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Implications of Logic Multiplicity During Early Phases of Competence Center Formation

A Case Study of 3D Printing in Life Sciences

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Abstract

Implications of Logic Multiplicity During Early Phases of Competence Center Formation: A Case Study of 3D Printing in Life Sciences

Marvin Hendrik Schliemann

Great challenges often require the combined strength of various actors. Especially in areas that are shaped by fast technological development such as the application of additive manufacturing (AM) in life sciences, the interplay of different fields of expertise, including experts from industry, academia and government, is needed. While the collaboration of diverse actors can constitute a vast potential for innovations, it also entails a major challenge to negotiate among diverse individual interest, backgrounds, beliefs, and value systems.

One field of research that can help to understand the consequences of such differences in the interests and beliefs in organizational settings is the institutional logics perspective. Institutional logics account for broader institutional value systems that guide actors' cognition and actions. When organizations embody multiple logics, scholars speak of logic multiplicity. However, the consequences for organizational functioning that arise from logic multiplicity are still discussed among scholars, ranging from an enhanced innovativeness, to an increased conflict potential and organizational dismiss.

In order to better understand logic interaction and its implications for organizational functioning, an embedded-case study was conducted. The embedded-case study focused on AddLife at Uppsala University, a competence center in its early phases of formation which is concerned with the advancement of applications of AM in life sciences. Based on semi-structured interviews and documentational data, three different logics were captured for three main stakeholder groups in AddLife. Further, the interaction of these logics during the early phases of competence center formation was analyzed, corroborating the role of logic compatibility (whether logics imply consistent goals). This study's findings suggest that common goals have been found in AddLife, but some differences regarding the different logics' implied goals remain, stressing the role of active mediation. Further, the study suggests that building strong intra-organizational ties is pivotal during the early phases of competence center formation, proposing a framework that encompasses three main approaches to build such ties. The first approach is to create a sense of community, including to reinforce synergies, to ensure engagement, and to connect projects. The second approach is to establish an open communication flow which comprises to clarify roles, to encourage asking questions, and to match expectations. Finally, the third approach is to organize personal meetings in order to establish relationships in the first place and to enable discussions.

Keywords: Institutional logics, Logic multiplicity, Institutional complexity, Competence center formation, Building ties

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Popular Science Summary

Many times, the most significant scientific and technological progress is not made within a single research area, but when different fields of expertise are combined. One particular field that promises exciting scientific progress and new innovations is the combination and application of 3D printing in healthcare. While both research in 3D printing and research in healthcare have been conducted for decades, the combination of both areas opens up for new opportunities. Such opportunities are for instance implants adapted to the individual needs of patients, the processing and printing of tissues, or printing improved medications which all contribute to an enhanced quality of life.

As it is common in areas that are shaped by fast technological development, the strengths of different partners from the industry, academia, and government is required. However, bringing actors from different fields together is not always easy and the challenge to negotiate among different individual interests, backgrounds, and beliefs needs to be addressed. One field of research that can help to understand the consequences in organizational settings of such differences is the institutional logics perspective. Institutional logics account for broader beliefs, values and interests that influence actors' behavior. However, it is still an open question when influences of multiple actors with different beliefs, values and interests lead to an enhanced innovativeness or when it entails an increased conflict potential.

In order to better understand what the consequences for organizations are when different actors from diverging fields come together, the competence center AddLife at Uppsala University is studied. This competence center is concerned with the further development of applications of 3D printing in healthcare and is studied during its early phases of formation. To achieve the development of applications of 3D printing in healthcare, AddLife combines actors from the industry, academia, innovation support, government, and healthcare.

Among AddLife's different stakeholder groups, three different logics are first identified and then analyzed. The findings of this thesis emphasize the importance to establish and strengthen relationships between different actors from diverging backgrounds during the early phases of competence center formation. Further, three different ways how to build these relationships are described. These three ways include to create a sense of community, to establish an open communication flow and to organize personal meetings. Each of these approaches constitutes several smaller processes. Finally, the generated approaches are compared to previous researchers' ideas, showing several alignments. Overall, it can be concluded that building strong relationships among actors from different backgrounds opens up for many opportunities, potentially being a fruitful source for the innovations of tomorrow.

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I hope that this thesis will be helpful for everyone involved in AddLife, but also for the formation of any future organization that attempts to combine different fields in order to create tomorrow's innovations.

