H2* that the benefits are significant. These potentials are already visible in companies that have implemented the cloud: they cite better cost management, greater efficiency and flexibility. Globally, there is evidence that cloud technologies are increasing the quality of financial reporting and the speed of operations. In our country, we do not yet have quantitative research dedicated to the outcomes of cloud accounting implementation (because there are too few implementations for any serious statistics), but the qualitative information from the pioneers is positive. Several informal case studies (internally from IT firms) show that companies

that have introduced a cloud solution in accounting receive reports faster and coordinate work between departments more easily. Also, savings are generated through a reduced volume of routine activities (e.g. automatic updating of exchange rates, integration with banks reduces manual entry of statements, etc.).

**Digital transformation – cloud as a catalyst:** Cloud accounting should also be viewed in the broader context of the digital transformation of BiH companies. The findings of Jerković et al. (2024) are very relevant – they indicate that companies are aware of the importance of digitalization, but that they are at the beginning of the process and that there is a gap between awareness and implementation. Cloud accounting can be one of the first steps in a more serious transformation of business, as it directly affects the "backbone" of the financial system. In discussions with practitioners, it is mentioned that the transition to cloud accounting often entails other innovations – e.g. after that, they introduce a management documentation system, then digital signatures, etc. Thus, it has a multiplier effect: when a company overcomes one threshold of innovation, it is easier to adopt others. With BiH businesses generally lagging behind the EU in adopting digital technologies (on average, 35% of small businesses in the Western Balkans have adopted some digital technologies, compared to 55% in the EU), accelerating the adoption of cloud accounting could serve as a driver to narrow this gap.

**Regional comparison:** In terms of the level of adoption of *cloud* services (20.7% of companies), BiH is roughly in the range of the Balkan average in 2023, perhaps slightly below (e.g. in 2022, Serbia reported about 24% of companies on the cloud, according to Eurostat data, while Croatia was closer to 40% because it is an EU member and influenced by the EU Digital Agenda). These numbers put BiH significantly behind the most technologically advanced EU countries (e.g. Finland ~78%, Sweden ~72%). This means that there is a risk that BiH companies will lose their competitive advantage if they are slower to adopt new technologies. Companies that operate internationally, in particular, could feel pressure from partners to accelerate digitalization. The positive thing is that the problems identified in BiH (security, cost, ignorance) are the same problems that other countries have encountered, and there are known solutions to them (education, regulatory guidelines, financial incentives, etc.).

Hypotheses – verification through discussion:

H1 (low awareness): Fully confirmed. We have seen concrete indicators (low usage, lack of publications, resistance of the profession) that indicate a lack of awareness. Also, external sources support the H1 hypothesis (the Croatian hypothesis of accountants' lack of information also applies to BiH in essence).

*H2 (significant benefits):* Confirmed qualitatively. The advantages are consensually recognized in the literature and by those who have tried: lower costs, accessibility, flexibility – all of this has proven to be true in the BiH context (e.g. through examples of savings, through facilitating work in a pandemic, etc.).

*H3 (Barriers: Safety, Knowledge, Legislation):* Also confirmed. All three major barriers in the hypothesis emerged through the analysis as key braking points. Security is an important topic, ignorance/inertia goes hand in hand with it, and the legal framework adds another layer of insecurity. These factors are exactly those identified by our neighbors (and findings such as those 19.4% certainty, 17.2% ignorance, 12.4% laws from Serbia coincide with our qualitative observations).

*H4 (necessity of support to increase usage):* This hypothesis was actually a recommendation in the announcement – and the discussion leads it to the conclusion that indeed, without coordinated action (education, promotion, adaptation of regulations) there will be no dramatic increase in cloud accounting by itself. Businesses generally won't make the leap on their own as the risks outweigh the perceived benefits. The experience of other technologies says that fractures often came due to an external factor (either regulatory or market).

**Obstacles and how to address them – a critical review:** Based on the findings, we can summarize the main obstacles: (1) psychological-informational (ignorance, resistance, lack of trust), (2) security-technological (fears for data), (3) financial (perceived cost), (4) regulatory (legal ambiguity). All these factors are interrelated and reinforce each other. For example, ignorance intensifies excessive fear of security, legal ambiguity intensifies lack of trust, and so on. This is the classic picture of the "innovation threshold": one has to make an extra effort to get over the threshold, and then a lot of benefits open up on the other side, which then in turn convince the backlog of the population to follow. Right now, I think I'm still on the doorstep or on it. The pioneers have crossed, most are standing and waiting. In order to encourage them, it is necessary to combine measures – educational, demonstrative, regulatory and economic.

