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A DANISH CASE STUDY OF MANAGERIAL IMPLEMENTATION OF DATA USE IN SCHOOLS

BY
NANNA LIMSKOV STÆRK CHRISTIANSEN

DISSERTATION SUBMITTED 2023

AALBORG UNIVERSITY
DENMARK

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by

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ABOUT THE AUTHOR

Nanna Limskov Stærk Christiansen holds a bachelor's and a master's degree in sociology from Aalborg University. Attending the course 'organizational sociology' sparked an interest in organizational matters and hereafter her academic interest has been centered on organizational implementation processes from both managerial and employees' perspectives.

After finishing her masters in 2016, she worked as a research assistant at DEFACTUM, a regional research unit. Hereafter she became a member of the research group 'Capacity Building and Evaluation' (CaBE) at Department of Culture and Learning, Aalborg University. In 2018, her title changed from research assistant to Ph.D. Student when she embarked on the journey of writing this dissertation.

ABSTRACT

Data use in primary and lower secondary education is an internationally trending organizational idea that is characterized by a diversity of practices and a somewhat black box of moving from policy expectations of data use to achieving the anticipated improvement of student outcomes.

Drawing on Scandinavian institutionalism, the dissertation confirms that implementation of new organizational ideas, such as data use, requires translation in local settings. The dissertation contributes with valuable new knowledge about what happens when the data use idea moves down the hierarchical translation chain from upper strategic management level to middle managers in the local contexts. The dissertation hence has a managerial perspective on intraorganizational translation processes.

Initially, the dissertation delivers a program theoretical synthesis of the multifaceted components of data use in primary and lower secondary education. Following the critical realist perspective, the literature-based program theory synthesizes the various intents, effects logics, data use processes alongside the contextual influences and triggering mechanisms related to data use.

Leveraging the theoretical perspectives of Scandinavian institutionalism with the program theoretical logic, the dissertation demonstrates a tangible approach to studying intraorganizational translations by synthesizing complex multifaceted ideas and thereafter utilizing such syntheses to structure empirical material. The program theory of data use can likewise be used by practitioners when translating the data use idea into local practices.

Empirically the dissertation explores the intraorganizational journey of a data use policy within a Danish municipality's school department and three associated school management teams with a self-identified focus on implementing data use routines. Relying on a qualitative research

methodology including both strategic documents and data from events specifically intended to function as translation spaces, the empirical analysis offers an account of how upper-level managers rely on translation rules of prioritizing and framing, how decentral managers' adjustments of ideas are influenced by both a 'human filter' and a 'contextual filter', and how managerial translation includes context adjustments in addition to idea adjustments.

The interlinkage of idea adjustments and context adjustments brings attention to the important managerial responsibility of aligning local implementation efforts with employees' attitudes and level of competencies, which again has implications for the level of active managerial support needed. This further implies that contextual adjustments must precede idea implementation in local settings where existing practices are far from aligned with the idea sought implemented. The dissertation summarizes these findings in 'The organization's idea maturity model'.

The dissertation's theoretical relevance is that the theoretical contributions shed light on the black box of layered managerial translation spaces. The practical value of the research is that it contributes useful knowledge on what managers at both strategic levels and managers closer to the operational core should be attentive to when translating data use *in particular* and organizational ideas *in general* in their local contexts.

DANSK RESUME

At arbejde datainformeret og anvende data til at sikre kvalitet i uddannelsessektoren, herunder i folkeskolen, er en organisatorisk idé, der får stadig større opmærksomhed både i Danmark og internationalt. Samtidigt med at datainformeret arbejde er kendetegnet ved en mangfoldighed af praksisser, er bevægelsen fra politiske forventninger om databrug til at opnå den forventede forbedring af elevernes resultater imidlertid et underbelyst fænomen.

Med afsæt i Skandinavisk nyinstitutionalisme bekræfter afhandlingen, at implementering af nye organisatoriske ideer, såsom databrug, kræver lokal oversættelse. Afhandlingen bidrager med værdifuld ny viden om, hvad der sker, når den organisatoriske ide om at arbejde datainformeret bevæger sig ned af den hierarkiske oversættelseskæde fra øverste strategiske ledelsesniveau til lokale mellemledere. Afhandlingen har således et ledelsesperspektiv på intraorganisatoriske oversættelsesprocesser.

Indledningsvis leverer afhandlingen programteori over de mangefacetterede komponenter i databrug i folkeskolen. Med afsæt i et kritisk realistisk perspektiv sammenfatter den forskningsbaserede programteori forskellige hensigter, effektlogikker, processer samt kontekstuelle påvirkninger og udløsende mekanismer, der er relateret til databrug.

Ved at sammenkoble teoretiske perspektiver fra Skandinavisk nyinstitutionalisme med logikken bag konstruktion af programteorier, demonstrerer afhandlingen en håndgribelig tilgang til at studere intraorganisatoriske oversættelser ved at sammenfatte komplekse mangefacetterede ideer og derefter bruge sådanne synteser til at strukturere empirisk materiale. Den konkrete programteori om databrug kan ligeledes bruges af praktikere, når de oversætter idéen om databrug til lokal praksis.

Empirisk undersøger afhandlingen en databrugspolitiks intraorganisatoriske rejse i en dansk kommunes skoleforvaltning og tre tilknyttede skoleledelser med et selvidentificeret fokus på implementering af mere datainformerede arbejdsrutiner. Baseret på en kvalitativ forskningsmetodologi, der inkluderer analyse af både strategiske dokumenter og empiri fra begivenheder specifikt beregnet til at fungere som oversættelsesrum, demonstrerer den empiriske analyse, at ledere på forvaltningsniveau anvender oversættelsesreglerne prioritering og framing, at decentrale lederes justeringer af ideer er påvirket af både et 'menneskeligt filter' og et 'kontekstuelt filter', og at ledelsesmæssig oversættelse omfatter justeringer af konteksten i tillæg til justeringer af selve ideen.

Sammenkoblingen af idéjusteringer og kontekstjusteringer peger på det vigtige ledelsesmæssige ansvar i at afstemme lokale implementeringsindsatser med medarbejdernes holdninger og kompetenceniveau, hvilket igen har betydning for hvilket niveau af aktiv ledelsesstøtte, der er nødvendig. Dette indebærer yderligere, at kontekstuelle justeringer skal gå forud for idéimplementering, hvis den eksisterende praksis i den lokale kontekst adskiller sig markant fra den ide som søges implementeret. Afhandlingen opsummerer disse resultater i en model for organisationers idémodenhed.

Afhandlingens teoretiske relevans er, at den belyser, hvordan oversættelse sker i forskellige ledelseslag, hvilket hidtil har været underbelyst i Skandinavisk nyinstitutionalisme. Afhandlingens praktiske værdi er, at den bidrager med brugbar viden om, hvad ledere på både strategiske niveauer og ledere tættere på det udførende led bør være opmærksomme på, når de oversætter databrug i særdeleshed og organisatoriske ideer generelt i deres lokale kontekster.

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Mor elsker dig ♥

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION TO THE DISSERTATION

Use of data to inform organizational decision making and to guide organizational behavior is a trend that has become ever more popular in recent times across various different organizational fields (Brynjolfsson & Mcelheran, 2016; Little, 2012). The appeal of being data driven echoes across human service fields such as social work (Bradt et al., 2011), health (Mick, 2011), and education (Little, 2012).

The proposed outcome is that data use allows for activities and practices to become oriented towards better fulfillment of organizational goals and to secure better outcomes for organizations' end users. The end goal across different human service fields is different, but the ultimate goal for each individual field is always to improve the situation for service users, whether it be patients, students, or other service users (Bradt et al., 2011; Coburn & Turner, 2011; Ikemoto & Marsh, 2007; Mick, 2011).

The underlying assumption behind data use is that both employees and managers of various fields face issues and opportunities when performing their work, and that these issues and opportunities lead to questions that are not easy to respond to through e.g. existing knowledge, subjective assumptions, or routines and unsystematic use of information and data (Mandinach et al., 2006; Schildkamp, 2019). To resolve these issues, and hence to provide answers to the questions raised, managers and employees need to – from a data use perspective – identify, examine, analyze and gain access to or perhaps collect data to make informed decisions when responding to the issues faced (Mandinach et al., 2006; Marsh et al., 2006).

1.2 DATA USE IN THE EDUCATIONAL SECTOR

The tendency of expecting organizational members to use data to inform practice, as stated above, is also evident in the educational sector, where

data use and data driven decision making has gained the attention of both policymakers, school officials, and researchers (Faria et al., 2014; Little, 2012; Mandinach, 2012; Mausethagen et al., 2018). Attention to the potential promised by data use in the educational context has manifested itself in both national and district policies (Wayman & Stringfield, 2006). The expectation is that if educators, school managers, and other actors in the educational field inform their practices with the use of data, it will lead to improved student outcomes (Dunn et al., 2013; Katz & Dack, 2014; Schildkamp et al., 2013) such as better grades (e.g. Keuning, Van Geel, & Visscher, 2017) and improved well-being (e.g. Dietrichson, Karmsteen, Nielsen, Rasmussen, & Smith, 2016). The logic behind this premise is that if 1) educators use data, 2) this will impact classroom practices, and 3) changed practices will then lead to improved student outcomes (Lockton et al., 2020; Mandinach & Jimerson, 2016; Reeves, 2017). Central to this promise is that data use stands as an alternative to intuition (Kippers et al., 2018; Mandinach, 2012). With this argument, data use has come to play a big role in the educational discourse of many countries, e.g. Norway (Prøitz et al., 2017), Canada (Burger & Nadirova, 2013; Campbell & Levin, 2009), The United States of America (Goren, 2012; Jimerson, 2016), the United Kingdom (Earl & Louis, 2013), Germany (Demski & Racherbäumer, 2017), the Netherlands (Kippers et al., 2018), New Zealand (Katz & Dack, 2014), Australia (Hardy, 2015) and Denmark (Danish Ministry of Children and Education, 2018, 2019, 2020a; Hornskov & Olesen, 2018; Qvortrup, 2016). There is hence a great global trend of policymakers demanding data use in public schools (Hamilton et al., 2009; Marsh & Farrell, 2015).

Despite the global trend of data use policies, researchers have however found a shortage of studies proving an unambiguous link between use of data to guide professional practice and enhancement of student performance (Hamilton et al., 2009). Faria et al. (2014) for example states that:

> *"Although the relationship between data use and student achievement has face validity, little empirical evidence links educators' use of data with improved student achievement" (Faria et al., 2014, p. 1).*

Sun, Przybylski, & Johnson (2016) likewise finds that:

> *"Despite the increasingly acknowledged importance of data use in schools (Gallagher et al. 2008; Leithwood and Jantzi 2006; Sharrattand Fullan 2012), empirical research on its impacts on student learning is sparse" (Sun et al., 2016, p. 5).*

Similarly, the Danish National Research Center for Welfare (SFI) based on a literature review argues that more studies examining the direct effects of data use through identification of causality are needed (Dietrichson et al., 2016).

Researchers have nevertheless identified various intermediate outcomes of teachers' data use, which speaks in favor of implementing data use (Schildkamp et al., 2019). These intermediate outcomes include improved identification of student needs, greater differentiation of instruction as well as better collaboration (Karr, Marsh, Ikemoto, Darilek, & Barney, 2006; Sun, Przybylski, & Johnson, 2016c). The intermediate outcomes are elaborated on in chapter 4.

1.3 FRAMING IMPLEMENTATION OF DATA USE AS A COMPLEX PHENOMENON

The purpose of this dissertation is however not to investigate *the outcomes* of data use. Instead of examining outcomes, this dissertation explores the organizational and managerial processes of implementing data use practices in local school settings. More specifically, the dissertation seeks to increase our understanding of how data use policies are translated into activities and ways of working in local school contexts (cf. Boxenbaum & Pedersen, 2009; Czarniawska & Joerges, 1996; Røvik,

2007). The argument is that an investigation of local translation and implementation processes is important because these processes represent facilitating factors in achieving the proposed outcomes. In the following, I identify and unfold the issues that arise when local school managers are expected to translate the 'idea' of data use.

1.3.1 Linking practices to policy expectations

To achieve the proposed outcomes of data use, there must necessarily be a link between policymakers' expectation of data use, and how managers translate these expectations into practices at local school levels in such a way that the practices enter the classroom and produce these outcomes. Multiple studies have however found that this transition from policy expectations toward goal realization is not a straightforward endeavor (Earl & Louis, 2013; Marsh et al., 2006; Spillane, 2012). Instead, current research finds that the simplistic implementation logic (Mandinach & Jimerson, 2016; Spillane, 2012) is problematic because the move from policy expectations to the facilitation of better student outcomes is a complex, social process due to a number of different factors (Mandinach & Schildkamp, 2021). The first factor is that data use is an 'umbrella phenomenon'. The second factor is that of 'how data can be used to inform practice'. The third factor is that the presence of data does not ensure data use. These factors are unfolded below:

1.3.1.1 Data use as an 'umbrella phenomenon'

First, organizational data use is an umbrella phenomenon, which covers multiple activities by organizational members involving data (Farrell & Marsh, 2016a; Kerr et al., 2006). Marsh, Pane, & Hamilton (2006) have for example proposed the following definition of data driven decision making, a synonym closely associated with data use [1]:

[1] For further on adjoining terms related to data use see chapter 4.

> *"DDDM [Data-driven decision making] in education refers to teachers, principals, and administrators systematically collecting and analyzing various types of data, including input, process, outcome and satisfaction data, to guide a range of decisions to help improve the success of students and schools."(Marsh et al., 2006, p. 1)*

This definition emphasizes that a) data use can be carried out by multiple groups of actors throughout the educational system, b) data use involves multiple sub-processes such as data collection, analysis, and decision making, and c) data use can involve various types of data. In addition to the variation of data types, sub-processes, and types of data users, advocates of data use have different underlying intentions for promoting data use along with different logics of the outcomes of data use[2]. The general idea of data use thus implies a variety of components and can be carried out in many different ways (Kerr et al., 2006), which makes the local translation and implementation of the data use idea a complex phenomenon (Krogstrup, 2016).

1.3.1.2 'Using data to inform practice'

Second, there is seemingly a lack of focus on how data use is to be translated and implemented in local practices, with many researchers arguing that the understanding of how data use leads to improvement in education is tremendously underdeveloped (Goren, 2012; Honig & Coburn, 2008; Mandinach & Schildkamp, 2021; Spillane, 2012). Spillane (2012) for example argues that educational policymakers apparently have the underlying assumption, that basing decisions about practice on data is relatively straightforward. Honig & Coburn (2008) likewise found that e.g. American policy texts tend to be vague about *how* data should be used. Hence it further complicates the implementation of data use locally, that

[2] See chapter 4 for argumentation on the inherent complexity of data use.

researchers have identified a lack of focus on *how* data is to be used to inform and better practice.

1.3.1.3 'Data is there, but not necessarily used'

Third, it is routinely underlined that *the presence of data does not ensure data use*. This argument is made by both researchers of knowledge management in general (Davenport & Prusak, 1998; Jashapara, 2004) as well as educational researchers (Katz & Dack, 2014; Marsh & Farrell, 2015; Spillane, 2012). Data use requires agency (Demski & Racherbäumer, 2017; Katz & Dack, 2014), which means that *"data do not objectively guide decisions on their own—people do, and to do so they select particular pieces of data to negotiate arguments about the nature of problems as well as potential solutions"* (Spillane, 2012, p. 114). As outlined in Spillane's quote, data use is not objective but subjective in the sense that human agency is required. Agency again requires skills and competencies. Implementation of data use policies hereby entails that municipality officials, as well as local managers, contribute to building up teachers' and other pedagogical staff members' data use skills and prompting them to think 'data-drivenly', so that the expectations of better outcomes can be realized (Demski & Racherbäumer, 2017; Mandinach & Gummer, 2013; Schildkamp et al., 2019). However, according to e.g. Sun et al. (2016) there is a *"lack of studies on the best ways for school leaders to develop teachers' capacity [to use data]. An extensive search for studies on this important topic did not yield any review articles"*(Sun et al., 2016, p. 6). There is thus seemingly a black box, when it comes to how managers best support teachers and other educational staff in becoming competent users of data. The argument is that data literate staff is needed for data use to become an institutionalized organizational routine (Katz & Dack, 2014; Spillane, 2012; Sun et al., 2016).

1.4 TOWARDS A RESEARCH QUESTION

In combination the three factors of: 1) the diversity of data use practices, 2) the reported lack of focus on implementation seen in the vagueness of

top-level instructions and data use policy texts and 3) the importance of data literate employees, implies that local managers and organizational members are required to operationalize the general idea of organizational data use into activities and practices in their own organizational contexts to achieve the proposed outcomes.

The founding theses in this dissertation are 1) that data use is an organizational idea that when sought implemented requires translation to local contexts and 2) that the idea of organizational data use consequently can be *and most likely is* translated differently in different contexts.

The study investigates what happens to the idea of data use as it enters an organization and drizzles down through the steering chain. More precisely I investigate the intraorganizational journey of the data-use idea as it encounters the strategic managerial level and via decentral managers moves closer to the operational core towards implementation. My dissertation, therefore, has bidirectional contributions, one to the data-use literature and one to the literature on intraorganizational translation processes.

1.4.1 Synthesizing the complexity of educational data use

The value of my investigation is that it brings out new knowledge and nuances to the literature on data use in primary and lower secondary education (e.g., Jimerson, 2016; Katz & Dack, 2014; E. Mandinach, Friedman, & Gummer, 2015; Schildkamp, 2019; Spillane, 2012). The contribution made is a program theory (Krogstrup, 2016; Pawson & Tilley, 2004) acting as a synthesis of the complex, multifaceted idea of data use that can be applied to 1) analyze locally translated data-use ideas, and 2) translate the data-use idea into local practices. The constructed program theory of data use challenges the linear simplistic implementation which data use is often accompanied by, which states that if a) educators use data, b) classroom practices will change, and c) resulting in improved student outcomes (Coburn & Turner, 2011; Mandinach & Jimerson, 2016; Spillane, 2012). Instead, the program theory underscores that

organizational actors can refer to various intent and effect logics when implementing data use, that data use can refer to various types and topics of data and that data use can be conducted via various processes. Moreover, the program theory identifies contextual conditions and mechanisms that are influential for implementing data use in local settings (Krogstrup, 2016; Pawson & Tilley, 2004).

1.4.2 Intraorganizational translation processes

The dissertation moreover brings about new knowledge and nuances to research on implementation processes in an intraorganizational setting, more specifically focusing on Scandinavian institutionalism (SI) (e.g. Czarniawska & Joerges, 1996; Røvik, 2007). To understand how the data use idea meets the managerial layer, Scandinavian institutionalism is used as the theoretical perspective on implementation processes (Boxenbaum & Strandgaard Pedersen, 2009; Czarniawska & Joerges, 1996; Nielsen, 2010; Radaelli & Sitton-Kent, 2016; Røvik, 2019; van Grinsven et al., 2020; Vossen & van Gestel, 2019; Wæraas & Nielsen, 2016). In Scandinavian institutionalism, implementation is not considered a controllable or simple linear process, where ideas are easily adapted from external organizational recipes (Nielsen, 2010; van Grinsven et al., 2020). In contrast to more traditional lines of organizational institutionalism, researchers associated with Scandinavian institutionalism do not understand spreading of ideas in terms of diffusion (Andersen & Røvik, 2015; Boxenbaum & Pedersen, 2009). The argument is that the diffusion logic does not adequately account for agency of organizational actors in implementation processes (Scheuer, 2006). Instead, Scandinavian institutionalists apply the term *translation* to stress the agency related to the dissemination of ideas (Czarniawska & Joerges, 1996; Radaelli & Sitton-Kent, 2016) Until now, much research has been conducted about how organizational ideas move across organizational fields (Boxenbaum & Pedersen, 2009; Corvellec & Eriksson-Zetterquist, 2017; Czarniawska & Joerges, 1996; Nielsen, 2010; Røvik, 2002; Sahlin-Andersson & Wedlin, 2005) and also how top managers, in particular, grab popular

organizational ideas and transfer them into local settings (cf. Radaelli & Sitton-Kent, 2016). My dissertation instead takes a deep dive into the various managerial levels of intraorganizational translation which is valuable because less focus has been on how organizational ideas are transformed as they travel through an organization vertically (Mortensen, 2020; Røvik, 2011; Wæraas & Nielsen, 2016). Therefore, I ask the following research question:

Research question
How does intraorganizational translation of organizational ideas take place at different managerial levels in established organizations?

This research question is descriptive in nature, this is however a natural consequence of the argument that 'intraorganizational translation' is an emergent research field that is not yet thoroughly described (Linneberg et al., 2019; Mortensen, 2020; Røvik, 2011; Wæraas & Nielsen, 2016). Following the critical realist approach (Bhaskar, 1975; Brix & Kringelum, 2020; Fletcher, 2017) (elaborated in chapter 3), my dissertation adds new, explanatory knowledge by identifying key enabling mechanisms of intraorganizational translation processes that can be used as a source of inspiration for other scholars and practitioners.

1.4.3 A case study in a Danish municipality

More specifically, the dissertation contributes with new knowledge about intraorganizational translation processes by exploring the managerial translation of the organizational idea of data use within a Danish municipality, its School Department, and three associated schools. The case municipality was selected as the source of empirical evidence for my dissertation because it was explicitly committed to implementing a higher degree of data use in their public schools (Case municipality - school department, 2018).

By relying on a case study approach (Yin, 2014), I hence strive to put light into the seemingly black box of moving from policy expectations of data use to achieving the anticipated improvement of student outcomes (Honig & Coburn, 2008; Mandinach & Schildkamp, 2020; Spillane, 2012). The dissertation hereby follows Coburn and Turner's (2012) recommendation to investigate how data use policies are translated in local contexts.

I utilize two sub-questions to guide the framing of my case study:

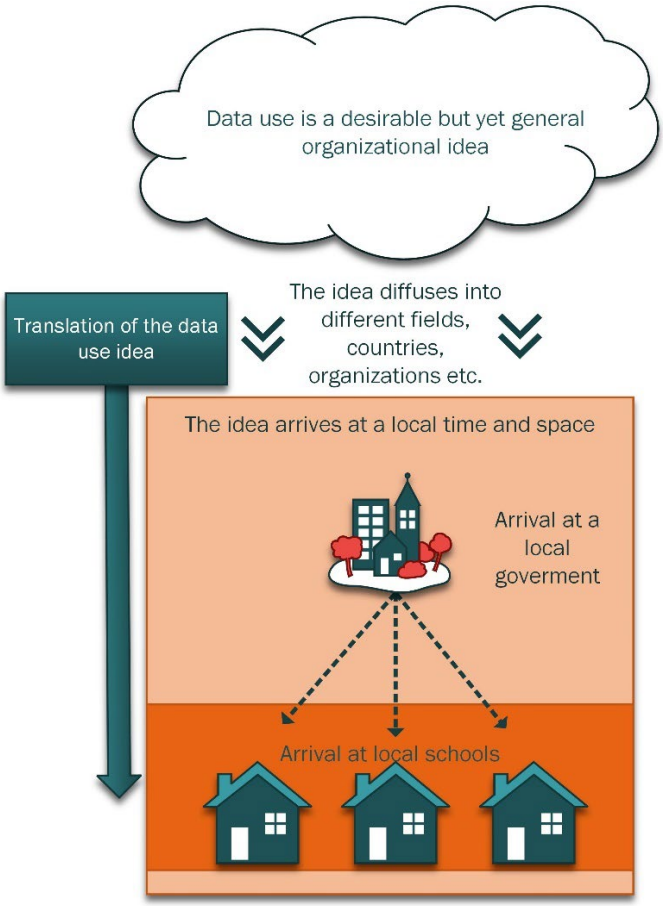
Sub-questions guiding the case study
How is the organizational idea of data use translated by the Department of Schools and the associated local school management teams? What are the similarities and differences between the translation at the departmental level and local decentral management teams and how does it relate to the generative program theory of data use?

The value of my research scope is that the findings have implications for the way management should be conducted in connection to translation processes. The research contributes with useful knowledge about what managers at both strategic levels and managers closer to the operational core should be attentive to when translating data use *in particular* and organizational ideas *in general* in their local contexts.

1.5 RESEARCH DESIGN AND CHAPTER STRUCTURE

The following section outlines the research design and the dissertation's chapter structure in more detail. The overall research design follows the logic presented in figure 1:

Figure 1: The translation steps of the data use idea



Author's own development

The dissertation consists of two main sections. ***Section A: Framing*** contains chapter 1-6, which outline the scope of the study with regards to the research design, theory of science, the literature review on data use, the theoretical perspectives on Scandinavian institutionalism, and the case study methodology. ***Section B: Analysis, discussion and conclusion*** presents the empirical and theoretical analysis and discussion leading to the conclusion and contributions made to research. The scope of the individual chapters is outlined hereafter.

1.5.1 Section A: Framing

1.5.1.1 The research context

After this introductory chapter, the research context is presented in chapter 2, which outlines both the national agenda for data use in the Danish public school sector and the call for implementation of data use practices in the municipality that serves as the empirical case site for investigating how managers at different managerial levels translate data use locally.

1.5.1.2 The theory of science

Chapter 3 explains how critical realism serves as the theory of science behind the research approach and discusses the potential of a critical realist view on intraorganizational translation. The strength of critical realism is that it accounts for the laminated system of different managerial and organizational layers(Brix & Kringelum, 2020; Sayer, 1992). Additionally, parring Scandinavian institutionalism with a critical realist approach enables an instrumental perspective on translation that uncovers regularities and patterns, which Røvik (2016) has been advocating for. The scientific approach of critical realism is one of the dissertation's contributions to Scandinavian institutionalism.

1.5.1.3 Program theory of data use

Chapter 4 provides a review of literature on data use in primary and lower secondary education. By using a program theoretical approach (Dahler-Larsen & Krogstrup, 2009; Pawson & Tilley, 2004) to structure the literature, I construct a program theory of the organizational idea of data use. This entails outlining the variety of components embedded in the idea, including the intent for using data, the proposed effects, the processes of data use, and the different types and topics of data. The program theory also outlines the contextual conditions that influence implementation of data use practices and the mechanisms which scholars have identified can potentially trigger the proposed effects of data use practices at local school levels.

The components of the data use idea constitute the foundation for operationalizing the translation routes available to translators when implementing data use in local settings, whether they be authorities, managers, employees, etc. Chapter 4 hereby describes the content of the "fluffy" cloud depicted in figure 1. The program theory is later used as an analytical tool for investigating how data use is translated in the case municipality at both the strategic and the decentral managerial level.

1.5.1.4 Scandinavian institutionalism

Chapter 5 introduces the theoretical perspective of Scandinavian institutionalism. Also known as translation theory, Scandinavian institutionalism serves as the main theoretical framework in the analytical work of the dissertation. The dissertation draws on the premise that implementation of new organizational ideas requires translation processes (Czarniawska & Joerges, 1996; Røvik, 2007). Through processes of translation, ideas are contextualized, adapted, and materialized (Nielsen, 2010).

In the subsequent chapter 6 I construct a preliminary program theory of organizational-level translation based on the existing research on managerial translation processes. The preliminary program theory represents the state-of-the-art from the research field of Scandinavian institutionalism specifically related to organizational-level translation. By using the program theory approach, I structure the existing contributions in a framework, which differentiates between components related to managers' translation processes, the contextual conditions of such processes, and the mechanisms affecting the output and outcome of such processes.

These theoretical chapters are used as a starting point for the later discussion of the empirical findings (chapter 10).

1.5.2 Section B: Analysis, discussion, and conclusion

1.5.2.1 The case study methodology

Chapter 7 marks the beginning of the empirical and analytical contribution. The chapter begins with a description of the case study design including the criteria for case selection of both the municipality and the three embedded schools. The chapter then elaborates on the empirical foundation for analyzing both the strategic and decentral translation as well as the coding and analysis strategy.

1.5.2.2 The department's translation of data use – an empirical analysis

Starting the analytical contribution, chapter 8 presents an empirical presentation of how the school department in the case municipality translates the organizational idea of data use in the case municipality. This chapter e.g. investigates what components of the data use idea (as presented in the program theory in chapter 4) are highlighted and which are not addressed in the department strategy. It is analyzed how the department translates the processes of data use and which beneficial effects are enhanced in the strategic documents. The chapter also identifies how data use practices are framed by the department. The framing regards the organizational setting in which staff is supposed to use data. In the specific case, the advised organizational set-up is professional learning communities, where teachers work in teams. The content of the department strategy and how it is conveyed downwards in the organizational system holds implications for the space for translation left to the local school managers (cf. Sayer, 1992). This space for translation left by the department is also identified in chapter 8.

1.5.2.3 The decentral managements' translation of data use – an empirical analysis

Chapter 9 analyzes the local-level management teams' translation of data use. The chapter detects both similarities and differences in how the local school management teams understand data and data use practices in

addition to the managers' perspective on the purpose of data use and the associated effect logics. Lastly, the chapter addresses the intersection of managers' narration of data use and problematization of data.

1.5.2.4 Discussion of theoretical contributions

The aim of the following chapter 10 is to illustrate how my study of a specific translation process contributes to existing Scandinavian institutionalist theory. The discussion of contributions emanates from the empirical themes of both the department's translation and the decentral management teams' translation of the organizational idea of data use in the case study, presented in chapter 8 and 9. A beneficial side-effect of these discussions is, that the dissertation's contributions to the data use literature are likewise clarified.

1.5.2.5 Conclusion

Chapter 11 is the conclusion in which I summarize my contributions to respectively the data use literature and Scandinavian institutionalism.

CHAPTER 2: RESEARCH CONTEXT

2.1 CHAPTER INTRODUCTION

The purpose of the first part of this chapter is to situate the case site within a larger national data use agenda, hereby specifying the research context. This section reports on the national agenda for data use in the Danish public school sector, by outlining the ministerial agenda, the national goals, and the available data.

The second part of the chapter introduces the call for data use in the case municipality and describes the reasoning behind the case selection to qualify the sample.

2.2 DANISH PUBLIC SCHOOLS

In Denmark, education is compulsory for ten years starting from the year the child turns six. The Danish public school – the ”Folkeskole” - is an integrated municipal school covering primary and lower secondary education (Danish Agency for International Education, 2016). Attending Danish public schools requires no tuition fee. There are 1.276 (in 2017) self-governed Danish public schools owned by the 98 Danish municipalities. In the school year 2018/2019, 79 % of Danish children in primary and lower secondary schools attended Folkeskole, 18 % attended private schools, and the remaining 3 % attended private residential schools (efterskoler), special schools, or others.

2.2.1 The Danish school reform of 2014

The overall national policy in Denmark during the research period was the school reform of 2014. With three national goals to support and develop pupils, the reform states that:

- The public school must challenge all pupils to reach their full potential.

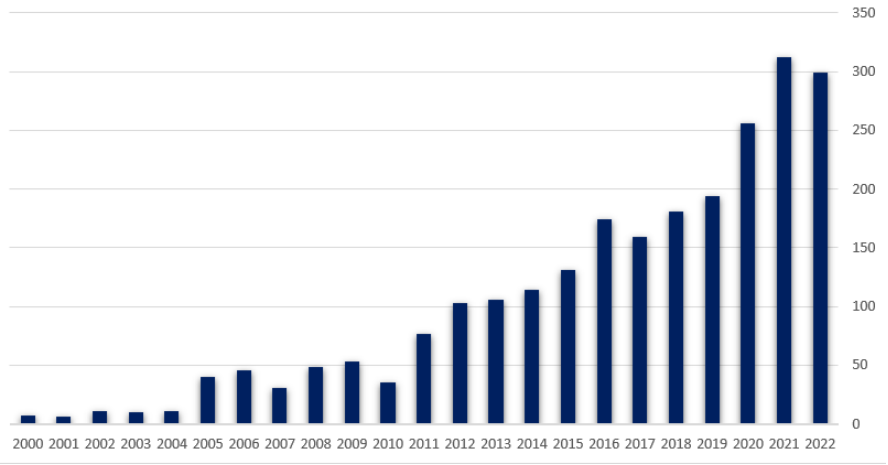
- The public school must lower the significance of social background on academic results.
- Trust in the school and pupil well-being must both be enhanced through respect for professional knowledge and practice in the public school (Danish Ministry of Children and Education, 2018).

These three national goals for public schools set the main national direction for conducting schools in Denmark.

2.3 DATA USE IN DANISH PRIMARY AND LOWER SECONDARY SCHOOLS

As indicated in the introduction, data use has been put on the agenda in the educational sector globally by both researchers and public officials (Hamilton et al., 2009; Marsh & Farrell, 2015). The increase in the attention of educational data use[3] is evident in e.g. the raise in the number of research articles on the topic, as illustrated in figure 2.

Figure 2: Number of research articles in ProQuest on data use in the educational sector[4]



[3] Breite (2016) has called it "the trend of datafication" in education

[4] Distribution 2405 peer reviewed records from the following search stand (abstract(("data driven decision" OR "data-driven decision" OR "data-based decision making" OR "data informed decision making" OR "data-informed

The attention given to the topic of data use in the Danish educational debate reflects the international attention documented in the vast quantity of research articles on educational data use. As an indication of the national interest in utilizing data more efficiently, the Danish Ministry of Children and Education launched a data strategy in February 2017 with the following three visions:

Visions in The Danish Ministry of Children and Education's 2017-2020 data strategy
- With current and reliable data the ministry enhances the educational policy, control and quality work in the sector - Data is used by educational institutions to enhance students' learning and students' road through the educational system - STIL [The Agency for IT and Learning] is one of the most acknowledged and professional data organizations within the state

(Danish Ministry of Children and Education, 2020a, authors own translation)

These visions indicate that the Ministry aims to enhance the use of data both on a national governmental level and locally in individual schools as a means to increase student learning and the overall quality of education. The latter vision also indicates a ministerial commitment to building a strong organizational support structure for data use with the establishment of the Agency for IT and Learning (in Danish: Styrelsen for It og Læring). The Agency for IT and Learning has the ambition to *"actively bring data and analysis into play to strengthen learning and decision-making locally and centrally."* (Agency for IT and Learning, 2020, authors

practice" OR "data use" OR ("data practices"))) AND (("education*" OR "school*"))) AND PEER(yes) in ProQuest from 2000-2022.

own translation). The agency seeks to uphold this ambition by e.g. making suitable IT solutions available for actors in the educational sector, where both managers and educational staff have access to relevant data (Agency for IT and Learning, 2020).

According to the ministerial data strategy, there is a national focus on using data for learning purposes. On the topic of 'data in learning' it is stated in the strategy that:

> *"this [Data in learning] is an as of yet immature, but extremely important and growing area where the ministry can support schools, institutions and educational staff in creating more direct value with data for the individual student in teaching and tutoring situations"* (Danish Ministry of Children and Education, 2020a)

The ministerial focus is hence on data use that creates value for the individual students. This focus resonates with the prevailing effect logics in the data use literature, that places student-related outcomes in the foreground (Dunn et al., 2013; Katz & Dack, 2014; Reeves, 2017; Taylor, 2010). The dominant effect logics are elaborated on in chapter 4.

2.3.1 Nationally available data

Following the ministerial data use strategy, the Ministry of Children and Education provides a variety of data at aggregated school-level. The majority of the national provided data is accessible through the online portal 'The data warehouse' (in Danish: Datavarehuset). The online portal contains e.g. numerical data on student well-being gathered through yearly national student well-being survey, register data such as non-attendance rates, enrolment in higher education, employee and resource numbers alongside grades, and results from the yearly national tests (Danish Ministry of Children and Education, 2020d).

2.3.2 Examples of data use initiatives

Consistent with the official data strategy, the Danish Ministry of Children and Education has e.g. founded and initiated development and research projects on the use of data on student learning and progression (Danish Ministry of Children and Education, 2020c). The ministry has also organized seminars and workshops for i.e. municipality consultants exclusively focusing on the topic of data use (Danish Ministry of Children and Education, 2019).

Another example of the focus on data in Danish primary education is the guidance provided to local schools by government-employed learning consultants (in Danish called: Læringskonsulenter). The learning consultants provide guidance for schools on how to build capacity and improve the quality of education through e.g. data use practices (Danish Ministry of Children and Education, 2020b).

These government initiatives on enhancing data use in Danish public schools coincide with an array of seminars (Kommunernes Landsforening, 2019; UCViden, 2020), published textbooks (Klausen, 2017; Nordahl, 2016; H. S. Olsen et al., 2018) and hands-on material as well as evaluation reports and reviews (Danmarks Evalueringsinstitut, 2016; Hestbæk & Friis-Hansen, 2017; SFI - Det nationale forskningscenter for velfærd, 2017) concerning the utilization of data made by official as well as private organizations in recent times. In just the Danish context alone, multiple textbooks on data-informed school development have for example been published in recent years. Here are a few examples:

Figure 3: Examples of Danish publications on educational data use[5]

Such data use publications combined with data use events and the national data strategy including the establishment of the Agency for IT and Learning and national learning consultants indicate a sustained and growing focus on integrating data in the management and operation of education in the Danish primary and lower secondary school sector.

2.4 THE CALL FOR DATA USE IN THE CASE MUNICIPALITY

The argumentation for how the case study provides new and valuable insight into how managers translate organizational ideas and how the data use idea in particular is translated by school managers in a Danish context is unfolded in the following.

The ministerial focus on data use is mimicked in the Danish Municipality, which constitutes the case site in the dissertation. The case municipality is one of many Danish municipalities, that are explicitly committed to implement a higher degree of data use in their public schools (Case municipality - school department, 2018). As described in official documents, the goal of the local authorities is to make data use an organizational routine in the local schools (Case municipality - school department, 2017). In 2018 the local government formulated a vision for data use in strategic documents e.g. stating that: *"We [actors in daycare*

[5] Authors from left to right: (Nordahl, 2016)(Datnow & Park, 2017)(H. S. Olsen et al., 2018) and (Klausen, 2017)

and schools in the municipality] use data as a background for reflective dialogues, analysis and initiatives." (Case municipality - school department, 2018, p. 2) and outlined it as a municipality goal that: *"Everybody take ownership of building new knowledge and working data informed."* (Case municipality - school department, 2018, p. 3). These visions were formulated in a document distributed to all school and daycare managers and staff throughout the municipality [6].

The municipality at the time of inquiry was in the preliminary stage of implementing data use, which provided an opportunity for learning about the translation process [7]. At the time of the research, there were multiple discussions and events centered on data use and establishment of data-oriented professional learning communities amongst members of the school department and the local school management teams. For an elaboration of these discussions and events, see chapter 7.

2.4.1 A brief outline of the development project 'Program for learning management'

The case municipality's attention to data use during the time of the data collection was at least partly associated with their participation in a development program titled 'Program for learning management' (Qvortrup et al., 2016). The development project, which ran from 2015-2019, was centered on implementing improvement initiatives in the participating Danish public schools. This was facilitated during the project period via collaboration and knowledge transfer between the participating municipalities' department staff, including the Head of Schools, the school management teams, and representatives from academia. The development project was of relevance for the research ambition of this dissertational

[6] The document is referred to by municipality officials as 'The standard for professional learning communities' (Case municipality - school department, 2018), and reflects that the data use policy in the school department in the municipality is interlinked with the organizational idea of professional learning communities. This interlinkage is unfolded in the later analysis.
[7] See chapter 9 for empirical background for this claim.

work, as the project was based on data-informed principles. The data-informed focus was reflected in the explicit articulation by the involved researchers of the beneficial impact of informing educational and pedagogical initiatives in available data (Program for Learning Management, 2020). Additionally, the development project included a comprehensive longitudinal quantitative data collection. Three rounds of surveys were conducted during the four-year project period (2015-2019) with both principals, teachers, school pedagogues, students, and their parents as informants. The survey results were made available for the participating municipalities and schools, both at full length in an online portal after each survey round and presented in municipality reports written by researchers associated with the project (e.g. Jensen, Andersen, Christiansen, Hansen, & Lorentsen, 2020). Using data to inform decisions was hence an inherent part of the project. For a more detailed description of the development project, see the project's web page (Program for Learning Management, 2020).

2.4.2 Ongoing translation at the time of research

The implications of the municipality's involvement in the development project for the role of case municipality in this dissertation is that the activities within the project prompted the department representatives and the school management teams to reflect on the merits and potentials of data use in their organization. This is elaborated on in chapter 7, where the methodological research approach is discussed.

The chosen case site therefore to a large extent meets the criterion of maximizing what can be learned from a case (Stakes, 1995), as there was an active translation process going on at the time of research. Furthermore, the local management teams were entrusted with the task of operationalizing data use. The decentral managers' active role in the translation process makes the chosen research site relevant as the empirical foundation to examine managerial-level translation close to the operational level. This is valuable because it contributes with new insights

to Scandinavian institutionalism, where scholars have been inclined to view the translation processes collectively across various managerial levels.

The case study is defined as an embedded case study (Scholz & Tietje, 2002; Yin, 2014), as the three school districts (the embedded units) are located within the same municipality and hence a part of the same strategic direction. This means that, when the school managers translate the data use idea in their local setting, they are influenced by the same (or at least similar) departmental communication, support, and supervision. In other words, the external context related to the signals and expectations from upper management is approximately similar across the cases. Containing the case study within the same municipality is an attempt to make the external context as constant as possible (Braun et al., 2011). This makes it possible to examine how different local translations of the same policy, result in different managerial strategies and different lines of local actions within one local government (Røvik, 2016).

CHAPTER 3: THE THEORY OF SCIENCE: CRITICAL REALISM

3.1 CHAPTER INTRODUCTION

This chapter reports on critical realism as the dissertation's underlying theory of science. The chapter has three primary aims:

First, to introduce critical realism and the implications of a critical realistic ontology and epistemology for the study of translation of organizational ideas understood through the lens of Scandinavian institutionalism.

Second, to argue how critical realism and the use of program theories support the call for an instrumental understanding of organizational ideas and how they are translated in local contexts (c.f. Røvik, 2016). It is explained how the critical realistic approach differs from the interpretive epistemology which is more common in Scandinavian institutionalism.

Third, to explain the benefits of using program theories as a way of structuring the components of the data use idea in the theoretical framework (chapter 4) and as an analytical tool to structure the analysis of the intraorganizational translation of data use (chapter 8-10). Program theories derive from the realistic evaluation field and rely on ontological and epistemological principles from critical realism.

3.2 THE STRATIFIED ONTOLOGY OF CRITICAL REALISM

One of the guiding principles of critical realism is that ontology (that is the nature of reality) cannot be reduced to epistemology (that is the human knowledge of reality) (Fletcher, 2017). This entails that critical realism is an alternative to both constructivism and positivism because critical realism claims that reality cannot and must not be reduced to what can be empirically known (Fletcher, 2017). Founded in the works of Roy

Bhaskar (Bhaskar, 1975, 1979), critical realism views reality as divided into three domains - the empirical, the actual, and the real domain.

The empirical domain is the observable elements of reality. The empirical domain consists of events and objects that can be observed, but that are also understood through actors' (and hereof also researchers') interpretation (Bhaskar, 1975; Fletcher, 2017).

The actual domain represents reality when stripped of human experience. This ontological level clarifies that events occur whether they are observed or not.

The real domain *"consists of structures and mechanisms representing causal tendencies that might or might not be activated, implying that causality is not linear in critical realism"*(Brix & Kringelum, 2020, p. 2). The real domain represents what is unobservable (Bhaskar, 1975). Table 1 illustrates that the real domain is composed of both mechanisms, events, and experiences.

Table 1: The three domains in critical realism

	Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms	✓		
Events	✓	✓	
Experiences	✓	✓	✓

(Bhaskar, 1975)

Critical realists regard it as the key agenda for research to uncover and understand the underlying mechanisms of experienced or unexperienced events. In order to gain access to the causal mechanism that resides in the real domain, critical realists develop theories based on empirical material (Brix & Kringelum, 2020).

3.3 CRITICAL REALISM IN THE STUDY OF DATA USE IN DANISH PRIMARY AND LOWER SECONDARY SCHOOLS

Critical realism as a philosophical framework holds implications for how the inquiry of managers' role in implementing data use in local schools is structured. The role of theories is significant in this regard. When acquiring knowledge about the real domain in the stratified ontology, critical realism treats reality as theory-laden, and critical realist researchers use existing theories as a starting point for empirical research (Fletcher, 2017).

When applying critical realism in the study of translation of data use in Danish primary and lower secondary schools, I use two sets of existing theories. First, the inquiry is guided by the translation perspective from Scandinavian institutionalism. When studying translation empirically, translation processes are naturally 'tied' to the specific idea that is being translated. The theoretical assumptions of translation must therefore be studied through the merits of the specific idea that is being translated. Second, the inquiry of the local translation is guided by the program theory of data use which is constructed from research literature on the topic in chapter 4. The guiding principles of program theories are outlined later in this chapter.

In line with critical realism, the aim is to contribute with theoretical development (Frederiksen & Kringelum, 2020, p. 13). The study is guided by existing Scandinavian institutionalist theory as *"The initial theory facilitates a deeper analysis that can support, elaborate, or deny that theory to help build a new and more accurate explanation of reality"* (Fletcher, 2017, p. 184). The analytical findings of the study supplement existing Scandinavian Institutionalist theory by acquiring knowledge about the early stages of operational managements' translation. Furthermore, the study aims to contribute knowledge on how data use initiatives are acted out in local settings.

Although reality is treated as theory-laden in a critical realistic understanding, critical realism does not claim that reality is theory-determined because mechanisms can either be activated or not (Fletcher, 2017). Hence the aim is not to develop a law-like understanding of the social world (Frederiksen & Kringelum, 2020), but to point to potential contextual dependent connections between cause and effects triggered by plausible mechanisms. Critical realism implies seeking explanation rather than prediction, and explanation is presented via uncovering mechanisms (Wynn & Williams, 2012).

3.3.1 The laminated system

Another implication of the critical realistic perspective is that the prime unit of analysis in this study - the local school management teams – is considered systems that are layered within other systems. Critical realists are guided to take into account the embeddedness of the unit of analysis because reality is viewed as a laminated system (Brix & Kringelum, 2020). The local school management teams are in terms of their position in the organizational structure of the municipality interlinked with the following organizational layers[8]:

> Policy level ⇄ municipality department ⇄ **decentral management teams** ⇄ employees

These organizational layers constitute a structure, defined as a *"set of internally related objects or practices"* (Sayer, 1992, p. 92). Hence the decentral management teams are a substructure embedded in a larger social structure made up of individuals and groups relying on specific discursive entities of language and culture along with rules and practices (Wynn & Williams, 2012). These layers constitute what Scandinavian

[8] These are of course not the only actors that affect the daily operations of the decentral management teams, but in regards to the scope of analyzing the translation process of data use I view them to be the most influential.

Institutionalist scholar Røvik (2007) refers to as a hierarchical translation chain.

Because the decentral management teams are positioned in the laminated system as illustrated above, it is legitimate and insightful to study the strategic translation at the *department level* because it is part of the system in which the school managements are inherent in. In this dissertation, the department's translation is explored primarily via a content analysis of strategic documents which unfolds the department's ambitions with an interpretation of data use. For an elaboration of the empirical foundation of the department-level analysis, see chapter 7.

When studying the characteristics of how first the department and thereafter the school management teams translate data use, this is done by investigating events of entities (Easton, 2010) as being specific events in the local translation process. In critical realist terminology events of entities refer to insights into the research object uncovered through empirical excerpts of the research field (Brix & Kringelum, 2020; Easton, 2010). The prime empirical events are three management seminars and three dialogue meetings from which the characteristics of the local managers' translation of data use are deducted. For an elaboration of the empirical foundation, see chapter 7.

3.4 METHODOLOGICAL IMPLICATIONS OF CRITICAL REALISM

Even though critical realism as a methodological framework is not associated with one specific set of methods (Fletcher, 2017; Sayer, 2000) conducting case studies suits the ambition of theoretical development in critical realism (Easton, 2010; Frederiksen & Kringelum, 2020). Since the actualization of mechanisms is viewed as context-dependent in critical realism, case studies is an appropriate methodological approach, because it allows the researcher to be sensitive to the empirical context of the studied phenomenon (O'mahoney & Vincent, 2014). In relation to context sensibility, O'mahoney & Vincent (2014) states that;

> *"As critical realists hold that context can often trigger or retard the actualization of causal mechanisms, methods should also be sensitive to the empirical context at a variety of levels." (O'mahoney & Vincent, 2014, p. 15)*

Case studies is a research method that allows for sensitivity towards specific context characteristics.

The aim of the embedded case study is to obtain valid and reliable research findings judged on their analytical generalizability rather than statistical generalizability (Yin, 2014). Critical realism calls for analytical generalizability and utilizes knowledge from given situations in order to gain access to the causal mechanism resident in the real domain. The following quote by Wynn & Williams explains the interplay of analyzing situations in specific cases and uncovering, what conditions lead to observed outcomes:

> *"CR [critical realism] attempts to use our knowledge of the experiences in a given situation to analyze inferentially what the world must be like in terms of the structures and mechanisms that must constitute this reality for some accepted outcome to have occurred" (Wynn & Williams, 2012, p. 790)*

The analysis is guided by principles of retroduction. Retroduction is used in critical realism in order *"to explain what the world must be like to trigger the generative mechanisms acting in the real domain and to generate an event in the empirical or actual domain"* (Brix & Kringelum, 2020, p. 5). The principle of retroduction is to move from understanding a phenomenon of interest to a conception of the powers that are responsible for generating that phenomenon (Easton, 2010; Jagosh, 2020).

