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The role of management accountants

A study of contextual factors and changes in the role over time

Master's Programme in Accounting and Management Control

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Abstract

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Five key words	Controller, Management accountant, Role, Contextual factors, Requirements
Purpose	The aim of the thesis is to analyse the current role of management accountants, how it is affected by contextual factors, and how it has changed over time.
Methodology	A quantitative content analysis of job advertisements is conducted. The factors of analysis are identified based on a combination of deductive and inductive approach.
Theoretical perspectives	Based on a literature review on the role of management accountants, its change over time, and the contextual factors influencing the role and the design of MCSs, a theoretical framework of the most important contextual factors and requirements in management accountants is developed. It is further adjusted to incorporate additional factors identified to be relevant through the empirical analysis.
Empirical foundation	The sample consists of job advertisements for Germany and the UK, which are collected on the websites indeed.de and indeed.co.uk respectively. Information about the companies is additionally collected through further available online resources.
Conclusions	First, reporting, planning, budgeting, forecasting, cost accounting, MS Office and MS Excel, ERP and SAP knowledge as well as communication, analytical and teamwork skills are found among the most important requirements in management accountants and controllers today. Second, the results indicate that the country of origin, size, maturity and geographical scope are the most influential contextual factors regarding the role of management accountants within the examined sample. Finally, a conclusion about the change and enhancement of management accountants' role towards a business partner can be made.

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List of abbreviations

AAT	Association of Accounting Technicians
ACA	Associate Chartered Accountant
ACCA	Association of Chartered Certified Accountants
BI	Business Intelligence
CA	Chartered Accountant
CCAB	Consultative Committee of Accountancy Bodies
CEO	Chief Executive Officer
CFO	Chief Financial Officer
CIMA	Chartered Institute of Management Accountants
ERP	Enterprise Resource Planning
ICAEW	Institute of Chartered Accountants in England and Wales
ICB	Industry Classification Benchmark
ICV	Internationaler Controller Verein
IMA	Institute of Management Accountants
IT	Information Technology
MCS	Management Control System
MNC	Multinational Corporation

1 Introduction

1.1 Background

Management accounting as well as the role of management accountants have changed significantly over the last decades. While management accountants used to be seen merely as bookkeepers, today they often fulfil a much more comprehensive and demanding role of an advisor and business partner (Ahid & Augustine, 2012; Burns & Vaivio, 2001; Byrne & Pierce, 2007; Collins, 2012; Nilsson, Olve & Parment, 2011; Pietrzak & Wnuk-Pel, 2015). This can be expected to not only affect the tasks performed, but also the requirements in them. Today, they are seen responsible for guiding a company towards profits through providing information, decisions making, ensuring coordination and moderating the planning (Roman, Roman & Meier, 2014). There is a large variety of factors responsible for this shift in the role, such as advances in IT, globalization, and new management styles (Burns & Yazdifar, 2001; Goretzki & Weber, 2012; Pietrzak & Wnuk-Pel, 2015; Sulaiman, Ramli & Mitchell, 2008; Yazdifar, Askarany & Askary, 2008; Yazdifar & Tsamenyi, 2005). Thus, it seems reasonable to argue that the role of management accountants may also differ among companies that are subject to different contextual factors. Such an assumption seems even more plausible considering Merchant and van der Stede (2007) who claim that the MCS may be influenced by a variety of internal and external factors, such as size, organizational structure, ownership, industry, culture, legal system, and environmental uncertainty. However, so far, research has mainly focused on the changing role of management accountants or examined the requirements in them without considering the possible impact of contextual factors.

Due to the above mentioned deficiencies in the related area of research, it seems valuable and interesting to conduct an empirical study on the impact of contextual factors on the role of management accountants. In addition to contributing to closing the research gap, this topic is interesting as it enables management accountants to identify the most important requirements and to improve themselves accordingly. Furthermore, they may be able to see what kind of companies suit best to them in terms of expected skills and performed tasks. That may help them in directing their job search more effectively. Moreover, an understanding of the current requirements in management accountants may help universities to optimize their curriculum in a way that they prepare their students in the best possible way for their future career.

1.2 Research purpose and questions

The purpose of this thesis is to give insights into the role of management accountants and the skills and characteristics they are expected to possess. A further goal is to learn about the impact of contextual factors on the role of management accountants including differences between countries at

the example of Germany and the UK as well as several company characteristics. Finally, it will be analysed, to what extent and how the role has changed over time by comparing the results to previous empirical studies.

This leads to the formulation of three research questions:

- What are the role of management accountants and the requirements in them?
- How is the role of management accountants influenced by contextual factors?
- How has the role of management accountants changed over time?

1.3 Outline of the thesis

The remainder of the thesis is structured as follows:

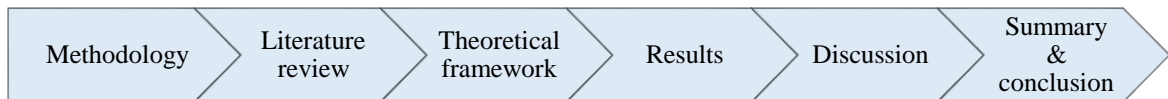


Figure 1.1 Outline of the thesis

Chapter 2 – Methodology

In this chapter, the chosen method is described and justified. Some limitations are pointed out and the efforts taken to avoid subjectivity are discussed. Furthermore, the selection of the sample is outlined.

Chapter 3 – Literature review

This chapter starts with a literature review on management accounting, consisting of its development, the most important contextual factors affecting the design of MCSs and some limitations of these factors. Afterwards, the role of management accountants is examined more closely. The title of management accountants, their position within a company's hierarchy, their changing role and finally a discussion of the factors influencing their role is described. Afterwards, the tasks performed by management accountants and the requirements in them are presented.

Chapter 4 – Development of a theoretical framework

The chapter discloses the development of a theoretical framework of the contextual factors, tasks and requirements based on the conducted literature review. This framework constitutes the basis for the further empirical analysis.

Chapter 5 - Results

To begin with, the theoretical framework is adapted according to the inductively identified additional contextual factors and requirements. Then, the results of the empirical analysis are presented. First, an overall overview of the sample is given. Then, the role of management accountants, as described in the advertisements, is presented. After that, the impact of the contextual factors on the role is described.

Chapter 6 - Discussion

The chapter starts with a discussion of the role of management accountants as well as its changes over time. Then, an elaboration on the impact of the contextual factors on the role follows. Thereafter, the contributions to the research landscape as well as the implications for practitioners are described. Finally, the limitations of this thesis and areas for future research are outlined.

Chapter 7 – Summary and Conclusion

The paper concludes with summing up the conducted analysis including the most important results, explanations and conclusions.

2 Methodology

2.1 Choice of the research approach

The approach of this paper is to conduct a content analysis of job advertisements. This method has been found successful to determine the requirements in applicants (Berens, Knauer, Sommer & Wöhrmann, 2013; Bramsemann, 1978; Cullen, 2000; Cullen, 2002; Cullen, 2004; Gruber, 2015; Kennan, Cole, Willard, Wilson, 2006; Orme, 2008; Palmer, 1992; Snyman, 2001; Tice, 2001; Willard & Mychalyn, 1998). The content analysis conducted in this study is of a quantitative nature as the categories are defined based on a literature review rather than derived from the analysed data (Forman & Damschroder, 2008). Thus, the analysis is of a mainly deductive character. However, there is also an inductive component, as we critically evaluated the examined data to conclude whether there are additional aspects or relations that were not obvious before starting to look at the data.

Apart from an analysis of job advertisements, other approaches to collect data about the required skills of management accountants, the contextual factors affecting them as well as changes of requirements over time are possible. These include such methods as the conduction of interviews and surveys. One advantage of analysing job advertisements is that they are publicly available. Additionally, employment ads describe what companies expect of their future employees in their coming work. Thereby the advertisements have a prognosis character (Sailer, 2009). The analysis of job ads in comparison to interviews or surveys also has the advantage that the data is not affected by the researcher as the study objects are not aware of being assessed. Therefore, the analysis is considered to be unobtrusive and non-reactive (Babbie, 2013; Bryman & Bell, 2015; Sailer, 2009). This is especially true in case of the analysis of secondary data (Harris, 2001), which is the case in this study. Furthermore, our construction of the framework is based on a literature review and can be considered objective and systematic (Berelson, 1971; Forman & Damschroder, 2008; Gordon, 2012). Moreover, such an analysis allows for a larger sample, as interviews and surveys might be more time-consuming and thus limit the sample. The larger sample carries the advantage that there are higher possibilities to generalize the results as they are based on broader and more comprehensive data.

What concerns the approach of analysing the collected data, it mainly depends on the nature of the data – quantitative or qualitative. Hence, a content analysis can be qualitative or quantitative. When the examined documents or interviews are analysed in a way so that they are summarized in words or phrases, the approach can be considered qualitative, while it is quantitative in case of determining how often certain elements can be found in the data. Thus, the results of a quantitative content analysis are numerical, indicating the frequency of the examined characteristics. Therefore, the quantitative content analysis of job advertisements allows identifying the frequency of the

mentioned requirements in characteristics and skills (Rabinowitz & Fawcett, n.d.). A visualised numerical presentation of the results allows not only to describe the observed requirements and their relations to contextual factors, but also to visualize the importance of particular aspects. Thus, a quantitative content analysis of job advertisements was considered advantageous.

The next decision concerned the kind of job advertisements – whether printed or online. Online advertisements were chosen for several reasons. One advantage is that they are easier to obtain compared to printed ones. However, the more important reasons are that they allow the search for key words, which simplifies the assessment, as the relevant ads can easily be filtered. That avoids a time-consuming search for relevant ads (France, 2010). Furthermore, the online search for job applicants is getting increasingly common (Curry, 2000; Jansen, Jansen & Spink, 2005; Johnson, 2003). Bruce (2004) also states that companies of all sizes use online recruitment as well as that it is used for jobs of all hierarchical levels. Therefore, there is no danger of the data being biased in that respect. In addition, Berens et al. (2013) argue that online advertisements may even provide a more comprehensive picture as companies advertise not only core positions, but also less important jobs online. Furthermore, employers have no space limitations in their online advertisements as is the case with print media. That allows them to specify all criteria considered relevant and to avoid having to focus on only very few important ones (Berens et al. 2013).

Finally, in order to analyse how tasks and requirements in skills and knowledge of management accountants have changed over time, the results of this study were compared to the previous research in the area. Here, the focus was set on studies with the same approach of analysing job advertisements as only this allows for a direct comparison of changes in the percentages over time whereas the resulting percentages of, for example, a survey, will naturally differ and are therefore only of limited suitability for the comparison. However, such studies had to be taken into consideration as well to compare the relative importance and development over time and due to the lack of more appropriate comparison material for the UK for many of the analysed requirements.

2.2 Description of the chosen method

First, a literature review was conducted to determine contextual factors affecting the role of management accountants and requirements in them. Afterwards, the most important and suitable ones for the empirical analysis were summed up in a theoretical framework. The review also revealed the key words to find relevant job advertisements. For the UK, the term “management accountant” was used while for Germany “controller” was the key word. The word “controller” was also seen as the closest translation of the term “management accountant” from German into English. Thus, to ensure better comparability, these key words have been applied.

For each factor of analysis, the possible manifestations were then defined. For example, the experience requirement was assigned the possible expressions “no experience required”, “one year”, “several years” and “time unspecified”. For requirements in personality criteria, manifestations such as “communication”, “teamwork”, and “interpersonal skills” were included. In order to see whether they were suitable or if revisions were necessary, a sample analysis of 20 advertisements was conducted – half of them German and the other half British. In other words, the applicability of the chosen approach was tested on a small pilot sample. During this analysis, it was additionally considered whether there were any requirements and tasks frequently demanded which were not part of the originally examined ones. These were then added and the framework for the analysis was adjusted accordingly. However, the goal of this paper is not to provide a full list of all possible requirements and tasks that companies might expect from their future employees, but rather to focus on the most important ones and to see the relations to contextual factors and to define the contemporary role of management accountants. Therefore, less often mentioned characteristics were omitted to avoid a too long list of factors. Furthermore, we analysed part of the employment advertisements independently from each other to ensure a coherent and unbiased categorization (Weber, 1990). Differences and problems were discussed and a consistent procedure agreed on. For example, one issue that occurred was how to treat characteristics not being required, but only desired. In the end, it was decided that a distinction would be too detailed and there was no obvious reason which value a separation could add. Thus, they were treated like strict requirements. That is in line with previous research (Berens et al. 2013). Then, the analysis of the remaining advertisements followed. After the analysis, randomly selected ads were analysed again and compared to the previous categorization results. This is supposed to help ensure accuracy and reliability (Weber, 1990) and revealed no differences compared to the initial categorization.

2.3 Avoidance of subjectivity

When researchers are aware of previous literature and have expectations about the results of their study, there is always a danger of the results being biased towards these previous findings, as they may unconsciously interpret the data accordingly. Thus, there may be a certain level of subjectivity involved (Mauthner & Doucet, 2003; Peshkin, 1998; Ratner, 2002). In addition, we might have a possible subjective impact on the analysis as it was necessary to apply our own knowledge on the categorization. This knowledge differs among different people and is influenced by various factors such as culture. Thus, this may have an effect on the analysis (Cicourel, 1964, cited in Bryman & Bell, 2015; Garfinkel, 1967, cited in Bryman & Bell, 2015). To avoid the risk of subjectivity, different measures were taken. First, the analysis was conducted blindly. That means that the company characteristics were only collected and added after all advertisements were analysed so that

we were not influenced by the contextual factors while assessing the advertisements. Second, to ensure a consistent interpretation of all advertisements, we analysed a randomly chosen selection of the British advertisements independently from each other. Due to a language barrier, this was not possible for the German ones. However, as the comparison of both results of the analysis of the British ones revealed no differences, we believe that the same would be true for the German ones. In addition, we consulted each other in case of any slight uncertainty.

2.4 Justification of the chosen search engine

An important decision needed to be made concerning how to obtain the job advertisements. Two general approaches seemed possible. One approach is to define a sample of companies and to search for relevant job advertisements of these companies, an approach followed by Berens et al. (2013). The other possibility, for example chosen by France (2010), is to search for relevant ads on a job portal. France's (2010) approach was preferred here, as there was seen a danger of receiving a biased sample if following Berens et al.'s (2013) method of predefining the included companies. Furthermore, this approach was chosen as a rather high number of job advertisements was required to answer the research questions. Thus, it seemed more doable to obtain them that way.

After this was clear, it was necessary to decide how many and which job portals to consider in the analysis. An initial search on several websites revealed a sufficiently large number of job advertisements. Therefore, it was decided only to focus on a single website for each country to decrease the risk of redundant advertisements. Another decision needed to be made between meta search engines and general job portals. Meta search engines collect the results from a range of other websites and present them comprehensively in a single list that requires minimal effort (Jansen, Spink & Koshman, 2007; Srinivas, Srinivas & Govardhan, 2011). A drawback is the risk of redundant results as jobs are likely to appear several times in the search results if they are posted on different places in the internet such as the company website and a job portal (Lawrence & Giles, 1998; Liu, Meng, Qiu, Yu, Raghavan, Wu, Lu, He & Zhao, 2007; Undercoverrecruiter, n.d.). This risk was confirmed by a brief exemplary search for job advertisements on one of the meta search engine websites. It was considered essential to avoid any redundant job advertisements in the analysis, as this could negatively affect the reliability of the received results. However, considering only one job portal was seen as containing a risk of biased data, as certain job portals could be more popular among specific kinds of companies compared to other ones. Therefore, the decision was made in favour of meta search engines. To solve the issue of redundant advertisements, all analysed ads were compared concerning the employer and the title of the advertised position. Then, advertisements being identical in both these terms were reviewed again and excluded if they were found to be redundant.

A broad variety of different job meta search engines exists. There are more than 15 different ones both in Germany (Berufsstrategie, n.d.; Der große Jobbörsen-Vergleich, 2013; Sicking, 2013) and the UK (Alexander Chase, n.d.; Jobs4, n.d.; Undercoverrecruiter, n.d.). The decision criteria to choose the most suitable search engine were popularity, volume and being available in both countries. It was considered advantageous to choose a provider covering both Germany and the UK as this would ensure that the same search algorithm would be applied to the whole sample. That avoids possible biases that could have been an issue otherwise. This last criterion reduced the choice to CareerJet, Indeed, jobrapido and JobRobot (Der große Jobbörsen-Vergleich, 2013; jobs4, n.d.; Undercoverrecruiter, n.d.). Their ratings are inconsistent, but Indeed and jobrapido were always among the top seven (Adams, 2012; Der große Jobbörsen-Vergleich, 2013; Robert Half, n.d.; ServiceValue, 2015; Sicking, 2013) and Doyle (2016) and Miller-Merrell (2015) consider it to be the best one. Comparing them by size shows that Indeed is the biggest one. Therefore, the choice was made in favour of Indeed.

2.5 Sample choice

The chosen meta search engine provided a large number of job advertisements. The search was specified so that the job ads needed to include the terms “controller” in Germany and “management accountant” in the UK directly in the title of the ad. The search, which was conducted on 16 April 2016 for Germany and on 18 April 2016 for the UK, revealed a number of 3 167 and 3 270 job advertisements respectively. It was clear that the analysis of all ads would be too far going. However, the true number of results is smaller than that as they include redundant as well as irrelevant ones. For example, one of the German ads was looking for a developer for 32bit microcontrollers and was immediately omitted.

Furthermore, all job advertisements recruiting applicants for internships were excluded as they were expected to differ significantly from the other ads and not to display the true requirements in controllers as internships are usually still absolved during the education. Trainee positions were excluded as well as their number was very low so that conclusions regarding them would not have been possible, but still, they might differ from ordinary jobs. Moreover, those advertisements, for which it was not possible to obtain the required data were omitted. This was mostly the case for jobs advertised by staffing agencies as they usually do not reveal the name of the employer so that company related factors such as size and matureness could not be determined. Especially in the UK, a high percentage of the advertisements was posted by staffing agencies. For some companies, the later analysis also showed that it was not possible to obtain all supplementary information. In these cases, the companies were contacted by e-mail. If they failed to provide the information within three days, they were excluded from the sample as well. As mentioned before, all advertisements that appeared more than one time were also excluded. An overview of the inclusion and exclusion criteria is presented in Table 2.1.

Inclusion criteria		
Country	Germany	UK
Key word	Controller	Management accountant
Time	Availability on 16 April 2016	Availability on 18 April 2016

Exclusion criteria
Internship
Trainee programme
Company name not specified
Redundancy
Impossibility to obtain all necessary company related information

Table 2.1 Inclusion and exclusion criteria

Previous studies following a similar approach as we do, had analysed 116 and 189 job advertisements respectively (Bramsemann, 1978; Gruber, 2015). Thus, in order to keep up with them, we aimed for a final sample size of 200 advertisements with equal German and British representation of ads. In addition, we took into account the possibility that a number of ads might not be useful. Thus, the search results were sorted by relevance and the first 170 advertisements for each country fulfilling the immediately assessable criteria were saved. Saving them offline was supposed to ensure their availability throughout the analysis period and for review if this was found to be necessary at a later point of time. During the analysis, a number of these advertisements were then excluded and reduced to 100 for each country, following the exclusion criteria.

2.6 Limitations of the method

The applied research approach may be subject to some limitations. First, the question of representativeness should be kept in mind, as our study is based on a limited number of advertisements, considers only those being published on the internet and is restricted to Germany and the UK. Second, the advertisements themselves might contain several deficiencies. They might not be updated sufficiently by the companies and be influenced by advertisements of other companies. Furthermore, the analysis possibilities are limited by the information provided in the ads. In addition, the amount of data available through the ads might differ and be incomplete in some cases. That might limit the representativeness of the sample and generalization of the obtained results. Further, the ability to measure certain contextual factors is restricted with the chosen approach as deeper knowledge of the companies is required to determine several of them. What is more, certain aspects of the applied search algorithm might influence the composition of the sample, making it biased towards a particular type of companies included in the analysis. Moreover, as our analysis is limited to a certain key date, the comparability over time regarding the changes in requirements is only feasible by comparing the results with previous studies, which limits the comparability possibilities.

3 Literature review

3.1 Management accounting

3.1.1 Definition and development of the concept

In order to start the discussion on the role of management accountants, it is valuable to understand what management accounting itself stands for. Management accounting seems to be a popular topic of management research. A number of authors claim that it has experienced an evolution process during the last decades and today has been conceptualized in the literature (Marchant, 2013; Roman, Roman & Meier, 2014). Pavlovska and Kuzmina-Merlino (2015) have developed the following model of the concept evolution in their study of controlling in multinational corporations, presented in Table 3.1.

Time period	Scope of controlling
1930-1970s	Finance controlling, mostly focused on cost
1970-1980s	Support information system, reporting, single point of trust for management
1990s	Planning and control of budget
	Coordination function to achieve goals and predefined targets
	Company management system – from planning and budgeting to correcting action implementation after deviation analysis. KPIs and business processes
2000s-2014	Decision making system, knowledge management system
On demand ¹	Management system which provides flexible planning for dynamic targets, and provide proactions for unpredictable events

Table 3.1 Evolution of the scope of controlling (based on Pavlovska & Kuzmina-Merlino, 2015, p.31)

Marchant (2013) also points out that the scope and focus of management accounting have evolved over time following changes in organizational design, production and marketing. This allows the conclusion that changes in management accounting itself and its definition vary not only across the time horizon, but also depending on the organizational context.

First, the emergence of management accounting, according to Marchant (2013), can be referred to the time of the industrial revolution of the 19th century, when the growth of manufacturing evoked the necessity of analysing the efficiency of internal processes. Over time, the complexity of products has increased significantly, leading to the demand of the development of a new approach. In response to such needs, management accounting has received high scientific attention with a focus

¹ “On demand” implies the current scope of management accounting, as this last definition is suggested by Pavlovska and Kuzmina-Merlino (2015) themselves.

on standardization of processes and, as a result, such tools as standard costing and overheads allocation through labour costs have been developed. The 20th century brought new changes of the environment and new challenges for management accounting to handle. Thus, the growth of corporations required new techniques for analysis and, during that time, ROI, budgeting and forecasting have been suggested as solutions. Towards the end of the 20th century, Johnson and Kaplan (1987) accused management accounting of having lost its relevance. This period in management accounting is marked with changes towards a more strategic focus and appearance of a variety of new techniques such as the Balanced Scorecard and Activity Based Costing (Marchant, 2013).

Roman, Roman and Meier (2014) also provide a brief summary of the core concepts of controlling for the last decades:

- controlling as an administrative record tracking (the '80s)
- controlling as an administrative information system (end of the '80s);
- controlling as planning and control (beginning of the '90s);
- controlling as coordination activity (the '90s);
- controlling as business administration (end of the '90s);
- controlling as a system for coordinating decision-making process (the 2000s) (Roman, Roman & Meier, 2014, p.49).

Thus, it can be observed that management accounting has overcome decades of changes embracing changes in the environment and variations across companies following these changes. Therefore, it is not surprising that different definitions of management accounting can be found in the literature. Table 3.2 presents a selection of them.

It can be stated, that the main purpose and function of management accounting can already be derived from the definitions presented above. Hence, providing information appears to be one of the most important purposes and functions.

In addition, Roman, Roman and Meier (2014) explicitly define the purpose and objective of controlling within the organization. According to the authors, the arrangement of the stand-alone components such as the information or planning and control system, as well as the verification of their utility and bringing them together in a system constitutes the main purpose of controlling. Furthermore, Roman, Roman and Meier (2014) see the enhancement of transparency as a main objective of controlling.

Source	Definition
Morse, Davis & Hartgraves (1984, p.17)	“Management accounting is concerned with providing financial information to persons inside the organization, especially managers.”
Horngren & Foster (1987, cited in Nilsson, Olve & Parment, 2011, p.52)	“Management accounting is the identification, measurement, accumulation, analysis, preparation, interpretation, and communication of information that assists executives in fulfilling organizational objectives.”
Horngren, Bhimani, Datar & Foster (2002, p.6)	“Management accounting measures and reports financial information as well as other types of information that are intended primarily to assist managers in fulfilling the goals of the organization.”
Horngren, Sundem, Stratton, Burgstahler & Schatzberg (2011, p.G12)	“The branch of accounting that produces information for managers within an organization. It is the process of identifying, measuring, accumulating, analysing, preparing, interpreting, and communicating information that helps managers fulfil organizational objectives.”
Nilsson, Olve & Parment (2011, p.14)	“Management control consists of formalized information-based routines, structures and processes which management uses to formulate and implement strategies by influencing behaviour within the organisation.”
Roman, Roman & Meier (2014, p.47)	“Controlling is a functional management concept with the role of coordinating the planning, the control and the information towards the desired end-result.”
Pavlovska & Kuzmina-Merlino (2015, p.31)	“Management system which provides flexible planning for dynamic targets, and provide proactions for unpredictable events.”
CIMA (n.d.-b)	“Management accounting combines accounting, finance and management with the leading edge techniques needed to drive successful businesses.”

Table 3.2 Definitions of management accounting and controlling

Turning to the functions of management accounting, the following list can be constructed according to Kumar (2011): planning and forecasting, modification of data, interpretation, management control and communication. Sharma (2015) emphasizes planning, organizing, controlling and decision-making among the most important functions of management accounting. Based on the “skillset” of its members identified by the CIMA (n.d.-b), the functions of planning, information analysis for decision-making, formulation of business strategies, risk identification and management as well as communication can be considered of utmost importance.

As it can be observed from the development disclosed above, management accounting is significantly influenced by changes in the environment and the corresponding development of companies. Thus, it can be assumed that the context plays an important role in designing the MCS of a particular company. Consequently, based on this, the system might vary across companies.

3.1.2 Contextual factors influencing MCSs

A number of factors influence the MCS of a company. Depending on a great variety of circumstances, a company constructs its MCS so that it meets its needs for management control as well as possible. As MCSs may differ from one company to another, it can be assumed that management accountants will have diverse responsibilities and tasks within different MCSs. In other words, the role of management accountants will differ from one MCS to another.

The majority of literature that discusses the factors influencing MCSs belongs to the contingency theory. The development of this body of knowledge takes its beginning in the 1970s as an endeavour undertaken to explain the growing variety of management accounting practices of that time (Otley, 2016). According to a number of authors, the idea of the contingency approach rests on the assumption that the management accounting and control system components are being chosen depending on certain circumstances. The researchers of this body of knowledge consider these circumstances as situational or contextual factors influencing the diversity of MCSs. Thus, the theory is aimed at examining which factors or circumstances affect a particular MCS and how they affect it (Chenhall, 2003; Merchant & van der Stede, 2007; Otley, 1980; Otley, 2016).

The most common classification of contextual factors comprises internal and external groups of factors (Otley, 2016). Among the external ones, the most frequently examined and discussed ones are environmental uncertainty, industry specific factors, national culture, competition and technology (Abdel-Kader & Luther, 2008; Chenhall, 2003; Haldma & Lääts, 2002; Merchant & van der Stede, 2007; Otley, 1980; Otley, 2016). The internal factors most widely researched and debated include the organizational structure, strategy, size, ownership, the information system, product life-cycle stages, psychological variables as well as employee experience and skills (Chenhall, 2003; Haldma & Lääts, 2002; Merchant & van der Stede, 2007; Otley, 1980; Otley, 2016). Below, the most commonly examined factors and their influence on the design of MCSs will be discussed.

According to Otley's (2016) review of the research in the area during the last decades, the greatest attention is devoted to the influence of **environmental uncertainty**. Environmental uncertainty embraces a wide range of factors that influence a company's ability to predefine its future, including natural conditions, actions of customers, competitors, regulators and suppliers, and the political and economic climate in the country (Merchant & van der Stede, 2007). The research in the area reveals that a higher level of environmental uncertainty implies more flexible and externally oriented MCSs (Chenhall, 2003; Merchant & van der Stede, 2007; Otley, 2016). Another factor emphasized in the literature and associated with uncertainty is the competition faced by a company. Similarly, as with high uncertainty, intense competition requires the MCS to be more flexible and outwardly focused

(Merchant & van der Stede, 2007; Otley, 2016). However, a number of authors also point out certain limitations associated with environmental uncertainty as a factor that influences the design of MCSs. Hence, for example, it has been criticized for being a rather subjective measure due to the fact that the most commonly used mechanism to measure it is by questionnaires or interview questions about its perception (Otley, 2016). In addition, Chenhall (2003) points out difficulties in the comparability of studies in this area due to a variety of measures used to assess the uncertainty. That, in turn, affects the possibility to generalize the results about the influence of this factor on the design of MCSs.

National culture appears to be another external contextual factor that is under intensive research within the contingency literature (Chenhall, 2003; Hanzlick, 2014; Harrison & McKinnon, 1999; Merchant & van der Stede, 2007; Otley, 2016). According to Chenhall (2003) and Harrison and McKinnon (1999), the importance of this factor seems to continually gain importance due to the globalization processes and expansion of MNCs. The main result within the studies about the impact of national culture is the finding that such an influence exists. At the same time, Otley (2016) concludes that no common trend can be identified, as the results of the studies and even the definition of culture itself might differ substantially and are not always comparable. In addition, studies concerning cultural dimension are often subject to criticism for a number of matters. To begin with, they are criticized for being mainly based on Hofstede's classification or for not considering all its dimensions as well as for not taking the changing nature of cultural values into account (Chenhall, 2003). Further, a simplification of the definition of culture and generalization without considering the possible influences of organizational structure, inter individual variations and intensity differences are among the critiques of cultural studies (Chenhall, 2003; Harrison & McKinnon, 1999; Otley, 2016). Nevertheless, national culture is considered to be an influential factor regarding the design of the MCS of a company (Chenhall, 2003; Otley, 2016).