A critical review also requires us to look at whether there is a specificity of BiH that makes the transition to the cloud more difficult compared to, for example, the EU. One factor is that BiH still does not have the pressure of EU directives that often force digitalization (such as mandatory e-Invoices, eArchives, etc.). EU countries had to introduce standards, so companies had to comply. I'm going to slow down because there's no pressure. This means that the process depends on internal drivers, which are weaker. On the other hand, it can also be an opportunity – BiH can "skip" some phases and adopt the most modern solutions directly (the so-called leapfrogging), if the process is managed wisely. For example, when it introduces mandatory e-Invoicing (which is inevitable at some point due to EU integration), it can simultaneously promote cloud platforms for the exchange of invoices. This combination of policies can also be rapidly promoted by *cloud* accounting.

**Role of the community of accountants and auditors:** It is important to mention the role of the community of accountants and auditors. In BiH, professional bodies (the Association of Accountants, the Association of Accountants, etc.) have not talked much about the cloud so far. Their seminars are often focused on new reporting standards, taxes, etc., while IT innovations are not in the center. Mild criticism can also be made here – the profession should look ahead and prepare its members for new technologies. If this is not done, there will be a generational gap: young cadres will advocate the cloud, older ones will protest and tension will arise. It is better to take a proactive approach and inform all generations. In discussions with members of the profession (informally), one gets the impression that some have not heard much about cloud accounting; So it's not a *mainstream* topic yet. This needs to be changed in order to speed up the transition.

**Positive signs**: Despite everything, there are signs of a shift for the better that are worth emphasizing:

- The very fact that 20% of companies use some *cloud* services means that the user base exists and grows (in 2018 it was maybe 10%, now 20%, and the trend is likely to continue).
- The IT sector of BiH is quite developed and exports a lot – they are natural ambassadors of the cloud, and as they work for external clients, they transfer knowledge locally as well. There are more and more *start-ups* and tech enthusiasts who promote the use of SaaS solutions for everyone, including finance.
- The younger generation of managers who take over companies have greater trust in digital services (they are used to online banking, cloud storage such as Dropbox, etc.), so it will be easier for them to entrust business applications to the cloud. As the demographics of management progress, the cloud will be more present in BiH companies.
- Some domestic success stories (which need to be highlighted publicly) can serve as milestones. For example, if a large domestic company announced that it had completely switched to cloud ERP/accounting and that it had improved the business, many would notice it. Currently, little is known about such examples because they may be happening internally without publicity.

In short, BiH is in a situation of "slow awakening" in terms of cloud accounting – the obstacles are real, but overcome in other environments, which gives hope that it is possible here as well. The discussion confirms that the identified problems are addressable through well-designed measures. The key is to bridge *the trust gap*. Once trust is established (through education, evidence, standards), the transition to the cloud could go much faster because the real benefits are considerable.

## 6. Reference

Based on the analysis and identified challenges, the following are recommendations aimed at the main interest groups: *business entities (companies), institutions (state authorities, regulators, education sector) and the IT sector and solution providers*. The implementation of these recommendations could accelerate the adoption of cloud accounting in BiH and ensure that risks are minimized while maximizing benefits.