3.5 CRITICAL REALISM IN CONNECTION TO SCANDINAVIAN INSTITUTIONALISM

Although the theoretical framework of Scandinavian institutionalism, which this dissertation relies on, does not have a completely fixed philosophy of science (Wæraas & Nielsen, 2016), it is associated with the interpretive ontology and epistemology (Czarniawska & Joerges, 1996). Scandinavian institutionalist researchers routinely give emphasis to interpretive aspects of translation processes as they study *"interpretations that local actors make when responding to circulating ideas"* (Røvik, 2016, p. 293).

Instead of following the interpretive paradigm, this study uses critical realism as its ontological point of departure. I thereby inscribe Scandinavian institutionalism in a somewhat unconventional ontological and epistemological research tradition. Despite the fact that the critical realist approach to the inquiry of translation processes is unfamiliar to the Scandinavian institutionalist research tradition, it is my argument that Scandinavian institutionalism and critical realism are not a mismatched partnership. Røvik (2016) for example has advocated for expanding Scandinavian institutionalism in an instrumental direction with a greater emphasis on rule-based translation processes. Røvik writes on this matter that:

> *"…there is a strong notion in the field of [linguistic] translation studies that translations are rule-based activities. Unlike translation theory in organizational analysis, a great deal of research has been done to identify and describe rules of translation, and explain patterns of variations in the use of such rules in time and space." (Røvik, 2016, p. 293).*

It is Røvik's intent to broaden the perspective of organizational translation theory by acquiring knowledge about different translation rules and modes that go beyond specific local translations (Røvik, 1998,

2016, 2019). With this, Røvik seeks to develop *"an instrumental translation theory, with the aim of developing knowledge about how to conduct translations of practices and ideas to achieve various organizational ends"* (Røvik, 2016, p. 290). Corresponding with the instrumental perspective, Røvik advocates for use of a pragmatic theory of science (Røvik, 2016).

Inspired by realistic evaluation and the construction of program theories to comprehend organizational change initiatives, I however opt for a research methodology inspired by critical realism (Bhaskar, 1975; Brix & Kringelum, 2020; Fletcher, 2017). The aim is however similar to that of Røvik because the critical realistic approach allows me to illuminate the underlying generative mechanisms that trigger 'the organizational ends' mentioned by Røvik.

It is the main focus of critical realism to gain knowledge about underlying mechanisms that cause certain outcomes, along with explaining *"how and why these mechanisms are triggered by* activities *of organizational members in their local organizational context"* (Brix & Kringelum, 2020, p. 2). Generative mechanisms are according to critical realists not directly observable and reside in reality's real domain. Uncovering such mechanisms can however help both researchers and practitioners to gain knowledge of how to *"conduct translations of practices and ideas to achieve various organizational ends"* (Røvik, 2016, p. 290).

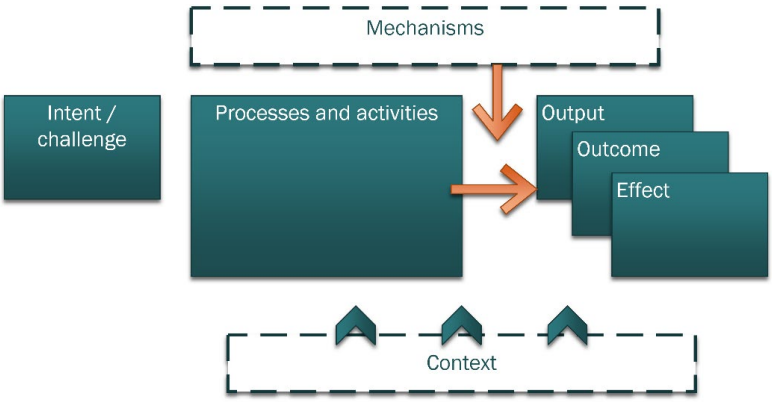
3.6 CRITICAL REALISM AND THE USE OF PROGRAM THEORIES

One of my contributions to the Scandinavian institutionalism research field is that I connect the theoretical underpinnings of Scandinavian institutionalism with the methodological approach of program theory from evaluation research.

A program theory is a framework that includes both the context, mechanisms, intent, activities, and effect of an initiative in one comprehensive model (Dahler-Larsen & Krogstrup, 2009; Pawson & Tilley,

2004). This approach to conceptualizing the data use idea is inspired by theory-based evaluation research (Chen, 2013; Coryn et al., 2011; Pawson & Tilley, 2004). Program theories are illustrative models that make explicit assumptions or accounts of the relationship between activities and outcomes of specific initiatives mediated through underlying mechanisms:

Figure 4: Template for program theories



Author's own development based on Dahler-Larsen & Krogstrup (2009) and Pawson & Tilley (2004)

At first glance, program theory and its theory-based evaluative origin might be viewed as a reflection of a deterministic perspective of cause-effect relations that contrasts Scandinavian institutionalism's origin in the works of e.g. Latour, which has an inductive and interpretative nature (Boxenbaum & Strandgaard Pedersen, 2009; Latour, 1986). However, program theories hold a probabilistic view of input-outcome and cause-effect relations rather than a deterministic view (Krogstrup, 2011). Program theories follow the critical realistic claim that context matters and that outcomes are reliant on whether or not certain mechanisms are triggered (Pawson & Tilley, 2004). The connection between Scandinavian institutionalism and the construction of program theories hence resides in a common interest in the contextual aspect of implementation practices.

It is a valid claim that the use of program theories does not match the epistemological and methodological interest of all strains of Scandinavian institutionalism. Czarniawska & Joerges e.g. place human actors in the center of translation processes and highlight the human interpretation and experience as essential. This view of human agency is coherent with their social constructivist ontology (Czarniawska & Joerges, 1996; Scheuer, 2006). My claim is however that the purpose of program theories matches the line of Scandinavian institutionalist studies that uncover potential regularities and patterns of translation rules. Røvik's four translation rules (copy, add, omit, or alter) and three translation modes (reproducing, modifying or radically changing an idea) which are used in this dissertation, are an example of this line of inquiry (see chapter 6). It can be argued, as is done by Wæraas & Nielsen (2016) that;

> *"To some extent, this understanding of translation [the possibility of translations following rules] represents a break with the notion that translations unfold unpredictably, resembling more Callon's notion of translations involving convergences and homologies" (Wæraas & Nielsen, 2016, p. 246)*

The aim of uncovering regularities and patterns differ somewhat from the interpretive and constructivist aspect of translation theory. Yet, my argument is, that the critical realistic underpinning of program theories accounts for both contextual restraints and human agency. The argument of why it is valid to structure the empirical evidence as a program theory when seeking to contribute to theoretical development in Scandinavian institutionalism is that the approach is sensitive towards contextual conditions and human agency. The critical realistic and program theoretical approach is relevant because it allows the researcher to uncover underlying mechanisms and how they relate to triggered outcomes, while simultaneously not losing sight of the important

influence of contextual conditions and thereby also interpretations and discourses of actors on translation.

CHAPTER 4: THE COMPONENTS OF DATA USE

4.1 CHAPTER INTRODUCTION

In this chapter, it is argued that organizational data use implies a variety of components, and can be carried out in many different ways (see e.g. Bernhardt, 2009; Coburn & Turner, 2012; Kerr et al., 2006). The aim is to unfold the different components of 'the master idea' of data use including; the intent for using data, the proposed effects, the processes of data use, and the different types and topics of data. The chapter hereby seeks to unfold 'the cloud' of the data use idea as depicted in figure 1 on page 11, by proposing a framework of data use in the educational sector. The purpose of identifying and describing the data use components is to use the proposed framework to examine the managerial translation of data use in the empirical case (chapter 8 and forward). This again has implications for which types of data use processes the results of this dissertation can be generalized to.

When defining the content of an organizational idea, the characterization can be based on various methodological sources. Røvik for example determines the content of organizational ideas through a combination of inputs from consultancy firms, company strategies, and research publications (Røvik, 2002). In proposing a theoretical framework of the content of the data use idea, the choice has been made to base the framework on research publications on data use. The aim of this chapter is to provide insight into the variety of topics discussed in the literature concerning data use in primary and lower secondary education rather than a quantitative overview. To achieve this aim, the chapter draws on more than a hundred research articles, when constructing the theoretical framework. More of the articles are reviews that report on multiple research findings. Only articles related to primary and lower secondary education are included. The articles cover a large variety of publication outlets. The common denominator of the pool of outlets is that they all

relate to the field of education either generally (e.g. Journal of Educational Administration, Journal of Educational Change, Educational Policy, Journal of School Leadership) or in terms of outlets specifically centered on data-informed educational practices (e.g. Data-driven leadership and Educational Assessment, Evaluation and Accountability).

The categories, which are emitted from the literature are an essential foundation for making an operationalization of potential translation routes available to translators, whether they be authorities, managers, employees, etc. To illustrate the relationship between the components of the data use idea, I have constructed a program theory, which is presented in the second part of the chapter. The program theory clarifies the connection between data use actions and important factors that influence and lead to effects, including the contextual factors and effect-triggering mechanisms. The program theory does not replicate the workings of a specific initiative, which is usually the custom when using a program theory framework (Funnell & Rogers, 2011; Pawson & Tilley, 2004). Instead, the program theory clarifies various perspectives on data use presented in literature on data use in primary and lower secondary education.

The program theory is used subsequently in the analysis of how data use is translated in the case municipality at the strategic level and eventually how the policy of data use is translated at the operational levels in the local case schools (chapter 8 and forward).

4.2 THE CHOICE OF THE TERM 'DATA USE'

Before unfolding the constructed framework, it is important to state, that the decision has been made to use the term 'data use' throughout the dissertation. The term is just one amongst several coherent and similar terms used by researchers and practitioners when referring to the practice of using data (Hamilton et al., 2009). These terms include (but are not excluded to):

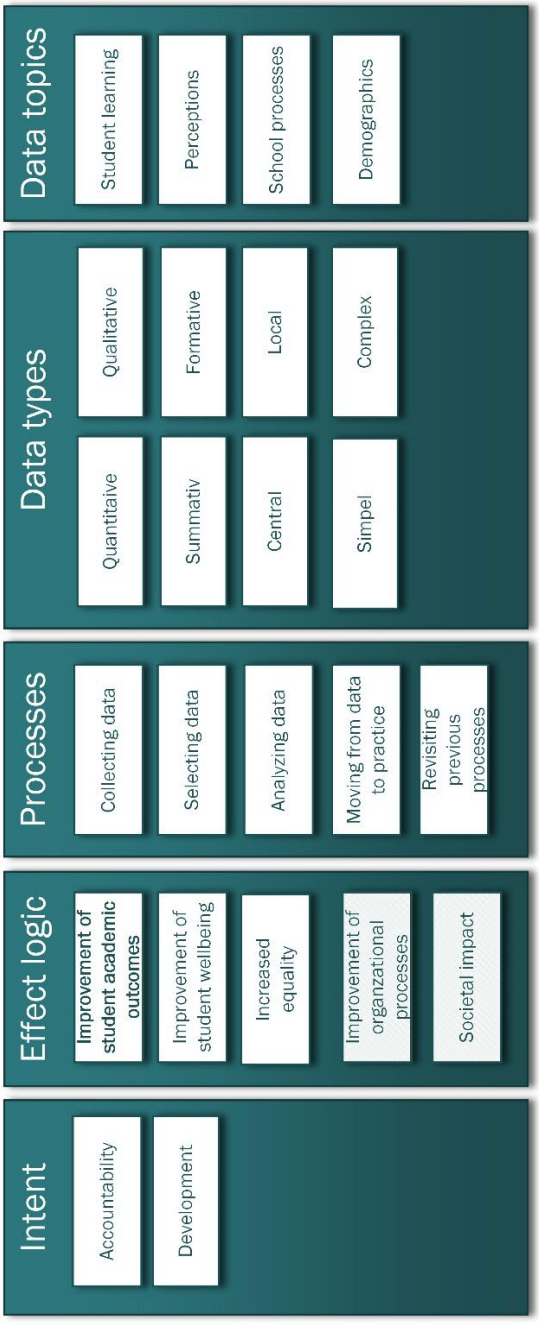
- data-based decision making,
- data-driven decision making,
- data-informed decision making
- data-informed practices
- data practices
- data use

The term ‘data use’ is chosen based on two arguments. First, the term focuses attention on the praxis of using data, rather than on the process of making decisions based on data, and second, it is the term used in the case municipality. Generally, I do, however, view the listed terms as essentially expressions of the same organizational idea of incorporating data into work practices. Therefore, the framework is also constructed using research that uses these related terms.

4.3 CONCEPTUAL FRAMEWORK ON DATA USE

To conceptualize the content of the data use idea, I have developed the conceptual framework shown in figure 5 based on literature on educational data use. The framework illustrates that the use of data to inform practices takes many different forms (Coburn & Turner, 2011; Ikemoto & Marsh, 2007; Kerr et al., 2006; Marsh et al., 2006) and can reflect various different logics of intent, effects, processes, data types and data topics.

Figure 5: Conceptual framework on data use



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The framework and the specifications provided in this chapter are used to frame the data use idea and its different variations to give a comprehensive and nuanced understanding of the content of the idea. The content of the five pillars of the conceptual framework is unfolded in what follows.

4.3.1 Underlying intent for educational data use

Actors promote and perform data use based on different underlying reasoning and incentives (Datnow & Hubbard, 2016; Hora et al., 2017; Weiss, 2012). The intent for conducting data use has implications on the specific data use practices because the intent impacts both how data use is performed, the processes involved, which data types are suitable, and the potential effects (Militello et al., 2013). Mandinach & Schildkamp (2020, p. 2) argue that *"Like everything, the effectiveness of DBDM [Data based decision making] depends on many factors, including the intent of use"*. The underlying intent is an essential content variable of the data use idea, which is necessary to clarify when trying to uncover how local actors understand and operationalize data use in their local contexts, as is the aim of this dissertation.

Scholars on educational data use differentiate between two main categories of the underlying intent for data use: a) ***data use for accountability*** and b) ***data use for improvement*** (Datnow & Hubbard, 2016; Eddy-Spicer et al., 2019; Mandinach & Schildkamp, 2021; Weiss, 2012).

The two categories distinguish between a) data use efforts which focus on accommodating and creating an accountability culture, where data is used to identify problems and hereafter correct organizational performance and ensure compliance vs. b) data use efforts promoted for continuous improvement which entails organizational learning (Firestone and Gonzáles, 2007 in Datnow & Hubbard, 2016). When describing the difference of the two types of intent, Weiss claims that there are *"distinctions between data systems intended to improve the performance*

of school staff and those intended to hold schools and districts accountable for outcomes." (Weiss, 2012). The difference between the two forms of underlying intent can be understood through the lens of summative vs. formative use of data (Bennett, 2011; CERI, 2008). This is likewise unfolded in what follows.

An important statement to make related to the intent logics, is that even though it is possible to theoretically differentiate between the two types of intent, the two are not always presented as mutually exclusive in the literature (see e.g.Hora et al., 2017). It can also be argued, that the improvement logic dominates (Bennett, 2011; Schildkamp et al., 2016; Sloan, 2015), even though the accountability logic is highlighted as the original instigator of the dissemination of the data use idea (Weiss, 2012).

4.3.1.1 Data use for accountability

Educational data use is routinely associated with an increased focus on professional accountability for student outcomes (Hardy, 2015; Kerr et al., 2006; Koyama, 2014; Marsh & Farrell, 2015; Sun et al., 2016). The call for using data has arguably been part of accountability policies both in Denmark and other countries (Hornskov & Olesen, 2018; Little, 2012; Park & Datnow, 2009).

The logic behind practicing data use with the intent of accountability is that data is used to hold employees and managers accountable for their work and ensure compliance (Jacobs et al., 2012; Mandinach & Schildkamp, 2021). In the policy logic of accountability, authorities collect and examine data in order to hold lower-level organizational members accountable for their performance (Behn, 1998; Krogstrup, 2017). An example of such type of data use is standardized testing, e.g. OECD's PISA measurement, which is used globally as a summative evaluation of student performance (CERI, 2008; Gillis et al., 2016). According to scholars, data-centric accountability efforts (Braaten et al., 2017) results from unsatisfactory achievement (Isaacs, 2003, p. 288).

In the policy logic of accountability, data use for accountability is associated with the concept of summative data use (Piro et al., 2014). In summative data use, data is examined to evaluate and make judgments in order to secure the quality of services (Krogstrup, 2016). This is done as part of holding organizational actors accountable for the quality and the effects of the service they provide. Summative data is typically gathered after services have been provided, e.g. in a yearly review. Summative use of data often entails standardized measurements and criteria defined at the top-level (Marsh et al., 2006), which makes it possible to compare services nationally and in some cases internationally (Gillis et al., 2016; Piro & Hutchinson, 2014)

A criticism of using data for accountability purposes is, that it implies that when organizational members focus on meeting administrative demands and system-wide approaches it *"only reveal[s] limited information about individual students and the multiple factors that influence student performance"* (Mandinach et al., 2006, p. 2). This implication follows from data for accountability being connected to the paradigm of New Public Management, where data is foremost used to hold leaders and professionals accountable for their work and thereby mainly used for control (Behn, 1998; Krogstrup, 2017; Lægreid, 2014). In the accountability paradigm data use interventions often involve sanctions and rewards for performance (Coburn & Turner, 2011).

4.3.1.2 Data use for improvement

Even though the idea of data use is originally accredited to the accountability policy logic associated with New Public Management (Behn, 1998; Hardy, 2015; Kerr et al., 2006; Sun et al., 2016), data use is also used for purposes of continuous improvement (Bernhardt, 2004; Mandinach et al., 2006). Using data with the intent to attain continuous improvement implies focusing on the potential learning, which can be derived from examining data (Hora et al., 2017; Mandinach et al., 2006). Data use for improvement is described as promoting iterative adaption of instruction (CERI, 2008), and the widespread understanding is that the

improvement aspect requires more frequent interaction with data than in the accountability paradigm (Bernhardt, 2004; Park & Datnow, 2009).

Data use for continuous improvement is associated with formative data use (Bennett, 2011; Krogstrup, 2016). When using data for formative purposes, the agenda is to be able to make adjustments to the services provided ad hoc (Militello et al., 2013; Wiliam, 2006). Formative data use entails identifying service recipients' strengths and challenges and taking instructional action that is in line with their needs (Kippers et al., 2018). In line with the inquiry agenda, data used for formative purposes is more often locally situated and used for continual organizational development (Hornskov & Olesen, 2018). For improvement purposes, data use is highlighted as requiring utilization of local knowledge (Honig & Coburn, 2008) as the potential for improvement is dependent on interventions being contextualized and school-based (CERI, 2008; Marsh et al., 2006).

The differentiation between data use for accountability and data use for improvement is one possible categorization of the intent for using data. Like the differentiation of formative and summative data use, the two types of intent are rather broad categories. Other scholars have used more narrow classifications of the purpose of data use. Sun et al. (2016) for example have proposed that teachers used student data for mainly five purposes; 1) Assessing, 2) Planning and goal setting, 3) Improvement of instruction, 4) Identifying students' behavioral and social problems and 5) Communicating with parents. In contrast to this, the proposed framework is kept purposefully broad with the distinction between accountability and improvement. This does however not exclude the more narrow subcategories, as the ones presented by Sun et al. (2016), but instead, the framework provides an overall general categorization of the intent to perform data use.

Even though the two types of underlying intent are possible to separate in theory, daily data use operations are not always easily defined as either one or the other (Wiliam, 2006). It can even be argued that the ultimate

goal in most data use initiatives is to obtain improvement within the educational sector, even when stakeholders' primary intent is to ensure accountability. The main distinction between the intent for accountability and the intent for improvement is however that the improvement aim is typically associated with problem-solving and inquiry (Huffman & Kalnin, 2003; Katz & Dack, 2014; Nelson et al., 2012), whereas the accountability aim is associated with sanctions, control and repetitiveness (Braaten et al., 2017; Coburn & Turner, 2011).

4.3.2 The proposed effects of organizational data use

Alongside the different logics of intent, actors in the educational field may use data or promote data use to achieve different intended effects. The dominant proposed effect of data use is ***improvement of student outcomes*** (Faria et al., 2014; Schildkamp et al., 2013). I will however claim that many authors implicitly use 'improvement of student outcomes' as a synonym for 'improvement of academic outcomes' and that improvement of academic outcome is the dominant intended effect in the literature (see e.g. Dunn, Airola, Lo, & Garrison, 2013; Katz & Dack, 2014; Reeves, 2017; Taylor, 2010).

The common argument by researchers is that data use can be beneficial for adjusting instruction to student needs resulting in effects on student performance (e.g. Keuning, Van Geel, & Visscher, 2017; Dunn, Airola, Lo, & Garrison, 2013). The emphasis on improvement of academic outcomes can however be seen as a simplification of the potential effects of data use. Based on the literature I will in the following argue that the aim to improve student outcomes can be subcategorized into at least three subcategories: a) improvement of student academic outcomes, b) improvement of student well-being and c) increased equality. In addition to the student-related outcomes, data use is also associated with improvement of organizational processes and the potential for societal impact. The conceptual framework on data use presented in figure 5

includes these subcategories to incorporate a more nuanced understanding of the proposed effects of data use.

The first and most dominant effect logic 'improvement of student academic outcomes' most commonly refers to the achievement of better grades and improvement of test results (Bowers, 2009) following a summative approach to data use, where results are evaluated after a certain period of time (see e.g. Hamilton et al., 2009; Keuning et al., 2017). Academic outcomes can refer to all teaching topics and academic skills including for example reading (Filderman & Toste, 2018) and math (Cavalluzzo et al., 2013; Cavanna, 2015).

The second proposed effect: 'improvement of student well-being' can relate to both physical and mental well-being (Dietrichson et al., 2016). Examples of data use initiatives that aim to improve students' physical well-being is e.g. a violence prevention program as reported by Armstrong & Webb (2006) or a program in which teachers aim to support positive behavior amongst students like the ones reported on by Handler et al. (2007) and Luiselli, Putnam, Handler, & Feinberg (2005). When data is used to improve mental well-being, this is done to e.g. impact students' emotions, motivation, and self-esteem (CERI, 2008). To obtain the effect of improved student well-being, the data use process might require either summative test scores in terms of e.g. annual well-being surveys[9] or ad hoc collection of more informal data sources. The studies reporting on data use to promote student well-being, both physical and mental, are however remarkably fewer in numbers than those highlighting the potential for improvement of students' academic outcomes.

The third effect logic is the potential for data use to prompt 'increased equality'. Especially American scholars and policy makers highlight the

[9] The annual national well-being survey in the Danish school system is an example of a summative measurement of student well-being (Danish Ministry of Children and Education, 2021)

potential for greater equity (Dowd & Liera, 2018; Dunn et al., 2013; Gannon-Slater et al., 2017; Garver, 2017; Jacobs et al., 2012; Shum, 2016). In this logic, the wave of accountability is viewed as a solution to reduce 'the achievement gap' between minority and majority students (LaRocque, 2007). Data use policies are hence implemented to obtain more equal outcomes for students and *"are intended to shed light on the performance of certain subgroups through disaggregation of student outcome data for English language learners, socio-economically disadvantaged students, and historically underserved ethnic groups"* (Huguet et al., 2017, p. 376).

These three effect logics are naturally interlinked and not mutually exclusive. It is also possible to add more intermediate outcomes to the list of potential effects such as improved identification of student needs, greater differentiation of instruction as well as better employee collaboration (Kerr et al., 2006; Sun et al., 2016). I will however argue that research articles reporting on the idea of data use tend to focus on the potential long-term effect and be less explicit about the immediate and intermediate outcomes and how they relate to data use activities.

In addition to outcomes directly related to students, scholars have also found improvements related to organizational development, including school improvement and school effectiveness to be positively associated with data use (Dunn et al., 2013; Kerr et al., 2006). Woods-Groves & Hendrickson write in this regard;

> *"With regard to education settings (e.g., state, district, individual schools), it is imperative that assessment not only inform instruction but also lead to the continual evolution of existing administrative procedures, practices, and allocation of resources" (Woods-Groves & Hendrickson, 2012, p. 3).*

The effect logic of improvement of organizational processes is however not often emphasized in comparison to the student-related outcomes in the literature and it is therefore shaded in the data use framework.

Since schools play a role in society in general, the ultimate ambition with data use must be that it ultimately has a societal significance in the form of more knowledgeable and educated citizens. In addition, that there is an effective use of government finances. Although societal impact can be theorized as the potentially furthest reaching outcome of data use, it is however an effect logic that is largely absent from the literature and therefore shaded in the conceptual framework.

Figure 6: Effect logics of data use

A point of attention regarding the abovementioned effect logics related to implementation of data use practices in local settings is that they are all to some extent long-term effect logics. As discussed previously there is a widespread focus on student-related outcomes of well-being and learning. In addition, the literature tends to be less explicit about more short-term effect of using data to inform specific instructions. This can be viewed as somewhat problematic for the local implementation process. The implication of managers and employees focusing on long-term effect goals, when implementing data use, can arguably be an insufficient focus on what local actions are needed to achieve such long-term outcomes. The need for implementation processes to include a focus on short-term output goals in addition to long-term effect goals has e.g. been argued by Krogstrup (2016) and Funnell & Rogers (2011).

4.3.3 The processes of organizational data use

The third pillar in the proposed framework (Figure 5) deals with the different processes involved in data use. The processual view on data use is both an inescapable component of data use, and a neglected element according to some scholars (Beaver & Weinbaum, 2015; Mausethagen et al., 2018; Wardrip et al., 2016). Beaver and Weinbaum (2015) for example argue that:

> *"Although much has been written about the potential benefits of effective data use in schools, considerably less attention has been paid to how schools make sense of the data generated from performance-based accountability measures."(Beaver & Weinbaum, 2015, p. 478)*

My argument is that the proposed categorization of processes is useful in characterizing how data use is translated in the local context of the case schools. Different data use practices can emphasize some of the processes more than others, and refrain from including some processes altogether. Which processes are highlighted, are an important part of the overall description of the version of data use that is sought to be implemented in the local context.

As illustrated in the framework, data use consists of multiple sub-processes which include (but are not excluded to):

Figure 7: Subprocesses of data use

Different versions of this list of processes appear in the literature (Kippers et al., 2018; Mandinach et al., 2006; Marsh et al., 2006; Schildkamp et al., 2013; Schildkamp & Kuiper, 2010). The various but roughly similar lists of data use processes highlight the active role organizational actors play in data use.

Some scholars add to the list, the process of organizing, summarizing, and synthesizing (Ackoff and Drucker in Light, Wexler, & Heinze, 2004) and hereby underline both the aspect of structuring data and the aspect of simplifying data. Although these additional sub-processes are displayed by some scholars, they are not included in the conceptual framework. Again, the aim of the proposed framework is to keep it purposefully broad, while still being transparent about the elements which are not included explicitly in the framework.

Researchers tend to present the processes of data use in a chronological order, while they also routinely stress, that the processes are complex and nonlinear (Mandinach & Jimerson, 2016; Schildkamp, 2019; Spillane, 2012). Mandinach & Schildkamp (2020) for example state that:

> *"Although described as a rather straightforward and linear process, in reality educators move back and forward between these different steps of the data use cycle, making it an iterative process"* (Mandinach & Schildkamp, 2021, p. 3).

The iteration is captured by the process of 'revisiting previous processes' in the framework.

Another tendency is that many researchers put great emphasis on the importance of the step of moving from data to practice (Marsh et al., 2015; Schildkamp et al., 2013; Spillane, 2012). The agenda with data use is mainly to change procedures and routines conducted by organizational members when performing their everyday work. Because of this, the movement from data to practice is viewed as a fundamental part of data use. Researchers such as Marsh, Bertrand, & Huguet (2015), Earl and Louis

(in Schildkamp et al., 2013) and Spillane (2012) have however found that there is a lack of focus on the movement from data to practice. Spillane e.g. finds that *"In most conversations about data use, however, relations between data and practice have been underconceptualized."* (Spillane, 2012). The apparent missing connection between data and practice, is a phenomenon which Marsh, Bertrand, & Huguet (2015) calls the *"data-practice divide"* (Marsh et al., 2015, p. 2).

4.3.4 Different types of data

In addition to the different intent and effect logics and the sub-processes of data use, an important component, on which data use practices vary is related to the type of data used (Lebeau, 2018). The dominant feature of data is structure (Davenport & Prusak, 1998; Earl & Louis, 2013). In order to categorize a bundle of 'records' as data according to the mainstream research and layman's perspective, data must be organized and stored in a (somewhat) systematic fashion either electronically or otherwise stored (Lachat & Smith, 2005).

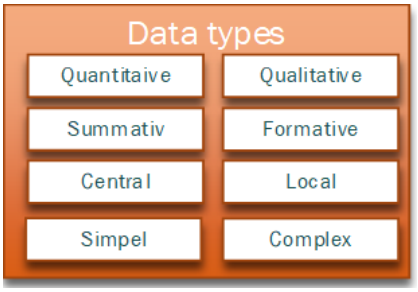
There are at least two overall definitions of the term data represented in the academic literature. One understanding is that data exclusively refers to quantitative 'records' with numeric characteristics (Datnow & Park, 2002; Lewis & Holloway, 2019). In the school context, examples of such quantitative records are grades, test results, demographic data, etc. Mausethagen, Prøitz, & Skedsmo (2018) e.g. used such a numerical and quantitative understanding of data, in an article defining data use practices as *"what happens when individuals use test scores, grades, and other forms of assessment in their work"* (Mausethagen et al., 2018, p. 38).

Data can also be defined in a broader sense, to include both quantitative and qualitative entities (Ebbeler et al., 2017; Mandinach & Gummer, 2013; Mandinach & Schildkamp, 2021). Examples of qualitative data types that are included in this understanding in a school context are classroom observations and student essays (Schildkamp et al., 2013). The diversity

embedded in the understanding of data as both quantitative and qualitative entities stand as the prevailing understanding of scholars on data use in education (Hamilton et al., 2009; Marsh et al., 2006), and this diversity is therefore captured in the conceptual framework (Figure 5). The inclusive perspective also resonates with the view held by both the municipality officials and the school managers at the research site. This will be outlined in the empirically founded chapters 8-10.

Apart from the common distinction between qualitative and quantitative data (Bryman, 2012; Smith & Heshusius, 1986), many other antonyms are also presented in the data use literature, differentiating between e.g.:

Figure 8: Data types



The distinction between summative and formative data refers to data that is either gathered post-events (summative) or ad hoc (formative). Formative data is characterized as data that is used in the process of data collection, while summative data is data that is used after data collection has been completed (Militello et al., 2013). Summative and formative use of data is however not always easily separated, neither in practice nor in the education literature (CERI, 2008). It is also argued by scholars, that *"it often depends on the viewer, whether a measurement is considered formative or summative"* [10] (Dietrichson et al., 2016, p. 9).

[10] Author's own translation from Danish.

Central and local data which is also referred to as external and internal data (Mandinach & Jimerson, 2016) indicates the origin of data. Central and external data originates from either the local or national government and usually allow for comparison across individual schools and in the case of national data sources the performance of local schools and school districts can be benchmarked against other schools through standardized summative data (Schildkamp et al., 2013). Local and internal data is by contrast school-based and not intended for comparison across schools. Referring to the American setting, Schildkamp et al. (2013) state that:

> *"Schools have always collected a wealth of internal data, such as the results of teacher assessments, attendance data, pupil behaviour records, the outcomes of pupil surveys, etc. Such internal data sources provide information for schools that is both pupil- and school-specific and can be an extremely useful source of data to inform decision making and improvement planning" (Schildkamp et al., 2013, p. 70).*

The quote indicates that internal data is not foreign to schools and emphasizes the usefulness of student- and school-specific data.

A fourth differentiation is between simple and complex data. As described by Ikemoto & Marsh (2007):

> *"Simple forms of data tend to be less complicated and comprehensive and often only illuminate one particular aspect of the subject at hand or come from only one perspective or point in time. Complex data, by contrast, are often composed of two or more interwoven parts and tend to be more multidimensional." (Ikemoto & Marsh, 2007, p. 111)*

Ikemoto & Marsh continue their differentiation by stating that:

> *"Both quantitative and qualitative data can vary from simple to complex along the following dimensions: time frame (data*

from one point in time versus trend data); types (one versus multiple types, such as input, process, outcome and/or satisfaction data); source of data (one versus multiple sources, such as data from multiple individuals or role groups); source of collection (secondary versus primary data); and level of detail (aggregate versus disaggregate data)." (Ikemoto & Marsh, 2007, p. 111)

The distinction between simple and complex data is hereby a broad categorization, which includes multiple dimensions such as time frame, data types, sources of data, collection methods, and level of detail. The description provided by Ikemoto and Marsh also points to an important potential of data use, namely the integration of multiple data sources and types.

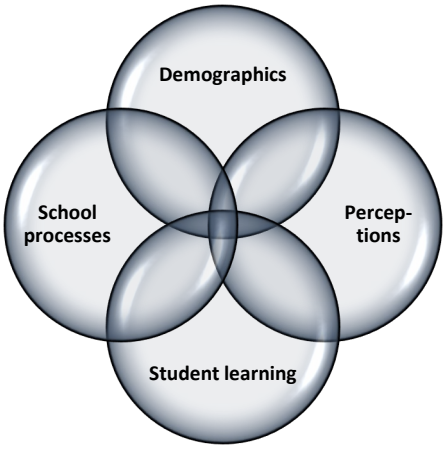
The four antonyms of data types included in the conceptual framework are theoretical divisions, and real-life data is not always clearly categorized. The different antonyms are also connected. Local school-based data types are for example more often than central data sources informal and formative. The antonyms can however be used to describe the characteristics of the data used in concrete school contexts, such as in the case schools.

4.3.5 Data topics

A related categorization to the different data types, is the different 'topics' that data can refer to. Bernhardt (2004) for example provides this framework of four major measures of data [11]:

[11] This categorization is similar to the one presented by Lachat & Smith (2005) whom states that *"Schools and districts generally collect a wide array of data in three primary categories related to student demographics, school and educational program data, and performance data."*(Lachat & Smith, 2005, p. 335)

Figure 9: Bernhardt's (2004) model of multiple measures of data



As evident in Bernhardt's model, 'data topics' in schools are diverse, with the main data topics being student learning (standardized tests, teachers' observations, etc.), perceptions (on learning environment, attitudes, values, etc.), demographics (attendance, ethnicity, socio-economy, etc.) and school processes (the design of school programs and processes) (Bernhardt, 2004). According to Bernhardt, the power of data use is released when data on all four data topics are integrated as illustrated in the center of the model. Bernhardt's central point is that data on student learning is not sufficient for comprehensive school improvement, as student achievement can be explained by other factors (Bernhardt, 2004). Despite this, I will argue that the majority of the data use initiatives studied by educational scholars refer to data on student learning.

The different data topics relate to the data types introduced in the previous section. Data on demographics is for example primarily quantifiable and consist of fixed variables, which are similar across school boundaries and across time. Measurement of student learning, perceptions, and school processes on the contrary can refer to both qualitative and quantitative data, local and central data, and data that is simple or complex.

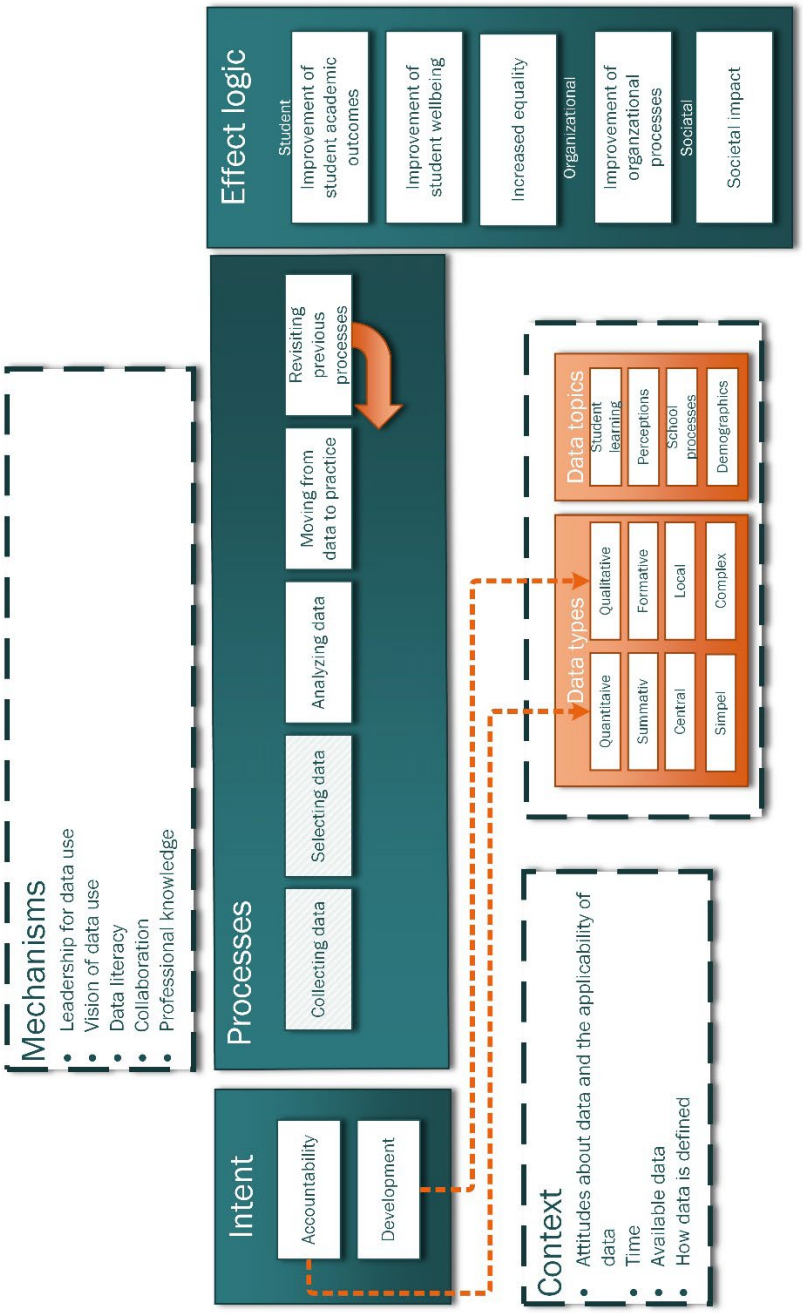
I hereby conclude the presentation of what are arguably the most essential elements of the data use idea. The aim of the chapter so far has been to outline the various logics of intent, effects, processes, data types, and data topics presented in literature on educational data use. The presented framework hereby illustrates that the use of data to inform practices can take many different forms.

4.4 PROGRAM THEORY OF DATA USE

To illustrate the relationship between the components of the data use idea, which I have reviewed so far in this chapter, I have developed a program theory (Figure 10). A program theory is a framework that includes both the context, mechanisms, intents, activities, and effects of an initiative in one comprehensive model (Krogstrup, 2016; Pawson & Tilley, 2004) [12]. This approach to conceptualizing the data use idea is inspired by theory-based evaluation research (Chen, 2013; Coryn et al., 2011), and is chosen as a way to clarify the connection between data use actions and important factors that influence and lead to effects. The program theory is generic as it includes all the variations of the components of data use merged into one general model. I use the program theory framework to conceptualize the organizational idea based on research literature and thereafter use the model to analyze what components of the idea are highlighted and which are not in the local organizational settings of the empirical case (chapter 8 and forward). By applying the program theory approach, I contribute a new perspective to the study of organizational translation. The combination of theory on Scandinavian institutionalism with a program theory approach is similar to Mortensen (2020) who develops an outcome chain of coproduction based on research literature. Construction of outcome chains is an inherent part of building a full program theory of an initiative(Funnell & Rogers, 2011). The generic program looks as follows:

[12] See chapter 3 for elaboration on the program theoretical approach

Figure 10: Program theory of data use



Author's own development

In addition to the intent, processes, and effect logics, the program theory presents the contextual conditions that influence data use and the mechanisms that trigger the intended effects (Dahler-Larsen & Krogstrup, 2009). The contextual factors and the mechanisms are deduced from research literature. Collectively the contextual factors and the mechanisms constitute the supportive and hindering factors for implementing data use practices locally.

4.4.1 Contextual factors influencing implementation of data use

Implementation of data use is like any organizational initiative context-dependent (Eade, 2005; Krogstrup, 2017). The context is the setting in which data use initiatives are sought to be implemented and a context is per definition an "enormously complex phenomenon" (Greene, 2005). For the context variables included in program theory, I rely on the following definition of context:

> *"Context describes those features of the conditions in which programmes are introduced that are relevant to the operation of the programme mechanisms." (Pawson & Tilley, 2004, p. 7)*

As with all initiatives, there are of course an immense number of contextual factors influencing how a given data use practice is implemented. Resources such as money, time, manpower, and technology are for example well-known contextual factors that affect organizational implementations (Greenwood et al., 2017; Krogstrup, 2016; Lemire et al., 2020). The context variables included in the program theory are considered relevant for two reasons; 1) they are particularly related to the process of using data and 2) the variables are commonly emphasized in educational research literature on data use (Kerr et al., 2006; Keuning et al., 2017).

4.4.1.1 Availability of useful data

A factor which intuitively influences data use is the availability of useful data (Ford, 2018; Kerr et al., 2006; Mausethagen et al., 2018).

Accessibility, relevance and presentation are three key components in ensuring the usefulness of data (Melin, 2018). Data must be available or at least it must be possible for teachers to collect data. The available data defines which data topics and types are potentially used in data use processes (Lockton et al., 2020). For data to be useful it must be presented in a format which is easily accessible and fits the data literacy of stakeholders (Lachat & Smith, 2005). Studies have also shown that the timeliness of data influences the degree of teacher involvement with data (Kerr et al., 2006; Lachat & Smith, 2005).

4.4.1.2 Time

Another influential contextual factor highlighted repeatedly by researchers is time (Wayman, Jimerson, et al., 2012). Multiple studies have shown that lack of time remains a large contextual constraint on implementation of data use initiatives (Huguet et al., 2017; Roehrig et al., 2008). Time is needed to conduct data analysis, initiate actions based on the reviewed data, and (if needed) gather new data. Time is also needed to capacity build teachers so that they have the required skills to use data in their daily practice (Datnow & Park, 2002). As the following quote by Mandinach expresses, time can even be considered an enemy of data use:

> *"Although some educators believe that data is the new four-letter word in education, to others time is the actual enemy. There simply is not enough of it. However, with sufficient experience, data practices may become increasingly routinized."*(Mandinach, 2012, p. 75).

The quote also points out that if data users are sufficiently experienced, data practices may evolve into organizational routines. Because routines allow actors to rely on familiar and recognizable patterns of actions, they are less time-consuming (Feldman & Pentland, 2003).

4.4.1.3 Attitudes about data and the applicability of data

The mindset of individual teachers and managers regarding their attitude about data and the applicability of data to inform instructions is also identified as an enabler or hinderer of sustainable data use (Barnes et al., 2019; Demski & Racherbäumer, 2017; Farrell & Marsh, 2016b; Jimerson, 2014; Keuning et al., 2017).

Ways of thinking about data use act as precursors to action and are embedded in teachers' overall mental models. As underlined by Jimerson (2014) one's mental models are not permanent, but they are however often rigid and hard to change. Based on their mental models, teachers are inclined to notice or ignore specific types of data. How they interpret what they notice is also influenced by prior experiences, Jimerson argues.

Along similar lines as Jimerson's argument, Spillane (2012) and Coburn & Turner (2011), are just some representatives of the research tradition that apply the *perspective of sense making* to the study of organizational behavior related to data use. The perspective of sense making was originally made popular by Karl E. Weick (Weick, 1979). In this terminology, teachers' beliefs are understood as stored knowledge representations or schemas that shape the process of interpretation (Datnow & Hubbard, 2016). How teachers make sense of data and their beliefs about data are found to be influenced by personal experience, colleague interaction (Mausethagen et al., 2018), formal training programs, and modeling by leaders (Jimerson, 2014). Individual beliefs hence do not exist in a vacuum. As argued by Goren (2012):

> *"[There is] convincing evidence that school, district, and even broader institutional contexts shape what data people use, what they notice about those data, and how they make meaning of them. All these things, in turn, influence how teachers and others respond in the classroom."*(Goren, 2012, p. 234).

Attitudes about data are hence both an individual and collective contextual factor and do, according to studies, influence how data use initiatives are implemented and eventually how data influences classroom practices (Ebbeler et al., 2017).

4.4.1.4 How data is defined

An associated contextual factor that influences the type of data use undertaken in a given context is how data is defined both at the strategic level and locally. How the data use idea is acted out locally is dependent upon for example whether either quantitative/summative assessment data or qualitative/formative data are valued equally or if one type of data is prioritized and deemed more legitimate than others. The factors of availability, time, and attitudes are recurrent in the reviewed literature. The contextual factor of 'how data is defined' is however not commonly explicitly indicated in the reviewed research articles. The influence of how data is defined in the local setting was however demonstrated in the case study (chapter 8-10) and is included in the theoretical framework based on the empirical evidence from the case study. The argumentation logic is that data use practices are influenced by whether data is operationalized as strictly numeric data points or if data is viewed from a broader perspective to also include information with qualitative qualities (see especially chapter 9 for an elaboration hereof).

As pointed out, the four contextual factors (availability, time, attitudes, and data definition) included in the program theory do not constitute a conclusive list of contextual influences on data use practices. The value of the proposed list of contextual factors in relation to this dissertation, is however that they constitute influential factors that impact how managers at different levels translate the idea of data use in their local setting, c.f. the research question.

4.4.2 Mechanisms

Alongside specifying the contextual variables that influence the process of data use, the program theory also includes a list of mechanisms that

researchers have found has potential to trigger the proposed effect of data use. Mechanisms are the connecting link between the activities and the effects – the triggers of the effects so to say (Dahler-Larsen & Krogstrup, 2009). The mechanisms included in the program theory are:

- Leadership for data use
- Vision of data use
- Data literacy
- Collaboration
- Professional knowledge

These mechanisms are elaborated on in the following sections.

4.4.2.1 Leadership for data use

Multiple studies have concluded that strong school leadership is a necessity when implementing data use practices (Demski & Racherbäumer, 2017; Jacobs et al., 2012; Kerr et al., 2006; Keuning et al., 2017), and that the likelihood of success intensifies with leaders, who them self are able to use data effectively for inquiry and instruction, are experienced data users and display a strong vision for data use (Kerr et al., 2006). Leaders can scaffold data use in different ways. Some leaders focus their effort on accommodating and creating an accountability culture where data is used to identify problems and monitor development short term, whereas others promote data use for continuous improvement (Firestone and Gonzáles, 2007 in Datnow & Hubbard, 2016).

While some studies have focused solely on principals, others have found that distributed leadership is an effective way to implement data use at staff level (Park & Datnow, 2009). Distributed leadership for data use entails that the leadership task is shared by individuals across the organization and not solely limited to formal authority figures or institutionalized roles (Hamilton et al., 2009). The principal remains a key initiator and plays an important role in sustaining data use practices (Datnow & Hubbard, 2016). However, as Park & Datnow (2009) have shown

distributed leadership and the involvement of the entire management team might ease implementation significantly.

4.4.2.2 Vision of data use

An important part of data-related leadership is that leaders portray a clear vision for data use and contribute to consolidating a strong data culture (Keuning et al., 2017; Wayman, Jimerson, et al., 2012). Perhaps not surprisingly, clear leadership communication is identified as a way to reduce staff opposition. For example, Wells & Feun (2013) documented that high expectations increased the likelihood that staff used data to change instructions.

Similar to Keuning et al. (2017), Sun et al. (2016) found the development of a 'data-wise' culture to be an evolving theme in the studies they reviewed. Sun et al define a data-wise culture as a:

> *"… friendly culture, where school staff work collaboratively and systematically towards a shared vision developed based on evidence and where data-driven knowledge construction and sharing, collaboration, and trust are features."*(Sun et al., 2016, p. 23)

With this definition, Sun et al. underline that a data culture requires a shared vision, where leaders and employees are aligned and work systematically to achieve the organizational goals. Trust is also singled out as an important feature in establishing a data-wise culture. Trust is connected to the notion of anxiety, as a trusting work environment can help to reduce staff anxiety (Dunn et al., 2013). Likewise, the collective aspect is underlined as a necessity in Sun et al.'s definition of a data-wise culture. The influence of collaboration is outlined later.

