
Identifying difficulties encountered by the accounting profession in accessing documents, in the digital economy context of Romania

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Abstract

The present study is a qualitative and quantitative exploratory research, aiming to identify the difficulties of documenting the engagements specific to the accounting profession, in the context of the digital economy in Romania. To this purpose, we performed a questionnaire-based survey among 300 accounting professionals. The results of the study show that, at global level, in the current development study of the digital economy from Romania, accessing accounting documents, with the purpose of their use within engagements of the accounting professionals, is a major problem, from three perspectives. As such, 73.98% of the accounting professionals confirm, through their answers, that they faced the lack and/or the impossibility to obtain accounting data, while performing specific engagements, while 69.92% link the access issue with the lack of or the restricted interaction with/access to data, which are managed by means of old or new accounting information systems. As a direct consequence of the two difficulties, revealed by our study, it results that 63.41% of the questioned accountants consider that the accounting data provided by their clients have a low level of consistency and trust. The originality of the study is granted by approaching the topic in the current circumstances of the digital economy and increased use of cloud accounting, which will call the attention of both the accounting profession, and the beneficiaries of accounting data and information, or even developers of specific software.

Keywords: Cloud, accounting profession, digital accounting, digital economy

JEL Classification: M40

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Introduction

The recent requirements of the users of financial and accounting data press the accounting profession from Romania, as well, to cross a vast transition process, motivated by the assimilation, as working tools, of the new types of information and communication technology (IT).

If the ancient nations from the Middle East used even about 10,000 years ago a processing system of data related to their economic life, based on encrusted bone or stone (Chatfield, 1977) the accounting, as a fundamental instrument of the digital economy, is currently trying to include all its activities and/or processes in an integrated environment, through modern technologies like: big data, cloud-computing, data mining etc. (Năstase and Caia, 2015; Vasarhelyi, Kogan and Tuttle, 2015). In this logic, it's easy to see that, along the accounting evolution, the accounting measuring and booking methods have been diverse and dependent on a *material (technological) support*, that defined a technological bow in time, from the material support of bone or stone encrustations, clay tablets and papyrus, to the accounting books on paper (Capron, 1994), and further to the *virtual support*, through the dematerialization of the accounting records from the cybernetic era, as a consequence of electronic information processing and its storage in *cloud*.

All these technological developments from the economic and social life left a distinct mark on the accounting profession of the last decade, whose direct effect was the adoption of a new paradigm in the accounting organization, totally dependent on technology. Hence, while the specific literature (Țugui and Gheorghe, 2014) provides studies promoting the idea that accounting professionals want a change of the accounting paradigm in the context of cloud computing, other researchers (Ionescu, Prichici and Tudoran, 2014) complement the previous statement by explaining that accounting professionals must in their turn change their professional behaviour, by embedding new information technologies in the accounting informational system and re-focusing on analysis and consultancy, in accordance with the role they play.

In the above described context, through the present paper we aim to identify the main difficulties encountered by accounting professionals while performing specific engagements, related to accessing

accounting documents in the current digitization stage of the informational flows, in the Romanian digital economy.

1. The digital context

During the last 20 years, the *digital economy* has been increasingly more perceptible in our life. Shortly, it can be observed that, in today's economy, the information is involved to a greater extent in the creation of the Gross Domestic Product (GDP), next to the classical three production factors, i.e. labour, land and capital. From the perspective of the doctrine, this omnipresent expression of digitization is called the New Economy. The concept of *digital economy* was born in 1996, in Don Tapscott's paper "*The Digital Economy: Promise and Peril In The Age of Networked Intelligence*" (1996) and is essentially based on the idea of the digital representation, as "1" and "0" sequences, of all the informational flows from the economy.

Through the 1998 Report of the USA Trade Department, entitled "*The Emerging Digital Economy*" (Margherio et. al., 1998), the **digital economy** concept was described as the IT dominated economy, able to contribute to the GDP increase from the following four types of activity:

- the Internet expansion;
- the electronic inter-company trade;
- the digital delivery of goods and services;
- the retail of tangible goods.

In the above described context, the IT field was seen as the "key" of the economic engine, specific to the new digitized economy; this was a matter considered especially by the main countries, through the value of the investments in this sector.