**For companies (business sector):**

- **Education and internal capacity building:** Companies should actively educate their staff (especially CFOs and accountants) on modern technologies. This includes sending staff to seminars, following professional literature and informing about examples of good practice. Investing in the digital skills of accounting staff is crucial – this reduces resistance to new systems. Research recommends that businesses invest in accounting automation and train staff effectively for better productivity. So BH. Businesses need to plan trainings on how to use cloud software and manage data security in the cloud.
- **Gradual migration ("step-by-step" approach):** Instead of delaying modernization, enterprises can implement pilot projects. A phased approach is recommended – e.g. first transfer auxiliary records or test *cloud* software in parallel with the existing one, before a complete switchover. This reduces fear, because the company can try the solution without much risk. The positive outcome of the pilot project will facilitate the decision on wider implementation.
- **Cost-benefit analysis (business case):** Management is advised to make an honest calculation of the current costs of the accounting function (including the "hidden" costs of IT maintenance, loss of time, paper, etc.) and compare them with the costs of *the cloud* option. Often, such an analysis will show that *the cloud* It is not more expensive, maybe even cheaper. If it turns out that the costs are there, the qualitative benefits (flexibility, faster reporting) that *the cloud* brings as an added value should also be taken into account. An objective analysis will dispel many prejudices.
- **Ensuring Data Integrity and Backup Strategy**: Before making the switch, the company should establish internal procedures for data security. A hybrid backup strategy is recommended – although the data will be in the cloud and safe there, it is also good to make occasional local copies of key reports or databases (in case of a complete internet outage, etc.). This is more for a sense of security than a real need, but it can help management and employees feel more comfortable knowing that they have their data available at all times.
- **Communication with partners and clients:** If a company introduces *cloud* accounting, it should also encourage its business partners (customers, suppliers) to get involved, e.g. through the exchange of e-invoices and the use of client portals if there is one. The more the value chain is digitized, the higher the return on investment will be. An example is an accounting agency that uses the cloud – it can offer clients interactive access to reports online, thus improving the service and connecting clients to themselves.
- **Contractual quality assurance of service:** When choosing a *cloud* provider, companies should insist on signing a contract that contains an SLA (Service Level Agreement) – a guarantee of service availability, level of support, data protection, etc. The contract should also specify issues of confidentiality and ownership of the data (that the data remains the property of the company, that the provider may not share it with third parties, etc.). Also, it is a good idea to agree on clauses on conduct in the event of a dispute or termination of cooperation – e.g. that the provider ensures the export of all data in a readable format if the company decides to terminate the contract. These measures protect the company and increase the confidence of management to hold the strings in their hands.

**For government institutions, regulatory bodies and the education sector:**

- **Drafting guidelines and adapting regulations:** Competent ministries and associations for accounting and auditing should develop official guidelines on the use *of cloud* services in accounting. This can be a document explaining how for the company to ensure compliance with the Accounting Act when using the *cloud* (e.g., how to keep records of electronic documents, how to guarantee availability for auditing, etc.). Also, it is desirable to introduce clearer provisions into laws or regulations – e.g. define that financial data managed through *cloud* software are as valid as those on the local one, provided that certain technical standards are met. This would remove doubts from the lawyers in the company. Regulators should

work with IT experts to define minimum security requirements for *the cloud* (encryption, backup, data location) and recommend that businesses use providers that meet them.

- **Incentives for the digitalization of SMEs:** Governments and development agencies could consider financial incentives for small and medium-sized businesses to adopt cloud and related technologies. This could be through grants or tax breaks for the introduction of information systems. For example, one model is to co-finance the purchase of *cloud* services for the first year of use, in order to reduce the burden of transition. Similar programs have been implemented by some EU countries through digital vouchers. For BiH SMEs (who often feel that they "don't have the money for it"), such an incentive could be decisive for them to embark on modernization. The cost to the state is relatively small compared to the long-term benefits of a more modern economy.

- **E-Invoicing and e-Archive Initiative:** Institutions should accelerate the establishment of e-invoicing and e-archive infrastructure. As neighboring countries introduce mandatory e-invoices, BiH should not lag behind. Introducing an obligation to exchange invoices and supporting documents in electronic format (at least in the B2G sector to begin with) would create a huge push effect: companies would have to either upgrade existing software or adopt *cloud* solutions that make this possible. This indirectly encourages cloud accounting, as most *cloud* systems have integrated support for e-invoices. In addition to e-invoices, electronic storage of documentation should also be standardized – e.g. prescribe standards for digital archives that companies can apply instead of storing paper. If the law made it clear that scanned documents on a secure server are considered trustworthy, many companies would consider switching to *a cloud-based* document management system (DMS) as part of their finances.

- **Incorporating cloud topics into educational curricula:** Higher education institutions (business faculties, business schools) and accountant certification programs should update their curricula and include digital accounting as a topic. Students and future professionals need to be provided with knowledge about *cloud* accounting, the benefits and risks, in order to be ready to enter the labor market. Some faculties in the region have already begun to introduce courses such as "Accounting in the Cloud" or at least cover this topic as part of AIS (Accounting Information Systems) courses. It would also be useful to organize competitions or projects in which students simulate the introduction *of cloud* solutions in fictional companies – to gain a practical feeling. With these measures, a new generation of accountants will become advocates rather than opponents of *cloud* services.