Apart from national culture per se, the comparative management accounting branch of research examines the difference of management accounting among different countries. National culture is considered as one of the variables within this body of research. At the same time, such studies are not limited to cultural differences, but also pay attention to variables such as education, institutions, and economic conditions (Amat, Blake & Wraith, n.d.; Endenich, Brandau & Hoffjan, 2011; Hoffjan, Nevries & Stienemann, 2009). Thus, the **country of origin** can be considered as another contextual factor. However, the authors criticize the studies in the area for a number of reasons such as for the lack of theory used (in particular for the descriptive nature and insufficient connection to the design of MCSs) or methodological deficiency leading to poor comparability of the results. Nevertheless, this direction of research contributes to the understanding of differences in management accounting practices across countries that can be considered important in terms of globalization and expansion of MNCs.

The **company's strategy** has also received a high level of attention by researchers in this area (Chenhall, 2003; Merchant & van der Stede, 2007; Otley, 2016). The studies devoted to this aspect have identified different directions of influence of strategy on MCSs. Thus, more conservative and defender oriented strategies require a mainly formal approach in management control through result oriented measures, standardization and financial measures, while competitor oriented and differentiation strategies imply broader and more flexible systems that allow a participative approach and additional non-financial performance measures (Chenhall, 2003; Merchant & van der Stede, 2007; Otley, 2016). At the same time, these studies are criticized for resting on a simplistic classification of strategies without capturing this complex phenomenon. Moreover, the relevant studies use different dimensions of MCSs for their examinations, which also diminishes the comparability and the ability to create a more general picture (Otley, 2016). Finally, studies examining the impact of strategy are questioned due to difficulties in measuring strategy itself (Chenhall, 2003).

In addition, **technology** is described in the literature as **an important external factor** of influence on the design of MCSs (Otley, 2016). Technology usually refers to information technology. According to a number of authors (Kallunki, Laitinen & Silvola, 2011; Scapens & Jazayeri, 2003; Schermann, Wiesche, & Krcmar, 2012), the implementation of ERP systems influences the role of management accountants and management control. This happens due to the fact that data becomes available faster and in real time. That, in turn, facilitates its analysis and decision-making (Kallunki, Laitinen & Silvola, 2011) and helps to find the right balance between exploitation and exploration of information (Schermann, Wiesche, & Krcmar, 2012). However, the study by Granlund and Malmi (2002) showed some kind of differing results. In their study, the influence of the ERP system appeared to have a moderate effect, as the implementation of an ERP system resulted in insignificant changes of management accounting and control practices within their examined sample. Overall, the findings concerning the influence of technology, and ERP systems in particular, on the design of MCSs appear to be not straightforward and this area is considered to be in need of further research (Granlund & Malmi, 2002). Moreover, the majority of studies in the area is focused on large companies while small ones receive rather little attention (Chenhall, 2003; Jänkälä, 2007). Thus, this gap needs to be addressed through future research.

At the same time, a number of studies consider **technology** in terms of **being an internal factor** of influence on MCSs. The flexibility of a MCS appears to be a vital part of its design for companies that are focused on non-standardized processes and differentiated products as it leads to the utilization of a complex technology (Chenhall, 2003). Moreover, the high level of interdependencies within processes also leads to a similar implication and importance of

communication. Those companies oriented towards standardization, automated processes and undifferentiated products, are more likely to implement traditional formal MCSs including process controls and the use of budgets (Chenhall, 2003).

A number of authors point out that the **size** of the company influences MCSs in a way that more sophisticated techniques are used by larger organizations and participative budgeting is more spread as well (Abdel-Kader & Luther, 2008; Chenhall, 2003; Haldma & Lääts, 2002). Moreover, size affects the structure leading to the tendency of large companies having divisionalized organizational structures. Further, size also affects the diversification and standardization matters (Chenhall, 2003).

Chenhall (2003) summarizes the relations between organizational **structure** and the MCS discussed in the literature. First, the author states that diversified and decentralized structures are mainly related to formal MCSs. Second, the departments that face more uncertainty tend to implement more flexible MCSs, e.g. research and development departments can be associated with using participative budgeting and marketing departments with using more externally oriented MCSs. Decentralization is found to influence the integration aspects of the design of MCSs. Further, team-based structures are found to involve participative management control and rewards based on comprehensive performance measures (Chenhall, 2003).

Among the factors mentioned as influencing the design of a MCS, **industry** effects have received only little attention. Although a number of authors recognizes the importance of this factor and a variety of empirical studies are conducted across various industries (Abdel-Kader & Luther, 2008), the direction and patterns of its influence on MCSs and the role of management accountants in particular are not generalised so far.

It should be mentioned that despite the noteworthy contributions made by the contingency theory in explaining the influence of a variety of contextual factors on the design of MCSs, one general weakness of these studies lies in the fact that many studies pick only one or a few variables to examine their influence on the design of MCSs. At the same time, the context of each particular company is a complex phenomenon where numerous factors might have an influence and point in different directions.

Summing up, it can be stated that the design of MCSs is influenced by a great variety of variables. It can also be assumed that the same factors might influence the corresponding role of management accountants.

3.2 The role of management accountants

One of the key players within the management accounting system is the management accountant. Therefore, it can be assumed that, following the changes in MCSs, management accountants and their roles have developed over time and context as well, and become diverse across companies.

3.2.1 Definition and title of the position

Numerous definitions as well as different terms are used to name and define the management accountant. According to Paulsson (2015), the following titles of the profession can be found: management accountant, business controller, financial controller, finance controller, accountant, etc. For example, in Germany the position is most likely called “controller”, while in Great Britain “management accountant” is a more frequently used term (Ahrens & Chapman, 2000; CIMA, n.d.-a; Hoffjan, Nevries, & Stienemann, 2009). In addition, a range of definitions of the position can be found in the literature (Paulsson, 2015). Table 3.3 presents a selection of them.

Author	Definition
Merchant & van der Stede (2007, p.531)	”the controller function deals primarily with financial record keeping, reporting and control”
IMA (2008, p.1)	“Management accounting is a profession that involves partnering in management decision making, devising planning and performance management systems, and providing expertise in financial reporting and control to assist management in the formulation and implementation of an organization’s strategy.”
McWatters, Zimmerman & Morse (2008, p.26)	“The controller is delegated responsibility for the communication and implementation of an organization’s accounting policies and procedures, and acts as both consultant to and evaluator of other parts of the organization.”
Nilsson, Olve & Parment (2011, p.14)	”Controllers make suggestions for the design of an organization’s management control system, and administer its use.”
Zimmerman (2011, p.10)	“The controller is the firm’s chief management accountant and is responsible for data collection and reporting.”
Roman, Roman & Meier (2014, p.47)	“Controller: Responsible for transparency as a pilot on the road to profit throughout the process of: - providing information; - decisions making; - ensuring coordination as well as a - moderator of the planning process.”

Table 3.3 Definitions of management accountant and controller

As it can be concluded from the information mentioned above, the terms “controller” and “management accountant” are mainly used interchangeably. Thus, within the paper, both terms will be used with the same meaning.

The framework suggested by Nilsson, Olve and Parment (2011), presented in Figure 3.1, can be applied to demonstrate how the role of the controller can be organized. Based on the level of attention to group processes and the amount of information used by the controller, the authors define four possible roles: accountant, analyst, educator and coach. The left side of the model represents a more traditional role where the controller communicates mainly with its manager. The right side of the model reflects the controller who goes beyond the borders of the department communicating with all parties involved and contributing to the decision-making processes. Correspondingly, the bottom part refers to the accountant working primarily with internal and financial information, while the top part implies expansion to non-financial measures and the consideration of external information (Nilsson, Olve & Parment, 2011). The authors also state that, based on the results of empirical research, it can be concluded that the controllers themselves want to move to the right side of the presented matrix, i.e. closer to the role of coach and educator.

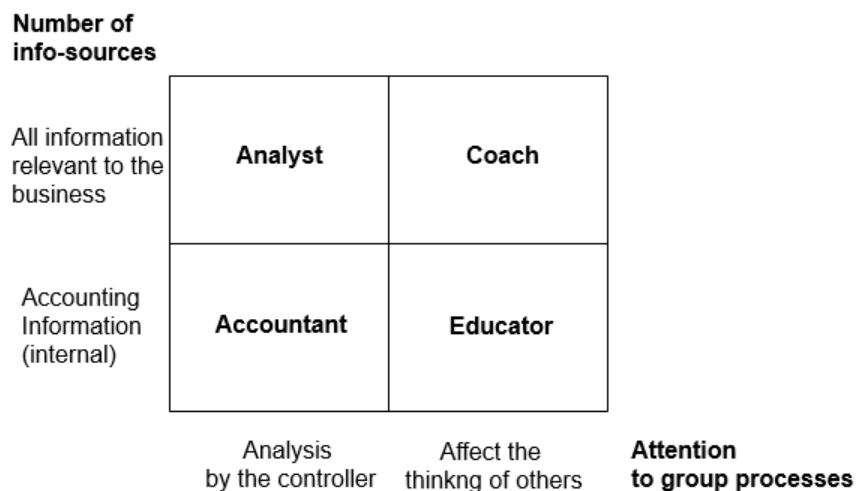


Figure 3.1 The controller's four roles (Nilsson, Olve & Parment, 2011, p.249)

3.2.2 Position of the management accountant in the hierarchy

In order to understand the role that management accountants play within the organization, it appears valuable to understand where such a position can be found in the hierarchy of an organizational structure as well as its reporting lines and accountability. The hierarchical position of the management accountant may depend on the size of the company. While in larger companies, the functions of the controllers and treasurers are most likely to be divided, it might be the same person in a small organization (Merchant & van der Stede, 2007). The controller might be supervised by the CFO who is usually responsible for finance and accounting (Merchant & van der Stede, 2007). It can

also be the case that the direct supervisor will be the company's CEO (Roman, Roman & Meier, 2014). Merchant and van der Stede (2007) point out that the controller function can be organized in two possible ways as presented in Figure 3.2.

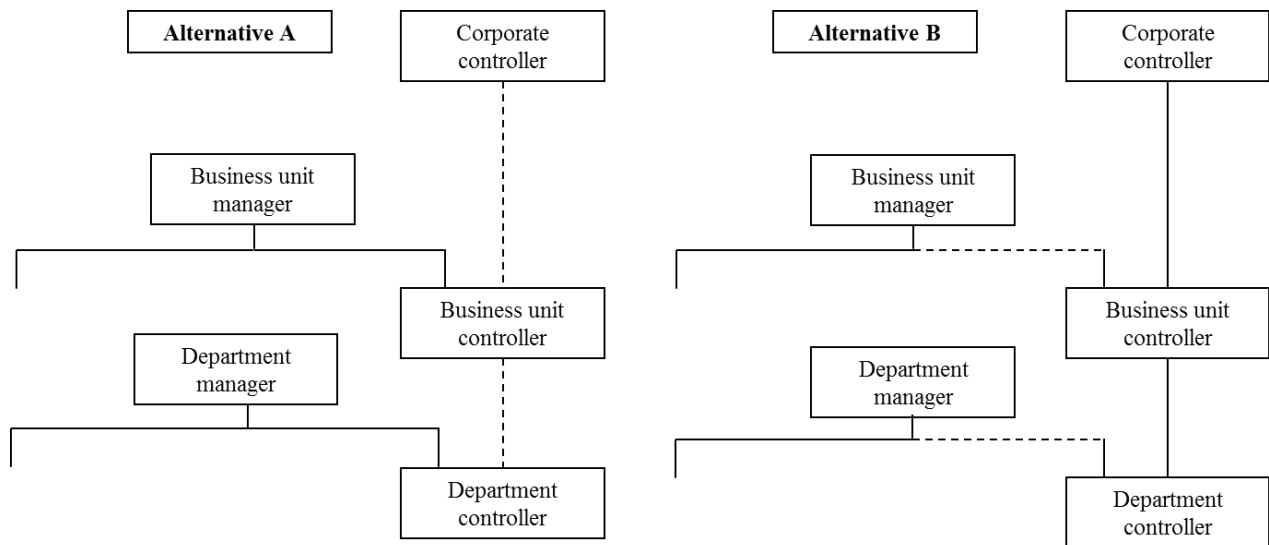


Figure 3.2 Possible organization of the controller function (Merchant & van der Stede, 2007, p.632)

The decision on the appropriate structure can be based on the considerations of the desired level of relation between decentralization and coordinated decision-making at the top-management level. It can be assumed that the more decentralized option (alternative A) of constructing the controller's function allows the top-level controller to focus on the overall company's performance, while alternative B may be preferred when there is a high need for coordination among the various business units. The first option presents the reporting line going from business unit controller to the corresponding manager making the controller directly accountable to the manager. The other option implies direct reporting to the corporate controller (higher-level controller). According to Merchant and van der Stede (2007), both alternatives have advantages and shortcomings. Hence, the "dotted" reporting line (alternative A) ensures good relations of the division controller and the corresponding manager, making the controller associated with the department and being seen as a partner by the respective manager. However, if the reward system is based on the unit performance, the controller's opinion might be biased. On the other hand, "solid-line" reporting relations (alternative B) allow improving the controller's commitment to the overall corporation's goals and values. Nevertheless, in such a hierarchy, a controller might be seen as a "watchdog" by his colleagues of the department. That makes the relations with the department management less cooperative (Merchant & van der Stede, 2007). The authors suggest that the deficiencies associated with the first option can be overcome through the control from the board of directors or internal audit, personnel and cultural controls, as well as through an appropriate design of the compensation system.

Summing up, it can be assumed that company-related factors and the organizational structure in particular have an influence on how the role of the management accountant is organized in a company.

3.2.3 Changing role of management accountants

Based on the discussion on the evolution of the management accounting concept (Subsection 3.1.1), it becomes obvious that the role of management accountants can neither still be the same as it was decades ago. It was found that numerous studies have been devoted to the issues of rethinking the role of management accountants (Burns & Yazdifar, 2001; Byrne & Pierce, 2007; Collins, 2012; Cooper, 1996; Cooper & Dart, 2009; Ernst & Young, 2008; KPMG, 2001; Pietrzak & Wnuk-Pel, 2015; Yazdifar, Askarany & Askary, 2008; Yazdifar & Tsamenyi, 2005). Sulaiman, Ramli and Mitchell (2008) underline that the evidence of change is examined and demonstrated through a number of empirical case studies and surveys from different countries.

Generally, the main conclusions of these studies are the direction of change and factors influencing it. It is argued that, overall, the role of management accountants is changing from being a bookkeeper to a consultant or partner (Ahid & Augustine, 2012; Burns & Vaivio, 2001; Byrne & Pierce, 2007; Collins, 2012; Nilsson, Olve & Parment, 2011; Pietrzak & Wnuk-Pel, 2015). It can be stated that the traditional role of management accountants is usually associated with “bean counters” having a focus on bookkeeping, processing transactions and reconciliations of balances (Ahid & Augustine, 2012; Collins, 2012; Ernst & Young, 2008). The new role of management accountants is usually associated with a business partner who works towards value creation, has a strategic orientation, consults the management and assists in the decision-making process (Ahid & Augustine, 2012; Collins, 2012; Ernst & Young, 2008; Nilsson, Olve & Parment, 2011).

In order to understand how the role has changed during the last decades, environmental changes, that represent the main drivers of change, should be examined and understood (Collins, 2012). A number of researchers provide a comprehensive list of change drivers (Burns & Yazdifar, 2001; Pietrzak & Wnuk-Pel, 2015; Sulaiman, Ramli & Mitchell, 2008; Yazdifar, Askarany & Askary, 2008; Yazdifar & Tsamenyi, 2005) which includes the following factors: information technology, organizational restructuring, customer-oriented initiatives, e-commerce/electronic business, new accounting software, external reporting requirements, new management styles, core competency aims, globalization, quality-oriented initiatives, new accounting techniques, take-over/merger, external consultants' advice, and production technologies. In addition, Sulaiman, Ramli and Mitchell (2008) classify the factors into external, internal and organizational groups while Pietrzak and Wnuk-Pel (2015) categorize them only into external and internal ones. The findings by Sulaiman, Ramli and

Mitchell (2008) suggest that customer-oriented initiatives have the most significant influence on the changing role of management accountants. Another significant factor appears to be organizational restructuring processes. Moreover, the globalization influence is considered important as well (Ahid & Augustine, 2012; Sulaiman, Ramli & Mitchell, 2008). Studies by Yazdifar, Askarany and Askary (2008) and Yazdifar and Tsamenyi (2005), conducted for British companies, reveal the importance of information technologies, restructuring and customer-oriented initiatives. A recent study by Pietrzak and Wnuk-Pel (2015) showed supportive results for Poland. Among the external factors, customer-oriented initiatives and development of information technology are two of the most significant ones while implementation of IT technologies and restructuring comprise the most influential internal factors. The findings mentioned above also correspond to the factors emphasized by Burns, Ezzamel and Scapens (2003) and Burns and Yazdifar (2001). Furthermore, the research conducted by Cooper and Dart (2009) revealed the company's size to be an important factor of change. The authors conclude that more attention is dedicated to the issues associated with the new role of management accountants in larger companies in comparison to smaller ones.

As it can be concluded from the literature review, the issue of the changing role of management accountants over time and the factors influencing this change are explicitly discussed within the management accounting research. However, less attention is devoted to the factors that shape the role of management accountants per se.

3.2.4 Factors influencing the role of management accountants

As can be expected, the role of management accountants is influenced to a great extent by similar factors affecting the design of MCSs as described in Subsection 3.1.2.

Byrne and Pierce (2007) underline that despite numerous studies of the factors influencing the role of management accountants, this literature appears to be rather fragmented. The authors identified competition, management expectations, culture, technology, cross-functional interaction, organizational structure, physical location, accounting innovations, and individual qualities to be under examination by other researchers. These factors largely correspond to those discussed in Subsection 3.1.2. Byrne and Pierce (2007) also state that, by categorizing these factors into such groups as economic and institutional forces, one can receive a proper framework for the analysis of the factors influencing the controller's role. Based on their empirical research, they constructed a framework of factors. It includes three categories of factors: external (ownership, environment and regulation), internal (size, structure, culture, technology, management, location, performance system, business nature and circumstances) and individual (orientation and background).

Other authors consider factors such as a company's strategy (Nilsson, Olve & Parment, 2011), size (Ahid & Augustine, 2012, Merchant & van der Stede, 2007; Roman, Roman & Meier, 2014), information technology (Nilsson, Olve & Parment, 2011; Scapens & Jazayeri, 2003), environmental and task uncertainty and interdependencies (Hartmann & Maas, 2011), and the type of organization, culture and industry (Ahid & Augustine, 2012; Hoffjan, Nevries & Stienemann 2009) to be influential. Further, the most discussed factors of influence will be presented.

Nilsson, Olve and Parment (2011) underline the relationship between a company's **strategy** and the role of the controller. The authors refer to portfolio management and activity sharing as group strategies, and to cost leadership and differentiation as business strategies. They disclose how the corresponding roles of controllers are affected by the applied strategy. The result of their analysis is presented in Figure 3.3 and Figure 3.4 for different group and business strategies respectively, showing examples of work that can be expected in each case.

What concerns the differences for functional strategies, the authors assume significant similarities of that level with the business strategy, as their congruence is highly important. Thus, mass production with a cost minimization orientation implies the usage of mainly accounting metrics, while customer oriented strategies require additional non-financial information (Nilsson, Olve & Parment, 2011).

	Accountant	Analyst	Educator	Coach
Portfolio management	Accurate period reports	(Variances and forecasts) ²	Make managers understand financial reports	(Identify financial improvements)
... with accounting metrics (and leading indicators)				
Activity sharing	Follow long-term financial needs	Identify synergies and common initiatives	Create participation in the group strategy work	Encourage learning and new initiatives
... with all types of metrics				

Figure 3.3 Controller roles and group strategies (Nilsson, Olve & Parment, 2011, p.252)

² The content of work for Analyst and Coach are in brackets as without using metrics other than accounting, these roles are not fulfilled (Nilsson, Olve & Parment, 2011).

	Accountant	Analyst	Educator	Coach
Cost leadership	Detailed follow-up of revenues and costs	Variance and competitor analysis	Make managers analyse	Spread best practice
... with accounting metrics (and leading indicators)				
Differentiation	Measure segments, and reactions to strategies	Assess what will be demanded, drive growth and test new forms	Spread experience and a spirit of experimentation	Take part in evaluation and design of new ways of working
... with all types of metrics				

Figure 3.4 Controller roles and business strategies (Nilsson, Olve & Parment, 2011, p.254)

Moreover, Nilsson, Olve and Parment (2011) demonstrate possible differences in the roles of controllers based on the economic cycles of the company. The examples of such differences are presented in Figure 3.5.

	Accountant	Analyst	Educator	Coach
Downturn: harvest, hibernate and lay foundations for the future	Chase costs but protect “good costs”	Benchmarking, competitive strategies	Downsizing	Create stable ground for the future
... with accounting metrics (and leading indicators)				
Upturn: build new and utilize position created	Capture reactions to strategies	Assess what works	Communicate strategic direction	Encourage learning and new efforts
... with all types of metrics				

Figure 3.5 Controller roles and economic cycles (Nilsson, Olve, & Parment, 2011, p.255)

Another factor of influence frequently mentioned in the literature is the influence of **information technologies and ERP systems** in particular. Nilsson, Olve and Parment (2011) state that the implementation of fully integrated information systems ensures automation of many processes and leaves the controllers more time for financial analysis. Among other benefits, the authors mention better transparency and alleviation of monitoring, creation of a framework for management control as well as improved coordination and synchronization of activities. It is argued by the authors that such systems help to enhance the role of the controller from “accountant” to “coach”. However, despite numerous advantages, Nilsson, Olve and Parment (2011) also emphasize the difficulties in assessing the effects of such information systems and the consequent complications for controllers, IT staff and other involved parties to show the worthiness of the investment in them. Byrne and Pierce (2007) confirmed the discussed opinion to a certain extent and indicated technology

to have an impact on integrating information, automating processes and improving the timeliness of reporting. Scapens and Jazayeri (2003) also conclude that the implementation of ERP systems helps remove routine activities, and leads to standardization, integration, and centralization effects. Moreover, the authors have identified that there is a tendency towards line managers possessing accounting knowledge, an enhanced time horizon of information and an enriched role of management accountants. However, Byrne and Pierce's (2007) findings showed that ERP system might also increase the workload of management accountants, leaving even less time for their involvement in the decision-making process.

Roman, Roman and Meier (2014), Merchant and van der Stede (2007) and Byrne and Pierce (2007) state that the **size of a company** is another factor of influence on the controller's role. In small and medium-sized companies, the controller will probably combine several functions, while in a large company, one can find a separate position for the controller and treasurer (Merchant & van der Stede, 2007; Roman, Roman & Meier, 2014). The study by Byrne and Pierce (2007) demonstrates that size has an influence on the volume of functions, the formalization of the role and on the awareness of management accountants about issues outside their finance functions.

The **hierarchical level** of a controller is also considered to have an influence on the role. The study by Gruber (2015), who examined the relation between the hierarchical level and IT requirements in management accountants, indicates that the relevance of knowledge in BI and SAP increases with it. The same is true for general IT knowledge. On the other hand, MS Office and MS Excel seem to be most important for lower hierarchical levels. Thus, knowledge in ERP systems appears to supersede MS Office skills with an increasing hierarchical level. Moreover, Stone, Hunton and Wier (2000) found that the requirements in technical skills decrease with increasing rank of controllers, while requirements in industry and tacit managerial knowledge increase.

It can be detected, that the majority of studies in the area of factors influencing the role of management accountants is mainly dated from the previous decade. Thus, a new empirical study appears valuable to discuss the relations between the identified contextual factors on the one side and tasks and skills requirement in controllers on the other side. It can also be observed, that the literature to date mainly presents a mixture of factors that influence the role of management accountants itself and those that affect the change of the role.

3.3 Tasks and requirements

3.3.1 Tasks performed by management accountants

The basic task of management accountants is to provide information (Byrne & Pierce, 2007; Graham, Davey-Evans & Toon, 2012; Nilsson, Olve & Parment, 2010; Weber, 2011). Besides collecting and reporting information, they also interpret it, advise managers in their decision-making (Byrne & Pierce, 2007; Nilsson, Olve & Parment, 2010; Weber, 2011) and are both involved in regular reporting activities including performance reviews and in providing ad hoc analyses and contributing to forecasting (Byrne & Pierce, 2007; Graham, Davey-Evans & Toon, 2012; Weber, 2011). Furthermore, management accountants are in charge of both recommending how to design the MCS and managing it (Nilsson, Olve & Parment, 2010; Weber, 2011).

The study conducted by Graham, Davey-Evans and Toon (2012) gives further insights into the respective importance of the various tasks and highlights some further ones that management accountants are in charge of in practice. Their analysis of job advertisements in England indicates that reporting, managing the business and the department as well as control, forecasting and budgeting are the most important tasks. They also conducted a survey about the time spent on the various tasks. This survey also shows that reporting is most important with 15% of the time spent on it, followed by managing the department, forecasting and budgeting, and managing the business. The results of another survey conducted in the UK differ from those of Graham, Davey-Evans and Toon (2012) as they indicate that management accountants consider business performance evaluation, cost control and budget related tasks most important (Yazdifar, Askarany & Askary, 2008).

A survey by Schäffer and Erhart (2013) examined the activities conducted by German management accountants during the phases of analysis, design, implementation and control. They found that the most important tasks are supporting the implementation of strategies, following up on the success, supporting the definition of goals, providing relevant information and advising the management. To gain further insight into the self-conception of German management accountants, it is also valuable to consider the information provided by the association “Internationaler Controller Verein eV” founded in Germany (ICV, n.d.-b). According to the ICV (n.d.-a), management accountants contribute to the long-term success of an organization, take part in planning processes and setting goals, administer the management control systems, and provide information. It regards controllers as the “conscience of the business”.

To sum up, it can be said that the range of activities performed by management accountants is very broad and requires them to work together with a variety of other departments. Thus, it can be expected that the requirements in them are highly diversified as well.

3.3.2 Requirements in management accountants

For the following subsection, only literature targeted at management accountants was considered, while those sources discussing skills of accountants or auditors were excluded. While there are many different ways of organizing the requirements in the theory, in this paper, they are organized by importance, as displayed in Figure 3.6.

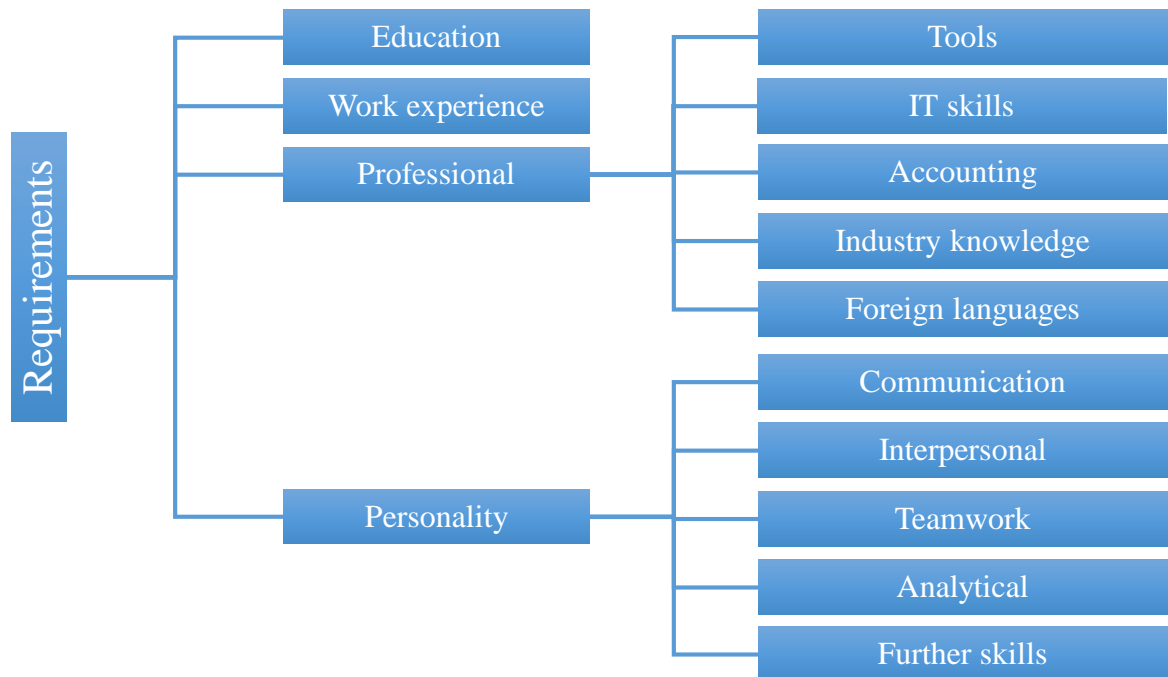


Figure 3.6 Classification of requirements

Before going into detail about each of the requirements, an overview is provided in Table 3.4, which summarizes the most important aspects of each requirement.