The United Kingdom, as a member of the European Union even since 2008, funded the *digital economy*, by means of *The Research Councils UK* (RCUK – www.rcuk.ac.uk), by allocating over 150 million pounds for the identification of long-term challenges of the digital economy. To this purpose, up to 2012, 25 research topics, were funded and completed by 2,000 doctoral students, belonging to 44 formation centres.

In **Australia**, public consultations on digital economy were organized in three stages, August-September 2008, December 2008 and April 2009, leading to the definition of the concept in the light of the public interest

and the launching of a digital investment plan of 43 billion dollars, for the creation of the National Broadband Network. Its goal was the simultaneous coverage of rural and urban areas and the optical fibre connection to Internet for 90% of the homes, schools and public spaces (Anon., 2012).

In **Canada**, based on public debates organized between May-July 2010, the Federal Government summarized the directions which should be supported (Government of Canada, 2014) for increasing the quality of life in the context of the *digital economy*:

- The capacity to innovate, using digital technologies;
- The construction of a world-class type infrastructure;
- The growth of the ICT sector;
- The increase of the Canadian digital content in the digital environment;
- The creation of digital qualifications for the future.

May 2010 meant the launching, at the level of the **European Union** (EU), of the *Digital Agenda*, with a target horizon up to 2020 (European Commission, n.d.). Essentially, the Digital Agenda is a synthesis of the European Commission Strategy on the use of ICT for economic growth. Starting with 2012, at the level of the European Commission, the Digital Agenda has been directed to five concrete action lines for Europe, i.e. (Kroes, 2012):

- the implementation of cloud services;
- the Internet opening, through legislative liberalization and security assurance;
- the general broadband assurance;
- the stimulation of innovation and entrepreneurship;
- the ICT use for increasing the quality and efficiency of public services.

Romania, as a country with an emergent economy and an EU Member State, has been implementing the activities of the European Digital Agenda through the Ministry of Information Technology and Communication. Concretely, the following sectors of the *economic life* are significantly influenced by digitization: the ERP market (Anis Research, 2011), eHealth (Lita, 2011), eGovernment (EUROSTAT, 2014), eReligion (<http://www.crestinortodox.ro>), Mobile Applications (Agoramedia, 2011), Cloud Computing (EUROSTAT, 2014), eEducation and Social Network and Social Media (Țugui, 2012).

2. The accounting profession in Romania and the digitization phenomenon

The digitization phenomenon of informational flows, as well as of their interaction with the accounting profession (Țugui, 2003), means the expansion of the computer-based accounting technique, the acceptance of increasingly more intelligent technologies in the daily practice and the settling of transactions in virtual environments, up to the „extinction” of the traditional professionals and their replacement with *persons skilled in the processing of data, information and accounting knowledge* (Țugui, 2006).

From this perspective, the Romanian specific literature of the last five years noted aspects with regard to the way in which the accounting profession in Romania will evolve, in the context of its interaction with the *digital economy*. In this line, we observe that the stress is on the idea of the *continuous change of the accounting profession*, by adapting to the technological environment of the digital economy (Toader, 2012), under the pressure of the challenges that the profession must be receptive to, for the purpose of identifying possible solutions (ACCA Report, 2014; Ardeleanu, 2014).

With regard to cloud computing, as a currently fashionable digital technology, the accounting professionals debate the idea that it could complicate the integration process of the accounting information system of a modern company (Ionescu et al., 2014); some question marks connected to the harmonisations between cloud computing and the standards and regulation on auditing and information security might also appear (Bendoveschi and Ionescu, 2015). The matter of informational security in the Romanian digital economy is also perceived when it comes to auditing information systems (Năstase and Caia, 2015; Drăgoi, 2015), as support technologies of the current digital business environment. However, what mainly calls our attention are recent studies (Fotache and Păvăloaia, 2015; Homoceanu and Airinei, 2015) debating the problems surrounding the concrete interaction between digital technology and accounting professionals, in the meaning that the latter are not familiar with the facilities provided by technology.