- **Monitoring and statistics:** Institutions (such as the statistical agency) should continue and expand the monitoring of digitalization indicators. In particular, it would be useful to keep track of what percentage of companies are using cloud-specific accounting software. If the survey questions are adjusted a bit, we could get a more accurate insight into the adoption of the cloud in the financial function, rather than just the generic cloud. This data would help in policy-making – e.g. if we see stagnation, we will know that we need to change our approach. Also, monitoring user satisfaction (surveys on what users see as the biggest problem) could be done through cooperation with business associations.

**For the IT sector and cloud solution providers:**

- **Offer improvement and localization:** Software providers should ensure that their solutions are maximally adapted to the domestic market – this means localization of language, adjustment of tax rates, reports according to local regulations. Most regional providers do this (e.g. Pantheon has all the local reports), but the global one may not (so it is unlikely that a small BiH company will take a global solution that does not have an excerpt in KM format). More local and *user-friendly* solutions give a greater chance that they will be accepted by those who are less IT savvy.

- **Security certifications and transparency:** Cloud providers need to work on trust – and the way to do that is through transparency and certification. It is recommended that domestic data centers and services acquire relevant security certifications (npr. ISO/IEC 27001 for information security, ISO/IEC 27701 for privacy, perhaps even ISAE 3402 report for cloud services for audit purposes). Such certificates have a reassuring effect on clients because a third party verifies that the provider has things under control. Additionally, providers should communicate their security measures publicly, have clear privacy policies, and be prepared to answer customer questions about "where is my data and who can access it." This also includes the ability for clients to carry out their audits (within reasonable limits).

- **Demo projects and case studies:** IT companies, together with selected clients, can make case studies of successful implementation and publish them (with the client's consent). For example, "Company X switched to our cloud system and reduced the monthly closing time by 30% in a year, saved XY KM and improved the accuracy of data – CEO statements, etc.". Such stories, published in business magazines or presented at gatherings, have a strong impact on colleagues from other firms. This is no longer a theory, but a concrete example of "if they could and are satisfied, maybe we should too".

- **Free trials and consulting:** Providers should offer a long enough trial period (30 or 60 days) for potential users, with perhaps support in the form of test data or tutorials, to experience working in the cloud. They could also offer transition consulting services – practically, to help the company analyze their processes and map them to the *cloud* solution. Many companies are afraid of switching because they don't know how to migrate data and people – if the provider comes up with a plan and holds their hand in the process, the fear is reduced.

- **Security options for clients:** Additionally, providers may offer clients specific options that increase the sense of security. For example, the ability *to encrypt* (encrypt) particularly sensitive data with a client key – so that even the provider cannot read, say, the salaries of employees. Or give the option of geographically limited storage (e.g. the client can choose "store my data only in the Computer Center in Sarajevo"). Of course, it depends on the possibilities, but since often the barriers are psychological, sometimes placebo functions can help.

- **Cooperation with institutions and standardization:** The IT sector should be actively involved in dialogue with the government and the profession. Through associations (such as the Bit Alliance or others), they can advocate for standards and a more favorable environment. They can also offer professional assistance in drafting regulatory guidelines. They know best what is practical, so their participation ensures that regulations are realistic and technologically neutral.

- **Marketing focused on problem solutions:** Instead of generic slogans, marketing cloud services should address specific customer concerns. For example: an ad that says "Your data is safer in our cloud than in your drawer – here's why:" and states the facts (24/7 monitoring, three copies, etc.), or "You don't have a new server? No problem, rent ours and save X KM a year." – thus, addressing exactly those points of the problem that have been identified.

The implementation of these recommendations should be a joint effort. Synergy gives the best results: e.g. if institutions organise a campaign to subsidise the digitalisation of SMEs, providers can bundle special offers and trainings, and professional associations promote this to their members – so the effect of "everyone is talking about it and everyone is offering something, let's try it" effect is created.

Of course, companies themselves must internally break that innovation is part of their survival and growth. In a fast-paced world, those who stagnate are actually regressing. Cloud accounting is an opportunity for a finance function, often seen as "conservative", to show that it can also be an innovator in business.

## 7. Conclusion

**Summary of findings:** In this paper, we explored the use of cloud accounting in Bosnia and Herzegovina, relying on the available literature, statistical data and experiences from the environment. The results confirmed the initial thesis that BiH is in the early stages of adopting this technology – awareness of cloud accounting is just beginning to spread, and practical application is so far limited to the pioneering part of companies. We have identified the main reasons for this situation: insufficient information and education of users, concerns about data security and confidentiality, uncertainty about compliance with regulations, and inertia in changing established business practices. At the same time, the analysis has shown that cloud accounting brings measurable and immeasurable benefits – from cost reduction and a higher level of efficiency, to greater flexibility in work and faster decision-making – which has been confirmed by the experience of other countries and initial domestic examples. The technical prerequisites (infrastructure and available solutions) in BiH are mostly met, which means that the majority of obstacles are in the domain of people and policies, not technology.

