

THE CHIEF INFORMATION OFFICER IN GERMANY

– SOME EMPIRICAL FINDINGS

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Abstract

The paper describes empirical findings about Chief Information Officers (CIO's) in Germany. Firstly the CIO concept in general is reviewed in brief and other surveys found in the literature are presented. Afterwards study results of the position of the CIO in Germany based on empirical data of an online questionnaire in a German online magazine for CIO's are described. The current and future tasks and responsibilities are pointed out as well as relationships to the senior, to the IS department, and the position in organizations. Differences between the German and American organizational position are mentioned before a summary with the key findings of the study and an outlook for future research is given based on shortcomings on studies that could be found.

Keywords: Chief Information Officer (CIO), Empirical Study, Tasks, Roles, Survey

1 INTRODUCTION AND OVERVIEW

There are at least two reasons why an empirically substantiated research about the CIOs' responsibilities and managerial functions, their roles, self-conception and success factors is necessary. Firstly, empirical data is necessary to enhance theories and models within the information and knowledge management. Only if it is known which problems CIO's face, appropriate models and theories can be developed. Secondly the gathered empirical information about CIO's, their problems, their managerial functions and their role can be transferred into better training of information system students (future CIO's) within this area.

A closer look on existing surveys reveals weaknesses of all surveys. First and foremost none of the surveys cover CIO's of German companies. Furthermore none of them is a longitudinal analysis. They are more or less snapshots. Last but not least all of the considered surveys are based on interviews and questionnaires. Interviews uncover only one part of relevant information. There is often hidden information and knowledge, which cannot be extracted by interviews.

The objective of this paper is to reduce the lack of empirical data about CIO's in German companies. Therefore an own survey, which covers German CIO's, is presented. The research framework is shown in figure 1. The organizational position is dependent on tasks and responsibilities of CIO; this again is dependent on IT organization and the relevance of information and information technology. The environmental influences like the velocity of technological changes and competition intensity within a branch affect all other factors.

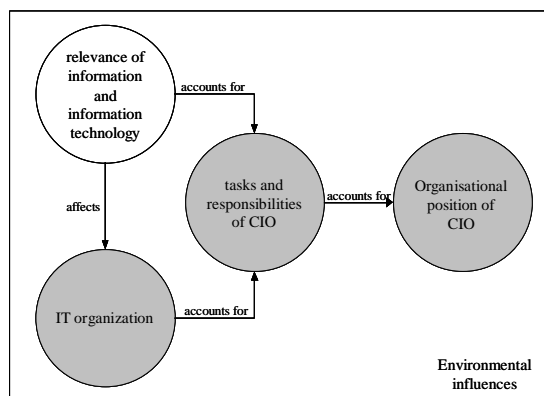


Figure 1: The survey's research framework

The remainder of this paper is structured as follows. A brief review of CIO definitions and of other surveys is given in the second section. Because our survey is neither a longitudinal analysis nor it addresses the interview problem, an outlook on our further research process with a Community of Practice approach is given in the third section. The paper concludes with a summary.

2 THE CIO CONCEPT AND SURVEYS IN THE LITERATURE

The definition of the term CIO and the description of his managerial responsibilities and functions are currently not uniform. Moreover there are substantial differences of the CIO concept and the CIOs' managerial functions in different countries. While CIO's in US corporations are often only responsible for the information systems, CIO's of German corporations have frequently much more responsibilities and managerial functions, for instance controlling or accounting (Heinzl 2001).

Perhaps the most frequently used CIO definition is Synott's one. He defines the CIO as "...the highest ranking executive with primary responsibility for information management" (Synott 1987, p. 19).

Synott's definition contains a strong reference to the hierarchical position. Boyle and Burbridge define the CIO in the same way, but more detailed: "We define CIO as an executive with broad responsibility for information technology (e.g. data processing, telecommunications, and office automation who reports to a high-level corporate officer (e.g. president or CEO)" (1991, p. 12).

In addition to their definition Boyle and Burbridge provide a classification of several managers who are responsible for technology (1991, p. 12). They use the two criteria reporting level in company and responsibility for technology. They denote a manager, who has a broad IT responsibility but reports to a low hierarchy level, with the term "emerging CIO". A manager with a narrow responsibility for technology and a low reporting level is referred to with "IS Manager".

