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Chief Information Officer Background, Tenure and Income: Results from a survey in the German speaking countries.

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Abstract

Organizations are increasingly dependent on information technology. Especially in the age of the fourth industrial revolution companies include or even base their business strategies and business models on digitization initiatives. This is needed to tackle the challenges of the a world which is driven by volatility, uncertainty, complexity and ambiguity (VUCA) and companies are utilizing the capabilities of their IT organizations to stabilize and advance their operations. The person who is responsible to develop, manage and lead this organization is the Chief Information Officer (CIO). His role is today mostly described as an executive role rather than an operative one. Therefore this research focuses on the Background of the CIO both in terms of education and training, the experience the CIO has gained in his previous jobs, the job tenure, and finally the income of CIOs.

Scope: The scope of this research is bigger companies in the German-speaking countries Germany, Austria and Switzerland (DACH region) from all industries. Excluded from the survey were state agencies. As the survey was purposely only offered in German language a referral to other countries has been prevented.

Purpose: The outcome will be used to design research models for further analysis.

Methodology: Based on data acquired in an online survey in the German-speaking DACH region methods of descriptive statistics have been used to visualize the nature of the results and basic interdependencies. The results of this research are based on 168 individuals which held the position of a top IT manager.

Results and conclusions: This research gives a structured overview of key figures regarding CIO background, experience, tenure, and salary. The results show that most CIOs either hold a University or University of applied sciences degree with the major in Business Administration, Informatics or Business informatics. Most CIOs have been serving as head of IT for over 10 years and have tenure in IT of over 20 years. This explains why most of the survey participants are in the age group 50-59 years, followed by those aged between40 and 49

years. The results also show that the vast majority report directly to the CIO. The salary analysis of the participants show clearly that age has an impact on the income.

Keywords: information management, CIO, background, tenure, income

JEL code: L2, M12, M15, M52

1. Introduction IT managers in Organizations

The most senior manager working with IT within the organization has the mission to support the goals of the enterprise. The Role is commonly called Chief Information officer or short CIO but may, at least in the German-speaking world, also have different other job titles depending on the size of the company, the organizational integration, the strategic orientation (Roscher 2020), the company culture or the strategic orientation of the IT function. In many cases, the CIO reports directly to the Chief Executive Officer (CEO) or the Chief Financial Officer (CFO) in some cases to Chief Operating Officer (COO) or Chief Technology Officer (CTO).

Chief Information Officers (CIO) role emerged in the 70s as a result of the increased importance placed on IT. (Gottschalk and Taylor 2000)

Previously mostly technically oriented, today there is a demand for managers, who have a precise understanding of the business. IT Executives can assess where IT provides an added value for the cooperation. In some cases, CIOs are even taking on methodical process responsibility (Johanning 2014).

Stephens (Stephens et al. 1992) suggest that "…the CIO operates as an executive rather than a functional manager. He or she is an active participant in strategy planning and acts as a bridge between the information technology group, the functional areas, and external entities."

With the change from a technical to a strategic manager also the job title changed from Information Manager to Chief Information Manager (CIO). This new title is more precise as it implies that the position is part of the Top-Management and not on the administrative level (Heinrich et al. 2014).

Synnott and Gruber defined 1981 the role of the chief information officer as the "senior executive responsible for establishing corporate information policy, standards, and management control over all corporate information resources" (Synnott and Gruber 1981).

Based on a Web content analysis with the search phrase "CIO" "Challenge" and "2022" a total of 9 English-language websites covering the topic were identified. All Headlines describing challenges were extracted and analyzed with MAXQDA Analytics 2022 (VERBI Software 2021) regarding word frequency. In preparation merged words were split and words

describing aspects of the main categories were excluded. The remaining words with a minimum of 2 word counts were used to build a word cloud. (Roscher 2022)

Figure 1: CIO Challenges in 2022 based on a internet content analysis.