**Hypothesis testing:** All hypotheses are largely confirmed by the evidence collected. The hypothesis of low information (H1) is reflected in the fact that the vast majority of companies do not yet use *cloud* accounting and that there is a certain skepticism, supported by the lack of widely available information and education on the subject. The hypothesis of the advantages of *the cloud* approach (H2) is illustrated through several aspects: financial savings, increased availability and agility, and system resilience – all these benefits are realistic and in line with global findings. The hypothesis (H3), which cited security, trust, ignorance and regulation as the main barriers, proved to be fully justified; Our results mapped these points as the key problems of slow adoption. Finally, H4 – that increased use requires coordinated support and change – was confirmed in the discussion and recommendations: it is clear that the spontaneous market is moving slowly, and that targeted actions by all actors (companies, government, IT sector) are needed to speed up and facilitate the transition.

**Research limitations:** This paper faced the limited availability of BiH-specific primary data. We had to resort to analogies from the neighborhood and general studies on *cloud* computing to fill in the gaps. This somewhat limits the precision of the conclusions exclusively for BiH – for example, we did not have a domestic survey of accountants to quantify their opinion, but we assumed similarity with Croatian and Serbian colleagues. While these assumptions are logical, future research should collect direct data in BiH (by surveying companies of all sizes about their use and attitudes towards *cloud* accounting) for more accurate insights. Also, the lack of time and resources prevented a deeper economic analysis (e.g. calculating the ROI for moving to the *cloud* on a specific example) – this would be a useful complement that is missing here. Nevertheless, we believe that qualitative findings and a synthesis of literary sources credibly depict the current state and trends.

**Suggestions for future research:** A number of questions arise for further research. First, it would be necessary to conduct empirical research among BH. companies (e.g. a survey or case studies) in order to confirm and quantify the conclusions presented here – what exactly is the level of trust, what are the biggest obstacles from their perspective, under what conditions they would move to *the cloud*, etc. Secondly, it would be interesting to explore the perspective of accounting agencies in particular: they are intermediaries for many SMEs and their attitude towards *the cloud* Accounting could have a significant impact on wider acceptance (whether agencies are planning a transition and how they see that transition). Third, it is necessary to monitor the effects of recommendations and policies – if some of the recommended measures are implemented (for example, incentives or regulatory guidelines), it would be worth measuring whether there is an increase in the adoption of *cloud* services and whether certain obstacles have been removed. This would create a feedback loop between research and practice. Finally, in terms of technology, it would be interesting to explore the possibilities of combining cloud accounting with other innovations (such as blockchain to validate transactions, or the application of artificial intelligence in the analysis of financial data in the cloud). I'd like to be able to find a niche for faster progress.

**Final word:** Cloud accounting is no longer a question of the distant future – it is a reality that is becoming a standard in the world. For BiH, accepting this trend means not only the modernization of a business function, but also a step towards the general digital transformation of society. Companies that adopt new models of work in time will be able to react faster to market changes, reduce costs and be more competitive in both domestic and foreign markets. Of course, the transition should be done thoughtfully – addressing security and other risks – but with the joint effort of the profession, the IT industry and institutions, these risks are solvable. The digital future of accounting in BiH certainly includes *the cloud*; the only question is how soon we will embrace that future. As one report states: "Businesses need to embrace

modern technology trends to improve the quality of their financial statements" – this applies entirely to our context as well. We hope that the findings of this paper will contribute to a better understanding of cloud accounting and encourage concrete steps towards its wider application, which would empower the accounting profession in BiH for the challenges of the digital age.

