

**Wolfgang Becker**  
**Oliver Schmid**

**The Lord of the Digital Transformation:  
The Role of CDOs in SMEs and LSEs**

Digitale Transformation, 82. Jahrestagung des VHB

# Agenda

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- Rapid **technological advancements** have fundamentally **transformed industries, creating opportunities and threats for new firms**, as well as **established firms** (Haffke et al. 2016; Sebastian et al. 2017).
- Companies have to **transform their current business models** by integrating and using new technologies to ensure the **successful survival of companies in the digital future** (Bharadwaj et al. 2013; Hess et al. 2016; Vey et al. 2017; Becker et al. 2018).
- “**Digital transformation** has become a **high priority on leadership agendas**” (Hess et al. 2016, p. 123).
- Digital transformation can thus be **managed by the CDO** as the **top digitalization officer** (Haffke et al. 2016; Horlacher and Hess 2016; Singh and Hess 2017; Becker et al. 2018).

# Introduction

## Previous works on CDO

- Recent scientific research has shown that the **CDO** is still an **under-researched area from the perspective of science**. “The **CDO role** is still in its **nascent stages**” (Tumbas et al. 2017, p. 121).
- **Recent studies** look at the **role of the CDO** and **focus** on the **tasks** and **associated responsibilities** in the context of **digital transformation** (Singh et al. 2017; Tumbas et al. 2017; Becker et al. 2018)
- Studies by Becker et al., and by Friedrich et al., however, show that **more and more SMEs are tending to install a CDO in their top management** (Becker et al. 2018; Friedrich et al. 2015).
- All studies are based on a **qualitative research design** examined the role of the CDO on the basis of **mixed samples** alone, or **LSEs** in particular (see e.g. Horlacher and Hess 2016; Singh and Hess 2017; Tumbas et al. 2017; Becker et al. 2018; Tumbas et al. 2018).

# Introduction

## Research gap: CDO in SMEs and LSEs

- A large number of the traditional LSEs are **still at the beginning of their digital transformation** and most of them still generate their **sales from traditional, analogue products and services** (Sebastian et al. 2017). **Born digitals** have become **strong competitors for LSEs** by using modern technologies to attack the traditional, mostly analogue business model and the way in **which big old companies add value** (Sebastian et al. 2017).
- SMEs **differ significantly from LSEs** but **face the same challenges** (Pullen et al. 2009; Bidan et al. 2012). SMEs are also influenced by digitalization, since the way to **create and capture value has changed in the digital era** (Bharadwaj et al. 2013; Lucas et al. 2013; Klötzer and Pflaum 2017).
- In **SMEs**, digital transformation is often used **to transform the entire business model and adapt it to the new situational conditions** (Müller and Hopf 2017; Tarutè et al. 2017). In **LSEs**, it is often associated with the **question of future value creation and the revision of the current business model** (Markides 2006; Teece 2010; Christensen et al. 2016; Sebastian et al. 2017; Svahn et al. 2017).

# Introduction

## Research questions and structure of the paper

- The purpose of the digital transformation can be different in SMEs and LSEs. Accordingly, the expectations placed by management on a CDO as a possible orchestrator of these changes may also be different in SMEs than in LSEs.
- Research questions:

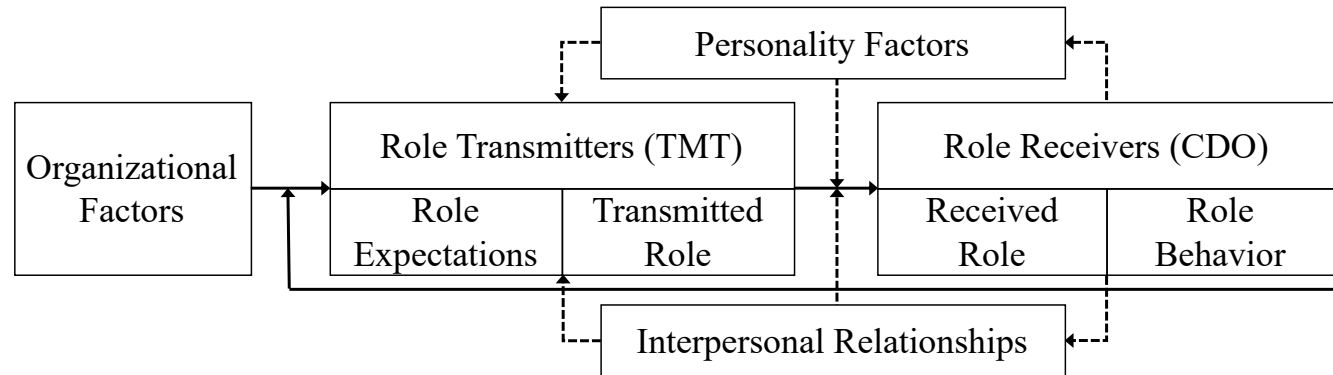
***RQ1:** What differences and similarities exist between the role of CDOs in SMEs and the role of CDOs in LSEs?*

***RQ2:** Ideally, how should the role of CDOs in SMEs and LSEs be set up in order to implement digital transformation in the best possible way?*

## 2

# Theoretical framework

## Role theory according to Katz and Kahn 1978

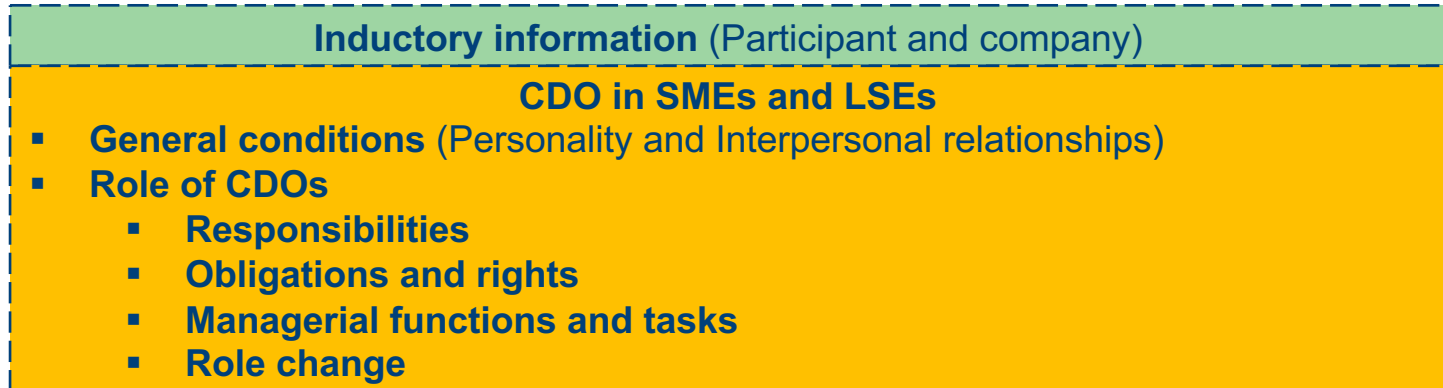


- Regardless of the size of the company, an **organizational change agent** is needed to **accompany the necessary changes** in the context of **digital transformation**
- The **CDO represents such a change agent**, who is ultimately intended to drive change within the entire organization at all levels (see e.g. Ahtikari et al. 2017).
- **Top management** (role transmitter expects to **drive the digital transformation by the CDO** (role receiver).
- **Responsibilities** and certain **obligations and rights** are transferred to the CDO.
- CDO can **carry out and fulfill the managerial functions and tasks** assigned to the CDO within the scope of the digital transformation

# Methodology and data analysis

## Research design, interview guide and data analysis

- **Approach** according to **Eisenhardt (1989)** and **Yin (2014)**
- **Expert interviews:** between January 2017 and March 2017
- Interview guide:



- **Data analysis**
  - Two independent researchers using the computer program *MAXQDA Plus 12*
  - Triangulation: Interview data was supplemented by available secondary data
  - A cross-case analysis was carried out in which the interview data were examined several times with regard to certain patterns. The literature also recommends using tables at this point in order to have a simplified comparison between the cases (Miles and Huberman 1994; Yin 2014)