Source: own construction (Roscher 2022)

Besides these short-term, topic-based, current, challenges CIOs have to also cope with structural issues like the integration into the overall company structure, the role of IT in the organization, the tasks as well as the skills and competencies of the IT top managers. Followed by the daily struggle to achieve Business IT alignment. Only if all these aspects work seamlessly together a CIO and his/her organization can be successful and support the performance of the overall company.

2. Inventory of the IT management in companies in the DACH region

The role of CIOs involves a vast variety of tasks and challenges as the owner of this position is in the middle between his core responsibility IT and the influences and results of the VUCA World, in which its employer operates on the market. Companies react to the changes in the VUCA world by defining Missions, Visions and formulating Business and Department strategies and business models. All these conceptual works aim to decide which products and services should be offered to which customers in which market. The persons responsible for these concepts are the CEO/CFOs supported by the other members of the Top Management Team which supplement the high-level strategy with the information on which processes and business models products will be developed, produced sold, and delivered to customers. The CIO plays a crucial role in this process of intra-business and business IT alignment. He supports current or future IT services and screens the market for upcoming IT innovations and trends which might open up new digitally enabled business models and services/products.

Contrary to the North American region where Luftman and colleagues did a series of investigations over time (Luftman and Derksen 2012), the research on how these areas of responsibility are accepted, processed, and implemented has only been researched once for the German-speaking regions by Nissen and Termer (Nissen and Termer 2014; Termer and Nissen 2013). This research tries to continue their work yet also includes new aspects.

From a greater dataset, the aspects of CIO Background, Tenure, and Salary are presented in this conference paper.

3. Methodology of data aquation

An online questionnaire was designed and distributed to survey participants in Germany. The approach was twofold. On the one side CIOs, which were present on internet platforms with their Work title were approached. On the other side, companies with a minimum of 125 Mio€ turnover were extracted from a commercially available address database. This database returned contact names and e-mail addresses which also were used to approach the CIOs.

The second data source indicates how big the overall population might be. Yet, as contact details of all potential CIOs are publicly available, and CIOs might have other job titles than the used one, the survey can hardly be representative. So the data available allows only an explorative study. Comparing the participation to earlier surveys in Germany (Termer 2015) suggest that the participation rate is acceptable and comparable.

The online questionnaire was generated using SoSci Survey (Leiner 2019) and was made available to users via www.soscisurvey.de.

N=168 surveys were completely fulfilled, which means including participation of the lottery and the newsletter. All datasets are used for further statistical analyses in IBM SPSS 22 (IBM Corp.).

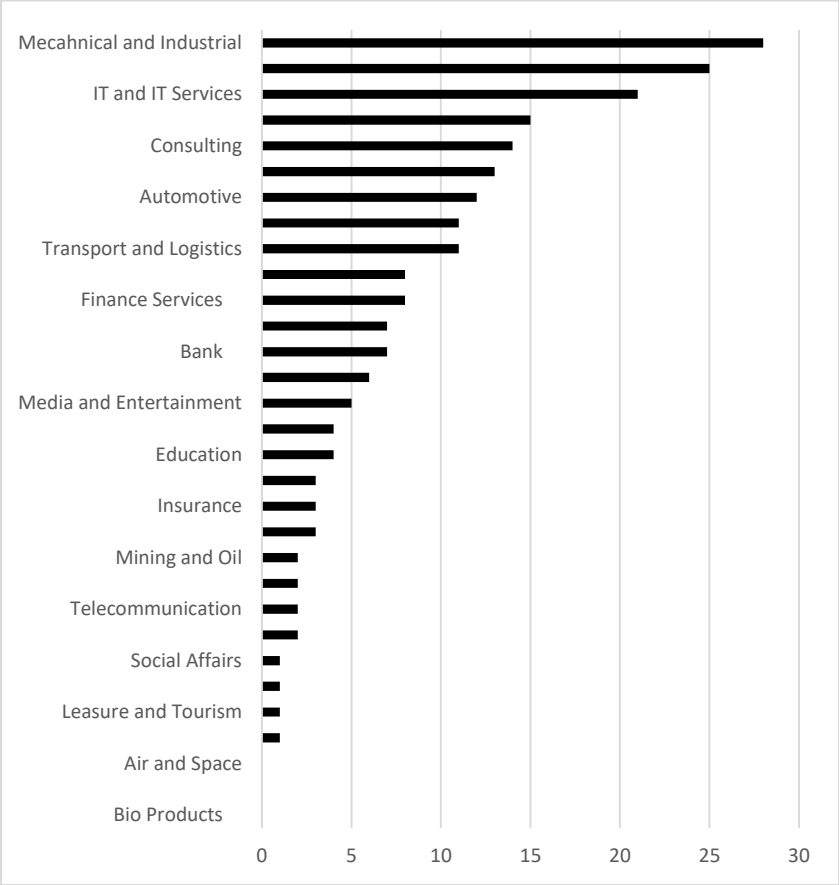
A similar survey done by Nissen and Termer in 2013 had the same scope (CIOs in Germany, three-month survey period, 2416 contact attempts by e-mail) and resulted in N=257 participations and N=216 valid datasets (Nissen and Termer 2014). The comparison with these results suggests that the response rate for the current survey is comparable and acceptable even so the ways of approaching the CIOs have changed from pure e-mail in 2013 to partly using social networks in 2022.