Uppsala, 08th June 2020

Marvin Hendrik Schliemann

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Abbreviations

AM	Additive Manufacturing
EEAB	External Experts Advisory Board
IL	Institutional Logic
KTH	Kungliga Tekniska Högskolan
RQ	Research Question
SLU	Sveriges Lantbruksuniversitet
UU	Uppsala University
3DP	3D Printing

1 Introduction

The first chapter comprises three main sections. First, the problematization is described. Subsequently, the main objectives and the research questions that guide this master's thesis are introduced. Finally, the different chapters of this thesis are outlined.

1.1 Problematization

"Individually we are one drop, but together we are an ocean." – Ryunosuke Satoro

Looking back on the immense technological progress that has been made in society until today, it is astonishing to see what can be achieved when the capabilities and strengths of diverse actors are consolidated. One particular field that promises exciting scientific progress and new innovations is the combination and application of additive manufacturing (AM) in life sciences (Huang et al., 2013; Mumith et al., 2018; Zadpoor and Malda, 2017). This field merges two disciplines. The first part of this field is additive manufacturing or also commonly called 3D Printing (3DP) which refers to a manufacturing technique where different materials ranging from metals to natural biopolymers such as collagen can be used to build complex structures "in a layer-by-layer manner" (Bose et al., 2018, p. 46). A main advantage of AM is for example that while previous manufacturing processes have been centered around forming and shaping materials in a certain way, AM enables the creation of new multi-materials structures (Bose et al., 2018). The second part of this field are life sciences which combine scientific knowledge together with an advanced quality of life, spanning application areas from pharmaceuticals, over biotechnology, to therapeutic medical devices (Stremersch and Van Dyck, 2009). Together, applying AM in life sciences creates many new opportunities such as smart patient-specific implants, bioprinting of bone tissues, or skin printing, to name just some of them (Melchels et al., 2012; Javaid and Haleem, 2019)

Although AM applications in life sciences are not entirely new, the interest in this field has been growing rapidly throughout the last years due to several technological advances, pathing the way for vast research opportunities and potentially new innovations (Huang et al., 2013; Mumith et al., 2018; Zadpoor and Malda, 2017; Javaid and Haleem, 2019). However, as it is common in areas that are shaped by fast technological development, the interplay of different fields of expertise is required, including partners from the industry, academia and government (Koput and Powell, 2004; Bose et al., 2018). Acknowledging the need for building on cumulative strengths to drive AM in life sciences, Vinnova, Sweden's innovation agency, announced to fund *AddLife* which is a competence center that aims to become a cutting-edge research environment for AM in life sciences, centered at Uppsala University (UU) (Vinnova, 2019). In order to achieve this aim, AddLife includes actors of various expertise, comprising currently more than twenty different stakeholders associated with AddLife (Uppsala University, 2020b). These stakeholders can be grouped in five main institutional spheres

which are (1) academia, including universities and research institutes, (2) industry, (3) public organizations, (4) healthcare, and (5) innovation support (Forsberg and Davis, 2019). Naturally, stemming from such a diverse set of institutional fields and expertise, many different interests and expectations are combined within the competence center. However, despite the diverse backgrounds, the overarching vision of AddLife is "to become a global player in the education, research and development of additively manufactured materials and components for life science applications, and thereby provide patients with an enhanced quality of life" (Uppsala University, 2020a, p. 10). Nevertheless, while the highly complex constellation of stakeholders that congregate within AddLife constitutes a vast potential for interdisciplinary collaboration and the development of AM applications in life sciences, it also entails a major challenge to negotiate among diverse individual interests, backgrounds, beliefs and value systems (Knight et al., 2015).

One field of research that can help to understand the consequences of such differences in the interests and beliefs in organizational settings is the institutional logics perspective. As described by Thornton and Ocasio (1999, p. 804) institutional logics can be defined as "socially constructed, historical pattern of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality". When organizations embody multiple logics simultaneously, researchers speak of logic multiplicity (Besharov and Smith, 2014). However, the consequences that arise from logic multiplicity for organizational functioning are still being discussed among scholars, ranging from an enhanced innovativeness to an increased conflict potential and organizational dismiss (Kraatz and Block, 2008; Jay, 2013; Pache and Santos, 2010; Almandoz, 2012).