3. Research methodology

Synthesized, the above literature review shows that the accounting profession is continuously receptive of technology and that the current technological conjunction *requires the accounting profession to keep in line with the technological evolution*. By reviewing the specific literature, we didn't find any concrete studies on the matter of the daily practice problems, related to the easiness or difficulty of accessing the necessary documentation, for performing engagements specific to the accounting profession.

The employed research methodology was of exploratory type, in the meaning that we intend to ascertain the problems faced by the accounting profession while performing specific engagements, with regard to the access to information/documents. Our exploration has both a qualitative and a quantitative character, as the accounting professionals were initially required to qualitatively assess the encountered difficulties, in order for these assessments to subsequently be processed and interpreted by us, from a quantitative perspective. In this context, our research method was the *survey*, while the research *instrument* was the on-line questionnaire, addressed to a *sample* of over 300 accounting professionals from Romania, visible on the Internet (specific sites, doctoral schools). Our intention was to include in the analysed sample those professionals who reached one of the highest accounting profession degrees (CECCAR, 2011; IESBA, 2013), i.e. accounting experts and financial auditors, including professionals

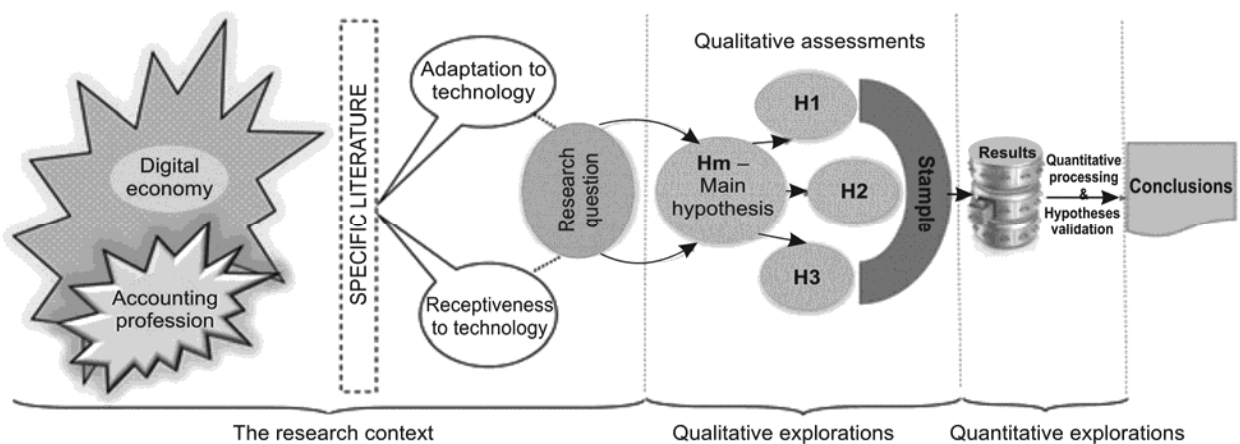
enrolled in master and doctoral programs of the universities of București, Cluj-Napoca, Iași, Timișoara. The other categories of accounting professionals were selected from the public member registers of the Chamber of Financial Auditors of Romania and the Body of Expert and Licensed Accountants of Romania from the counties Alba, Arad, Argeș, Bacău, Bihor, Botoșani, Brăila, Cluj, Iași, Prahova and Galați.

We associated the following **main hypothesis (H_m)** to the above described research question: *In the current development stage of the digital economy in Romania, accessing accounting documents in different formats, with the purpose of their use, is a significant problem for the engagements of accounting professionals.*

In accordance with the main hypothesis (H_m) that needs validation, three secondary hypotheses were itemised, which will be tested separately:

- H1:** *While performing specific engagements, accounting professionals from Romania frequently encounter the lack of accounting data and/or the impossibility to obtain accounting data.*
- H2:** *While performing specific engagements, accounting professionals from Romania frequently have no/a restricted access to data that are managed by means of old or new accounting information systems.*
- H3:** *Within engagements performed by accounting professionals from Romania, there is a perceived low level of consistency of and trust in the accounting data.*

Figure 1. Research model and hypotheses



Source: Own processing.