4. Selected results and discussion

4.1 Nature of the businesses involved in this study

All Industries are contained in the sample, therefore it can be assumed that the results of this study are meaningful. Figure 2

Figure 2: Participants by Industries



Source: author's own construction.

The original goal of the research was to target companies with a minimum turnover of 125 Mio. € annually. Table 1 shows that the mean turnover was 528 Mio € annually, 120 Mio€ in the lower quartile, and 3000 Mio € in the upper quartile. Therefore representativeness can be assumed.

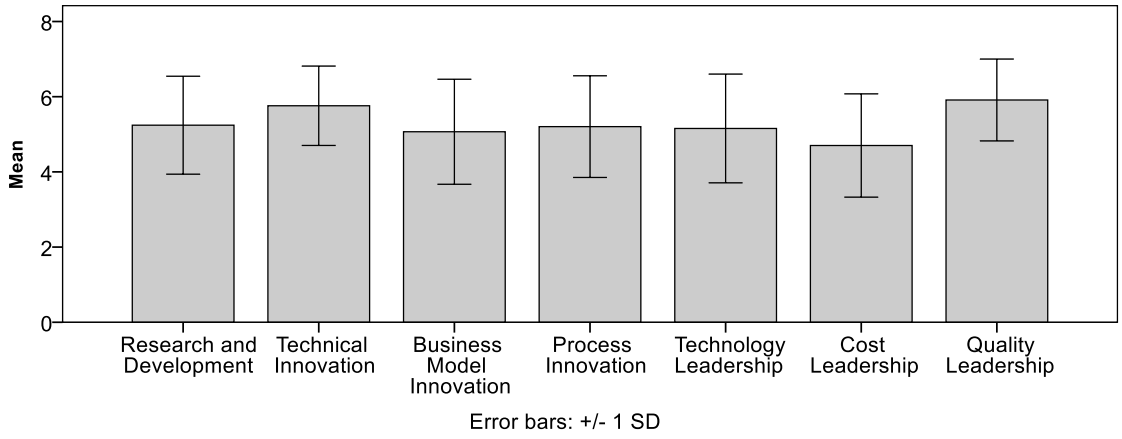
Table 1: IT Organization: IT KPIs

		The company employs … Full time equivalents (FTE)	Yearly Turnover in Mio €	EBIT in Mio €/a	Active in … countries	No. Of Locations Worldwide
N	Valid	141	112	49	125	132
	Missing	21	50	113	37	30
Minimum		20	5	-6	1	1
Maximum		400000	250000000	60000000	200	5000
Percentiles	25	270	120	9	2	3
	50	1500	528	77	7	11
	75	5000	3000	250	29	35

Source: author's own construction

Based on Porter's generic Strategies concept the participants were asked if the top management of their company focused on Cost leadership. Additionally, the aspects on the view of Innovation (in different areas of Product development, Technical Innovation, Business Model Innovation, and Process Innovation) were queried. Lastly the aspects of Technology and Quality leadership. Figure 3 shows the results.