In order to determine when an organization steers in one direction or the other as a result of logic multiplicity, Besharov and Smith (2014) propose two main dimensions to focus on: logic centrality and logic compatibility. While logic centrality looks at how many logics guide organizational functioning, logic compatibility revolves around the question whether these logics imply consistent goals for organizational behavior or not. Hence, conceiving the logic interaction of the different stakeholder groups involved in AddLife offers the opportunity to arrive at a better understanding of the implications of logic multiplicity during the early phases of competence center formation. Furthermore, while previous researchers have suggested some approaches to mediate between different logics, such as to create spaces of negotiation or to form a shared organizational identity (Battilana and Dorado, 2010; Battilana et al., 2015), research on actors' agency to influence logic interaction and the implications of logic multiplicity is very limited (McPherson and Sauder, 2013; Besharov and Smith, 2014). Hence, analyzing logic interaction at the case of AddLife does not only provide a better understanding of the implications of logic multiplicity but also offers the opportunity to identify potential approaches how the organizational formation can be facilitated. Overall, this leads to this master's thesis' two main objectives which are described in the next section.

1.2 Objectives and Research Questions

The purpose of this master's thesis is two-pronged. First, from a practical perspective, it intends to contribute to a better understanding of the diverse institutional backgrounds and goals of the various stakeholder groups involved in AddLife by capturing their founding institutional logics. The concept of founding institutional logics refers to the stakeholder groups' logics in their primary environment apart from AddLife. Further, this thesis' aim is to better comprehend the implications of logic multiplicity for the functioning of AddLife during the early phases of organizational formation. Additionally, this thesis aims to identify approaches that can help to facilitate the interaction of diverging logics.

Second, from a theoretical perspective, this thesis intends to contribute to the research in institutional theory by analyzing the implications of logic multiplicity at the case of AddLife, a competence center where a remarkable variety of institutional logics are congregated within one organization. Additionally, as suggested by Besharov and Smith (2014) the role of actors' agency to influence the outcome of logic multiplicity is very limited and thus needs future research. This master's thesis aims to address this gap by identifying potential approaches that can facilitate the interaction of diverging logics. Finally, this thesis aims to eventually contribute to a longitudinal study of the implications of changes in the interaction of multiple logics at the case of AddLife.

To achieve these aims, the research questions (RQ) that guide this master's thesis are as follows:

RQ1: What founding institutional logics foregather during the early phases of competence center formation?

RQ2: How do these founding institutional logics interact during the early phases of competence center formation?

RQ3: What approaches can facilitate the interaction of diverging logics?

1.3 Research Outline

Overall, this study is structured in six main sections. To provide an overview of this thesis' structure, each of these sections is shortly introduced below.

Chapter 1: The first chapter begins with outlining this study's background. Further, the main purpose of this master's thesis is descried and the research questions that guide this thesis are introduced.

Chapter 2: The second chapter lays the theoretical foundation for this thesis, describing where the institutional logics perspective can be contextualized within the research conducted in the field of organizational and institutional theory and explaining relevant elements of the institutional logics perspective on which this thesis is build. Further, current research on logic multiplicity and its

implications is reviewed, ending with the description of the main framework that will be used in this thesis.

Chapter 3: Chapter 3 outlines the methodological approach of this master's thesis, describing the empirical context, the research approach, the data collection methods, sampling, and the data analysis approaches that were chosen for this thesis. Subsequently, considerations regarding this thesis' reliability and validity are described and ethical considerations that were taken into account are explained. Finally, the main limitations of this thesis are outlined.

Chapter 4: The fourth chapter depicts the empirical results and the analysis. The chapter is divided in three main sub-chapters. The first sub-chapter shows the different founding institutional logics that were captured for three main stakeholder groups. The second sub-chapter displays the logic interaction of the different logics associated with the three main stakeholder groups. Finally, potential approaches to facilitate organizational formation and functioning are described.

Chapter 5: In chapter 5, the empirical results are discussed in relation to the relevant literature, answering the researcher questions and delineating the main contributions of this study to the existing research.

Chapter 6: The sixth chapter of this thesis concludes the main findings and contributions of this study. Further, ethical and societal implications that arise from the generated findings are discussed.

Chapter 7: This thesis' final chapter contains some self-reflection thoughts and explores different ideas for future research.