Requirements	Summary
Education	<ul style="list-style-type: none"> - Generally considered important, but importance decreases with increasing hierarchical level - Germany: relevance of subject of studies (business economics & sciences, industrial engineering etc.), education independent from profession, partly acceptance of business management training - UK: importance of professional training (e.g. ACA, ACCA, CIMA)
Work experience	<ul style="list-style-type: none"> - High relevance - Mainly several years of work experience required - Career entrants accepted in 15% of cases - Industry-specific experience required by ¼ of companies

Requirements		Summary
Professional	Management accounting tools	<ul style="list-style-type: none"> - Often taken for granted - Most important tools: <ul style="list-style-type: none"> - Identified through job advertisements: cost accounting, reporting, budgeting, improvement and further development of controlling, project management and project controlling - Identified through survey: budgets, strategic management accounting, variance analysis and rolling forecasts
	IT skills	<ul style="list-style-type: none"> - MS Office often requested, especially MS Excel - ERP systems important for controllers' work, in Germany SAP in particular (especially by larger companies and in the finance sector) - Increasing importance of BI
	Accounting	<ul style="list-style-type: none"> - Decreasing distinction between external and internal accounting in companies - Importance seems to be related to company type, especially IFRS - Controlling leaders see higher importance than controllers
	Industry knowledge	<ul style="list-style-type: none"> - Theoretically highly valued, as due to today's wider role it is important to interpret the figures - Only stated in one out of 4 job advertisements, but considered highly important by management accountants
	Foreign languages	<ul style="list-style-type: none"> - English knowledge highly important due to globalization of business (relevant particularly for Germany) - Other languages only rather "nice to have"
Personality criteria	Communication	<ul style="list-style-type: none"> - Very frequently requested - Considered to be highly important now and in the future
	Teamwork & interpersonal skills	<ul style="list-style-type: none"> - Considered relevant for the present - Trend towards decreasing importance
	Analytical skills	<ul style="list-style-type: none"> - Considered rather important or very important in the UK - Considered extremely important by German controllers
	Further skills	<ul style="list-style-type: none"> - Leadership abilities are losing significance - Convincibility rather often requested - Flexibility as also non-financial aspects should be considered by management accountants - Pressure and time management skills - etc.

Table 3.4 Summary of the requirements in management accountants

Education

According to Stone, Hunton and Wier (2000), performance can be predicted more precisely by knowledge than by experience. Therefore, formal education may be a relevant criterion for companies in their selection of new employees.

According to Ahrens and Chapman (2000) and Heinzelmann (2016), there are significant differences in the common way of becoming a management accountant between the UK and Germany. In both countries, university studies are usually part of the education, but in Germany, the subject of the studies is of higher relevance. Most German management accountants have completed their studies in business economics, while it is not uncommon for British management accountants to have studied non-economic subjects. British students then complete a course at e.g. CIMA during their first years of working and are afterwards considered professionals. This takes at least three years. In comparison to auditing, management accounting is not that strongly institutionalized. The German training is, on the other hand, not organized by the profession. However, a significant share of companies enrolls or considers enrolling their junior management accountants to courses by the ICV. Students often already set a focus on controlling within their studies (Ahrens & Chapman, 2000; Heinzelmann, 2016). While 96% of large German companies require a university degree, 75% also accept a degree of a university of applied sciences (German: Fachhochschule) and a minor percentage of 15% are even satisfied with a business management training that students can do when they finish school which does not require a university degree (Berens et al. 2013). Moreover, in comparison to other requirements, for Germany a university education is considered very important. For example, Weber (2008) finds that such a degree is among the ten most important requests and in earlier studies, it was found to be of high significance and increasing in importance over time (Bramsemann, 1978; Weber & Kosmider, 1991, cited in Berens et al. 2013; Weber & Schäffer, 1998, cited in Berens et al. 2013).

While it is not considered a disadvantage to have studied a not relevant subject in the UK (Ahrens & Chapman, 2000), the choice of subject is of higher relevance in Germany that is why some more details will be added to that. Berens et al. (2013) found that business administration (Betriebswirtschaftslehre) with 47% and business sciences (Wirtschaftswissenschaften) with 38% are by far the most requested study subjects, followed by industrial engineering (16%), engineering (8%) and business informatics (6%). However, 9% of the examined job ads made no specifications. In case of a specified area of focus, controlling (27%), finance (19%) and accounting (11%) were the most desired ones (Berens et al. 2013).

To conclude, it should also be mentioned that the importance of formal education has been found to differ with the hierarchical level of the job. Thus, it is of higher relevance for entry level jobs such as junior management accountants, but loses significance at higher ranks (Siegel & Sorensen, 1994, cited in Stone, Hunton & Wier, 2000; Siegel, Kulesza & Sorensen, 1997, cited in Stone, Hunton & Wier, 2000).

Work experience

For management accountants, gaining practical experience can be considered of high relevance as it enables them to better understand and thereby to analyse and interpret the figures (Küpper, 2013). Furthermore, Preis (2012) emphasizes the importance of work experience by stating that it is impossible to replace it by university education.

Previous studies have supported this by showing that most companies require several years of relevant job experience (Bramseman, 1978; Berens et al. 2013; Gruber, 2015; Weber & Kosmider, 1991, cited in Berens et al. 2013; Weber & Schäffer, 1998, cited in Berens et al. 2013). In the two rather recent studies by Berens et al. (2013) in Germany and Gruber (2015) in Austria, work experience was requested in 87% and 85% respectively. Thus, only approximately 15% of companies were willing to employ career entrants. In 41% of the analysed job ads by Berens et al. (2013), the experience should be in the field of controlling and in 25% of all cases, the industry was specified, indicating that these companies consider it important that management accountants possess industry specific knowledge, which will be further discussed later.

Professional skills

Management accounting tools

Management accounting tools comprise all methods, models and techniques that management accountants apply (Horvath, 1986) such as cost accounting, activity-based costing, budgeting, reporting, benchmarking, total quality management, project management and the development of management accounting systems (Chenhall & Langfield-Smith, 1998; Gruber, 2015; Yazdifar & Tsamenyi, 2005). When management accountants were asked which skills they consider important for the present as well as which ones they expect to gain or lose importance in the future, almost half of them stated knowledge of controlling tools, but only one third of them expected its importance to further rise in the future. Moreover, management accounting leaders also emphasize the importance of management accounting tools by stating that knowledge of them is usually taken for granted (Weber, 2008). The significance of management accounting tools is further pointed out by Gärtner, Feldbauer-Durstmüller and Duller (2014), Seggebruch (2000), and Vokalfotis, Ballantine and Wall (2011).

However, Berens et al. (2013) only found specific tools to be required in 16% of all ads with cost accounting being most often requested (6%). The explanation provided for the low percentage is that the relevant knowledge is often specified by stating the tasks to be conducted rather than stating them as requirements. This is in line with the findings of Gruber (2015) who found knowledge in

controlling tools to be requested much more often with cost accounting knowledge being wanted by 69%, reporting by 67% and budgeting by 59% of the ads. The explanation for the differences might be in the approach of these studies, as Gruber (2015) analysed the stated tasks to infer the necessary management accounting tools while Berens et al. (2013) only considered specifically stated tools. In a survey of British management accountants, the tools and techniques expected to be most important in the future were budgets, strategic management accounting, variance analysis and rolling forecasts (Yazdifar, Askarany & Askary, 2008; Yazdifar & Tsamenyi, 2005).

IT skills

The importance of IT skills for management accountants has been highlighted by several scientists (Berens et al. 2013; Burns & Yazdifar, 2001; Byrne & Pierce, 2007; Gärtner, Feldbauer-Durstmüller and Duller, 2014; Gruber, 2015; Hassall, Joyce, Montano & Anes, 2003; Küpper, 2013; Seggebruch, 2000; Weber, 2008).

The work of management accountants is closely related to ERP systems. That is why knowledge in ERP systems is often in demand (Chapman, 2005; Chen, Chiang & Storey, 2012). According to Gruber (2015), SAP was demanded in 35% of employment ads, other specific ERP knowledge in 10% and general ERP knowledge in 7%. It is interesting to note, that SAP was more often requested by companies of the finance sector, by larger companies and for higher rank positions (Gruber, 2015). This also explains why Berens et al. (2013) find an even higher demand for SAP knowledge with 59%. As mentioned before, this difference can be explained by Berens et al.'s (2013) restriction of the sample to large capital market oriented companies. The demands for MS Office skills ranged from one third to three quarters of all examined ads (Berens et al. 2013; Gruber, 2015). Also British management accountants see the importance of IT skills (Burns & Yazdifar, 2001; Hassall et al. 2003). In a study by Hassall et al. (2003), employers and students were asked to rank 22 different skills according to importance. Here, the use of relevant software reached ranks eight among employers and four among students. In the survey by Burns and Yazdifar (2001), IT skills were even considered the second most important skill.

Companies also face the problem of increasing amounts of data, leading to information overload. To handle that data, BI tools are gaining significance and due to this fact employees with the appropriate skills are needed (Chen, Chiang & Storey, 2012; Bucher, Gericke & Sigg, 2009; Gärtner, Feldbauer-Durstmüller and Duller, 2014; Mikroyannidis & Theodoulidis, 2010).

Accounting

Classical accounting knowledge is important for management accountants as well (Berens et al. 2013; Gruber, 2015; Stone, Hunton & Wier, 2000). While in the past, there was often a rather clear distinction between external and internal accounting, which was reflected in the responsibilities of employees, this distinction is becoming smaller with accounting standards increasing in relevance for management accountants (Weber, 2008). However, the findings are not completely consistent. Berens et al. (2013) find that IFRS knowledge is requested in 22% of the analysed ads, local German GAAP (HGB) in 10%, US GAAP in 3% and just general accounting knowledge in 1%. At the same time, Gruber (2015) concludes that IFRS is only requested in 8% of the ads while general accounting knowledge reaches a percentage of 26%³. The difference can be explained by the different samples, as Berens et al.'s (2013) sample only consists of large listed companies (DAX-30 and MDAX). As IFRS is especially relevant for that group of companies, the lower percentage of IFRS requests in the other study may not be surprising (Berens et al. 2013; Gruber, 2015).

Nevertheless, concerning the future development of the significance of accounting skills for management accountants, the results are ambiguous as well. While Gruber (2015) concludes that the trend goes towards increasing importance, Weber (2008) finds that management accountants do not attribute a lot of importance to accounting knowledge and, compared to the other examined prerequisites, only a rather small percentage expects it to increase in relevance, and some of them even expect it to lose importance. On the other hand, controlling leaders seem to value accounting knowledge to a further degree and expect that it will require much attention from management accountants in the future (Weber, 2008).

Industry knowledge

Both Berens et al. (2013) and Gruber (2015) find that industry-specific knowledge is demanded in approximately only one out of four ads. In spite of this, researchers consider industry and business knowledge rather important as it enables management accountants to understand the background of their figures, which is a prerequisite to be able to give recommendations to managers (Gruber, 2015; Seggebruch, 2000). Pierce and O'Dea (2003) asked British production and sales managers about their relationships with management accountants and how they see their future role. It revealed that they consider it important for management accountants to understand the business and the strategy rather than just sticking to the figures to live up to the expectations of a business partner. Making informed

³ In this study, US GAAP is included in this category.

decisions cannot solely be based on figures, it requires further and deeper understanding of the business. Therefore, management accountants should spend time outside their offices and communicate with all relevant parties and get involved (Byrne & Pierce, 2007; Johnston, Brignall & Fitzgerald, 2002). The importance of understanding the business is explained by today's wider role of management accountants as it goes beyond just record keeping (Hopper, Northcott & Scapens, 2007; Nilsson, Olve & Parment, 2011; Scapens & Jazayeri, 2003). When management accountants are directly asked how important they consider industry knowledge, more than 44% see its significance (Burns & Yazdifar, 2001; Weber, 2008), management accounting leaders even see it as the second most important knowledge of management accountants after communication skills (Weber, 2008).

Furthermore, industry knowledge is rather learned on the job than at university that is why career entrants will hardly be able to possess as much knowledge as more experienced management accountants. Therefore, Stone, Hunton and Wier (2000) find it to be more prevalent in higher ranked jobs. As a consequence, demands for it may be more excessive in job ads for senior positions.

Foreign language knowledge

Knowledge of foreign languages is rarely mentioned in the scientific discussion of requirements in management accountants. However, this does not mean it is not important in practice. Knowledge of English for management accountants is considered essential due to the increasing internationalisation and globalization of the business world (Seggebruch, 2000). Its general importance has also been highlighted in the literature (Carnevale, Smith & Strohl, 2013; Kankaanranta, Louhiala-Salminen, & Karhunen, 2015). Already the study by Bramsemann (1978) highlighted the high value of English skills as it was the most frequently demanded skill with 42% of job ads requesting it. Due to the increasing internationalisation, English skills can therefore be expected to be even more important today. However, Weber (2008) finds that only 1% of the surveyed German controllers considers foreign language skills important, but on the other side 47% of them expect it to rise in importance in the future. Being mentioned in 82% of all analysed advertisements by Berens et al. (2013), and in 45% of the ads by Gruber (2015), English is very frequently demanded today while other languages only play a minor role (Berens et al. 2013; Gruber, 2015).

Personality

In addition to the requirements mentioned so far, there is a range of personality criteria which management accountants are often expected to possess, as technical skills are not sufficient by themselves (Hassall, Joyce, Montano & Anes, 2005; Montano, Donoso, Hassall & Joyce, 2001; Stone, Hunton & Wier, 2000).

Communication

Communication skills are the ability to both orally and in writing present and defend the outcomes of one's work as well as to obtain knowledge from a variety of different sources (Montano et al. 2001). There is strong agreement concerning its current and expected future relevance for management accountants (Berens et al. 2013; Byrne & Pierce, 2007; Hassall et al. 2003; Johnston, Brignall & Fitzgerald, 2002; Novin, Pearson & Senge, 1990; Pierce & O'Dea, 2003; Seggebruch, 2000; Scapens & Jazayeri, 2003; Weber, 2008). This had not yet been the case in the employment ad analysis by Bramseman (1978) whose closest category to communication skills, called verbal expressive powers (German: Sprachliches Ausdrucksvermögen) was only found to be demanded in 2% of the ads. The increased importance gets clear as Berens et al. (2013) find it to be asked for in 55% of the advertisements – making it the third most important personality characteristic after teamwork and analytical abilities. Controlling leaders even prioritized communication skills to be most important and controllers expect no other characteristic to rise more in importance in the future than this one (Weber, 2008). However, the findings of Burns and Yazdifar (2001) significantly differ from the other ones. Even though they find that 60% of the surveyed management accountants considered oral communication skills and 46% presentational skills important over the last five years, only 22% of them thought that presentational skills would still be important in the future while oral communication skills were not even among the top ten expected future skills.

Teamwork and interpersonal skills

Being able to properly work in teams requires a whole range of aspects. It requires interpersonal skills, being able to motivate and to solve conflicts as well as leading and delegating (Montano et al. 2001). According to Foster and Ward (1994) and Ross (1994), trust is important for the successful work of management accountants. Trust can only be established when the involved parties have sufficient interpersonal skills (Buchanan & McCalman, 1988). While a large number of researchers see its relevance for the presence (Burns & Yazdifar, 2001; Byrne & Pierce, 2007; Hassall et al. 2005; Johnston, Brignall & Fitzgerald, 2002; Pierce & O'Dea, 2003) and Berens et al. (2013) even finds team spirit to be the most important personality requirement, both Burns and Yazdifar (2001) and Weber (2008) indicate a trend towards its decreasing importance.

Analytical and problem-solving skills

Creatively solving complex problems and thinking logically and abstractly to make decisions as well as critical questioning are related to analytical skills (Montano et al. 2001, Weber, 2008). It enables management accountants to detect possible mistakes or opportunistic behaviour (Weber, 2008). The

results for British management accountants are not very clear. While Hassall et al. (2003) finds them to be considered only moderately important, the respondents of Burns and Yazdifar's (2001) survey see them as the most important skill. German management accountants as well as leaders do consider them extremely important (Weber, 2008), and they are the second most common personality requirement in job ads of large companies (Berens et al. 2013). Furthermore, 97% of management accountants surveyed by Novin, Pearson and Senge (1990) stated problem-solving skills to be very or even extremely important for entry-level management accountants. These skills are considered stable for adults and not increasing through more experience (Stenberg, 1997, cited in Stone, Hunton & Wier, 2000).

Further personality requirements

Finally, some more personality requirements will be mentioned that have not received as much attention in the literature as the previously discussed ones. Thus, they will only be discussed briefly. Leadership skills were the second most requested skill in the analysis by Bramsemann (1978). However, since then, these skills have lost relevance for management accountants (Berens et al. 2013; Weber, 2008; Weber & Kosmider, 1991, cited in Berens et al. 2013). In the most recent analysis that considered leadership skills, they were only requested in 4% of the ads, supporting the notion of management accounting being rather a support function (Berens et al. 2013).

Weber (2008) also discusses steadfastness and convincibility. According to him, steadfastness is important to reduce conflicts as it increases the credibility of management accountants when they stick to their position and apply the same rules to everyone. Convincibility is needed to enable management accountants to powerfully demonstrate their point of view when their opinions differ from those of others. Berens et al. (2013) found it to be demanded in 21% of their analysed ads.

Another discussed personality characteristic is flexibility. It means that management accountants should also consider other factors and not just stick to their data. They should also be able to understand that there are cases when non-financial aspects need to be prioritized so that financially less attractive decisions may be chosen (Byrne & Pierce, 2007; Johnston, Brignall & Fitzgerald, 2002).

Hassall et al. (2005) also found pressure and time management skills to be rather important. That means that management accountants should be able to organize their workload in a way that allows them to meet deadlines and to set the right priorities.

Finally, it should be mentioned, that there are a lot more characteristics that companies request in practice as the job ads analysis by Berens et al. (2013) demonstrates. They list more than 40 different personality characteristics that they found mentioned in job ads, including e.g. motivation, creativity and commitment. Nevertheless, the majority of them is only mentioned in a rather low portion of the ads.

4 Development of a theoretical framework

4.1 Choice of contextual factors to be analysed

The conducted literature review has revealed a variety of contextual factors influencing the design of a particular MCS. Besides, unsurprisingly, it has been found that a number of factors described in the literature as having an influence on the role of management accountants itself coincide with those contextual factors. Such a review helped us to find the most influential factors from previous researchers' points of view. Additionally, the possibility to analyse the factors through the chosen research method was considered when choosing them for the empirical analysis.

One of the factors considered important is **national culture**. In order to analyse the influence of national culture, it was decided to include two different countries in the sample – the UK and Germany. However, it can be argued that the analysis of different countries' requirements in management accountants does not provide the picture of influence of national culture in isolation, which stands in line with the comparative management accounting research results discussed in Subsection 3.1.2. Hence, the result of the analysis cannot be attributed only to differences in culture between the UK and Germany, but rather reflect the influence of all discussed country specific factors in conjunction. The accounting system in Germany can be classified as one of the continental group, while the British one is Anglo-Saxon (Nobes & Parker, 2012). The German system is characterized by a codified law system, banks being the main source of finance, a rather small accounting profession and a close connection between accounting and taxation. The British system can be classified into the common law group with the stock exchange as the main financial source, distinctive separation of accounting and taxation and a highly developed accounting profession (Nobes & Parker, 2012).

At the same time, Hofstede's classification was used to additionally assess the national differences from cultural dimension. Hofstede's cultural study and classification are criticized for a number of reasons including ignoring the multicultural composition of nations, being too simplistic in the definition of culture, having a limited number of dimensions, being based on the examination of only one type of managers, grouping countries together as culturally identical and being out of date (Hopper, Northcott & Scapens, 2007). Nevertheless, this framework remains one of the most applicable and recognizable ones in the management accounting field of research on cultural differences (Harrison & McKinnon, 1999). One possible explanation for its continued popularity is that culture is considered only to change very slowly over time. Thus, to interpret the results of the present study, the latest version of the dimensions was taken into consideration.

The next factor appeared to be the **size** of a company. As this aspect was expected to be highly influential and easy to determine, it was decided to include it into the analysis of the current study.

The company's relation to a specific **industry** was included due to the findings claiming the absence of generalization possibilities of results about the direction of influence of this factor on the design of MCSs. Particularly, companies were divided into service and manufacturing ones and, in addition, the Industry Classification Benchmark (n.d.) framework was applied to group all companies into a specific branch of industry. This framework has been chosen as it appeared to be appropriate to differentiate between different groups of industries, it also provides an explicit description of each category and is internationally recognized by a number of the most influential stock exchanges (Industry Classification Benchmark, 2012).

Further, based on the empirical findings by Gruber (2015) and Stone, Hunton and Wier (2000), discussed in Subsection 3.2.4, the hierarchical position of the controller was also assumed to play a role in the formulation of the requirements and was therefore included in our empirical analysis.

Above all, a number of factors found in the literature as rather influential – environmental uncertainty, strategy, technology and structure – were not taken into consideration in the current study for a number of reasons.

Even though **environmental uncertainty** was found to be among the most popular factors,, it was decided not to analyse it in this thesis. First, due to the already high level of attention, this factor was explicitly explored prior to the present study. Second, the approach undertaken in the study – an analysis of job advertisements – limits the possibilities of estimating the level of environmental uncertainty itself. Moreover, as mentioned before, researchers have pointed out that such a factor is rather subjective and difficult to compare among different studies due to an inconsistent use of proxies.

In addition to already having received a high level of academic attention, the influence of **strategy** was not taken into account due to difficulties of measuring such a factor and due to the criticism that the simplicity of the existing classification of strategies does not fully represent the complexity of a company's strategy. Moreover, the influence of **information technology** appeared to be hard to assess by our chosen research method. The examination of its influence was not completely excluded from the analysis, but to some extent explored through the corresponding skills requirements. The influence of **structure**, however, was considered to be rather problematic to assess due to difficulties to measure this aspect in general and because of a limited access to the company's internal information through the applied method of research.

Table 4.1 shows the contextual factors that were included in the current study based on the conducted literature review.

Contextual factors
Country of origin
Size
Type (service or manufacturing)
Industry
Hierarchical position

Table 4.1 Summary of the contextual factors taken for the analysis based on the literature

4.2 Choice of requirements to be analysed

Further, the main requirements in management accountants were identified based on the literature as well, and included for further analysis. In order to analyse the role of management accountants based on the information provided in job advertisements, it was decided to include those skills and knowledge that received the highest attention in the relevant literature and were found to be most important. Therefore, the list of skills, knowledge and tasks taken for the current study analysis, includes the following categories, which correspond to those described in Table 3.4: education, experience, professional skills and knowledge, and personality criteria requirements. Table 4.2 presents the summary of the requirements that were taken for the analysis of the management accountant's role.

Category		Requirement
Education		Certain level or type of education
Work experience		Certain period of experience
Professional skills	Management accounting tools	Cost accounting
		Variance analysis
		Reporting
		Planning, budgeting and forecasts
		Further development of controlling tools or systems
		Project management and controlling
	General	Accounting
		Industry knowledge
		Foreign language
	IT related	SAP
		ERP excluding SAP
		MS Office excluding MS Excel
		MS Excel specifically
		Business Intelligence

Category	Requirement
Personality criteria	Communication
	Teamwork
	Interpersonal
	Analytical
	Leadership
	Convincibility and assertiveness
	Flexibility
	Time management
	Stress management

Table 4.2 Summary of the requirements taken for the analysis based on the literature

Finally, by combining the contextual factors and requirements in management accountants considered for the analysis, a theoretical framework was developed.

5 Results

5.1 Adjusted framework for the analysis

The analysis of the pilot sample of job advertisements was conducted following the framework presented in Chapter 4. However, the developed framework was adjusted to incorporate those contextual factors and requirements that were inductively found to be important during this first step of the analysis.

Hence, it was identified that the age of operation of a company might have an influence on the role as well. Therefore, the **matureness** of a company measured in years of its operation was included in the analysis as another contextual factor. Two more contextual factors were added to the analysis, mainly following the same logic – listing on the stock exchange, and the geographical scope. It was expected, that the **listing on the stock exchange** might affect the flexibility of the applied MCSs. The corresponding requirements in tasks and skills of management accountants of listed companies are expected to be exposed to a higher number of rules. What concerns the **geographical scope**, it was added to the analysis only partially inductively. The geographical scope was assumed to have an influence because the requirements in management accountants in MNCs might reflect the notions of globalization and the influence of multinationality, but it was discussed by Merchant and van der Stede (2007) before. However, we are not aware of any empirical studies examining multinationality and listing on the stock exchange in relation to the role of management accountants. That drives our motivation to address this gap.

Further, several additional requirements were added to the theoretical framework. Among those are tax knowledge, databases, general IT literacy and other specific software skills, as well as the personality criteria presentational, hardworking and independency. However, of course, this does not mean that they had not been discussed by researchers before. The reason for stating them as being identified inductively is that, within the previous research, they had appeared to be only of minor importance, but during the analysis of the pilot sample, were found to be required rather often and therefore included.

Appendix A presents the adjusted comprehensive framework considered for the analysis in this study. Further, the description of possible manifestations and assumptions concerning the contextual factors, tasks and requirements is presented in Appendix B. Appendix C shows an example of an advertisement being processed.

5.2 Presentation of the sample

Table 5.1 presents the summary of the analysed sample characteristics. The majority of our sample companies appeared to be unlisted. Most of them can also be classified as MNCs. In addition, the number of service companies exceeds the manufacturing ones.

Criteria	Number of companies	Percentage within the sample
Total number of companies	200	100%
<i>Country</i>		
UK	100	50%
Germany	100	50%
<i>Company size (number of employees, average: 25 293, standard deviation: 70 740)</i>		
less than 1 000	80	40%
1 000-9 999	69	35%
10 000 or more	51	25%
<i>Company matureness (average: 67, standard deviation: 60)</i>		
less than 20 years	52	26%
20-99 years	93	47%
100 years and older	55	27%
<i>Listed / Unlisted</i>		
Listed	62	31%
Unlisted	138	69%
<i>MNC/Local</i>		
MNC	135	68%
Local	65	31%
<i>Type (Service/Manufacturing)</i>		
Service	137	69%
Manufacturing	63	32%
<i>Industry</i>		
Consumer goods	39	20%
Consumer services	39	20%
Industrials	60	30%
Other ⁴	62	30%

Table 5.1 Summary of the sample characteristics

5.3 The role of controllers as described in job advertisements

First, the requirements in **experience** of management accountants have been analysed. The analysis revealed that the majority of companies expects their applicants either to have several years of experience (42%) or do not specify the desired duration (40%). Only a minor percentage of companies (4%) states one year of experience as sufficient. 14% of the analysed ads do not specify

⁴ Into the category “other” healthcare, telecommunications, utilities, basic materials, technology, financials and other industries according to the ICB framework have been combined due to a small representation in the sample.

the experience requirements or explicitly state that they admit professional newcomers, thus, do not require any experience.

Education requirements (Figure 5.1) appeared to differ substantially between the UK and Germany. Some companies prefer their applicants holding university degrees and some require professional training. There are also those stating both options. Generally, it can be summarized that university and professional training are almost equally important and 17% of the companies state either university or professional training as acceptable.

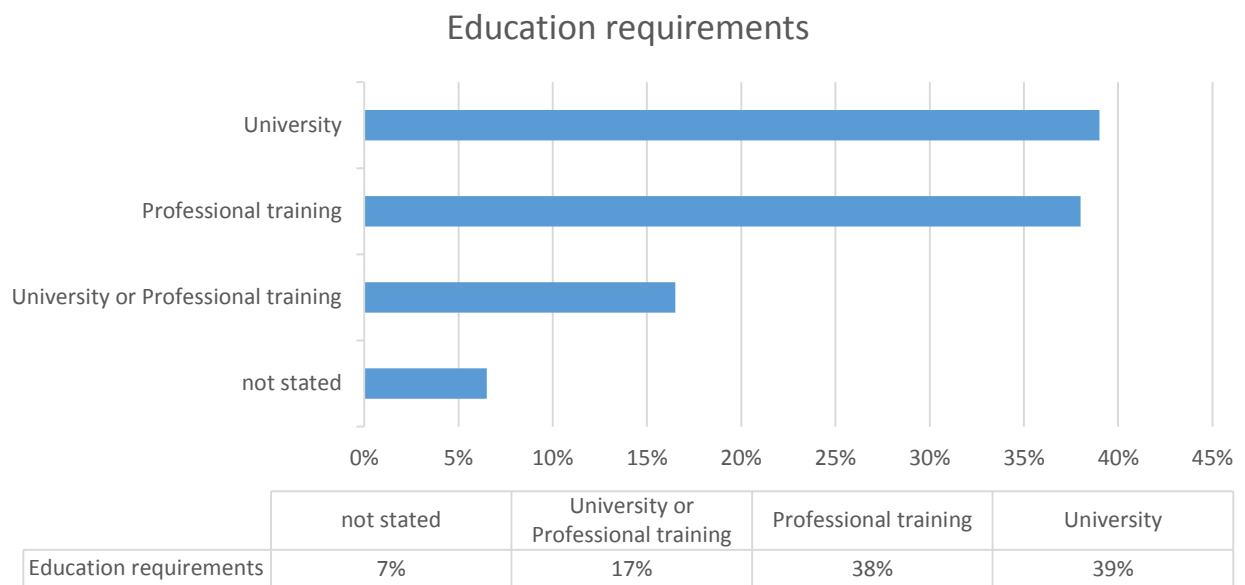


Figure 5.1 Education requirements

Only one of the sample companies did not state any **professional skills** out of those taken for the analysis. Figure 5.2 presents the general findings about requirements in professional skills. It can be observed that reporting is the most popular skill. Planning, budgeting and forecasts as well as cost accounting are also among the most frequently required professional skills. Minimum attention is paid to tax knowledge.

Overall, 88% of the companies specify their requirements in **IT skills**. As can be interpreted from Figure 5.3, MS Office and MS Excel in particular as well as ERP systems and specifically SAP are the most desired skills. Among “other specific software”, applications such as Sage, Hyperion or Oracle were recorded. As the frequency of any of these types of software was not found substantial, no particular software was taken for further analysis.