Figure 3: Strategic orientation of the companies



Source: author's own construction.

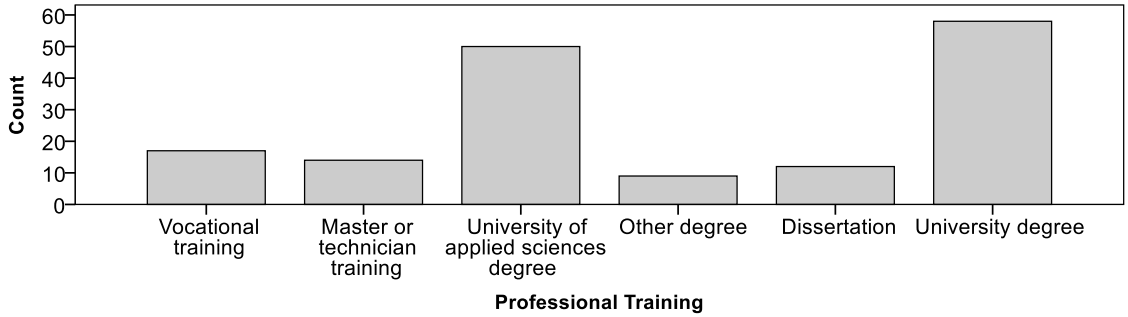
The results suggest that the sample of the survey is representative of the industry in the German-speaking DACH region.

4.2 Educational background of the CIOs

As CIOs need to handle a large variety of tasks at the same time, it is of utmost importance that they have the right skills and competencies on hand. These can be acquired through professional or academic training and are the basis for future success (Roscher 2020).

The current research indicates the training background and reveals that most CIOs have either a University degree or a degree from a University of applied science – as presented in Figure 4.

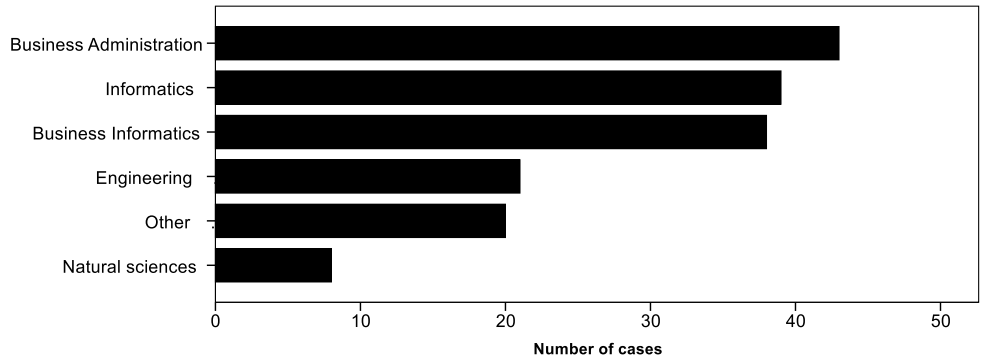
Figure 4: Professional and academic training of CIOs.



Source: author's own construction

It was further asked in which field of study the participants graduated. Figure 5 reflects the results

Figure 5: Field of study of CIOs



Source: author's own construction.

Reflecting these results on earlier research of Roscher regarding the ideal field of study for CIOs based on requirements published by potential employers in job advertisements (Roscher 2020) it can be stated that three of the suggested study directions are also studied by the participants in reality.