4.4.2.3 Data literacy

Having the skill set to understand data, is a crucial step to activating interpretations and change instructions (Cowie & Cooper, 2017; Hoogland et al., 2016; Mandinach & Jimerson, 2016). The concept 'data literacy' is

therefore widely used and researched by scholars. Data literacy is by some researchers solely conceptualized as a combination of numerical, statistical, and technical skill sets (Ebbeler et al., 2016; Gray et al., 2018). The majority of scholars however define data literacy as the competencies of understanding and 'reading' data, doing data analysis, *and* converting the gained insights into adjustments of instructions (Campbell & Levin, 2009; Dunn et al., 2013; Jacobs et al., 2012; Kippers et al., 2018; Mandinach & Gummer, 2013; Sun et al., 2016; van Geel et al., 2017). This broader definition incorporates both statistical and technical skills and the ability to set challenging and achievable goals to obtain these goals by transforming instruction at the classroom level (Gummer & Mandinach, 2015).

Even though there is a widespread consensus on the importance of data literacy, Sun, Przybylski, & Johnson (2016) found that the majority of studies they reviewed reported that teachers lack the capacity to fully use data to inform instruction. This notion directs attention to the organizational features that influence successful implementation of data use in schools and calls for support from school administrators. This notion, therefore, serves as an argument of why this dissertational work is worthwhile, as it underlines the importance of the managerial level in implementing data use practices. As outlined in chapter 1 the case study centers on the translation process that happens in both the school department and in the local school management teams. With this managerial perspective, the dissertation contributes insights into the managerial support required to facilitate local implementation of data use practices.

Associated with the importance of data literacy, several researchers have found that confidence in one's own ability to use data effectively, is an important influence on teachers' actions (Datnow & Hubbard, 2016; Gummer & Mandinach, 2015; Lockton et al., 2020). A study by Dunn et al. even reports that when data use is connected to even a slight feeling of anxiety, teachers tend to struggle with data use (Dunn et al., 2013). Dunn

et al.'s study also showed that when teachers' sense of data efficacy increases 1) teachers' stress decreases, 2) teachers are less likely to drop data use when faced with obstacles and 3) teachers are more innovative in their use of data.

An Australian study by Pierce & Chick (2011) showed that even one-third of math teachers were either neutral or not confident about their ability to understand statistics presented in reports targeted at teachers. The lack of confidence coexists with teachers' lack of experience to effectively use data to inform instruction. Not surprisingly Pierce and Chick's study showed that lack of ability to interpret and utilize data created barriers, which resulted in teachers not changing their instructions (Pierce & Chick, 2011).

Kippers et al. (2018) found that "*educators' data literacy increased significantly after a data use intervention*" (Kippers et al., 2018, p. 28). Geel et al. (2017) likewise found improvements in educators' data literacy doing a period of data use interventions (van Geel et al., 2017). These studies indicate that even though *"data literacy is a prerequisite for making data-based decisions"* (Kippers et al., 2018, p. 21), teachers' data competencies can be enhanced *while* organizations implement data use practices. This again underlines that building teachers' data literacy is a continuous process and that there are different *"stages that teachers experience as they engage in data usage to inform their instructional decision making"* (Jacobs et al., 2012, p. 41).

4.4.2.4 Professional knowledge

Data in itself does not point to any specific actions, and professional knowledge is needed to make adjustments to daily practices in order to achieve the wanted results (Jacobs et al., 2012). As formulated by Jacobs et al. (2012, p. 46): *"Data use creates a sense of urgency and serves as a catalyst for action"* which leads to changes in professional practices. Learning from data can point to challenges, but it is the professional pedagogical and didactic knowledge that is required for the expected

effects of data use to manifest. This requirement of professional knowledge is widely discussed by the school managers in the case study, and the dissertation's empirical findings hence contribute knowledge about the intersection of implementation of data use practices and professional knowledge and professionalism (see chapter 9-10 for elaboration).

4.4.2.5 Collaboration

Another widely discussed mechanism for creating sustainable data use practice and obtaining wanted results is employee collaboration (Cosner, 2014; Farley-Ripple & Buttram, 2014; Huffman & Kalnin, 2003; Huguet et al., 2017; Robert Michaud, 2016; Van Gasse et al., 2017). Collaboration concerns various relations including teacher-teacher collaborations, teacher-management and school-district relations. A few studies have also pointed to teacher-student collaborations as impactful for data use initiatives (Jimerson et al., 2016).

In terms of teacher-teacher collaborations, the concept of professional learning communities (PLC's) is widely emphasized and researched by educational scholars (Burns et al., 2018; Farley-Ripple & Buttram, 2014; Huguet et al., 2017; LeChasseur et al., 2016; Marsh & Farrell, 2015; Sleegers et al., 2013; Voelkel & Chrispeels, 2017; Wells & Feun, 2013). The path to establishing well-functioning data-informed professional learning communities have been investigated by researcher such as Burns et al. (2018), Farley-Ripple & Buttram (2014), Prenger et al. (2017), Schildkamp et al. (2019) and Voelkel & Chrispeels (2017). From the premise that professionalism demands a structured work approach, organizational structures which enable collaboration based on evidence and data are found to enhance educational data use.

This concludes the description of the mechanisms and contextual conditions that, according to educational researchers, are important for data use.

4.5 SUMMARY AND IMPLICATIONS

The logic of this chapter has been to construct a theoretical framework that represents a catalog of different purposes for conducting data use, different effect logics, data types, and topics in addition to the supportive and hindering factors. The catalog represents the foundation for investigating the local translation processes, as it synthesizes potential translation routes for data use.

Scholars of Scandinavian institutionalism argue that popular organizational ideas often present themselves as rather self-explanatory, and in extreme cases even 'empty words' without any real content (Nielsen, 2010; Røvik, 2007; Sahlin-Andersson & Wedlin, 2005). Data use is not seldom presented as a self-evident, logical, and rational approach to professional work practices, without further argumentation or explanation (Earl & Louis, 2013; Spillane, 2012). As has become evident through the construction of the conceptual framework in this chapter, the data use idea in general remains loosely defined and open for interpretation. Based on literature on data use, the presented framework provides a grouping of the theoretical content of the data use idea, and hereby shows that data use has many different components.

CHAPTER 5: INTRODUCTION TO SCANDINAVIAN INSTITUTIONALISM

5.1 CHAPTER INTRODUCTION

To achieve the aim of investigating the local translation of the data use idea, the dissertation draws on theoretical perspectives from institutionalism, and more precisely the theoretical branch of Scandinavian institutionalism (Greenwood et al., 2017). The lens of Scandinavian institutionalism is used to analyze how the idea of data use is translated within the case municipality's school department and three associated school management teams.

The strength of applying a Scandinavian institutionalist perspective is that it permits the researcher to reframe implementation efforts as *acts of translation* of organizational ideas (Røvik, 2019). With this theoretical lens, the concepts of policy *implementation* and *diffusion* of organizational ideas are nuanced (Boxenbaum & Strandgaard Pedersen, 2009; Czarniawska & Joerges, 1996), which is important as these logics can be argued to represent a simplified view of school leaders' translation from policy to practice. The argument in Scandinavian institutionalism is that the instrumental quality of a management idea such as the demand for data use requires competent translators with strong translation competencies, including the skill to choose appropriate strategies to fit the specific situations and account for employee reactions (Røvik, 2018). Translation can hence only happen in interplay with the specifics of the local context. The implication is that the translation of data use policies must necessarily occur within the local school context. Translation also requires leadership with adequate knowledge of the organizational context. With the translation perspective comes a greater emphasis on the active involvement of various organizational actors in interpreting data use in the specific context and potentially making data use a routine within the organization (Linneberg et al., 2019). Following this

argumentation, the target population of this dissertation is the local school managers, because they bridge these two aspects of local knowledge and leadership. The translation of the municipality department authorities is likewise included based on the argument that the local authorities outline a direction for the data use idea within the local schools.

Research that uses the translational approach often studies how organizational ideas travel across organizational fields, with a macro-level perspective on translation processes (Teulier & Rouleau, 2013; Vossen & van Gestel, 2019). Fewer studies attend to how organizational ideas diffuse within the same organization (Røvik, 2011)(Mortensen, 2020; Wæraas & Nielsen, 2016). The dissertation seeks to contribute to developing this underemphasized strand of Scandinavian institutionalism, which focuses on the intra-organizational translation processes. One of the scholars who has elucidated the intra-organizational processes previously is Mortensen (2020). Mortensen's study is centered predominately on frontline-level translations and their association with preceding intraorganizational translation processes amongst various levels of management. In contrast to Mortensen's study, I have a greater focus on the decentral managerial level translations happening prior to the operational level translation, and their association with the preceding translation processes happening at the strategic top-level organizational level.

The purpose of this chapter is firstly to introduce the key arguments of organizational institutionalism, hereby presenting the theoretical backdrop of Scandinavian institutionalism. Thereafter the theoretical lens of Scandinavian institutionalism is outlined, with special attention given to the stream of translation research focusing specifically on the *intra-organizational translation of organizational ideas*.

5.2 ORGANIZATIONAL INSTITUTIONALISM

Organizational institutionalism is a diverse theoretical field organized in many different schools of thought, representing a variety of interpretations of key concepts and different empirical emphasis (Greenwood et al., 2017; Scott, 1995). Despite ambiguities, what brings together researchers under the collective term *organizational institutionalism* is the preoccupation "*to comprehend the role of regulative, normative, and cultural forces working to constrain and constitute organizations, organizational populations, and organizational fields*" (Scott & Davis in Greenwood 2012: xvii). Phrased slightly differently, scholars of organizational institutionalism focus on the multitude of forces, which in connection and at the same time, *constrain* and *constitute* organizations and their members.

The common ground for the various institutionalist scholars is a shared observation that many organizations look alike within the same organizational field - or at least appear similar on the surface (DiMaggio & Powell, 1983; Meyer & Rowan, 1977) An example of such apparently similar organizations, is organizations within the educational field, as for example primary and lower secondary schools which are under investigating in this dissertation. Different theoretical positions are taken when explaining why such similarities exist. Embedded in organizational institutionalism are different perspectives on what constitutes the pressure to conform to specific 'organization standards', along with different views of whether or not such standards even exist (Greenwood et al., 2008).

The origins of modern organizational institutionalism can be ascribed to the conceptual works of researchers such as Meyer and Rowan (1977, 1983), Zucker (1977), DiMaggio and Powell (1983), Tolbert and Zucker (1983) and Meyer and Scoot (1983). These papers from the late 1970s and 80s constitute the cornerstones of modern organizational institutionalism. Since its origin, the generic term of 'organizational

institutionalism' has come to cover a large field of organizational theory with different outlooks and therefore different theoretical references. Some institutionalist scholars emphasize the rational interest organizations have to pursue certain organizational traits. Others view organizational conformity as a result of organizational members' actions being based on what is expected of them and view values and norms as the root of institutional stability. A third group of institutionalist scholars places great emphasis on the argument that institutions and the constitutive rules that guide behavior are socially constructed (Lowndes & Roberts, 2013; Scott, 1995).

5.3 SCANDINAVIAN INSTITUTIONALISM

Scandinavian institutionalism, which serves as the theoretical foundation for this dissertation, belongs to the latter group of scholars who view institutions as social constructs (Sahlin & Wedlin, 2008). According to Scandinavian institutionalists, organizations share similar traits and appear uniform because they are influenced by the same ideas (Czarniawska, 2005; Czarniawska & Sevón, 2005; Røvik, 1996). Organizations however translate these ideas differently, which leads to dissimilarities (Røvik, 2016). Thus, exposure to the same idea *"may not only lead to homogenization but also to variation and stratification"* (Sahlin & Wedlin, 2008, p. 3).

In contrast to the more traditional line of organizational institutionalism, researchers associated with Scandinavian institutionalism do not understand the spreading of ideas in terms of diffusion (Andersen & Røvik, 2015; Boxenbaum & Pedersen, 2009). The argument is that the diffusion logic does not adequately account for the role people play in implementation processes (Scheuer, 2006). Instead, the translation terminology is used in order to stress the agency of how ideas disseminate (Czarniawska & Joerges, 1996; Radaelli & Sitton-Kent, 2016).

The agency perspective is not unique to Scandinavian institutionalism (Greenwood et al., 2008). However, the Scandinavian (and to some extent

European) studies are more explicit in placing the localized translation process at the center of their research. At least more so than the institutionalism developed in North America (Boxenbaum & Pedersen, 2009). When highlighting agency, the Scandinavian tradition employs the theoretical perspectives of especially Latour (1986) and are inspired by the linguistic translation theory (Boxenbaum & Pedersen, 2009). The Scandinavian tradition also draws inspiration from Weick (1979) and the concept of sense making (Boxenbaum & Pedersen, 2009; Teulier & Rouleau, 2013).

The recommendation of Scandinavian institutionalist scholars Czarniawska and Joerges is that the process of translation, not the properties of ideas, should be the analytical focus of researchers (Czarniawska & Joerges, 1996). It can be argued that the conceptual framework of the data use idea goes against this recommendation and explores the properties of the idea of data use. I will however argue that the analytical approach of the dissertation's empirical contribution highlights the process of the translation of the data use idea. The program theoretical approach which outlines the diverse elements of the data use idea is used as the framework for understanding both the department's and the local school managers' translation processes. The framework for example supports me in illustrating how elements of the data use idea shifts positions as the idea moves downwards in the hierarchical translation chain and hereby illustrating where the department and the local school differ in terms of their translation process.

Scandinavian institutionalism likewise fits the research objective of looking at the differences in the process of implementing data use at the three schools studied rather than the result of such changes.

Instead of focusing on institutions *after the fact*, Scandinavian institutionalists are preoccupied with the process leading up to the establishment of institutions (Czarniawska & Sevón, 1996). Institutions are defined as repeated actions and are "more-or-less taken-for-granted

repetitive social behavior" (definition by Greenwood et al. 2017). With a processual view, translation scholars aim to understand how and why organizations adopt ideas – ideas understood as institutions not yet institutionalized so to say (Corvellec & Eriksson-Zetterquist, 2017).

In accordance with the case study approach applied in this dissertation, scholars of the translation tradition within organizational institutionalism mainly focus on *the adopting organization* (Sahlin & Wedlin, 2008, p. 219) and emphasize that ideas are subject to *repetitive translation* (Sahlin & Wedlin, 2008, p. 221). The repetitiveness of the translation is understood in terms of the subjective and collective interpretations made by organizational members in the process of institutionalizing behavior. This theoretical outlook is applied in the case study, as data use in the educational sector is viewed as a change within the organizational landscape of schools, which needs to be translated by local organizational actors. The focus of the dissertation is on the role of managers in the translation process. The reason for the managerial focus is first of due to the characteristics of the local context, as the call for 'data drivenness' in the case municipality is top-down oriented. The inquiry into the translation process is not limited to the central managerial level in the municipality because the responsibility of translation is distributed to the school management teams, which makes them the key agents of translation. Secondly, the managerial focus is also based on the argument from the data use literature (presented in chapter 4), which states that leadership is an important factor in achieving successful data use and that managers hold an important role in implementation of data use practices (Demski & Racherbäumer, 2017; Jacobs et al., 2012; Kerr et al., 2006; Keuning et al., 2017).

In accordance with the Scandinavian scholars, organizational change is in this dissertation understood as a materialization of new ideas (Czarniawska & Joerges, 1996). The term 'ideas' refers to immaterial organizational recipes which require adaptation within the local context (Christensen et al., 2007). The term idea is hereby used as a reference to

the object of translation (Corvellec & Eriksson-Zetterquist, 2017). An idea is per definition abstract and something that has not yet materialized. In order to be acted out in real-life organizational settings, ideas need to be translated, adapted, and contextualized, is the claim by Scandinavian institutionalists[13]. From a pool of free-floating ideas, certain ideas are *"selected and entered the chain of translations"* (Czarniawska & Joerges, 1996, p. 32) – or with other words become materialized. These selected ideas are characterized as fitting to the current mindset. As ideas catch on in multiple organizations at a time, they become trendsetting fashions (Czarniawska, 2005). The framework presented in chapter 4 constitutes a map of the data use idea while it is still in its abstract and not yet materialized form.

To explain how ideas become popular, Czarniawska & Joerges employ the metaphor of fashion. They state; "*Fashion is the expression of what is modern, of what the community to which one belongs recently chose as the most valuable or exciting"* (Czarniawska & Joerges, 1996, p. 34). Norwegian new institutionalist Røvik later advocated that a virus metaphor (Røvik, 2011) is more fitting than the metaphor of fashion. Among translational theorists, whether an idea is labeled a fashion or a virus, the spreading of ideas is seen as a result of a process involving individuals (agency) who spot an idea and implement it in their organization because the idea is found appropriate. To find an idea appropriate and direct one's attention toward it is hereby interlinked and inseparable processes (Czarniawska & Sevón, 1996, 2005). The accelerating number of research articles on the topic of data use (see

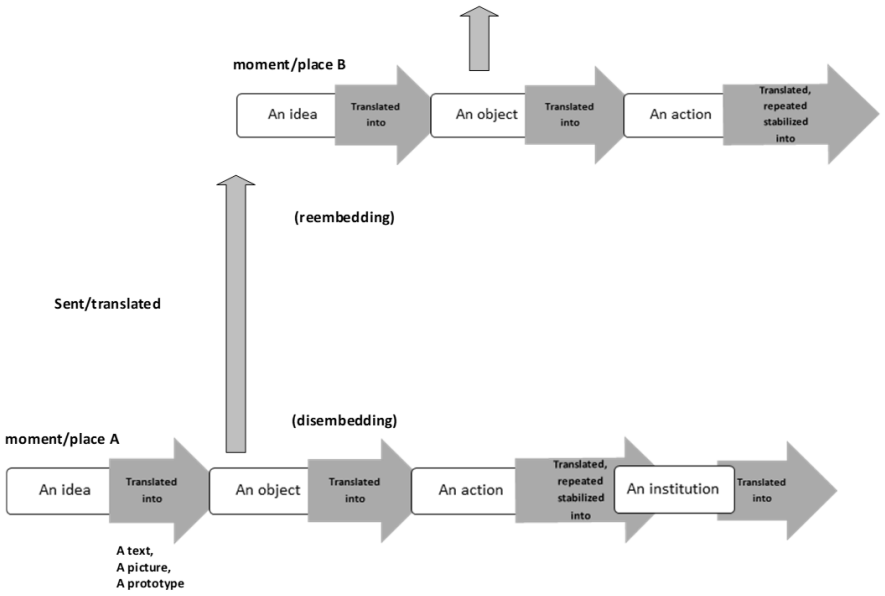
[13] Not all translation theorist uses the term idea to refer to organizational recipes, as indicated by Waldorff (2013) in this quote: "*Institutional studies applying the concept of translation, often recognize this process as implicitly governed by 'master ideas' (Czarniawska & Joerges, 1996), 'recipes' (Røvik, 1998), management 'fashion' (Czarniawska & Sevon, 2005) or 'circulating templates' (Sahlin & Wedlin, 2008). These analytical concepts are abstracted general knowledge about how the world works."*(Waldorff, 2013, p. 222). The term idea is however chosen and used throughout this dissertation.

chapter 2) indicates that data use has become a trending fashion (or a virus in Røvik's perspective). The literature review presented in chapter 4 represents a breakdown of the components of the data use idea as well as outline the various variations of data types, topics, the intent of data use, and the sought-after effects.

5.3.1 Czarniawska & Joerges' model of organizational change

How translation of fashionable ideas within local organizations has the potential to bring about organizational change is conceptualized in Czarniawska & Joerges' model of organizational change:

Figure 11: Czarniawska & Joerges' model of organizational change



(Czarniawska & Joerges, 1996)

The model illustrates the multitude of translation processes that continuously happen in organizations, both locally and across local settings.

By visualizing the **circular motion of translation** (Czarniawska & Sevon, 1996), the change-model underlines that new organizational initiatives do not arise from a vacuum, but that organizations are influenced by their environment – depending on what is considered appropriate at a given time. As stated: *"The process is circular, as local discovery requires the existence of an objectified idea in global space"* (Czarniawska & Sevon, 1996, p. 8). The model by Czarniawska & Joerges hence illustrates the interplay of globalized free-floating ideas and the localized translation.

Locally an idea is picked up in a certain organizational setting (moment/place A). The idea is then translated into an object (e.g. a text, picture, or prototype), the object is then translated into actions which if repeated can be stabilized and become an institution (which can then evoke further translational process in a different time and space). In the empirical case study, this process is for example as follows. Data use as a fashionable idea is translated and conceptualized into a document that outlines the school department's translation of data use practices. The document titled 'Professional learning communities'(Case municipality - school department, 2018) is hence an objectification of the department's understanding of data use. The decentral managers and eventually the teachers are thereafter appointed the task of translating the object (the document) into local actions. This process is elaborated on in the later chapters 8-10 based on the empirical material from the case study.

The interorganizational travel of ideas is illustrated by the 'open field' in the model - from ideas being disembedded until they are (if ever) reembedded in different local settings. Whether or not ideas are reembedded (or in other words whether or not they are dispersed) depends on their popularity.

The model hereby addresses primarily two types of processes – the *translation of ideas into action internally in organizations* (at a specific

time and space) and *inter-organizational travel of ideas* (across time and space).

The interorganizational characteristics including the history of the data use idea, its origin, its inherent assumptions, and different variations are immensely important contextual conditions and are preconditions for the translation of the idea internally in the case municipality and the associated schools. The framework of the content of the data use idea presented in the previous chapter 4 represents a conceptualization of the general traits of the idea across different organizations.

The dominant theoretical contributions of this dissertation however regard the *intraorganizational translation of organizational ideas*. In order to outline the current knowledge of the organizational-level translation (Nielsen et al., 2020) I have constructed a preliminary program theory of organizational-level translations with a focus on managers' role in the translation process. The theoretical program theory is presented in the following chapter 6. The analysis and discussion of the empirical case study in the later chapters hereafter add to the preliminary program theory.

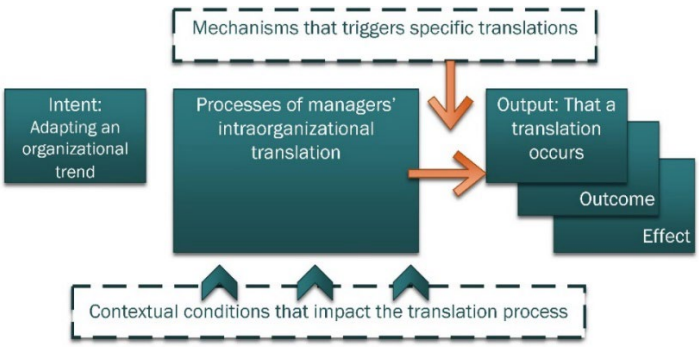
CHAPTER 6: PROGRAM THEORY OF MANAGERIAL-LEVEL TRANSLATION OF IDEAS

6.1 CHAPTER INTRODUCTION

The previous chapter introduced the general theoretical perspective of Scandinavian institutionalism. The aim of this chapter is to outline SI scholars' insights of specific relevance to the topic of *intraorganizational translation.* More specifically the chapter provides an overview of existing knowledge about *managers'* translation processes, as the dissertation's research agenda centers on the investigation of managerial-level translations. The theoretical perspectives on managerial level translation presented in this chapter are used as a starting point to explore both the strategic and decentral managers' role in translation processes in the case study (chapter 8 and forward)

In line with the approach used in chapter 4, I structure the presented research perspectives according to the program theoretical logic[14], as depicted in the following figure:

Figure 12: Framework for the preliminary program theory on managerial level translation



Author's own development

[14] See chapter 3 for an elaboration of the program theory approach.

The perceived value of outlining managers' role in translation processes, the involved mechanisms, and the contextual conditions surrounding managerial translations of ideas originates from an identified lack of a concise overview of existing theoretical and empirical research findings on this topic. Few studies have been conducted specifically on the topic of managerial translation and even fewer studies have differentiated explicitly between various levels of management and their specific approach to translation processes (e.g. Mortensen, 2020). By empirically examining both the central (the department) and the decentral (the school management teams) organizational units' translation, this dissertation contributes empirically with insight into intra-organizational translation processes. Also, as scholars associated with Scandinavian institutionalism have argued, few studies so far have focused on how organizational ideas are translated closer to the operational level in organizations (Mortensen, 2020; Røvik, 2011; Wæraas & Nielsen, 2016). The dissertation narrows in on the role of middle managers (the school managers) in translation processes and hereby contributes valuable knowledge about translation processes closer to the operational level.

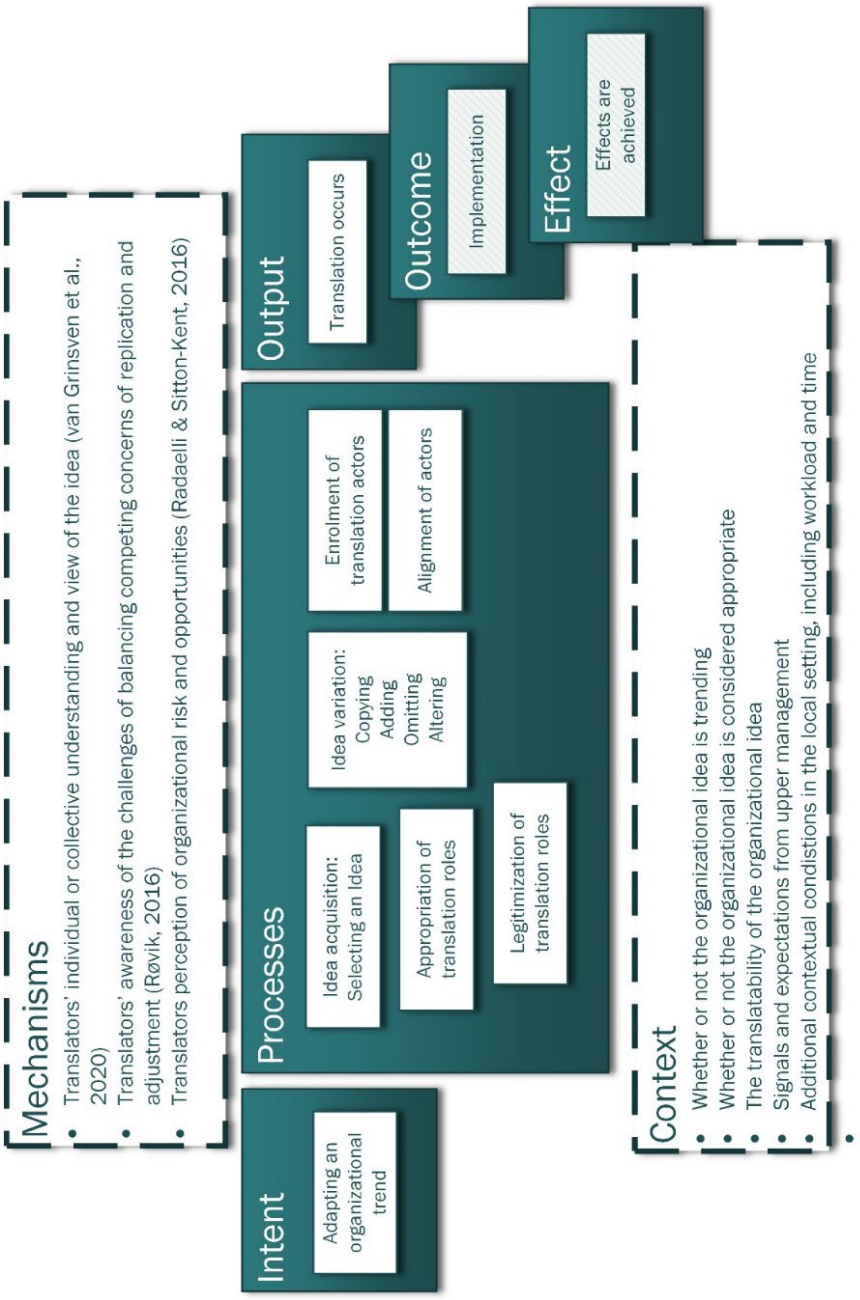
Prior to elaborating on various elements of the program theory, it is important to clarify that the theoretical presentation relates to top-down-oriented translations. As e.g. Linneberg et al. (2019) have argued, translation of organizational ideas also includes elements of operational-mode translation, *"where lower-level managers and front-line employees (a) adapt and appropriate sustainability strategies designed by top management, and (b) themselves engage as employees in bottom up-driven sustainability translation"* (Linneberg et al., 2019, p. 1). The choice of focusing on high-mode translation (Linneberg et al., 2019) stems from the identification that the translation undertaken at the case sites was predominantly top-down oriented and a translation process in its preliminary phase (see chapter 7 for elaboration hereof). Since it was a high-mode translation with a top-down orientation, the preliminary translation phase meant that central and decentral managers played the

most significant role in the translation process, at the time of the data collection. In line with this argument, operational-mode translation processes are not included in the program theory presented in this chapter. The following subsections explore existing Scandinavian Institutionalist literature on;

- The output, outcome, and effects of managerial translation,
- The processes in the managerial translation of ideas,
- The contextual conditions affecting how managers translate ideas and
- The mechanisms that trigger the effects of managerial translation

The central perspectives presented in the subsections are visualized in the following program theory:

Figure 13: Preliminary program theory of managerial-level translation



Author's own development, based on Scandinavian institutionalist theory

6.2 OUTPUT, OUTCOME AND EFFECTS OF MANAGERIAL TRANSLATION

When adapting an organizational idea into a local context the ultimate effect goal is that the proposed effect of the given idea is achieved. In the case of implementation of data use in schools, the proposed effect logics are (as argued in chapter 4) predominantly improvement of student academic outcomes (e.g. Dunn, Airola, Lo, & Garrison, 2013; Katz & Dack, 2014; Reeves, 2017; Taylor, 2010), but also increased student well-being (e.g. Armstrong & Webb, 2006; Dietrichson et al., 2016; Handler et al., 2007; Luiselli et al., 2005), equality (e.g. Dowd & Liera, 2018; Dunn et al., 2013; Gannon-Slater et al., 2017; Garver, 2017; Jacobs et al., 2012; Shum, 2016) and betterment of organizational processes (Dunn et al., 2013; Kerr et al., 2006; Woods-Groves & Hendrickson, 2012) and in a broader scope achieving societal impact. Such effects are considered the potential long-term effect of managerial translation processes.

The step prior to achieving such effects proposed by an organizational change initiative is arguably that the organizational idea is implemented. In the vocabulary of institutionalism, the process of implementation is coherent with the process of actions being repeated and stabilized in order to create an institution. As institutions are "more-or-less taken-for-granted repetitive social behavior" (definition by Greenwood et al. 2017), they do not require further translation within the organizational setting. The main argument presented by Scandinavian institutionalist scholars is that implementation requires local translation (Czarniawska, 2009; Linneberg et al., 2019; Vossen & van Gestel, 2019). The immediate output of the translation process is hence the notion that a translation has occurred. Although the potential achievement of effects is at the pivotal point of idea implementation these are not the focal point of the constructed program theory. The program theory instead focuses on processes of translation undertaken by organizational managers. This is supported by the argument that translations are not definitive, but can change over time (Nielsen, 2010).

6.3 PROCESSES OF INTRAORGANIZATIONAL TRANSLATION

Across different contributions from Scandinavian institutionalist scholars, it is possible to identify different distinct processes of managerial-level translation. Such processes include:

a) Selecting an idea (Czarniawska & Joerges, 1996; Røvik, 2011)
b) Appropriation of translation roles (Radaelli & Sitton-Kent, 2016)
c) Legitimization of translation roles (Radaelli & Sitton-Kent, 2016)
d) Idea adjustment according to translation rules (Røvik, 2016)
e) Enrolment of translation actors (Czarniawska & Sevón, 1996; Radaelli & Sitton-Kent, 2016)
f) Alignment of actors (Radaelli & Sitton-Kent, 2016)

These processes are addressed in the following. As evident from the list above Radaelli & Sitton-Kent's (2016) review article holds great weight in the presentation below. The reason for this is that Radaelli & Sitton-Kent (2016) specifically adress the role of middle managers in relation to the translation of new organizational ideas, whereas previous research has predominantly focused on upper-level managers. These perspectives are of specific relevance for my case study as I like, Radaelli & Sitton-Kent, narrow in on translation processes specifically related to middle managers, in the shape of decentral school management teams.

6.3.1 Selection

An organizational translation process is initially launched when an organizational idea is **selected** (Nielsen et al., 2014). According to Scandinavian institutionalists, the initial process of selecting an idea relies on 1) the popularity of the idea and 2) the perceived appropriateness of the idea. The trendiness of an idea is hence a preceding

requirement of any idea acquisition [15] (Czarniawska & Joerges, 1996; Røvik, 2011).

6.3.2 Appropriation of translation roles

Through a literature review on middle managers' role in translation processes, Radaelli & Sitton-Kent (2016) have outlined the processes of appropriation and legitimization of translation roles. According to their review, middle managers' position and involvement in the translation is mediated through managers' self-interest and personality, attention to peers, employees' and upper managers' interests, workload considerations, managers' position within the organization, and top managers' influence. Top managers' influence is according to Radaelli & Sitton-Kent (2016) the single most reported influencing factor to shape middle managers' willingness to appropriate translation roles. According to Radaelli & Sitton-Kent, signals from the upper-level managers are a context condition influencing lower-level managers' appropriation of translation roles (and the translation in its entirety) (Radaelli & Sitton-Kent, 2016). How managers make sense of the idea and their understanding of the context likewise affect how they assume a translation role.

It can be argued, based on Radaelli & Sitton-Kent's review (2016), that the incentive for managers to appropriate a leading role in a translation can hence be both *internally driven* by individual motivation and *externally driven* e.g. in form of expectations from higher up in the organizational hierarchy.

6.3.3 Legitimization of translation roles

In relation to appropriating a role in the emergent translation, managers seek others' acceptance of their involvement in the translation (Radaelli

[15] Trendiness can be viewed as either a sign of fashion (Czarniawska & Joerges, 1996) or a virus (Røvik, 2011) according to diverse views within Scandinavian institutionalism – as described in chapter 4.

& Sitton-Kent, 2016). In the case of middle managers, acceptance is sought in four ways, according to Radaelli & Sitton-Kent's (2016) review.

First middle managers *"exploit their embeddedness, particularly their pre-existing ties in the organization"* (Radaelli & Sitton-Kent, 2016, p. 319). Second, middle managers seek to build others' trust in their ability to be in charge of the translation by fixing fixable problems to gain consensus. Third, middle managers seek to legitimize their translation role via their communication. To upper management, middle managers can use a discourse through which they claim authority and responsibility for the translation process and assert their expertise as spokespeople. Downwards in the organization, middle managers use a discourse that seeks *"to manage accountability, spread blame, set convenient targets and indefinite deadlines in order to reduce interpersonal and organizational risks"* (Radaelli & Sitton-Kent, 2016, p. 320). In the empirical case study, there are e.g. both examples of school management teams setting targets that are arguably within reach of achievement and a tendency to not set explicit deadlines. It is also discussed doing the case study analysis that the school managers in some regards refrain from concretizing the data use assignment. This is arguably a strategy to reduce change resistance amongst frontline teachers and school pedagogues. The fourth way managers can legitimize their own translation role is by delegitimizing others' (Radaelli & Sitton-Kent, 2016).

6.3.4 Enrolment of translation actors

Managers have to enroll others in the translation process because all translation processes are essentially social processes (Czarniawska & Sevón, 1996). The social aspect means that managers must initiate conversations about the translation, as part of their managerial translation role (Radaelli & Sitton-Kent, 2016).

Based on a literature review Radaelli & Sitton-Kent (2016) have deducted three processes related to the enrolment of actors: 1) Identifying and connecting allies in durable coalitions, 2) Staging the involvement and 3)

Developing conversations about involvement. Under each heading Radaelli & Sitton-Kent lists multiple micro-practices which include e.g. 1x) selecting allies, attributing responsibility, establishing meetings to ensure duration, 2x) setting the rhetorical tone, creating an atmosphere of change, balancing emotions of actors, and 3x) justifying the change, highlighting incentives (Radaelli & Sitton-Kent, 2016).

6.3.5 Alignment of actors

In addition to the enrolment of actors Radaelli & Sitton-Kent (2016) likewise, direct attention to the managerial process of creating alignment of actors. According to their review this process includes four sub-processes: 1) Selling one's own version of translation, 2) Mediating other versions of translation, 3) Aligning goals and agendas, and 4) Aligning meaning and interpretations.

6.3.6 Idea adjustment

The processes of appropriation and legitimization of translation roles are oriented toward the interplay of organizational actors. SI-scholars have also identified translation processes inherent in intraorganizational translation that are more explicitly linked to the idea sought implemented in the local setting (e.g. Røvik, 2016; Teulier & Rouleau, 2013; Wæraas & Sataøen, 2014). Røvik (2016) for example has demonstrated that organizational actors translate ideas according to different translation modes and rules. According to Røvik (2016) there are three different translation modes: the reproducing, the modifying, and the radical modes, which employs four translation rules. These rules conceptualize how actors either directly copy an idea or vary ideas by adding, omitting or altering its components (Røvik, 1996, 2016). Although reproduction and copying are listed as a potential route for adopting an organizational idea, Scandinavian institutionalists highlight the agency of various actors throughout the process from the acquisition of an idea to its potential stabilization (van Grinsven et al., 2020). Because translation relies on

actions by various organizational actors, idea variation is an innate consequence of translation.

Because translation theorists understand ideas as translated by social agents, it is paradoxical according to van Grinsven et al. (2020) that this line of research often neglects to maintain a focus on individual agency in translation. As a reaction, recent studies have asserted more emphasis on translators' active engagement in implementation processes and consequently how it leads to idea variation (van Grinsven et al., 2020, p. 875). With the empirical case study, I aim to contribute to this line of translation research to some extent, by making a distinct differentiation between translation happening at the departmental level and how the school managers translate the idea of organizational data use in their local school contexts. The research objective is however not to uncover and theorize about individual managers' individual incentives and agency related to these translation processes. My main contribution to accommodate van Grinsven et al.'s (2020) concern is the research finding that managerial translation is guided by the managers' own perception of the idea. As unfolded in chapter 10, I have labeled this 'the human filter' that translation is shifted through.

In relation to the idea of data use, the program theory constructed in chapter 4 emphasizes that data use as an overall organizational idea is too broad and suggests too few practical guidelines to allow for direct copying of the idea. Based on Røvik's translation rules (Røvik, 2007), it must therefore be assumed that managers must add procedures and/or instructions of actions when the idea is translated to local settings. The broad scope of the data use idea may also prescribe that managers choose to highlight some aspects of the idea and downplay or even omit other aspects of the idea.

In the dissertation's analytical chapters, it is discussed how managers at the central and decentral managerial levels translated the data use idea with reference to Røvik's translation rules. The distinction between the

two management levels along with the program theoretical approach allows me to add nuances to Røvik's original four translation rules. Through identification of how idea elements such as collaboration 'change places' according to the program theory of organizational data use (which was theoretically deduced in chapter 4) the empirical material allows me to argue that *prioritizing* and *framing* can be added to Røvik's original rules. See chapter 10 for these contributions to Scandinavian institutionalist research based on the empirical findings of the case study.

In the existing literature it is likewise possible to distill various factors that SI-scholars have found influence how ideas are translated within organizations and by managers in particular. These influential factors can be structured in terms of 1) contextual conditions that affect translation processes and 2) mechanisms that trigger how an idea is eventually (potentially) translated into actions in local settings. These influential contextual conditions and mechanisms are addressed in the following:

6.4 CONTEXT CONDITIONS AFFECTING TRANSLATION PROCESSES

Scholars of Scandinavian institutionalism have identified various contextual conditions that function as contextual supporters or hindrances of translation processes, including:

a) The trendiness of the idea (Czarniawska & Joerges, 1996; Røvik, 2011)
b) The perceived appropriateness of the idea (Czarniawska & Joerges, 1996; Røvik, 2011)
c) The translatability of the idea (Røvik, 2016)
d) Signals and expectations from upper management (Radaelli & Sitton-Kent, 2016)

e) Other more general contextual conditions such as workload and resources (Lemire et al., 2020) [16]

The latter point of general contextual conditions (e) is rather self-explanatory as influential on how managers translate organizational ideas and is not explained further. That lower-level managers are influenced by signals and expectations from upper-level managers (d) was introduced previously in relation to managers' appropriation and legitimization of translation roles.

6.4.1 Interlinkage of the idea's popularity and its perceived appropriateness

The process of selection is influenced by the interlinkage of the idea's popularity (a) (as discussed in chapter 5) and how organizational actors perceive the idea in terms of its appropriateness (b). When giving attention to specific ideas, actors often rely on a logic of appropriateness, in which organizational changes are portrayed as functional (Czarniawska & Joerges, 1996). Hence, what is fashionable at a given time concords with what is considered to be appropriate. On this matter, Czarniawska & Joerges state that:

> *"Often there is an attempt to portray the process as functional: this particular idea was spotted and adopted because it served well in resolving a specific difficulty or in creating a new opportunity in situations of stagnation."* (Czarniawska & Joerges, 1996, p. 27)

[16] This latter category of more general contextual conditions such as workload and resources are not deduced specifically from Scandinavian institutionalist research, but instead inspired by insight from program theoretical research (Lemire et al., 2020).

The logic of appropriateness, labeling ideas as functional, can be used both retrospectively or to legitimize current or future initiatives (Czarniawska & Joerges, 1996, p. 40).

Together the popularity and perceived appropriateness of the idea are a preceding requirement for managers to start a local translation process with the intent to implement the idea in their local setting (Czarniawska & Joerges, 1996; Røvik, 2011).

6.4.2 Translatability of the idea

In addition, to the aforementioned contextual conditions, local translation processes are influenced by the specific characteristics of the idea. Røvik (2016) has provided a coherent vocabulary to comprehend the inherent characteristics of ideas. According to Røvik, organizational ideas have a **translatability** ranking from high to low (Røvik, 2016), which refers to the space for interpretation of the given idea. The space for interpretation has implications for the translation of the idea in local contexts. The degree of translatability is influenced by three variables; complexity, explicitness, and embeddedness according to Røvik (Røvik, 2016).

Regarding **complexity**, Røvik argues that, if the desired practice depends on context-specific human skill it is harder to translate the idea from one context to another. If instead the desired practice is based on a strong technology component with a clear-cut application, it is less complex. Hereby, the stronger the human component of a desired practice, the harder it is to model, which increases its complexity. Causal ambiguity also influences translatability. It adds complexity to the translation process if it is difficult to identify which variables contribute to the desirable result of implementing an organizational idea. It likewise adds complexity if different variables are intertwined. The more complex and ambiguous the relationship is between the practice and the observed results, *"the harder it is to translate to an abstract representation that*

accounts for all the essentials in the source" (Røvik, 2016:295) according to Røvik.

Røvik further argues that the **explicitness** of the skills and knowledge required to perform a desired practice also influences how translatable a given organizational idea is. If the knowledge and skills required are explicit rather than tacit, the idea is both more likely to travel across organizational settings and easier to translate and contextualize within a given organization (Røvik, 2016).

Lastly, Røvik argues, that the **embeddedness** of the required knowledge and capabilities to perform a desired practice also influence the likelihood of the idea being dispersed across organizational settings. In relation to local organizational translation processes, a high degree of embeddedness refers to situations where capabilities and knowledge to perform an organizational idea are located in-house as opposed to situations, where the required skills are located outside the local organization, e.g. in consultancy firms or other professional experts.

In sum, Røvik illustrates that it varies how easily different organizational ideas are translated in local organizational contexts. These perspectives are useful in the case study (chapter 8 and forward) as a way of describing how the characteristics of the idea of data use influence how the idea is translated at the department and local school levels. It is e.g. identified in the case study that the data use practices are to be performed by frontline staff, which indicates a high degree of embeddedness. I have via the existing literature of data use in the educational field established in chapter 4, that a) the idea is complex with an ambiguous relationship between practices and the desired results and b) the idea lacks explicitness as it is often broadly defined. The analysis (chapter 8-10) contributes with knowledge about how this complexity, embeddedness, and lack of explicitness influence the local translation at the case sites.

6.5 MECHANISMS THAT TRIGGER EFFECTS

The final part of constructing a program theory of managers' translation of organizational ideas regards the identification of mechanisms (Krogstrup, 2016; Lemire et al., 2020) that influence the translation processes and potentially trigger the proposed effects. Studies of translation in the Scandinavian institutionalist tradition have suggested that the following mechanisms influence how a local translation occurs and act as potential triggers effects:

- Translators' individual or collective understanding and view of the idea (van Grinsven et al., 2020)
- Translators' awareness of the challenges of balancing competing concerns of replication and adjustment (Røvik, 2016)
- Translators' perception of organizational risk and opportunities (Radaelli & Sitton-Kent, 2016)

All three mechanisms underline that Scandinavian institutionalists view human agency as an inseparable part of translation processes.

The first mechanism regards the understanding that translators have of the specific idea that is to be implemented in their local contexts. In relation to this mechanism, van Grinsven et al. conceptualize agency: *"as resulting from individuals' more personal redefinitions of the meaning of a concept"*. (van Grinsven et al., 2020, p. 876).

The second mechanism that influences how an idea is ultimately translated locally is how translators take into account the competing concerns of replication and adjustment (Røvik, 2016). According to Røvik, translators must balance between copying how the idea is implemented in other settings and making the adjustments needed for the idea to be successfully implemented in their own local contexts.

The third mechanism concerns translators' perception of organizational risk and opportunities (Radaelli & Sitton-Kent, 2016). This potential mechanism is raised by Radaelli & Sitton-Kent in their discussion of their

review on middle managers' translation of new organizational ideas. Their argument is that a translation process might be influenced by the way translators perceive the idea to be a positive opportunity for the organization or the opposite. In short Radaelli & Sitton-Kent raise the question that *"different perceptions of organizational risk/opportunity* [might] *affect peculiar tactics in idea variation?"* (Radaelli & Sitton-Kent, 2016, p. 325).

6.6 CONCLUDING REMARKS

The program theory presented in this chapter constitutes my attempt to provide a concise illustrative overview of existing Scandinavian institutionalist literature on the topic of managerial translation of organizational ideas. By using the program theory approach[17] I have structured a framework, which differentiates between components related to managers' translation processes, the contextual conditions of such processes, and the mechanisms affecting the output and outcome of such processes. The underlying intent of the case study (chapter 8 and forward) is to nuance the preliminary program theory of manager-level translation presented in this chapter. Prior to presenting the empirical analysis and discussions based on the conducted case study, the following chapter outlines the case study methodology.

[17] See the previous chapter 2 for an elaboration of the program theory approach

CHAPTER 7: THE CASE STUDY METHODOLOGY

7.1 CHAPTER INTRODUCTION

Chapter 7 presents the methodology behind the empirical and analytical contribution. The chapter begins with a description of the case study design that includes the municipality's school department and three embedded school units. Thereafter follows a description of the empirical data and the analysis strategy used, including the coding strategy. The dissertation draws on several qualitative methodological approaches which are outlined in the following. The aim of the chapter is to clarify how the chosen data collection and analysis strategy connects with the research questions presented in chapter 1. The analysis and findings are presented in the later chapters 8-9 and discussed in chapter 10.

7.2 EMBEDDED CASE STUDY

As outlined in chapter 1 the overall research aim of this dissertation is to investigate how intraorganizational translation of organizational ideas takes place at different managerial levels within established organizations. The dissertation contributes with new knowledge about intraorganizational translation processes by exploring the managerial translation of the organizational idea of data use within a Danish municipality, specifically the translations made by the municipality's school department and three associated school management teams. The schools, in which the managers functioned, were labeled school yellow, school blue, and school red to support their anonymity throughout this dissertation.

The empirical contribution consists of an embedded case study (Scholz & Tietje, 2002; Yin, 2014). This was done as a reflection on the Scandinavian institutionalist claim that the same organizational idea is understood and therefore implemented differently across different organizational settings

as a consequence of their specific contextual prerequisites. The case study explores the similarities and differences between the translation at the departmental level and local decentral school management teams (cf. Eisenhardt, 1989).

Because both the organizational idea of data use (arguments presented in chapter 1 & 4) and the processes of organizational-level translation (arguments presented in chapter 6) are multifaceted and complex phenomena, a case study is a suitable research approach, as it allows for contextualized insight into the phenomena of interest (Scholz & Tietje, 2002). By conducting a case study, I followed Coburn and Turner's (2012) recommendation to investigate how data use policies are translated in local contexts. In addition to adding new knowledge about how organizational ideas disseminate within organizations, the ambition of conducting the case study has also been to put light into the seemingly black box of moving from policy expectations of data use to achieving the anticipated improvement of student outcomes (Honig & Coburn, 2008; Mandinach & Schildkamp, 2020; Spillane, 2012).

7.2.1 Case selection – the municipality

The argument for selecting the specific municipality as a case site for exploring intraorganizational managerial translation was presented in chapter 2. In brief, the line of argumentation centers on the fact that the municipality had a self-identified focus on implementing data use routines at the present time of the research period. As will be unfolded throughout this chapter, there were various active translation processes happening in which the local implementation of data use practices was discussed and reflected on by the school managers and partly the school department.