2 Theoretical Frameworks

In this section, the relevant literature on institutional logics is reviewed, explaining the core ideas and underlying assumptions of the institutional logics perspective. Aligned with the observations by Greenwood *et al.* (2017), the review shows that although the idea of institutional logics is not entirely new, the interest in this field has increased significantly within the last decade. Accordingly, many aspects of the impact of institutional logic multiplicity on organizational functioning are unexplored and require future research. This thesis attempts to contribute to this knowledge gap. The review is structured in four main parts. First, the institutional logics perspective is contextualized within institutional theory to show its distinct features from alternative streams of research. Second, the four main principles of the institutional logics perspective are described to lay the theoretical foundation for this thesis. Third, a particular focus is laid upon existing publications on logic multiplicity, exploring different contexts and methods that have been applied in order to comprehend the implications of logic multiplicity. Finally, the compatibility-centrality matrix by Besharov and Smith (2014) is described which will be utilized in this study to analyze the implications of logic multiplicity in competence centers during the early phase of formation at the case of AddLife.

2.1 Contextualizing the Institutional Logics Perspective

As emphasized by Thornton and Ocasio (2008), in order to better grasp the institutional logics perspective, it is important to contextualize it within the broader field of institutional theory. Thornton et al. (2012) mention that as part of institutional theory, the institutional logics perspective emerged from the neo-institutional theory which is mainly based on the works of Meyer and Rowan (1977), DiMaggio and Powell (1983) and DiMaggio and Powell (1991). Thus, the main ideas of their work are briefly reviewed in order to comprehend the central thoughts on which the institutional logics perspective is built.

In their early work on institutionalized organizations, Meyer and Rowan (1977) emphasized the relevance of *institutional myths* prevalent in the institutional environments for shaping organizations' formal structure. A central part of their argumentation is that organizations in modern societies depend on *legitimacy* within their institutional contexts in order to remain stable, ensure access to resources, and to facilitate their success. Consequently, organizations are encouraged to become more isomorphic as they attempt to gain legitimacy by incorporating common institutional myths or rules. Further, Meyer and Rowan (1977) emphasize that this process often leads to *decoupling* of the formal organizational structure and the practical reality of work operations since the formal structures enforced by the institutional environment often do not conform to the technical demands by daily operations. Hence, by emphasizing the concept of *decoupling* Meyer and Rowan's (1977) early work

acknowledges the role of culture and society as a defining factor for organizational structure and behavior besides pure efficiency motivations.

Based on these ideas, DiMaggio and Powell (1983) then developed the *theory of isomorphism* further by arguing that organizations become increasingly isomorphic through three main sources of institutional isomorphism: (1) *coercive*, (2) *mimetic*, and (3) *normative* processes. Each of these mechanisms stems from a different type of *rationality* that legitimates the isomorphic transition. While coercive isomorphism is mainly motivated by organizations' aspiration for political legitimacy, mimetic isomorphism stems from external pressure in form of market competition, and finally normative isomorphism mainly results from professionalization (DiMaggio and Powell, 1983). However, although DiMaggio and Powell's (1983) new theory of isomorphism recognizes three distinct origins of rationalization for legitimacy within the institutional field, it still mainly focused on isomorphism, rather than heterogeneity. Further, authors such as Thornton, Ocasio and Lounsbury (2012) argue that their theory neglects other institutional orders such as the corporation itself as a source of legitimacy and it misses the role of active cognition.

Diverging from the focus on isomorphism and structural dynamics in institutional fields, Friedland and Alford (1991) laid the foundation for a new emphasis on underlying *institutional logics*. Friedland and Alford (1991) argued that actors' rationalizations differ among different institutional contexts, depending on the respective institutional orders' content (Thornton, Ocasio and Lounsbury, 2012). As stressed by Thornton, Ocasio and Lounsbury (2012) a main difference to the theory of isomorphism is that Friedland and Alford's (1991) argumentation is based upon the idea that interests and the conception of power differ, depending on the elaboration of diverging institutional orders. Furthermore, while other authors such as DiMaggio and Powell (1991) describe actors' behavior and cognition as mainly mindless and passive, Friedland and Alford (1991) highlight the role of intentional and strategic actions as a central factor to explain the heterogeneity of organizational shapes and functioning.