The validation of the secondary hypotheses will implicitly lead to the validation of the main hypothesis, as well as to a conclusion that will bring clarifications in the field of the research question. Our research model, including the research stages, the research question and the hypotheses to be tested, is illustrated in **Figure 1**.

In order to test the main hypothesis by means of the three secondary hypotheses, we shall consider the perception of most professionals, first with regard to each of the three hypotheses at global level, but also on each professional category. For the hypotheses validation we shall rely on the rule of the absolute majority which, according to the terminology dictionary (DEX, 1998), consists in 50% + 1 from an ensemble, i.e. it is a fraction from a whole, which is greater than its half.

4. Results and discussions

In order to test and validate the hypotheses H1, H2 and H3 we included, in a larger questionnaire, a question which allowed the accounting professionals to select any of the three difficulties they encountered in accessing and using specific documents of the engagements performed at their offices, which were associated by us to each of the three hypotheses. Thus, the accounting professionals could select any of the variants, in any combination, without a prioritization. Following the distribution of the questionnaire per e-mail and the

reception of the responds through Google Drive, we recorded 125 responds and validated 123 of them.

Based on the analysed responds, we ascertained that an accounting professional could hold more than one of the certifications considered by us; as a consequence, we decided to examine them separately, which led to the processing of 172 professional responds, corresponding to 123 physical respondents, with the following structure: financial auditor: 21,51%; expert accountant: 23,84%; tax adviser: 5,81%; PhD (in accounting): 11,63%; accountant: 14,53%; master student (in accounting): 4,65% and doctoral student (in accounting): 18,02%.

The H1 hypothesis – While performing specific engagements, accounting professionals from Romania frequently encounter the lack of accounting data and/or the impossibility to obtain accounting data.

Based on the responses that were received and centralized for **hypothesis 1 (H1)**, the distribution on each category of accounting professionals (see **Table 1**) shows the lack of data and/or the impossibility to obtain data was encountered by 100% of the master students in the field, 40% of the tax advisers, 80% of the PhDs in accounting, 70.27% of the financial auditors, 64% of the accountants, 63.41% of the expert accountants and 61.29% of the doctoral students.

Table 1. Response distribution on each category of accounting professionals, with regard to the “lack of data and/or the impossibility to obtain data”

Accounting profession category	Lack of data and/or impossibility to obtain accounting data						H1 validation on categories
	No. of responses			Percentage (%)			
	Yes	No	Total	Yes	No	Total	>50%
Financial auditor	26	11	37	70.27	29.73	100.00	Yes
Expert accountant	26	15	41	63.41	36.59	100.00	Yes
Tax adviser	4	6	10	40.00	60.00	100.00	No
PhD	16	4	20	80.00	20.00	100.00	Yes
Accountant	16	9	25	64.00	36.00	100.00	Yes
Master student	8	0	8	100.00	0.00	100.00	Yes
Doctoral student	19	12	31	61.29	38.71	100.00	Yes
	115	57	172	66.86	33.14	100.00	Yes

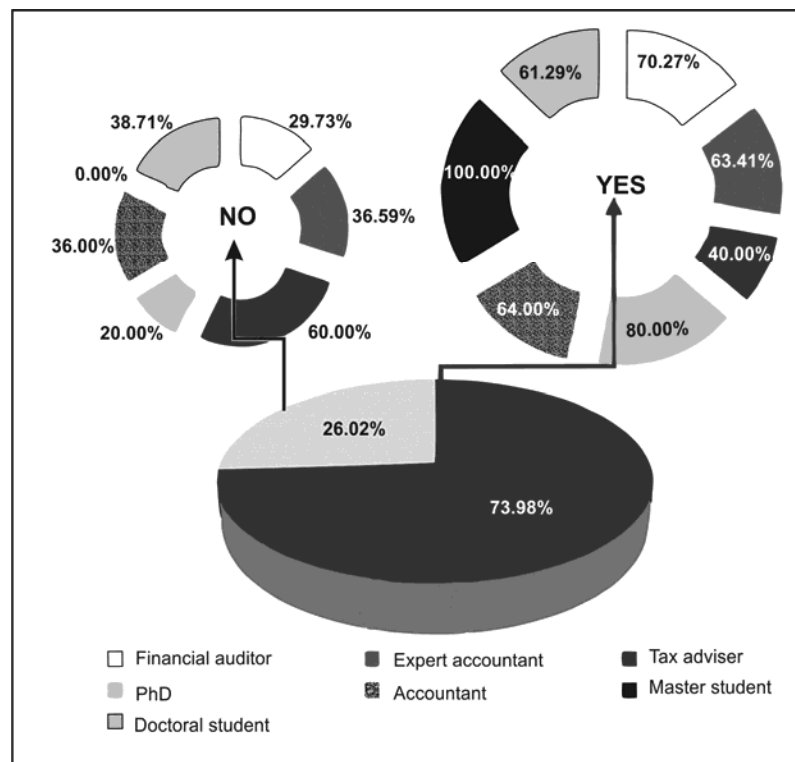
Source: Own processing.