## Literature (sources):


1. Agency for Statistics of BiH – "Use of Information and Communication for Statistics of BiH – "Use of Information Technologies in BiH, 2023" – statistical bulletin (IKT_00_2023), data on the use of *cloud* services.
2. Agency and Communication Technologies in BiH, 2024" – statistical bulletin (IKT_00_2024), data on the use internet.
3. Jerković, D. et al. (2024) – "Digital Transformation in BiH Enterprises: Analysis of the Degree of Integration and Impact on Business", Economy and Market Communication Review, Vol. XIV No.1 – findings on the disparity in the level of digitalization and the attitude towards the importance of digital transformation.
4. Kozar, A. et al. (2016) – "Cloud Computing and Outsourcing in Bosnia and Herzegovina and the World", International Journal of Engineering Research & Technology, Vol.5 Issue 12 – research on outsourcing and *cloud* computing in BiH (survey among 56 companies), conclusions on the percentage of companies on the cloud and the reasons (savings and agility vs. security).
5. NIST SP 800-145 (Mell & Grance, 2011) – *"The NIST Definition of Cloud Computing"* – official definition *Cloud* Computing .
6. Christauskas, Č. & Miseviciene, R. (2012) – *"Cloud computing-based accounting for small to medium-sized business"*, Engineering Economics 23(1):14-21 – Definition *Cloud* Accounting .
7. Novak, A. & Zvonar, A. (2015) – *"Accounting in the cloud – information and risk perception in the Republic of Croatia"* (final thesis) – research in Croatia, hypothesis of accountants not being informed and survey results (e.g. 44% would not entrust data to the cloud).
8. Vićentijević, K. et al. (2015) – "The use of cloud accounting in relation to traditional accounting in the Republic of Serbia", conference Synthesis 2015 – contains data from the RZS of Serbia (3.8% adoption in 2014) and identification of obstacles: price 21.5%, security 19.4%, ignorance 17.2%, legal uncertainty 12.4%.
9. Kinkela, K. (2013) – *"Accounting in the Cloud"*, paper – lists security and availability issues as the main challenges of *cloud* technology.
10. Rao, A. et al. (2018) – cited in: Okeke, et al. (2022) *"Effect of Cloud Accounting on Financial Information Quality..."*, IJRISS – points out that many accountants are not aware of the benefits *of cloud* accounting and that the lack of data security is a disadvantage.
11. Armbrust, M. et al. (2009) – *"Above the Clouds: A Berkeley View of Cloud Computing"* – general about the development *of the cloud* (mentions the great role of data centers) – a reference for the development *of the cloud* concept.
12. Al-Zoubi, A. (2017), Gupta & Gaur (2018), Haslinda et al. (2017) – various studies (mentioned in the IJRISS paper) that confirm the benefits *of cloud* accounting in large firms and cost savings (Sekar & Maniatis 2011 – OPEX and CAPEX savings).
13. Eurostat / EU Digital Scoreboard (2023) – statistics: 45.2% of companies in the EU use *cloud* services.
14. Deloitte (2012) – *"The Cloud and Outsourcing: The New World Awaits"* – global survey: ~30% of companies are using *the cloud* in 2012, 38% are planning, 6% are not intending (shows a growing trend).
15. Reference legislative documents: Law on Accounting and Auditing of FBiH (Official Gazette of FBiH 15/21), Law on Personal Data Protection of BiH (Official Gazette of BiH 49/06, 76/11), etc. – used to understand regulations (no direct quotes, but interpretations).
16. Professional articles: Kristić, S. (2021) – "New Accounting Act – Newspaper" (rec.ba webinar material); EFTA.ba (2018) – "Documentation retention periods" – a reminder of legal deadlines (11 years for book documents) – implies the importance of archiving.
17. Microsoft & Oracle case studies – (implicitly) examples of large systems (no citations, just a framework for global practice).
18. Effect of Cloud Accounting on Financial Information Quality of Selected Firms in Nigeria - International Journal of Research and Innovation in Social Science https://rsisinternational.org/journals/ijriss/articles/effect-of-cloud-accounting-on-financial-information-quality-of-selected-firms-in-nigeria/
19. Lukić, K. (2016) Cloud Accounting in the Republic of Croatia, *Finiz*, Faculty of Economics in Osjek, Osjek.
20. Public Cloud Market Size & Share | Industry Report, 2030 https://www.grandviewresearch.com/industry-analysis/public-cloud-market
21. Cloud computing | Shaping Europe's digital future - European Union
22. NIST SP 800-145, The NIST Definition of Cloud Computing https://nvlpubs.nist.gov/nistpubs/legacy/sp/nistspecialpublication800-145.pdf
23. https://digital-strategy.ec.europa.eu/en/policies/cloud-computing
24. https://emc-review.com/Pages%20from%20EMC%20-%20godina%20XIV_broj%201 %20WEB-8.pdf