# Empirical Analysis

## Sampling

Case	Company				Study Participant	
	Industry	Legal form	Employees	Revenues (EUR Million)	Position	CDO since (Months)
A	Software	Partnership	< 300	< 100	CDO	8
B	Wholesale	Ltd.	< 300	< 100	CDO and COO	17
C	Financial Service Provider	Registered Company	< 300	$100 \leq x < 1,000$	CDO	14
D	Packaging	Stock Company	$300 \leq x < 3,000$	not specified	CDO	11
E	Media	Ltd.	$300 \leq x < 3,000$	$100 \leq x < 1,000$	CDO	16
F	Real Estate	Ltd.	$300 \leq x < 3,000$	$100 \leq x < 1,000$	CDO, CTO, CIO and CMO	29
G	Marketing	Ltd.	$300 \leq x < 3,000$	$100 \leq x < 1,000$	CDO	12
H	Media	Ltd.	$300 \leq x < 3,000$	not specified	CDO	5
I	Publishing	Foundation	$300 \leq x < 3,000$	not specified	CDO	12
J	Publishing	Ltd.	$300 \leq x < 3,000$	$100 \leq x < 1,000$	CDO	17
K	Financial Service Provider	Stock Company	$300 \leq x < 3,000$	$\geq 1,000$	CDO	15
L	Chemical Sector	Ltd.	$\geq 3,000$	$\geq 1,000$	CDO and CIO	14
M	Industrial and Engineering	Limited Partnership	$\geq 3,000$	not specified	CDO and CIO	17
N	Tourism	Ltd.	$\geq 3,000$	$\geq 1,000$	CDO	29
O	Automotive	Ltd.	$\geq 3,000$	$100 \leq x < 1,000$	CDO	10
P	Heating Technology	Ltd. & Limited Partnership	$\geq 3,000$	$\geq 1,000$	CDO	7

# 4 Results – General conditions

## Competencies of CDOs

	SMEs	LSEs
<b>Strategic Management</b>	Change Management, Organizational Design, Leadership, Business Cases	Change Management, Management of Transformation, Leadership
<b>Business Model</b>	Analogue and digital Business Models	-
<b>Marketing</b>	Classical and Digital Marketing	Market, Trends, Product
<b>Program Management</b>	Process Design	Project, Portfolio
<b>IT</b>	IT System, IT Process	IT Architecture
<b>Media</b>	Online Presence	-
<b>Data</b>	Data Analytics, Interpretation of Data	-

CDOs in **SMEs** have a much **broader range of competencies** than in LSEs.

They also need **competences in the areas of changing and digitalizing business models**.

In LSEs, on the other hand, they tend to require **competencies in the area of product portfolio transformation** and in the area of **IT**.

# Results – General conditions

## Organizational Positioning

	SMEs	LSEs
Executive level 1	64%	40%
Executive level 2	18%	60%
Staff position	18%	0%
Total	100%	100%

- **SMEs:**

*“I am on the board, which means that my responsibility is with the company as a whole. I can influence every area, and every area is bound by my instructions. Nonetheless, I share this overall responsibility with the other board members, who each guide and strategize on their specializations.” (participant G)*

- **LSE:**

*“I In addition to the CDO position, I also hold the position of CIO in personal union. As a CIO, I am under the CFO’s control and, as CDO, I am under the CTO’s control.” (participant M)*

CDOs are typically installed in both **SMEs** and **LSEs** at least at **executive level 2**. In doing so, they have the **necessary positioning to be able to exert a decisive, central influence** in the company through their executive power.

Ideally, CDOs are **organizationally positioned in executive level 1**, as they can influence each area and overrule decisions that have a digital reference to other areas.