Requirements in professional skills

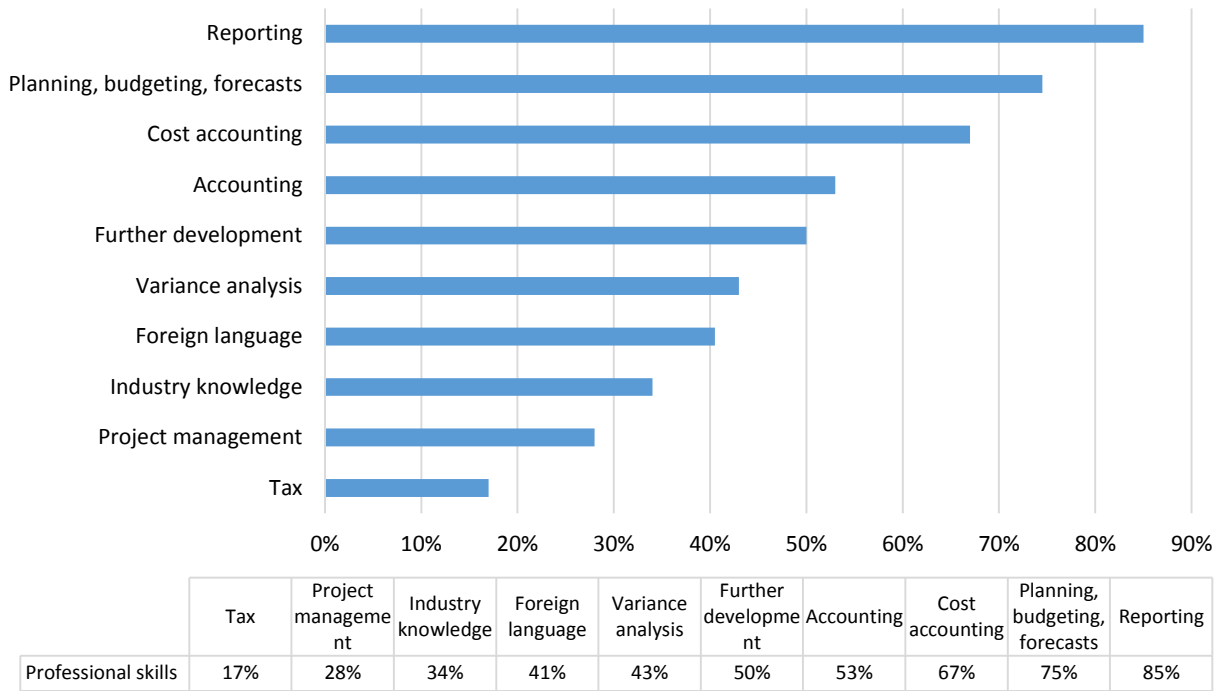


Figure 5.2 Requirements in professional skills

Requirements in IT skills

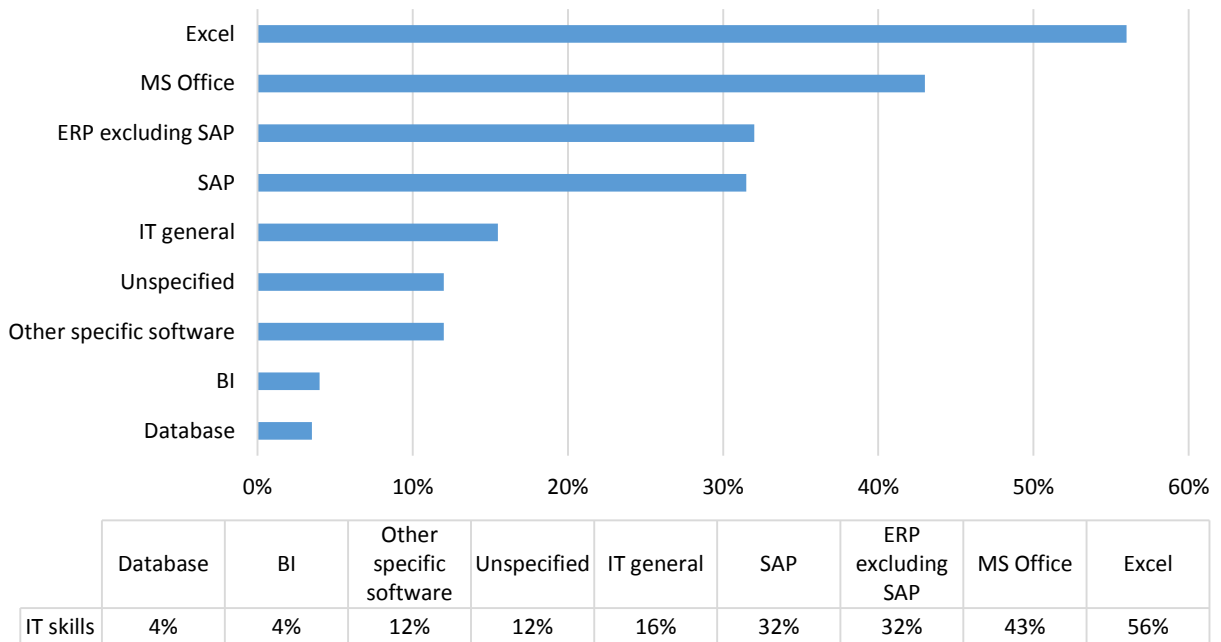


Figure 5.3 Requirements in IT skills

88% of the sample companies specify **personality criteria**. As can be seen in Figure 5.4, communication, analytical abilities and teamwork are the most important personality criteria, while leadership and presentational skills are only of minor importance.

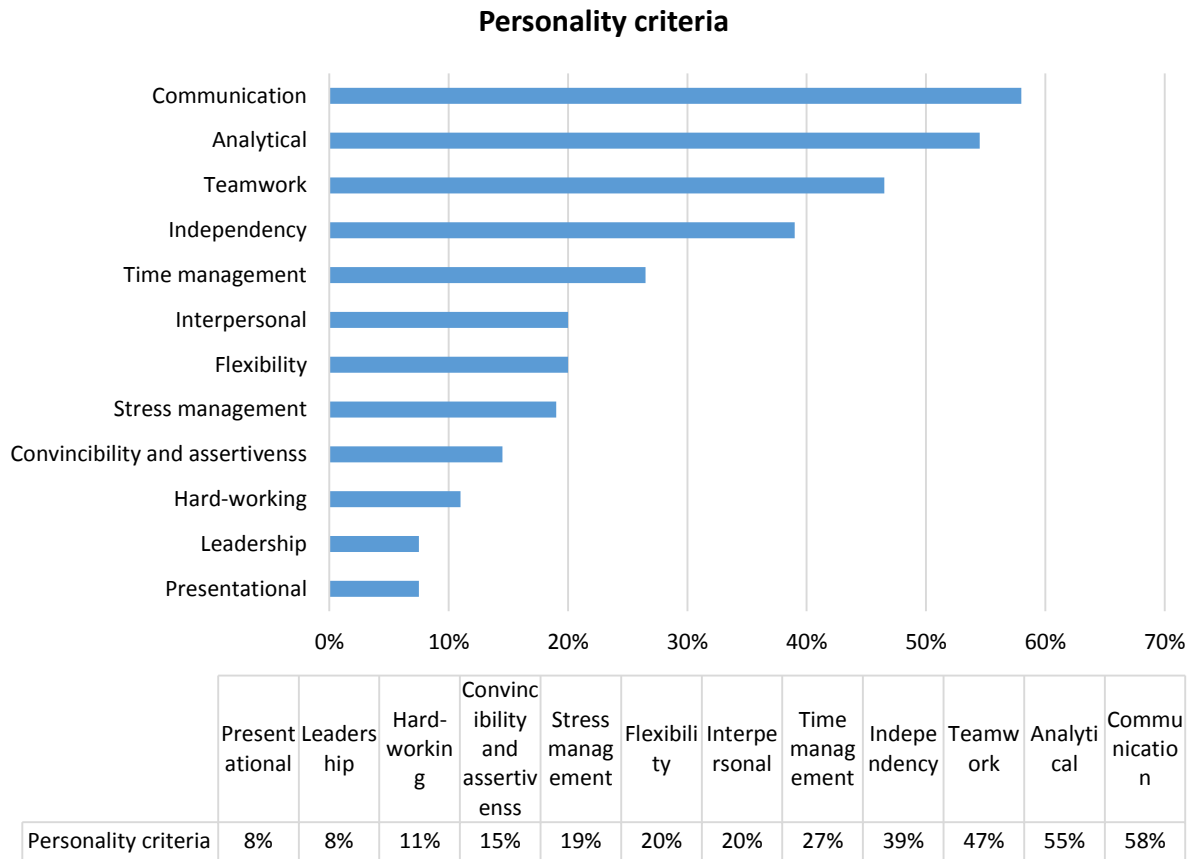


Figure 5.4 Requirements in personality criteria

5.4 Influence of the examined contextual factors on the role of controllers

First, it should be mentioned that the analysis did not reveal any substantial differences or variations of companies' requirements to the applicants' **experience** in relation to any of the examined contextual factors. Therefore, this group of requirements will not be further discussed. In addition, **education** was found to be mainly influenced by the country. Thus, all charts describing those relations (apart from the influence of the country of origin on education) are excluded from the paper. Furthermore, the analysis revealed that the undertaken approach does not provide a substantial sample to assess the influence of the hierarchical position of the controller. Thus, this factor was omitted from the further analysis. The most substantial directions of influence for the other factors and groups of requirements will be discussed in the following subsections.⁵

⁵ All charts that are not presented in the paper are available upon request.

5.4.1 Country of origin

In general, it was found that **education** requirements considerably differ between the two countries of analysis. Figure 5.5 illustrates this difference.

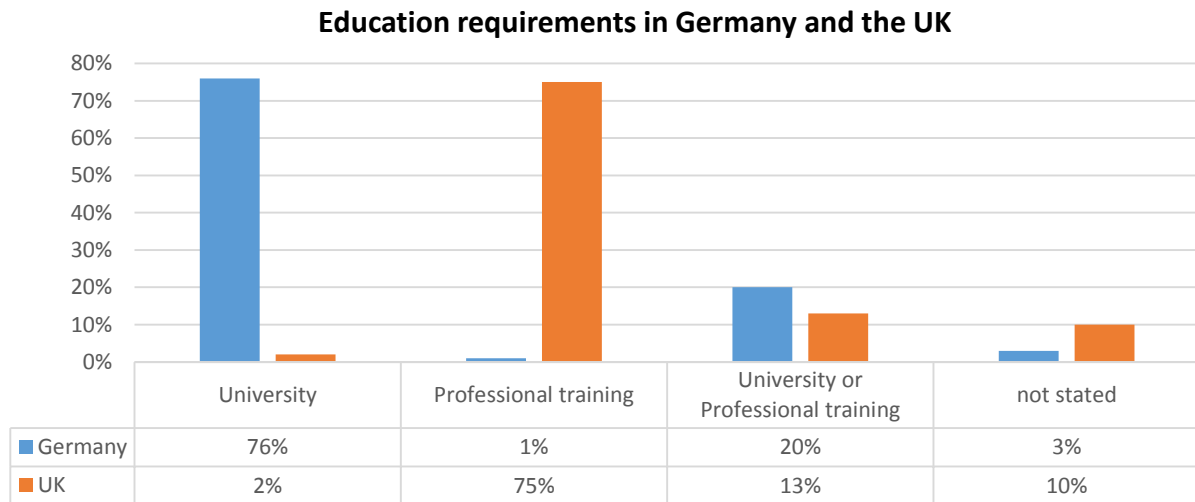


Figure 5.5 Education requirements by country

Particularly, German companies seem to be more interested in their applicants holding university degrees, while the majority of the British ads requires professional training. In addition, 15% of the British companies state qualification by experience as an option apart from professional and academic training. Concerning the professional training itself, it can be stated that British companies require their applicants either already to have a finished degree from a professional accounting body (41%) or to study towards one (27%). 32% of the British companies that require professional training state that both options – qualified or studying towards a degree – are equally accepted by them (Appendix D). Table 5.2 presents the distribution of the specific professional training degrees required in the British ads.

Professional training	CA	CIMA	ACCA	ACA	AAT	CCAB
Percentage of companies requiring out of UK sample	57%	52%	46%	29%	11%	8%

Table 5.2 Professional training requirements in the UK

A specific feature of German educational requirements is the stated subject and focus of studies within the university degree. Thus, the most frequently required subjects of studies are Business Administration and Business sciences (52% and 19% respectively), while Controlling (54%) and Accounting (27%) are among the most desired focus areas (Appendix E).

Requirements in **professional skills** also seem to be rather diverse across the two countries. Figure 5.6 shows that the most important skills for both nationalities are reporting, planning, budgeting and forecasting.

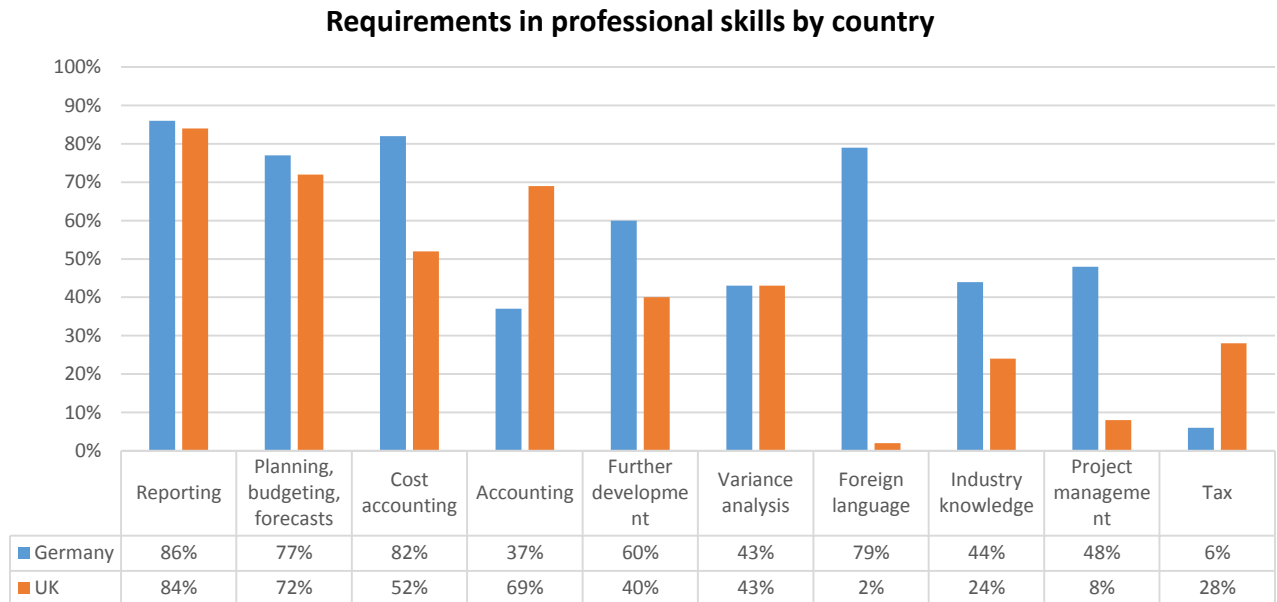


Figure 5.6 Requirements in professional skills by country

However, cost accounting, further development of controlling, project management, foreign languages and industry knowledge appeared to be more important for the German ones. At the same time, accounting and tax knowledge are more important for the British positions.

Concerning **IT related skills** (Figure 5.7), German companies appeared to be more demanding in relation to MS Office and SAP, while British companies are more concerned about MS Excel in particular, general ERP and general IT knowledge.

Requirements in **personality criteria** were found to be considerably varying across countries as well. As can be noticed from Figure 5.8, communication skills are more anticipated by British companies, while analytical and teamwork abilities are more frequently required by the German ones. Furthermore, it appeared that German ads highlight the ability to work independently a lot more often than the British ads. Other personality criteria more often required by German advertisements include convincibility and assertiveness as well as hardworking. Time management, interpersonal skills, stress management and leadership qualities are more valued by British companies.

Requirements in IT skills by country

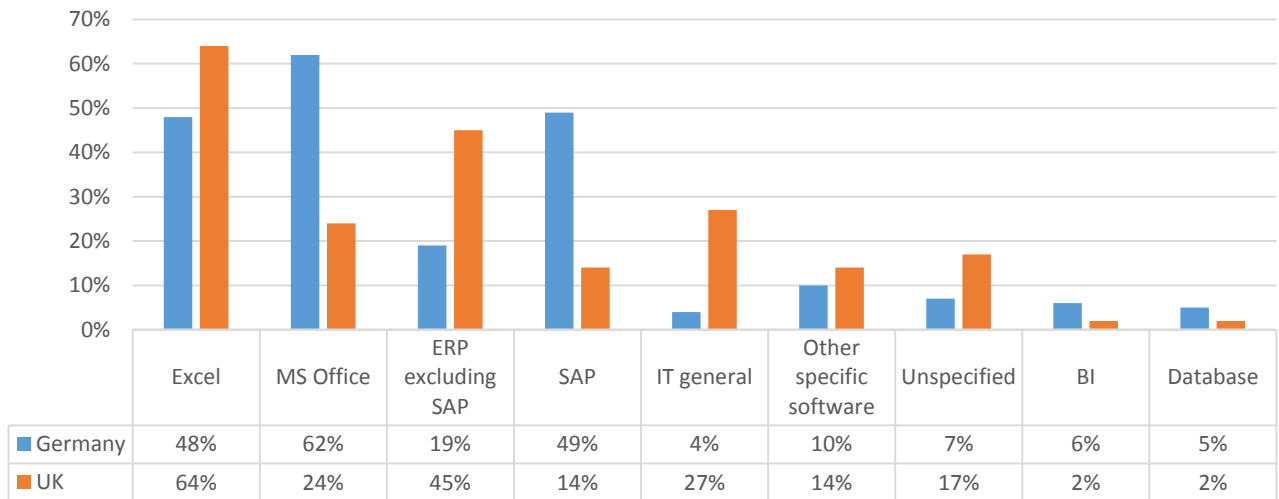


Figure 5.7 Requirements in IT skills by country

Requirements in personality criteria by country

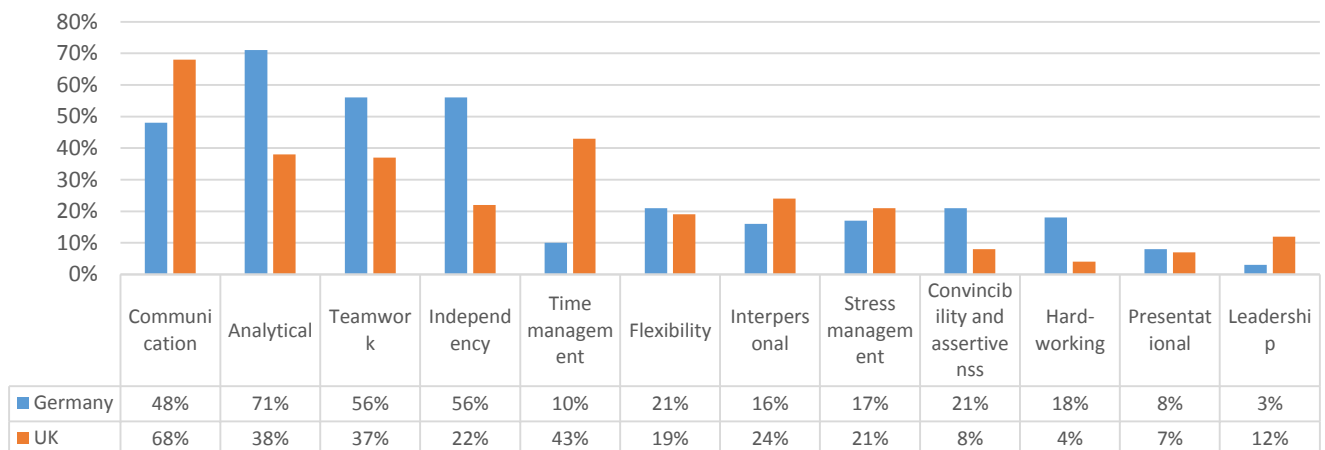


Figure 5.8 Requirements in personality criteria by country

5.4.2 Size

In order to simplify the analysis and to make it easier to understand the relations, the examined sample has been divided into ranges by size. Depicting the distribution of size by a histogram helps to identify the appropriate groups. As Figure 5.9 shows, it seems reasonable to divide the sample into the categories up to 999, up to 9 999, and at least 10 000 employees.

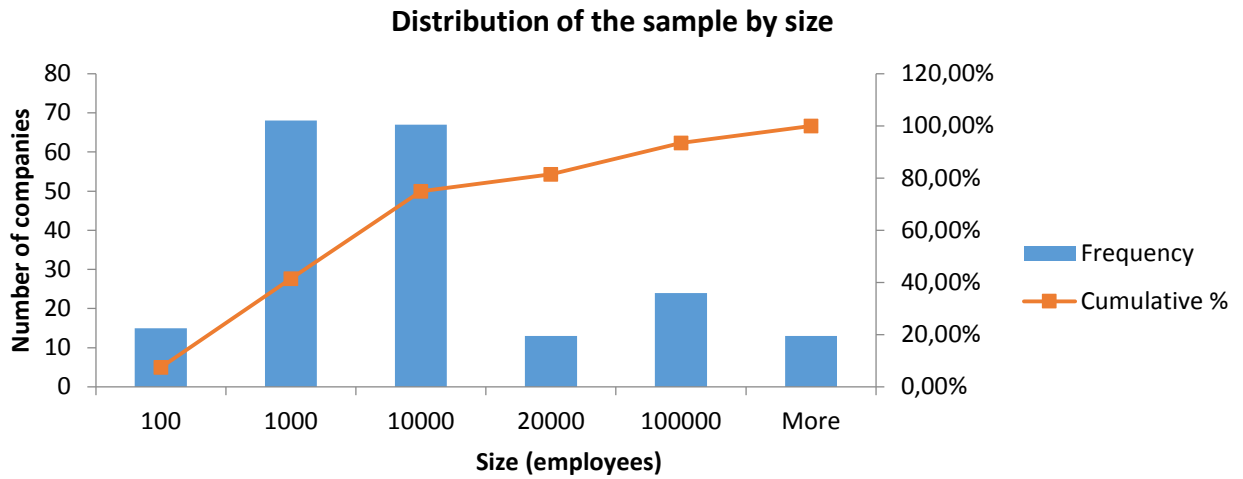


Figure 5.9 Distribution of the sample by size

The variation of requirements in **professional skills** influenced by the size of the company is presented in Figure 5.10.

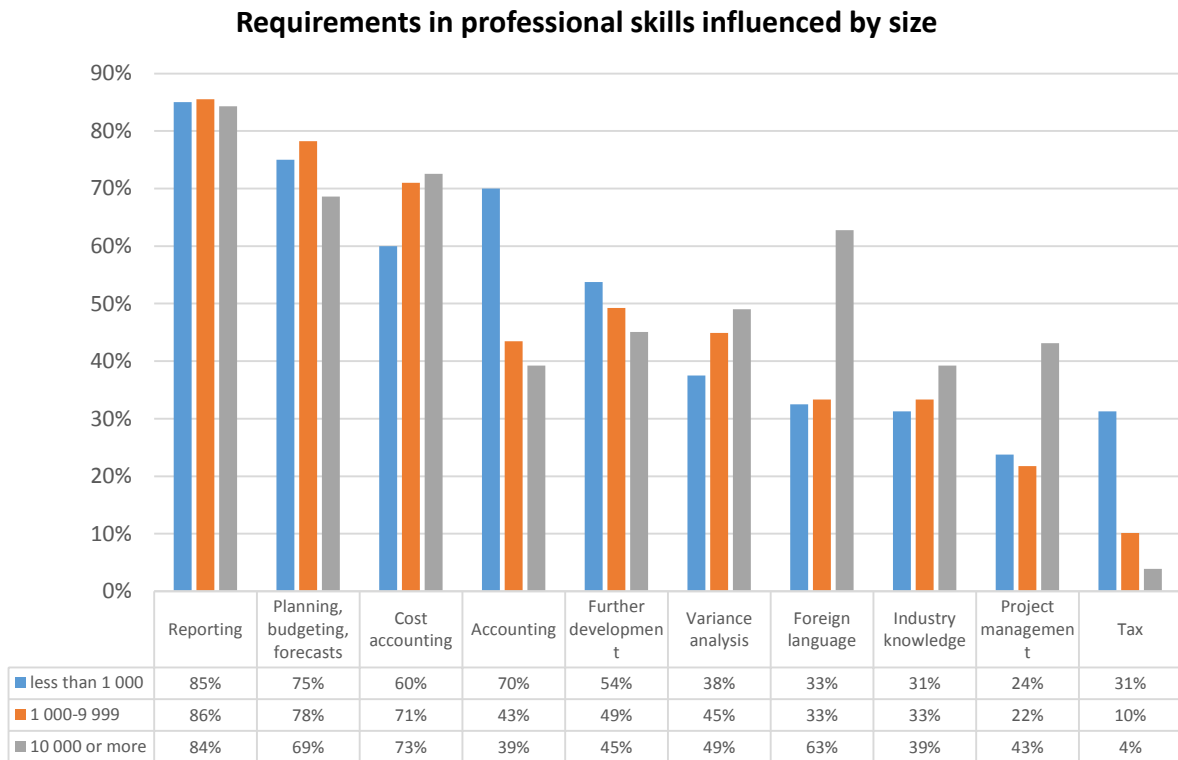


Figure 5.10 Requirements in professional skills influenced by size

The results show that the importance of cost accounting, variance analysis, foreign language and industry knowledge as well as project management skills is growing with an increasing size of the company. The opposite situation can be observed for accounting skills, requirements to further develop controlling tools and systems as well as for tax knowledge.

Next, from Figure 5.11 the following major tendencies can be identified concerning **IT skills**: a decreasing importance of MS Excel skills in larger companies, but a growing importance of general MS Office knowledge; a decreasing percentage of ERP knowledge as a requirement, but an increasing interest in specifically SAP knowledge in larger companies.

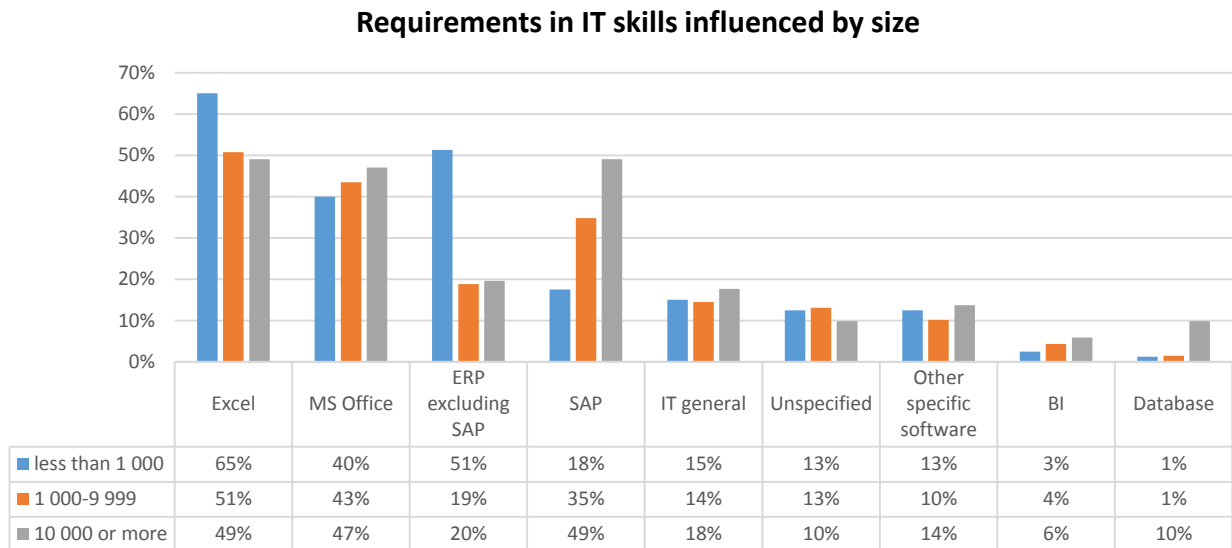


Figure 5.11 Requirements in IT skills influenced by size

Requirements in **personality criteria** varied with size are presented in Figure 5.12.

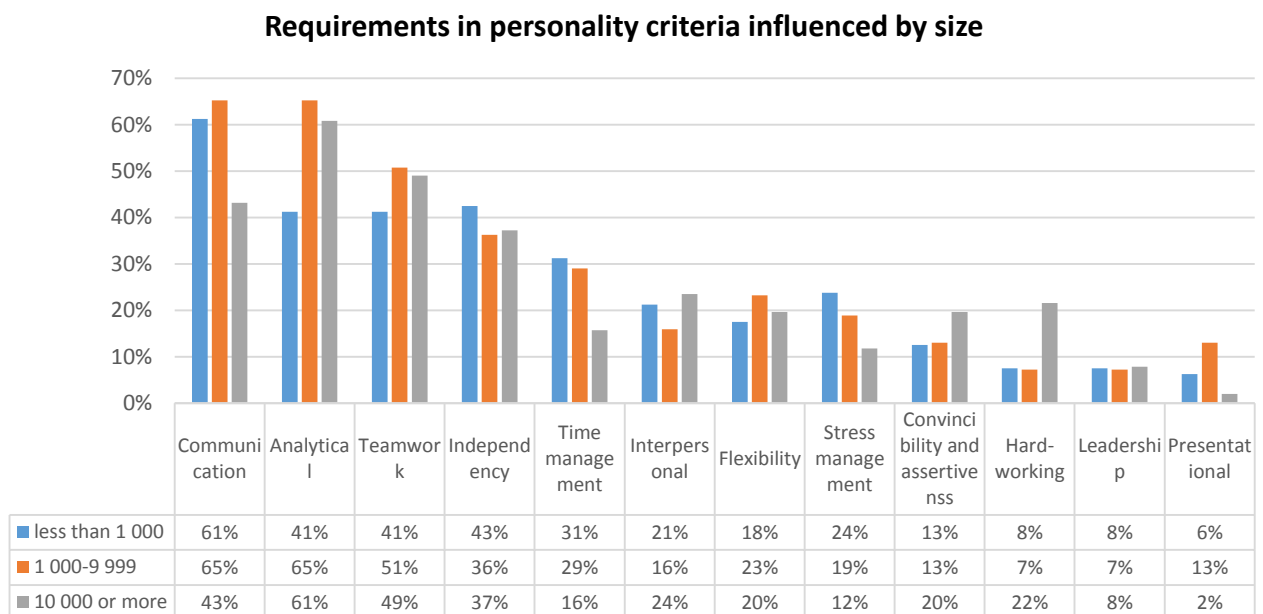


Figure 5.12 Requirements in personality criteria influenced by size

Time and stress management were found to be more demanded by smaller companies, while hardworking, convincibility and assertiveness appeared to be more frequently required by larger ones. Generally, no strong relations were found between size and requirements in personality criteria.