4.3 Professional background and tenure of the CIOs

In alignment with Nissen and Termer the participants were asked about their previous assignment (Nissen and Termer 2014). Results show that candidates with a background in IT and management were more often assigned to the CIO position. The results also suggest that persons which do not have an IT background are not likely to assume the role of an IT Top executive. Additionally, the author asked for the process background of the candidates. The results suggest that former IT consultants with former managerial responsibility have a clear advantage. This might be explained by the desire of the employee to bring ideas and methods from other companies, industries, and cultures into their own company. Table 2 gives a comprehensive overview of the background of CIOs who either assumed the position after an internal job transfer or after being hired from a different company.

Table 2: Experience background of CIOs

n=50		Managerial responsibility	
		non	with
IT Background	non	3 30,0%	10 25,0%
	with	7 70,0%	30 75,0%

Same company

n=108		Managerial responsibility	
		non	with
IT Background	non	1 11,1%	9 9,1%
	with	8 88,9%	90 90,9%

Different company

Professional Background*		
PLM	1	6
SCM	2	5
CRM	2	8
Support Processes	4	16
Management Processes	3	18
Business Consulting	1	13
IT Consulting	3	20
Non	2	3
Other	0	5

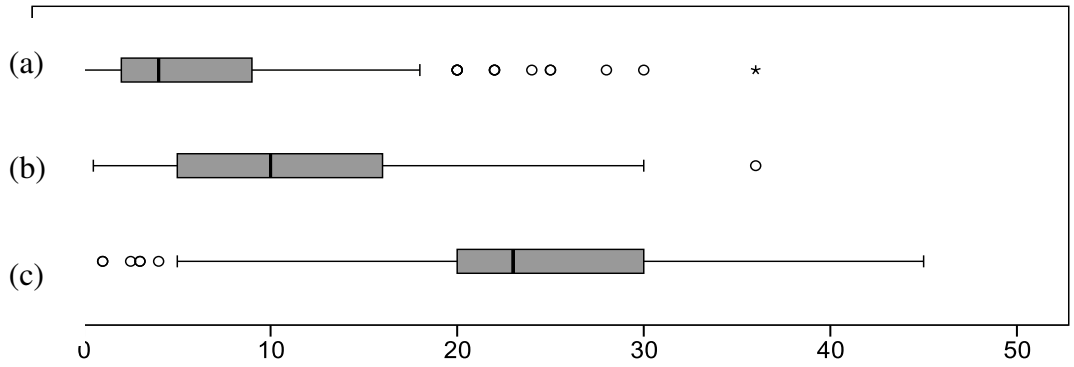
Professional Background*		
PLM	1	14
SCM	1	24
CRM	2	15
Support Processes	2	40
Management Processes	1	34
Business Consulting	3	32
IT Consulting	6	68
Non	0	14
Other	1	6

* multiple mentions possible

Source: author's own construction partly based on ideas from (Nissen and Termer 2014)

Besides professional background also the experience of a manager is an important factor in his daily ability to do his job as CIO. Figure 6 gives an insight on how long heads of IT have been working (a) as CIO in their current position, (b) as CIO overall in their professional life, and (c) in the IT environment.

Figure 6: Tenure of CIOs in IT positions and CIO positions



(a)How many years do you hold your current position as CIO/Head of IT?

(b)How many years of experience do you have as CIO/Head of IT?

(c)How many years have you worked in IT?