In the remainder of this article we follow Krcmar's CIO definition. He defines the CIO as follows (Krcmar 2003, p. 326): "The Chief Information Officer (CIO) is the job title of a person or manager who is responsible for the ICT and the IS Architecture that supports the business objectives."

Furthermore Krcmar describes the role of the CIO in terms of an orchestra and a conductor (2003, p. 328). The conductor represents the CIO, the orchestra stands for the IT in different business units. The conductor chooses the composition, keeps the musicians together, corrects mistakes and is responsible for the sound. Nevertheless each instrument plays its role and moreover some instruments may have solo parts.

Earl and Vivian (1999) identify 12 different occurrences of the CIO role, which can be assigned to the dimensions technology focused, business focused or organisationally focused. They found out that the most important occurrences are the so-called technology policy-maker, the functional leader, the system strategist, the service deliverer and the change master.

The Meta Group survey "The CIO Desk Reference" with approximately 500 interviewed CIO's, mostly CIO's of US companies, describes the CIO also more as a strategist with the following managerial functions: Development of a strategy for the Technology, Knowledge and Information Management, definition of enterprise wide technical standards, promotion of communication between the business units and IT departments and identification and propagation of best practices (Metagroup 2002).

The magazine "Insight CIO" presents another survey with 400 CIO and IT Managers of US companies (Alter 2003). This study reveals a growing tension between the CIOs' strategic aspirations and the bean-counting reality. Furthermore it shows a discrepancy between their own sense of their primary roles and their bosses' view.

3 RESULTS OF AN EMPIRICAL STUDY IN GERMANY

3.1 Research design

The empirical data are gathered through an online questionnaire, distributed in a CIO-newsletter of the CIO-Online-Magazine in Germany, July 2002 (<http://www.cio-magazin.de>), conducted by Lischka (2002). The online questionnaire asked about demographical data, tasks, challenges and risks, the organization, strategy and the company. Participants of the study were people who subscribe the CIO-newsletter. These are about 7500 recipients. N=46 people answered the questionnaire (rate of return: 0,6%). A reason for the small rate of return may have been that the questionnaire was online for about three weeks during summer holidays. Other online questionnaires of this magazine do have rates of return varying between 1% and 3%. Because of the small sample size this study can only give an overview of the CIO's situation in Germany and is not representative for CIO's in Germany. But the approach can be used for other CIO studies and the results can give some useful issues for future studies, e.g. for a longitudinal analysis of the CIO-Circle (see chapter 4).

The participating CIO's came from the following industries: 33% from manufacturing industry, followed by 15% from trading industries, 13% from software and computer retailers and 11% from the service sector. The rest of the participants belong to others industries, varying between 2% and 7% in each industry. Data show that 30% participants of the study were employed in small and medium-sized enterprises (SME) and 67% in major enterprises. 2% did not answer this question. The criteria to distinguish small, medium and major sized enterprises are from "Institut für Mittelstandsforschung" (Günterberg and Wolter 2002). It defines SMEs as companies with less than 500 employees and a business volume smaller than 50 Million EURO. 74% of the CIO's were responsible for company-wide or across-the-group Information Technology (IT) and 11% for a country or a region, 7% for a division and 7% for miscellaneous aspects.

3.2 Tasks and responsibilities

After discussing demographical data of our survey participants and the research framework we describe their tasks and responsibilities as well as their position in their organization. The study differentiated between strategic, administrative and operative tasks, see Heinrich (2002, p. 37). Each section is further divided in technical and economic tasks except the section operative tasks as shown in table 1. This classification was made after conversations with different CIO's. The participants had to give details about their current tasks as well as future tasks in a time horizon within three years.

	Strategic tasks	Administrative tasks	Operational tasks
Technical tasks	<ul style="list-style-type: none"> - Strategic planning of IS - IS-architecture planning - Knowledge management 	<ul style="list-style-type: none"> - Implementation and integration of IS - Further development of IS - IS-architecture building - Application development planning 	<ul style="list-style-type: none"> - Maintenance of IS - Development and service control - Network management
Economic Tasks	<ul style="list-style-type: none"> - Development of IT strategy - Highlighting of business possibilities of IT - Business value of IT - Support of executive board with regard to IT questions - Business Process Reengineering 	<ul style="list-style-type: none"> - Project management - Cost allocation - Reduction of IT costs - Increase of IT and data security - IT controlling - Evolution of IT staff - IT market analyses 	-

Table 1: Tasks of CIO's

In the following (see figure 2) we describe the tasks of the surveyed CIO's. The results show that the most often mentioned tasks are support and consultancy of management with regard to IT questions (27) and development of an IT strategy (26), both from the section strategic economic tasks. Project management (21) and reduction of IT costs (20) belong to the section administrative economic tasks and on rank five is the administrative technical task development of the ERP (20). The CIO's had to choose from a list with tasks and should mark the ten most important ones.