Overall, the institutional logics perspective can be contrasted to the neo-institutional theory by emphasizing "pluralism, rather than isomorphism" (Ocasio et al., 2017, p. 509)

2.2 Key Principles of the Institutional Logics Perspective

Building upon these diverging ideas of institutionalism in organization theory, Thornton, Ocasio and Lounsbury (2012, p. 2) define *institutional logics* as "the socially constructed, historical patterns of cultural symbols and material practices, including assumptions, values, and beliefs, by which individuals and organizations provide meaning to their daily activity, organize time and space, and reproduce their lives and experiences." Considering the complexity of the given definition, a few

examples of institutional logics that have recurrently been described by institutional scholars are briefly outlined below, before the *institutional logics perspective* is described in more detail.

One prominent example of an institutional logic is the *market logic* which is commonly described to be centered around the neo-liberal idea how to organize the social and economic life of society, focusing on capital markets and economic interests (Zhao and Lounsbury, 2016; Thornton et al., 2012). Authors such as Thornton (2001, p. 297) describe ideal characteristics of the market logic, highlighting "market position of firm" as relevant for legitimacy, "build competitive position" and "increase profits" as typical missions, "resource competition" as the focus of attention, and "acquisition growth" and "build market channels" as core strategic elements. Consequently, practitioners who express these aspects in relevant elements that reflect an underlying institutional logic can be identified as guided by a market logic. Otherwise, many researchers have identified the *academic logic* as a distinctive institutional logic that guides academic practitioners. Overall, the academic logic has commonly been described to be focused around the promotion of science and the norms associated with science such as "universality of scientific knowledge", "communality", "disinterestedness", and "skepticism" (Fini and Toschi, 2016, p. 639). Further, the academic logic has been described as centered around two main activities that are widely accepted as legitimate in academia which are teaching and research (Colyvas and Powell, 2006). Therefore, practitioners who express these aspects in relevant elements that reflect an underlying institutional logic can be identified as influenced by the academic logic. Another example for an institutional logic is the *state logic*. As described by Thornton et al. (2012, p. 108), the ideal type of the state logic can be described as centered around "democratic participation" as the main source for legitimacy (at least in a democratic state). Further, the state logic implies that main goals that are of interest or the basis of attention is on the "status of the interest group" which can vary between contexts, comprising for example the inhabitants of a certain state or community. Similarly, Greenwood et al. (2010) emphasize the role of a decentralized state logic that is politically tolerant, enabling regional communities and the interests of these communities to influence organizational behavior. Finally, the strategy that is followed by actors who are guided by the state logic is commonly focused on the premise to "increase community good" as argued by Thornton et al. (2012, p. 108).

Contrasting the given examples of institutional logics, it can be noted how different belief and value systems – or institutional logics – are outlined to guide the cognition and behavior of different actors. However, in order to better understand the key ideas that shape the concept of institutional logics, Thornton, Ocasio and Lounsbury (2012, p. 6) elaborate four key principles that define what they call the "*institutional logics perspective*". Each of them is shortly described below.

First, aligned with the ideas of Friedland and Alford (1991), Thornton, Ocasio and Lounsbury (2012) argue that although actors' actions are substantially shaped by the prevailing social structure,

individual actors retain some degree of autonomic *agency*. The institutional logics perspective recognizes the capability of individuals and organizations to draw rationality from different institutional logics which enables them to act strategically and to influence and change the institutional environment's shape (Thornton and Ocasio, 2008; Thornton et al., 2012). This emphasizes the view of the institutional logics perspective that the *cognition, interests and action* of individual actors is shaped by the interplay of institutional logics (Thornton and Ocasio, 1999; Thornton et al., 2012; Thornton and Ocasio, 2008). Further, Thornton, Ocasio and Lounsbury (2012, p. 76) describe actors as "situated, embedded, and boundedly intentional actors" which highlights individual actors as both constrained and enabled by the prevailing institutional logics.

The second principle that Thornton, Ocasio and Lounsbury (2012) define as central for the institutional logics perspective is that every institutional order is characterized by *material* components as well as *symbolic* constituents. The key idea is that both elements are interdependent of each other and are equally important in order to analyze the interplay of different institutional logics (Thornton and Ocasio, 2008; Thornton et al., 2012). As described by Ocasio et al. (2017), material components commonly describe material practices or artifacts that embody the underlying institutional logics. Otherwise, symbolic constituents that embody institutional logics comprise for example language which is another important representation of institutional logics (Ocasio et al., 2017).