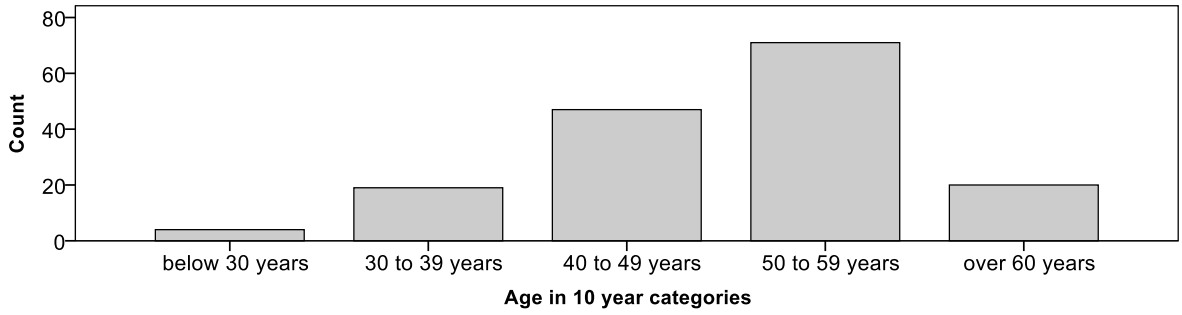
Source: author's own construction

The results suggest that CIOs are very loyal to their field of expertise. Additionally, it is suggested that CIOs – most likely through their extreme knowledge of the IT Landscape, the Business Processes, and all the interactions – are little likely to leave their job on their own.

The Age distribution (Figure 7) of CIOs shows in contrary to research in other regions, where CIOs tend to be in the age range of 40-49 years (Li et al. 2006; Li and Tan 2013; Sobol and Klein 2009), tends to be decade older in this sample which is from the DACH region.

Combining these two aspects suggests that experience and tenure are a competitive advantage for CIOs, even so, they have a higher age than in other regions of the world.

Figure 7: Age distribution of CIOs

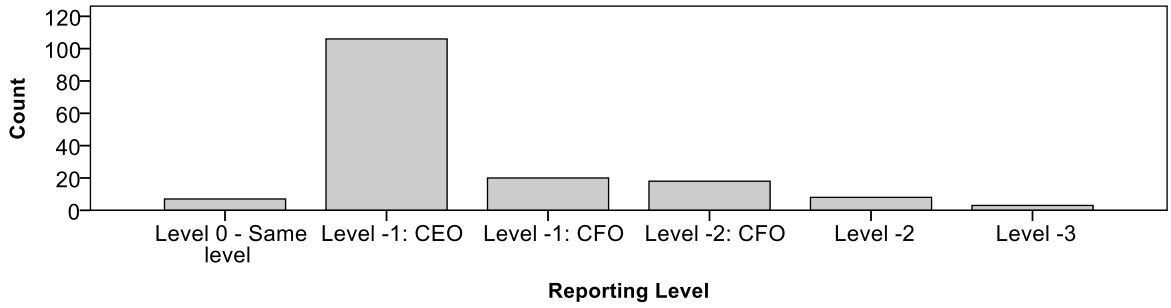


Source: author's own construction

4.4 Reporting level, contract type and income of CIOs

Furthermore, the CIOs were asked about their reporting structure within the company. Research already suggested for the North American region that more and more CIOs report to the CEO 43% and less to CFO 27% and COO 16% (Luftman and Derksen 2012). For the German-speaking region, comparable figures were found CEO 47% and CFO 32% (Nissen and Termer 2014). The current study (results in Figure 8) shows that 65% report to the CEO and 33% to the CFO. This might be an indication that the role of the CIO is seen more and more important in the time of Industry 4.0 to drive further digitization for organizations.

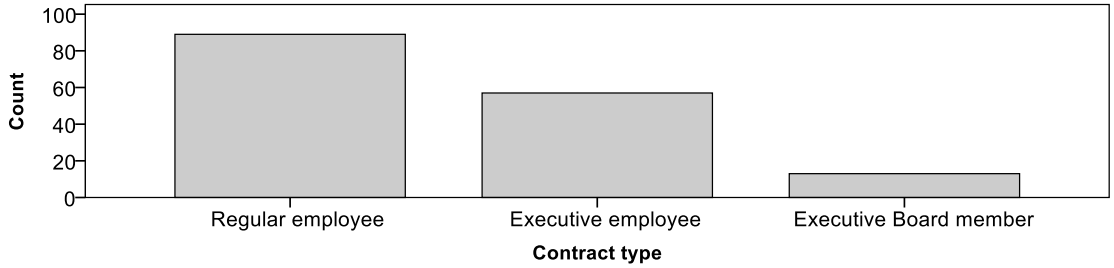
Figure 8: To whom the CIO reports.