The future tasks (that means within three years) support and consultancy of management with regard to IT questions (26) is on the first position, too, followed by IT-controlling (23, today on rank six), which means an increase of importance. Development of IT strategy has 21 entries, increase of IT and data security 19 and project management 18. The most important increase is the importance of knowledge management, which has an estimated increase of more than 9 entries within three years. It is a strategic technical task. Today's and future tasks are of administrative (see column 2 in table 1) nature (54% and 53%), strategic tasks, which will increase from today 33% to 37% in the future and operative tasks (12% and 10%) follow. If one has a look on technical and economic tasks in detail one can see that technical tasks outweigh today as well as in the future.

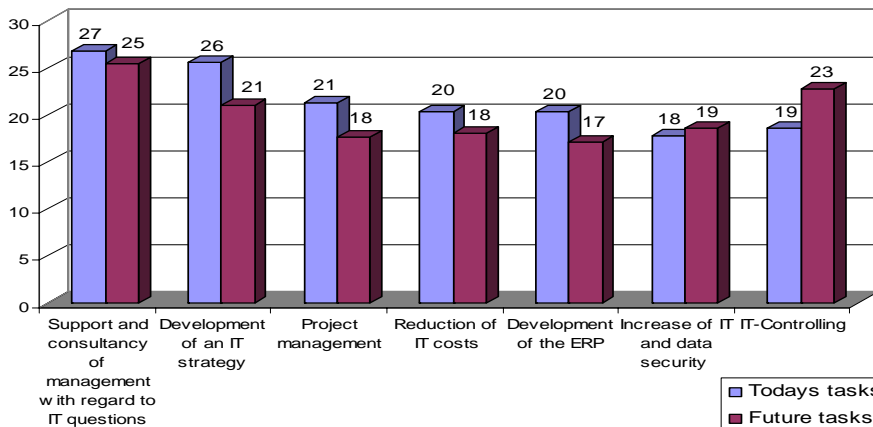


Figure 2: Seven most important tasks, today and in the future

After explaining the tasks we describe the challenges the respondents will face in future. It showed increasing requirements on IT and data security as well as a stronger integration of IT planning in the company wide planning (in each case 13%). It seems that one will find the process deduction of IT planning from the corporate planning more often in the future than today. The third rank of challenges is filled with the desire for professional customer relationship management (CRM), mentioned by 12%. On the fourth rank is reduction of IT complexity (9%) and company-wide pressure on operative costs and the budget (8%). This result shows an increasing importance of tasks like planning, implementation, integration, maintenance and further development of the CRM-system.

The most important risk factor today (18%) and in future (17%) is the lack of time for strategic considerations and insufficient budget and priorities (15% and 16%). On rank three today are the differences of requirements and capabilities of staff (13%), which will be in three years on rank seven (7%). On rank four today is an instable company policy (10%), as well as the difficulty to calculate the use/value of IT investigations and inefficient communication of users, which will be less important in the future (rank 10 with 2%). Whereas rank three in the future is the difficulty to calculate the use/value of IT investigations (15%), rank four speed of technological changes (14%) which is today on rank eight and rank five has the instable company policy with 11%.

Analyses of tasks and responsibilities address the differences between new (less than 2 years on the job) and established CIO's (more than 5 years). The same kind of differentiation was done by Applegate and Elam (1992) and Gottschalk (2000), because if someone is in the job for more than five years than they are corporate establishment. In this study there were 37% new CIO's, 35% established CIO's and 28% in between. For today's tasks there are only small differences between new and established CIO's, but for future tasks established CIO's estimate in the technical field definitely more strategic (24% vs. 17%) and administrative tasks (33% vs. 24%). New CIO's estimate a few more operative tasks in the technical category than established ones (11% vs. 10%). Whereas new CIO's estimate the category economic tasks more important. They regard strategic tasks (22% vs. 15%) and administrative tasks (27% vs. 19%) more important.