# Results – Role Responsibilities

	SMEs	LSEs
CDO has exclusive primary responsibility	36%	20%
CDO has exclusive primary responsibility and receives support from other C-levels	55%	60%
Board and/or Managing Director has exclusive primary responsibility	9%	20%
Total	100%	100%

- **Primary responsibility** for digital transformation is transferred to CDOs in **SMEs and LSEs**
- *“Why else should you have a CDO?” (participant K)*
- CDOs **receive support from other C-levels** during digitalization of the company in **SMEs and LSEs**

**One person alone cannot implement the digital transformation – even if it is the CDO.**

The **interplay** in the company as a whole is crucial:  
 CDOs **manage the pooling of the ideas** of every C-level and employee and **define the entire digital strategy** based on their imaginations.

# Results – Role

## Obligations and Rights

Obligations	SMEs	LSEs
Reporting (Board)	64%	60%
Take responsibility for decision	9%	0%
Communication obligation throughout the company	9%	0%
Same duties as other C-levels	9%	0%
Digitalize the company	0%	20%
No obligations	9%	20%
Total	100%	100%

Rights	SMEs	LSEs
High degree of freedom	45,5%	0%
Same rights as other C-levels	9%	0%
No rights	45,5%	100%
Total	100%	100%

- **In SMEs:**  
CDOs are granted **high levels of freedom**, which is associated with **high pressure to succeed**
- **In LSEs:** CDO has **no rights**

### SMEs and LSEs:

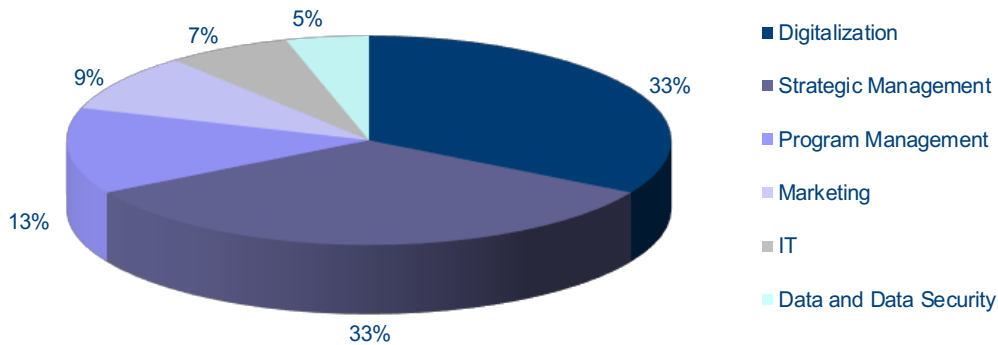
CDOs usually has a **reporting obligation to the board**

**In SMEs, CDOs have a high degree of freedom to design digital objectives and activities**, whereby his/her **activities** should always be **coordinated** with the **top management**.

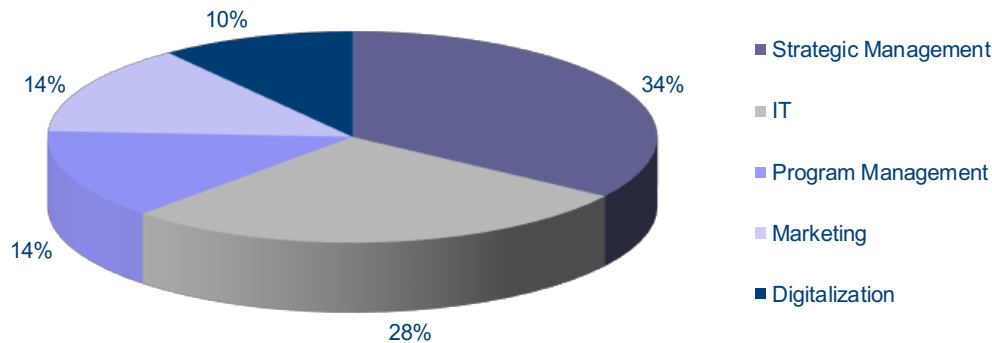
**In LSEs, CDOs do not have those freedoms**, which binds them to the operative and strategic decisions of the board.