The case municipality also matched the research aim of investigating how intraorganizational translation of organizational ideas takes place at different managerial levels, based on the fact that the school managers had an active role in the translation process. The analysis of the department's translation (chapter 8) demonstrates that the local

management teams were entrusted with the task of operationalizing data use in their local setting. This indicates that the case site is of relevance as the empirical foundation to examine managerial-level translation close to the operational level. The ongoing translation and the active role of the school managers hence indicate compliance with the criterion of maximizing what can be learned from a case (Stakes, 1995) in relation to the research question.

7.2.2 Case selection – the three schools

The above section addresses the arguments for choosing the particular municipality as a case site for this dissertational work. Within the municipality, three separate school management teams were selected as embedded sub-units of the case study (Yin, 2014). The merit of choosing different management teams within the same municipality was, as described in chapter 2, an attempt to make the external context as constant as possible (Braun et al., 2011). The chosen school management teams can in this sense be characterized as a somewhat homogeneous sample, which has the advantage of minimizing the pool of alternative explanations (Van de Ven, 2007). The three school sites were however also selected based on an initial identification of differences:

School blue represents a school, where the school managers displayed concerns about the current level of reflectiveness and data-drivenness among their employed teachers. In terms of the students' academic performance, the school had at the time of the research been the lowest-performing school for several years. The school was situated in the district of the municipality with the lowest socioeconomic status of residents.

School yellow represents a school that was at the other end of the spectrum. Here the management team was predominantly positive about the employees' ability to adjust accordingly to the data use idea. The managers were optimistic about the potential of implementing data use practices amongst the frontline staff and achieving positive outcomes. School yellow was the highest performing school in terms of having the

highest school leaving grade average in the municipality for several years in a row. Both the department head and the principal identified the fact that the socioeconomics of residents in school yellow's district was higher than the other districts, as a contributing factor for the higher student academic performance.

School red was chosen as the third subunit as it is placed in the middle of the municipality's schools both in terms of the managers' level of optimism about the at-hand implementation process of the data use idea and in terms of the students' academic performance.

The reason for identifying and selecting sub-units partly based on the level of students' academic performance relates to the research finding of Diamond & Cooper (2007), who found that the schools' overall performance level influences principals to promote different types of data use. Diamond & Cooper (2007) found that low-performing schools were to a greater extent oriented towards using data in demarcated time periods targeted particular students and grade levels, whereas high-performing schools were more oriented toward continuous improvement efforts.

The three schools were hence selected from the pool of five schools based on a sampling approach that aimed to select 'polar types' (Eisenhardt & Graebner, 2007) with school blue and school yellow initially identified as being seemingly opposites, and with school red placed somewhere in between. The subsequent analysis presented in chapter 9 confirmed this initial characterization. The sampling according to polar types represents an attempt to include different contextual circumstances that could be influential for the local translation processes (Eisenhardt & Graebner, 2007; Flyvbjerg, 2006). The aim of this sampling approach was to explore similarities and differences across the three sub-units even though the sub-units differed in some way (Flyvbjerg, 2006).

7.2.3 The initial contact to the case municipality

Association to the development project 'Program for Learning Management' was my port of entry into case municipality's school department and the associated schools, as depicted in the following excerpt of the first mail I sent to the department's school consultant:

Excerpt of mail that initiated contact with the case

Dear resource person in X Municipality associated with 'Program for Learning Management'.

I am making this inquiry, as I am a Ph.D. student at the Department of Learning and Philosophy and associated with the development project 'Learning Management' in [The Danish public school]. I am in this capacity linked with your municipality in connection with the forthcoming competence courses for school management, which you may have already been in dialogue with [the program consultant] about.

My mail has two intentions:

1) To inquire about the schools' goals and action plans

2) To briefly introduce my Ph.D. project - which leads to an invitation directed to schools in your municipality about possible participation in the project, which I hope you will/can be helpful in communicating.

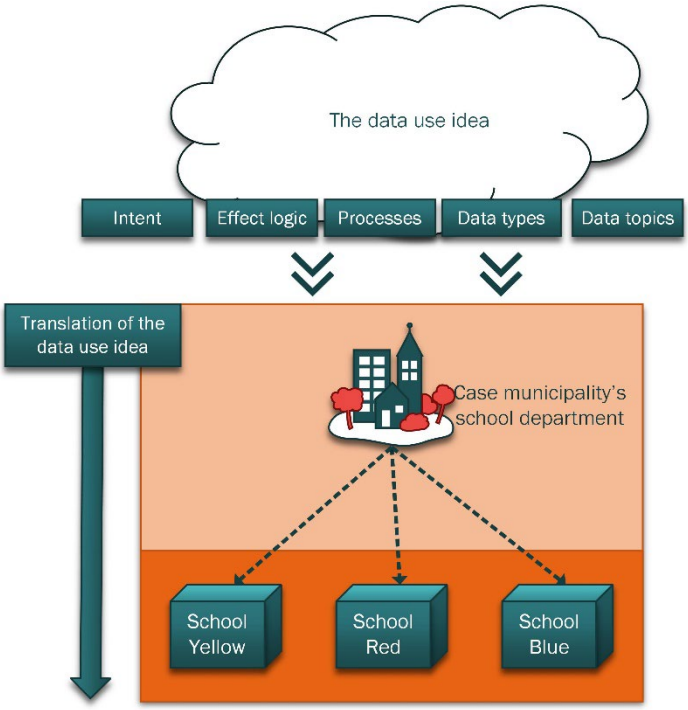
It was hence due to my association with the project, that the initial contact was made. As part of the project, the municipality was given annual sparring with researchers and offered competence courses. The PhD. student along with her supervisor Jacob Brix planned and facilitated the first managerial seminar as a version of the offered competence course. The following interaction with the case site outreached the development program.

7.2.3.1 The hierarchical translation chain

The case study refers to two interlinked organizational translation levels in the hierarchical translation chain. The school department's

interpretation of the idea represents the first-level translation, which is followed by the second-level translation conducted by the decentral management teams at the local schools. Both theoretically and analytically, the dissertation differentiates between the translation processes that happen at the two organizational levels, as depicted in Figure 14:

Figure 14: The hierarchical translation chain



Author's own development

The level of analysis of examining which components of the general idea of data use (the cloud) are highlighted and which are not addressed in the department strategy, is important, as the department strategy represents the context for the subsequent translation by the local school managers (Lee et al., 2012). The empirical foundation for analyzing, respectively the strategic departmental translation and the subsequent decentral

translation by the school management teams, is outlined in the following sections.

7.3 THE EMPIRICAL FOUNDATION FOR THE STRATEGIC TRANSLATION

The analysis of the department's strategic translation is primarily based on a content analysis (Bowen, 2009; Stemler, 2001) of two strategic documents that outline the department's ambitions with an interpretation of the idea of data use.

The first document titled 'Professional learning communities' (Case municipality - school department, 2018) was repeatedly referred to as 'the standard' by the head of the school department and the department's school consultant throughout the time of the data collection. The representatives from the department viewed it as a guide for implementing data use in the local schools. Hence the document represents the department's "main *objectification* of data use" to use the theoretical wording of Scandinavian institutionalist pioneers Czarniawska & Joerges (1996). The document is 13 pages long. There are three pages describing the vision, outline of the organization, and structure of local professional learning communities (PLCs). Additionally, there is an account of the role of managers, counselors, and staff in PLCs. Hereafters are eight appendix pages of models for inspiration. The models include: an agenda template, analysis model of pedagogical analysis, the coherence circle by Nordahl, the SMART model, and the SMITTE model (Case municipality - school department, 2018).

The second document included in the content analysis is a document titled 'Goal and follow-up plan' (Case municipality - school department, 2017). This document outlines the goals, initiatives, challenges, and criteria of success for the municipality's participation in a development project titled 'Program for learning management'[18] (Qvortrup et al., 2016).

[18] in Danish: Program for Læringsledelse.

Representatives from the school department filled out the template. The development program and its association with the research agenda of this dissertation were discussed in chapter 2.

The department's translation of the data use idea was also expressed in the dialogue meetings, which were led by the department head and observed by the Ph.D. student. The transcripts of these meetings were therefore also included as empirical material in the analysis of the department's interpretation of the idea of data use. The structure and the content of these meetings are explained later in this chapter.

The analysis strategy for illuminating how the department representatives translated the idea of data use based on the aforementioned empirical material is unfolded later in this chapter.

7.4 THE EMPIRICAL FOUNDATION FOR THE DECENTRAL TRANSLATION

The empirical material which serves as the foundation for investigating how the local schools' management teams translated the idea of data use was collected through two types of events (Langley, 1999): a) managerial seminars and b) dialogue meetings. Both the managerial seminars and dialogue meetings were events specifically aimed to construct onsite data use practices.

The empirical data was hereby collected during events, where the school managers had time devoted to make local translations of data use and have collective reflections about implementation in their local settings (Ørngreen & Levinsen, 2017). These events functioned as translation spaces, defined by Thøgersen as *"any strategic events set up to provide actors with the opportunity to interface and discuss the topic of translation"* (Thøgersen, 2022, p. 403)[19].

[19] When defining 'translation spaces', Thøgersen (2022) references Teulier & Rouleau (2013) who coined the term. Teulier & Rouleau (2013) however use the term as a reference to spaces where translators from different organizations

Both the managerial seminars and the dialogue meetings represent demarcated moments in time, where managers explicitly put their translation of the district's call for data-drivenness into words both verbally and written. The limitation of including these demarcated moments in times (the seminars and dialogue meetings) is of course that the translation processes that happen during everyday interactions at the local schools are not captured by the data collection. However as stressed by Thøgersen, such demarcated moments in time can serve as great insights into ongoing translation processes (Thøgersen, 2022). The argument for focusing on the demarcated events was also based on the identification that the department's focus on creating a more data-oriented attentiveness amongst the local school managers were in the preliminary stages and that implementation of data use practices was not part of regular daily discussions amongst the local managers [20]. Both types of events included in the data collection were oriented towards the development of local data use initiatives and promoting reflections amongst the individual school management teams and collectively across the management teams about the definition of data and data use and reflections on how such practices could/should be implemented locally and how.

Both the observed dialogue meetings and the facilitated seminars have merits to support the investigation of the decentral management teams' local translation of data use. The events' merits are, that they are characterized by 'real-timeness' and interactions between managers,

meet to exchange ideas. In line with the research scope of this dissertation, Thøgersen extends the term to cover intra-organizational encounters as well.

[20] As elaborated on in chapter 9, the implementation process was furthest along in school yellow, followed by school red and lastly school blue. The empirical evidence shows that managers at school blue to a lesser extent that the managers at school yellow and school red were oriented towards data use in their daily discussions and operations.

which allow the phenomenon of translation to be examined as it emerges (cf. Ørngreen & Levinsen, 2017).

7.4.1 Dialogue meetings at each of the three schools

The empirical material included observation and audio transcripts of three dialogue meetings, one at each of the three schools included in the embedded case study. A second round of dialogue meetings were planned but due to the Covid-19 pandemic only one of this second wave of meetings was eventually held online and observed as part of the data collection [21].

The meeting format was set prior to the researcher entering the municipality. The head of the school department was the original initiator and acted as the primary moderator in all three meetings. The meeting format had not been previously used in the municipality department. The format replaced the traditional format of the annual "review", where the department head yearly visited each local school management team with the intent to clarify the current status and agree on plans for the following period. The agenda of the department head was to gain insight into managerial planning and execution of a new department policy of professional learning communities and data-informed work. That the meetings were planned prior to my entry into the municipality demonstrates that the phenomenon researched (data use) was a priority area for strategic managers in the organization in advance. This is important as it illustrates that the research objective was corresponding with a local organizational change initiative, and not imposed on the organization as a consequence of my interactions with the organizational

[21] The first round of dialogue meetings was held in the spring of 2019. The second round of dialogue meetings was planned for the fall of 2020, but only the second meeting in school red was held.

members (see later section in this chapter, which outlines implications of my involvement in facilitating three managerial seminars).

The department head used the following question guide to structure the meetings:

Question guide for dialogue meetings, spring 2019
Head of School department asks the management • How would you characterize the work with PLC in your school/day care? • What are you proud of in relation to the PLC work? • How do you see the PLCs really succeeding? • Where do you see that there is still development potential? • What do you see as the biggest managerial task? • How do you work at the school/daycare with the municipality standard for PLC? • Where is your experience that the standard is "easy" to translate? • Where is your experience that the standard is "difficult" to translate? • What have you in the management team talked about should be your next effort in relation to PLC? • What feedback will the management give the administration in relation to us getting even further together with the PLF work?

Developed by the school department, author's own translation

The participants at each meeting were the head of the school department, a consultant from the school department, the members of the schools'

management teams, and lastly three or four teachers and school pedagogues. Dialogue meetings were planned in accordance with the theoretical foundations and principles of reflective team processes (Pender & Stinchfield, 2012). The employees functioned as a reflective team that reflected on the managers' answers to and discussions about the questions listed in the question guide. The meeting form of reflective teams was familiar to both employees and the school managers prior to participating in the meetings and they, therefore, had a preexisting insight into their expected roles. An important factor to consider, when estimating the quality of the collected data is how close the informants are to the information they pass on (M. K. Jensen, 1991). In the dialogue meeting format, the employees function as validators of manager statements about employee actions and presumed attitudes.

Figure 15: Picture of a dialogue meeting

Author's own photo

The dialogue meeting hence enabled me to obtain perspectives from both the municipality representatives, the local school managers, and a small number of employees.

One of the key differences between the management seminars and the dialogue meeting is *who* planned and executed the events. The dialogue meetings were initiated and executed by the department, with the involvement of the department head and the department's school consultant. I was not involved in this process and only attended the meetings as a passive observer. The managerial seminars in contrast were planned in collaboration between me and the department. The implications hereof are reflected upon the following section which provides an outline of the three managerial seminars.

7.4.2 Managerial seminars as translation spaces

The empirical evidence included three full-day seminars aimed at the municipality's school managers including both principals, vice principals, and managers of the different school departments (primary and lower secondary). Each seminar lasted 6-7 hours where time was devoted to the topic of data use and implementation hereof in the local school settings. That the topic of translation, data use, was the focal point of the managerial seminars was for example clearly stated in the agenda for the first managerial seminar. Under the heading: 'Welcome to the seminar by the Head of School and Daycare' the following was written:

> *"It is clarified that one of the points of the municipal target and follow-up plan, namely the data-informed work, is being addressed. Building on the work that has already been done on the data-informed work in the professional learning communities." (Agenda, 1st managerial seminar)*

The three seminars hence matched Thøgersen's definition of translation spaces as *"any strategic events set up to provide actors with the opportunity to interface and discuss the topic of translation"* (Thøgersen, 2022, p. 403).

7.4.2.1 Seminars as a research method

The following section elaborates on the managerial seminars as a chosen research methodology for investigating similarities and differences in the school management teams' conceptualization and implementation of data use in their local school settings. The reflections are predominately based on the article "Workshops as a Research Methodology" by Ørngreen & Levinsen (2017). The subsequent section thereafter presents reflections on the implications of the Ph.D. student's involvement in the managerial seminars.

Ørngreen & Levinsen (2017) define workshops as *"an arrangement whereby a group of people learn, acquire new knowledge, perform creative problem-solving, or innovate in relation to a domain-specific issue."* (Ørngreen & Levinsen, 2017, p. 71). Ørngreen & Levinsen link the origin of the methodology to Osborn's description of methods for creative group problem-solving and brainstorming (Osborn, 1948, 1953). The three seminars that were held in connection with my case study mainly follow the definition provided by Ørngreen & Levinsen. The label 'seminar' is however used based on the length (6-7 hours) of the arrangements and the fact that this was the label chosen by the municipality. The domain-specific issue was the enhancement of data use in the local schools and all seminar sessions were planned with the intent of supporting group-based reflections on this specific topic[22]. The local management teams made up the groups. In the subsequent analysis of the local translations, the management teams are likewise largely referred to as three collective entities. The argument of this is based on the identification, that the managers at each of the three schools largely showed a united front by

[22] All workshop sessions of the three managerial seminars were structured as group-based activities except the very first exercise, where all managers were asked to individually complete three statements about data and data use.

generally agreeing on understandings of the data and agreeing on the overall strategy to implement the idea [23].

Based on a literature review on the topic of workshops Ørngreen & Levinsen (2017) identify three distinct perspectives: 1) workshops as a means, 2) workshops as practice, and 3) workshops as research methodology. Regarding 'workshop as research methodology' Ørngreen & Levinsen distill two linked purposes of workshops:

> *"[The] workshop is, on one hand, authentic, as it aims to fulfil participants' expectations to achieve something related to their own interests. On the other hand, the workshop is specifically designed to fulfil a research purpose: to produce reliable and valid data about the domain in question" (Ørngreen & Levinsen, 2017, p. 72)*

In planning the seminars, I aimed to integrate the dual purpose. This meant balancing a focus on the seminar participants' needs and the research agenda. Prior to the seminars, I had discussions with the department head and the department's school consultant to gain insight into their perspectives on the relevance of the seminar designs and make adjustments accordingly.

7.4.2.2 The Ph.D. student's involvement in the managerial seminars – and the implications hereof

With the managerial seminars being part of the data collection strategy, it is important to reflect upon my involvement (as an external PhD. student) in these seminars and how this involvement influenced the data that was collected at these events.

The three seminars had different agendas, but all consisted of presentations by me on the topics of educational data use and program theory as a methodological tool for planning organizational change. In

[23]See chapter 9 for the empirical argumentation.

relation to the presentations, I initiated and facilitated multiple workshop sessions, where the school management teams discussed the topic of data use in relation to their own local context based on provided frameworks (see later sections for elaboration).

Both the presentations and the workshop sessions were discussed and agreed upon with the school department. At each seminar, the department head made a brief introduction to the agenda. The department head and the department consultants attended the seminars at full length, but their active participation was limited to the introduction at each seminar and a brief segment about the framework of the following dialogue meetings at the last seminar.

In terms of the planning of the seminars, I proposed the second seminar, whereas the first and third seminar were prescheduled by the department as part of their involvement in the development project 'Program for Learning Management'. I was given relatively free rein to plan the first two seminars. The department was more involved in setting the agenda for the third seminar. With reference to different modes of participation distinguished by Biggs, my role in designing and facilitating the seminars can overall be characterized as a collaborative role, which means that the researcher and participants work together, while the researcher remains in control (Biggs in Cornwall & Jewkes, 1995)[24]. This meant that I gained fairly easy access to empirical insights that were of relevance to the 'domain theory' (cf. Ørngreen & Levinsen, 2017) on data use in schools, as I was able to control the overall agenda for the seminars. This approach however to some extent challenges the potential of contributing with research to the domain theory of intraorganizational translation, because my involvement in the seminars meant that I entered the managers' translation spaces (cf. Thøgersen, 2022). The strength of the chosen

[24] Biggs' four modes of participation are: contractual, consultative, collaborative, collegiate (Biggs in Cornwall & Jewkes, 1995).

research methodology is however that it allowed for observations of defined moments in time, where the school managers set aside time for reflecting on their local understanding of the municipality's demand for data use. By proposing activities and templates (as outlined in the preceding section of this chapter), I provided guidance for these reflections. Although I played a facilitating role in structuring these reflections, I will argue that the workshop sessions and written assignments did not function as straight jackets for the managers. This is seen in the variation in the collected material. In the third seminar my role as a researcher tilted toward a more collegiate role (Biggs in Cornwall & Jewkes, 1995) as the school department played a larger role in designing this seminar than in the previous two seminars. The department's more hands-on involvement in planning and designing meant that they had more control over the process, making this seminar less so dominated by my presence. The dialogue meeting format which was described in the previous section of this chapter likewise functioned as 'pure' translation spaces, which were more so unaffected by my involvement.

The scope of each seminar and the empirical material collected during the seminars are outlined in the following sections. The content of the managerial seminars and who facilitated this is important because the empirical material under analysis in the dissertation to some extent was a reaction to the inputs the managers' received from me at the seminars. The seminars (their design, conduct, and goals) were part of my data collection strategy and likewise an inherent part of the analysis strategy, which is outlined at the end of this chapter. Ørngreen & Levinsen (2017) found that research on workshops tends to be vague about how to produce and analyze data. I try to meet this criticism about the lack of explicitness by being clear about the concrete content of the seminars and the templates used in the various seminar sessions in the following sections. In the last part of this chapter, the analytical approach to the handling of the collected empirical data is unfolded. The coding and analysis process

are explicitly guided by the program theory of data use presented in chapter 4.

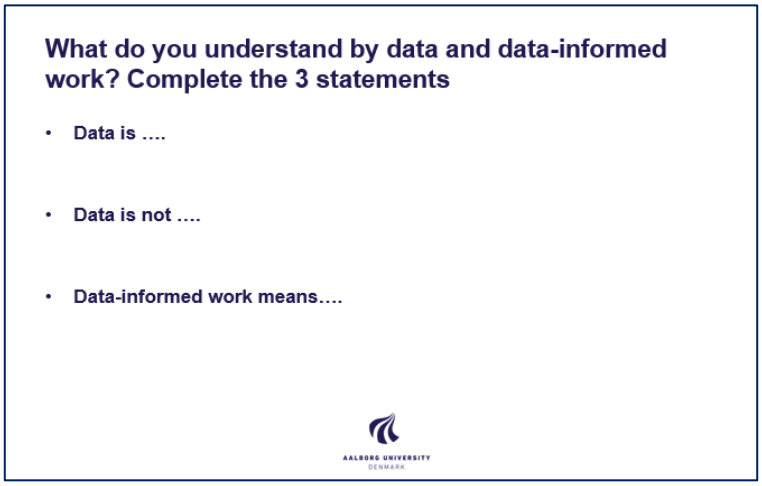
7.4.2.3 First managerial seminar

The first 7-hour managerial seminar took place in the spring of 2019. In addition to observations and audio recordings of dialogues between members of the school management teams during the seminar, the empirical material for subsequent analysis from the first management seminar consisted of three types of written material: 1) managers' completion of statements on data and data use, 2) managers' construction of local change frameworks and 3) managers' construction of local program theories. These three written materials were used in the analysis of the local school managers' translation of data. The managers become a part of 'the data-producing apparatus' (Ørngreen & Levinsen, 2017).

7.4.2.4 Managers completed statements on data and data use

Starting off the first managerial seminar all attending managers were asked to write down their intuitive answers to the following three statements:

Figure 16: Statements on data and data use for inquiry about managers' perspectives



Author's own PowerPoint slide

The school managers completed these three statements both individually and as teams. In the process of analyzing the empirical material, all managers' answers to these statements were collected in a joint table to allow for an identification of the similarities and differences of the managers' initial perspectives on data and data use. The table is presented in chapter 9.

7.4.2.5 Construction of local change frameworks

Secondly, the management teams filled out a template titled "change framework" in which they outlined the vision, qualifications, incentives, resources, and their plan for implementing data use in their local school and reflected on potential employee reactions. This was done after being introduced to the theoretical underpinnings and the practical implications of the change framework in relation to organizational change initiatives by Professor Jacob Brix (my dissertation supervisor) (Brix, 2021).

Figure 17: Change framework for organizational (re)design

	Skills	Incentives	Resources	Action Plan	=	Confusion
Vision		Incentives	Resources	Action Plan	=	Anxiety
Vision	Skills		Resources	Action Plan	=	Resistance
Vision	Skills	Incentives		Action Plan	=	Frustration
Vision	Skills	Incentives	Resources		=	False Starts
Vision	Skills	Incentives	Resources	Action Plan	=	Change

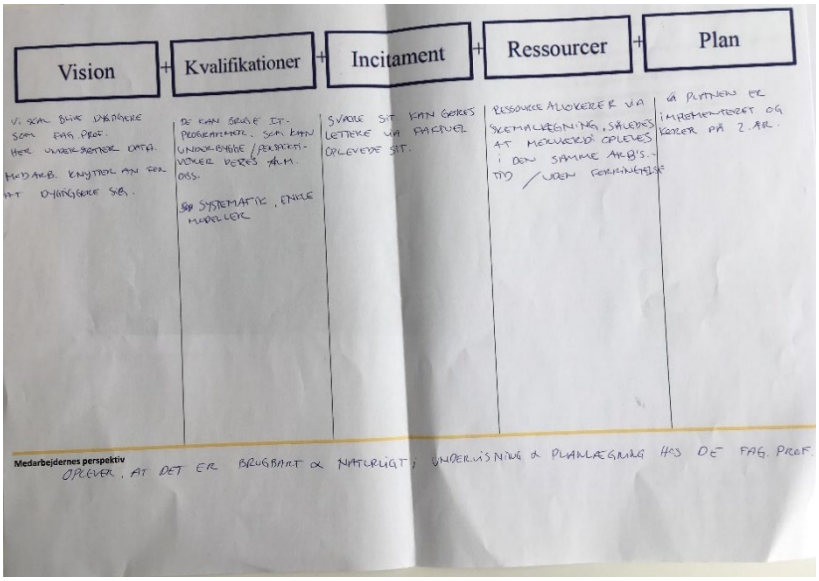
(Brix, 2021, author's translation)

The managers were guided by the following questions when filling out the change framework template:

Guiding questions for filling out the change frameworks
What is the vision of working data-informed? Is the vision clear to you as a manager, and do the employees buy into the vision? Which qualifications can the employees draw on when working with data - and which qualifications can be useful to build? What is the incentive to increase the degree of data-informed work? Where do you stand with regard to the planning and implementation phase? How is the 'change' received by the employees?

Figure 18 depicts an example of how the managers' filled out the change framework.

Figure 18: Example of a change framework by school yellow



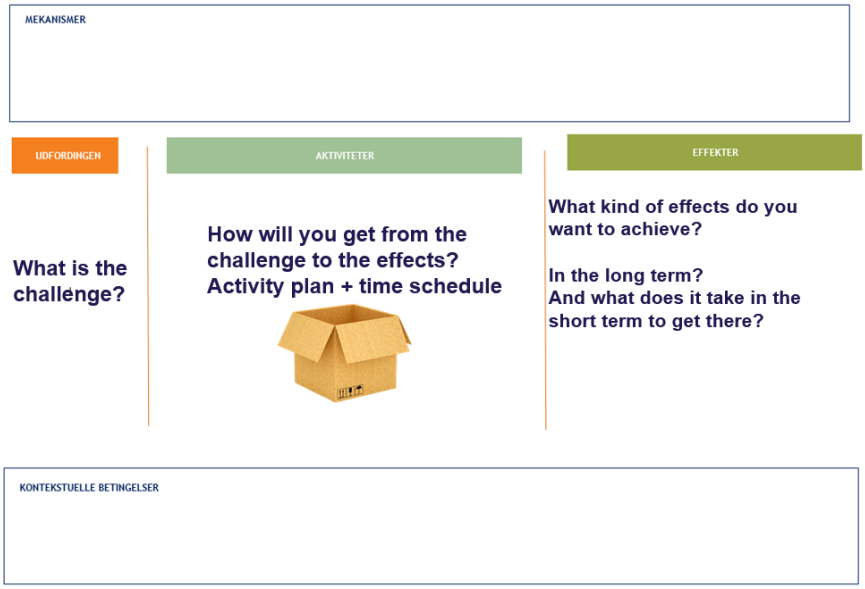
Author's own photo

The argument for instructing the managers to create these frameworks was for them to reflect on the local barriers and possibilities for implementing data use in their local contexts (Brix, 2021). This was valuable in relation to the main research question as it enabled me to detect the decentral managers' perspectives on contextual conditions for implementing data use. This is in accordance with the critical realist theory of science which the dissertation relies on (Frederiksen & Kringelum, 2020). Referring to critical realism the aim is to point to potential contextual dependent connections between cause and effects triggered by plausible mechanisms (Frederiksen & Kringelum, 2020). Critical realism implies seeking explanation rather than prediction, and explanation is presented via uncovering mechanisms (Wynn & Williams, 2012). The change framework did not explicitly require the managers to report on their thoughts on mechanisms. However, their reflections in e.g., the sections 'Incitement' and 'Qualifications' allowed for some insight into potential mechanisms from the managers' perspectives. The change framework likewise provided insight into the intent for data use (vision) at each of the schools. This was valuable to identify whether the managerial focus was for example predominately on accountability or development (Datnow & Hubbard, 2016; Eddy-Spicer et al., 2019; Mandinach & Schildkamp, 2021; Weiss, 2012).

7.4.2.6 Construction of local program theories

Thirdly, the management teams filled out a program theory template in which they reflected on the intent of enhancing data use in their local schools, which activities should lead to achieving what effects goals. The management teams were also encouraged to identify which mechanisms would trigger the effects and what contextual conditions supported or hindered the implementation.

Figure 19: Ph.D. student's introduction to session on constructing local program theories



Author's own PowerPoint slide

The value of this session on constructing local program theories was that it enabled me to gain knowledge about the school managers' explicit perspectives on all components of a program theory. This allowed for a one-to-one comparison of the three management teams' vision for how to implement data use in their local context and their perspectives of the potential effects hereof.

7.4.2.7 Managerial-led inquiries about the employees' perspectives on data and data use

Between the first and second seminars, which were two weeks apart, the school managers were instructed to complete an intermediate task. The intermediate task consisted of asking curiously about the employees' experiences with data-informed work. I presented two examples of how to conduct this inquiry. One was to interview a small number of employees. The other was to ask a larger number of employees to complete the following statements about data and data use:

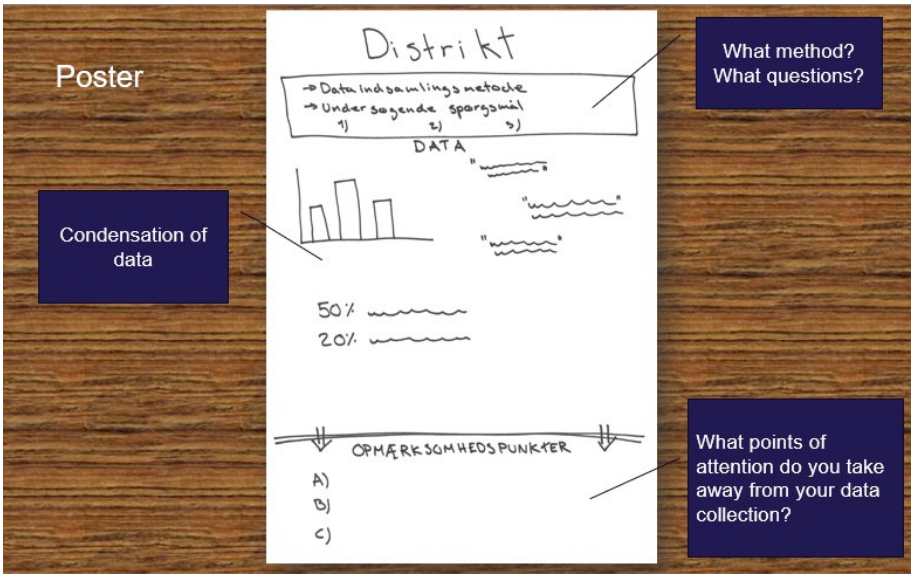
Statements on data and data use for inquiry about employees' perspectives
Data is…. Data is not …. We most often work with data when we… It is most meaningful to use data …..

All the managers chose the latter inquiry format. The managers were also instructed to summarize the main points of their inquiry prior to the second managerial seminar. The argument for introducing this intermediate inquiry was to *"disturb and challenge the participants' domain preconceptions in order to provoke reflection and new recognition."* (Ørngreen & Levinsen, 2017, p. 73).

7.4.2.8 Second managerial seminar

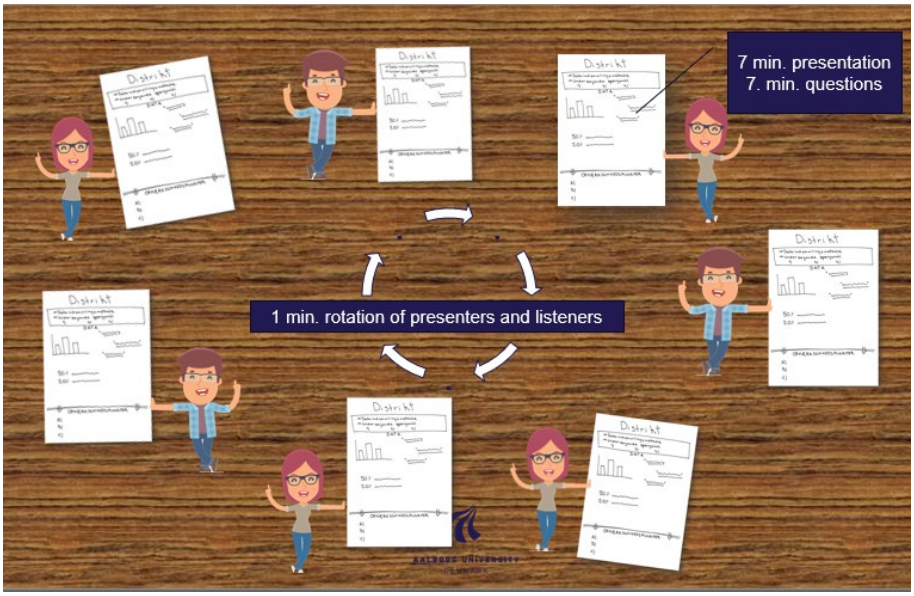
The second seminar was held two weeks after the first seminar in the spring of 2019. Here the management teams were asked to discuss the results of these above-mentioned inquiries about their employees' perspectives on data and data use, make a poster based on these discussions, and present it to the other management teams for further discussions. These dialogues were observed and partially recorded as part of the data collection. The following images illustrate my introduction to the session on creating the poster and the following poster presentation session.

Figure 20: Ph.D. student's introduction to poster creation



Author's own PowerPoint slide

Figure 21: Ph.D. student's introduction to poster presentation session



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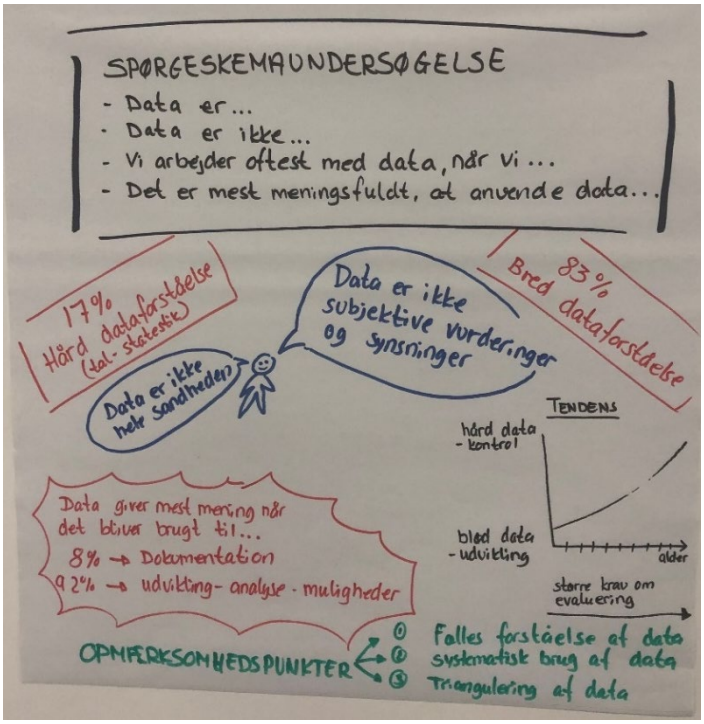
The intention of the poster session where for the managers to reflect on their employees' perspective of the idea of data use and its implementation, and hence collect data on these reflections. As evident in the research question, the aim of the analysis is to require knowledge about the *managerial* level translation. The managers are however layered in a laminated system cf. the critical realist argument (Brix & Kringelum, 2020; Sayer, 1992) with the employees being their main point of reference in relation to the translation and implementation of data use in their local settings.

Making recordings of the management teams' dialogues while constructing the posters and the poster presentation session, allowed me to obtain valuable insight into the managers' own perspectives on data and data use, which appeared quite clearly as a consequence of their discussions about the employees' perspectives.

In their discussions with fellow school managers from other schools, the managers were additionally somewhat challenged in their own preconceptions, which provoked reflections that were made explicit as a result of the dialogues.

Figure 22 shows a poster example from school red:

Figure 22: Poster example from school red



Author's own photo

7.4.2.9 Third managerial seminar

The third managerial seminar was held as an online event in the fall of 2020. The seminar was online as a consequence of the Covid-19 pandemic. The empirical material from this seminar consisted of video recordings of workshop sessions. The agenda for the webinar was:

Agenda for the third managerial seminar
A presentation by the Ph.D. student on perspectives on using data for improvements (1½ hrs.) Dialogue sessions where two management teams reflected on data-centered learning reports together (1 h. 40 min.) Introduction to the construction of local action plans by department consultants (15 min.) A presentation by the Ph.D. student on using program theories to construct action plans (45 min.) Workshop: Individual management teams worked on the construction of their local action plans based on insights from data-centered learning reports (2 hrs.)

The agenda for the third seminar was predominantly constructed by the department. The ambition was that each management team during the workshop session developed a draft for local action plans based on quantitative data from the development program "Program for Learning Management" which the schools had participated in over the course of four years. For an elaboration on the principles of the development program and the data generated during the course of the program, see chapter 2.

The main empirical takeaway from the third seminar in terms of empirical evidence that helped to illuminate the research aim of distilling differences and similarities between the three school management teams was the recordings of the seminar's first dialogue session. Figure 23 presents the introduction to this session:

Figure 23: Ph.D. student's introduction to reflective teams' session

Author's own PowerPoint slide

The recorded discussions presented insights into the managers' own data literacy, their view of data validity, the usefulness of various quantitative data sources, etc. These insights were explicitly used in the analysis in the development of an illustrative model of the intersection of managers' overall narration of the data use idea and the extent to which the managers were skeptical about the validity of data. The developed model is presented in the last section of chapter 9.

The discussions again formed the basis for the following workshop session where each management team was asked to construct local action plans based on insights from data-centered learning reports. The action plans which were completed by the management teams after the seminars were hereafter sent to the department. The action plans were meant to form

the foundation for a second round of dialogue meetings at the individual schools, which was however canceled due to the Covid-19 pandemic [25].

7.4.3 Additional data collection

In the early phase of the Ph.D. project, I also had an informal interview with the principal at school yellow. Hereafter I was allowed to observe a PLC-meeting, where a class team of two teachers and one pedagogue discussed data-informed initiatives with the principal. The data collection also included a phone meeting with the leading council consultant, in which the department's key takeaways from the dialogue meetings were discussed.

Table 2 is an overview of the data collection.

[25] A second dialogue meeting at school red was completed according to the original plan. The PhD student observed and recorded this online meeting. The decision was however made to omit the meeting from the analysis, as only the one case school participated in the second round of dialogue meetings.

Table 2: Overview of the empirical foundation of the case study

Event (title)	Duration	Participants (apart from Ph.D. Student)	Data gathering method	Ph.D. Student's role
Initial meeting with principal of School Yellow (1.10.18)	1.5 h.	1 principal	Audio recording Field notes	Interviewer
PLC-meeting at School Yellow (1.10.18)	1 h.	1 principal 3 teachers	Field notes	Passive observer
Dialogue meeting School Yellow (6.3.19)	1 h.	4 school managers 2 teachers 1 school pedagogue Head of department Council consultant	Audio recording Field notes Photos	Passive observer
Dialogue meeting School Blue (13.3.19)	1,5 h.	2 school managers 1 daycare manager 2 teachers 1 school pedagogue Head of department	Audio recording Field notes Photos	Passive observer
Dialogue meeting School Red (20.3.19)	1 h.	4 school managers 3 teachers Head of department Council consultant	Audio recording Field notes Photos	Passive observer
Management seminar (1) (28.3.19)	7 h.	School management teams Head of department 2 council consultants	Audio recording Field notes Photos Written models Statements on data Change framework	Key speaker Workshop facilitator Observer
Management seminar (2) (10.4.19)	6 h.	School management teams Head of department	Audio recording Field notes Photos	Key speaker Workshop facilitator

		Council consultant	Written posters Videos of poster presentations and dialogues	Observer
Phone meeting (10.5.19)	45 min	Council consultant	Field notes	Active participant in the dialogue
Management seminar (3)-online webinar (16.9.20)	7,5 h.	School management teams Head of department 2 council consultants	Video recording	Key speaker Workshop facilitator Passive observer

7.5 THE CODING STRATEGY

As described the empirical evidence which served as the foundation for answering the dissertation's research question consisted of various qualitative empirical sources including written material from the managerial seminars in terms of filled-out templates, observation notes, and recordings of dialogue meetings, and more informal dialogues between managers at the seminars. The recorded empirical material was transcribed using the software program InqScribe which allows detailed registration of speaker and time. All empirical material was thereafter added to the coding and analysis software program NVivo and organized in cases according to which school the material was related to.

The empirical material was coded, because: *"Coding helps to achieve all three of the aims of thematic analysis: examining commonalities within a dataset, examining differences and examining relationships*."(J. Harding, 2015, p. 2), This matches the research aim outlined in chapter 1 of exploring differences and similarities of translation processes across different management levels and units. The methodological coding and analysis procedure was motivated by the research question regarding how intraorganizational translation of organizational ideas takes place at different managerial levels. In exploring the intraorganizational translation, the overall coding and analysis strategy was guided by the

program theory presented in chapter 4, which synthesized the complex and multifaceted idea of data use.

The main and subcategories identified in the literature on data use represented deductive codes established prior to the coding process (J. Harding, 2015). These predefined codes functioned as analytical clues in the processing of the empirical material (H. Olsen, 2003). Letting theory guide the initial coding process is in line with the critical realist underpinning of the study, as *"The initial theory facilitates a deeper analysis that can support, elaborate, or deny that theory to help build a new and more accurate explanation of reality"* (Fletcher, 2017, p. 184).

The strength of these deductive codes was that they were instrumental in creating a clear analytical direction. The disadvantage however was the risk that new topics and categories relevant to the local context was overlooked. As argued by Olsen (2003): *"the requirement [for a successful coding process] is empirical openness and flexibility, so that preconceived notions do not act as an analytical 'straitjacket'."* (H. Olsen, 2003, p. 8).

Though the coding process was deductive in its offset guided by the pre-listed categories from the program theory, I was attentive toward themes emerging from the empirical material. The inductive aspect of the coding process was required, because although it was possible to code the empirical material according to the main categories of data use regarding the intent, processes, context, mechanisms, and effect logics, the sub-categories were found to be insufficient. When the empirical material matched the existing sub-codes, extracts were coded within these categories. It was however often difficult to unambiguously place extracts within the sub-codes. As a result, much of the empirical material was coded using only the main codes during the first round of coding.

In addition to the deductive sub-codes, which were derived from the literature I created inductive sub-codes for emerging themes that referred to the initial main code but could not be placed under the initial deductive sub-codes.

Both the initial sub-codes and the emerging sub-codes are illustrated in Table 3:

Table 3: Initial main codes and deductive and inductive subcodes

Main codes	Deductive subcodes in the initial code tree	Inductive subcodes
Intent	Accountability intent Development intent	*None added*
Processes	Selecting data Collecting data Analyzing data From data to practice Revisiting data	Organizing data use in professional learning communities Reflections
Effect logics	Academic outcomes Well-being of students Equality	Collaboration Systematics 'Away from hunches' Enhanced professionalism Enhanced reflection and pedagogical analysis
Mechanisms	*None*	Management related mechanisms
Context	*None*	*None added*
Data topics	Demographics Perceptions School processes Student learning	*None added*
Data types	Summative / formative Qualitative / quantitative Mixed Formal / informal Local sources /central sources Simple / complex	*None added*

The coding process also accounted for reoccurring themes in the empirical material that were not captured in the initial main codes and the related subcodes. These themes were coded in inductive codes, meaning that they

were constructed consecutively as the empirical material was read through, and were hence based on the empirical material rather than pre-establish theoretical or thematic constructs. The inductively added codes where all associated with data use practices locally and characterized as thematic rather than theoretical entities (Bryman, 2012). As I noted recurring themes, I revisiting the pool of empirical documents (Bazeley & Jackson, 2013). The empirical material was eventually coded in the following main codes:

Table 4: Final main codes

Deductive main codes	Inductive codes
Intent	The challenge data use
Processes	Status of data use practices in the local schools
Effect logic	School managers' "reading" of data, including data skepticism
Mechanisms	Coupling of data use and professional learning communities
Context	The head of the department's issues of special focus
Data topics	Employees' qualifications
Data types	Definition of data

The strength of combining a deductive and inductive coding strategy was that the pre-established inquiry focus guided the coding processes (the deductive codes) while adding new perspectives and accounting for the local contextual circumstances and unique characteristics (via the inductive codes), which Scandinavian institutionalists propose have a great influence on how organizational ideas are adapted into local settings (Czarniawska & Sevón, 2005; Mortensen, 2020; van Grinsven et al., 2020; Wæraas & Sataøen, 2014). Overall, the coding of the transcripts aimed to uncover similarities, differences, and connections in the empirical material, in accordance with the aim of a thematic analysis (J. Harding,

2015). Generally, the codes used were not abstract theoretical concepts but descriptive and thematical in nature which made them relatively easy to apply to the empirical material.

7.6 THE ANALYSIS STRATEGY

The analysis of the empirical material is presented in three chapters. Chapter 8 outlines the department's translation of data use. Chapter 9 outlines the school management teams' translations of data use. Both chapters report on an empirically driven analysis. This means that the analysis presented in these chapters is not mirrored against the dissertation's theoretical point of reference being Scandinavian institutionalist theory. The analysis presented in chapter 8 and 9 is hence somewhat descriptive in nature (H. Olsen, 2003).

In the following chapter 10, I however raise the analysis from its embedding in the specific context (time/place) to make more generalized attributions to the theory (Schultz Jørgensen, 1989). The aim of chapter 10 is hence to clarify and discuss how my study contributes to the theoretical conceptual apparatus of Scandinavian institutionalism (Silverman, 2000). The aim of theoretical development is in line with the critical realist epistemology (Frederiksen & Kringelum, 2020).

The following sections outline the analysis strategy related to first the department's translation process and thereafter the analysis strategy related to the school managers' translation process.

7.6.1 Analysis strategy for the department's translation

As described initially in this chapter, the empirical material used for exploring how the school departments translated the data use idea was predominantly two strategic documents formulated specifically to address this issue. These documents hence represented the department's objectification of data use (cf. Corvellec & Eriksson-Zetterquist, 2017; Czarniawska & Joerges, 1996). The strategic documents were coded according to the categories provided by the program theory (chapter 4).

In addition to coding and analyzing the strategic documents, the analysis of the strategic department's translation of data use also relied on analyzing statements made by the department head in the three dialogue meeting. These statements were coded under the heading 'The head of the department's issues of special focus' as part of the inductive coding process. The method combination of document analysis and quotations from the dialogue meetings happened partly with the ambition to supplement partly to validate (Riis, 2001).

The analysis of these department-related empirical materials allowed me to identify seven empirically founded characteristics, which summarize the department's translation of the idea of data use. These characteristics reflected the main categories in the program theory of data use (the main deductive codes). The characteristics were categorized into three overall themes. In chapter 10 these empirical findings from the departmental level translation are discussed based on their potential to confirm or contribute with new nuances and knowledge to Scandinavian institutionalism.

7.6.2 Analysis strategy for the decentral managements' translation

As outlined previously, the empirical material related to the school management teams' translation of the idea of data use was coded using the categories provided in the generative program theory of data use and additional inductive codes. The written presentation of the analysis (chapter 9) is likewise structured by the program theory. Although the empirical material was difficult to code according to the deductive sub-codes, these sub-codes were more supportive in bringing forward the nuances of the local translations as part of the write-up of the analysis.