Validation of the H1 hypothesis: In consideration of the principle of absolute majority, we find that *most accounting professionals, with the exception of the tax advisers, experienced frequently the lack of and/or the impossibility to obtain accounting data, while performing their engagements.* On average, for the entire accounting profession, we ascertain that 66.86% of the accounting professionals frequently experienced

the lack of and/or the impossibility to obtain accounting data, while performing their engagements. This hypothesis has been validated both from the perspective of the absolute majority principle and by considering the 123 respondents, who confirmed the frequent encountering of this difficulty, to an extent of 73.98%.

A summary of the H1 validation is illustrated in **Figure 2**.

Figure 2. Response distribution on accounting profession categories, related to to the lack of and/or the impossibility to obtain accounting data



Source: Own processing.

From the perspective of our exploratory research, we find that *the lack of and/or the impossibility to obtain accounting data* is frequently encountered by 73.98% of the accounting professionals from Romania.

The H2 hypothesis – While performing specific engagements, accounting professionals from Romania frequently have no/a restricted access to data that are managed by means of old or new accounting information systems.

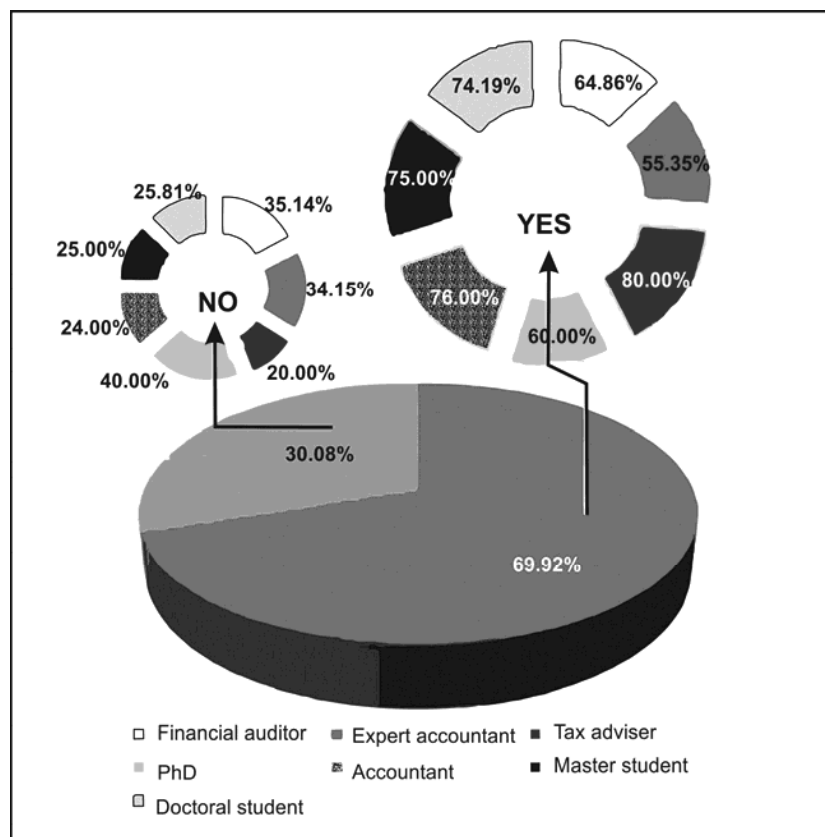
Based on the responses that were received and centralized for hypothesis 2 (H2), the distribution on each category of accounting professionals (see **Table 2**) shows that the lack of/the restricted access to data that are managed by means of old or new accounting information systems was encountered by 80% of the tax advisers, 76% of the accountants, 75% of the master students in the field, 74.19% of the doctoral students, 65.85% of the expert accountants, 64.86% of the financial auditors and 60% of the PhDs in accounting.