From this data the tasks cannot be estimated. If one has a look on today's tasks and compares them with other studies there is a decrease of strategic tasks. But in the future respondents of this study see an increase of strategic tasks.

3.3 Analyses of organizational data

Analysis of organizational data is about the hierarchical classification as well as the relationship between the CIO's and IT department. It can be assumed that the relationship between CIO and IT de-

partment has an impact on the tasks and responsibilities and the hierarchical position. Most of the participants (54%) are directly responsible to management/executive board/CEO, 22% are directly responsible to the financial director/Chief Financial Officer (CFO) and 17% are a member of the management/executive board itself. 2% are responsible to the company-wide CIO and 4% could not be allocated. In most of the companies they report to the CEO (54%) and the CFO (22%). This is a trend that has changed in the last decade. This is shown by other studies, too (table 2), but it has to be mentioned that these studies have been conducted in a different organizational and cultural context. As table 2 shows there is a shift from reporting to CFO's to CEO's in the past years.

Hierarchical assignment	Apple-gate/Elam (1992)	CSC (1996)	Gottschalk (1999)	Gottschalk (2000)	Prewitt (2002)	Lischka (2002)	Cosgrove Ware (2003)	Alter (2003)
Report to CEO	27%	43%	48%	44%	51%	54%	47%	62 %
Report to CFO	44%	32%	21%	23%	11%	22%	22%	16 %
Miscellaneous	29%	25%	31%	33%	38%	24%	38%	22 %

Table 2: Hierarchical assignment of CIO's

Hierarchical positions of new CIO's and established ones show some differences. Of the new ones only 6% are members of the management/executive board whereas 19% of the established CIO's are. On the second hierarchical level (report to executive board) are 65% of new and 63% of established CIO's. 18% of new and 19% of established CIO's report to the CFO. That means that it is more likely for an established CIO to be a member of the executive board.

As the survey reveals CIO's in German corporations are rarely a member of executive boards. A significant reason is a difference in the organizational form of executive boards between Germany and the USA. The "collegial principle" is prescribed for German stock corporations by federal law (§76 II AktG and §77 AktG). It means that all members of the board have in general the same authorities and are in the majority of the considered cases also head of a department. Consequently the "department responsibility" is applied in German companies. Von Werder (1987) denotes this combination of the collegial principle with a department responsibility as the personal union model. Therefore establishing a CIO position in the executive board of German companies means often creating a new department and leads to enormous organizational effort and is often only a question of power (Heinzl 2001, p. 410). This duality rarely exists in US stock corporations (Heinzl 2001, p. 411) and as a consequence it is much easier to establish a CIO in the executive committee.

Thus the change from the traditional head of IT concept towards the CIO concept hardly ever led to a hierarchical rise of the CIO position in German enterprises. It rather expresses the fact that enterprises attach more and more importance to the resource information.

A look at the relationship between CIO and IT department reveals that 78% of the considered CIO's are head of the IT department. 20% of them have only an indirect managerial responsibility for the IT department, the rest did not make any statement. Our survey reveals that the predominant organizational form of the IT is the IT department (73%). Only in 17% of the considered cases the IT is organized as a staff position. The rest does not play an important role. Our survey shows that the IT department with the CIO as its head is the predominant organizational form (27). On second position is the IT organized as a staff position with the CIO as its head (6). Thereafter is the indirect superior CIO in combination with an IT department (5).

The assumption that CIO's of a higher hierarchical position have more strategic tasks is approved in this study. 50% of indirect superior CIO's of IT department are a member of the executive board whereas only 14% of direct CIO's.

Dependency of organizational position and tasks shows that most of the CIO's have several administrative tasks. However it can be stated that CIO's on higher hierarchical levels have more strategic tasks than their colleagues on the second and third level. The operational tasks of CIO's on higher

hierarchical levels are reduced to 6% whereas other CIO's have twice or three times as much operational tasks. It can be resumed for this study that the strategic tasks increase the higher the position is in the company today. But in the future appraisal these results adjust.