Source: author's own construction

Additionally, the participants were asked to give an indication which kind of working contract they have. The results can be seen in Figure 9.

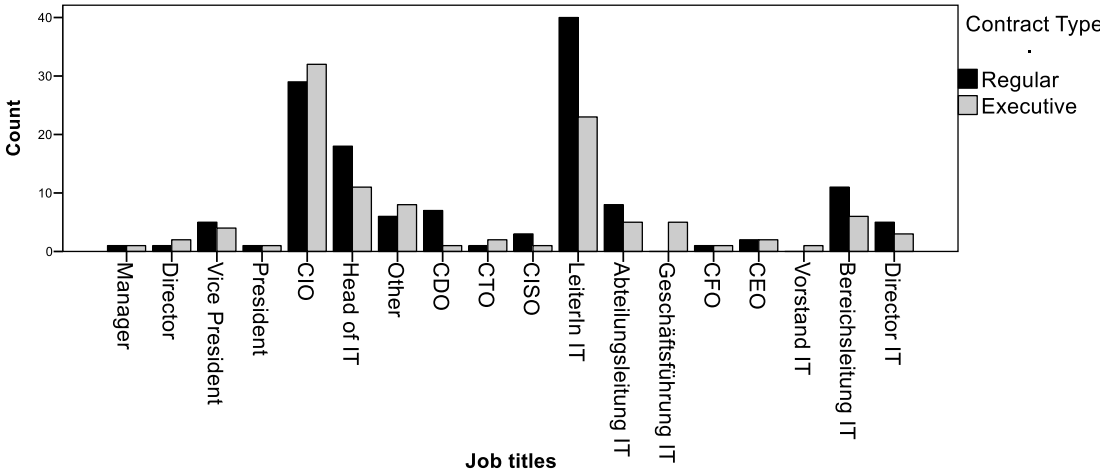
Figure 9: Nature of employment contract of the CIO



Source: author's own construction

This information was merged with the question of which job title the CIOs were using. The question was designed in a way that the participants could give multiple answers. The reason for this was that in practice CIOs both have a title that describes the nature of their work and in some cases an additional title indicating the rank in the company like Director, Vice President, or others. Figure 10 analysis what Titles are used in which contract groups. For this, the contract type groups Executive employee and Executive Board member were merged.

Figure 10: Job title of the CIO by contract type

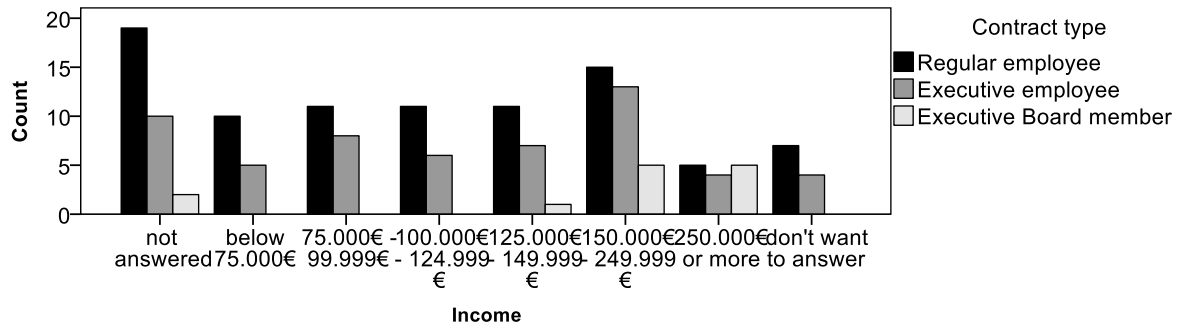


Source: author's own construction

The statistics suggest that the CIOs with an executive contract use the job title CIO or Managing Director IT (Geschäftsführung IT) more than the employees with a regular employment contract. In contrary employees with a regular contract are rather awarded the titles Head of IT, Leader of IT (LeiterIn IT), Departmenthead IT (Abteilungsleitung IT, Bereichsleitung IT), or other similar titles.