# Results – Role

## Managerial Functions and Tasks



**Role of the CDO in SMEs - Managerial Functions and Tasks [N=45]**



**Role of the CDO in LSEs - Managerial Functions and Tasks [N=29]**

- **Digitalization:** Managing the digital transformation, providing consulting services in digital issues, developing digital business areas, integrating digital competencies and developing new digital business models
- **Strategic Management:** Ensuring that the strategy is implemented, promoting HR, ensuring cultural change, managing the entire organization, building new processes and products
- **IT:** Organizing and coordinating the website and system architecture
- **Strategic Management:** Implementation of the strategy and management of partnership, ensuring a cultural change carrying out M&A transactions, breaking up of resistances
- **IT:** Analyzing and controlling IT systems, managing system architecture and IT projects, organizing and coordinating the corporate website
- **Digitalization:** Managing the digital transformation and consulting the company, developing digital strategies and transforming certain business areas

In **SMEs**, the managerial tasks of a CDO are **much more profound** than in LSEs. Here, the CDO can take on **business model-changing activities** due to the digital transformation, whereas in **LSEs** a CDO tends to **take on the role of a second CIO**.

# Results – Role

## Role change

	SMEs	LSEs
Role changes due to other and new tasks	45,5%	0%
Role change due to new responsibilities	9%	40%
No changes	45,5%	40%
Not specified	0%	20%
Total	100%	100%

▪ In **SMEs**, role changes due to **other and new tasks or no changes so far**

▪ In **LSEs**, role changes due to **new responsibilities or no changes so far**

The role of the CDO **overtakes itself or has been already overtaken** (digitalization requires tremendous agility).

The CDO is also a **building activity** because **other or new responsibilities** are added either **directly or indirectly during the course of the CDO activity**.

Especially in LSEs, CDOs should **be more flexible** in order to count both the **increased dynamics and the changes in the CDO responsibilities**.

## 5

# Derivation of an Ideal Role Profile

	SMEs	LSEs
Organizational positioning	Executive Level 1	Executive Level 2 (at least)
Responsibility of the digital transformation	CDO has exclusive primary responsibility and receives support from other C-levels	CDO has exclusive primary responsibility and receives support from other C-levels
Obligations	Reporting to the board	Reporting to the board
Rights	High degree of freedom	High degree of freedom
Managerial functions and tasks	Digitalization, Strategic Management, Program Management	Strategic Management, IT
Role change	Flexible due to new tasks	Flexible due to new responsibilities
Competencies required by the CDO role	Strategic Management, Business Model, Marketing	Program Management, IT, Strategic Management, Marketing



# Conclusion and Future Research

## Conclusion and lessons learned

- ✓ The present study has shown that **differences in the role of CDOs** exist in **SMEs** and **LSEs** and that the digital transformation in SMEs and LSEs can be carried out under the **leadership or orchestration of a suitable CDO**.
- ✓ **Regardless of the company size**, the CDO should also be **part of the top management team** at executive level 1, or at least executive level 2, with the **necessary responsibilities to make a decisive impact** on the digital transformation of the entire company.
- ✓ CDO also **needs the support of all C-levels**, because successful digitalization requires the interaction of the entire top management team.
- ✓ **SMEs are significantly further ahead in terms of transforming their business model**. LSEs, on the other hand, are lagging behind, as the CDO is often integrated as a marketing/IT expert.
- ✓ Ultimately, therefore, **LSEs could take SMEs as their role model and integrate the CDO into SMEs according to his role**.

# Conclusion and Future Research

- The present paper demonstrates that there are some **obvious differences regarding to the role of the CDO** in both SMEs and LSEs.
- There is still a “black box” around the topic CDO, but due to the results of the study, the present work represents a **further contribution** to the **CDO research**.
- **Further research is still required** because the findings of the present paper have to be validated by a **quantitative survey**.
- What's next?
  - Which **companies need** a CDO?
  - How should a CDO be **integrated** with regard to **different archetypes**?
  - Are there any **performance effects due to the integration of CDOs** and how do **CDOs effect their corporate performance**?

**Any Questions?**



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