Chapter 9 presents a cross-case analysis based on a framework matrix (Bazeley & Jackson, 2013). Framework matrices is a function in NVivo that: *"provides a table format designed for cross-case analysis with cases in rows and thematic nodes in the columns"* (Bazeley & Jackson, 2013, p. 259). This approach is aligned with the research aim, as it allows for an

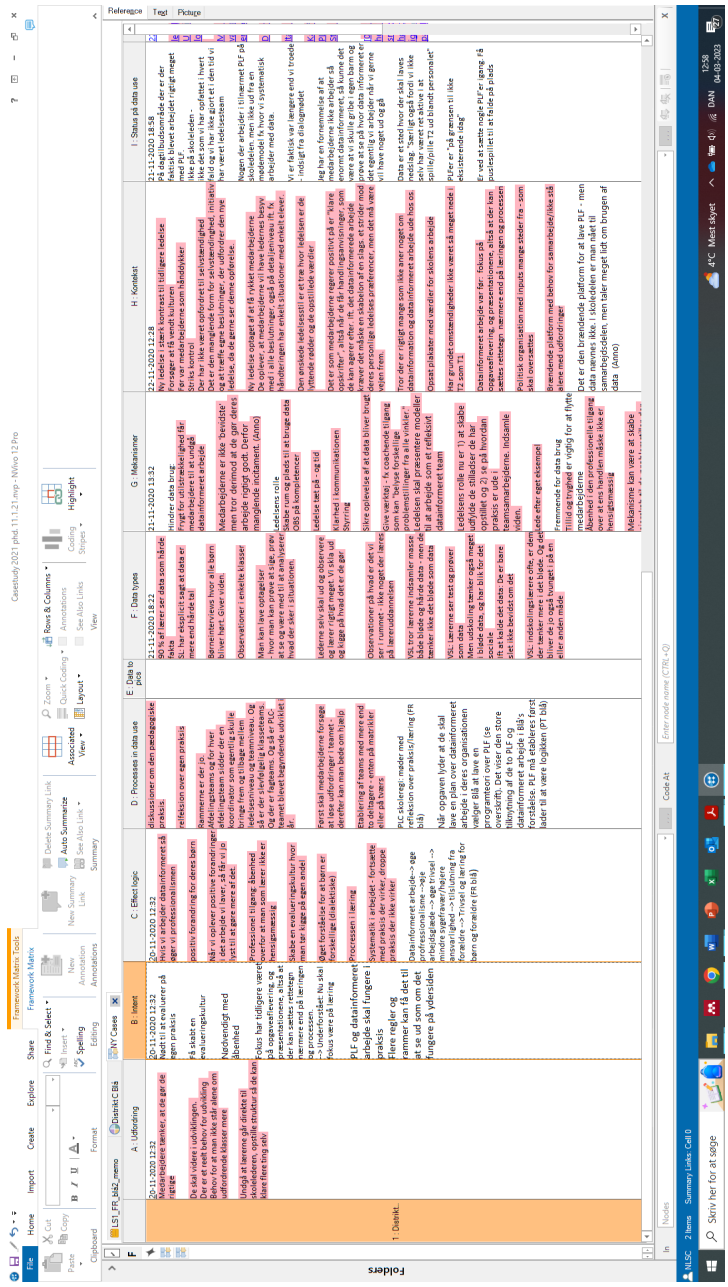
exploration of differences and similarities of translation across the different management units.

In constructing the Framework matrix, I first let NVivo automatically generate a table with all intersected content for each cell. All main codes both the deductive and inductive were represented in an individual cell. Thereafter I summarized the content in each cell. This part of the analytical process represented an initial within-case analysis, aligned with this description from Eisenhardt (1989):

> *"Within-case analysis typically involves detailed case study write-ups for each site. These write-ups are often simply pure descriptions, but they are central to the generation of insight" (Eisenhardt, 1989, p. 540)*

Figure 24 displays an excerpt of the framework matrix from school blue:

Figure 24: Excerpt of the framework matrix from NVivo



Author's own screenshot

Using the synthesized matrix enabled me to conduct both with-in case analysis and search for cross-case patterns (Eisenhardt, 1989). As described at the beginning of chapter 9 the three case schools were in different stages of implementing data use in their local contexts. This insight was derived from the cross-case analysis. This had implications for the potential to contribute to SI-theory based on the case study approach (cf. Eisenhardt, 1989). That the three case schools were at different stages of idea implementation and varied in terms of how ready they were for implementing the idea (see the extended argumentation for this characterization in chapter 9 and 10) allowed me to identify patterns of translation that varied according to the organizational units' level of readiness for the idea, specifically the local context's level of data maturity.

In the process of writing up the empirical analysis I did not solely rely on the synthesized matrix in order to avoid drawing premature conclusions (Eisenhardt, 1989). I also revisited the non-synthesized empirical material. An illustrative example of this is the presentation of posters and change frameworks in the analytical chapter on the decentral managerial translation level.

The empirical findings deduced from the written templates and recorded dialogues were partly intended to feed back to the domain theory on educational data use, in accordance with the aim of applying the workshops-as-research-methodology identified by Ørngreen & Levinsen (2017). The empirical findings were however to a greater extent intended to provide empirical evidence of relevance to research on intraorganizational translations at different managerial levels.

Overall, the ambition of both chapter 8 and 9 was to 'let the empirical material speak' whereas the subsequent chapter 10 is more aimed at drawing comparisons across and discussing potential nuances and new knowledge to the literature on intraorganizational translation processes.

This was however still done with a strong foundation in the empirical findings presented in the previous analysis chapters.

In my analytical approach, I was inspired by the stream of Scandinavian institutionalist research which seeks to conceptualize generative translation rules (e.g. Kirkpatrick et al., 2013; Øygarden & Mikkelsen, 2020; Røvik, 2016). As my study explicitly distinguishes between the translation happening at different managerial levels, I am able to contribute new knowledge to this line of research with translation rules that are related to specific managerial levels. At the strategic level, my study identifies the translation rules of prioritization and framing. At the decentral management level, my main contribution is that idea adjustment is likely accompanied by adjustments of the contextual setting in which the idea is sought implemented.

This concludes this chapter on the methodological foundation of the dissertation. Hereafter follows the analytical chapters.

CHAPTER 8: THE DEPARTMENT'S TRANSLATION OF THE DATA USE IDEA – AN EMPIRICAL ANALYSIS

8.1 CHAPTER INTRODUCTION

Chapter 8 marks the beginning of the empirical and analytical contribution by presenting how the school department at the case municipality translates the organizational idea of data use. The chapter investigates which aspects of the data use idea are highlighted and which are not addressed (translated) in(to) the department's strategy. The empirical presentation portrays how the department translates effect logics and data use practices, and how their translation relates to the theoretical framework of data use presented in chapter 4. The chapter also identifies how data use practices are framed by the department. In the specific case, the advised organizational set-up is professional learning communities, where teachers work in teams. The content of the department strategy, and how it is conveyed downwards in the organizational system holds implications for 'the space for translation' left to the local school managers. This 'space for translation' created by the department is also identified in this chapter 8. The chapter's last section provides a summary of the seven characteristics of the strategic translation described in the empirical-founded presentation.

8.2 THE EMPIRICAL FOUNDATION OF THE CHAPTER

The presentation of the empirical findings is predominately based on a content analysis (Bowen, 2009; Stemler, 2001) of two key strategic documents that outlines the department's translation of data use.

The first document is titled 'Professional learning communities'(Case municipality - school department, 2018). In the document, 'professional learning communities' are presented as the advised organizational setup for when employees should use data with reference to Dufour & Marzano

(2015) (Case municipality - school department, 2018). According to the department's consultant, the department formulated the document based on inputs from front-level employees. The document was hereafter distributed to all school and daycare managers and staff throughout the municipality in the fall of 2018. During the course of data collection for the case study, both the department head and the department's school consultant repeatedly referred to the document as 'the standard' and viewed it as a guide for implementing data use in the local schools. The standard hereby represents the department's main *objectification* of data use to use the theoretical wording of Scandinavian institutionalist pioneers Czarniawska & Joerges (1996).

The second document is titled 'Goal and follow-up plan' (Case municipality - school department, 2017). The document is a template filled in by the department, as a part of the municipality's participation in a development project titled 'Program for learning management' [26] (Qvortrup et al., 2016). The goal and follow-up plan outlines the goals, initiatives, challenges, and criteria of success for the municipality's data-informed work.

The content analysis of these two strategic documents has allowed me to list the following seven empirically founded characteristics, which summarizes the department's translation of the idea of data use [27]:

[26] in Danish: Program for Læringsledelse.
[27] The content analysis methodology was introduced in chapter 7.

Characteristics of the department's translation of the data use idea
1: There is greater emphasis on long-term student-related effects than on intermediate effects. 2: The data use idea is framed within professional learning communities. 3: Collaboration shifts from being a mechanism in the theoretical framework to being the main process in the department's translation. 4: The department prioritizes some mechanisms over others in the strategic translation. 5: Data use processes are framed within tools and procedures already known in the organization. 6: The department prioritizes some sub-processes over others in the strategic translation. 7: Data types and topics are not specified in the department's strategic translation

The empirical foundation of these seven characteristics is unfolded in the following. The empirically founded presentation of the characteristics of the strategic translation is thereafter discussed in the later chapter 10.

8.3 PREDOMINANTLY STUDENT-RELATED EFFECT-LOGICS

According to Scandinavian institutionalist scholars, translation processes are initiated when organizational members find a specific idea appropriate to implement in a given organizational setting (Czarniawska, 2005; Røvik & Petterson, 2014). It can be argued that the assessment of appropriateness closely relates to the effects that the organization is said to gain by implementing the idea. Following this logic, it is meaningful to uncover the department's main effect logic for at least two reasons. First, the strategic translation of effect logic sends a signal to the lower organizational levels about which effects are legitimate to try to achieve

when implementing data use initiatives. Second, the extent to which the department has operationalized the effect logic holds implications for the space for translation for the lower-level translation. In the following, the strategic translation of effect logics is identified with reference to the four interlinked effect logics of data use identified in the theoretical framework. These effect logics are repeated here:

Four interlinked effect logics of data use (identified in chapter 4):
Three are **student-related outcomes**: a) Improvement of student academic outcomes, b) Improvement of student well-being, and c) Increased equality. Additionally, d) Improvement of organizational processes was identified as an **organizational-related outcome**.

In the strategic documents (Case municipality - school department, 2017, 2018) both 'progression of learning' and 'progression of well-being' are explicitly identified as the goals of enhancing data use practices in the local schools. In the only three brief pages of the main document (the PLC standard) the purpose of enhancing students' learning and well-being is stated six times (Case municipality - school department, 2018). 'The standard'-document hence presents a translation that is in accordance with effect logic a) improvement of student academic outcomes and b) improvement of student well-being from the theoretical framework. In the document the overall goal is summed up to be 'enhance quality', and quality is thereby linked to student-level outcomes (Case municipality - school department, 2018).

'Social mobility' (which is concordant to effect logic c) increased equality) is also identified as an objective in 'the goal and follow-up plan' (Case municipality - school department, 2017, p. 3). Social mobility is however, only mentioned once and with reference to the aim of the more general

'whole system approach' held by the department and thereby not directly related to the data use policy [28].

With the emphasis on students learning and well-being progression, the department forefronts student-related effect logic. The strategic translation does however not specify what elements of learning and well-being are to be improved by data use. The department's effect logic on student-related progression can be characterized as covering all aspects of learning and well-being and is hereby non-specific and non-operationalized. The student-related effects can likewise be characterized as long-term effect goals because it must be assumed that student-level effects can first be achieved through adjustments of employees' approaches in relation to students. This argument is in accordance with the department's identification of intermediate goals of data use.

In addition to the long-term effects related to students, the department explicitly lists two intermediate goals of data use. The formulation of these intermediate effects is seen in the middle column in table 5.

[28] The goal of social mobility is in the goal and follow-up document linked with the policy demand of the Danish school reform of 2014, which states that "The public school must challenge all pupils to reach their full potential" and that "The public school must lower the significance of social background on academic results" (Danish Ministry of Children and Education, 2018).

Table 5: Effects of data use identified in the literature and in the department's translation

Effect logics identified in research literature	Intermediate effects in the department's translation	Long-term effects in the department's translation
a) Improvement of student academic outcomes b) Improvement of student well-being c) Increased equality d) Improvement of organizational processes	*"The goal is to become more competent in choosing data and that actions based on data become more precise and nuanced."* *"The goal is that data and evidence is naturally involved in the work of the PLC's and hereby contributes to qualifying the pedagogical work"* ---------- ↓ Improvement of teachers' data use competencies & Professionalism	Enhanced quality Enhanced learning and well-being progression (a+b) (Social mobility, c)

Author's own development

The table refers to the following sources: The effect logics in the left column stem from the review of research articles on data use in the education sector, presented in chapter 4. The quotes in the middle column are from the document 'Goal and follow-up plan' and are formulated by the department (Case municipality - school department, 2017). The statements below: 'Improvement of teachers' data use competencies' and 'Professionalism' is my summary of the key elements represented in the department's statements of intermediate goals. The wording in the right column, which identifies the long-term effect logics, stems from both the

PLC-standard (Case municipality - school department, 2018) and the 'Goal and follow-up plan' (Case municipality - school department, 2017).

As shown in Table 5, the department formulates that it is an intermediate effect goal that "actions based on data become more **precise and nuanced**" and that when data is "naturally involved in the work of the PLC's [professional learning communities]" it "contributes to **qualifying** the pedagogical work". These excerpts can be interpreted as a focus on securing professionalism, through work processes that are qualified, precise, and nuanced. Additionally, the statements that "the goal is to **become more competent** in choosing data" and that data is "naturally involved" in the work, indicate that improvement of data-related competencies is at play. The goal statements in this way indicate that the department included intermediate effect logics of professionalism and capacity building of data-related competencies in their translation of data use in the municipality.

It is worthwhile however to state that the intermediate goal statements illustrated in the middle column in Table 5 appear in the 'goal and follow-up plan'(Case municipality - school department, 2017). This is a document formulated by the department, but not distributed widely across the lower organizational levels. The emphasis on the long-term effects of learning and well-being progression appears in the 'standard' which is distributed widely across the organization and often referred to by the department officials e.g. in the observed dialogue meetings. The following quote is an empirical example where the department head emphasizes the 'standard' as a helpful guide to organize how to use data within the framework of professional learning communities, as the advised meeting format:

> *"Because sometimes, that is at least my experience, it is extremely conductive [to use a given standard] because then we do not have to address that [which specific meeting format to use]. And then we can enter that [the meeting format] and get the content created. And then it is possible to make*

developments. In that regard, you are helped by 'the standard'. In that [the standard] there are some suggestions about those methodologies." (The head of the school department, at the dialogue meeting at school blue, min. 38:26)

The statement illustrates the emphasis that the department head placed on 'the standard' in terms of suggestions about the meeting format and the suggested methodologies. My argument here is that 'the standard' holds greater weight in the implementation process. In contrast, the department representatives did not explicitly refer to 'the goal and follow-up plan' doing the data collection. As the long-term effect logics is the focal point in 'the standard', the main effect logic in the strategic translation is therefore identified as centered on student-level effects concerning learning and well-being progression. The first identified characteristic of the central management translation is therefore that:

1: There is greater emphasis on long-term student-related effects than on intermediate effects

8.4 COLLABORATION AS THE MAIN PROCESS OF DATA USE

From the view of Scandinavian institutionalism, the department has made a conceptualization of data use, which heavily relies on teamwork in professional learning communities (PLCs). The emphasis on collaboration and teamwork is unavoidable, as the document titled "Professional learning communities" referred to as 'the standard' is the prime objectification of the strategic translation of data use. The department strategy outlines professional learning communities, as collaboration forums where teachers and pedagogues collect and analyze data and plan initiatives accordingly. In the introduction of 'the standard' it is for example written that:

"Professional learning communities are understood here as an ongoing process, where teachers and pedagogues work

> *together in **continuous cycles of collective inquiries and action learning** in order to **achieve better development and results for the children**. Central for the work in the professional learning communities are focused conversations with **systematic use of evidence-based data and experience**, that can support the professional decision processes and **lead to improvements and action addressed initiatives in practice**" (Case municipality - school department, 2018, p. 2)* [29]

This description of professional learning communities emphasizes various aspects of the strategic translation of data use. It stresses that improvement of student-related outcomes is the prime purpose. The formulation "in order to achieve better development and results for the children" is an indication of this. The quote also stresses that cycles of collective inquiries with systematic use of data support professional decision processes that evoke improvement and action-oriented initiatives. Two characteristics of the department's strategic translation can be stated based on professional learning communities being emphasized as the main process of data use. First, characteristic number 2 is that:

> 2: The data use idea is framed within professional learning communities.

The concept of framing and how it can contribute with a nuance to Scandinavian institutionalist theory is discussed in the later chapter 10.

8.5 SHIFT FROM STATUS OF MECHANISM TO STATUS OF PROCESS

Another characteristic can be derived from professional learning communities being emphasized as the main process of data use. This is that *collaboration* acquires another position within the data use idea than in the theoretical framework, as a consequence of the department's

[29] Bold by the Ph.D. student.

emphasis on professional learning communities. Collaboration was in chapter 4 identified as one of multiple mechanisms that trigger effects of data use initiatives based on literature on educational data use (Cosner, 2014; Farley-Ripple & Buttram, 2014; Huffman & Kalnin, 2003; Huguet et al., 2017; Robert Michaud, 2016; Van Gasse et al., 2017). In the specific translation made by the department, collaboration is however highlighted as the main processual element of how the lower organizational levels should structure their data use activities. Characteristic number 3 is hence that:

> 3: Collaboration shifts from being a mechanism in the theoretical framework to being the main process in the department's translation

The implications of this empirical example of how components of an organizational idea resume a new role as a consequence of the strategic translation are also discussed in the later chapter 10 in relation to Scandinavian institutionalist theory.

8.6 MECHANISMS

Following both the second and third characteristic, which underlines the emphasis that the department puts on collaboration, it can also be inferred that:

> 4: The department prioritizes some mechanisms over others in the strategic translation

In chapter 4, five mechanisms that educational researchers have found have the potential to trigger the proposed effect of data use were identified. These mechanisms, which are the connecting link between the activities and the effects (Dahler-Larsen & Krogstrup, 2009), are listed in the left column in Table 6. The table also presents an assessment of how much focus the department gives the individual mechanisms in their strategic translation. This assessment is seen in the right-hand column:

Table 6: Mechanisms of data use identified in literature vs. focus on these mechanisms in the department's translation

Mechanisms identified in the literature	Focus on mechanisms in the department's translation
Leadership for data use Vision of data use	Present
Data literacy	Present, but toned-down
Collaboration	Prioritized and elevated to main process
Professional knowledge	Present, but toned-down

Author's own development

The mechanism of collaboration is, as already argued, prioritized to the extent that it is identified as the main process, and hereby arguably the mechanism that is given the highest priority by the department.

In the department's translation, both 'leadership for data use' and 'vision of data use' are present as mechanisms that support the achievement of the proposed effects of data use practices. During the data collection period, the department carried out multiple activities that were intended to build and maintain the decentral management teams' focus on implementing data use practices in the local school. The observed annual dialogue meetings and the three management seminars (see chapter 7 for a more in-depth description) were for example all activities that centered around establishing a managerial focus on data use. These activities were hence both expressions of the department's own vision for data use *and* forums where the department encouraged the decentral management teams to work on their own local translations of the idea as well as developing their local visions for data use and making it explicit.

In the first management seminar, the decentral management teams were e.g. given the task of completing these three statements about data: *1)*

Data is… 2) Data is not… 3) Data-informed work means… The teams were also given the assignment of reflecting on the following questions:

> *"What is the vision of working data-informed? Is the vision clear for you as leaders, and do the employees buy into the vision?*
>
> *What qualifications can the employees draw on in the work with data - and which qualifications can be useful to build?*
>
> *What is the incentive to increase the level of data-informed work?*
>
> *Where do you stand in regard to the planning and implementation phase?*
>
> *How is the 'change' received by the employees?" (Christiansen, 2019)*

These assignments are illustrative examples of how the management seminars were fora intended for the decentral management teams to develop a 'vision of data use' *and* fora where the department emphasized the need for 'leadership for data use'.

It is important to note that the content of the three managerial seminars was planned in a collaboration between the department's school consultant, the head of the department, and the Ph.D. student. The involvement of the Ph.D. student, therefore, impacted the extent to which focus was put on developing a strong leadership and vision for data use amongst the school management teams in the managerial seminars. The implications of the Ph.D. student's involvement were reflected upon in chapter 7.

The annual dialogue meetings, which are also a part of the case study's empirical foundation were on the other hand solely planned and executed by the department. In these meetings the head of the department

'interviewed' the decentral management teams about how they were implementing professional learning communities in the local schools. The department head was especially attentive to the data use element of the professional learning communities. When the management teams did not address the process of using data in the collaborative communities themselves, the department head asked specific questions about their vision and managerial support for data use. This illustrates that the department supported the decentral management teams in taking steps to establish a vision for data use in their local contexts.

The department's focus on supporting the decentral establishment of 'leadership for data use' and 'vision of data use' is likewise evident in the department's strategic documents. In the document 'Goal and follow-up plan' it is e.g. stated that:

> *"The management team work on **supporting that the PLCs use data** to quantify their work"* (Case municipality - school department, 2017, p. 4)[30]

The PLC-standard also contains a section on the managers' role in relation to the professional learning communities. This section establishes that managers should:

> *"Management sets clear **written expectations and provides support** to the professional learning communities.*
>
> *Management develops a structure and meeting organization **that ensures that employees can participate** in relevant professional learning communities.*
>
> *Management **prioritizes being close to the development** of the professional learning communities and participates at least twice a year in meetings in the individual professional*

[30] Bold by the Ph.D. student.

learning communities." (Case municipality - school department, 2018, p. 3)[31]

In this way, the department directs attention to the need for managerial support to institutionalize data use practices in the local schools. The above description hence leads to the assessment that the mechanisms of 'leadership for data use' and 'vision of data use' has a significant role in the department's translation of the data use idea. The mechanisms are however not as significant as the role of 'collaboration', as has been unfolded previously.

The mechanisms of 'professional knowledge' and 'data literacy' are on the other hand arguably toned down compared to the other mechanisms. The mechanisms of professional knowledge and data literacy are mentioned in the strategic documents, although they are toned down. They are in this sense not omitted from the departmental translation.

The above description of the department's translation of the various mechanisms leads me to identify the beforehand mentioned characteristic number 4; that the department in their translation prioritizes some mechanisms over others.

So far, the department's translation has been described in regard to which effect logic that are highlighted in the strategic translation and which mechanisms are the department's highest priority. Collaboration has been identified as the key mechanism in the department's translation, and the collaborative teamwork structure of 'professional learning communities' has in effect been identified as the main process element in the department's translation. The following section will unfold how the department has further translated sub-processes of data use under the framework of professional learning communities and how the idea of data

[31] Bold by the Ph.D. student.

use is objectified via the department's suggestion of specific templates and tools.

8.7 THE AGENDA TEMPLATE AND INTRODUCTION OF TOOLS

The department's objectification of data use processes was made explicit in an agenda template, which teachers and pedagogues can use in professional learning community meetings. The agenda template was formulated by the department and is presented in the 'standard'-document (Case municipality - school department, 2018).

Table 7: Agenda template for professional learning communities

Framework for the meeting	
Date, time and place	
Head of meeting	
Referent	
Theme for the meeting	
Data that should possibly be processed at the meeting	
Responsible for collecting **data**	
Meeting agenda	
Summary of initiatives since last meeting	
The concrete challenge	
What does **data** show? Use the data-analysis-circle	
Further work based on one of the following methods: Pedagogic analysis (the analysis part) SMITTE	
Summary of decisions for next meeting	
Decisions about the framework for the next meeting	

(Case municipality - school department, 2018) [32]

The agenda template illustrates, that the department views data use as an inherent part of professional learning communities. This is visible in the three underlined sections concerning data: a) **Data** that should possibly be processed at the meeting, b) Responsible for collecting **data**, and c) What does **data** show?

The template also points to different methods that can structure how teachers and pedagogues make inquiries and work with data. Three approaches are mentioned; data-analysis-circle, pedagogic analysis, and

[32] Bold by the Ph.D. student to emphasize elements of data use on the agenda.

SMITTE-model. The department's objectification of data use is hereby related to models used to structure the 'collective inquiries'. Apart from the three approaches mentioned in the template, the standard also includes a brief introduction to 'the coherence circle by Nordahl' and 'the SMART model'. These five approaches to inquiry were all known in the organization beforehand. These models and tools are in the Scandinavian institutionalists' perspective *objects* (Czarniawska & Joerges, 1996) in the shape of guides on how to make inquiries about local challenges. All the models are aimed at helping professionals to formulate potential action plans to solve identified challenges.

Data use in professional learning communities is hereby objectified further by promoting tools for inquiry developed in the educational and pedagogical field. This leads me to infer the fifth characteristic of the strategic translation:

> 5: Data use processes are framed within tools and procedures already known in the organization

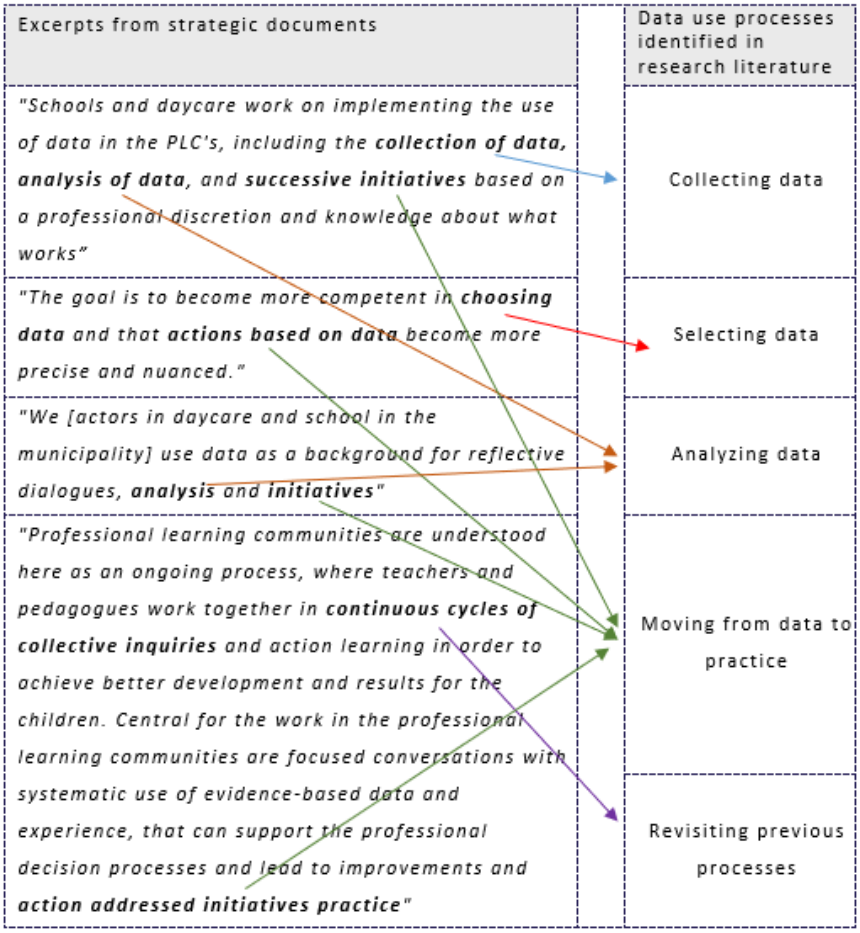
This characteristic indicates that data use is in line with general pedagogical and dialectical tendencies.

8.8 SUB-PROCESSES IN THE STRATEGIC TRANSLATION

In addition to professional learning communities being translated as the overall process element that frames the data use idea, different sub-processes are identified in the department's translation of the data use idea. Figure 25 illustrates such sub-processes which are exemplified in excerpts from the department documents. The arrows illustrate how phrases connect with the data use processes identified in research literature [33]. These connections are my analytical inference:

[33] See chapter 4.

Figure 25: Excerpts on sub-processes linked to data use processes identified in the research literature



Author's own development

The excerpts illustrate that the department identifies various sub-processes under the umbrella of professional learning communities. The department's translation in fact includes all five main processes identified in the research literature previously presented in chapter 4. It can however be argued that the department has a greater emphasis on *analysis* and the process of *moving from data to practice*, than on the processes of collecting, selecting, and revisiting data. The process of

analyzing and planning initiatives is repeated in the strategic documents, and planning of local initiatives based on inquiry is part of all the five tools proposed in 'the standard'. This leads me to infer the sixth characteristic of the strategic translation:

> 6: The department prioritizes some sub-processes over others in the strategic translation

That the strategic documents do not outline a prevalent focus on *collection* and *selection* of data is perhaps coherent with the apparent down-toned focus on data literacy. There is seemingly not a distinct focus on building specific data literacy competencies. This may be related to the subsequent argument that the department does not specify which specific types of data are to be used. The department instead opts for a broad data definition. Rather than identifying specific data literacy competencies that are needed, the focus is on creating a collaborative forum in which teachers and educators can make inquiries and plan action-oriented initiatives. While the department promoted professional learning communities and tools for inquiry as essential elements of data use, it was not made explicit what types of data educators should use (e.g. qualitative/quantitative, formative/summative, etc.). It is also not indicated, what topics data should address (e.g. academic performance, demographics, perceptions, etc.). Characteristic number 7 of the central management translation is therefore that:

> 7: Data types and topics are not specified in the department's strategic translation

As will be argued in the later discussion (chapter 10), this characteristic in particular leaves the decentral management teams with the mandate of translating a central part of data use practices.

8.9 SUMMARY OF THE EMPIRICAL FINDINGS OF THE DEPARTMENT'S TRANSLATION

The study relies on the fundamental premise of Scandinavian institutionalism that organizational ideas are translated and transformed as they are adapted into in local contexts (Boxenbaum & Pedersen, 2009; Czarniawska & Joerges, 1996; Røvik, 1998; Wæraas & Sataøen, 2014). According to this theoretical approach, a translation process is initiated, after organizational actors' (often at the strategic level) have identified a certain idea as appropriate and begin making the idea tangible through a process of objectification (Czarniawska, 2005; Czarniawska & Joerges, 1996; Røvik, 1996).

So far, this chapter has presented empirical findings that illustrate the way the organizational idea of data use has been adapted at the strategic level by the school department in the case municipality. The empirical findings hereby represent the first of multiple organizational levels' translation of the organizational idea.

The description of the department's translation refers to the theoretical framework of the data use idea, which was generated in chapter 4 based on research publications on educational data use. The theoretical framework was modeled after the principles of a program theory (Dahler-Larsen & Krogstrup, 2009; Pawson & Tilley, 2004) and hence differentiate between aspects of the data use idea that relates to respectively effect logics, processes, contextual influences, and mechanisms[34]. The aim of this chapter has been to identify how these aspects were translated by the department. This undertaking resulted in the identification of seven characteristics related to different aspects of the idea as depicted hereafter:

[34] See chapter 3 for an elaboration of the principles of program theories and chapter 4 for an elaboration the data use framework.

Characteristics of central managements translation
1: There is greater emphasis on long-term student-related effects than on intermediate effects 2: The data use idea is framed within professional learning communities 3: Collaboration shifts from being a mechanism in the theoretical framework to being the main process in the department's translation 4: The department prioritizes some mechanisms over others in the strategic translation 5: Data use processes are framed within tools and procedures already known in the organization 6: The department prioritizes some sub-processes over others in the strategic translation 7: Data types and topics are not specified in the department's strategic translation

The characteristics, as they have been presented empirically so far, indirectly provide new perspectives to Scandinavian institutionalist theory. These contributions to the Scandinavian institutionalist theory are made explicit as they are discussed later in chapter 10.

The empirical findings presented until now can be categorized in three overall themes:

1. How the department **prioritized** certain content of the data use idea in their strategic translation (characteristic 4,6)
2. How the department **framed** the idea of data use in their strategic translation (characteristic 2,5)
3. The **space** that the department **left for translation** at lower organizational levels (characteristic 1,7)

The discussion of the department's translation in chapter 10 is structured around these three themes. As a whole, these three themes all reflect the initial high-mode translation process (Linneberg et al., 2019), which results in a certain space for translation available to the lower organizational levels. Hereafter the empirical findings of the decentral management teams' translation are presented.

CHAPTER 9: THE DECENTRAL MANAGEMENTS' TRANSLATION OF THE DATA USE IDEA – AN EMPIRICAL ANALYSIS

9.1 CHAPTER INTRODUCTION

Chapter 7 established how the department translated data use into broad effect logics of both improvements of students' academic performance and well-being. The chapter also outlined how the department operationalized teamwork in professional learning communities as the main arena for achieving the effect goals. Despite strategic documents suggesting various tools for collaboration, the strategic translation only loosely defines data use in terms of i.e. specific processes, intermediate effect goals, and data types and topics. Based on the empirical presentation of the department's translation in the previous chapter, it can be argued that the open-ended strategic translation leaves the local school managers with the majority of the task of translating data use as an organizational idea into actions. For the large part, the department gives the decentral management teams autonomy to contextualize data use locally and operationalize the idea into local actions [35].

Seven characteristics of central management's translation were established in the former chapter. This chapter investigates the further translation of the intent, effect, process, and mechanism components of data use which happens in the decentral management teams. As was the premise in the former chapter, this chapter also consists of an empirical-founded presentation. The chapter introduces five themes that characterize how the school management teams at the three case schools

[35] Although there is a large degree of autonomy, the department is informed about and to a certain extent influence the decentral units' translations. The interaction about local data use practices is largely situated in yearly dialogue meetings facilitated by the department head.

translate the idea of data use. The empirical themes are hereafter discussed in chapter 10, where they are related to the Scandinavian institutionalist theory. Chapter 10 discusses how the empirical material confirms and, in some instances, contributes with new insights to the existing theory.

9.2 STATUS OF TRANSLATION STAGE OF DATA USE PRACTICES

Before entering the analysis of the decentral translation, it is beneficial to provide a brief outline of the case units and what stage of translation of the idea the different schools were at, at the time of the data collection.

Overall, the three schools have similar traits of having a somewhat new constellation of management. The three principals were employed no more than two years prior to the beginning of the data collection period. In terms of student performance, school blue has lower school-leaving grade average than the other schools. This is a focus area for both the department and the school management. School yellow in contrast has a history of a high school leaving grade average. The socioeconomics of residents in school yellow's district is higher than the other districts, which both the department representatives and the school management team speak of as a contributory factor to the higher student academic performance.

None of the management teams at the three case schools expressed that data use was routinely conducted. Data use was hence not described as a taken-for-granted natural routine, referred to as an 'institution' in organizational institutionalism (Greenwood et al., 2008). The goal of 'data use being a natural part of the work of professional learning communities' stated in the strategic documents was thereby not reached at the time of the data collection in any of the schools. In all three cases, data use was an emerging practice. As unfolded in the following, the managers' perception of how far along the individual schools were in implementing

and institutionalizing data use practices amongst frontline staff differed to some extent.

Managers at **school blue** expressed that implementation of data use was only in a preliminary phase and put more emphasis on enhancing teamwork than on data use specifically. At the initial dialogue meeting, observed as part of the data collection, the principal at school blue even commenced the meeting by apologizing rather embarrassed for not having embarked on the process of implementing data use and for being 'behind' with establishing professional learning communities (Dialogue meeting at school blue, min. 1). The department head began the meeting by asking how far along the integrated school- and daycare management were in implementing professional learning communities (PLC). To this question, the principal at school blue answered:

> *Principal at school blue: "If you say PLC in the Blue district, then I think both 'Wey we far along' and then we think shit' - so both*
>
> *Department head: Why - What does that mean?*
>
> *Principal at school blue: Well that means that in our daycare area, there has actually been a lot of work with PLC.*
>
> *Department head: And in the school area that has not been done?*
>
> *Principal at school blue: Not as far as we [members of the management team] are aware at least. And we have not done it in the time we have been the management team."*
>
> *(Dialogue meeting at school blue, min. 1).*

As a result of the discussion and insight gained during the meeting, the principal however became slightly more confident that the management team had launched some initiatives that were preliminary steps towards

becoming more data driven. She hence concluded towards the end of the dialogue meeting that:

> *Principal at school blue: "So I was a little hit [by the realization] that we were actually further along than we thought. So of course, we had a notion that we were far from [being data driven and working in PLCs] at school. So, I was thinking that if we had not had the reflective team then we would have gone home with a feeling that we were actually far from the goal - and we might not be anyway. At least we can see a road that is easier to walk" (Dialogue meeting at school blue, min. 31).*

The overall perception of the implementation of data use practices in school blue however remains that use of data by teachers is at a very preliminary stage and that the team structure in which data use is sought to be based is in the process of being established. At school blue, the managerial focus is firstly on enhanced teamwork. This empirical insight will be unfolded later in this chapter.

The management in **school red** was apparently further along in conceptualizing data use and launching data-oriented initiatives. Managers described how they facilitated data inquiry in section meetings[36]. These meetings were led by the managers of each section of grade levels (0-3. grade, 4-6. Grade, and 7-10. grade respectively). The data use practiced within these fora was initiated by the representatives from the management team (Dialogue meeting at school red, min. 9). It was however seemingly a less established avenue in school red in comparison to school yellow (according to the following description) that

[36] The managers in school red only referred to the section meetings (0-3. grade, 4-6. grade and 7-10. grade respectively), which are led by the section managers, as professional learning communities.

teachers initiated and practiced data use without the involvement of managers.

School yellow appeared to be the school that was furthest along in translating data use locally and establishing professional learning communities with a specific focus on using data to make inquiries in accordance with the department's translation. This assessment is based on e.g. the managers' description of their annual participation in each professional learning community. In these meetings, data sources are discussed, and initiatives are planned by the teachers and pedagogues with guidance from the management representative (Dialogue meeting at school yellow, min. 13). The school managers at school yellow themselves also identified that they were far along in implementing data use practices in their local setting. In the change framework template[37], which they filled out during the 1st managerial seminar, the managers at school yellow wrote under the heading 'Plan', that*: "The plan is implemented and is running on its second year"* (School yellow, change framework, 1st managerial seminar). The management team themselves also engaged in thorough data analysis of quantitative data sources, which they e.g. differentiated based on gender, grades, and the school's two locations (School yellow, Reflective teams' session, 3rd management seminar).

9.3 THEMES OF THE SUCCEEDING EMPIRICAL PRESENTATION OF THE DECENTRAL TRANSLATION

The previous section offered a brief introduction to the case schools and an indication of how far along the three management teams were in the translation process at the time of my data collection. The aim of the succeeding section of this chapter is to present empirical evidence on how the three management teams translated the idea of data use in their local settings. As will be evident, the managements' translations bear

[37] See chapter 7 for elaboration of the data collection process.

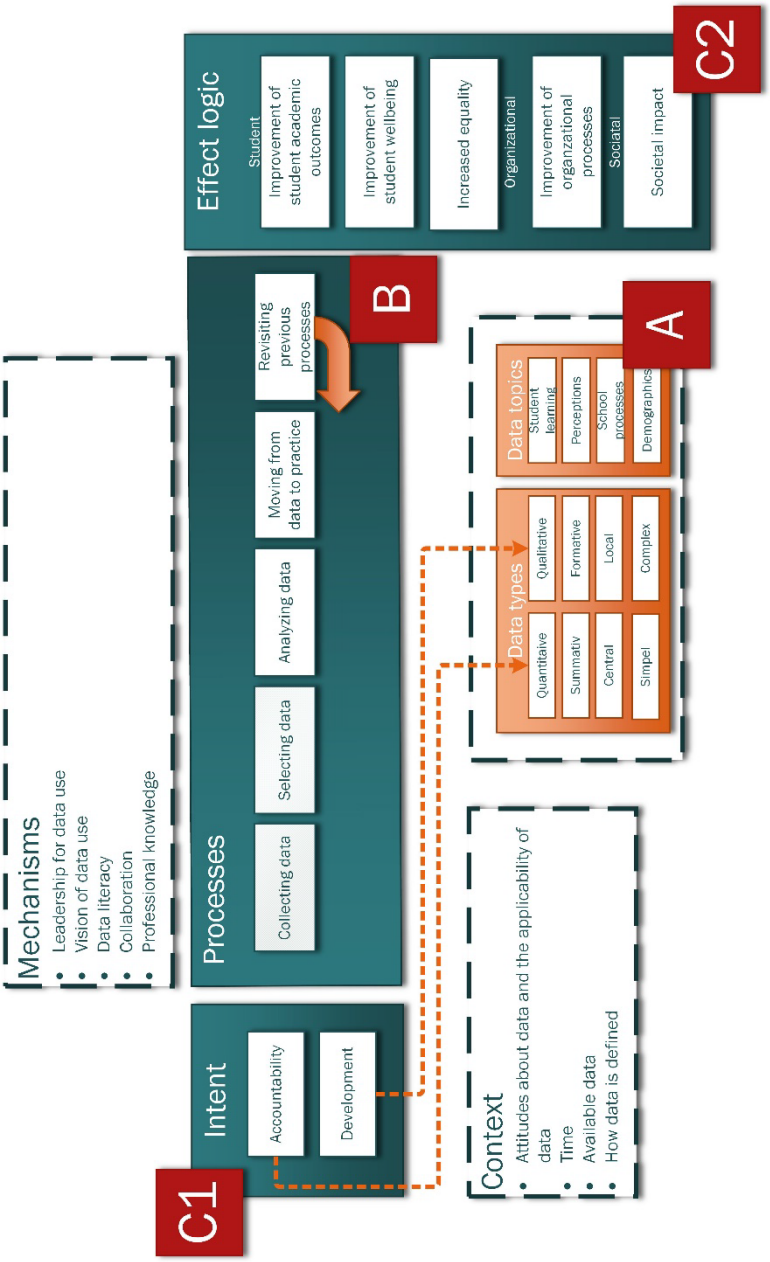
similarities in relation to certain areas. There are however also areas of the translation in which the local translations differ, or at least vary.

The empirical-founded presentation is structured according to:

a) The management teams' understanding of what constitutes as data.
b) The management teams' understanding of what constitutes as data use.
c) The management teams' view on the purpose of data use practices (c1), and the effects of using data in the local organizational practice (c2).

By providing empirical evidence on these three themes, I illustrate how the decentral management teams translated various components of the data use idea. Figure 26 illustrates how these themes connect to the components of the program theory of data use, as it was presented in chapter 4.

Figure 26: Indication of how the empirical themes relate to the program theory of data use



Author's own development

In addition to the four themes (a, b, c1, and c2) that relate directly to the program theory (Figure 26), this chapter also unfolds an empirical finding that relates to the topic of managerial support and managerial vision for data use. In the final section of the chapter, I discuss an apparent anomaly across the school management teams, where a general positive narration of data use is not equivalent to an unambiguously positive outlook on data itself. This theme is labeled 'Narration of data use vs. problematization of data' (Theme d).

The empirical analysis linked to these five themes is unfolded in the rest of this chapter.

9.4 THE DECENTRAL MANAGEMENTS TEAMS' UNDERSTANDING OF WHAT DATA IS (THEME A): BROAD DATA DEFINITION AND DATA AS SOMETHING SYSTEMATIC

The decentral management teams' understanding of what constitutes as data is described in the following section.

At the first managerial seminar, the decentral managers were asked to finish the following three statements of; 1) Data is… 2) Data is not… and 3) Data-informed work means…. How they completed the first two statements gives insight into their understanding (and hence translation) of *the term data* (theme A). How they completed the third statement gives insight into their translation of the processes involved in using data (theme B). The latter is unfolded later.

The school managers both completed the three statements individually and collectively as teams. Table 8 shows how the management team at school blue answered collectively and how the management team at school yellow answered collectively. The table also shows the individual answer by one manager at school blue and the individual answer by four managers at school yellow. Although the statements were also completed by the managers at school red, these answers were not handed over to the Ph.D. student during the seminar. The presentation of how the

management team at school red translated the term data in their local context, therefore, relies on oral statements made by the managers at the various management seminars.

Table 8: Managers' completion of data and data use statements

	Data is….	Data is not….	Data-informed work means…
School Blue – joint management reply	systematized observations from practices – which are saved	individuals' hunches [38]	to work professionally with use and evaluation, use and evaluation… .. Of data in order to achieve continued progression and more qualified results
School Blue – individual manager's answer	observations, that are systematized numbers – e.g. results from school leaving examinations. Research	"Hunches", personal opinions	that we work professionally and strive objectively with the aim of a better and more qualified output/result
School Yellow – joint management reply	knowledge that can be procured. Collected knowledge, often based on the framework	*Missing*	*Missing*
School Yellow – individual manager's answer	important for developing processes / Important knowledge collection	no more time consuming than we make it out to be	clarity in systematic work. Where are we now? - what must the effort be for development to take place (the desired one)? - and the possibility of evaluation/documentation
School Yellow –	the knowledge we can procure to shed	? [Question mark]	to work on as informed a basis as

[38] Hunches is a translation of the Danish word "synsninger".

	Data is….	Data is not….	Data-informed work means…
individual manager's answer	light on a case/a set of problems/etc. Can be of qualitative/quantitative nature – can be subjective/objective. Can be a text, photos, emotions, perceptions, measurements, surveys.		possible– so that the following [actions] are as qualified as possible
School Yellow – individual manager's answer	documented / tested observations	"The truth" but documented in a given situation and time span	to place the task correctly so that you achieve the most positive result
School Yellow – individual manager's answer	collected knowledge, often based on objective frameworks	subjective experienced knowledge/experience. Only when it is processed, can it become data (partly)	to be informed by objective facts in order to make less subjective decisions
School Yellow – individual manager's answer	observations that are frameworked. Language test etc. Systematic writing down of observations. Frameworked.	hunches	that we work systematically based on our data collection. That we work with the theory behind

(Written statements from 1st management seminar)

Two central characteristics can be deduced from the written statements about data in combination with the oral statements from the management seminars. The first characteristic of how the decentral managers define the term data is that they *opt for a broad data definition*. The second characteristic is that the decentral management teams emphasize that *data is systematic*. These two characteristics are unfolded hereafter with reference to empirical examples.

9.4.1 Broad data definition

Most of the 'data is'-statements and the 'data is not'-statements show that the managers do not specify whether data solely refers to numerical units or not. Instead, data is juxtaposed with words like *observations* and *knowledge*. One statement by an individual manager at school yellow specifies that she/he understands data in broad terms by stating that data *"can be of qualitative/quantitative nature – can be subjective/objective. Can be a text, photos, emotions, measurement."* (Individual statement by decentral manager at school yellow). The general tendency across both the written statements and the oral statements made by the decentral managers at the seminars and the dialogue meetings is that neither of the management teams limits the term data to numeric entities.

The following dialogue excerpts are examples of how data is understood by the management teams in a broad sense that covers both quantitative and qualitative entities. The first excerpt shows a dialogue between the vice principal at school blue and a school manager from another school regarding teachers' perspectives on data. The dialogue unfolded at the second management seminar during a poster presentation:

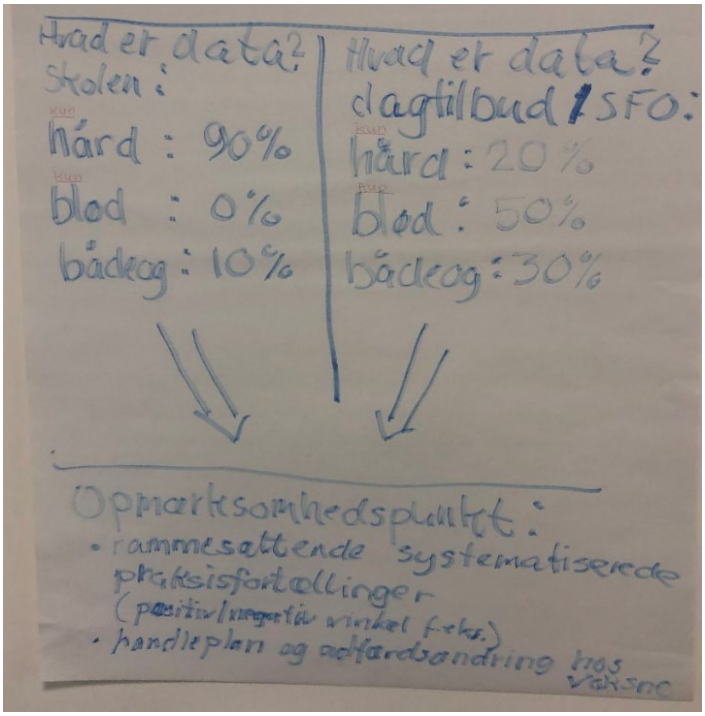
> *"Vice principal at school blue: I think that it is because they [the teachers] have not thought about, that they collect a lot of things in both soft and hard [categories of data].*
>
> *Manager from another school: Perhaps they do not think about it as data.*
>
> *Vice principal at school blue: They do not think about it as data.*
>
> *Manager from another school: It is that word that we must do something about.*
>
> *Vice principal at school blue: No it is connected to tests and examination…"*

(Poster presentation by the vice principal at school blue, 2nd management seminar, min. 5)

In this dialogue excerpt, the vice principal argues that the teachers do not think about the qualitative data, which they use routinely, as data. The vice principal uses the phrase 'soft and hard data', which is likewise the structuring element of the poster, which she is presenting while having the above dialogue. The poster is portrayed here:

Figure 27: Poster of teachers' perspectives on data and the management's attention points, school blue

Original poster in Danish



English translation

What is data?	What is data?
School	Daycare/After school care
Hard: 90%	Hard: 20%
Soft: 0%	Soft: 50%
Both: 10%	Both: 30%

Attention points:

Framing systematized practice narratives (positive/negative angles e.g.)

Action plan and change in behavior among adults

(Poster constructed and presented at the 2nd management seminar by managers at school blue. Author's own translation)

The management team at school blue made the poster and hereafter presented it at the second management seminar after instruction from the Ph.D. student. All the management teams made such posters and presentations. The basis for the posters was that the decentral management teams had conducted their own data collecting amongst teachers (and in some case daycare pedagogues) in their local organizations prior to the seminar[39]. The three management teams had asked a sample of the employees to complete these four statements:

- Data is….
- Data is not…
- We often work with data when we ….
- It is most meaningful to work with data….