5.4.3 Maturity

The range of companies' maturity was very big. The decision was made only to focus on the top and bottom values here, because no differences were expected for companies being medium old. Thus, it was considered valuable rather to focus on the youngest companies that are still in the process of building their structures and processes and, as a comparison, on the oldest companies, which have years of experience and established routine systems and processes. Therefore, the analysis of the influence of companies' maturity is conducted for the thirty youngest and thirty oldest companies. This number of advertisements was considered appropriate to ensure reliability of the interpretation through a sufficiently large number of ads and focusing on the margin values. The group of the youngest companies ranges from the operational age of 1 to 15 years, the oldest one from 136 to 281 years.

As well as size, the maturity of the company affects the importance of requirements in **professional skills**. With increasing maturity, Figure 5.13 demonstrates a noteworthy decrease in requirements on cost accounting, the ability to further develop controlling, knowledge of foreign languages, accounting, variance analysis, as well as tax and industry knowledge.

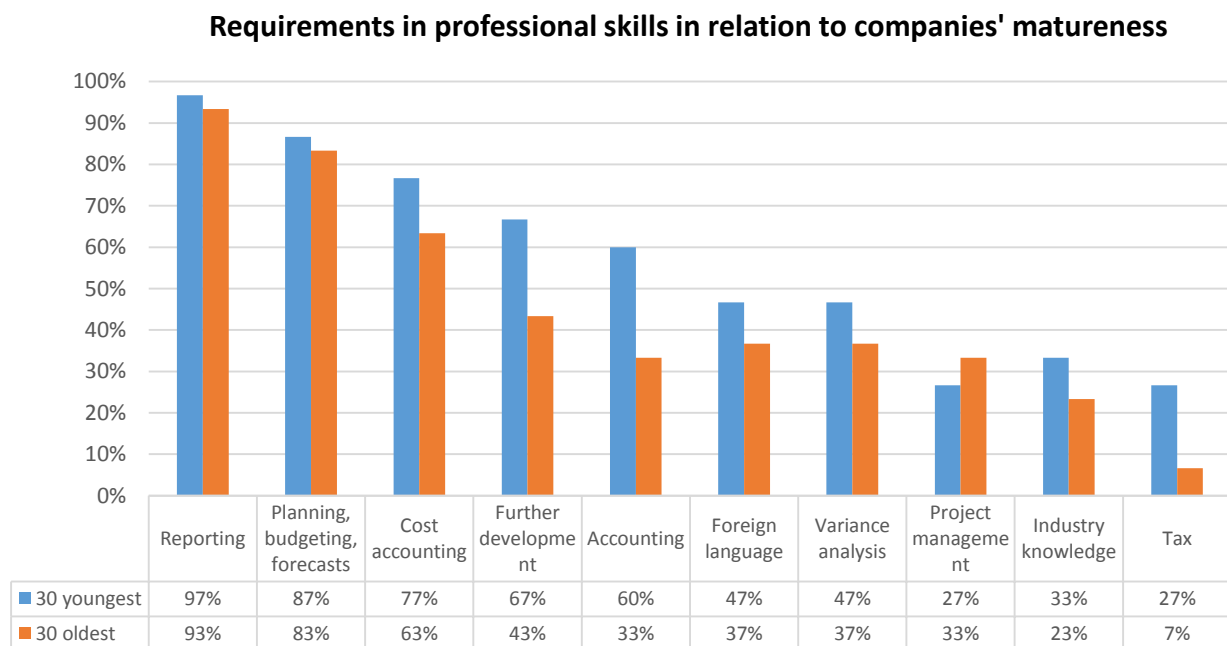


Figure 5.13 Requirements in professional skills in relation to companies' maturity

Turning to the influence of maturity on requirements in **IT skills** (Figure 5.14), MS Office and general ERP knowledge are more desired by younger companies, while older ones are more concerned about SAP.

Requirements in IT skills in relation to companies' maturity

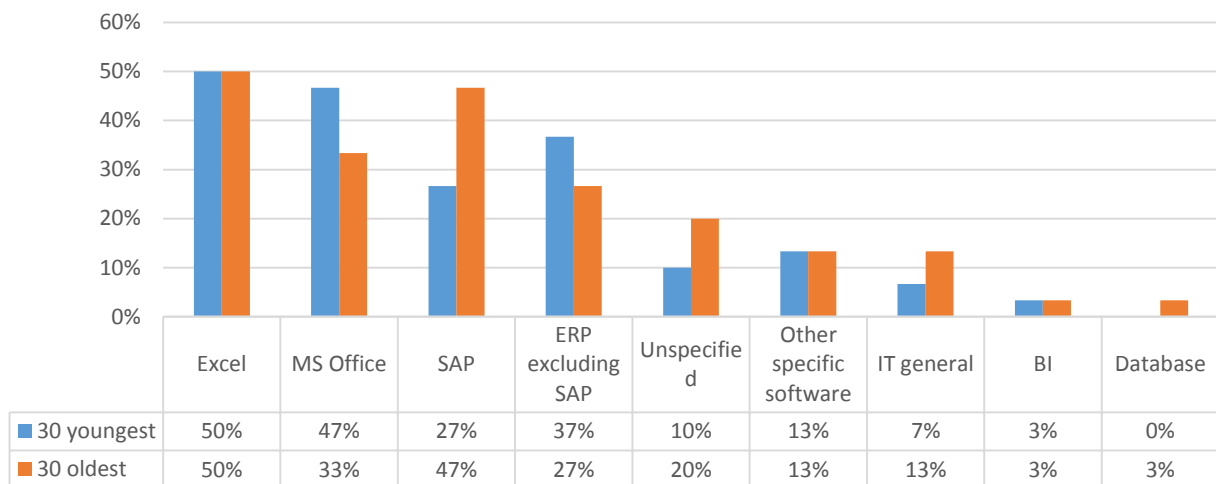


Figure 5.14 Requirements in IT skills in relation to companies' maturity

Moreover, a number of variances were found concerning the influence of maturity on **personality criteria**. Figure 5.15 demonstrates the lasting importance of communication, analytical and teamwork skills as well as independency. However, it is of a different magnitude for younger and older companies.

Requirements in personality criteria in relation to companies' maturity

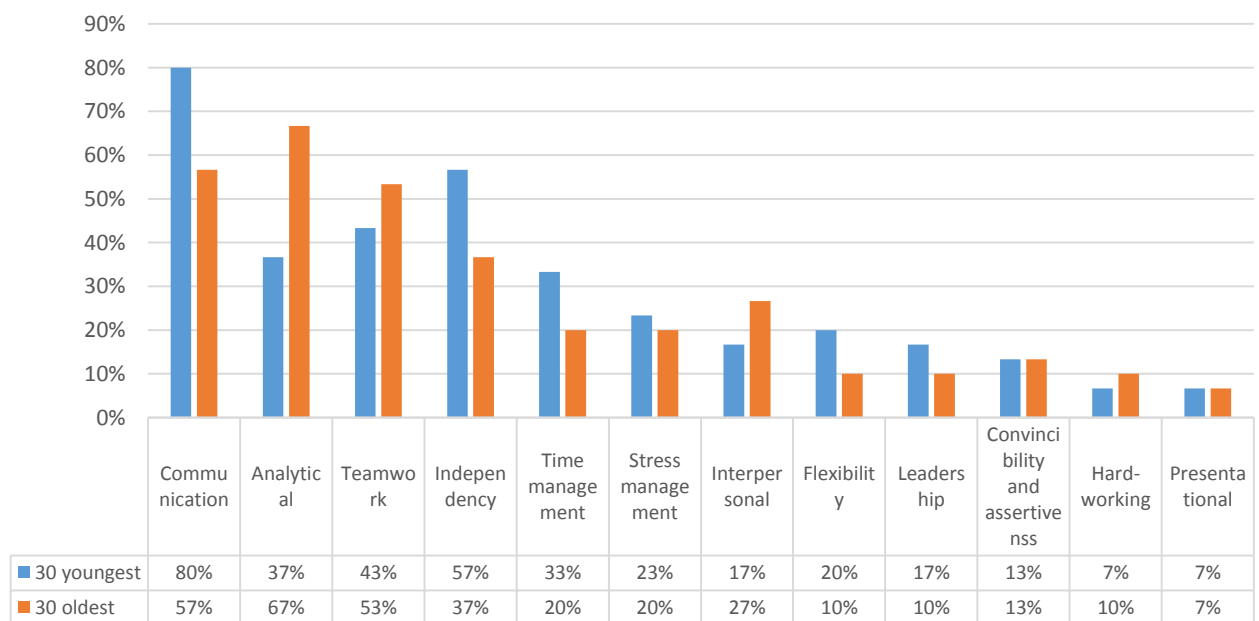


Figure 5.15 Requirements in personality criteria in relation to companies' maturity

Hence, there is a negative relation of the importance of communication and independency skills towards growing maturity and the opposite one for analytical and teamwork requirements.

5.4.4 Listing on the stock exchange

The listing status was found only to have a minor effect on the requirements in **professional skills**. Only the importance of further development skills are affected and more frequently demanded by unlisted companies.

However, demands in **IT related skills** are influenced by being listed. Thus, Figure 5.16 illustrates that MS Excel, MS Office, and general ERP knowledge are more frequently required by unlisted companies. All other specified skills have a greater importance for listed ones.

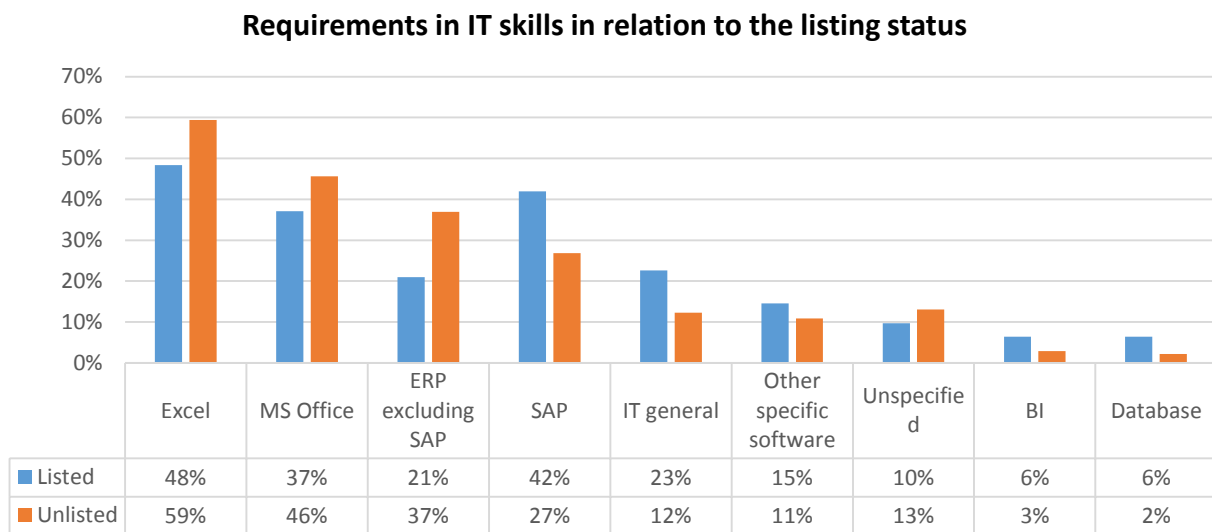


Figure 5.16 Requirements in IT skills in relation to the listing status

Among the requirements in **personality criteria**, only independency has been found to be affected considerably in a way that unlisted companies pay more attention to such requirements in comparison to listed ones.

5.4.5 Geographical scope

As can be identified from Figure 5.17, requirements in **professional skills** slightly differ between MNCs and local companies. A substantial variation was only found for foreign language and project management skills. Except from further development of controlling, all professional skills were at least slightly more often requested by MNCs.

Several variations can be noticed for the requirements in **IT skills** in relation to the geographical scope of a company (Figure 5.18). Local companies more often state general ERP knowledge in their requirements, while SAP is required more often by MNCs.

Requirements in professional skills in relation to companies' geographical scope

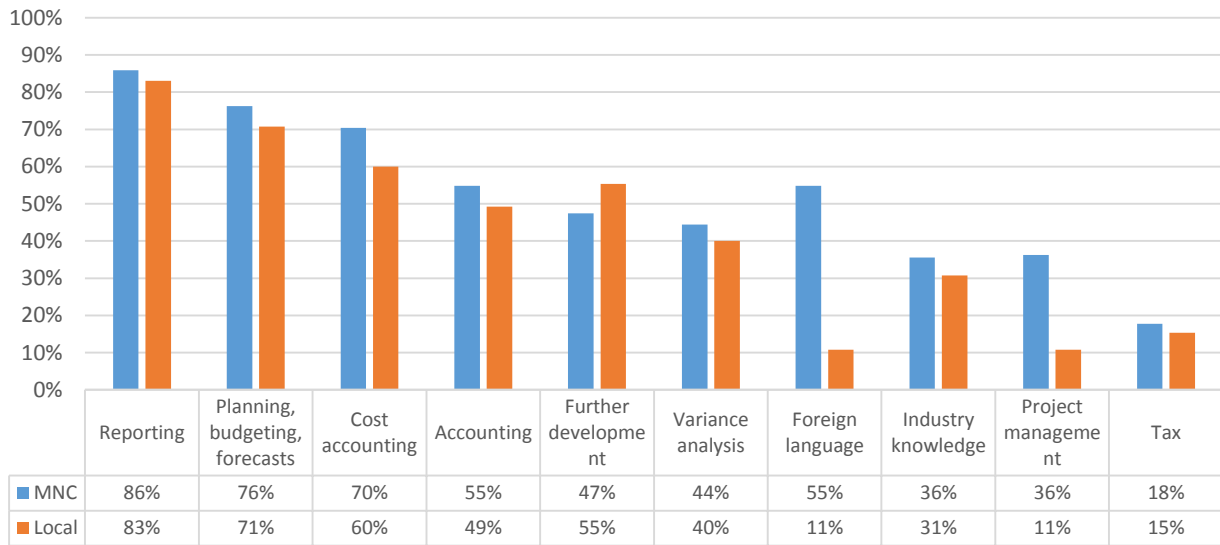


Figure 5.17 Requirements in professional skills in relation to geographical scope

Requirements in IT skills in relation to companies' geographical scope

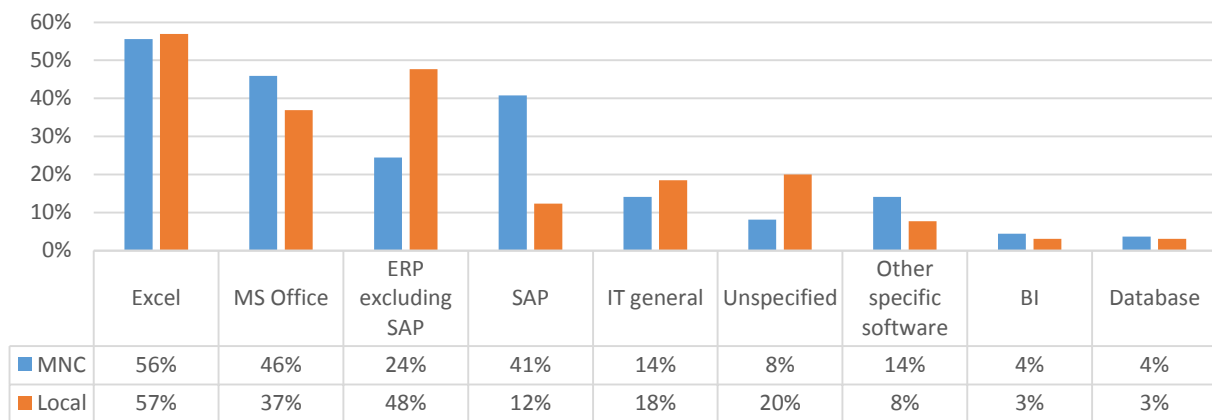


Figure 5.18 Requirements in IT skills in relation to geographical scope

Concerning the most popular **personality requirements** (Figure 5.19) – communication, analytical and teamwork skills – only communication is more required by local companies. Local companies also seem to be more concerned than MNCs about interpersonal skills. On the other side, flexibility, convincibility and assertiveness as well as hardworking are more frequently wanted by MNCs.

Requirements in personality criteria in relation to companies' geographical scope

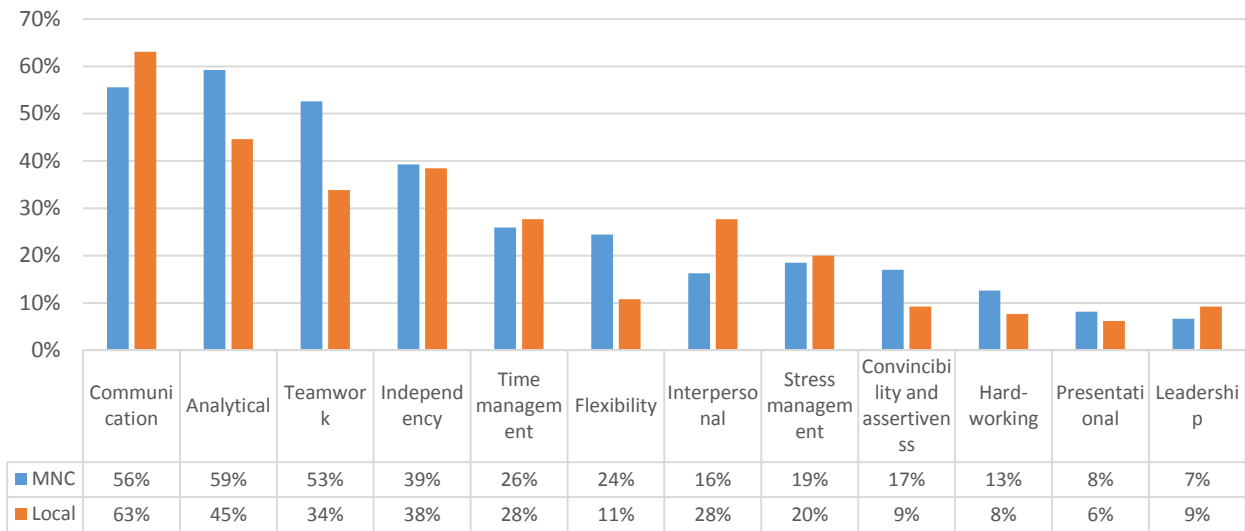


Figure 5.19 Requirements in personality criteria in relation to geographical scope

5.4.6 Type and industry

Several groups of **professional skills** requirements were found to differ between service and manufacturing companies (Figure 5.20). Thus, cost accounting, variance analysis, project management as well as foreign language and industry knowledge were found to be substantially more important for manufacturing companies.

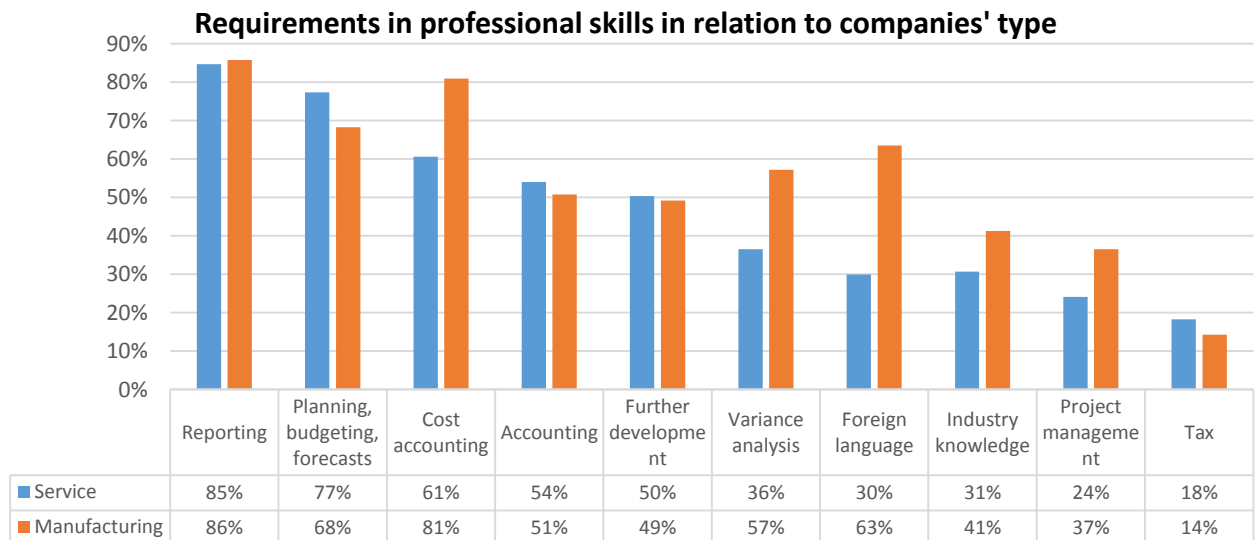


Figure 5.20 Requirements in professional skills in relation to companies' type

Similarly to other contextual factors, the industry influences **IT skills** required for management accountant positions. According to the results presented in Figure 5.21, MS Excel skills, ERP knowledge and general IT literacy are more frequently required by service industry companies. At the same time, SAP skills are much more often required by manufacturing companies.

Requirements in IT skills in relation to companies' type

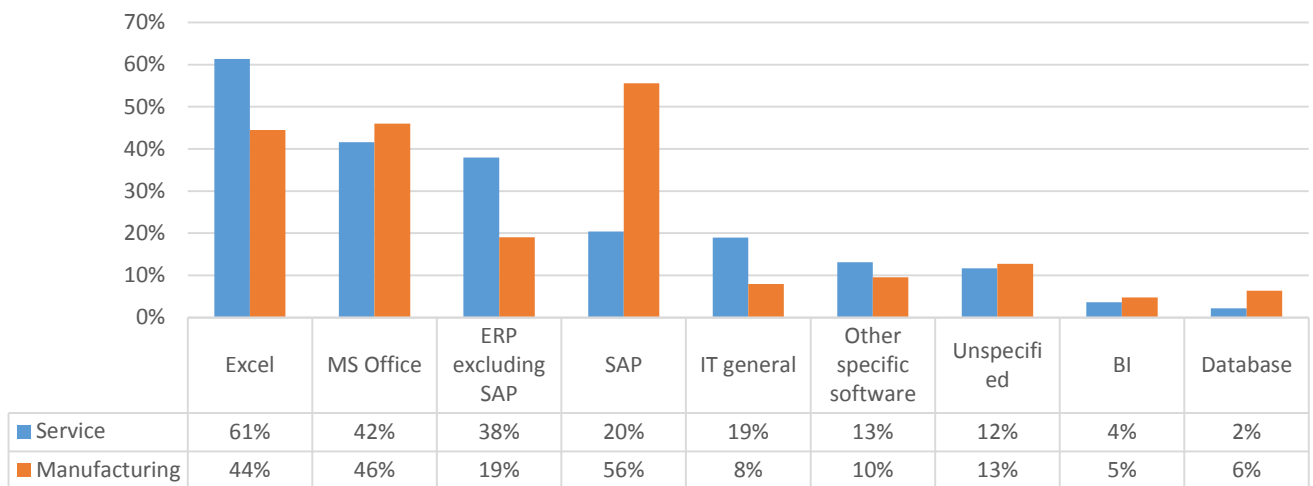


Figure 5.21 Requirements in IT skills in relation to companies' type

In the category of **personality criteria** (Figure 5.22), communication skills, time management, interpersonal skills, and stress management were more frequently required by service companies, while teamwork abilities were found to be of higher importance for manufacturing ones.

Requirements in personality criteria in relation to companies' type

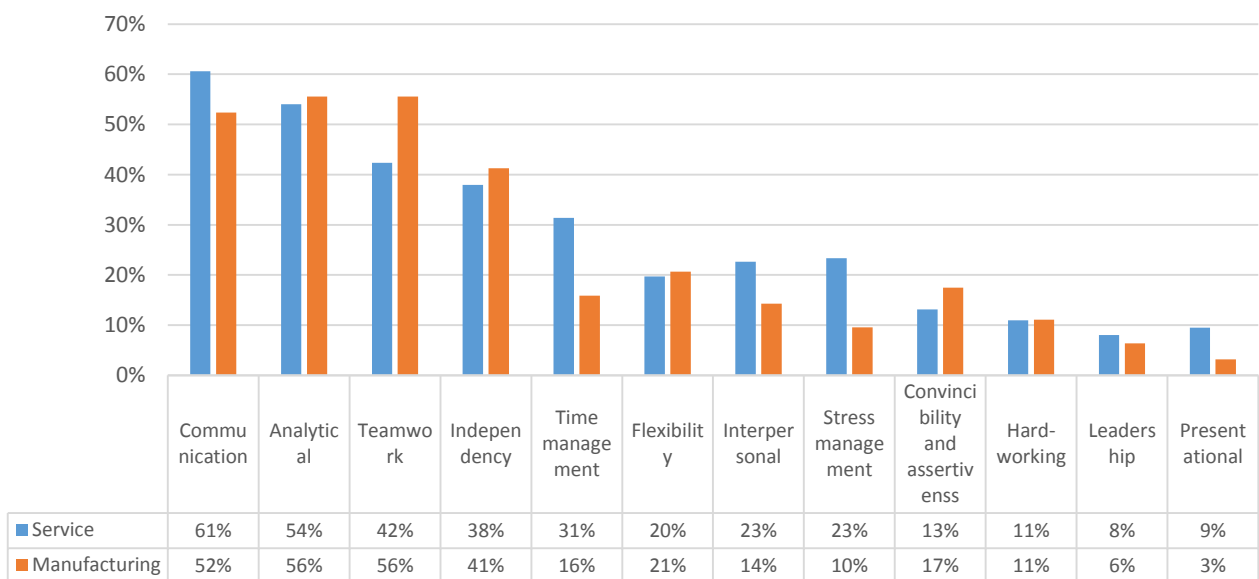


Figure 5.22 Requirements in personality criteria in relation to companies' type

Turning to a specific branch of industry, no noteworthy effects were observed within the sample. A summary of all results is given in Appendix F, which presents the visualization of the directions of influence of the analysed contextual factors on the requirements in management accountants.

6 Discussion

6.1 The role of controllers as described in job advertisements and its changes over time

The role of controllers has been examined by empirical research before. However, these studies mainly focus on analysing the role itself or its changes over time, but devote less attention to the role in relation to contextual factors. This lack of empirical research on the impact of contextual factors limits the comparability possibilities. This first section of the discussion will be focused on the general role of controllers, on the comparison of our results with previous studies, and on the identification of changes over time. Afterwards, the discussion of the influence of contextual factors will follow and, where possible, the comparison of our results with the theoretical and empirical research in this area will be provided. In addition, possible explanations of the identified directions of influence will be suggested.

The results of our study show that, regarding education, university and professional training degrees were found to be rather equally important. Further, the majority of companies either requires several years of experience or does not specify the demanded time. Reporting, planning, budgeting and forecasts as well as cost accounting prevail among the most demanded controllers' professional skills. Concerning IT related skills, knowledge of MS Excel, SAP as well as MS Office and ERP systems in general were found to be of rather high importance. Among personality criteria, communication, analytical and teamwork skills take the leading positions.

Table 6.1 introduces the previous studies on the role and requirements in controllers taken for the comparison in chronological order.

Study	Method	Country	Description
Bramsemann (1978)	Analysis of printed job advertisements	Germany	Job ads published in a national newspaper between August 1974 and March 1976
Burns & Yazdifar (2001)	Survey	UK	CIMA members having been qualified for at least 7 years, Questions about importance of controllers' tasks and skills in past 5 years (1995-2000) & expectations for coming 5 years (2000-2005)
Hassall et al. (2005)	Survey	UK & Spain	Employers of management accountants who are members of ACODI or CIMA Questions about ranking of a variety of skills of controllers. Majority from the UK, especially in the UK mostly responses from larger companies

Study	Method	Country	Description
Weber (2008)	Survey & Interviews	Germany	Survey: Evaluation of importance of selection of controller skills by controllers in 2006 Interviews: Controlling leaders of DAX-30 companies in 2007
France (2010)	Analysis of online job advertisements	Australia & New Zealand	Job ads available on seek.co.nz Majority of ads from Australia (period unspecified) Comprehensive analysis of controllers' tasks
Graham, Davey-Evans & Toon (2012)	Analysis of online job advertisements, survey & interviews	England	Job ads: available on 31 December 2007 on GAAP Web, key word: financial controller, analysis of stated tasks of management accountants Survey: employees with job title "financial controller" or "finance manager" Interviews: selection of the survey respondents
Berens et al. (2013)	Analysis of online job advertisements	Germany	Job ads available on 16/17 April 2012, Large listed companies (DAX-30 and MDAX)
Gruber (2015)	Analysis of printed job advertisements	Austria	Job ads between 2004 and 2013 Published in the national newspaper "Oberösterreichische Nachrichten"

Table 6.1 Overview of the studies considered for comparison

A summary of the relevance and changes of the requirements in controllers is given in Table 6.2. Further, each factor will be discussed more comprehensively. In addition, Appendix G presents the details of both the analysed previous studies and our results concerning all requirements.