Following the logic that executive-rank employees are awarded a more prestigious management title the question if this is also reflected in the salary structures is analyzed in Figure 11.

Figure 11: Income distribution by contract type

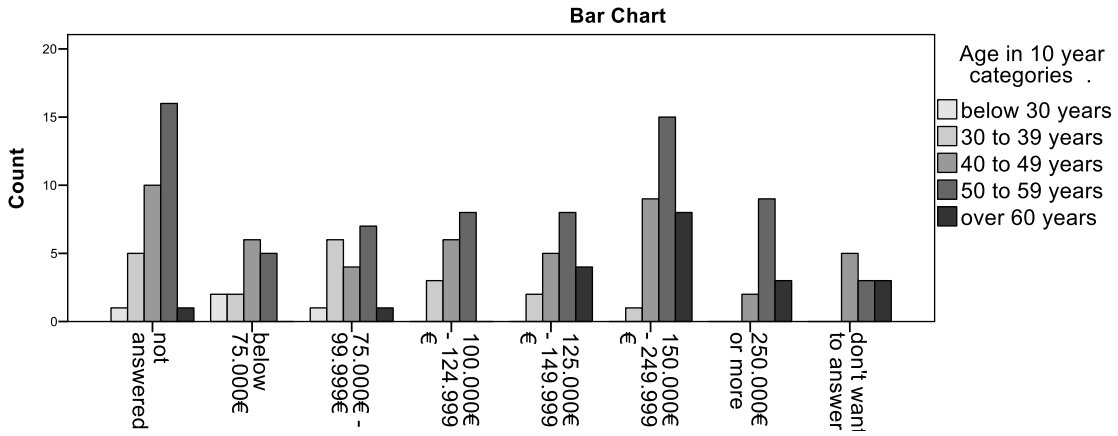


Source: author's own construction

The descriptive statistics suggest that both executive employees and executive board members tend to have a higher income, than those CIOs with a regular contract. Yet, due to the high number of participants who either didn't answer or were not willing to answer the question, no final analysis can be done to answer the question.

The theory of specific human capital is based on the idea that wages rise relative to job seniority (Becker 1964). Topel showed in his research based on longitudinal data that 10 years of job seniority raise the wage of typical male workers in the US by over 25% (Topel 1991). Based on this fact, an analysis of wages regarding age categories was done in figure 12. The plot suggests that in the age group 50 to 59 years there is a substantial raise in salary compared to other groups. Yet, further statistical evaluations need to be carried out to prove this relationship.

Figure 12: Income distribution for different age groups



Source: authors own construction

5. Conclusions

Results strongly suggest that academic education in Business Administration, Informatics and Business informatics are preferred when companies hire CIOs. This is in line with earlier research (Roscher 2020) which analyzed the content of job advertisements.

The Results also give a clear indication that CIOs have a professional tenure track which inclued positions with managerial responsibility in support or management processes or in consulting. Yet, the vast majority of the it managers have a very long track record in IT departments. In mean the participants have been working 10 years as CIO / Head of IT. This explains why CIOs are likely to have a higher age. Most survey participants were in the age group between 50 and 59, followed by the age group between 40 and 49. The analysis also shows that CIOs report mostly to the CEO. Results also suggest that there is a influence of the age on the salary. Overall the results show that companies look for candidates with diverse professional background and appropriate education. Additionally the data shows that CIOs are regarded as full members of the top management team both in terms of reporting and in terms of salary.

6. Limitations and further research

The current research is based on explorative data where participants acted on self-selection to participate in the survey. Furthermore, only methods of descriptive statistics have been applied to analyze the data at this stage of research.

As already suggested by Nissen & Termer (Nissen and Termer 2014) and demonstrated by Luftman (Luftman and Derksen 2012)a longitudinal, repetitive study could be of value for both practitioners and scientists.

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