What is apparent in the above dialogue excerpt, and the associated poster is, that data is categorized as either 'soft' or 'hard' data. These terms are used concordant with qualitative *(soft)* and quantitative *(hard)* data.

In the poster, it is stated that 'framing systematized practice narratives' is an attention point. Based on the additional dialogue, it is apparent that the managers at school blue view 'practice narratives' (praksisfortællinger in Danish) as an important data source. This illustrates that the management team value qualitative data sources.

The challenge however appears to be that the teachers[40] *"do not think about it [qualitative data sources such as structured practice narratives] as data"* (quote from the manager at school blue in the aforementioned dialogue). In their poster, the managers sum up that only 10 % of the asked

[39] The management teams were given the assignment of conducting their own data collecting between the first and the second management seminar. The assignment was phased like this: *"The intermediate task is to inquire curiously about the employees' experiences with the data-informed work. Different templates can be used for data collection."* (PowerPoint presentation at the first seminar). All three management teams chose to use the proposed template of the four statements.

[40] More so than the pedagogues in daycare according to the poster.

teachers have indicated that the term data refers to both 'soft' and 'hard' data. Statements by the management team at school blue indicate that the team prefers that teachers had a more inclusive outlook on data to include both qualitative and quantitative entities. This is e.g. seen in the aforementioned dialogue from the poster presentation where the manager from school blue problematizes, that the teachers do not consider 'sorter' data to be data.

The management team in school blue is not alone in defining data in a broad sense, by including both quantitative and qualitative data types. The following excerpt stems from a dialogue between the decentral managers at school red. They are discussing the teachers' completion of the four statements related to data and data use as they are making a similar poster, as the one presented above from school blue:

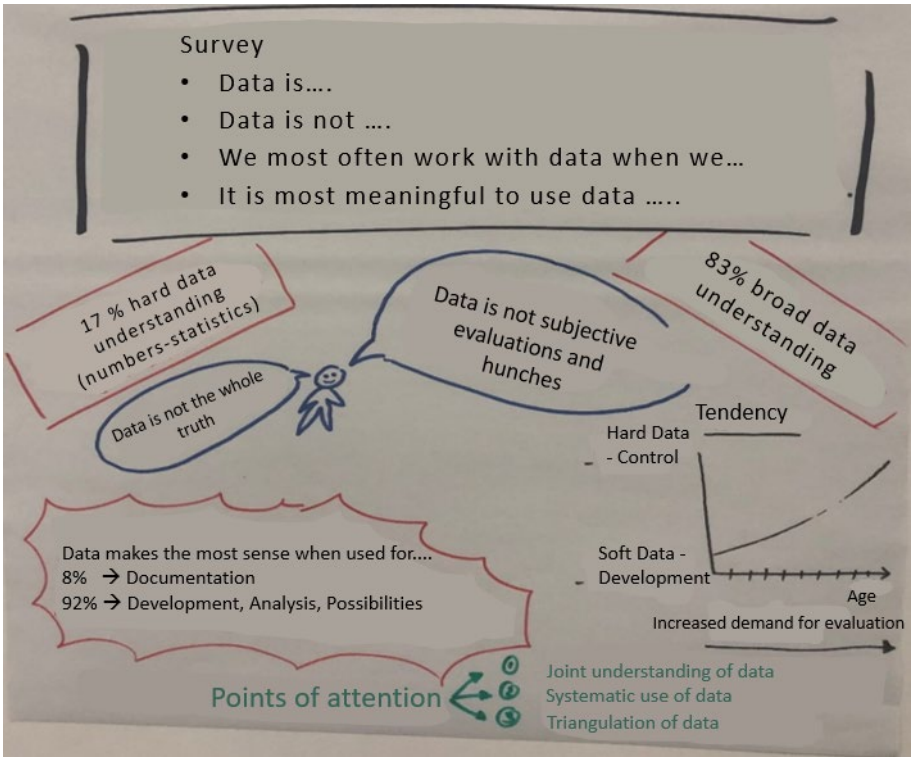
> *"Principal at school red: For the most part they [the employees] have some kind of broad data understanding. And then there are two [employees] who say that it is something with some numbers. It must be the narrow [definition of data]. Or hard/soft data. Could it be one of those ....?*
>
> *Vice principal at school red: Maybe that could be a point of attention. How to make it so that everyone has the knowledge that data is more than just statistics.*
>
> *Manager at school red: Yes a joint understanding of what is data. "*
>
> *(Dialogue in school red management team, while constructing their poster on employees' views on data and data use, 2nd management seminar, min 7.30)*

At the beginning of the excerpt the principal concludes from the statements that the managers are discussing that most of the teachers *"have some kind of broad data understanding"*. It is also said that two of

the statements are solely related to numbers. The principal labels these statements as 'the narrow'. It is implied that the principal here refers to a *narrow definition of data*. The principal also uses the phases of 'hard' and 'soft' data, like the management team at school blue.

The conversation continues with the managers agreeing to make it an attention point to *"make it so that everyone has a knowledge that data is more than just statistics".* The poster that the management team created based on this discussion (see figure 28) likewise illustrates the managerial ambition to create 'a joint understanding of data', understood as a broad definition including both the 'hard' and 'soft' conceptualization of data.

Figure 28: Poster of teachers' perspectives on data and the management's attention points, school red

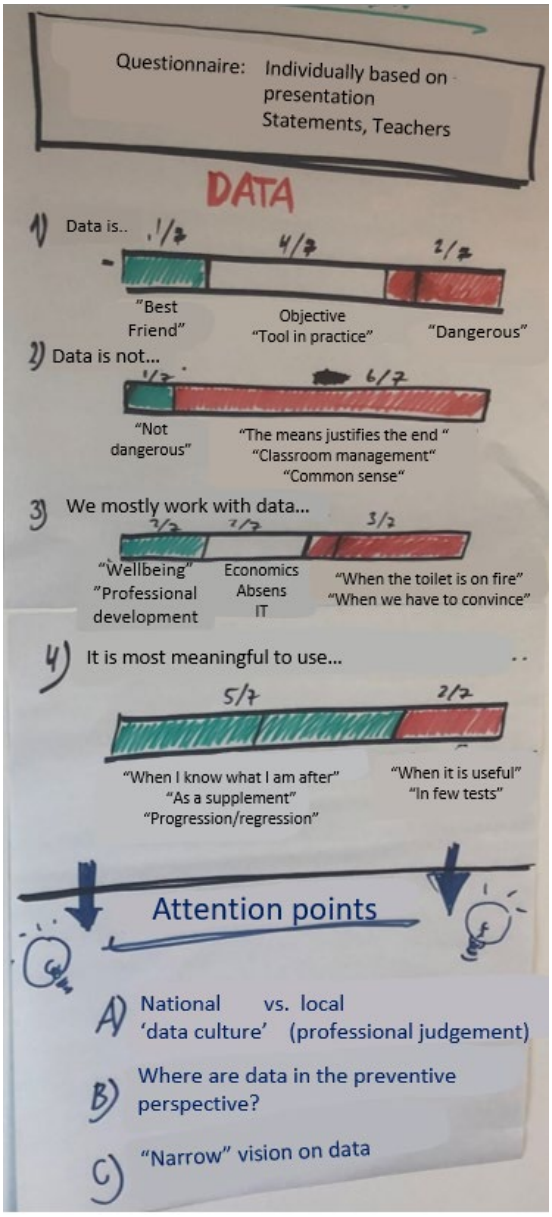


(Poster constructed and presented at the 2nd management seminar by managers at school red. Author's own translation)

The poster depicted in figure 28 illustrates that the management team at school red has a similar attention point as the management team in school blue of seeking to counteract the "narrow view of data" among the teachers.

The poster made by the management team at school yellow (Figure 29) shows a similar trade of the managers being attentive to the "'narrow' view of data". This is seen in the lowest part of the poster, where the managers list their attention points:

Figure 29: Poster of teachers' perspectives on data and the management's attention points, school yellow



(Poster constructed and presented at the 2nd management seminar by managers at school yellow. Author's own translation)

The empirical material hence indicates that there is a shared understanding between the three management teams that the term data should/ought to be understood with a broad definition, which includes both qualitative and quantitative entities.

9.4.2 Data is something systematic

Aside from the characteristic of defining data in broad terms, another characteristic of the three management teams' translations of data is that they emphasize the importance of data being systematic.

The 'Data is'- statements from table 8 illustrate that the term *data* is associated with the terms *knowledge* and *observations*. The management team at school yellow e.g. summarizes data as *"knowledge that can be procured. Collected knowledge, often based on the framework"* (statement by the decentral management team at school yellow). The management team at school blue summarizes data as *"systematized observations from practices – which are saved"* (statement by the decentral management team at school blue). Some of the individual written statements (Table 8) likewise identify data as;

- "Systematic writing down of observations"
- "Documented/tested observations"
- "Systematized observations from practices – which are saved"

The statements also outline that data is identified as the opposite of 'hunches'[41] which is explicitly expressed in the following statements of what data is *not*:

- Data is not individuals' hunches
- Data is not "hunches", personal opinions
- Data is not subjective experienced knowledge/experience
- Data is not hunches

[41] Hunches is a translation of the Danish word "synsninger".

The joint characteristic of the observations and knowledge referred to by the managers as data is that it is *systematically collected*. The systematic of data is likewise unfolded in the following excerpt which shows a dialogue between managers at school red while constructing their poster on employees' views on data and data use:

> *"Principal at school red: But it is at no time defined that data is something that must be written or secured, is it? But it must have some level of systematic. Or are we collecting data just by looking around the room? That is what we humans do all the time. We see something, we interpret it and then we sometimes translate it into a form of action. There must be some systematics before we say now we are working with data."*
>
> *Manager at school red: I think [data is] things that are brought into an analysis. It must be something factual that is brought into an analysis. So in that way, you must be able to return to it. If it is something that forms the basis of the actions, you choose to take."*
>
> *(School red, construction of poster, 2nd management seminar, min. 5)*

The excerpt illustrates a discussion among the managers of whether data should necessarily be stored in order for it to be viewed as data. One manager argues that data *"must be something factual that is brought into an analysis. So in that way, you must be able to return to it."* They do however not reach a conclusion on this matter. The principal does however emphasize that the *"it [data] must have some level of systematic"* in accordance with the statements from the decentral managers of both school yellow and blue presented previously.

The two interlinked characteristics of defining data in broad terms and as something that is systematic is closely connected to the understanding

that the decentral managers have on *what data use is*, which is presented via empirical examples in the following section.

9.5 THE DECENTRAL MANAGEMENTS TEAMS UNDERSTANDING OF THE PROCESSES OF DATA USE (THEME B): FOCUS ON ANALYSIS & DATA USE AS A SYSTEMATIC WORK APPROACH

In chapter 4 five main processes of data use were identified in the academic literature. These processes are: collection of data, selection of data, analysis of data, the movement from data to practice, and the process of revisiting previous processes.

Throughout the empirical data collection, the managers do not pay particular attention to the process of collection and selection of data. It can be argued that the minimal attention to collection and selection of data is consistent with the very broad data definition that the management teams opt for. As shown previously, the managers translate the term data to mean an array of both qualitative and quantitative data sources. This tendency is also visualized in the managers' statements about what data use means, previously presented in table 8. These statements do not include references to collection and selection of data.

Instead, focus appears to center around the process of data analysis. This was for example evident in the previously quoted statement by a manager at school red who declares the following when defining what data use means to her/him:

> *Manager, school red: "I think [that data use is] things that get brought into an analysis. It must be something factual, which is brought into an analysis. So in that way, you have to be able to return to it. If it is something that is the basis for the actions one chooses to take."*
>
> *(School red, construction of poster, 2nd management seminar, min. 5.30)*

In this quote, the manager highlights the process of analysis as essential in data use. The last sentence also indicates that the manager views the process of moving from data to actions as an integrated part of working with data. Later the manager also states that:

> *Manager, school red: "I also think that what is really important is that you use it for an analysis. […] What exactly are we using data for?" (School red, construction of poster, 2nd management seminar, min. 9)*

Here the manager again highlights the analysis component of data use. Another manager at school red states: *"I think it is important that we continue to scaffold the analysis part."* (Later quote). The 'we' that the manager is referring to is the local management team. The manager hereby expresses the importance of managerial support to facilitate that the employees make data-based analysis.

A manager at school yellow similarly states; *"It is a part of our job in relation to being able to do the analysis, that is so essential."* when discussing the purpose of establishing professional learning communities and working with data. The manager continues the statement by adding:

> *Manager, school yellow: "In other words, the fact that you have a preparation. You have a lesson and then you have a short post-treatment. And we are all there in our professionalism. After all, we sometimes move extremely quickly back to preparation. We don't manage to do the analysis. And that's what people are asking for. Time for this analysis. How can we do better? Well, it's because there is a constant process in it because we don't have to move on, but we should instead take the time for the analysis. The PLC can help with that. Take that analysis talk." (Dialogue meeting at school yellow, min. 32)*

Here the manager again stresses the importance of taking the necessary time to conduct relevant analysis to ensure improvement of work practices.

9.5.1 School blue highlights data use as a systematic work approach

Whereas the yellow and red school management teams are explicit in addressing the process of analysis, the management team in school blue focuses on the value of working systematically with data. The principal for example states that:

> *Principal at school blue "We [the management team] need to be clear in saying: - "Well, just listen, the reason why you succeed is actually that you work systematically with data. So that's what we need to do more of" (School blue, discussion of what incentives employees have for working with data, 1st management seminar, min. 3)*

Here the principal highlights data use as a systematic work approach. The principal also points to the role that the management team has in supporting that the employees continue to work systematically with data.

The difference between the managerial focus of school blue versus school yellow and red will be unfolded later in this chapter. It has to do with the starting point of the implementation process which is different in school blue than in the other two schools. The employees at school blue are apparently less familiar with working in teams and with data than in the other schools according to the managers' account. The focus on the process of analysis (school yellow and red) and systematic work processes (school blue) are similar in the way that they both center around the movement 'away from hunches'. It will be illustrated in the following section that this again relates to the ambition of enhancing professionalism as an effect of using data.

9.6 THE MANAGEMENT TEAMS' VIEW ON THE PURPOSE OF DATA USE PRACTICES (THEME C1), AND THE EFFECTS OF USING DATA IN THE LOCAL ORGANIZATIONAL PRACTICE (THEME C2)

9.6.1 The purpose of data use (Theme C1): Improvement and development

In chapter 4, two categories of the underlying intent for using data were outlined in the conceptual framework on data use constructed based on existing literature; *data use for accountability vs. data use for improvement purposes.*

As outlined in chapter 4, the intent of accountability is that data is used to hold employees and managers accountable for their work and ensure compliance (Jacobs et al., 2012; Mandinach & Schildkamp, 2021). The accountability aim is hence associated with sanctions, control, and repetitiveness (Braaten et al., 2017; Coburn & Turner, 2011)

The intent of using data for improvements is on the other hand associated with problem-solving and local inquiries (Huffman & Kalnin, 2003; Katz & Dack, 2014; Nelson et al., 2012). Using data with the intent to attain continuous improvement implies focusing on the potential learning, which can be derived from data (Hora et al., 2017; Mandinach et al., 2006) with the purpose of making ad hoc adjustments (Militello et al., 2013; Wiliam, 2006).

When attempting to identify the view that the three management teams have on the *purpose of data use within their local organizational contexts* I seek to clarify 'The why'. *Why* data use is implemented in the local contexts. The perceived purpose is naturally interlinked with the intended effects of using data. In the following, I present examples of the three school management teams' view on the intent of data use. The examples are a mix of excerpts from dialogues between managers and written reflections from the managerial seminars.

The managers at **school yellow** stated the following in the 'vision'-section of their 'change frameworks' which they made during the 1st management seminar: The vision is to:

- *"Achieve the highest developmental potential in the children"*
- *"We need to become more skilled as professionals. Data supports this. Employees connect to improve their skills"*
- *"To work on as informed a basis as possible."*
- *"Qualify work and the framework - to achieve the desired goals"*
- *"Make better solutions. Avoid making the same mistakes over and over again → capacity building" (School yellow, change framework, vision section, 1st managerial seminar)*

The managers at school yellow also wrote in the change framework template that the incentive is *"that you can see the results of your own practice and joint efforts"* (School yellow, change framework, incentive section, 1st managerial seminar).

These statements do not unambiguously point to either improvement or accountability as the main driving force in enhancing teachers' level of data use at school yellow. Improvement is highlighted in for example the vision statement of 'qualifying work', 'achieving the highest development potential', 'capacity building' etc. Accountability intent in terms of managers that use data to hold employees accountable for their work is not explicitly addressed in the vision statements. However, the potential for data to instill accountability is arguably seen from the viewpoint of the individual employee. It is for example listed that data helps teachers to 'become more skilled as professionals' and to 'improve their skills'.

The managers at school red more specifically identify development as the intent for working data-informed. This is for example illustrated in the following excerpt of a dialogue between the managers at school red during the 2nd managerial seminar:

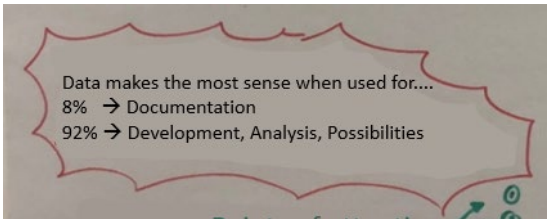
Principal school red: "But we only have one [teacher] who says: 'When we have to document something'. The rest have something about 'We have to try to shed light on something'. 'When we have to learn more about something'. 'When we have to do something'. So we can say that for the most part, they [the teachers] say that data is when we can shed light on something. When we can initiate some initiatives, ***where we can gain more understanding, where we can change a practice****. Where to use data to document only, that is the very narrow understanding of."*

Principal, school red: "Well, ***that is a development perspective****. When we must have developed some understanding. When we* ***must create opportunities for development****."*

*Manager, school red: "****But isn't it also perhaps because that is the narrative we [the management team] have created*** *around it? Because I think that we also take advantage of every opportunity when we sit with them, to say learning management work, what has it given? This has resulted in* ***a development in the way of being professional in your work****. And then I am very aware that this also results in development for the student.* ***But it is also the story we create****, which the teachers may also help to tell". (School red, construction of poster, 2nd management seminar, min. 35)*

In this dialogue, the managers at school red discuss the employees' answers to the statement "It is most meaningful to use data…". The managers identify that the employees' answers predominately relate to the topic of development. The managers summarized this prevailing understanding of the intent for data use amongst their employees in the poster, which was presented in full earlier in this chapter:

Figure 30: Excerpt of poster of teachers' perspectives on data and the management's attention points, school red



(Poster constructed and presented at the 2nd management seminar by managers at school red. Author's own translation)

After identifying development as the prevailing understanding of the intent for data use amongst their employees, the managers discuss that the dominant understanding of data as useful for development and analysis is at least partly a result of the managers themselves having implied this. That the managers have created this narrative, underscores that development is likewise the self-identified intent logic of the managers at school red.

Similarly, the managers at school blue identify describes the purpose of data use in the following way:

> *"Data use means to work professionally with use and evaluation of data in order to achieve continued progression and more qualified results" (Joint management team at school blue, written data use statement, 1st managerial seminar)*

Here the managers at school blue stress the ambition of ensuring professional and qualified results via professional work practices. At the same time, the principal at school blue points out that the previous management, in her opinion, had a different focus than on ensuring development. At the dialogue meeting the principal stated that:

> *Principal, school blue: "I think that the focus [of the former management team], at least to a greater extent, was a focus*

on task delivery and performance. In other words, that corrections can be made. Rather than on the learning and the process." (Dialogue meeting at school blue, min 7.40)

With this quote, the principal underlines that the current management team contrasts the previous management team, by focusing on learning and continuous development.

9.6.1.1 Summary of intent logics

These examples from all three management teams indicate that *accountability* is not explicitly addressed by the managers as being the purpose of data use. It is not highlighted that managers should use data to hold employees accountable for their work and ensure compliance. There is likewise no talk of either sanctions or control in relation to the teachers' work [42]. In contrast, some managers instead state that employees should be allowed to make mistakes, and that it should be underlined that they are *practicing* data use. The proposed purpose of data use is however not unambiguously improvement over accountability.

9.6.2 Effect logics in the decentral managements' translation (Theme C2)

Chapter 8 showed that effect logics in the department's translation by large centers on enhanced learning and well-being progression. As described in chapter 8 the department's translation mimics the theoretical framework, but also minimizes the goals of increased equality and improvement of organizational processes. When attention is turned to the decentral managements' translation of effect logics, there is a break with the theoretical framework and the department's translation, as the school managers place emphasis on professionalism and collaboration as outcomes of data use processes. This shift is illustrated in table 9:

[42] Cf. the characteristics of the accountability intent (Jacobs, Gregory, Hoppey, & Yendol-Hoppey, 2012; Mandinach & Schildkamp, 2020)

Table 9: Effect logics in literature, department's and decentral managements' translation

	Identified in research literature	Identified in department's translation	Identified in decentral managements' translation
Effect logics	Improvement of student academic outcomes Improvement of student well-being Increased equality Improvement of organizational processes Societal impact	Enhanced learning and well-being progression Social mobility	Professionalism Away from hunches Systematic work processes Collaboration (school blue)

In the following, I will give examples of how the decentral managements' translation of effect logics is identified in the empirical data. As will be addressed, the decentral translation of the effects of data use relates to teachers' and pedagogues' performance. The presentation revolves around the concept of **professionalism**, which all three school management teams center around.

There are not many examples in the empirical material where the managers explicitly refer to student-level outcomes as the purpose of working with data. This is not to say that the managers do not view student-level outcomes as the ultimate goal of enhancing the use of data to inform actions. They do however frequently refer to the role that teachers have in facilitating such outcomes. The following quote is an example of the focus on teacher-level outcomes. In the quote the principal at school blue is discussing the importance of managers holding teachers

accountable for working with data to improve students' academic outcomes:

> *Principal, School blue: "Not unless we make demands and we say - well you may be doing it right, but I thought there is a lack of progression in learning. Because that is also where we need data. And that is also why we sit and trip [are waiting] on PLC. Because when we can have those reading conferences and class conferences, then we can present them and say; "Well listen - there is not the necessary progression in the class in question, neither on well-being nor on professional learning. So what should we do? What should we be curious about? Why does it look this way?" (School blue, discussion in the management team, 1st management seminar, min. 6)*

In the quote, the principal indicates that data should be used as a point of departure for teachers to ask questions about what are the most appropriate actions. Data use hence involves being curious and planning actions based on a curious investigation. This is an example of how the managers view the teachers' approach to facilitating student-level effects as the focal effect of implementing data use. At the same time, the principal also states that the management teams should require that the teachers work to ensure that their students' learning progresses. The quote hereby illustrates that the purpose of accountability is to some extent inherent in the purpose of improvement and development.

Another quote, which has been presented previously, illustrates more concisely that the managers at school blue view 'working professionally' as an intermediate outcome to achieve 'continued profession and more qualified results':

> *"Data use means **to work professionally** with use and evaluation of data **in order to achieve continued progression and more qualified results**" (Joint management team at*

school blue, written data use statement, 1st management seminar)

The teacher-level outcome of increased professionalism is likewise the focal point of the managers at school yellow and red. The following paragraph of a conversation between the managers at school red illustrates how the process of analysis along with the broad data definition is viewed as interlinked with the aim of enhancing professionalism:

"Manager, School red: I think it is important that we continue to scaffold the analysis part.

Manager, School red: The use of data

Vice principal, School red: and the broad view of data

Manager, School red: The broad data understanding

Principal, School Red: But also why. The big why. Why is it we work data-informed. This is because we need something that can support our decisions.

Manager, School red: And really supports professionalism."

(School red, construction of poster, 2nd management seminar, min. 40)

In the last two remarks, the managers emphasize that the key reason for working data-informed (the big why) is that data supports decisions. Databased decisions are hereafter linked to professionalism.

9.6.3 Data use linked to a cultural shift at school blue

At school yellow, the vice principal makes the following statement about how databased decision making is a part of creating a 'professional reflection culture':

> *Vice principal school yellow: "I think it is super important - and that is also what we know from everywhere - that the part of school management about being close to reality and close to the professionals, means that we can* ***reduce some of that family and functional culture*** *that is in these teams. And try to* ***create some kind of professional reflection culture*** *based on the data that is available to them" (School yellow, reflective teams' session, 3rd management seminar, min. 56).*

The vice principal first addresses the importance of managerial support and being close to the professionals. The value of 'management in close proximity' is likewise praised by the managers of the other two schools as important when implementing data use in professional learning communities. It is also addressed in the quote by the vice principal of school yellow above that data use is part of an ongoing culture shift. Data use is part of this change from a 'family and functional culture' to a 'professional reflection culture' the vice principal states.

The *cultural shift* mentioned by the vice principal in the quote above is also identified in the other two school management teams' account of the effect of implementing data use practices. As mentioned in the beginning of this chapter, the schools are in different stages of implementation of data use practices. This assessment is amongst other things founded on the way the managers talk about the current culture of the teachers in relation to their reflectiveness and use of data. Being reflective is linked to the previously discussed processes of relying on systematic work processes and the movement away from relying on hunches.

As stated previously, the managers at school blue expressed that implementation of data use was only in a preliminary phase. The principal

at school blue makes the following statement about the incentives for data use at the 1st management seminar[43]:

> *Principal at school blue: "Well, the employees' incentive - at least as we have talked about it - is that **if we work data-informed, we increase professionalism**. […] When we experience positive changes in the work we do, we feel like doing more of it. I think. Then we increase. And **that is where we need to be clearer**, I think. We need to be clear in saying: - 'Well, just listen. The reason why you succeed is actually that you work systematically with data. So that's what we need to do more of. So we can succeed even more. So we get that wheel turning'. Because I think there are **a lot of people who have no idea about data information and data-informed work at our place**." (School blue, discussion of what incentives employees have for working with data, 1st management seminar, min. 2)*

First, the principal for fronts professionalism as the reason for working data-informed. Secondly, the principal points out that 'they' as a management team must be clear in guiding the teachers to work systematically with data while linking that to success. Thirdly, the principal says that "there are a lot of people who have no idea about data information and data-informed work at our place". The principal hereby underlines the claim that the school is not far in implementing data use at the teacher level.

The apprehension expressed by the manager in the latter statement contrasts that of especially school yellow. A manager at school yellow for

[43] The statement was made while filling out the section about incentives for data use in the template 'change framework'.

example makes the following statement at the dialogue meeting when asked about what they as a management team are proud of:

> *Manager at school yellow: "I am thinking that they [the teachers] commit so extremely quickly to the fact that it is at municipality level that we have adopted this [working data-informed] on. But they take it to heart immediately, and say "Well, we can do that". And are aware that this data-informed approach is a sidecar to the team collaboration they had before, so they can easily tap into [the data-informed approach]." (Dialogue meeting at school yellow, min. 2.30)*

Here the manager claims that the teachers in school yellow quickly integrated the data-informed work approach into their preexisting team collaboration.

To expand on how this contrasts the situation in school blue I will first present the 'change framework' templates that the managers at school blue filled out in the 1st managerial workshop. Half of the management team made the following 'change framework':

Table 10: Change framework no 1, School blue

Vision	Qualifications	Incentive	Resources	Plan
PLC in the school: Meetings with reflections about practice/learning Team of e.g. two classes	Training for all Lack of qualifications The employees do not know what to do	More knowledge e.g. via interviews with children	Redistribution of resources Use of resources, where space is created to use/process the data available Which resources do we have and how should we use them Overview	We need a plan

(Change framework filled out by part of the school management team at school blue, 1st managerial seminar)

As seen under the section 'Qualifications' the managers pointed out that there was a "Lack of qualifications", and that "The employees do not know what to do" and there was a need for everybody to attend training. The identification of the lack of qualification among the teachers at school blue contrasts how the school management at school yellow described the teachers' qualifications at their school. In their change framework under the section 'Qualifications', the managers at school yellow wrote that data use requires "The qualifications they [the teachers] already have". The managers at school yellow also wrote that there was "A lot of experience amongst the employees".

The other half of the management team at school blue made the following 'change framework':

Table 11: Change framework no 2, School blue

Vision	Qualifications	Incentive [44]	Resources	Plan
The professional community. The employees have started to buy into the idea. Some are not able, but others are able and have become aware that it works to work professionally and data-informed. Management is explicit on the vision.	Presentations and guidelines, coaching, partnerships, and conflict resolution Management has a need for enhancing qualifications. But the employees are asking for them. Indications that qualifications are 'on their way': employees use language from presentations	Development of job satisfaction→ the journey towards the professional work/the professional employee – must be the personal satisfaction Job satisfactions by making a difference Data-informed work ↓	Setting the right team, which does not necessarily have a formal education, but brings resources in pedagogy and personality. We must set the resources we have free. Early tracing, actions and linguistic competences. Emotional regulation	We are well on our way: Theme nights Leading by example Linguistic actions It is primarily management that knows where we are heading. A bit unclear about the agenda. There are parts of the overall plan which we have not presented for the employees.

[44] In the incentives section the managers list "Development of job satisfaction" at the very top. The management team at school blue likewise make a rather comprehensive effect chain, which includes the element of increased job satisfaction leading to increased well-being. This is in opposition to discussions of incentives and effects of data use in school yellow and red where increased job satisfaction is not mentioned.

Room for everybody – professional approach not driven by hunches. The child's possibilities for using her/his potential. Management has informed – but it can still be difficult.	There is room for improvement Professionalism is also to acknowledge, when you cannot do more without help. It is mega hard work	Increased professionalism ↓ Increased job satisfaction ↓ Increased well-being ↓ Less sick leave / greater accountability ↓ Support from parents ↓ Children: learning and well-being Employees: learning and well-being	and language! Relationship formation with adults that are aware of their responsibility. Professional adults.	We do not have a hidden agenda, but we are not holding back because we want to do harm. Great changes require trust for the management Clarity pays off, especially when you have discovered the intention behind the change.

(Change framework filled out by part of the school management team at school blue, 1st managerial seminar)

This change framework (Table 11) bears similarities to the previous one (Table 10) but is more comprehensive. The overall vision for data use in school blue is listed as the establishment of "The professional community". Diverse statements made in the template underline that data-informed work is not yet common practice in school blue and that much work is needed before the practice is institutionalized. Under the heading 'Vision' it is e.g., stated that "Management has informed – but it can still be difficult". In the section 'The plan' it is stated that, "It is primarily the management that knows where we are headed". In relation

to the needed qualifications to implement data use, the management states that: “The management has a need to increase qualifications”, that “There is room for improvement” and “It is mega hard work”.

In junction, these two change frameworks indicate that school blue still has a long way before professional learning communities and data use practices can be considered routine work practices at the employee level.

The way that the school management team at school blue articulates the organizational climate for implementing data use practices, stands out compared to the other two schools. A dialogue between the principal and vice principal outlines the current culture of the teachers in relation to their reflectiveness. The dialogue was observed and recorded by the Ph.D. student at the 2nd managerial seminar and partly summarized hereafter.

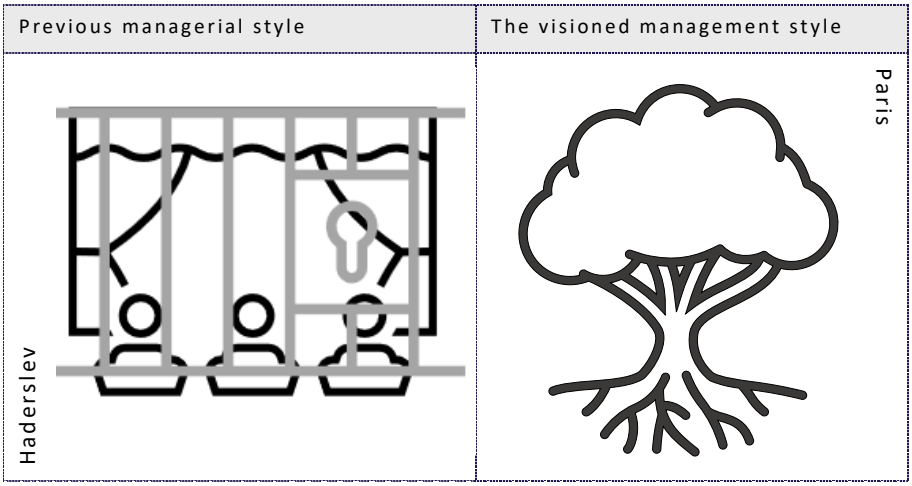
The current status at school blue was addressed according to two interlinked topics. First, the managers reflected on the type of management they wish to conduct and how it differed from the type of management conducted by the management team before them. Second, the managers reflected on the employees’ work practices and especially a lack of reflectiveness amongst the employees, the employees’ dependence on the management teams to provide them with answers, and the inability of some employees to work collectively with their colleagues.

9.6.3.1 Managerial style at school blue

In relation to the former, the principal and vice principal explicitly identified a significant difference between the management style of the former management team whom they replaced a little over a year prior to the managerial seminar, and the management style they wish to portray.

As illustrated in figure 31, the managers used the metaphor of a puppet theater with bars across about the previous management style. In contrast they used the metaphor of a tree with roots about their own visioned management style:

Figure 31: Managerial styles at school blue



(The author's reproduction of the managerial styles discussed by school blue's principal and vice principal, 2nd managerial seminar, min. 1)

The previous management style was described as a puppet theater with bars across because of the high level of control and involvement from the managers in the everyday practices of the employees. According to both the principal and vice principal, this led to the employees being dependent on the managers. This contrasts how the current management team wants to manage, as expressed by the principal in the following quote, where the visioned management style is addressed;

> *Principal, school blue: "That's how we like to view ourselves and the organization. As a tree that is rooted in the healthy values that we believe in. And that's really what kick-started it all for us. Our perception of children, which we are founded in. And then the crown. The crown is not us [the management]. The crown is the employees and children who grow new branches and twigs. And it will never be an ugly tree because it grows in the same direction, and it gets constant light from*

all sides. That is the dream at least." (School blue, dialogue about managerial styles, 2nd management seminar, min. 4.30)

The managers stated that they were trying to implement this way of management, but that they experienced challenges in doing so because of a great mismatch with the employees' expectations of the managers' role in their daily operations. As the principal states;

Principal, school blue: "Sometimes we [the managers] are standing in Paris and waving at them [the employees] in Haderslev [small Danish city]." (School blue, dialogue about managerial styles, 2nd management seminar, min. 6)

The managers discuss a concrete example that illustrates how different the managers and the employees view the same situation. At the beginning of the last school year, the managers allocated extra resources to support the graduating classes. Allocating the extra resources resulted in a teacher going on sick leave, which baffled the managers:

Principal school blue "When we [the managers] were teachers, we would pass out from excitement. All the cool things you could do. Someone went on sick leave […] They simply couldn't stand it. […] They couldn't stand the uncertainty"

Vice principal school blue "No. To work collectively with the others. And what sort of people were they?"

Principal school blue "And what should we do? And what about annual plans? And the others decide much more than me. And I dare not speak up. So it was really crazy. […] It was considered extremely dangerous, that we made that decision"

(School blue, dialogue about managerial styles, 2nd management seminar, min. 6.30)

According to management, the explanation for the employees' lack of enthusiasm and excitement about the extra allocated resources was, that the employees are not used to working together - and the extra allocated resources required the teachers coordinate their teaching.

In addition to not being used to working collaboratively, the managers also identified a lack of reflectiveness amongst the teachers. The principal for example made the following statement:

> *Principal, school blue: "The reflection must be about, not you as an individual, but about your own role in the lecture. So you force people into saying... Then you have to start by thinking one and a half thoughts about your role in this situation. And next time you have to think three [reflective thoughts]. So PLC must also be a help in moving people. And then we just risk that it can take 35 years." (School blue, dialogue about managerial styles, 2nd management seminar, min. 1.30)*

In this quote, the principal addressed the apparent lack of reflectiveness amongst the employees and proposed that the establishment of professional learning communities, in the long run, can lead to employees becoming more reflective. It can hereby be argued that the managers at school blue considered collaboration as a potential lever for reflectiveness.

The management team at school blue is focused on establishing a change in both the management style and the organizational culture. The former regards that the managers support the teachers in becoming more independent and the latter regards establishing a culture of reflectiveness mediated via enhanced collaboration amongst employees with the end goal of increasing professionalism.

The situation surrounding the implementation of data use in this way differs from that of school yellow and red. At school blue the managers

present a local challenge of an insufficient level of reflectiveness and a minimal degree of collaboration that is not highlighted by the other two school management teams. As reflectiveness and collaboration are seen as preceding data use, this thereby implies that school blue was in a more preliminary stage of implementing data use practices than the other schools.

At school blue, data use was in this way linked to a cultural shift, which was needed according to the local management team. Part of the cultural shift was an identified need for capacity building employees' qualification for being reflective about their own practice *and* working collaboratively. Establishing collaboration and reflectiveness was identified as important steps that were needed before the school could start implementing data use practices.

9.6.4 Summary of effect logics

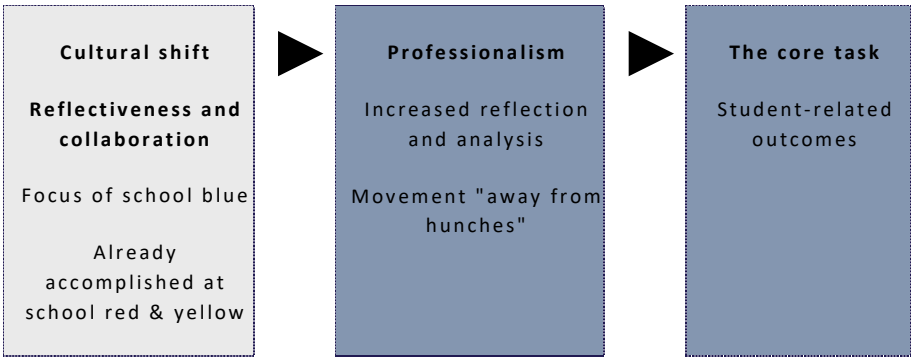
To sum up, the decentral management teams' primary effect logic in relation to data use is improvement of **professionalism**. The main effect is hereby centered on teachers' and pedagogues' performance. Corresponsive with the department, the school management teams perceive professionalism as a prerequisite for achieving the student-related outcomes of student learning and well-being.

According to both the central and decentralized translation of data use, part of the preparation for achieving the student-related outcome is ensuring that employees work collaboratively. According to the managers, school red and school yellow have already come a long way in terms of ensuring a shift in work practices toward collaborative inquiries. At school blue, it is instead a more present and ongoing challenge to ensure these collaborative inquiries, which requires a cultural shift amongst the frontline staff according to the managers' perspective.

The description presented above leads to the following model, which illustrates the effect logics at play in the case schools. The three elements

are present in all three managements' discussions of implementation of data use, but to various degrees.

Figure 32: Effect logics identified in the decentral translations

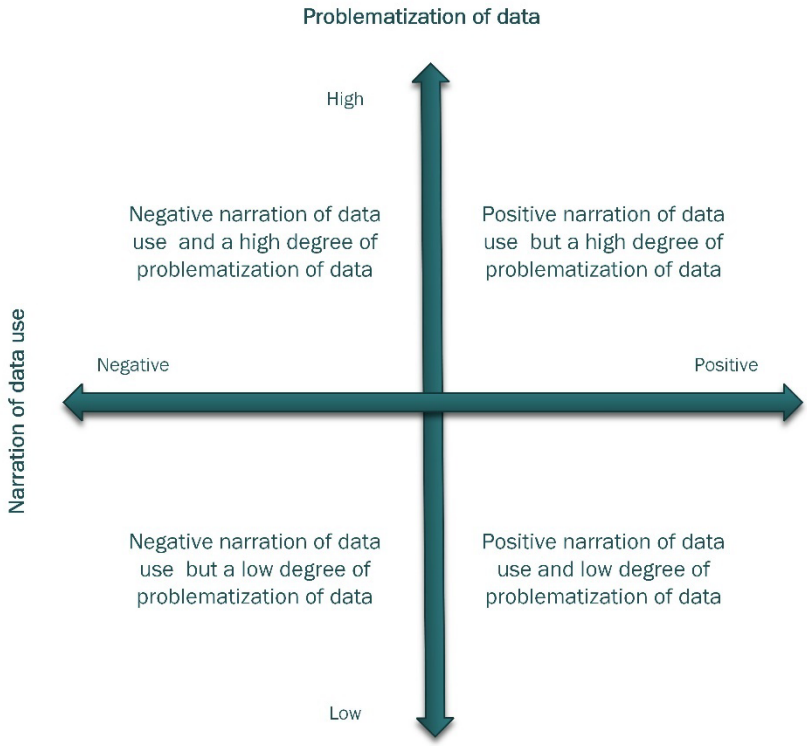


9.7 NARRATION OF DATA USE VS. PROBLEMATIZATION OF DATA (THEME D)

The last empirical insight presented in this chapter relates to the mechanism of 'Leadership for data use'. As outlined in chapter 4, multiple studies have concluded, that managers' support, communication and vision of data use is a necessity for the successful implementation of data use practices (Demski & Racherbäumer, 2017; Jacobs et al., 2012; Kerr et al., 2006; Keuning et al., 2017). Scandinavian institutionalists have similarly pointed to the significance of managerial support for initiating a translation (Radaelli & Sitton-Kent, 2016, Røvik, 1996, van Grinsven et al., 2020). Both research on educational data use and organizational translation processes hence indicate that managerial support and positive attitudes toward the idea are influential for succeeding with data use practices. If the decentral managers have a positive understanding of the potentials of data-oriented practices, it will therefore according to both SI-theory and scholars of educational data use be a supportive mechanism for achieving positive effects of data initiatives.

Figure 33 shows a model that illustrates the continuum of portraying primarily a positive narration of data over a primarily negative narration. This continuum is intersected with the continuum of a high to a low degree of problematization of data. The intersection results in four combinations of the two dimensions.

Figure 33: Intersection of narration of data use and problematization of data



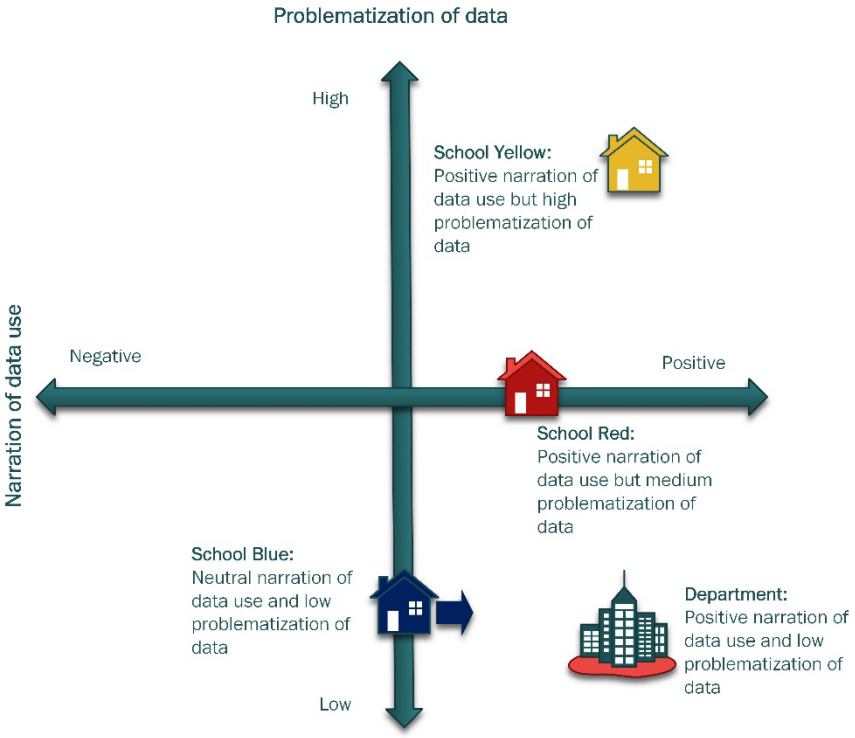
Author's own development based on empirical material

As part of the analysis process, I developed this model as an illustrative tool that makes it possible to position the cases in relation to each other. The model is constructed based on two insights from the coding process. First, it was found that some of the school management teams were more vocal advocates and positive about the potential of data use than others, although the management teams were predominantly positive in general. Second, it became evident when reading through the transcripts of the empirical material that managers differed in how much they problematized the available data. This led to the emergent code 'management's attitude towards data' that guided the following empirical founded presentation of the degree to which the three management teams problematized available data sources.

The two dimensions in the model (narration of data use and problematization of data) are addressed because of their apparent importance in characterizing the managers' overall attitudes towards the idea and because these characteristics serve as a fundament for the managerial translation.

In figure 34 the schools are positioned comparatively to each other and the department according to the dimensions 'narration of data use' and 'problematization of data'. It is important to state, that the positioning of the schools within the model is not an exact activity and does not rely on numeric variables, as in a mathematical system of coordinates. The positions are based on qualitative empirical data, and the positions should consequently be understood as an illustration of a characterization of the schools rather than a dimensional accuracy.

Figure 34: The cases' position according to narration of data use and problematization of data



Author's own development based on empirical material

Overall, all three management teams expressed support for the overall ambition of using data to inform practice and are located on the left-hand side of the horizontal dimension. The management teams for example do not express, that there are situations where data-informed inquiries could not be beneficial.

9.7.1 The department's position in the model

The department displays the most positive narration of data use combined with expressing the lowest degree of problematization of data and is therefore positioned in the lower right corner of figure 34. I will argue

that there are two main reasons for this. A part of the explanation for the difference is likely due to the type of empirical material that I have used to analyze respectively the department's translation and the school-level translations. The department's translation is analyzed via content analysis of strategic documents. The school-level translation is reviewed by analyzing verbal discussions and rough drafts of provisional program theories and written statements about data and data use from the management seminars (see chapter 7 for a thorough presentation of the empirical foundation). The latter naturally allows for a more detailed reflection of both the potentials and challenges of data practices, whereas strategic documents generally are more concise and less nuanced.

The other possible explanation for the predominantly positive narration of data use by the department is that the strategic document, which is the department's objectification of the data use idea (cf. Czarniawska & Joerges, 1996), represents a strategic translation whose purpose is to display strong leadership and a clear vision for data use. As explained previously, existing studies of educational data use have found clear leadership and vision to be influential mechanisms for triggering positive outcomes of data use initiatives (Demski & Racherbäumer, 2017; Jacobs et al., 2012; Kerr et al., 2006; Keuning et al., 2017).

9.7.2 The school management teams' position in the model

9.7.2.1 Narration of data use

The overall attitude towards implementing data use practices expressed by the school managers is positive, as they support the strategic ambition of using data to inform practice. That said, the three school management teams vary in how positive their narrations of data use are, in addition to (or perhaps as a consequence of) how far along they are in contextualizing and operationalizing data use in the respective school.

As explained at the beginning of this chapter, school yellow was the furthest along in implementing data use in their local setting.

Concurrently the management team at school yellow seemingly portrays the most positive narration of data use. This is visualized in the model where school yellow is positioned furthest to the right of the three schools. A manager at school yellow for example stated in the dialogue meeting that:

> *Manager, school yellow: "We process data. **It makes sense**. We spend time on the analysis and all these things because it makes us better equipped for what we really want, namely [perform] the core task around the children. I think we have to continue to have a strong focus on that" (Dialogue meeting at school yellow, min. 37).*

The yellow management team agrees with the necessity of data-based inquiry and advocates for the potential positive outcomes. In the above quote, the outcomes are identified as performing the core task related to the students. In the following statement, the principal at school yellow highlights the value of working analytically based on data as being the potential for follow-ups by both managers and employees:

> *Principal, school yellow: "I think that something like this [working analytical based on data] where we **as management have an easier time seeing if any efforts are being made** and if it is being followed up on, and how the progression is. I think that is super good, and the **teachers and pedagogues have taken this to heart**, I think." (Dialogue meeting at school yellow, min. 56)*

In the last paragraph the principal underlines that the employees have bought into the idea, which indicates that a certain level of implementation has been achieved.

The managers at school red likewise expressed a predominantly positive narration of data use. This was for example demonstrated in the

previously presented excerpt of a dialogue between the managers at school red:

> *"Manager, School red: I think it is important that we continue to scaffold the analysis part.*
>
> *[…]*
>
> *Principal, School Red: But also why. The big why. Why is it we work data-informed? This is because* ***we need something that can support our decisions****.*
>
> *Manager, School red: And really* ***supports professionalism****."*
>
> *(School red, construction of poster, 2nd management seminar, min. 40)*

In this excerpt, the managers express that data can support decision making and enhance professionalism.