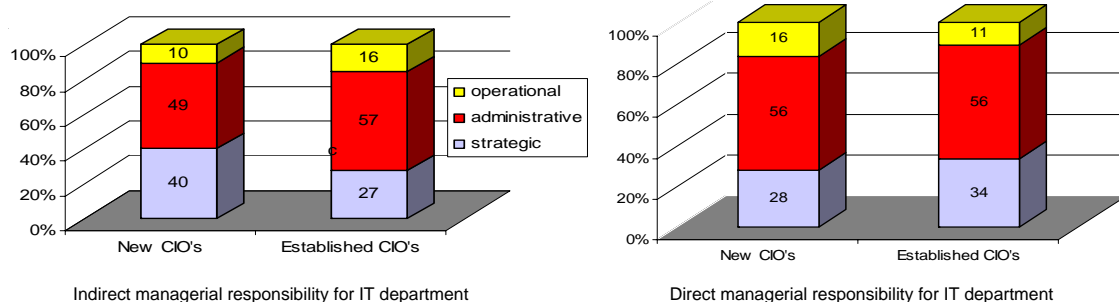


Figure 3: Today's tasks in dependence of length of employment and relationship to IT department

Figure 3 emphasizes an interesting finding. Although there is a fixed core of tasks and responsibilities, the differences between new and established CIOs indicate that a CIO can acquire his role up to a certain amount.

4 SHORTCOMINGS OF SURVEYS AND THE CIO-CIRCLE

As mentioned above previous surveys and the survey presented in this paper have two weaknesses. Firstly they are only a snapshot because they are not a longitudinal analysis. Secondly interviews uncover only a part of relevant information. Our first experiences with the CIO-Circle, a community of practice for CIO's, confirm that assumption.

The development of the CIO-Circle started with a meeting in May 2002. A group of 8 CIO's and one university professor decided to initiate an informal network for CIO's and IT-Manager. In the following meeting in June 2002 the so-called *Initiative Circle* developed a detailed action program and a mission statement. The launch of the Internet platform (www.cio-circle.de) was in December 2002.

The aim of the CIO-Circle is to offer CIO's a forum for a trustful exchange of information and knowledge. Workshops organized on the member's own responsibility are a main instrument. The process of networking and exchanging information and knowledge is supported by an Internet platform, which provides profile information of the members with a full text retrieval function, a discussion forum, communication support and an event management. The CIO-Circle is an informal network and has currently no legal structure.

To guarantee an atmosphere of trust, an application process was established. Currently four members of the Initiative Circle appraise the online applications and decide whether an applicant is accepted or not. This process shall guarantee that only CIO's and IT-manager are members of the circle. Consultants and IT-vendors shall not be members of the CIO-Circle.

The growth of the CIO-Circle is steady. At present the CIO-Circle has 250 members. The members of the community are CIO's of enterprises and other organizations within different branches and areas. Currently a clear tendency to middle-sized enterprises can be observed.

Our research within the CIO-Circle is a kind of participating observation. One of the basic instruments of the CIO-Circle are workshops offered and organized by the CIO's themselves. Analysing the workshops, discussion forum and emails promises a lot of relevant data. Moreover CIO-Circle provides the possibility for longitudinal analysis. Because it is currently in the build-up phase, it is not possible to provide reliable data yet. CIO-Circle gives some insights where future research opportunities are and it can be used to conduct future surveys.

5 SUMMARY

The CIO in Germany is manifold, he can be found on different hierarchical levels, branches and in different responsibilities. Our study showed some tendencies. For instance the dominance of administrative tasks, for managerial CIOs, too. The most often mentioned risk factor today as well as in the future is the lack of time for strategic considerations. The main challenge they face is the better integration of IT planning in the corporate wide planning and the increasing requirements on data security.

Most of the CIOs are directly responsible to the CEO and have a direct relationship to the IT department whereas the IT department is most often an own department. It can be stated that the relationship to the IT department has an influence on the tasks and responsibilities as assumed in the reference framework (figure 2). Every CIO, not dependent on the hierarchical level, estimates the rate of strategic tasks higher, however the administrative ones are dominant.

These results approve more or less the ideal reference framework. The connections between factors, which affect the hierarchical position, are pointed out. The position of the CIO and his tasks and responsibilities is reflected in the increasing relevance of the resource information and IT in the company. Less CIO's report to the CFO than a decade ago and IT is an integral element of executive board where only a few CIO's can be found.

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