Requirements	Requirements in management accountants ⁶	Changes of the requirements in management accountants
Education	<ul style="list-style-type: none"> - High differences between Germany and the UK - UK: high importance of professional training 	<ul style="list-style-type: none"> - Germany: high and increasing importance of university degree as well as lasting high relevance of study subject and focus
Work experience	<ul style="list-style-type: none"> - Consistently high expectations concerning the level of experience 	<ul style="list-style-type: none"> - No noteworthy changes over time

⁶ Joint results of our and previous studies

Requirements		Requirements in management accountants ⁷	Changes of the requirements in management accountants
Professional requirements	Management accounting tools	<ul style="list-style-type: none"> - Constantly rather high importance of cost accounting and variance analysis without clear direction towards increasing or decreasing importance 	<ul style="list-style-type: none"> - Increasing importance of reporting, planning, budgeting and forecasting as well as further development of controlling - Increasing importance of project management in Germany, but not in the UK
	IT skills	<ul style="list-style-type: none"> - Inconsistent importance of MS Office - High importance of ERP (and SAP explicitly) and MS Excel - Low importance of BI 	<ul style="list-style-type: none"> - MS Excel and ERP have gained importance - No support for increasing relevance of BI
	Accounting	<ul style="list-style-type: none"> - Higher importance in the UK 	<ul style="list-style-type: none"> - No clear development
	Industry knowledge	<ul style="list-style-type: none"> - Rather high importance 	<ul style="list-style-type: none"> - Increase in comparison to previous studies - Indication for shifting role towards business partner
	Foreign languages	<ul style="list-style-type: none"> - English of high relevance - Other languages hardly demanded 	<ul style="list-style-type: none"> - Increasing importance of foreign languages in Germany
	Tax	<ul style="list-style-type: none"> - Higher relevance in the UK than in Germany 	<ul style="list-style-type: none"> - Decrease in importance in Germany - Increase in importance in the UK
Personality criteria	Communication	<ul style="list-style-type: none"> - High overall importance - Higher relevance in the UK 	<ul style="list-style-type: none"> - Increasing importance
	Analytical	<ul style="list-style-type: none"> - High relevance - Higher importance in Germany 	<ul style="list-style-type: none"> - No clear direction of development in the UK - Increasing importance in Germany
	Teamwork	<ul style="list-style-type: none"> - High importance 	<ul style="list-style-type: none"> - No clear change over time
	Independency	<ul style="list-style-type: none"> - Only of considerable importance in Germany 	<ul style="list-style-type: none"> - Gaining importance in Germany
	Stress management	<ul style="list-style-type: none"> - Only medium relevance 	<ul style="list-style-type: none"> - Increasing importance
	Convincibility and assertiveness	<ul style="list-style-type: none"> - Medium importance in Germany - Minor relevance in the UK 	<ul style="list-style-type: none"> - No changes over time
	Leadership	<ul style="list-style-type: none"> - Minor relevance, especially in Germany 	<ul style="list-style-type: none"> - Decreasing importance over time

Table 6.2 Summary of the comparison with previous studies

⁷ Joint results of our and previous studies

6.1.1 Education and work experience

Education requirements in controllers seem to have increased a lot over time. The requirements also differ considerably between Germany and the UK. As comparable studies are only available for Germany, the discussion will be focused on that comparison. In Germany, in the 1970s, only 48% of employers expected a university degree (Bramsemann, 1978). Berens et al. (2013) found that the percentage had increased to 96% in 2012 while the study by Gruber (2015) revealed an increase of almost 20 percentage points over the time period from 2004 – 2013. Altogether, 81% of the analysed ads of this study state a university degree as a possible qualification. In our study, we found university education to be requested in 76% of all cases for Germany. In line with Ahrens and Chapman (2000), we also found support that the study subjects are more important in Germany with German ads specifying them almost seven times as often as the British ones. The popularity of subjects has not changed since 2012 (Berens et al. 2013), so that the most requested one is still business administration, followed by business sciences and industrial engineering. However, there is a difference in the demanded focus areas. Still, controlling is the most often stated one, but while Berens et al. (2013) found finance to come second, we found accounting to be of higher relevance, and finance only to be third. This may be an indication for an increasing relevance of accounting knowledge. However, accounting knowledge was not found to be especially relevant for Germany in general.

Concerning **work experience**, there seem to be no severe changes over time. Bramsemann (1978) had found that at least 92% of the job advertisements required work experience, while Berens et al. (2013), Gruber (2015) and our analysis all indicated approximately 86%. Also the amount of required experience seems to be rather consistent.

6.1.2 Professional requirements

The importance of some of the controlling **tools** has significantly shifted over time. That gets apparent from Figure 6.1.

Thus, **reporting** demands have increased over time. **Planning, budgeting and forecasts** were stated by 69% of all advertisements in the sample of Bramsemann (1978). While Gruber (2015) found lower percentages in general, he did also find an increasing trend during his sample period. Bramsemann (1978) does not define this tool very clearly, thus the difference may be explainable by a more broadly applied interpretation by him. Other possible explanations may be differences in the sample, such as the representation of different sizes or ages of the included companies. Omitting Bramsemann (1978), there seems to be an increase in importance for this factor as well.

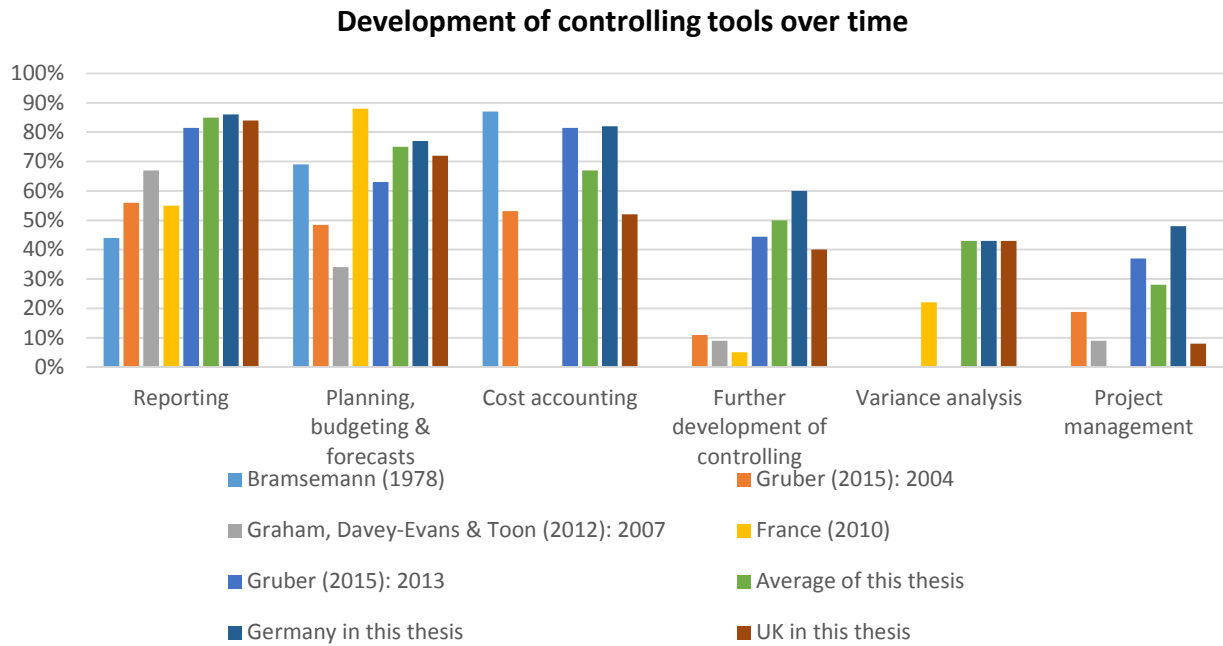


Figure 6.1 Development of controlling tools over time

The highest percentage was identified by France (2010) in the study for Australia and New Zealand. The lowest percentage was identified by Graham, Davey-Evans and Toon (2012) for the year 2007. This indicates a decrease since Gruber's (2015) findings for 2004, but it may be more valuable to distinguish between the countries here. Thus, comparing Graham, Davey-Evans and Toon (2012) to our British sample, this also indicates an increasing importance of planning, budgeting and forecasts. However, the small percentage of Graham, Davey-Evans and Toon's (2012) study may also be explainable by a slightly differing definition of this category as they only called it "forecasting and budgeting" without explicitly including the planning tasks here. A growing importance is also in line with Yazdifar and Tsamenyi (2005) and Yazdifar, Askarany and Askary (2008) who indicated that, out of the ones we analysed, it would be the most important tool in the future. For **cost accounting**, no clear development over time is recognizable, but it has always been in high demand. However, the requirements in **further development of controlling** have almost increased fourfold since 2004. This may be explainable by the shifting role of controllers from bean counters to business partners, as such development tasks are more demanding and go beyond simply working with numbers. The identified percentages by France (2010) and Graham, Davey-Evans and Toon (2012) were also very low and, in comparison to it, an increase can be observed, too. **Variance analysis** had already been considered to be of high relevance by Burns and Yazdifar (2001) and is stated by 43% of our ads. However, in France's (2010) study, this skill was only stated in approximately 22% of all cases. Yet, this still makes it the second most stated task in his study. That means that, in comparison

to our average rank 5⁸, it is not that much less important. Thus, the high percentagewise difference may be explainable by Australian and New Zealand advertisement making less specifications. However, it was not further analysed whether this is the case. For **project management**, there were noteworthy differences between Germany and the UK in our sample with 48 and 8% demanding it respectively. Considering only the value for Germany, there is a constant increase in the requirements in project management. This may also be due to the role of a business partner with controllers being more involved in projects and their role being more comprehensive and going beyond traditional tasks. A comparison of the demands in project management in the UK over time between Graham, Davey-Evans and Toon (2012) of the year 2007 and our sample of the UK indicates, that the increasing importance in Germany cannot be generalized to the UK as there seems to be no increase.

For **IT skills**, it can be concluded that **MS Excel** seems to be the most important software and has increased in importance over time. While it was only requested by 19% of the advertisements in 2004, the demands had already increased to 33% in 2013 (Gruber, 2015) and have reached 56% today (Germany: 48%, UK: 64%). However, it seems inappropriate to generalize this development to the whole **MS Office** package. Here, the data ranges from 34% with no trend during the examined years (Gruber, 2015) over 62% in our German part of the sample (total average: 43%) to 77% in Berens et al.'s (2013) study. The difference between Gruber (2015) and Berens et al. (2013) may be explainable by Berens et al.'s (2015) sample, which only consisted of large listed companies. However, it is impossible to say whether company size can also explain the difference between Gruber's (2015) and our results, as Gruber (2015) did not provide enough data to determine the average company size of his sample. There also seems to be no proof for a change in importance of **SAP**. Gruber (2015) observes no noteworthy differences over his study period with an average of 35%. The higher percentage (59%) of Berens et al.'s (2013) analysis can again be attributable to the different sample. In our study, SAP was requested in 32% of all ads. However, if only the German sample is considered, the percentage increases to 49%. That may indicate that SAP might, at least in Germany, increase in importance. Moreover, Gruber (2015) had observed that demands in **BI** had increased from 2% in 2004 to 15% in 2013, which is in line with the literature stating that companies will need employees familiar with BI tools to be able to handle the increasing amounts of data (Chen, Chiang & Storey, 2012; Bucher, Gericke & Sigg, 2009; Gärtner, Feldbauer-Durstmüller and Duller, 2014; Mikroyannidis & Theodoulidis, 2010). However, our results contradict this trend, as we find BI skills only to be required by 4% of all examined advertisements. One possible explanation may be that

⁸ In order to ensure comparability, our results were ranked according to the magnitude of the identified percentages (Appendix G).

employers do not necessarily expect such skills, but can also teach the employees on the job. As Gruber (2015) restricted his sample to one media source, his observed increase in importance of BI knowledge may be explainable due to the fact that employers might look at previous ads of that media source when formulating their own ones and decide to state BI knowledge when seeing that others do the same.

While the literature is inconsistent concerning the expected development of **accounting skills**, there can still not be made any clear conclusions from the comparison of the examined data and previous research results. While Gruber (2015) had observed an increase from approximately 20% to more than 40% from 2004 to 2013, our analysis resulted in an average of 53%. This may, on first sight, seem like a further increase, but again, here are noteworthy differences between Germany and the UK and the German average is only 37%. That indicates a very slight decrease since Gruber's (2015) results for 2013. The British ads resulted in a high percentage of requirements in accounting skills with 69% demanding them. Berens et al. (2013) found accounting knowledge to be requested by 36% of all ads. As we found accounting knowledge to be demanded by smaller companies much more often than by larger ones, this percentage is rather surprising as Berens et al.'s (2013) sample was biased a lot towards large companies. Therefore, we would have expected them to find a lower importance of accounting knowledge. When discussing education, it was mentioned that requests in the study focus of accounting have increased in Germany, but this development is not further supported here by demands in accounting skills.

Industry knowledge was requested in 34% of our advertisements, which exceeds both Berens et al.'s (2013) and Gruber's (2015) results of each 25%. The German average of our sample is even higher with 44%. This increase may be attributable to the increasing awareness of controllers as business partners, as it can be considered essential to have a comprehensive understanding of the business and processes to be able to effectively interpret the figures and as a consequence to give valuable advice to the management. However, Burns and Yazdifar's (2001) study had indicated industry knowledge to be rather less important in the future (implying the period until 2005) than gaining further importance.

Command of a **foreign language** seems to be essential today and demands in Germany have increased a lot since the study by Bramsemann (1978), when it was expected by 42% of the ads. Gruber (2015) finds it to be requested in approximately half of the ads with no relevant changes over his study period, while Berens et al. (2013) reaches a percentage of 82%. This high percentage is approximately in line with our result, but may partly be attributable to the sample of large listed companies that may have a higher international focus than smaller ones. In all studies conducted in German speaking countries, English was the major requirement, while other languages only played a minor role. Thus, in

our sample, foreign languages were unsurprisingly only requested in 2% of the British, but in 79% of the German ads. The increasing relevance of foreign language skills is consistent with Weber's (2008) survey, which indicated that they would increase in importance in the future.

Requirements in **tax knowledge** in controllers have hardly been examined in previous studies. Compared to Bramsemann (1978) who had found them to be required in 16% of the ads, our analysis indicates a decrease to 6% for Germany. The study by Graham, Davey-Evans and Toon (2012) finds tax knowledge to be demanded in 2% of the analysed ads. The comparison of this result with ours of 28% for the British advertisements indicates a clear increase of the relevance of tax knowledge in the UK. However, part of the increase may also be attributable to differences in the methodology. While Graham, Davey-Evans and Toon (2012) only focused on the tasks stated in the advertisements, we inferred requirements in tax knowledge both from stated skills and directly stated knowledge requirements.

6.1.3 Personality requirements

While **communication** had only been ranked 9th by Bramsemann (1978), it has clearly increased in importance since then. The controllers surveyed by Weber (2008) had also expected that its importance would rise in the future. However, comparing the study by Berens et al. (2013) and our German sample, the opposite is the case with a slight decrease from 55% to 48%. This is especially surprising considering that we found communication skills to be expected especially by small and medium companies. But Berens et al.'s (2013) sample consists only of large companies. In the UK, we found communication to be the most important personality skill. This indicates an increase in importance since the survey by Burns and Yazdifar (2001) when it was ranked 3rd. Already the subsequent study by Hassall et al. (2005) had found communication to be the most relevant skill for British management accountants. This increase can be seen as support for the shifting role of controllers as advisors and business partners.

For the UK, previous studies had not been consistent concerning the relevance of **analytical skills** ranging from being of rather low importance (Hassall et al. 2005) to being the most important skill (Burns & Yazdifar, 2001). Our analysis led to analytical skills being the third most demanded criterion in the UK after communication and time management, giving it a rather high importance. In the German ads of our sample, analytical skills were by far the most demanded personality criteria (71%). This is consistent with Weber (2008), placing it on rank one and indicating a continued future importance. Berens et al. (2013) had found it to be the second most important one with 59% of ads demanding it. Thus, an increase can be identified.

While being a **team player** is still among the top three requested skills, its importance seems to have decreased slightly since Berens et al.'s (2013) study. In their analysis, teamwork had been the

most important personality criterion with 65%, while in our German part of the sample, it was only the second one with 56% or the third one when considering the whole sample. Compared to Bramsemann (1978), teamwork is more important today than back then, when it had only been the fifth most important personality criterion. However, a comparison of the percentages between Bramsemann's (1978) and our study appears not valuable, as personality criteria in general were stated much less often in his study with teamwork being requested in only 5% of all cases. For the UK, teamwork reached rank four with 37%. A clear trend over the time cannot be identified here. Burns and Yazdifar's (2001) study had found that teamwork is the second most important personality criterion, while Hassall et al.'s (2005) survey concluded that it is only of medium importance.

The importance of **independent** working has also gained relevance during the last years and increased from 40% (Berens et al. 2013) to 56% in our German sample. This is consistent with the result that requirements of being able to work in a team have decreased during the last few years. The low percentage number for the UK cannot be compared over time due to lack of a comparable previous study.

Moreover, abilities to **cope with stress** have slightly gained importance and risen by three percentage points to 17% for Germany over the last four years in comparison to Berens et al.'s (2013) identified level. In the UK, stress management seems to be of higher relevance, but again, cannot be compared over time.

On the other side, **convincibility** and leadership skills have considerably decreased since Bramsemann's (1978) study results, when they were the two most demanded personality criteria. Even though the majority of the management accountants surveyed by Weber (2008) expected convincibility skills to gain importance, this seems not to be the case. Instead, there seems to be no change over time with convincibility being required by equally 21% of the ads in Berens et al.'s (2013) and our German sample. In the UK, convincibility seems to be of less relevance.

Leadership also only plays a minor role in job ads today. It is demanded in approximately 3% of the German ads which is a clear decrease since Bramsemann (1978) when it was demanded in 18% of all cases, especially when considering that personality criteria were generally stated less often back then. Berens et al. (2013) and Gruber (2015) found it required in 4% and 6% of advertisements respectively. Leadership skills may not be so important because the role of management accountants may rather be to assist managers by providing information than taking on leadership themselves. In the UK, leadership skills are, however, more important with 12% of the British ads requiring them. But still, they are only ranked 9th in our analysis.

6.1.4 Summary

Summing up, the role of management accountants can be mainly described as collecting, analysing and providing information. That stands in line with a number of definitions found in the literature (see Subsection 3.2.1). Furthermore, the comparison of the results of the various studies provided support for the shifting role of management accountants to a business partner and advisor. Especially communication skills seem to be essential for controllers today and have gained a lot of attention over the years. However, it should also be stated that traditional tasks such as reporting, planning, budgeting, forecasting and cost accounting were still found to be of high relevance. In line with Graham, Davey-Evans and Toon (2012), that leads to the conclusion of the role rather getting enhanced than being shifting.

6.2 Influence of the examined contextual factors on the role of controllers

6.2.1 Country of origin

The most differing requirement between the UK and Germany appeared to be **education**. Our results support the corresponding literature in relation to the fact that German companies mainly require a university degree including demands concerning the subject and focus of studies, while British companies are more interested in professional qualification received from a recognized accounting body such as ACCA, CIMA, and ICAEW or qualified by experience (Ahrens & Chapman, 2000; Hoffjan, Nevries, & Stienemann, 2009). Such a difference can be explained by different economic and accounting systems, an unlike legal environment and cultural aspects. These variations result in different positions of the profession within the countries and different education tracks for German controllers and British management accountants.

It was revealed that the country of origin is the most important factor of influence in relation to education required by the companies within the examined sample. Therefore, it was found that whenever one of the countries prevails in the sample (e.g. among smaller companies, British ones appear more often), the education requirements within the group (e.g. smaller companies in the given example) are affected by the country of origin. Hence, the influence of other contextual factors on education was considered minor and omitted from the further discussion.

The most substantial variation within requirements in **professional skills** in the UK and Germany was unsurprisingly identified for *foreign language knowledge*. The explanation of this difference appears to be rather straightforward. English is the most common international business language. Being native speakers, British management accountants are not specifically required to know the English language, while for German ads, it is a rather common requirement. Therefore,

foreign language requirements are stated explicitly far more often in the German ads. A greater importance of *cost accounting, further development of management accounting, industry knowledge, and project management skills* for German companies might be explainable by different business environments, main sources of finance in particular, and as a result different emphases in the controllers' jobs. In addition, Eendenich, Brandau and Hoffjan (2011) point out that a higher degree of uncertainty avoidance in Germany might explain the greater interest of German companies in cost accounting skills of their controllers. Sheridan (1995) emphasizes a higher long-term orientation of business for Germany, which might explain our results of higher relevance of further development of controlling skills for German ads as they might be more concerned about developing and updating an appropriate controlling system that ensures their future development. The conclusion provided by Hoffjan, Nevries, and Stienemann (2009) concerning a more comprehensive role of management accountants in Anglo-Saxon countries compared to controllers in Germany is supported by our results, which show a broader range of tasks through greater importance of *accounting and tax knowledge* for British companies.

Requirements in **IT skills** also differ considerably between the two countries. In general, German ads are more specific about demanded IT skills. This might be the reason for Germany less often stating *general IT literacy* as a demanded requirement, but rather pointing out the knowledge of a specific software. Hence, while British ads focus on general requirements in *ERP* knowledge, the German ones specifically require *SAP*. This may be explainable by the fact that, apart from being highly recognized on the international arena (Columbus, 2014), *SAP* originates from Germany (*SAP*, n.d.), which might make it more popular among German employers. In addition, variations of IT skills might also be explained by different business environments.

While education and professional skills might be better explained by differences in economic systems and the corresponding business environments, requirements in **personality criteria** might be more affected by cultural differences. According to Hofstede's categorization, the two countries are characterized by a similar level of power distance and masculinity. Indulgence and individualism are higher for the UK, while uncertainty avoidance and long-term orientation are more important for Germany. There are no differences between power distance and masculinity (The Hofstede centre, n.d.; Appendix H). Thus, it can be interpreted in a way that British companies may be aware of the high individualism aspect and that might be the reason for them to require *communication and interpersonal skills* more often in their future employees. However, *teamwork* skills are more required by German ads that might be explainable by the opposite reasoning: as individualism is more typical for the British, British companies are less concerned about teamwork. That is why companies might consider it unnecessary to state such a requirement. Thus, there is a sort of contradiction. Next,

independency is less demanded by British companies as it might be more typical in general for this nationality to work autonomously. The high ratings of long-term orientation and uncertainty avoidance in Germany might explain why there is less attention to *time management* in Germany as this is something that goes without saying for the Germans. Rather low levels of power distance and comparatively high individualism in both countries might explain the low rates of demands in *leadership skills*. The higher requirements in *analytical skills* for Germany might be connected to higher demands for further development of controlling and project management that might be assumed to require relatively more analytical abilities than other tasks. Coming back to professional skills, we expected German companies to be more demanding regarding planning, budgeting and forecasting skills than their British colleagues, as Germany is ranked rather high in uncertainty avoidance. Nonetheless, our results did not provide such a conclusion.

Overall, Ahrens (1996; 1997a; 1997b) point out a more proactive role of British management accountants and their greater involvement in operational activities. In combination with the higher importance of communication and interpersonal skills revealed by our study, such a statement may demonstrate a more business partner-oriented role for the British positions. However, as further development of controlling skills were found to be more important for German ads, and the studies by Ahrens (1996; 1997a; 1997b) might be considered rather out-of-date, a strong conclusion about which country takes the leading position in transitioning to a more business partner oriented role cannot be drawn. In addition, several traditional tasks remain rather highly relevant for both countries.

Despite the provided possible explanations of the reasons for countries' differences, it must be stated that the globalization process might lead towards less variation between countries. Many companies operate not only within their domestic market and corresponding culture, but also go out into the international arena and run their business in a multicultural environment. This fact might create contradictions while explaining, for example, personality criteria differences by cultural dimensions of two countries. Overall, apart from the above mentioned reasons, different HR practices and traditions might also influence the information provided in the job advertisements, resulting in differences across countries.

6.2.2 Size

The size of a company was discovered to be among the most influential contextual factors determining the requirements in management accountants. The previous research on the influence of size on the role of management accountants concludes a more comprehensive role in smaller companies (Merchant & van der Stede, 2007; Roman, Roman & Meier, 2014). Our analysis supports these theoretical considerations as we found *tax and accounting skills* to be more often required by

smaller companies which can be seen as an indication for a broader scope of tasks. Further, larger companies may more often follow a cost leadership rather than a differentiation strategy. This means that they are more highly exposed to price competition that makes them more demanding in respect to *cost accounting skills*. A decreasing demand in *further development skills* with increasing company size can possibly be explained by greater opportunities of larger companies to employ consultancy services for such tasks, while smaller companies have to handle this issue without help from outside. Moreover, increasing demands in *variance analysis* skills might depend on wider opportunities for larger companies to conduct such analyses, using more sophisticated software and richer databases. An increasing importance of *foreign language knowledge* for larger companies might be connected to a higher share of MNCs among larger companies, as a multinational scope of operation drives the necessity of foreign language knowledge. An increase in requirements in *project management* skills might be associated with a higher probability of projects within large organizations.

IT related skills differ noticeably across the size range. Our results mainly support the findings by Gruber (2015), as we found *MS Excel* skills and general *ERP knowledge* more required by smaller companies within our sample, while *SAP* and *BI* skills are in higher demand by larger ones. However, *general IT literacy* was found by Gruber (2015) to be more important for larger companies, while our results only show a very slightly higher importance. Of course, the comparison with Gruber's results might be considered not fully applicable, as our sample presents other countries than Gruber's (2015) one, but generally, no substantial contradictions were revealed.

Overall, a greater interest of smaller companies in *MS Excel* might be explainable by the fact that MS Excel is a helpful tool for data analysis for smaller amounts of data, while with growing size and corresponding complexity of data, companies might prefer to use more sophisticated or specialized software. For them, the shortcomings of MS Excel might also become too severe and they might therefore switch to an alternative. This assumption goes in line with the increasing interest of larger companies in *BI* and *database* skills. Database skills are particularly of higher importance for larger companies, allowing storage and processing of greater amounts of data. *ERP knowledge* is more demanded by smaller companies, as, probably, larger companies more often state specifically *SAP* as they are more likely to afford it or in general may be more specific about their requirements in ERP knowledge.

Previous literature had indicated that the new role of management accountants is of higher relevance in larger companies (Cooper & Dart, 2009). However, while we had expected this to be represented by communication and interpersonal skills as well as further development of controlling skills being more important for larger companies, our analysis did not provide any support for that.

6.2.3 Matureness

The most required **professional skills** – *reporting, planning, budgeting and forecasting* – were found not to be influenced by matureness, remaining equally important for the whole range. A greater importance of *cost accounting* and *variance analysis* for younger companies might be explained by the necessity to enter new markets and as a result greater cost pressure and high importance of cost control. *Further development of controlling* skills, demanded to a greater extent by younger companies as well, might be connected to the fact that older companies have already established their structures, processes and procedures, while the younger ones still need to build them. The higher percentage of *tax* knowledge and *accounting* skills for younger companies can be associated with a more comprehensive role of management accounts, while older companies might tend to have specialized positions. Another possible explanation is the prevalence of larger companies in the older sample group, for whom more specialized roles might be more appropriate. The higher interest of younger companies in the applicants' prior *industry knowledge* might reflect the desire to attract people who can contribute to the new growing business development by the corresponding knowledge within the same industry while this may not be that important for older ones. As new entrants, young companies might consider it essential to benefit from the experiences from their employees who have collected such industry experiences in their previous jobs. Moreover, a slightly higher importance of *project management* skills for older companies might be attributable to the necessity to search for new directions of development and as a result a higher probability of project implementation. In addition, this influence, as in the case of tax and accounting knowledge, might be connected to interdependencies within the sample.

The direction of the influence of matureness on **IT** related requirements can be identified from a higher importance of *SAP* knowledge for older companies and *general ERP* for the younger ones. More mature companies might have greater opportunities and needs to use *SAP* software as a more sophisticated, recognized and popular software, while younger companies can start their operations with something less expensive. Also, as *SAP* is more frequently required by older companies, they might be less likely to state general ERP, giving younger companies a leading position in requiring general ERP knowledge. Equally, this result might be connected to the fact that larger companies, which prevail in the older group, state *SAP* more often.

The influence of matureness on requirements in **personality criteria** was found to be contradictory to a certain extent. Greater importance of *communication skills* for younger companies might be explainable by the desire of younger companies to develop a culture of sharing experience as more knowledgeable colleagues might share their skills. This might enable the young business to develop

properly and effectively. However, *interpersonal skills* appeared to be more demanded by older companies. Next, a relatively higher importance of *analytical skills* for older companies might be associated with the greater amount of data to be handled and the increasing complexity of the relations within the data over time. A lower percentage of requirements in *teamwork skills* in younger companies might be a result of a lower number of employees within their teams. Thus, their employees may more often be required to execute tasks on their own. The little experience of a young company and, as a result, fewer staff who can provide guidance might lead to a greater necessity of *independent* work abilities. This stands in line with lower teamwork requirements in young companies. Moreover, younger companies need to enter new markets and all their structures, processes and procedures are still changing, while in older ones, these aspects are already established and less easy to change. Correspondingly higher *flexibility* requirements for younger companies might be associated with this reasoning.