The narration presented by the management team at school blue can be characterized as more neutral. At least in comparison to school yellow and school red. The management team at the blue school is not explicitly critical of the data use idea but focuses at least initially predominantly on establishing a collaborative culture and less so on establishing data-centered practices. The focus on establishing PLCs and the apparent need hereof is e.g. addressed by the principal during the dialogue meeting at school blue in the following quote:

> *Principal, school blue: "Perhaps we are lucky enough in quotation marks to have ended up in a stage in our development now where we actually really need it [to work in PLC's]. Because what we are experiencing right now is that when you stand alone,* ***it is simply not something you can carry on your own shoulders****. If you get into trouble in a class or with children. So instead of it being a private practice, I*

will say, that now there is a need for not standing alone anymore." (Dialogue meeting at school blue, min. 15)

The school's focus on data use, however, evolved over the period of data collection as the managers discussed the positive potentials in e.g. the management seminars, which is indicated by the arrow in figure 34.

9.7.2.2 Problematization of data

If attention is directed towards the dimension of 'problematization of data', the teams' position on the vertical dimension of the model visualizes that the management teams expressed concerns or even in some cases skepticism about data to various degrees. This contrasts the department's communication, which does not include statements that problematize data[45]. The school managers were not data skeptics in the sense that they did not engage in data use or did not encourage employees to be data-informed. On the contrary, the managers did not point to instances where the use of data would not be beneficial. The managers did however make statements that indicated skepticism of data in various dialogues between management members as well as in the written templates. The skepticism was related to different data-related issues, including the timeliness of data, discrepancies between different data sources, and data manipulation. Especially the principal at school yellow raises criticism of the timeliness of data:

*Principal, school yellow: "This is **old data**. We are working with one-year-old data. […] I think that is important. So this is just, how to put it, a feedback relaying on some **data that once were**." (School yellow, reflective teams' session, 3rd managerial seminar, min. 52)*

[45] Again, this absence of problematization might be partly caused by the type of empirical material analyzed. The strategic translation is based on document analysis, while the decentral translations is based on more informal empirical sources and primarily verbal statements.

In this quote, the principal underscores that even data from the previous school year is too old to base analyses on. At a later instance the principal elaborates on this by saying the following:

> *Principal, school yellow: "So the 9th grade who responded with this [result on the survey] last year. They are no longer there. So that is not interesting. And does that have any effect on the result? We have no idea.* ***So we can see some ghosts that don't exist****. It should be the starting point to say that there is simply an entire grade level that is not included. And there is a grade level that has moved up. And what could that offer? In other words, there are simply some things which cause us to sit - if I'm being completely honest - with* ***all much too old data*** *and work with it. So it doesn't actually give much […] It's just to say at the outset, that* ***there is simply something that is not valid in it****. In other words, we sit and work with something that is far too old." (School yellow, reflective teams' session, 3rd managerial seminar, min 5)*

With the reference to 'seeing ghosts' the principal points out that the age of data can lead to seeing problems that no longer exist. As a consequence of being old data, the data lacks validity according to the principal at school yellow.

Whereas the principal at school yellow is reflective and critical about the timeliness of data, the principal at school red was more focused on discrepancies between different data sources reporting on similar issues. The principal at school red for example stressed the following on discrepancies:

> *Principal, school red: "In the national well-being survey, where we always, almost always get a really, really nice survey. We used it, when we had a quality meeting with [the department head] about the T2 [quantitative survey results*

from the development project Program for Learning Management]. Because ***there was a huge difference between what the national well-being survey and what the T2 survey showed about well-being****. And then we just have to. So we look a little wider and say 'Well look, because we have been a part of a program on learning management, then* ***that is not the truth****. Because we get data from other places,* ***we also have to compare*** *and say okay, we can see some trends, what is our experience in the classroom, how it is going in the different departments. So we also get slightly broader data on well-being […] But* ***there was a big difference between the national well-being survey and the T2 survey in relation to the students. It is thought-provoking****." (School red, reflective teams' session, 3rd management seminar, min. 25)*

In addition to issues of discrepancies, the managers at school red also point to the potential issue of data manipulation. A manager for example stated that:

Manager, school red: "What is so funny about data is that you can get everything out of everything. Well, that is just, yeah. That is just a frustration (School red, reflective teams' session, 3rd managerial seminar, min. 38)

The principal unfolded this issue of data being potentially manipulated in the following quote:

*Principal, school red: "****Data is also grateful****. Just for fun, we have tried to take a year in the initial schooling and compared three classes at the three school sites. And there* ***we can see a marked difference*** *in how [the student] answered [the survey questions]. And it is so much [a difference] that you think: "****it is thought-provoking*** *that all the students really enjoyed themselves. No one is being teased. Everyone thinks*

> *it is nice coming to school". So perhaps, if you were to be critical, then perhaps there is also [the issue of] "how does the class* ***teacher influence the young children****, when they have to answer such questions?" I don't think so... So, you have to take that into consideration." (School red, reflective teams' session, 3rd managerial seminar, min. 21)*

Here the principal raises attention to the potential influence of outside actors, in this case, teachers, on the process of data collection. The principal hence raises attention to factors that might lower the level of data validity. A more concise statement about the validity of data was made by another manager at school red who stated that: *"Data is not the whole truth"* (Manager, school red, statements on data, 1st managerial seminar).

All the statements above illustrate different versions of data skepticism identified in the empirical material. A common feature is that they all refer to specific quantitative data sources. When data was problematized, the critique was predominantly aimed at the quantitative longitudinal survey data from the development project "Program for learning management" which all the municipality's schools had available at the time of the data collection (See chapter 2 for elaboration). The managers likewise referred to teachers' problematization of the nationally mandated tests. In junction, the listed skepticisms regarding the timeliness of data, discrepancies of data sources and data manipulation hence relates to concerns about the validity of specific quantitative data. The management team at school blue did not express skepticism about the validity of data, neither qualitative nor quantitative. The reason for this was arguable, as discussed previously, that collaborative and reflective inquiry was more so a theme that preoccupied the managers at school blue.

Figure 34 provides a visualization of the intersection of the managers' narration of data use and problematization of data. The schools' position

in the model shows that being positive and optimistic about the effects of using data to plan structured and informed initiatives is not necessarily consistent with being positive about the nature of data according to the empirical evidence. The empirical example showed that managerial agreement with the necessity of data-based inquiry and advocacy of the potential positive outcomes coexisted with a reflectivity and partly skepticism of the validity of data. As part of the discussion presented in the following chapter 10, I elaborate on how these empirical findings add to preexisting findings referring to the significance of managerial support for succeeding with implementation of data use practices in specific (Demski & Racherbäumer, 2017; Jacobs et al., 2012; Kerr et al., 2006; Keuning et al., 2017) and organizational ideas in general (Radaelli & Sitton-Kent, 2016, Røvik, 1996, van Grinsven et al., 2020). The case study demonstrates that managerial support can be a complex phenomenon as indicated in the model of the intersection of managers' narration and problematization of data.

9.8 CONCLUDING REMARKS ON THE EMPIRICAL ANALYSIS

This concludes the empirically founded analysis of the school management teams' translations of data use. As elaborated on throughout this chapter, it is possible to detect both similarities and differences in how the three management teams conceptualized data and data use practices in addition to the managers' perspective on the purpose of data use and the associated effect logics. In the last section of the chapter, the complex nature of the managerial support for the data use idea was explored.

In the preceding chapter 10, these empirical findings are discussed alongside the empirical findings related to the department's translation of data use which were unfolded in the previous chapter 8. The purpose of the preceding chapter 10 is to discuss how the empirical insights of the specific translation process at the case municipality (presented in chapter 8 and 9) contributes new knowledge and nuances to existing Scandinavian institutionalist theory.

CHAPTER 10: DISCUSSION

10.1 CHAPTER INTRODUCTION

The aim of this chapter is to illustrate how my study of a specific translation process contributes to existing Scandinavian institutionalist theory. The discussion of contributions emanates from the empirical themes of both the department's translation and the decentral management teams' translation of the organizational idea of data use in the case study.

As presented in chapter 8 the department's translation centered on the themes of prioritization, framing, and the space left for translation at lower organizational levels. Chapter 9 outlined key characteristics of the decentral management teams' translation. The chapter, for example, demonstrated that the school managers by large opted for a broad data definition, viewed data as something systematic, and referred to employee-level effect logics including an extended focus on professionalism. The chapter likewise discussed the space left for translation for the frontline staff.

In this chapter, the empirical findings are related to the theoretical view of Scandinavian institutionalist theory presented in chapter 5 and 6. By comparing the empirical findings and the theoretical perspectives, it is possible to infer how the study contributes to existing Scandinavian institutionalist theory with new insights and/or how it brings out new nuances to confirm the existing theoretical knowledge base. The confirmations and contributions are presented in the following by means of eight statements. Three of the statements are derived from the empirical analysis of the strategic translation, another two statements are derived from the empirical insights from the three decentral translations and lastly, three statements go across both the strategic and decentral translations.

10.2 CONFIRMATIONS AND CONTRIBUTIONS TO SCANDINAVIAN INSTITUTIONALISM BASED ON STRATEGIC-LEVEL EMPIRICAL FINDINGS

From a general perspective, the translation process, which takes place in the case study, resembles the process outlined by many Scandinavian institutionalists. The idea enters a hierarchical translation chain (Røvik, 2007) and the translation process is initiated at the strategic department level. The translation is hence predominantly characterized as a 'high-mode translation'. The term 'high-mode translation' is used by Linneberg et al. (2019) to describe top-down-oriented translation processes.

Theoretically, it is argued by new institutionalist scholars that specific ideas are discovered and taken in because organizational members (often managers) find that the new idea(s) offer appropriate solutions to organizational challenges (Czarniawska, 2005; Czarniawska & Joerges, 1996; Nielsen et al., 2014). The logic of appropriateness is present in the empirical material, as the department stresses the positive association between enhancing teachers' use of data in their daily operations and the achievement of student-level effects. The case study hence uncovers what Czarniawska & Joerges refers to as "*an attempt to portray the process as functional*" (Czarniawska & Joerges, 1996, p. 27). According to Czarniawska & Joerges, organizational members often use the following line of argumentation, when initiating a translation process:

> *"… this particular idea was spotted and adopted because it served well in resolving a specific difficulty or in creating a new opportunity in situations of stagnation." (Czarniawska & Joerges, 1996, p. 27)*

Empirically, the department does not outline a specific difficulty in which the use of data is meant to resolve or make concrete claims of stagnation. The department does however focus on the potential for data use to result in enhanced quality of the core task related to students in terms of enhanced learning and well-being progression (see chapter 8 for an

empirical presentation of the department's effect logics). The case study hence shows an empirical example where the popularity of an organizational idea seemingly makes translators less inclined to claim that implementation of the idea resolves existing difficulties or stagnations.

In the following attention is directed towards the above-mentioned themes related to the department's translation of data use in the case municipality. Table 12 displays statements based on the three empirical themes from the strategic-level translation with an indication of whether the empirical findings confirm existing SI-theory or account for a new contribution.

Table 12: Confirmations and contributions to SI-theory based on strategic-level empirical findings

Statements based on the empirical strategic-level translation	Confirmation of SI-theory	Contribution to SI-theory
Prioritizing certain elements of the idea is part of the strategic translation		✓
Framing an idea is a distinct aspect of strategic translation, and either a nuance to the translation rule of adding *or* an additional sixth translation rule		✓
Upper-level managers distribute a large translation task to lower level managers	✓	

Author's own development

Each statement is discussed separately hereafter:

10.2.1 Prioritizing – as the fifth translation rule

The first statement derives from the empirical evidence indicating that the department prioritized some elements of the theoretical framework of the data use idea over others. The first statement is:

Statement 1: Prioritizing certain elements of the idea is part of the strategic translation

This statement is empirically based on the fourth and sixth characteristic of the strategic translation, which state that "The department prioritizes some mechanisms over others in the strategic translation" and "The department prioritizes some sub-processes over others in the strategic translation".

The empirically driven theme of *prioritization* indicates a variation of the translation rules presented by Røvik (1996, 2016), and can hence contribute with a new nuance to the literature. Røvik (1996, 2016) has identified four distinct translation rules. Røvik's rules address translation processes that occur inside organizations (Wæraas & Sataøen, 2014), and specify that organizational actors either directly copy an idea or vary it by adding, omitting or altering its elements (Røvik, 1996, 2016). According to Røvik, the application of translation rules implies that translation processes have a certain regularity (Røvik, 2016). The rules are expressions of general patterns of modifications that actors can make to an idea as it is dispersed via organizational translation processes (Røvik, 2007; Wæraas & Sataøen, 2014).

By identifying the *concept of prioritizing* as an empirical characteristic of the department's translation of the data use idea, I will argue that a fifth type of modification is happening at the top management level. The strategic translation seemingly also involves the processes of highlighting some aspects of the idea and in effect down-toning others. The point is, that the *rule of omitting* does not adequately describe the translation. It is e.g., an exaggeration to claim that 'the process of collecting data' and 'the process of selecting data' *are omitted* from the strategic translation. These sub-processes, which are present in the theoretical framework, are however less emphasized in the department's strategic documents compared to 'the process of data analysis' and 'the process of moving from

data to practice'[46]. Likewise, the mechanisms of data literacy and professional knowledge are toned down in the department's strategic documents, while the mechanism of collaboration is given a prominent role[47]. The empirical background for these analytical claims was presented in chapter 8.

It is these empirical findings that lead me to propose the empirical founded statement, that "Prioritizing certain elements of the idea is part of the strategic translation" and proposing that *prioritizing* might be a fifth translation rule that can be added to the SI literature in addition to Røvik's original four translation rules (Røvik, 1996, 2016).

10.2.2 Framing - as the sixth translation rule

The second statement is also derived from the empirical evidence of the department's translation presented in chapter 8. As argued, the department highlights collaboration as the main mechanism to trigger the proposed effects of data use. Collaboration is in the strategic translation objectified (cf. Czarniawska & Joerges, 1996) as professional learning communities. Professional learning communities represent the main framework for data use in the strategic translation. This empirical finding from the department-level translation leads me to propose that *framing* is a distinctive aspect of the strategic translation process, that nuances the translation *rule of adding*. The second statement is:

> **Statement 2:** Framing an idea is a distinct aspect of strategic translation, and either a nuance to the translation rule of adding or an additional sixth translation rule

In the following, I present the argumentation for this claim, as I discuss how *the concept of framing* is a contribution to the Scandinavian institutionalist theory and why framing might even be viewed as a

[46] To read the empirical background of this analytical claim see chapter 8.
[47] To read the empirical background of this analytical claim see chapter 8.

potential sixth translation rule in addition to Røvik's four original translation rules (Røvik, 1996, 2016) and the fifth proposed rule of prioritizing presented above.

The second statement is derived from the empirical characteristic, which states that; "The data use idea is framed within professional learning communities" (characteristic no.2). That data use is framed within an organizational setup of professional learning communities is not uncommon in the pedagogical and educational field. Professional learning communities' interlinkage with data use practices is presented in both educational research literature e.g. (Farley-Ripple & Buttram, 2014; Huguet, Farrell, & Marsh, 2017a; Nash & Hopper, 2011) and in gray literature directed at practitioners (Klausen, 2017; Nordahl, 2016). The department hence relies on a known framing of data use practices. To some extent, the empirical characteristic of; "Data use processes are framed within tools and procedures already known in the organization" (characteristic no. 5), also contributes to supporting this analytical claim. This characteristic can however be viewed as an appendix to the characteristic that data use is framed within professional learning communities, because 'the tools and procedures' are a part of the department's objectification of professional learning communities as work fora.

The framing of the data use idea within a collaborative setting of professional learning communities points to a potential extension of the original four translation rules identified by Røvik (1996, 2016).

Based on the characteristic of data use being framed within professional learning communities, two arguments can be made. On one hand, it can be argued that the concept of *framing* represents a nuance to Røvik's rule of *adding* to an idea. On the other hand, it can be argued that the concept of *framing* represents an additional translation rule in its own right and is hence a sixth rule. The study of the department's strategic translation alone does not allow me to conclude which of the two arguments is the

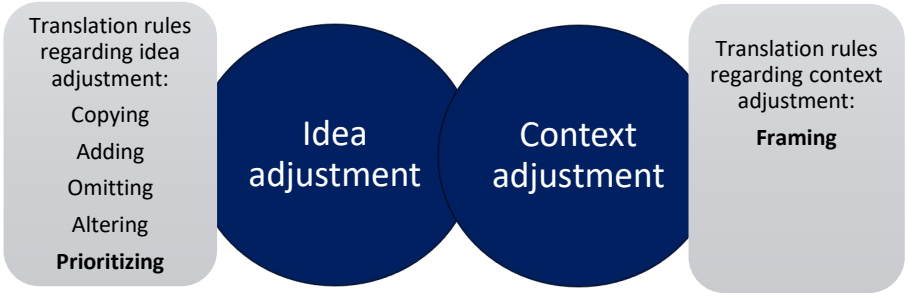
most adequate description. This would require further empirical evidence and investigation. However, how the decentral management teams translated the framing of data use within the professional learning community setting (which was empirically unfolded in chapter 9), might justify regarding framing as a potential sixth translation rule. The reason for this argument is, that especially the decentral management team at school blue and to some extent the managers at school yellow and red give collaboration priority to other components of the data use idea. It can therefore be argued that the department's framing of data use within the concept of professional learning communities to some extent legitimizes the decentral units' prioritization of the element of collaboration. In later sections of this analytical discussion, it is argued that this prioritization is a radical shift in the original focal point of the idea of data use, which leads to a distinct version of the data use idea. From this perspective, it can be argued that the department's framing strongly influences the later decentral translations and hence justify the argument that *framing* constitutes an additional translation rule.

Additionally, I will argue that *framing* differentiates from the translation rules of copying, adding, altering, or omitting (Røvik, 1996, 2016) because framing does not *translate the idea* in question. Instead, framing embeds the idea in a specific framework. In the case of the department's translation of the data use idea within the framework of professional learning communities, these collaborative fora represent a formal structuring of teamwork in which the department intends for data to be used.

The department's strategic translation hereby points to a potential strength in unfolding how organizational ideas are framed, because it adds another dimension to the translation rules that go beyond adjustment of the idea. Instead of focusing solely on how the idea is translated in terms of whether elements are copied, added, omitted, or altered, there is apparently an informative value in investigating how the idea is framed.

It can be argued that the department's translation indicates that translation of an idea such as data use might involve making certain *adjustments of the context* in which data use is sought to be implemented. The analysis of the strategic translation, therefore, leads me to build and suggest the model below:

Figure 35: Juxtaposed elements of idea translation



Author's own development

Introducing framing as an additional translation rule nuances the Scandinavian institutionalist characterization of translation processes by indicating that part of the translation process is related to adjustment of context, in which the idea is embedded rather than adjusting the idea per se.

The model represents an early-stage theoretical development. In later sections of this chapter, the distinction between idea adjustment and context adjustment is discussed further as it is one of the main contributions made to SI-theory as a result of the empirical case study. Further on in this chapter, it is discussed how also the decentral managers' translation of the idea of data use contributes to further concretizing this emerging theoretical development.

10.2.3 Summary of contributions to the SI-literature from the first two strategic-level statements

The first two empirically driven statements both help to nuance the translation process by identifying translation rules that are specifically related to a specific organizational layer.

Røvik's original four translation rules (Røvik, 1996, 2016) address translation processes that occur inside organizations. Røvik's rules do however not differentiate between specific translation rules that are used at the top management level and rules that are associated with lower-level translations. The case study contributes to "layering" the intra-organizational translation process by identifying two distinct types of modifications of ideas (called translation rules by Røvik) that take place at a strategic level.

In this way, the analysis of the case study's empirical material at the department level leads me to make a tentative theoretical development of a fifth translation rule of *prioritizing* and a sixth translation rule of *framing*. Both of these types of modifications have been observed at the strategic level. It is not possible to determine whether it is a general rule or not, based on the limited empirical evidence of just one strategic-level translation process. This is however the premise of conducting a single case site case study, as the one presented in this dissertation. Additional empirical evidence is required, in order to determine whether prioritization and framing can be considered to be general translation rules that managers use to modify ideas at the strategic level. The case study does however show an empirical example of the presence of these rules.

Røvik's original translation rules and the contributions made based on the empirical case study are summarized in the following Table 13.

Table 13: Contributions to Røvik's original translation rules (Røvik, 1996, 2016)

Røvik's original four translation rules	Contributions to Røvik's translation rules based on modifications to the idea of data use observed in the strategic translation
Copying Adding Altering Omitting	Prioritizing: nuances the rule of omitting and can potentially be conceptualized as a fifth translation rule. Framing: nuances the rule of adding and can potentially be conceptualized as a sixth translation rule.

Author's own development

10.2.4 Distribution of the translation task to operational levels

The third and final statement which is derived from the empirically based themes from the department's translation is that:

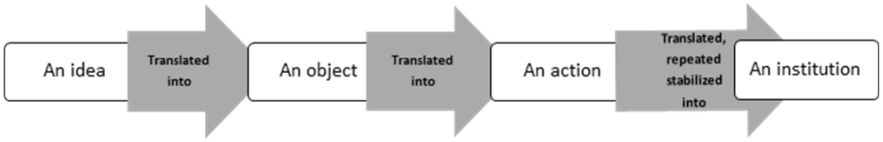
> **Statement 3:** Upper-level managers distribute a large translation task to lower-level managers

It may seem contradictory to argue that the strategic management prioritizes and frames the idea in a certain way (as shown above) and then at the same time claim that the strategic translation leaves a lot of room for lower-level managers to translate the idea themselves. I will however argue that this third statement does not contradict the previous two statements related to *prioritization* and *framing* based on the following two arguments. First, the department's framing of data use in the context of the professional learning communities still leaves a task of operationalizing how data use practices should take place within the 'professional learning community framework'. The framing itself is still wide. This is despite the fact that the department links the data use idea

to templates and familiar tools[48]. Second, although the department prioritizes certain elements of the idea, further translation is still required at the decentralized level in order for the idea to become operationalized.

Theoretically, Czarniawska & Joerges (1996) have outlined the steps required to achieve a translation that is adequately concrete, so that it can lead to actions becoming institutionalized in a local organizational setting. These steps are seen in the excerpt of the model of organizational change hereafter:

Figure 36: Excerpt of Czarniawska & Joerges' model of organizational change



(Czarniawska & Joerges, 1996)

Czarniawska & Joerges' model illustrates that a localized translation process is initiated when an idea is picked up in a certain organizational setting. The idea is then translated into an object (e.g. a text, picture or prototype). The object must thereafter be translated into actions. Only if actions are repeated, the idea can be stabilized and become an institution. Czarniawska & Joerges along with other SI-theorists have argued that the process of embedding an idea in a local setting requires that the idea is operationalized and transformed into concrete local actions (Boxenbaum & Pedersen, 2009; Czarniawska & Joerges, 1996; Røvik & Petterson, 2014; Vossen & van Gestel, 2019).

Empirically the department communicated that the establishment of professional learning communities with the intent of improving student-

[48] To read the empirical background of this analytical claim see chapter 8.

related outcomes should be an essential focus area in the further translation on the lower organizational levels (see chapter 8 for empirical evidence). As Radaelli & Sitton-Kent (2016) finds, it is hereafter the role of middle managers to operationalize and concretize the idea further and translate it into actions that can be institutionalized. The passing on of the translation mandate is elaborated on later in this discussion.

In addition to the aforementioned arguments of the broadness of the framing and prioritization in the department's translation, the statement that "Upper-level managers distribute a large translation task to lower-level managers" is also based on the seventh empirical characteristic of the strategic translation of the data use idea. This characteristic states that; "Data types and topics are not specified in the department's strategic translation" [49]. Despite strategic documents that suggest various tools for collaboration, the strategic translation only loosely defines data use in terms of i.e. intermediate effect goal and data types and topics. The open-ended strategic translation leaves the local school managers with the majority of the task of translating data use as an organizational idea into actions. For the large part, the department gives the decentral managements' autonomy to contextualize data use locally and operationalize the idea into local actions.

In combination, these empirical findings complement existing SI-theory, which has found that the further down the hierarchical translation the idea gets, the more concrete the translation of it becomes (Mortensen, 2020; Wæraas & Sataøen, 2014).

This concludes the discussion of the confirmations and contributions to Scandinavian institutionalist theory derived from the empirical findings at the strategic level. The empirically founded statements are summarized below:

[49] To read the empirical background of this analytical claim see chapter 8.

Table 14: Confirmations and contributions to SI-theory based on strategic-level empirical findings

Statements based on the empirical strategic-level translation	Confirmation of SI-theory	Contribution to SI-theory
Prioritizing certain elements of the idea is part of the strategic translation		✓
Framing an idea is a distinct aspect of strategic translation, and either a nuance to the translation rule of adding *or* an additional sixth translation rule		✓
Upper-level managers distribute a large translation task to lower-level managers	✓	

Author's own development

I now turn to discuss the confirmations and contributions that can be made to the SI-theory based on the empirical findings at the decentral management level.

10.3 CONFIRMATIONS AND CONTRIBUTIONS TO SCANDINAVIAN INSTITUTIONALISM BASED ON EMPIRICAL FINDINGS AT THE DECENTRAL LEVEL

Chapter 9 presented empirical evidence on how decentral management teams translated the idea of data use in their local organizational settings. The empirical presentation was structured according to the following themes:

- The management teams' understanding of what constitutes as data.
- The management teams' understanding of what constitutes as data use.

- The management teams' view on the purpose of data use practices, and the effects of using data in the local organizational practice.
- Narration of data use vs. problematization of data

In the following the empirical analysis presented in chapter 9 is discussed against SI-theory, with the purpose of outlining how the case study can provide new contributions to the theory.

10.3.1 Translation through a contextual and a human filter

The primary empirical finding that I will present in connection with the decentral translation level is the identification that ideas sift through two different (but interlinked) 'filters' so to speak – a **contextual filter** and a **human filter**[50]**.** By differentiating between a contextual and a human filter I contribute with a nuance to the theoretical notion that translation of an idea is a complex phenomenon as stated by e.g. Røvik (2019) and Czarniawska & Joerges (1996).

This empirical finding is formulated in this statement:

> **Statement 4:** Decentral managers adjust ideas based on both contextual considerations and their own understanding of the ideas

The distinction between the influence of a 'contextual filter' and a 'human filter', which I have derived from the empirical findings, complements Radaelli & Sitton-Kent's (2016) finding that how middle-managers make sense of the idea *and* their understanding of the context in which the translation occurs affect how middle-managers assume a translation role. As introduced in chapter 6 in relation to the program theory of

[50] The latter is at least the case if the translation process moves downward in the hierarchical organizational structure in a top-down-oriented motion, as is the case in the empirical example presented in this dissertation (cf. Linneberg et al. (2019)'s notion of high-mode translation).

managerial-level translation, Radaelli & Sitton-Kent (2016) investigate the role of middle managers in translation processes. In their article Radaelli & Sitton-Kent's (2016) use the following definition of middle management provided by Harding, Lee, & Ford (2014):

> *'[Middle management is] a position in organisational hierarchies between the operating core and the apex whose occupants are responsible for a particular business unit at this intermediate level of the corporate hierarchy that comprises all those below the top level strategic management and above first-level supervision' (Harding et al. 2014, p. 1214 in Radaelli & Sitton-Kent, 2016).*

This definition of middle managers is comparable with the characteristics of the intermediate organizational position and role of the school managers included in the case study. According to Radaelli & Sitton-Kent's (2016) review, only few empirical studies have explicitly studied how middle managers consolidate ideas within established routines and structures (Radaelli & Sitton-Kent, 2016). This underlines how the study of the school managers' translation of data use practices in their local context provides a useful contribution to the new institutionalist research field and the theoretical perspective of Scandinavian institutionalism.

In the following, I first discuss how decentral managers translate ideas according to considerations of the context (the contextual filter). Thereafter I discuss how the managerial translation is also influenced by managers' own opinions of the idea, with decentral managers representing a sort of 'human filter' that an idea is sifted through. Both the contextual filter and the human filter is reflected upon from the perspective of the empirical insights from the case study. The following sections are titled '*Idea adjustments* based on considerations of the context' and '*Idea adjustments* based on managers' opinion and understanding of the idea' to underline that these translation processes concern *adjustments of the idea*. It is later discussed how the analysis of the empirical data also leads

me to claim that ***adjustments of the context*** in which the idea is sought implemented is likewise a substantial element of the intraorganizational translation process. This perspective has arguably been inadequately discussed in Scandinavian institutionalism so far. The tendency in this line of research has traditionally been that the focus is on how ideas are 'adapted when adopted' so to say in a local organizational context.

10.3.2 Idea adjustments based on considerations of the context

It is a common understanding among Scandinavian institutionalist theorists, that organizational ideas are contextualized[51] as part of the translation process (Boxenbaum & Pedersen, 2009; Czarniawska & Joerges, 1996; Linneberg et al., 2019; Røvik, 2007). Nielsen et al. (2020) describe contextualization in the following way:

> *"The reinterpretation and adaptation of the management idea in the organizational context constitute the* ***contextualization phase*** *of a spreading concept's trajectory."* (Nielsen et al., 2020, p. 238)[52]

Nielsen et al. (2020) continue this description by stating that:

> *"Whereas field-level translations represent a preliminary form of contextualization, they are unlikely to accomplish the* ***fine-grained, detailed adaptations that are necessary to ensure an adequate fit with specific organizational contexts****. The standard approach in translation theory, therefore, is to treat organizational-level translations as unpredictable, always involving transformation." (Nielsen et al., 2020, p. 238)*[53]

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[51] Ideas are more precisely re-contextualized according to Czarniawska & Joerges, as the idea is decontextualized when it travels between fields and organizations, but re-contextualized when embedded in a particular organizational context (Czarniawska & Joerges, 1996).
[52] Bold typing by the PhD student.
[53] Bold typing by the Ph.D. student.

As indicated in this paragraph by Nielsen et al., organizational-level translation process entails fine-grained and detailed adaptations necessary to ensure that the idea matches the local context. The empirical case study supports this finding by Nielsen et al. (2020). The case study likewise supports Radaelli & Sitton-Kent's (2016) claim, that managers close to the operational core have a great role in translating organizational ideas with an adequate level of detail so that it matches the local context.

10.3.2.1 Contextual considerations related to employees' readiness for change

The main empirical example of how decentral managers consider the context in relation to the process of idea implementation is the managerial consideration of how employees will respond to the idea and how 'ready' the employees are for the changes brought on by implementing the idea.

Based on a study of the implementation of a planning system in hospital departments, SI-scholars Øygarden & Mikkelsen (2020) have proposed that managers' **'readiness for change'** influences their use of editing rules. Øygarden & Mikkelsen (2020) define readiness as *"… the cognitive precursor of either resisting an organizational change effort, or accepting, embracing and adopting it"* (Øygarden & Mikkelsen, 2020, p. 224).

Whereas Øygarden & Mikkelsen's study is centered on the impact that the *readiness of managers* at the department level has on the translation process, the case study in this dissertation indicates that decentral managers' perception of *employees' readiness for change* also influences how managers conduct the translation process.

The case study indicates that decentral managers adjust the idea in an attempt to enhance employees' readiness to adopt the idea and reduce employees' resistance to the changes associated with implementing data use practices in their workflow. The decentral managers do so by translating the term data as both qualitative and quantitative entities.

Advocating for a **broad definition** of data implies that the decentral managers do not operationalize the idea of data use in accordance with any specific type of data. Instead, all three management teams emphasize the importance of following a **systematic approach** when working with data. In addition to associating data with the characteristic of systematic workflows, the decentral managers also emphasize that data is defined as information that is somehow **documented and journalized**, which makes it possible to revisit data at a later time. These empirical findings were presented in chapter 9.

In terms of operationalizing activities of data use, the decentral managers seemingly **prioritize analysis** as the main process of "data use" (as is also the focus of the strategic translation). In accordance with the broad data definition, the decentral translation does not specify how data is to be selected and collected. The combination of the broad data-definition and the emphasis on systematic and analysis arguably leaves a great space for translation to actors at the operational organizational level, meaning the teachers and pedagogues at the frontline. The implications of this distribution of translation are discussed in a later section of this chapter.

The central point that I seek to portray in this section of the discussion, is that the decentral managers' advocacy of a broad data definition and their focus on analysis results from managers' considerations of the context.

10.3.3 Idea adjustments based on managers' opinion and understanding of the idea

In addition to the contextual considerations discussed above, the managerial translation is also influenced by managers' own opinions of the idea, with decentral managers representing a sort of 'human filter' that an idea is sifted through. The human filter is elaborated on and discussed hereafter.

Scandinavian institutionalist scholars have argued that motivation for implementing new organizational work practices and agendas is associated with a perceived 'logic of appropriateness' (Czarniawska, 2005; Czarniawska & Joerges, 1996; Nielsen et al., 2014).

In relation to the 'logic of appropriateness', Scandinavian institutionalists have pointed to the significance of **managerial support** for initiating and continuing a translation (Radaelli & Sitton-Kent, 2016, Røvik, 1996, van Grinsven et al., 2020). Similarly, scholars of educational data use identified the significance of managerial support and positive attitudes of the idea in succeeding with data use practices (Demski & Racherbäumer, 2017; Jacobs et al., 2012; Kerr et al., 2006; Keuning et al., 2017, Wayman et al., 2012, Dunn et al., 2013, Jimerson, 2014, Sun et al. 2016). Based on both the findings of SI-scholars and data-use scholars, it can thereby be argued that it is a prerequisite that decentral managers perceive it as meaningful to use data for organizational purposes.

The case study contributes to SI-theory by nuancing the theoretical notion that translation is guided by a logic of appropriateness. As discussed in the previous section of this chapter, the case study illustrates that the department ascribed to a rather clear logic of appropriateness, with the strategic documents being predominantly positive about the potential benefits of data use. The empirical presentation of the decentral translation (chapter 9) however also showed that the decentral managers' understanding and support of the idea of data use was complex. The complexity was presented via the two intersected continuums of positive/negative narration of data use and high/low degree of problematization of data sources.

With the development of the two intersected continuums, I have observed an anomaly in the empirical data. The anomaly is identified in the empirical example of school yellow. The yellow management team is at the same time the most supportive of the idea *and* the team that is the most vocally skeptical of the idea. As shown in the empirical presentation,

the yellow management team (especially the principal) simultaneously vocally express skepticism of specific data sources and an overall support of the ambition of enhancing data use. The same tendency is present in the discussions held by the decentral management team at school red, but to a lesser extent. This leads me to propose the following contribution to both SI-theory and the existing research on education data use that:

Statement 5: Managerial support can be a complex phenomenon

This finding likewise points to a moderation to the logic of appropriateness at the decentral level, as the decentral management teams were not unambiguously positive due to the expressed skepticism about data sources. My claim is that the moderated logic of appropriateness at the decentral managerial level results from the decentral managers being influenced by both characteristics of the local context *and* their own opinion and understanding of the idea as they translate the idea.

10.3.4 Summary of the decentral translation

To summarize, the empirical analysis of the tendencies of the decentral management teams' translation of the idea of data use has allowed me to confirm and contribute to the existing SI-theory with the following statements:

Table 15: Confirmations and contributions to SI-theory based on decentral level empirical findings

Statements based on decentral level translations	Confirmation of SI-theory	Contribution to SI-theory
Decentral managers adjust ideas based on both contextual considerations and their own understanding of the ideas	✓	
Managerial support can be a complex phenomenon		✓

Author's own development

First, the case study confirms the theoretically argued notion that in the process of transforming an idea from a management ambition at the strategic level to operational-level practices decentral managers adapt the idea according to (at least) two sets of influences; contextual considerations and managers' understanding of the idea that is sought to be implemented. This argument has been made by e.g. Radaelli & Sitton-Kent, 2016 before me.

In addition to Øygarden & Mikkelsen's (2020) claim that *managers' readiness for change* influence how they translate ideas at a decentral level, I propose that consideration of the context e.g. implies adjusting the idea to the mindset and competencies of employees, who must carry out the new practice. I have labeled such considerations, managerial considerations of employees' 'readiness for change'.

In relation to the logic of appropriateness, it has also been argued in this subsection of the discussion, that decentral managers are (not surprisingly) influenced by their own understanding and opinion of the idea when adjusting it to their local organizational settings. The case study hereby confirms the claim of SI-scholars, that managerial support is an important factor in the process of translation (e.g. Øygarden & Mikkelsen, 2020; Radaelli & Sitton-Kent, 2016). The analysis of the case

study adds to the existing research on managerial support by indicating that managerial support is potentially a complex phenomenon, where the most vocal advocates might also be the most vocal skeptics.

Regarding the original claim by SI-scholars that ideas are implemented based on the merits of appropriateness or popularity (Czarniawska, 2005; Czarniawska & Joerges, 1996; Røvik, 2011), the empirical evidence at the strategic managerial level confirms this claim. The case study of the decentral managerial level however contributes with nuances to the logic of appropriateness and/or popularity claimed by SI-scholars, by demonstrating that when decentral managers are instructed to implement an idea by an upper level, they adjust the idea, so that it becomes appropriate in the local organizational setting

This concludes the discussion of the confirmations and contributions to the SI-theory derived from the empirical findings at the decentral level. I now turn to discuss the contributions that can be made to the SI-theory based on the empirical findings that transect the strategic and the decentral management level.

10.4 CONTRIBUTIONS TO SCANDINAVIAN INSTITUTIONALISM BASED ON THE EMPIRICAL FINDINGS OF THE TRANSITION FROM THE STRATEGIC-LEVEL TRANSLATION TO THE DECENTRAL LEVEL TRANSLATION

The previous two sections of the discussion have unfolded the case study's confirmations and contributions to SI-theory in relation to respectively the empirical findings at the strategic level and the decentral level. In the following section, I discuss the contributions to SI-theory that relate to empirical findings that intersect the translation made at the strategic level and the decentral level. The theoretical contributions to the existing SI-theory on intraorganizational translation relate to three themes:

My first contribution to SI-theory is to proclaim that the **process of preparing the context,** including the individuals embedded herein, to be able to implement the idea, is an essential part of translation processes.

SI-theorists have traditionally focused their attention on *how ideas are adjusted* as part of the translation process. I propose that *adjustments of the context* are likewise an embedded part of the translation process. Based on the empirical findings I discuss how idea adjustment and context adjustment are dual and dynamic processes in the managerial translation phase.

The second contribution which I propose and discuss based on the empirically studied intraorganizational translation process is related to the *intersection* of the processes of idea adjustment and context adjustment. Applying the program theoretical approach to the study of intraorganizational translation processes has allowed me to differentiate between which 'role' various elements of the organizational idea of data use have at different levels of the translation chain. The empirical example illustrates that the roles assigned to certain elements of an idea can change as the idea diffuses down the hieratical translation chain. I discuss how these **shifts of roles** underline the dual and dynamic nature of the processes of idea adjustment and context adjustment.

The third and final theoretical contribution drawn from the intraorganizational translation process relates to the theme of **distribution of the translation task**. The empirical case study showed that the department distributed a large translation task to the decentral managers. By opting for a broad definition of data and emphasizing the importance of employees' professional judgment, the decentral managers likewise distributed part of the translation task of operationalizing concrete data use practices to the frontline staff. Distribution of the translation task is hence a recurrent theme at both organizational levels.

The three theoretical contributions are summarized in table 16:

Table 16: Contributions to SI-theory based on across-level empirical findings

Statement based on the across-level intraorganizational translation	Confirmation of SI-theory	Contribution to SI-theory
Early-stage translation implies adjustment of context in addition to adjustment of the idea		✓
The 'role' of various elements of organizational ideas can shift through the translation chain		✓
When organizational ideas regard change in professionals' work routines, a great amount of translation might be distributed to frontline professionals		✓

Author's own development

Each statement is discussed separately hereafter:

10.4.1 Early-stage translation implies adjustment of context in addition to adjustment of the idea

Based on the analysis of the empirical material I will in the following argue that managers are required to navigate the *dual processes* of idea adjustment and local organizational context adjustment as part of the early-stage translation. The term 'early-stage translation' is used to underline that the translations that happens within the case study's timeframe are preliminary translations, that in most regards do not lead to specific operationalized data use initiatives being fully implemented within the three case schools.

In the previous part of the discussion, I unfolded the case study's contribution to the process of idea adjustment. At the strategic level, this included the notion of prioritization. At the decentral level, I argued that the idea is adjusted both in accordance with managers' own view of the idea and their considerations of the context.

In this section of the discussion, the focus is on the aspect of context adjustment, as opposed to the previously discussed notion of idea adjustment. In table 17 I propose a definition of respectively idea adjustments and context adjustments. The distinction between the two types of adjustments is categorized as ideal-typical (cf. Krogstrup & Kristiansen, 2015). Analytical this implies that the two types of adjustments are not fixed but must be considered somewhat fluid. This means that there is not always a clear-cut division between when adjustments can be said to concern the idea and when adjustments can be said to concern the organizational context in which an idea is to be implemented. As will be unfolded later in this chapter, the intraorganizational translation of an idea can involve managers adjusting the original idea to such a large extent that it becomes an attempt to change the organizational setting to enable later idea implementation.

Table 17: Ideal-typical distinction between idea adjustment and context adjustment

	Idea adjustments	Context adjustments
Definition	Adjustments of the idea, that enables conformity with the organizational context in which the idea is sought implemented	Adjustments of the organizational context in which the idea is sought implemented to accommodate idea implementation

Author's own development

The argument is that idea and context adjustment are *dual and intersected* processes. My claim is that it is not necessarily sufficient to adjust the idea to fit the organizational context in which an idea is sought to be implemented. Implementation will also likely require changes in the organizational context to ensure that the idea and the context are aligned in a way that allows the idea to be implemented. The claim is, that if there is a lack of coherence between the idea and the context, the idea will not be translated into practice, and the ambition with the idea will hence not be achieved. This argument is derived from the analysis of the empirical

material, which showed that the decentral managers made efforts to adjust the organizational structures and cultures to prepare the local organizational setting to eventually become more data-informed. I will unfold empirical examples of such efforts of context adjustments in the following section.

10.4.1.1 Context adjustments

Empirical examples of the process of context adjustments were found both at the strategic translation level and the decentral translation level.

At the strategic level, adjusting the context was predominately achieved through the process of placing the data use idea within the framework of professional learning communities. This is the process which I earlier in this chapter labeled *framing*. By promoting the establishment of professional learning communities as forums for collaboration, the department requested that the lower organizational levels (the schools) implement initiatives that change how frontline staff work[54]. Professional learning communities are not equivalent to data use but are instead collaborative forums in which data use can be carried out. Framing data use in the image of professional learning communities hereby represents an ambition to adjust the contextual condition, which will support implementation of data use practices. Framing as a version of context adjustment was discussed previously in this chapter.

At the decentral management level, context adjustment concerns:

[54] That the implementation of PLCs can be defined as a different way of working locally is the department's own assessment.

Context adjustment at decentral management level
Structural adjustments - Adjusting existing practices to align them with the idea or implementing new work practices to support the idea - Ensuring that employees have adequate time to implement the proposed actions **Cultural adjustments** - Taking steps to enhance employees' readiness to adopt the idea and reduce employees' resistance to the change - Changing the organizational culture if this is needed to hereafter implement the idea

Author's own development

All four characteristics are formulated based on the analysis of the empirical material presented in chapter 9, and elaborated on hereafter:

10.4.1.2 Structural adjustments to the context

The first and second aspects of context adjustment at the decentral management level are closely associated as they regard the *structural aspects* of preparing the organizational setting to incorporate the idea. This entails setting up the structural condition that makes it possible to implement the proposed actions. Establishing structures that support idea implementation involves managers facilitating that existing practices are adjusted *or* that new work practices are established. In the empirical example, the management teams in various degrees sought to support employees in incorporating data and data inquiry into *existing* dialogues concerning students' learning and well-being assessments in existing collaborative communities[55] or establishing *new* collaborative

[55] This is mainly the case at school yellow and partly the case at school red.

communities in which employees are encouraged to use data to inform their discussions and decisions[56].

Overall, the decentral management teams adopted and continued the department's framing of data use in collaborative settings labeled professional learning communities. How the managers organized the local professional learning communities however varied.

At *school red*, for example, the managers organized inquiries into data at managerial-led meetings six times annually, where managers beforehand had selected specific quantitative data to be discussed at the meeting.

At *school yellow*, the managers instructed smaller professional learning communities of 3-4 teachers and pedagogues, who taught the same class, to select data and make an action plan based on these specific data. The action plan was then discussed with a member of the school management team at a PLC-meeting. The school managers' attendance at the meeting was in accordance with the PLC-standard formulated by the department, which stated that a manager should attend meetings in each professional learning community biannually.

At *school blue*, the managers' focus was on establishing new collaborative communities. The managers were aware that a cultural shift was needed, prior to obtaining this goal. At school blue, the managers were hence explicit about the complications of seeking to establish successful PLCs as outlined in the department's written instructions. As illustrated in the empirical presentation (chapter 9), school blue was from their own perception in the very early stages of implementing data use in the teachers' day-to-day work practices, and thereby not far along in making explicit structural adjustments.

Structural adjustments to the context likewise relate to the *availability of time*. Empirically, the management teams were all vocal in expressing *lack*

[56] This is mainly the case at school blue.

of time as a potential and likely hindering factor in implementing data use practices. Part of the managerial task is therefore to ensure that employees have time to confer with data. The empirical indication of adequate time being a concern, supports the existing research of scholars of educational data use, who have likewise stressed that time is a necessity for succeeding with implementing data use initiatives in schools (Datnow & Park, 2002; Huguet et al., 2017; Mandinach, 2012; Roehrig et al., 2008; Wayman, Cho, et al., 2012).

10.4.1.3 Cultural adjustments to the context

The third and fourth aspects of context adjustment deduced from the empirical case study at the decentral management level are respectively 3) Taking steps to enhance employees' readiness to adopt the idea and reduce employees' resistance to the change and 4) Changing the organizational culture if this is needed to hereafter implement the idea. These aspects are associated as they concern the human component of aligning the context to the idea sought implemented.

10.4.1.4 Attempting to strengthen employees' readiness to change by creating a shared understanding of the idea

It was previously discussed that the case study indicates that decentral managers adjust the idea according to considerations of how employees will respond to the idea. In addition, the decentral managers likewise appear to try to *adjust employees' readiness to adopt and act out the idea*. These types of adjustments are adjustments related to the human component of the context in which the idea of data use is sought to be implemented.

In the following, I will argue that the process of *seeking a joint understanding* is an example of how the managers attempt to strengthen employees' readiness to make changes that accommodate implementation of the idea (of data use in the empirical example).

As shown in the empirical presentation in chapter 9, the management team at especially school red focus on establishing a joint understanding

of data and data use practices. The ambition is to create a shared understanding that the term 'data' refers to both quantitative and qualitative entities. The broad data definition is arguably proposed to mediate employee resistance and increase employees' 'buy-in'. In institutionalist terminology, this can be categorized as a managerial attempt to obtain internal legitimacy (Crosby, 1996; Drori & Honig, 2013; Greenwood et al., 2008; Thornton & William, 2008). According to institutionalism, organizations conform to popular organizational ideas to gain legitimacy (Meyer & Rowan, 1977; Røvik, 2007). Being viewed in a preferable way by external observers is by some institutionalist scholars referred to as external legitimacy (Drori & Honig, 2013). Institutionalist scholars have likewise argued that implementation of ideas can be supported if the idea is viewed as legitimate by internal organizational members, managers as well as employees (Crosby, 1996; Drori & Honig, 2013; Greenwood et al., 2008; Thornton & William, 2008). Drori & Honig (2013) define internal legitimacy as:

> *"the acceptance or normative validation of an organizational strategy through the consensus of its participants, which acts as a tool that reinforces organizational practices and mobilizes organizational members around a common ethical, strategic or ideological vision." (Drori & Honig, 2013, p. 347)*

In the empirical example, it can be argued that the way that the managers seek to obtain internal legitimacy for the idea involves two closely interlinked processes:

A) The managers opted for a broad data definition, which can be characterized as *idea adjustment*[57]

[57] The implication of the broad data-definition proposed by the decentral managers is however seemingly that the task of operationalizing the idea of data use into concrete actions (cf. Czarniawska & Joerges, 1996) is distributed

B) The managers worked towards creating a shared understanding of the idea, which can be characterized as *context adjustment*

It can be argued that the decentral managers aligned their communication of data use with the perceived view of the frontline staff. This alignment can potentially induce a sense of internal legitimacy and reduce employees' resistance to work with data.

The decentral managers express the opinion that 'data is not the whole truth'[58]. It can be argued that the decentral managers' vocal and explicit reservations toward viewing data as infallible entities, represent a way of contextualizing the idea of data use and attempting to exhibit the idea as legitimate to employees. Hereby I mean that the idea is framed in a way that would potentially make employees buy into the idea. According to the managers' discussions in the managerial seminars, reservations and skepticism of data is presumably widespread amongst the employees. Therefore, the decentral managements' acknowledgment that 'data is not the whole truth' and 'not all data is good data' can be seen as an attempt to align the managerial translation with the prevalent view amongst the frontline staff. Acknowledging the skepticism may arguably be a gateway to nudge teachers to start using data. The data skepticism arguably becomes part of the managers' translation of the data use idea and hence part of the understanding of the idea that they sought to convey to the employees. The argument for explicitly acknowledging and respecting the employees' preexisting skepticism is with reference to Drori & Honig's (2013) definition of internal legitimacy to seek a *"acceptance or normative validation of an organizational strategy through the consensus of its participants"* (Drori & Honig, 2013, p. 347). The view of data being fallible

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to frontline employees. This characteristic of the translation process is discussed in the subsequent section of this chapter.