Table 2. Response distribution on each category of accounting professionals, with regard to the “the lack of/the restricted access to data that are managed by means of old or new accounting information systems”

Accounting profession category	Lack of/the restricted access to data that are managed by means of old or new accounting information systems						H2 validation on categories
	No. of responses			Percentage (%)			>50%
	Yes	No	Total	Yes	No	Total	
Financial auditor	24	13	37	64.86	35.14	100.00	Yes
Expert accountant	27	14	41	65.85	34.15	100.00	Yes
Tax adviser	8	2	10	80.00	20.00	100.00	Yes
PhD	12	8	20	60.00	40.00	100.00	Yes
Accountant	19	6	25	76.00	24.00	100.00	Yes
Master student	6	2	8	75.00	25.00	100.00	Yes
Doctoral student	23	8	31	74.19	25.81	100.00	Yes
Total professional respondents	119	53	172	69.19	30.81	100.00	Yes

Source: Own processing.

Figure 3. Response distribution on accounting profession categories, related to the lack of/the restricted access to data that are managed by means of old or new accounting information systems



Source: Own processing.

Validation of the H2 hypothesis:

Based on the principle of the absolute majority, we find that *all accounting professionals frequently experienced the lack of/the restricted access to data that are managed by means of old or new accounting information systems*, while performing their engagements. On average, for the entire accounting profession, we ascertain that 69.19% of the accounting professionals frequently encountered the lack of/the restricted access to data that are managed by means of old or new accounting information systems, while performing their engagements.

This hypothesis has been validated both from the perspective of the absolute majority principle and by considering the 123 respondents, who confirmed the frequent encountering of this difficulty, to an extent of 69.92%.

A summary of the H2 validation is illustrated in Figure 3.

From the perspective of our exploratory research, we find that the lack of/the restricted access to data that are managed by means of old or new accounting information systems, while performing their engagement, is frequently encountered by 69.92% of the accounting professionals from Romania.

The H3 hypothesis – Within engagements performed by accounting professionals from Romania, the perceived level of consistency and trust in the accounting data is low.

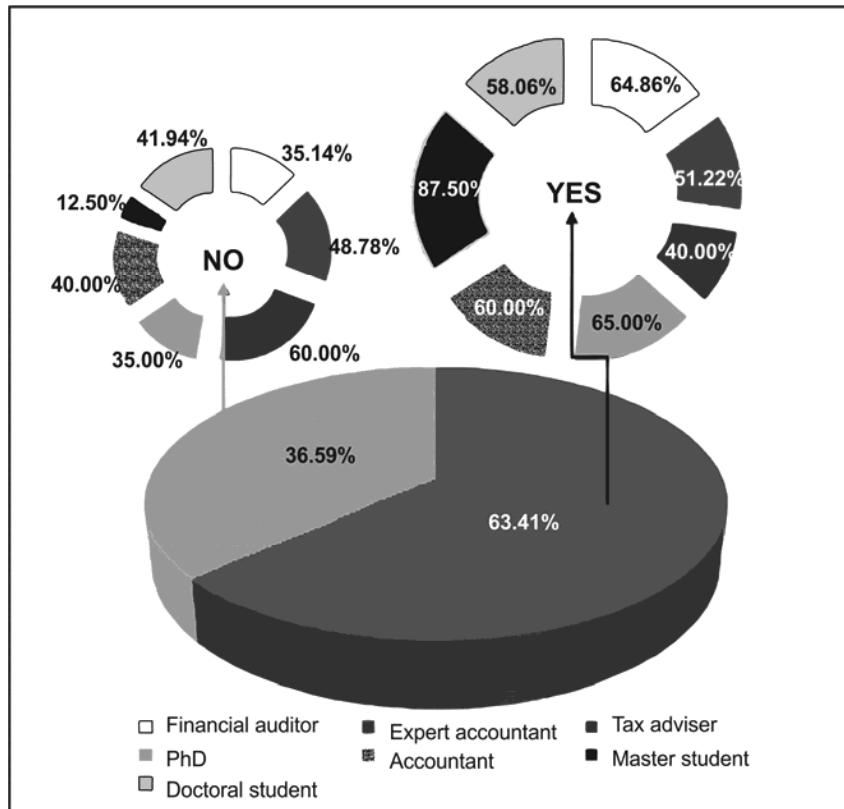
Based on the responses that were received and centralized for hypothesis 3 (H3), the distribution on each category of accounting professionals (see Table 3) shows that the low level of consistency and trust in accounting data was experienced by 87.50% of the master students in the field; 65% of the PhDs in accounting; 64.86% of the financial auditors; 60% of the accountants; 58.06% of the doctoral students; 51.22% of the expert accountants and 40% of the tax advisers.