6.2.4 Listing on the stock exchange

In general, the listing status was not found to be especially influential. Within the requirements in **professional skills**, only *further development of controlling* skills were found to be notably differing. Listed companies are required to be audited, so they are used to working with auditing companies, which often also offer consultancy services. Thus, as listed companies are already in touch with companies offering such services, they may be more likely to use them compared to unlisted ones. As a consequence, listed companies may assign consultants to the further development of controlling tasks, while unlisted ones may not be used to this kind of interaction and rather have their own staff do these developments. However, the percentage of this skill is still rather high for both groups.

Concerning the requirements in **IT skills**, a relatively high difference was found for requirements in *ERP* systems knowledge. Thus, specifically *SAP* knowledge is more demanded by listed companies that happen to be bigger in size and more likely to apply a recognizable, more sophisticated and expensive ERP system. Further, apart from *MS Excel* and *MS Office* being somewhat more required by unlisted companies, all other aspects were found to be slightly more specified by listed companies that may be more demanding in the expectations and requirements.

Similarly, the requirements in **personality criteria** seem not to be influenced by the fact of a company being listed, as only *independency* skills differ across listed and unlisted companies. It can be supposed that listed companies are imposed to a greater number of rules that have to be strictly followed, while unlisted companies might have greater flexibility, allowing management accountants to work more independently and come up with own new ideas for analyses or future development. This assumption stands in line with a higher percentage of demands in *further development* skills in unlisted companies.

6.2.5 Geographical scope

Among the requirements in **professional skills**, foreign language and project management skills are those aspects that were mainly influenced by the geographical scope of a company. The explanation of a higher importance of *foreign languages* for MNCs is quite straightforward and most likely connected to the necessity of communication with people from different nationalities. The higher relevance of *project management* skills for MNCs might, in turn, be associated with the higher probability of searching for new markets by expanding to different countries that might lead to implementations of projects more often. *Cost accounting* was also found to be more important for MNCs. This relation might be explained either by a higher cost awareness or by a more severe cost competition in different countries.

The influence of the geographical scope on requirements in **IT skills** was only identified for demands in *ERP* system knowledge. Thus, MNCs are probably more likely to apply internationally recognized systems and state specifically *SAP* knowledge more often while local companies just state general ERP knowledge.

Turning to requirements in **personality criteria**, being a MNC tends to drive the participation of a greater variety of nationalities. That could explain the dominance of *teamwork* requirements for MNCs. However, requirements in *interpersonal* and *communicational* skills were found to be more important for local companies. That contradicts the result concerning teamwork skills. *Flexibility* is another factor more demanded by MNCs. That drives the assumption that working in a multicultural environment might be more difficult and such a quality as flexibility ensures better performance. Another substantial influence of companies' area of activities was identified in relation to *analytical skills*. MNCs appeared to be more demanding in this respect, possibly due to the necessity to handle more broad and complex data and the need to understand the possibly interconnected relations, processes and structure of a MNC.

6.2.6 Type and industry

A considerable influence of whether a company can be classified as a service or manufacturing company was present for the following **professional skills**: *cost accounting*, *variance analysis*, *project management*, *foreign languages* and *industry knowledge*. Variance analysis may be more important for manufacturing companies because, due to their production activities, their employed capital may be higher which makes a comparison of budgeted and realised performance even more important. However, no suitable explanations were found to describe the other relations. The same situation was found for requirements in **IT skills**, where the highest variation was identified for *MS*

Excel skills, ERP system knowledge and general IT literacy. Among the requirements concerning **personality criteria, teamwork, time management and stress management** were found to be rather highly influenced by the industry, but as in the case with the previous groups of requirements, no clear explanation was found.

6.2.7 Summary

Summing up, it can be stated that, according to the obtained results, the country of origin, size, matureness and geographical scope are expected to be the most influential contextual factors in relation to the role of management accountants within the examined sample. At the same time, listing on the stock exchange can be described as a contextual factor of minor importance. What is more, further research is necessary to explain the identified relations between requirements and companies' type. In addition, the results concerning the industry influence on the requirements in controllers can be considered incomplete and requiring further research with a larger sample.

6.3 Contribution and implications for practitioners

6.3.1 Contributions

First of all, this paper contributes to the research landscape by developing a theoretical **framework** that shows the most important tasks and requirements in management accountants that can be concluded from the conducted literature review and can be further used for the empirical study with a similar approach. Moreover, based on an inductive approach, the developed theoretical framework was adjusted to incorporate those characteristics that were additionally seen to be relevant.

As the discussion of the impact of contextual factors on the role of controllers has mainly been on a theoretical level and dated from the previous decade so far, this thesis contributes to the existing body of knowledge by examining the relation between such factors and the controllers' role through an **empirical analysis**. The unique new empirical findings show which contextual factors have a larger impact on the tasks and requirements of controllers and which ones seem to be rather unrelated. Furthermore, the direction of the various influences of the examined factors is examined and possible **explanations are provided**. As the majority of the literature to date contains a mixture of factors influencing the role of management accountants itself and its changes over time, the thesis further contributes to the existing knowledge by clearly **defining those factors that affect the role itself**. Changes over time were examined through the comparison of our results with previous studies.

Further, it was found that there are only very few similar studies that used a similar approach – **ad analysis**. Moreover, there hardly seem to be any previous studies about the UK that analyse the role of management accountants through our chosen approach of ad analysis. Thus, our study is the

first one that not only examines the stated tasks of management accountant advertisements in the UK, but conducts a more comprehensive analysis by also examining the requirements.

Finally, the conducted analysis can also be seen as a rather **time-saving and easy approach** in comparison with other possibilities to obtain information about the role of controllers. Conducting interviews or surveys to ask about how controlling and aspects of it are perceived is very time-consuming if one wants to have a considerable sample size. However, analysing job advertisements can be done a lot faster so that a larger sample is possible. This allows collecting information about the role of controllers from a large number of companies compared to the approach of interviews or surveys. The obtained information about the role of controllers can then also be used to make conclusions about the role of controlling in a time-saving way.

6.3.2 Implications for practitioners

Three main directions of implications for practitioners can be identified. First, the results provided by the study might help **universities** to adapt their educational curriculum according to the latest requirements of companies in both technical and soft skills. This will allow them to be up-to-date in the skills and knowledge they teach their students and, as a result, they can become more attractive for future applicants. For example, seeing a noteworthy importance of reporting, project management or communication skills, universities could increase the study time devoted to such issues. In addition, following the current trends might enable universities to expand their collaborations with business. If a company sees how knowledgeable students are and how close their understanding and skills are to real needs, it might be more interested in joint projects with the university. A similar implication might be relevant for accounting and management accounting **professional bodies** in a way that the findings of this paper make them aware of the contemporary requirements from practice towards which they should orientate.

Second, **students** might benefit from examining the results of this study. By demonstrating which knowledge and skills are required by a specific type of company (e.g. large or small, MNC or local, start-up or mature), the study creates awareness of what students are expected to know and which skills they need to possess to be able to apply for a job at a certain company.

Finally, **companies** themselves might benefit from such a study in a way that will make them aware of the requirements in management accountants of companies being similar to them. They can identify which skills and tools are in a greater demand and make assumptions on the practice of management accounting used by their competitors. Considering their own demands and those of their competitors, companies might improve their job advertisements and recruitment processes.

6.4 Limitations and possible directions for future research

First, there is the question of **representativeness**. That means whether the chosen job advertisements are representative for the overall situation of the controllers' and management accountants' role (Scott, 1990, cited in Bryman & Bell, 2015). As the method of examining job advertisements is time-consuming (Sailer, 2009), the sample size is limited and only a selection of the search results was analysed. Moreover, France (2010) argues that the sample could be biased due to the exclusion of certain recruitment channels. More precisely, the focus on online ads means that printed and internal job ads as well as referrals are not considered. However, as mentioned before, online recruitment is the most important medium for contemporary job search.

Then, it is also possible that companies do not always rewrite their employment advertisements completely when they advertise a new position. This can have the effect that some tasks and requirements are simply stated because they have been mentioned in previous advertisement even though they may no longer be that relevant. The same may apply for the opposite case. There may be new requirements, but they may not be stated in the advertisements if the employers do not put enough effort into **updating** them. Then, the advertisements may not perfectly represent the current situation.

A similar problem may arise if employers use job advertisements of other companies as a model when writing their own ads (Preis, 2012). Such a behaviour of companies is in line with **isomorphic processes** discussed by DiMaggio and Powell (1983). This could limit the possibilities of interpreting connections between company characteristics and specified requirements. However, it seems likely that, even if this is the case, companies would rather take inspiration from companies being similar to themselves, such as their closest competitors to see what they require. Then, this would be unlikely to negatively affect the allocation of companies' characteristics, as they should mostly be the same for these companies.

Next, the information received from the conducted analysis is **limited by the data presented in the advertisements**. On the one hand, conducting interviews or a survey might have given us the chance to ask specific questions and thereby provided a better insight into how companies or controllers themselves perceive their role. On the other hand, as stated before, the information in job advertisements has the advantage that it is not influenced by the object of observation and, as a consequence, is unobtrusive and non-reactive.

Moreover, companies may **not specify all the criteria** in their advertisements, but could decide rather to examine whether applicants fulfil them in a personal interview. Then, the true percentages for the various criteria may be higher than the ones stated in the results. However, we

believe that this is not a major issue, as there are no indications that this should only be the case for specific companies or specific characteristics. So, it will still be possible to analyse the relative importance of the requirements and the connection to contextual factors. Yet, it should be kept in mind, that the characteristics may be more important in reality than indicated by the percentages.

In addition, the method limits the possibilities of analysing certain factors due to **difficulties of measuring** them. For example, it is hardly possible to assess the environmental uncertainty or strategy of a company without access to its primary data such as interviews or surveys of their employees.

Furthermore, it is impossible to determine **who has written** the job advertisements. That means whether it was someone from the HR department who is not completely aware of the specifics of a controller job and may therefore state rather general requirements that are also applicable to other jobs or if someone from the controlling department itself participated in the job advertisement formulation. This may differ among ads (Gruber, 2015). Thus, some ads may reflect the true requirements better than others. But it seems unlikely that this is systematically related to any contextual factors. Therefore, it is not considered to be a major limitation.

Moreover, our sample might be biased towards a **certain type of companies in the UK**. A high percentage of the British ads was presented by staffing agencies without providing sufficient information about the company and therefore had to be excluded from the analysis. It might be the case that it is a specific kind of companies or a specific kind of controller jobs that are more likely to be advertised through staffing agencies. Thus, the sample for the UK might be biased towards, for example, smaller companies, if larger ones are more likely to engage staffing agencies in their recruitment process.

Further, the **size** of a company was defined by the number of employees. Such a proxy might not be representative for some knowledge-intensive or IT companies with a very low number of employees, but which might still generate huge revenues, for example. In such a case, revenues might be a better proxy. However, the accessibility of such information as well as the application of different accounting standards by different companies bears more limitations for revenues as a size proxy than the applied number of employees proxy.

The results of our study may also be affected by the **current economic situation**. It is possible that companies put different emphases on certain aspects in, for example, economic upturn or downturn. However, while such cyclical developments do undoubtedly have an impact on the number of posted ads (Gruber, 2015), we do not expect that the tasks and requirements will be substantially related to it.

Furthermore, it would be beneficial to analyse and compare the job advertisements of controllers in **more countries** as the comparison of only two countries limits the **generalization** of the results. However, a broader analysis would have been beyond the scope of this paper as it would have decreased the number of ads that can be assessed per country. Thus, it was decided to focus on only two countries, but to ensure not having too few advertisements for each of them. Moreover, the generalization possibilities could be further improved by a **larger sample**. Thus, we see the need for more research in the future, examining the differences between the roles of management accountants in more countries and with a bigger sample to be able to reach more general and reliable conclusions about the impacts of various contextual factors. It may also be valuable to analyse Germany and the UK separately in more detail, as we saw substantial differences between them.

We identified a variety of influences of the various contextual factors, for which we provided possible explanations in the discussion. Nevertheless, there may also be other **explanations** for these differences and there is no proof that our conclusions are accurate. For example, several identified influences might also be explainable by **interdependencies** within the sample such as large companies being more often a MNC. Therefore, future research could be conducted to examine the proposed explanations to find out whether these are the true causes or whether other factors play a role.

Moreover, our study examined the impact of **each factor separately**. Additional statistical examination of the received results might be valuable for analysing the significance of the identified factors of influence and the assessment of their interdependencies. However, such an analysis would require a larger sample. This was beyond the scope of this paper.

Besides, the results may differ if the **sample** was constructed artificially in a way that there would always have been equal numbers of service/manufacturing, listed/unlisted or global/local companies.

We had also intended to analyse differences in requirements between jobs of various **hierarchical positions**. For that purpose, we had recorded whether the jobs were for junior or senior controllers, department heads, assistants or nothing further specified. However, 75% of the advertisements were categorized as not being further specified. Thus, there were only very few ads for the other four categories. Therefore, it was decided to omit this factor of analysis as it would not allow any reliable conclusions. As companies seem not to specify the hierarchical level a lot in this way, we recommend future research to use an alternative approach to determine the hierarchical position to analyse this factor. For example, the sample could be purposefully constructed in a way

that it includes a certain number of each hierarchical position by including additional key words such as “senior” or “head” in the search step.

Within the literature review on the most important factors of influence, the **industry** was discussed. It was also included in the analysis of the current study. However, in line with the criticism of previous studies about the influence of this factor, it was revealed that no generalization is possible about the direction of its influence. Hence, future research is needed to assess the effect of industry on the role of management accountants. For example, this can be done by using another approach or significantly expanding the sample for the same approach of ad analysis.

Another limitation is the **comparability over time**. Our study is a key date analysis which does not allow for comparisons over time. Thus, to analyse such effects, we compared our results to previous studies. However, such an approach has the limitation that there can always be differences in the sample and the methodology, which limit the comparability. In addition, previous analyses of job advertisements for controllers were mainly available for Germany, while for the UK, the comparison possibilities were mostly limited to surveys, which do not allow for a direct comparison of percentages as the approaches differ too much. Future research could focus on a longitudinal analysis of the changes in the role of British controllers based on an analysis of job ads.

Finally, there are **further contextual factors**, which were identified based on previous literature, but whose analysis was beyond the scope of this thesis. It may, however, be valuable for future research to expand the knowledge about the impact of these factors as well, using a combination of our method and additional surveys or interviews to obtain the necessary data. For example, it may be interesting to see how the level of uncertainty that a company is subject to or its structure are related to the role of controllers.

7 Summary and conclusion

The present study had the aim to demonstrate the contemporary role of management accountants, examine the influence of factors shaping this role, and to assess the changes in the role and requirements in management accountants over time. It was found that the research to date is mainly focused on the factors influencing the change of the role. A rather limited amount of empirical studies were found that examine and explain the influence of contextual factors on the role of management accountants per se. In addition, those studies are mainly dated from previous decades.

A quantitative content analysis of job advertisements was conducted to identify the requirements in skills and knowledge of management accountants stated by employers. Using key words and the same service provider of the job advertisements, the sample was collected for two countries, resulting in a total number of 200 advertisements being examined. Based on a literature review, the most influential contextual factors as well as tasks and requirements were identified. Based on this analysis and the possibility to measure the variables, the choice of the contextual factors, knowledge and skills was made and included in the theoretical framework used for the analysis. Further, using an inductive approach, the theoretical framework was enriched with other factors and requirements that were expected to be influential based on a pilot analysis of a small number of advertisements. The conducted empirical analysis helped to reveal which skills and knowledge companies currently expect from management accountants, and which contextual factors affect those requirements the most. In addition, changes in the role over time were revealed based on a comparison with previous research.

Our main findings indicate that companies usually require applicants to possess a university degree or a professional qualification. In terms of experience, controllers are usually expected to have gained several years of relevant work experience or the duration is not further specified. Planning, budgeting and forecasting as well as cost accounting are the tasks that seem to be most important for management accountants. Moreover, MS Office and MS Excel in particular as well as ERP knowledge and SAP specifically seem to be of especially high relevance among IT skills. Among the personality criteria, communication, analytical and teamwork skills are those being most often required. Thus, the role of management accountants can be mainly described as collecting, analysing and providing information. That stands in line with a number of definitions found in the literature (see Subsection 3.2.1).

The magnitude of influence of the examined contextual factors on the role of management accountants differs both among the examined factors and skills. Thus, the country of origin, size,

matureness and geographical scope of the company were found to be highly influential on certain aspects of requirements in management accountants within the examined sample.

First, the country of origin of the job advertisement was found to be the most influential one regarding education requirements. German advertisements were found to mainly require university degrees, while the British ones mainly emphasize a professional qualification from a recognized accounting body. In addition, the country of origin seems to be the major influence in relation to foreign language requirements. However, the geographical scope was also found to play a major role in shaping this requirement. Another aspect influenced by the country of origin appeared to be knowledge of ERP systems. German companies were found to be more interested in specifically SAP skills, while British ones only demanded general knowledge of ERP systems. Generally, the role of management accountants as described in British ads was found to be broader than the one of German controllers.

Second, the companies' size was discovered to be among the most influential contextual factors determining the requirements. Hence, tax and accounting knowledge were found to be considerably dependent on the size of a company, giving the ground to assume a more comprehensive role of management accountants in smaller companies requiring them to execute a broader variety of tasks. Among other professional skills, project management appeared to be related to the size of companies as well. Size was also found to be important concerning MS Excel, ERP/SAP, and databases skills requirements.

Further, the matureness of the company was found to be influential mainly in respect to further development of controlling systems, tax and accounting knowledge within the professional skills, and communication, independency and analytical skills within the personality criteria.

The geographical scope of a company is indicated to be responsible for requirements in foreign language knowledge and project management skills. Requirements in ERP and SAP skills also appeared to be influenced by this factor. Moreover, the importance of communication, teamwork, interpersonal and analytical skills as well as flexibility were found to vary considerably with the geographical scope.

Thus, it can be concluded that, in line with previous literature, size and country of origin are among those that were found to be most influential. In addition, the results indicate that, among those factors that were assumed to be of high influence, the matureness and geographical scope are also rather important in shaping the role.

Despite the fact that technology was not included as a separate contextual factor for the conducted analysis, several conclusions could be obtained from the examined IT related requirements. It was found that, within the examined sample, IT skills were specified by 88% of the companies, stating MS Office, MS Excel and ERP systems knowledge quite often. Thus, it can at least be concluded that IT technology is a rather influential contextual factor, that affects the requirements and, as a result, the role of management accountants.

At the same time, our study indicated that the listing status hardly influences the role of management accountants. Concerning the impact of type and industry, similar to previous empirical studies, no meaningful results were obtained and no general directions of influence of these factors can be revealed. Above all, the requirements regarding controllers' experience were found not to be dependent on any of the contextual factors included in the current analysis.

Another conclusion, which can be driven by the obtained results of the study, is the probability of the existence of a number of interdependencies between the influences of the examined contextual factors. Hence, for example, the country of origin appeared to have the highest importance in the formulation of education requirements, diminishing the influence of other factors. The matureness of a company seems to be connected to size. The same might be true for the fact of being listed – higher probability of a company to be listed in case of being larger.

A comparative analysis of our study with the previous empirical research in the area provided further conclusions regarding the changes in the role of management accountants over time. Thus, it can be concluded that the role of controllers has undergone certain changes and shifted from mainly bookkeeping tasks to a more comprehensive business partner role. Such a conclusion confirms our findings in the literature review of the respective question. However, several traditional tasks still appeared to be quite important. Therefore, it might be argued that the role, rather than shifting, is getting enhanced.

Appendix A: Developed framework for the analysis

Contextual factors
Country
Size
Matureness
Hierarchical level of the position
Stock exchange listing
Geographical scope
Type
Industry

Category	Requirement	
Education	Certain level or type of education	
Work experience	Certain period of experience	
Professional skills	Management accounting tools	Cost accounting
		Variance analysis
		Reporting
		Planning, budgeting and forecasts
		Further development of controlling tools or systems
		Project management and controlling
	General	Accounting
		Taxes
		Industry knowledge
		Foreign language
	IT related	SAP
		ERP excluding SAP
		MS Office
		MS Excel
		BI
		Databases
		General IT skills
		Other specific software
		Unspecified
Personality criteria	Communication	
	Presentational	
	Teamwork	
	Interpersonal	
	Analytical	
	Leadership	
	Convincibility and assertiveness	
	Flexibility	
	Time management	
	Stress management	
	Hardworking	
	Independency	

Appendix B: Description of possible manifestations and assumptions

Table B.1 presents the manifestations of the contextual factors included in the analysis.

Contextual factors	Definition & specification
Country	Germany, UK
Size	Number of employees
Matureness	Number of years since foundation
Hierarchical level of the position	Junior, Senior, Head, Assistant, Controller/management accountant
Stock exchange listing	Listed or unlisted
Geographical scope	MNC or local
Type	Manufacturing or service
Industry	10 industries according to ICB: oil & gas, basic materials, industrials, consumer goods, health care, consumer services, telecommunications, utilities, financials, technology, other

Table B.1 Definition and specifications of contextual factors

The first criterion concerns the **country**. German advertisements were collected on indeed.de while the British ones are from the counterpart indeed.co.uk.

The **size** of a company can be measured in various ways, such as revenues (Bhagat, Carey & Elson, 1999; Mabert, Soni & Venkataramanan, 2003; Patten, 2002), total assets, market capitalisation (Nicholson & Kiel, 2003), or number of employees (Kumar, Rajan & Zingales, 1999; Pagano & Schivardi, 2000; Wall, Michie, Patterson, Wood, Sheehan, Clegg & West, 2004). For the study of this paper, the number of employees was chosen as a proxy for size as it is most easily determinable. Especially for smaller companies, there is often no information available about revenues or assets, but at least the number of employees is disclosed in most cases. Moreover, the number of employees was preferred as a proxy because different companies may apply different accounting standards which might limit the comparability of revenues or assets.

Next, the **matureness** was noted by the year of foundation. In a second step, the number of years during which the company has been operating was calculated.

Turning to the analysis of the **hierarchical position**, the categories “junior”, “senior”, “head”, “assistant” and “controller/management accountant” were applied. These were identified based on the title of the advertisement. When nothing was specified, the ad was classified as the hierarchical level “controller/management accountant”.

For the **stock exchange listing**, it was looked up whether the company was listed on any stock market and then classified as listed or unlisted accordingly.

Further, the **geographical scope** in which the companies operate was recorded. There exist various distinctions concerning the degree of internationalisation. Companies can be divided into international, multinational, global, and transnational companies (Lee, 2007). However, such a distinction would be too detailed for the analysis of this paper that is why the distinction is merely between local and MNCs with the latter being defined as a “*firm that operates in more than one country*” (Harvey, 2014).

Moreover, the **type** of the company was assessed. That means, it was considered whether the company’s business is located rather in manufacturing or services. Some companies are both involved in manufacturing and the provision of services. For them, it was assessed which of the two areas is of higher importance.

The same is true for the choice of **industry**. It was considered too far-going and complex to attribute more than one industry to a company. Therefore, the most relevant one was chosen. In case the job advertisement was aimed at one specific area of the company, that industry was chosen, otherwise the industry of the company’s core business was selected. As mentioned before, to organize the industries, the ten industries of the Industry Classification Benchmark (n.d.) were chosen. As sometimes, it was impossible to categorize some of the companies into these industries, the additional category “other” was introduced.

The tables, presented further and describing definition or specification of a particular requirement, provide the insight what assumptions were made during the analysis of job ads. In addition to the stated manifestations, a direct naming of the analysed requirements was, of course, also considered.

The various **education requirements** are displayed in Table B.2. The first one measures whether a university degree is required by the companies. Then, the stated desired subjects are noted down as well as the focus areas if they are specified. Besides university, another requirement can also be a professional degree from a professional accounting body such as CIMA, ICAEW, or ACCA. Here, the analysis of the pilot sample revealed that companies can be classified into three categories – requiring someone fully qualified, someone partly qualified, or someone either being fully qualified or still in the process of becoming qualified. It was also found inductively that some companies are alternatively satisfied with applicants being qualified by experience, which means that someone has no formal degree, but has acquired the necessary skills and knowledge through work experience (Agency Central, n.d.). Finally, the category “unspecified” was included for all advertisements making no specifications concerning the desired type or level of education.

Factor of education	Definition & specification
University	Degree from a university or university of applied sciences
Subject	General fields of study, e.g. Business Administration or Industrial Engineering
Focus	Focus within the field of study, e.g. Controlling or Accounting
Professional degree	Commercial training or degree such as CIMA, ACA, ACCA, AAT, CCAB, or CIPFA Classified into: <ul style="list-style-type: none"> • Partly qualified or studying towards professional degree • Either qualified or studying towards professional degree • Qualified
Qualified by experience	No formal qualification, but substantial relevant work experience
Unspecified	No requirements stated concerning education

Table B.2 Definition and specifications of education

The requirements concerning the **experience** of controllers were divided into four categories, as displayed in Table B.3. The first category comprises those positions that do not explicitly require any experience, which means it includes both ads stating that no experience is required and ads making no specifications about experience at all. The next category consists of those advertisements expecting one or “at least one year” of experience. All advertisements making it clear that at least two years of experience were required were summarised under “several years”. Finally, a number of employers only state they expect experience, but do not specify the amount of time. Thus, an additional category was introduced for those ads – “time unspecified”.

Factor of experience	Definition & specification
No experience required	Advertisements directly encouraging professional newcomers to apply or stating that no experience is required as well as those making no specifications
One year	Advertisements requiring one or at least one year of experience
Several years	Advertisements stating a specific number of years equal to or higher than two as well as those requiring several or a few years of experience
Time unspecified	Just stating that experience is required, sometimes with the additions of relevant, significant etc.

Table B.3 Definition and specifications of experience

The details of the **professional skills** analysed are shown in Table B.4.

Professional skill	Definition & specification
Cost accounting	Tasks associated with the short-term planning and control of costs, e.g. product calculation, cost centre analysis and review, variance analysis, breakeven analysis, cost analysis and optimization, transfer prices, target costing, and activity based costing
Variance analysis	Cost accounting tool that identifies the differences between actual and budgeted or targeted performance levels as well as reasons for these differences, e.g. nominal-actual comparison, analysis of cost divergence, gap analysis, commenting on changes in actual and budgeted costs, reporting against budget and forecasts
Reporting	Collecting, processing and provision of data for company stakeholders, e.g. monthly and quarterly reporting, reporting of KPIs, delivering ad hoc reports, providing information for managers
Planning, budgeting and forecasts	Establishing the budget or forecasts as well as measures of reaching it, e.g. preparing budgets, doing prognoses or forecasts, profit planning, operative planning, or long-term planning
Further development of controlling tools or systems	Tasks to improve or further develop controlling tools or systems in a company, e.g. implementation or further development of analysis and reporting tools, optimization of controlling tools and processes, identifying needs for improvements in controlling
Project management and controlling	Tasks associated with the planning, execution and accounting of projects, e.g. project leader, collaboration in projects, analysis or supervision of projects, project controlling, calculation of projects
Accounting	Tasks and knowledge required for preparing reports in accordance with accounting standards such as IFRS, US GAAP, UK GAAP or HGB, e.g. managing balance sheet accounts, assisting in monthly accounting submissions, preparing profit and loss accounts, recording financial transactions, booking payments, reconciling bank accounts, handling credit control tasks, maintaining ledgers, payroll processing, possessing accounting skills, group consolidation
Tax	Knowledge of tax law, e.g. computation of VAT, income tax, corporation tax
Industry knowledge	Experience or otherwise obtained knowledge of the industry in which the company operates, e.g. experience in the automotive industry, knowledge of the specifics of the health care sector
Foreign languages	Command of a language other than English in the UK or German in Germany

Table B.4 Definition and specifications of professional skills

First, the requirements of several controlling tools and tasks were examined. One of them is **cost accounting**. In this category, all tasks concerning the short-term planning and control of costs are summarized (Horvath, 1986). **Variance analysis** is one cost accounting tool. As it was found to be frequently requested explicitly, it was additionally recorded (WebFinance, n.d.). The next skill, **reporting**, comprises all tasks necessary to collect, process and finally provide information to company stakeholders. **Planning, budgeting and forecasts** includes all activities of establishing and reaching budgets or forecasts (Gruber, 2015; Horvath, 1986).

The next factor is the **further development of controlling tools or systems** which means tasks such as the optimization or implementation of new tools or improvement of processes. Moreover, requirements in **project management and controlling** were considered. All related tasks are recorded here including the planning, implementation and accounting of projects.

The **accounting** category is introduced to see requirements in controllers concerning accounting and accounting standards. Both statements of specific accounting standards and tasks that make it clear that knowledge in accounting is necessary, are included here, such as payroll processing or managing balance sheet accounts. Furthermore, **tax** knowledge was added as another factor, consisting of general tax knowledge, knowledge of specific taxes and tasks closely related to taxes.

The next category is **industry knowledge**, which shows how important companies find it that employees already possess knowledge of their industry. There is no distinction made between how the applicants got the knowledge.

Finally, **foreign language** skills are considered including all languages apart from English for the British and German for the German advertisements.

The categorization of **IT skills** is displayed in Table B.5. First of all, ERP skills were considered. As SAP is rather dominant in this area (Columbus, 2014) and knowledge of it was found to be frequently requested in the pilot study, requirements in SAP were recorded separately from other ERP software. Thus, all other ERP software such as Oracle, Sage, Infor, and Microsoft and statements merely requesting knowledge in ERP software were summarised in “ERP excluding SAP”.

A similar approach was taken for MS Office. On the one hand, the data for MS Excel was gathered separately as it seems the most relevant one for management accountants, on the other hand, all requirements in other specific MS Office tools or MS Office in general were summarised in “MS Office excluding MS Excel”.