[58] For elaboration of the managers' skepticism of data validity see the section on 'Problematization of data' in chapter 9.

and not necessarily equal to the whole truth arguably eases the way toward consensus.

Based on the above argumentation I propose that the process of advocating for a broad understanding of the concept of data and acknowledging employees' skepticism towards data adds to the previously discussed examples of how managers seek to strengthen employees' readiness to make changes that accommodate the implementation of the idea. My claim is hereby that creating this consensus and a common vision of data use can be characterized as a way of adjusting the context.

10.4.1.5 Changing the organizational culture if need be

The empirical presentation moreover demonstrated that the managers at school blue identified a need for changes in the organizational culture as a prerequisite for implementing data use practices. According to the managers at school blue, it was necessary to enhance the employees' level of reflectiveness about their own practice. The managers also sought to support the employees in becoming more comfortable with and competent to participate in collaborative inquiries with their colleagues[59]. Both enhanced reflectiveness and collaboration were identified as potential levers for data use. The managers likewise identified a need for enhancing employees' independence from managers with collaboration being a supporting element in achieving this goal. School blue hereby represents an empirical example of a managerial-identified need for change required in the organizational setting to accommodate idea implementation. As demonstrated in chapter 9, the employees at school blue were not culturally ready to adopt the data use idea, as they, according to the management, lacked the required qualifications of being reflective about

[59] Later in this chapter it is proposed that the managerial focus on establishing collaborative forums at school blue can be viewed as a rather radical alteration of the original idea of data use. This implies that the managers' translation can be said to move from being an adjustment of the idea itself to an adjustment of the context.

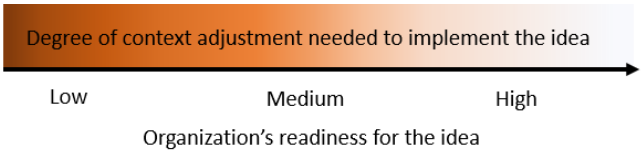
their own practice and the ability to work collectively. To accommodate the identified need for change, the manager at school blue centered their translation on the concept of collaboration and made collaboration a prioritized element of the idea of data use.

The management team explicitly stated that increased collaboration and greater teacher-independence from managers' involvement in daily practice was a needed cultural shift. Their managerial focus was hence on organizational context adjustments, which according to their account are necessary preconditions to implementing data use practices. This empirical finding, which demonstrates that the decentral managers had to prepare the context prior to being able to implement the idea, represents a new addition to the SI-literature. This new insight arose as I was able to study 'the fuzzy frontend' of the translation process in an organizational subunit that was not ready to implement the idea but was required to do so by upper-level management.

10.4.1.6 Continuum of an organization's readiness for idea implementation

In the two other schools, the local contexts were more prepared to implement the idea (cf. chapter 9). This implies that decentral organizational levels receiving an idea for implementation can be at different stages of readiness to implement the idea. This leads me to propose that there is a continuum of an organization's readiness for implementing organizational ideas. The continuum ranks from a low degree of readiness where the organization's existing practices, routines, and/or culture are far from matching the proposed idea. At the other end of the continuum, the organization is more aligned with the idea and thereby has a higher level of organizational readiness. I have visualized the continuum in the following figure:

Figure 37: Continuum of an organization's readiness for idea implementation



Author's own development

In accordance with the empirical evidence figure 37 likewise illustrates the degree of contextual adjustment needed to implement the idea. The degree of contextual adjustment needed lessens as the organization's readiness increases as visualized via the fading orange background.

The argument for conceptualizing the organization's readiness for the idea via such a continuum is that it is beneficial for organizational actors to be attentive to the organization's readiness for the idea when embarking on translation processes. The managerial implications hereof are unfolded later in this chapter.

10.4.1.7 Summary of idea adjustments and context adjustments

Traditionally Scandinavian institutionalist researchers have been attentive to *how ideas are adjusted* within translation processes. Røvik's three translation modus and adjoining four translation rules are examples hereof (Røvik, 1996, 2016). As a result of the above argumentation, I propose that *context adjustment* in addition to *idea adjustment* should play a part in future theoretical development of Scandinavian institutionalism and should be a pivotal point of future inquiries. My contribution to Scandinavian institutionalist theory is that idea adjustments are accompanied by context adjustments as part of the managerial translation of an organizational idea.

Table 18 summarizes the discussed aspects of both idea and context adjustment:

Table 18: Ideal-typical distinction between idea adjustment and context adjustment, elaboration

	Idea adjustments	Context adjustments
Definition	Adjustments of the idea, that enables conformity with the organizational context in which the idea is sought implemented	Adjustments of the organizational context in which the idea is sought implemented to accommodate idea implementation
Aim	Aim: to translate the idea in a way that allow employees to accept implementation and ensure internal legitimacy	Aim: to prepare the organizational context to implement the idea via structural and cultural adjustments that eases implementation of the idea
Empirical evidence at the decentral managerial level	Decentral managers attempted to adjust the idea according to considerations of how employees will respond to the idea. Decentral managers opted for a broad data definition, emphasized systematic work approach, prioritized analysis, and had a lesser focus on operationalization. *(Ambition of all three management teams)*	Decentral manager adjusted existing practices to align them with the idea *(School yellow and red)* Decentral managers sought to implement new work practices to support the idea (*School blue)* Decentral managers sought to enhance the organization's readiness for the idea of data use by promoting changes in the organizational culture *(School blue)*

Author's own development

In addition to demonstrating that managerial translation includes both processes of idea and context adjustment, the case study also indicates that there is a dynamic relationship between the two, when managers translate an organizational idea in a local setting. This dynamic is unfolded hereafter.

10.4.2 The dynamic relationship between idea and context adjustment

In the following section, I discuss how the dual processes of idea adjustment and context adjustment are arguably dynamic in their relation

to each other. The argument, that the interplay between idea and context adjustment is dynamic, is based on two observations.

10.4.2.1 Idea and context adjustments as seemingly consecutive phases of translation

First, the empirical analysis indicates that the dual processes of idea and context adjustment are dynamic because they occur in different phases of the translation process. In the initial phase of implementation, the management teams predominantly focus on implementing new work practices or adjusting existing practices to support the implementation of data use practices. These context adjustments represent the task of preparing the organization to 'take in' the idea (as discussed above). In the empirical example, the school management teams highlight collaboration as the most essential and needed contextual adjustment. At school blue, enhanced reflectivity is likewise highlighted as a needed contextual adjustment.

As the organizations begin to implement the idea (in the empirical case begin to implement data use practices), the managerial focus seemingly shifts in the direction of idea adjustment. The empirical example suggests that this shift occurs when the contextual adjustments, which the managers deem necessary to support idea implementation, are realized and carried out to an extent that they are somewhat institutionalized (or at least on the way to becoming institutionalized). In accordance with institutionalist theorists, the term institutionalized means that a given practice is routinized and carried out intuitively by organizational actors (Greenwood et al., 2008; Sahlin & Wedlin, 2008).

One version of the dynamics between idea adjustment and context adjustment is hereby the interaction between *when* translators focus on adjusting the idea to suit the context and *when* translators focus on making adjustments in the organization in order to make the organizational context better match the idea. In the empirical example, the case schools are in different phases of implementation of data use

practices. The various phases of implementation seemingly concur with the variation of the relative focus the three management teams put on respectively preparing the context and adjusting the idea. The managerial focus on contextual adjustments precedes the focus on idea adjustments.

10.4.2.2 Elements of the idea shift roles as the idea diffuses

The other way that idea and context adjustment can be categorized as dynamic processes concerns how organizational translators alter the idea by rearranging elements of the idea (e.g. mechanisms, activities, effect logics) within the idea itself in a "program theoretical sense". A program theory is a visualization that outlines the assumptions of how an initiative or project works, why, and under which conditions (Chen, 2013; Coryn et al., 2011; Dahler-Larsen & Krogstrup, 2009; Pawson & Tilley, 2004). See previous chapter 3 for an introduction to program theory and its components.

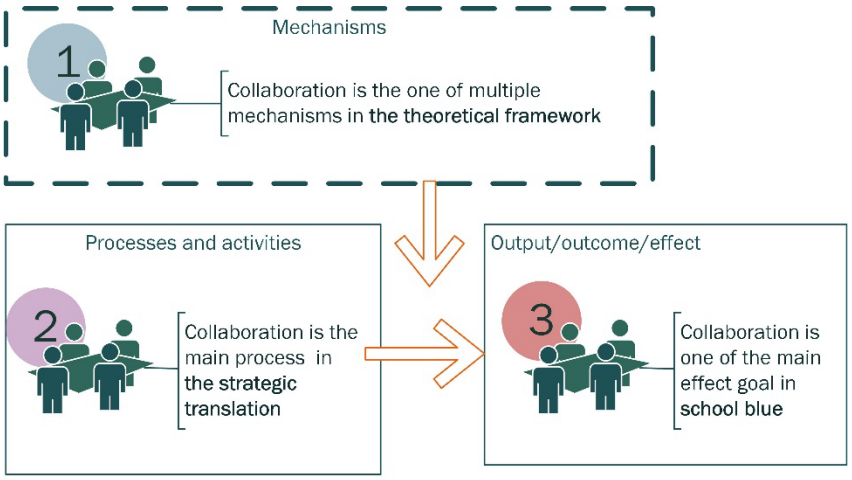
By applying the program theoretical approach to the study of intraorganizational translation processes, it is possible to differentiate between which 'role' various elements of organizational ideas have in the different levels of the translation chain. The empirical example illustrates that the roles assigned to certain elements of an idea can change as the idea diffuses down the hieratical translation chain. An insightful empirical finding derived from the case study as a consequence of the program theoretical approach is that the theoretical framework is altered as part of the intraorganizational translation process. By this is meant, that organizational translators rearrange elements of the idea as it is described in the theoretical framework and assign them new roles as activities, outcomes, mechanisms, or contextual factors supporting or hindering successful implementation of data use practices.

An example of this is the role collaboration is assigned in relation to the idea of data use. When moving from the theoretical framework[60] to the

[60] See chapter 4.

department's strategic translation *collaboration* shifted from being a mechanism claimed to trigger proposed effects of data use initiatives to being the main process. Moving closer to the operational core, collaboration was assigned yet another role as part of the decentral managerial translation in school blue. In school blue, the management team translated collaboration into an effect goal. See chapter 9 for the empirical analysis of this role shift. The decentral translation at school blue is thus an empirical example of what is originally a mechanism becoming a sought-after effect goal[61]. This shift is illustrated in figure 38:

Figure 38: Collaboration's role in the three translation levels



Author's own development based on empirical material

The motivation managers have for shuffling the positions of the idea elements (e.g. blue school's focus on collaboration as an effect goal rather than a mechanism to achieve student-related outcomes of data use) can be linked to the previous notion that managers take the context, in which the idea is sought implemented, into account.

[61] The empirical background of this claim was outlined in chapter 9.

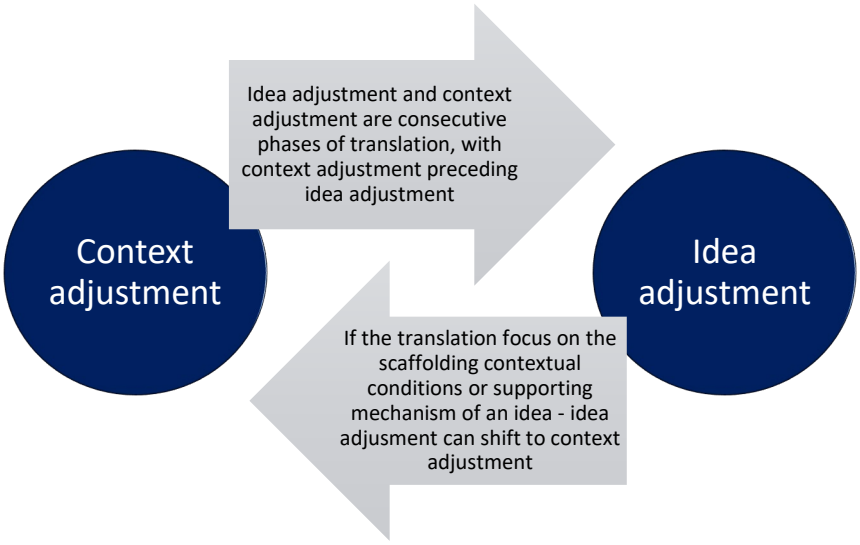
At school blue, managers have identified a specific 'need for change', which e.g. involves enhancing employees' independence from managers with collaboration being a supporting element in achieving this goal. Collaboration in this situation is given priority over other components of the data use idea. The reason for this is that collaboration represents a way to obtain the cultural shift, which is deemed necessary by the management team.

When an idea is altered in a radical way (as is the example of school blue where the focus is predominately on collaboration rather than data use) the managers' translation moves from being an adjustment of the idea itself to an adjustment of the context. The shift from idea to context adjustment occurs when the translation does not focus on the 'core idea element', but instead concerns the scaffolding contextual conditions or supporting mechanisms that allow the idea to thrive within the organizational setting. 'Core idea elements' are here defined as activities and effects associated with the primary intent of the idea. In the empirical example, the core element of the idea is the actual *use of data*.

The rearrangement of idea elements within program theory indicates an interesting nuance of Røvik's four translation rules. Røvik's original four rules are that actors either; directly copy an idea or vary it by adding, omitting, or altering its elements (Røvik, 1996, 2016). Previously in this chapter, it was discussed how the nuances of *prioritizing* and *framing* can be added to Røvik's original rules based on the strategic translation happening in the case study. The empirical example of how collaboration shifts role in a 'program theoretical sense' indicates yet another nuance to Røvik's original translation rules. A variation of altering an idea can, as explained above, be that the pivotal focus of the translation is altered in such a radical way, that translators focus on context adjustments rather than actual idea adjustments when translating an idea in their local organizational context.

Figure 39 illustrates the dynamic between idea and context adjustment. That adjustment of the idea can shift towards adjustment of the context is visualized by the arrow pointing left. The aforementioned empirical finding of idea and context adjustments being consecutive phases of translation starting with context adjustment is visualized by the arrow pointing right.

Figure 39: The dynamic of idea and context adjustment



Author's own development

These two contributions to SI-theory relate to empirical findings that intersect the translation made at the strategic level and the decentral level. A third empirical finding which is likewise characteristic of the case study is that both managerial levels (central and decentral) abstain from translating the idea of data use into concrete instructions. This empirical finding is discussed in the following section.

10.5 TRANSLATION IS DISTRIBUTED TO FRONTLINE STAFF

It was argued and discussed previously in this chapter, that strategic managers distribute a large translation task to the decentral managers

closer to the operational core. From a theoretical point of view, this tendency is arguably not surprising. Other SI-theorists have previously found empirical basis for making similar claims (Radaelli & Sitton-Kent, 2016; Teulier & Rouleau, 2013; Thøgersen, 2022). What is however an interesting empirical finding in the case study is the great amount of translation that is distributed to the frontline staff by the decentral managers. To some extent, this empirical insight of distribution matches the empirical findings of Mortensen (2020). Unlike Mortensen (2020) who narrows in on employees' operational level translation, my study however focuses on the role managers have in enabling that frontline staff can make relevant translations.

All three management teams translate the idea in a way, which has the implication that the translation mandate is passed on to frontline employees. Not all translation is distributed to the employees, as the decentral managers operationalize the effect logics more so than the strategic managers. Key elements such as *what type of data is to be used* and *which specific data use activities should be performed* are however largely left to the frontline staff to determine [62].

Based on the empirical description portrayed in chapter 9, it can be argued that the idea is first (potentially) translated into concrete actions when it arrives at the frontline organizational level. 'Potentially' is inserted in this claim because the case study does not cover the frontline level, and it is therefore not possible (nor the aim of the case study) to make statements about the operational translation of the data use idea. The case study of the departmental and decentral translation does however allow me to argue that some of the translation tasks are transferred from these upper organizational levels to the frontline staff. This empirical insight adds new nuances to the theoretical discussions by Radaelli & Sitton-Kent (2016) related to the appropriation of translation roles. Radaelli & Sitton-Kent's

[62] To read the empirical background of this analytical claim see chapter 9.

(2016) review summarizes the available empirical investigations of middle managers' position and involvement in translation processes (see chapter 6 for elaboration). The review assigns the influence of top managers as the single most reported influencing factor to shape middle managers' willingness to appropriate translation roles. How managers make sense of the idea, and their understanding of the context likewise affects how they assume a translation role according to the review. The incentive for managers to appropriate a leading role in a translation can hence be both internally driven by individual motivation and externally e.g. in form of expectations from higher up in the organizational hierarchy according to Radaelli & Sitton-Kent.

Previous inquiries into managers' roles in translation processes (as those reported in the review) have focused on *which factors influence how managers assume a role* in the translation process. What the case study in this dissertation shows instead is the *influential factors that lead managers to refrain from assuming a role as translators*. The empirical foundation portrays how the decentral managers deliberately opt for a broad data definition and omit from planning in detail which data use practices should be performed. The managers' reasoning for the distribution of the translation role related to the concrete operationalization is presented in the following section. The main argument is that the decentral managers' reasoning for distributing part of the operationalization of data use practices to the frontline staff is founded on arguments linked to the characteristics of the operational level employees.

10.5.1 Reasons for distributing the translation task

It is possible to deduce three reasons that the managers have for distributing the task of translating the idea of data use into concrete data use practices to the frontline staff.

First, the decentral managers distribute translation to the frontline staff with reference to the employees' professional judgment and their

competencies as educated professionals. Part of the argumentation is hence related to the concept of professionalism.

Second, the decentral managers express that the teachers are most suited to assess which classroom issues should be addressed via data use because of their daily interactions with the students. The managers for example state that the frontline staff has their finger on the pulse, understood as the employees are the ones who know what is going on among the students and in the classroom.

A third explanation decentral managers have for distributing the responsibility of the translation to frontline staff relates to the attempt to instill internal legitimacy in the idea (cf. Drori & Honig, 2013). According to the decentral managers, some of the frontline staff have strong opinions about data and data use practices. The decentral managers seemingly try to mitigate some of the skepticism by opting for a broad data definition. This is arguably an attempt to instill internal legitimacy in the idea as argued previously in this chapter.

The decentral managers' argumentation for distributing the translation hence both relates to the competencies teacher and school pedagogues have as part of their education *and* their relative closeness to the students *and* as a mitigation for their skepticism about data. The common denominator between the three reasons is that they are oriented towards the frontline employees. This corresponds with the decentral managers' framing of data use as activities associated with teachers and pedagogues in operational-level teamwork.

As presented in chapter 6, Radaelli & Sitton-Kent (2016) have identified a lack of focus on middle managers' role in translation and implementation of organizational ideas. Through a review, they have sought to mitigate this apparent black box. The perspective on intraorganizational translation processes presented by Radaelli & Sitton-Kent (2016) is however arguably top-down oriented in the sense that the middle managers' role as translators is viewed as predominantly structured and

intentional processes, where middle managers seek to *sell their version* of the idea to both employees and upper-level managers. Based on their review, Radaelli & Sitton-Kent for example argues that: *"Middle managers engage in extensive efforts to promote their own version of how new ideas should be translated in the organization"* (Radaelli & Sitton-Kent, 2016, p. 321) and that *"The alignment of meanings is crucial to allow everybody to move in a common direction."* (Radaelli & Sitton-Kent, 2016, p. 323). Instead of a focus on selling the idea and selecting like-minded allies to promote a managerial-defined version of the idea, my case study demonstrates a stronger managerial focus on being attentive to the frontline staff and assigning them a role in the translation. Based on the reasoning presented by the local school managers in the case study, the empirical findings indicate that *characteristics of employees* have implications for the translation strategy undertaken by decentral managers. In the empirical case, the managers' reasoning for distributing part of the translation task was founded in the argument of the employees' professional judgment and their competencies as educated professionals. This suggests a future research avenue, as this empirical finding indicates that the 'characteristics of employees' are seemingly a contextual condition that influence how inclined managers are to distribute the translation to frontline staff. It is however necessary to investigate this further to enhance the validity of this claim.

10.5.2 The organization's readiness for the idea impacts the potential for distributing translation

The above description of the reasoning for distributing translation to the frontline staff represents the general argumentation across the three school managements. It is however also possible to detect a significant difference in the degree to which the employees are regarded as reflective professionals by the management. As argued in chapter 9, being reflective is considered a prerequisite for becoming data-driven. This difference seemingly has an impact on the degree to which the managers distribute the role of translation.

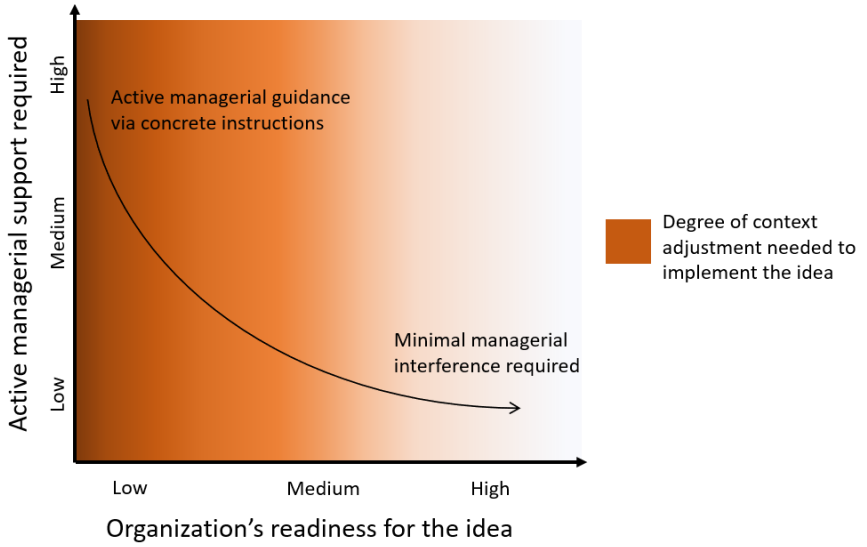
The apparent difference in the level of reflectiveness points to a difference in the need for active management support of idea implementation. The degree of active managerial support required to facilitate a successful implementation arguably correlates with the degree of organizational readiness. The degree of organizational readiness in relation to the implementation of data use is linked to the employees' level of reflectiveness. This can again be conceptualized as the organization's level of data maturity. I define an organization's idea maturity level as an indication of how far from or how close to the organization and its members are from being aligned with the idea.

At school blue, where they must first strengthen the ability to be reflective about their own practice, the implementation requires more hands-on management that provides more explicit guidelines. Founded in the management's own argumentation, it can be stated that at school blue, where reflectiveness is less widespread, it will require a greater and more active effort by the management to secure idea implementation. At the other two schools, where the organization is more prepared to incorporate data use, hands-on management is to a lesser extent needed, as the mindset and existing work practices of the employees are more aligned with the idea being implemented.

10.5.3 The organization's idea maturity model

These empirical insights allow me to add the dimension of 'active managerial support required' to the continuum of 'organizational readiness for the idea' that I developed previously in this chapter. With this, I propose the following model which visualizes the relation between an organization's readiness for the idea and the active managerial support required to facilitate idea implementation:

Figure 40: The organization's idea maturity model



Author's own development

As discussed previously, the managerial role in moving an organization's readiness to implement a given idea might require contextual adjustments to heighten the organizations' readiness to implement the idea. This requirement is visualized via the fading orange background.

As Radaelli & Sitton-Kent (2016) have pointed out *"Most studies emphasized MMs [middle managers] 'reading the wind' from top managers to decide how to engage with translation"* (Radaelli & Sitton-Kent, 2016, p. 317). My contribution instead directs attention to the 'reading the wind' from the employee level. The study hence contributes to underscoring the need for middle managers to be attentive to the organization's (and the employees') level of alignment with the idea.

The constructed model relates to the topic of distribution of translation because the potential for being successful in distributing translation to frontline staff arguably depends on how ready the organizations' frontline employees are for taking on the role of translators.

Based on the empirical findings and the development of 'The organization's idea maturity model' my study points to a potential risk of distributing the responsibility of translation. The risk implies that *if* the organization and hence its employees do not possess the required level of idea maturity when being made in charge of operationalizing somewhat fluffy and complex organizational ideas into concrete local actions, the translation task risk becoming unmanageable for the frontline staff.

By introducing the distinction between idea and context adjustment and underlining that the latter precedes the former previously in this chapter, my study contributes new knowledge about the role managers have in supporting idea implementation. Based on the empirical material, my analysis has demonstrated that:

1) **adjustments of the idea**, which account for both managers' perspectives about the idea but in particular points attention to the importance of adapting the idea to the employees' perspectives, apprehensions, and preexisting level of idea-related professional knowledge.

Combined with

2) **adjustments of the context**, meaning the organizational setting in terms of both the structural entities of the organization *and* the human component in terms of employees.

Are inherit parts of local managerial translation processes.

My empirical findings and the derived theoretical development which I have presented in this chapter imply that the role of managers is to ensure the contextual conditions that enable the employees to make relevant local translations of the idea based on their professional knowledge.

CHAPTER 11: CONCLUSION

11.1 CHAPTER INTRODUCTION

This chapter summarizes my key findings, outlines the contributions and implications hereof, and suggests future research avenues.

Drawing on Scandinavian institutionalist theory, the dissertation follows the premise that implementation of new organizational ideas requires translation processes and that ideas are contextualized, adapted, and materialized through processes of translation (Czarniawska & Joerges, 1996; Nielsen, 2010; Røvik, 2007).

In my case study of the implementation of data use in a Danish municipality's primary and lower secondary schools, I am able to respond to the dissertations research question:

Research question
How does intraorganizational translation of organizational ideas take place at different managerial levels in established organizations?

The logic for this research question's relevance was – shortly summarized – that only few studies thus far have had access to and therefore been able to analyze how organizational ideas disseminate within the same organization on different managerial levels (e.g., Mortensen, 2020; Røvik, 2011; Wæraas & Nielsen, 2016). The value of better understanding this phenomenon is that local intraorganizational translation processes influence how ideas are enacted locally which has implications for the potential for achieving the anticipated outcomes of the idea sought implemented. The value of explicitly exploring the layered managerial translation is that managers have a significant role in initiating and continuing local translations (Radaelli & Sitton-Kent, 2016, Røvik, 1996, van Grinsven et al., 2020).

My dissertation contributes with new knowledge about how ideas are translated and transformed as they move downwards in the hieratical translation chain from the upper-level managerial level to operational managers closer to the operational core. The dissertation hereby primarily contributes to the existing literature on Scandinavian institutionalism (e.g. Boxenbaum & Strandgaard Pedersen, 2009; Czarniawska, 2005; Czarniawska & Joerges, 1996; Mortensen, 2020; Nielsen et al., 2020; Røvik, 1996, 2016). As a beneficial side-effect of the organizational idea studied, the dissertation also contributes to research on the theme of data use in primary and lower secondary education (e.g. Coburn & Turner, 2011; Mandinach & Jimerson, 2016; Mandinach & Schildkamp, 2020; Marsh et al., 2015; Spillane, 2012; Sun et al., 2016).

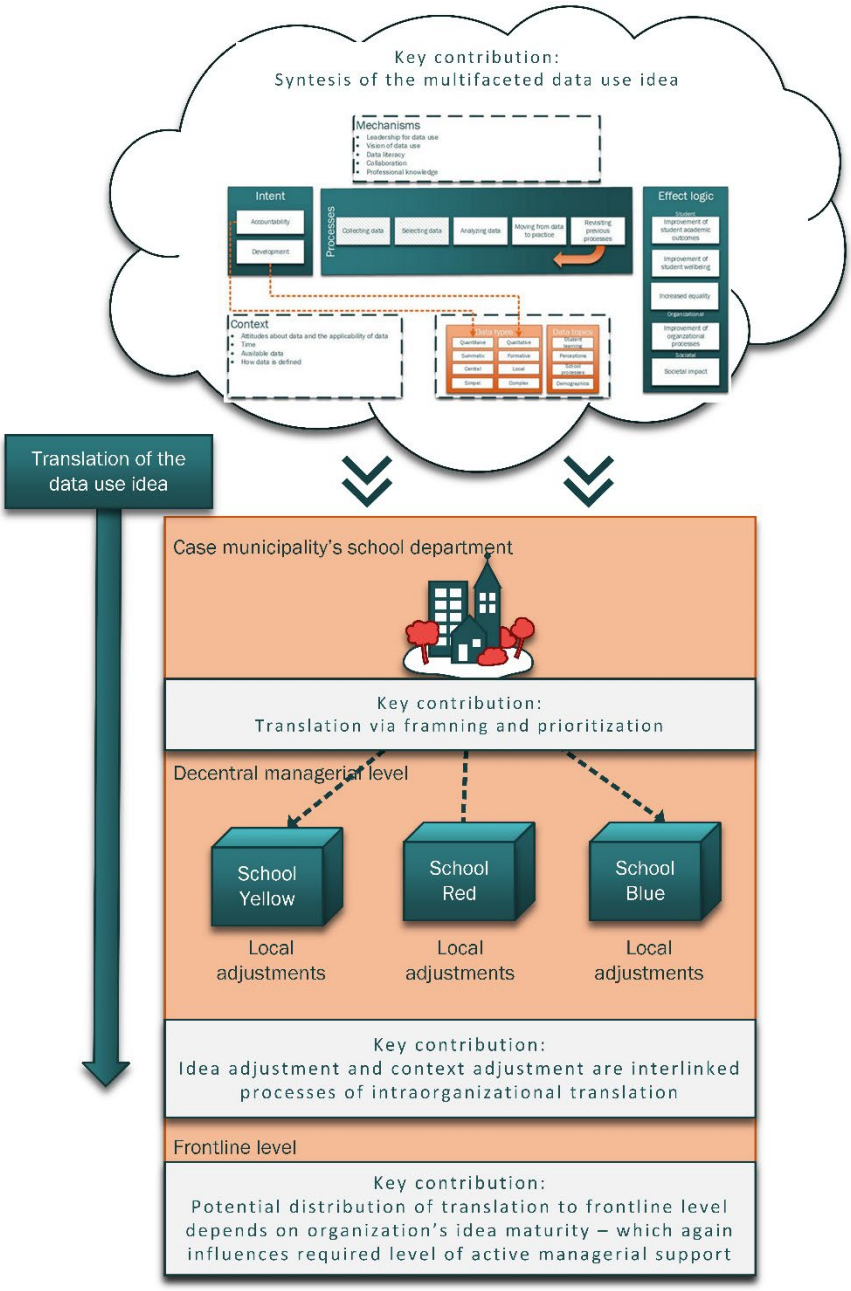
The short answer to the main research question is that:

- When organizational ideas enter established organizations, ideas are adjusted and hence translated into different versions based on contextual considerations *(a contextual filter)* and managers' own perception of the idea *(a human filter)*.
- Early-stage translation implies adjustment of contexts in addition to adjustment of ideas.
- At the strategic managerial level, translation of organizational ideas might involve *prioritization* and *framing* in addition to Røviks' four translation rules of copying, adding, omitting, or altering (Røvik, 1996, 2016).
- Although different managerial levels include the same idea elements in their translation, it does not necessarily imply that they interpret the idea identically.
- When organizational ideas regard change in professionals' work routines, a great amount of translation might be distributed to frontline professionals.

- Distribution of translation to the frontline level depends on the organization's idea maturity, which again influences the required level of active managerial support.

Figure 41 provides an overview of the dissertation's key contributions. The contributions are structured according to the managerial layers of intraorganizational translation. The figure is an updated version of the original figure, which was introduced as a visualization of the dissertation's research design in chapter 1:

Figure 41: Overview of key contributions



Author's own development

The value of these research findings is that they have implications for the way management should be conducted in connection with translation processes. In addition, the findings also have implications for how intraorganizational transition processes are investigated, as my study points to new nuances that are relevant to investigate further. In the following a summary of nuances and additions to respectively the stream of literature on Scandinavian institutionalism and literature on educational data use is given based on this study. The summary also includes an elaboration of the implications of these findings.

11.2 CONTRIBUTIONS TO SCANDINAVIAN INSTITUTIONALISM

11.2.1 Building program theories as a methodology to study interorganizational translation

The study inserts Scandinavian institutionalism into the realm of critical realism (Bhaskar, 1975; Brix & Kringelum, 2020; Fletcher, 2017; Frederiksen & Kringelum, 2020). The strength of critical realism is the heightened focus on contextual factors, activities, outcome chains, and mechanisms, which is possible to structure in program theories (Krogstrup, 2016; Pawson & Tilley, 2004). The abovementioned insights about intraorganizational translation processes were derived from the methodological approach of constructing a program theory of the organizational idea under investigation based on critical realism (chapter 3) and thereafter using this synthesis of the existing literature as an analytical tool. This study demonstrates the value of introducing program theory to Scandinavian institutionalist research. Using program theory as a methodological approach to study intraorganizational translation processes enabled me to achieve a broader and more nuanced view of the phenomenon as it unfolded in practice.

The program theoretical approach was inspired by Mortensen's (2020) methodological approach to capture frontline professionals' translation of coproduction. Like Mortensen, I asked the organizational actors (in this case managers) to construct program theories as part of my data

collection and took these as expressions of their local translation of the idea under investigation. In addition, I also structured existing literature on the idea as a program theory and used this framework to code and hereafter analyze the empirical material. By use of this methodological approach, it became possible to identify what weight different elements of the idea had on different translation levels, and the case study demonstrated that even though managers at different levels include the same idea elements in their translation they do not necessarily interpret the idea in the same way. This methodological approach of constructing program theories when investigating diffusing organizational ideas can stand as an inspiration for others. The construction of program theories is likewise arguably a useful tool that organizational actors can benefit from when embarking on local implementation processes.

11.2.2 New translation rules: prioritization and framing

Scholars from the branch of Scandinavian institutionalism have traditionally been attentive to *how ideas are adjusted* as part of the translation process. Røviks' four translation rules of copying, adding, omitting, or altering are examples hereof (Røvik, 1996, 2016). The study adds to these translation rules, by demonstrating that managers at the strategic level might include *prioritization* of some idea elements over others and the idea might be *framed* within other organizational ideas. The study hereby adds the translation rules: prioritization and framing.

11.2.3 Idea translation via a human filter and contextual filter

At the decentral managerial level, the study found that organizational ideas are translated into different versions depending on both *contextual considerations (a contextual filter) and managers' own perception of the idea (the human filter)*.

Scandinavian institutionalist theory has pointed to the significance of managerial support for initiating and continuing a translation (Radaelli & Sitton-Kent, 2016, Røvik, 1996, van Grinsven et al., 2020). Regarding *the human filter*, the study provides new nuances to this, by demonstrating

that managerial support can be a complex phenomenon because managers adjust the idea based on their own perception of the idea and that this perception is not necessarily unequivocally positive or negative.

As for contextual considerations, my study revealed that managers might adjust ideas to accommodate considerations of ***employees' readiness for change***, meaning the mindset and competencies of employees, who must carry out new practices. The logic of doing so is arguable to reduce change resistance. This insight adds new perspectives to Øygarden & Mikkelsen's (2020) study that found that *managers' readiness for change* influences how they translate ideas at a decentral level. The nuance of my finding is that managers also take the *employees'* readiness for change into consideration, which illustrates the important activation of local knowledge in the translation process.

11.2.4 Idea adjustments and context adjustments are dual and intersected processes of intraorganizational translation

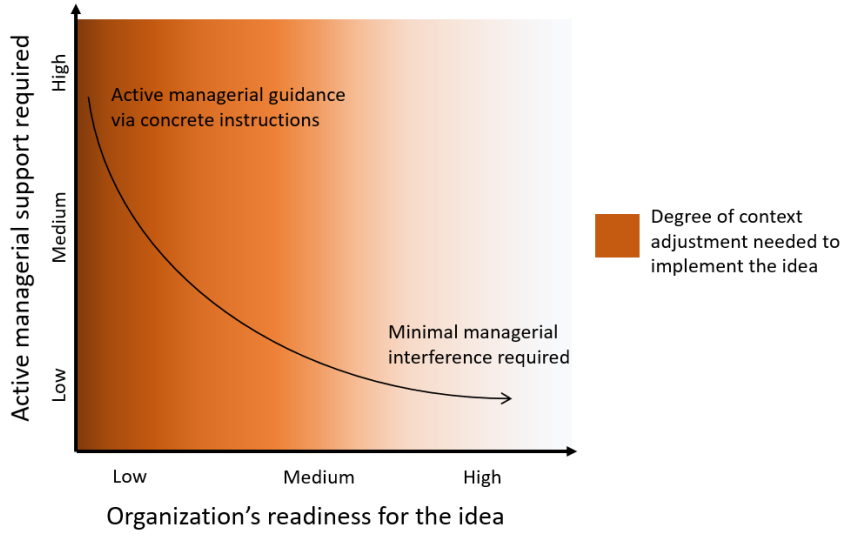
Likewise, regarding contextual considerations, my study found that if the idea being implemented does not match the current organizational climate, the contextual considerations might imply ***adjustment of context*** in addition to adjustment of the idea. Contextual adjustments are defined as changes required in the organizational context to implement the idea at hand.

In one of the three subunits investigated, the local context was not in any way culturally ready to embrace the data use idea, and therefore the managers had to prepare the context prior to being able to implement the idea. This finding represents a new addition to the Scandinavian institutionalist literature, which was brought about by me being able to study 'the fuzzy frontend' of the translation process in an organizational subunit that was not ready to implement the idea but was required to do so by upper-level management. My contribution is hence that idea adjustments and context adjustments are dual and intersected processes of intraorganizational translation.

11.2.5 The organization's idea maturity model

In the particular subunit idea adjustment and context adjustment took place in sequences. In the two other subunits, the local contexts were more prepared to implement the idea (cf. chapter 9). This implies that organizations receiving an idea for implementation can be at different stages of readiness to implement the idea. The analysis likewise indicates that managers go about supporting the idea implementation differently as a consequence of the organization's readiness for the idea. These empirical findings are illustrated in 'The organization's idea maturity model' in the following way:

Figure 42: The organization's idea maturity model



Author's own development

The model directs attention toward the degree of active managerial support required to facilitate a successful implementation of a given idea, and that the active support required depends on the organization's readiness for the idea.

The visualization also incorporates the empirical finding provided in the dissertation, that the managerial role in moving an organization's readiness to implement a given idea might require contextual adjustments to heighten the organization's readiness to implement the idea. This requirement is visualized via the fading orange background. The degree of contextual adjustment needed lessens as the organization's readiness increases.

So far Scandinavian institutionalist theory has pointed to the significance of **managerial support** for initiating and continuing a translation (Radaelli & Sitton-Kent, 2016, Røvik, 1996, van Grinsven et al., 2020). My dissertation adds new knowledge to the literature by identifying that the fuzzy front end of the translation process can be characterized by the duality and intersection of idea and context adjustment. My dissertation likewise demonstrates that the managerial support required depends on the stage of the organization's readiness for the idea (Figure 42).

11.2.6 Distribution of the translation responsibility to operational levels

Exploring the empirical material showed that translation roles and responsibility was distributed from the central managerial level to the decentral managers and further down to the frontline professionals. This empirical phenomenon was also found by Mortensen (2020) in her study. Previous research has focused on *which factors influence how managers assume a role* in the translation process (Radaelli & Sitton-Kent, 2016). In opposition hereto, the empirical insight presented in this dissertation demonstrates the *influential factors that lead managers to refrain from assuming a role as translators*.

My analysis demonstrates that if local managers distribute organizational ideas downwards without explicit guidelines, the role and responsibility of the concrete translation is placed at the level of the frontline professionals. The line of argumentation presented by the decentral managers for distributing the translation downwards is that the idea being

implemented is rooted in frontline professionals' work practices and that the implementation should therefore be guided by the frontline professionals' professional judgment (cf. chapter 10). This implies that the role of managers in this regard is to create contextual conditions enabling and empowering the employees to create relevant local translations of the idea based on their professional knowledge. If the managers are to distribute the translation to the frontline staff, they have to facilitate the translation by making contextual adjustments, which makes it possible for frontline staff to enter into a meaningful translation of the idea. It is the managers' role to facilitate both structural and cultural adjustments of the organizational context (cf. chapter 10), which enables the frontline professionals to make local translations. If the management deems that there is a need for a change in the organizational culture, it is the first step toward a potential frontline execution of the idea.

11.3 CONTRIBUTIONS TO DATA USE LITERATURE

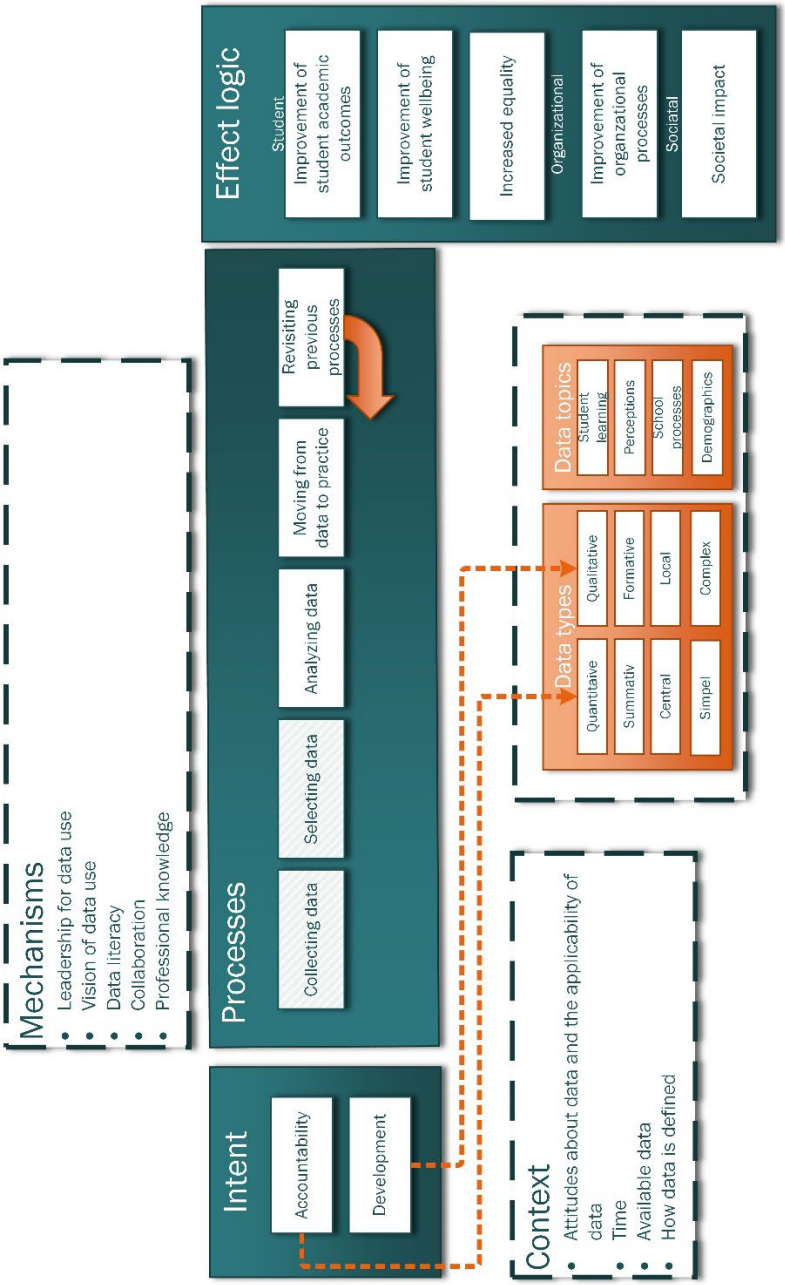
The empirical foundation for theorizing about the intraorganizational translation processes was a case study of the implementation of data use in a Danish municipality's primary and lower secondary schools. Data use in the educational sector is an organizational idea that is on the national policy agenda in Denmark (e.g. Danish Ministry of Children and Education, 2018, 2019, 2020; Hornskov & Olesen, 2018; Qvortrup, 2016), as well as a trend internationally (e.g. Goren, 2012; Hamilton et al., 2009; Jimerson et al., 2016; Mandinach & Schildkamp, 2020; Marsh & Farrell, 2015). In the following the study's contributions to literature on educational data use are summarized:

11.3.1 Implementing data use in primary and lower secondary education requires local translation

The dissertation contributes with a program-theoretical synthesis of the complex data use idea. The program-theoretical approach was used to structure the many components of data use from the literature (see

chapter 4). The added value of the synthesis is that it 1) can be used by researchers to analyze existing, local data use practices, and 2), that practitioners can use the synthesis to translate the data use idea into their (future) local data use practices. The program theory is shown in figure 43:

Figure 43: Program theory of data use



Author's own development

Policy documents have a tendency to present the data use idea with a rather simplistic implementation view, where the logic is that if a) educators use data, b) classroom practices will change, c) resulting in improved student outcomes (Coburn & Turner, 2011; Mandinach & Jimerson, 2016; Spillane, 2012). Based on the program-theoretical synthesis, my contribution represents a critical and more elaborated response to this oversimplified policy view. My point is, that because the data use idea occupies various components with diverse variables, the local intraorganizational translation process is essential for how the idea is understood and enacted locally by managers as well as teachers, which again has implications for the outputs and outcomes of data use in practice.

11.3.2 Attentiveness to immediate and intermediate outcomes of using data

In addition to illustrating the complexity of data use, the distilled effect logics raises attention to the fact that research articles reporting on educational data use tend to focus on potential long-term effects and are less explicit about immediate and/or intermediate outcomes of using data (chapter 4). This tendency is also found in my case study. My contribution with the program theoretical synthesis – especially the effect logics – is, that researchers and practitioners can be inspired and enabled to focus more on concrete short-term effect goals of data use practices to better succeed with the change initiative at hand (cf. Dahler-Larsen & Krogstrup, 2009; Funnell & Rogers, 2011; Krogstrup, 2016).

11.3.3 Managerial support should match the organization's data-maturity level

The case study shows that in schools where there is a low degree of teacher reflectiveness, managers have to facilitate changes to e.g., teachers' work routines to hereafter allow them to potentially become data driven. By doing so, managers take into consideration at which stage the organization and the local teachers are with reference to the

organization's data-maturity level. An organization's data maturity is equivalent to the horizontal dimension of an organization's readiness for the idea in the organization's idea maturity model (Figure 42). The logic is, as stated before, that the organizational context must be ready to work with data that requires e.g. reflectiveness before outcomes can emerge. In my analysis, I found that managers on both the central and decentral levels prioritized collaboration between teachers as a lever for reflectiveness, which in their logic was a foundation for realizing the data use idea. The implication of prioritizing collaboration is however a risk that the attentiveness of building data literacy is down-tuned. Theoretically, there is a potential pitfall with such a focus, since the existing literature has identified data literacy as crucial for making impactful changes for the benefit of students (Cowie & Cooper, 2017; Hoogland et al., 2016; Mandinach & Jimerson, 2016) and that teachers often lack the capacity to fully use data to inform instruction (Sun et al., 2016). Based on the program theoretical thinking and my findings, I propose that establishment of data literacy in practice should be regarded as an important short-term outcome and not merely a mechanism. The point is, that in schools where data literacy among teachers is generally low, managers need to build teachers' capacity to use data in practice before student-related outcomes of data use can start to emerge. This with reference to my conclusion above regarding adding more 'short-term outcomes' to the effect logic.

As disclosed in the empirical analysis, it can however also be necessary to enhance teachers' level of reflectiveness prior to building their data literacy. Teachers' capability to reflect on their own practices and make changes accordingly is identified as a prerequisite for being data driven. The organization's readiness for becoming more data-informed is thus tied to the organization's level of reflectiveness, which again is linked with the level of professionalism. This indicates that reflectiveness should likewise be regarded as a necessary short-term outcome in schools where the capability to be reflective about one's own practices is limited and

insufficient. If managers distribute the responsibility of operationalizing data use into concrete data use practices to teachers, based on e.g. arguments of teachers' professional judgment, the study demonstrates that managers should be attentive to teachers' level of data maturity including their level of reflectiveness and data literacy (cf. chapter 10).

With this, I conclude the summary and discussion of the dissertation's bidirectional contributions to respectively, the data use literature, and the emergent strand of Scandinavian institutionalism that explores intraorganizational translation processes.

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SUMMARY

National and district school policies both internationally and in Denmark increasingly include expectations of teachers and school managers to use data to inform decisions and guide local actions. Data use is however a multifaceted organizational idea that requires local adaption and operationalization to unlock the proposed outcomes of improvement of students' academic performance and well-being. By an empirical investigation of the implementation of data use in a Danish municipality's primary and lower secondary schools, the dissertation contributes new knowledge about intraorganizational translation processes. Narrowing in on the translation at both the strategic management level and in decentral management teams closer to the operational core, the knowledge provided by this dissertation is useful for managers when translating data use in particular and organizational ideas in general in their local contexts.

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