Table 3. Response distribution on each category of accounting professionals, with regard to the “low level of consistency and trust in accounting data”

Accounting profession category	Low level of consistency and trust in accounting data						H3 validation on categories
	No. of responses			Percentage (%)			
	Yes	No	Total	Yes	No	Total	>50%
Financial auditor	24	13	37	64.86	35.14	100.00	Yes
Expert accountant	21	20	41	51.22	48.78	100.00	Yes
Tax adviser	4	6	10	40.00	60.00	100.00	No
PhD	13	7	20	65.00	35.00	100.00	Yes
Accountant	15	10	25	60.00	40.00	100.00	Yes
Master student	7	1	8	87.50	12.50	100.00	Yes
Doctoral student	18	13	31	58.06	41.94	100.00	Yes
Total professional respondents	102	70	172	59.30	40.70	100.00	Yes

Source: Own processing

Figure 4. Response distribution on accounting profession categories, related to the low level of consistency and trust in accounting data



Source: Own processing.

Validation of the H3 hypothesis

Based on the principle of the absolute majority, we find that *most of the accounting professionals, with the exception of the tax advisers, frequently experienced a low level of consistency and trust in accounting data, while performing their engagements.* On average, for the entire accounting profession, we ascertain that 59.30% of the accounting professionals frequently encountered a low level of consistency and trust in accounting data, while performing their engagements.

This hypothesis has been validated both from the perspective of the absolute majority principle and by considering the 123 respondents, who confirmed the frequent encountering of this difficulty, to an extent of 63.41%. A summary of the H3 validation is illustrated in Figure 4.

From the perspective of our exploratory research, we find that, while performing their engagements, there is a

perceived low level of consistency and trust in the accounting data, for 63.41% of the accounting professionals from Romania.

Conclusions

In the context of our exploratory research, the global validation of the three secondary hypotheses H1, H2 and H3, based on the rule of the absolute majority, leads implicitly to the validation of the main hypothesis HM, respectively *in the current development stage of the digital economy in Romania, accessing accounting documents in different formats, with the purpose of their use, is a significant problem for the engagements of accounting professionals included in the analysis, i.e. financial auditors, expert accountants, tax advisers, PhDs in accounting, accountants, master and doctoral students, from the perspective of the lack of and/or the impossibility to obtain accounting data, the lack of/the*

restricted access to data that are managed by means of old or new accounting information systems, but also the low level of consistency and trust in the accounting data.

We further observe that, consequently to the validation of the hypotheses tested in the present research, more exactly for H1 and H3, only the *tax advisers* didn't follow the rule of the absolute majority, since only 40% of this category of accounting professionals supported both cases, while 60% have not encountered the two types of problems. In our opinion, this exception within the accounting profession is explained by the punctual

solving of the practical cases, based on the tax regulation.

Based on the confirmation of the main research hypothesis, we can assert that the digital economy in Romania is in an initial development stage. In this context, by referring to the use of the fashionable technology of cloud computing, the most recent Eurostat data (2014) place Romania (8%) among the countries that have used this technology least, alongside with Lithuania and Poland; the same study shows that one of three Romanians has never used the Internet.

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