IT skill	Definition & specification
SAP	Knowledge of the software SAP or any of its components such as SAP CO or SAP FI, but excluding the BI tools of SAP
ERP excluding SAP	General knowledge of ERP software or other specific ERP software such as Oracle, Sage, Infor, Microsoft, or others (excluding SAP)
MS Office	General knowledge of MS Office or one of its programmes such as MS Word or MS PowerPoint, except from MS Excel
MS Excel	Knowledge of MS Excel requested specifically, either as being especially important within MS Office or solely without the general MS Office requirement
BI	Specifically knowledge in BI, its techniques (e.g. Data mining or OLAP) or tools (e.g. Oracle Enterprise BI Server, SAP NetWeaver BI, Microsoft BI platforms or QlikView)
Databases	Generally knowledge in databases or specific software such as Microsoft SQL, Microsoft Access, MySQL or Oracle Database
General IT	Requiring IT skills or IT literacy without giving any details
Other specific software	Requirements in other specific software
Unspecified	No statement of any IT requirements

Table B.5 Definition and specifications of IT skills

The next components comprise skills in **BI** and **databases**. For both of them, both requests for specific software associated with BI (e.g. Oracle Enterprise BI Server, SAP NetWeaver BI, Microsoft BI platforms, or QlikView; Javlin, 2015) or databases respectively (e.g. Microsoft SQL, Microsoft Access, or MySQL; G2 Crowd, n.d.) as well as general requirements in them were recorded. For BI, requirements of BI techniques such as Data mining and OLAP were additionally recorded in that category.

Some companies also only state that they expect a specific level of **general IT literacy**, that is why the category “general IT” was introduced as well. In order not to miss any other relevant skills that may not have been obvious from the start, all other naming of software was recorded in “**other specific software**” to review whether anything else is expected frequently. Finally, to capture those companies omitting any requirements in IT, the category “**unspecified**” was added.

Finally, Table B.6 shows the examined requirements in the **personality** of management accountants.

The first characteristic, **communication**, refers to all skills needed to present and defend the results of one’s work as well as to acquire knowledge from various sources (Montano et al. 2001). Thus, **presentational** skills are a part of them, but as a number of companies were found to request them separately from communication, an additional category was added.

Personality criterion	Definition & specification
Communication	Ability to both orally and in writing present and defend the outcomes of one's work as well as to obtain knowledge from a variety of different sources, e.g. communication skills, strong in communication, ability to communicate effectively with superiors and colleagues
Presentational	Ability to both orally and in writing present and defend the outcomes of one's work, e.g. presentation skills, ability to creatively and effectively visualize business content and to descriptively present relationships and trends
Teamwork	Ability to work in teams, e.g. collaboration, team-oriented working manner, team spirit, capacity for teamwork
Interpersonal	General skills required to ensure a good working atmosphere among employees, e.g. social competence, ability to deal with conflict, diplomatic skills in handling different personalities, friendly appearance, respectful interaction with colleagues, ability to take criticism
Analytical	Ability to analyse data, find relations and solve problems, e.g. analytical understanding, affinity for numbers, problem solving skills
Leadership	Being able to lead, guide and supervise a group of employees, e.g. ability to motivate subordinates, developing and motivating staff, charismatic or firm leadership
Convincibility and assertiveness	Ability to convince others of one's opinion and to get one's will, e.g. perseverance, determination, self-assertion, strong-willingness, firmness
Flexibility	Being able to see the relevance of both financial and non-financial data and being able to adapt, e.g. openness for change and growth, adaptability in a dynamic context, flexible working manner
Time management	Ability to allot time so that tasks are finished in time, e.g. ability to prioritize, ability to meet simultaneous deadlines, prioritization, ability to work to tight deadlines, ability to manage competing priorities
Stress management	Ability to work under pressure, e.g. resilience, ability to meet simultaneous deadlines under pressure, ability to cope with stress, stress-resistance
Hardworking	Explicit statements closely interpretable to employees being expected to work hard, e.g. devotedness, dedication, achievement motivation
Independency	Employees being able to organize their work on their own without requiring close supervision or guidance, e.g. self-reliance, autonomy, independent working manner

Table B.6 Definition and specifications of personality criteria

The next one is **teamwork**. Here, all requirements indicating that the employer expects the controller to be able to properly work in a team are summarised, such as collaboration or capacity for teamwork. It is closely related to **interpersonal** skills, but as a number of job advertisements distinguish between them, the decision was made to record them separately. Thus, more general interpersonal skills that are not directly linked to teamwork are recorded in this category. Examples include being able to handle conflicts, to respectfully interact with colleagues or to take criticism.

In the category of **analytical** skills, all requirements to solve problems and analyse data were recorded. Key words are, for example, affinity for numbers, and analytical and problem-solving skills.

The category **leadership** comprises both directly stated requirements in specific leadership skills such as a certain style of leadership or the ability to motivate staff and previous experience in leadership tasks.

Another examined personality characteristic is **assertiveness and convincibility**. It is related to communication skills, but in a number of ads considered important enough to state explicitly and therefore recorded separately. It means that a person is persistent and both willing and able to convince others of something.

Flexibility comprises several aspects. It is the flexibility in the assessment of data, flexibility concerning the work environment and flexibility in working with other people. However, it is often not specified what kind of flexibility is required and therefore not further distinguished.

Requirements to allotting time so that projects or tasks are finished in time belong to the category of **time management**. Some examples are the ability to meet deadlines or to prioritize the workload accordingly or time management itself.

Stress is also an important issue in many companies today that is why employers might look for applicants who are able to cope well in such situations. Thus, requirements associated with being able to handle stress were counted in a separate category. Companies stated, for example, that applicants should be stress-resistant or able to work under pressure.

In the category of “**hardworking**”, only characteristics which are closely related to that were included, such as dedication, achievement motivation or directly stated “hardworking”. A too broad interpretation could have resulted in too many advertisements indicating some level of hardworking, which was not considered to be of any use.

Finally, **independency** was recorded meaning that employees are able to work on their own and do not need close guidance in their work. Key words associated with this characteristic are, for example, self-reliance, and autonomy.

Appendix C: Example of an advertisement being processed

The processing of an advertisement will be demonstrated at the example of one ad which was considered suitable because of its comprehensive information (see Figure C.1). It is one of the advertisements from which one can already learn some of the company characteristics, but those were only recorded at the end. All relevant information is highlighted in the ad.

First, the hierarchical level of the announced position was identified and stated as “senior”. Next, the professional skills were examined. In this ad, there were no indications for cost accounting or for variance analysis and project management, but reporting, planning, budgeting and forecasts as well as further development of controlling could be identified. Furthermore, there were no requirements for knowledge in accounting, tax, a foreign language or a specific industry. Moving on to education, there was no statement of any university degree, but a professional degree as CIMA, ACCA or ACA was required. In terms of experience, the controller is supposed to have gained experience, but the time is unspecified. In the field of IT skills, of the skills included in our analysis, only MS Excel was stated. However, the ad also stated “Financial Accounting / Budgeting packages”, which were noted in “other specific software”. A large variety of personality criteria were demanded by this employer. Only the examined ones are highlighted in the ad. Directly stated are analytical, communication and interpersonal skills. Time management could be concluded from the “ability to prioritise workload”, and stress management from the “ability to work under pressure and meet tight deadlines”.

In a second step, the company characteristics were collected. In this case, most of them could already be identified from the advertisement. It is stated that the company employs more than 58 000 people. Thus, 58 000 was recorded as size. The business is described as “real estate services and investment management”. The Industry Classification Benchmark (n.d.) showed that this business can be classified in the industry of “Financials”. Another assessed criterion is the geographical scope. As the company has “more than 1,000 locations in 80 countries”, it can clearly be considered a MNC. Furthermore, it is directly stated that it is listed. Therefore, only the year of foundation needed to be found in supplementary sources. Consulting the history section of the company’s website shows that its foundation can be traced back to 1783 (JLL, n.d.).



Industry: Financials



Build Your Own Real Value

A career at JLL puts you in the center of one of the largest, most sophisticated commercial **real estate** and investment management firms in the world. In more than 700 markets around the world, our talented professionals have the opportunity to do their best work every day in helping our clients meet and exceed their goals. The work our people do, the ideas they create, and the strategies they employ have a deep and lasting effect on the global landscape.

Your reward – a lasting and satisfying career with a global leader that you help create and drive, and a rewards structure that's for you, and about you.



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Job 1 of 1

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Position Title Management Accountant
 Auto Req ID 34656BR
 City London
 No. of Positions 1
 Job Description

Senior Management Accountant
 UK Finance
 Canary Wharf, London

Hierarchical level

Role Summary

The Senior Management Accountant role forms part of a 7 person team reporting to the Head of Management Accounting.

The UK Finance department supports a rapidly growing and dynamic business. As well as reporting financial information as part of a Global US **listed company**, the team supports 11 business lines and 5 Regional lines, and assists in decision making capacity.

Responsibilities

- Reporting** → Responsible for overview of specific business line reporting at month end
- Planning, budgeting and forecasts** → Manage the 3 year planning and budget and forecasting process. Create timetable, communicate with business and co-ordinate with other support teams (HR, marketing and IT etc). Responsible for HP budgeting tool in UK.
- Help create value from budgeting process. Link with business strategy and external factors, GDP, market volumes and research.
- 3-4 line reports to oversee their work and help prioritise and manage work load/output
- Further development** → **Monthly forecasts and projections**
- To manage systems developments within the UK Finance team ensuring that we create productivity gains and systems that are user friendly and add value to the finance process. Ensure consistency of approach, best practice and training within management accounts team.
- Work closely with other Senior Management Accountant who is responsible for actual reporting.

Skills

- Time management** → Ability to **prioritise workload** with a strong attention to detail and accuracy in numeric and written work
- Proven **organisational skills** and the ability to **work under pressure to meet tight deadlines**
- Good **analytical skills** and good writing skills
- Able to use initiative, self-starter
- Confident person with strong **communication and interpersonal skills**
- IT literate (**Excel** **Financial Accounting / Budgeting packages**)

Stress management

Experience

- Qualified CIMA / ACCA / ACA** with proven **post qualification experience**
- Strong previous focus on budgeting/forecasting process in a commercial organisation

Experience: time unspecified

Behaviours

- Agile
- Trustworthy
- Courageous

About Us

We are in business to create and deliver real value for clients, shareholders and our own people in a complex world that is constantly changing.

JLL is a financial and professional services firm specialising in real estate services and investment management. We have more than 58,000 people in more than 1,000 locations in 80 countries serving the local, regional and global real estate needs of those clients, growing our company in the process. In response to changing client expectations and market conditions, we assemble teams of experts who deliver integrated services built on market insight and foresight, sound research and relevant market knowledge. We attract, develop and reward the best, and most diverse, people in our industry, challenging them to develop enduring client relationships built on quality service, collaboration and trust.

[Real Value in a Changing World](#)

Diversity and Inclusion

We seek to attract and retain the best people and believe our employees are our most valuable asset. We endeavour to create an environment and culture of openness, trust and honesty with freedom from hostility. We encourage and celebrate diversity because broader perspectives, skills, experience and knowledge will enrich and enhance the value we bring to each other, our clients, shareholders and other stakeholders.

JLL is an Equal Opportunities Employer and encourages applications from all sections of the community.

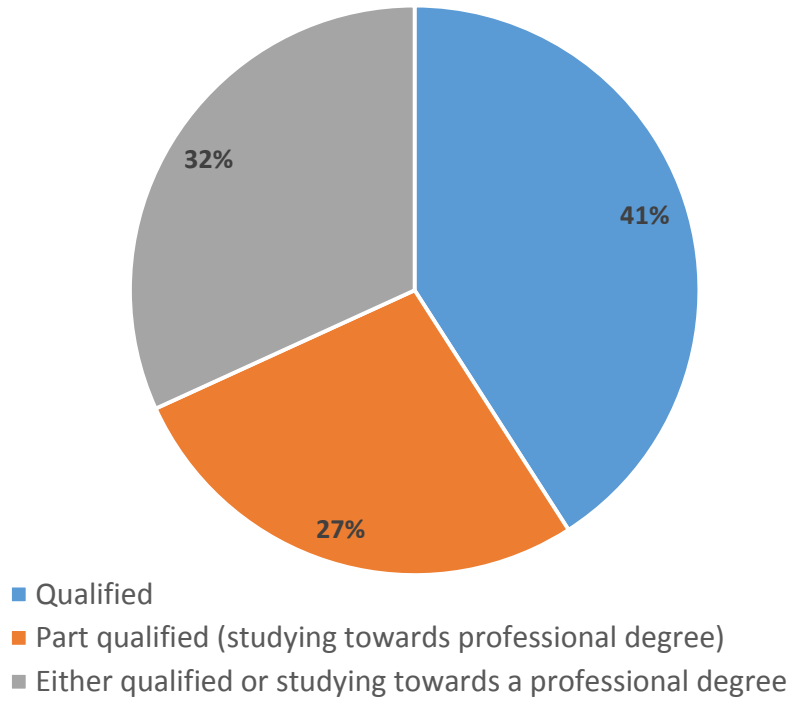
[JLL Diversity and Inclusion](#)

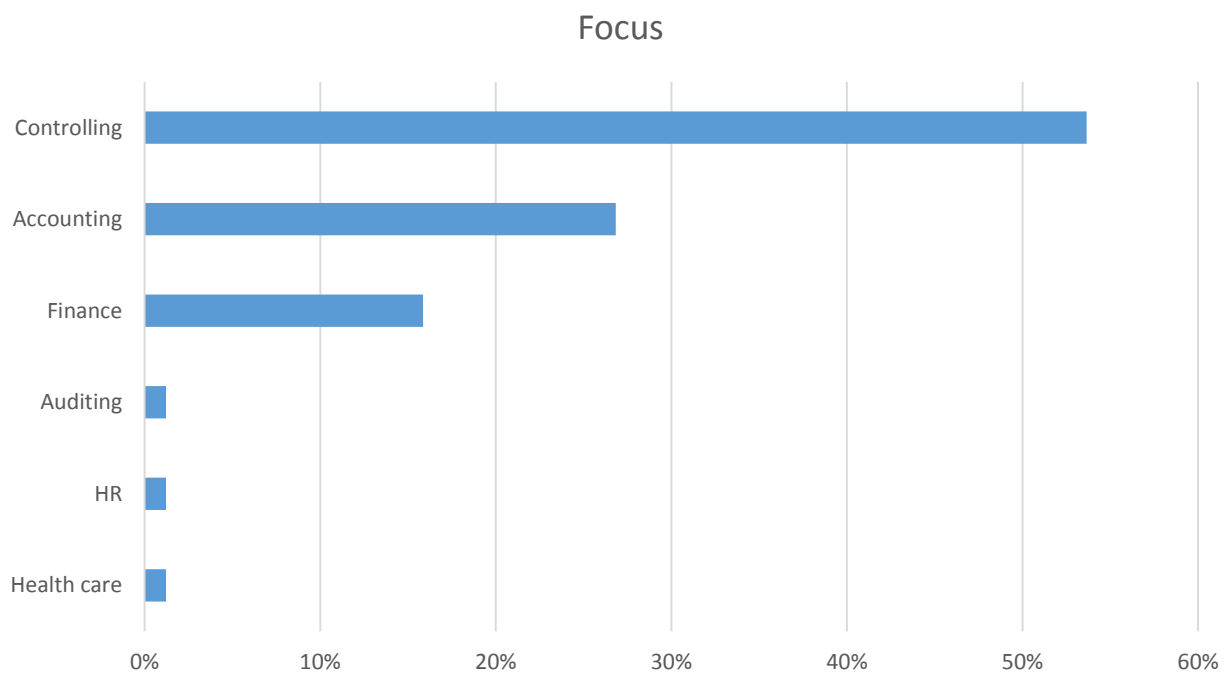
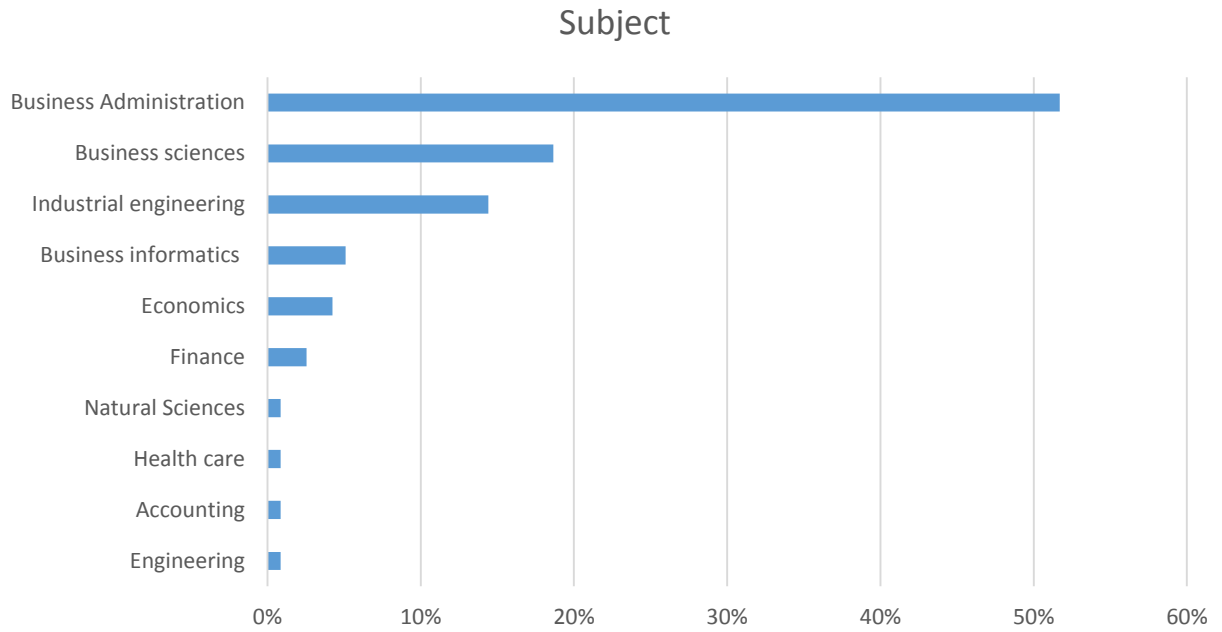
Full/Part Time	Full-Time
Regular/Temporary	Regular
Job Function	Finance

Figure C.1 Example of an advertisement being processed

Appendix D: Distribution of British education requirements (professional training)

Distribution of British education requirements
(professional training)



Appendix E: Subject and focus specified in German education requirements

Appendix F: Direction of influence of the examined contextual factors

Contextual factor / Requirements	University	Professional training	University or Professional training	Unspecified	Several years	Time unspecified	Unspecified / non	1 year
Country (Germany/UK)								
Size								
Matureness								
Listing on the stock exchange (Listed/Unlisted)								
Geographical scope (MNC/Local)								
Type (service/manufacturing)								
Industry (Consumer goods/Consumer services/Industrials/other)								

Appendix F continued

Contextual factor / Requirements	Reporting	Planning, budgeting, forecasts	Cost accounting	Accounting	Further development	Variance analysis	Foreign language	Industry knowledge	Project management	Tax
Country (Germany/UK)										
Size										
Matureness										
Listing on the stock exchange (Listed/Unlisted)										
Geographical scope (MNC/Local)										
Type (service/manufacturing)										
Industry (Consumer goods/Consumer services/Industrials/other)										

Appendix F continued

Contextual factor / Requirements	Excel	MS Office	ERP excluding SAP	SAP	IT general	Other specific software	Unspecified	BI	Database
Country (Germany/UK)	/	\	/	\	/	/	/	\	\
Size	\	/	\	/	\	\	/	/	\
Matureness	/	\	\	/	/	/	/	/	/
Listing on the stock exchange (Listed/Unlisted)	/	/	/	\	\	\	/	\	\
Geographical scope (MNC/Local)	/	\	/	\	/	\	/	\	\
Type (service/manufacturing)	\	/	\	/	\	\	/	/	/
Industry (Consumer goods/Consumer services/Industrials/other)	\	/	/	\	/	/	/	\	\

Appendix F continued

Contextual factor / Requirements	Communication	Analytical	Teamwork	Independency	Time management	Flexibility	Interpersonal	Stress management	Convincibility and assertivenss	Hard-working	Leadership	Presentational
Country (Germany/UK)												
Size												
Matureness												
Listing on the stock exchange (Listed/Unlisted)												
Geographical scope (MNC/Local)												
Type (service/manufacturing)												
Industry (Consumer goods/Consumer services/Industrials/other)												

Appendix G: Comparison of the results with previous studies

Factor	Further distinction	Previous studies	Our study		
			Average	Germany	UK
Education	University degree	- Bramsemann (1978): 48% - Berens et al. (2013): 96% - Gruber (2015): 81%	39%	76%	2%
	Study subject	Berens et al. (2013): 91% specify 1. Business Administration 2. Business Sciences 3. Industrial Engineering	-	85% specify, same order	Too few specifications to generate an order
	Focus area	Berens et al. (2013): 1. Controlling (28%) 2. Finance (20%) 3. Accounting (11%)	-	47% specify: 1. Controlling (54%) 2. Accounting (27%) 3. Finance (16%)	Too few specifications to generate an order
Work experience	Required amount of experience	- Bramsemann (1978): several years: 92% - Berens et al. (2013): several years: 56% ⁹ ; time unspecified: 22% ¹⁰ , initial experience: 10%, unspecified: 13% - Gruber (2015): several years: 51%, time unspecified: 34%, unspecified/non: 15%	1 year: 4% Several: 42% Time unspecified: 40% Unspecified/non: 14%	1 year: 2% Several: 56% Time unspecified: 32% Unspecified/non: 10%	1 year: 6% Several: 28% Time unspecified: 48% Unspecified/non: 18%

⁹ Sum of the categories several years, more than 5 years, enhanced experience, grounded experience, and more than 8 years

¹⁰ Sum of the categories time unspecified and experience in similar position

Appendix G continued

Factor	Further distinction	Previous studies	Our study		
			Average	Germany	UK
Management control tools	Reporting	- Bramseman (1978): 44%, Rank 4 - Graham, Davey-Evans & Toon (2012): 2007: 67% - France (2010): 55%, Rank 2 - Gruber (2015): 2004: 56%, 2013: 82%, Rank 2	Rank 1 ¹¹ 85%	Rank 1 86%	Rank 1 84%
	Planning, budgeting & forecasts	- Bramseman (1978): 69%, Rank 2 - Burns & Yazdifar (2001) : Rank 1 for past and future importance - Graham, Davey-Evans & Toon (2012): 2007: 34% (without planning) - France (2010): 88%, Rank 1 - Gruber (2015): 2004: 48%, 2013: 63%, Rank 3	Rank 2 75%	Rank 3 77%	Rank 2 72%
	Cost accounting	- Bramseman (1978): 87%, Rank 1 - Berens et al. (2013): explicitly stated only in 6.3% of ads, Rank 1 - Gruber (2015): 2004: 53%, 2013: 82%, Rank 1	Rank 3 67%	Rank 2 82%	Rank 3 52%
	Further development of controlling	- Graham, Davey-Evans & Toon (2012): 2007: 9% - France (2010): low ranking, 5% - Gruber (2015): 2004: 11%, 2013: 44%, Rank 4	Rank 4 50%	Rank 4 60%	Rank 5 40%
	Variance analysis	- Burns & Yazdifar (2001): Rank 2 for past importance, Rank 3 for future importance - France (2010): 22%, Rank 7	Rank 5 43%	Rank 6 43%	Rank 4 43%
	Project management	- Gruber (2015): 2004: 19% - Graham, Davey-Evans & Toon (2012): 2007: 9% - Gruber (2015): 2013: 37%, Rank 5	Rank 6 28%	Rank 5 48%	Rank 6 8%

¹¹ In order to ensure the comparability, our results were ranked according to the magnitude of the identified percentages

Appendix G continued

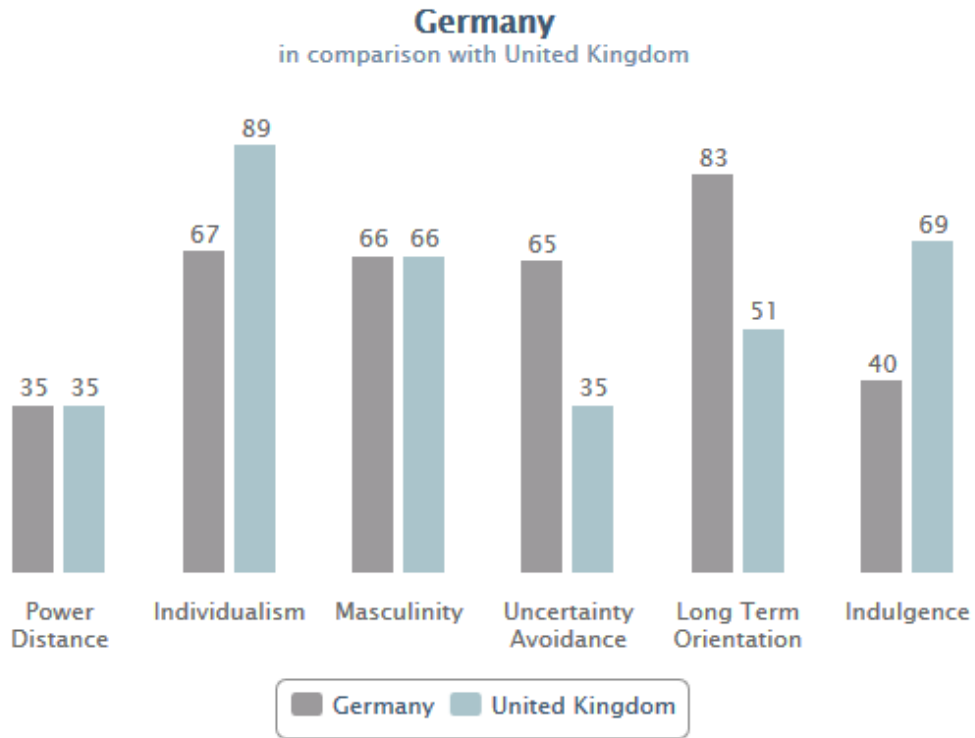
Factor	Further distinction	Previous studies	Our study		
			Average	Germany	UK
IT skills	MS Excel	- Gruber (2015): 2004: 19%, 2013: 33%	56%	48%	64%
	MS Office	- Berens et al. (2013): 77% - Gruber (2015): 34% (no trend over time)	43%	62%	24%
	ERP	- Gruber (2015): specific ERP: 10%, general ERP: 7% (increasing trend)	32%	19%	45%
	SAP	- Berens et al. (2013): 59% - Gruber (2013): 35% (no trend)	32%	49%	14%
	BI	- Gruber (2015): 2004: 2%, 2013: 15%	4%	6%	2%
Further professional skills	Accounting	- Berens et al. (2013): 36% - Gruber (2015): 2004: 20%, 2013: 40%	53%	37%	69%
	Industry knowledge	- Burns & Yazdifar (2001): considered essential for past by 65%, for future by 44% - Berens et al. (2013): 25% - Gruber (2015): 25%	34%	44%	24%
	Foreign languages	- Bramsemann (1978): 42% - Weber (2008): 47% expect increase in importance - Berens et al. (2013): 82% - Gruber (2015): 51%	41%	79%	2%
	Tax	- Bramsemann (1978): 16% - Graham, Davey-Evans & Toon (2012): 2007: 2%	17%	6%	28%

Appendix G continued

Factor	Further distinction	Previous studies	Our study		
			Average	Germany	UK
Personality criteria	Communication	<ul style="list-style-type: none"> - Bramsemann (1978): 2%, Rank 9 - Burns & Yazdifar (2001): 60%, Rank 3 - Hassall et al. (2005): highest importance in UK, very low importance in Spain - Weber (2008): Rank 2, increase in importance expected - Berens et al. (2013): 55%, Rank 3 	Rank 1 58%	Rank 4 48%	Rank 1 68%
	Analytical skills	<ul style="list-style-type: none"> - Bramsemann (1978): 4%, Rank 6 - Burns & Yazdifar (2001): Rank 1 for past and future importance - Hassall et al. (2005): rather low importance for the UK, medium importance for Spain - Weber (2008): Rank 1 for current, rank 2 for future importance - Berens et al. (2013): 59%, Rank 2 	Rank 2 55%	Rank 1 71%	Rank 3 38%
	Teamwork	<ul style="list-style-type: none"> - Bramsemann (1978): 5%, Rank 5 - Burns & Yazdifar (2001): Rank 2 for past and future importance - Hassall et al. (2005): medium importance in the UK and Spain - Weber (2008): Rank 4, no clear direction for expectations - Berens et al. (2013): 65%, Rank 1 	Rank 3 47%	Rank 2 56%	Rank 4 37%
	Independency	<ul style="list-style-type: none"> - Berens et al. (2013): 40% 	Rank 4 39%	Rank 2 56%	Rank 6 22%
	Stress management	<ul style="list-style-type: none"> - Berens et al. (2013): 14% 	Rank 8 19%	Rank 7 17%	Rank 7 21%
	Convincibility	<ul style="list-style-type: none"> - Weber (2008): 12%, increase in importance expected - Berens et al. (2013): 21% 	Rank 9 15%	Rank 5 21%	Rank 10 8%
	Leadership	<ul style="list-style-type: none"> - Bramsemann (1978): 18%, Rank 1 - Berens et al. (2013): very low ranking, 4% - Gruber (2015): 6% 	Rank 11 8%	Rank 12 3%	Rank 9 12%

Appendix H: Comparison of Germany and the UK by cultural dimensions

(The Hofstede centre, n.d.)



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