Third, the principle of institutions' *historical contingency* attempts to integrate the question whether findings of organizational behavior and derived theories about this behavior are only valid for a specific cultural system at a specific point in time or if they are universally true (Thornton and Ocasio, 2008; Thornton et al., 2012). Several studies describe that the relevance and thus dominance of a specific institutional logic can change over time, which highlights the relevance of the historical contingency of institutions for analyzing institutional *change* and *stability* (Scott et al., 2000; Thornton et al., 2012).

Finally, Thornton, Ocasio and Lounsbury (2012) describe the institutional logics perspective as a meta-theory that allows researchers to investigate institutions at *multiple levels*. These levels comprise the individual, organizational, field and societal level of analysis. The key idea of this principle is that interactions and interrelations between different levels of analysis are central in order to understand the "contradictory nature of institutional logics" (Thornton, Ocasio and Lounsbury, 2012, p. 15). Further, the authors argue that analyzing the manifestation of institutional logics at multiple levels and their cross-connections leads to more insights than what the analysis at a single level could reveal (Thornton, Ocasio and Lounsbury, 2012). For instance, Smets et al. (2012) analyzed in their study of a global law firm how the collusion and combination of multiple logics within local practices can entail institutional change at the field level through situation specific improvisation and the reconfiguration of the relevant normative network. Thus, the study underscores the relevance of

examining the interaction of institutional logics at multiple levels and exemplifies how intuitional logics can be studied at multiple levels.

2.3 Reviewing Current Knowledge on Logic Multiplicity

Building upon the previously described, refined conceptions of the institutional logics perspective, many scholars have investigated logic multiplicity in a vast variety of domains at different levels of analysis in recent years (Greenwood et al., 2017). However, already Scott (1991, p. 167) highlighted the relevance of diversity in institutional environments for organizational behavior. Correspondingly, Friedland and Alford (1991) showed that organizational fields should generally be understood as influenced and shaped by multiple logics. Nevertheless, although this idea has existed for several decades, the interest in the interplay of multiple logics has grown rapidly throughout the last decade (Ocasio et al., 2017).

Within recent years, research on multiple logics' impact on organizations has spanned many different fields, ranging from social enterprises (Battilana et al., 2015), multinational law firms (Smets et al., 2012), banking (Smets et al., 2020), manufacturing firms (Dalpiaz et al., 2016), to nonprofit organizations (Skelcher and Smith, 2015). What can be noted from this vast array of research on the prevalence and impact of multiple logics on organizations is the increasingly shared view of many scholars that logic multiplicity is rather the norm than an exception, underscoring the relevance of logic multiplicity for basically all organizations (Ocasio et al., 2017).

Further, within this growing research field, Greenwood *et al.* (2017, p. 11) emphasized the investigation of organizational responses to logic multiplicity and the implications of logic multiplicity for organizational success as "a priority in institutional research". While this singularization demonstrates this stream of research's importance, it also shows this field's limited exploration. Accordingly, while the relevance of logic multiplicity for organizational functioning has widely been acknowledged among scholars, the findings by previous research on organizational responses to logic multiplicity and its implications for organizational success are diverging and the determinants for the instantiations and responses to logic multiplicity are still on open debate (Vermeulen et al., 2016; Besharov and Smith, 2014).

In order to get an understanding of the different implications that logic multiplicity can entail regarding organizational functioning, some of the most cited studies on logic multiplicity are reviewed. The particular focus of this literature review was laid upon on the implications of logic multiplicity, although many researchers concerned with institutional logics also use the institutional logics theory to describe and analyze institutional change (e.g. see Thornton and Ocasio, 1999; Reay and Hinings, 2005; Smets et al., 2012a; Dunn and Jones, 2010). However, since capturing institutional

change is not the research focus of this thesis, the research on institutional change is not further described.

To review the implications of logic multiplicity, it is first important to clarify what is meant by logic multiplicity in organizational contexts. According to Ocasio and Radoynovska (2016) two central concepts about logic multiplicity can be distinguished which have been framed with the terms *institutional pluralism* and *institutional complexity*. Authors such as Kraatz and Block (2008) describe institutional pluralism as settings where multiple institutional fields influence organizations and impose different demands. Further, as noted by Ocasio and Radoynovska (2016), institutional pluralism is arguably present in every field, although with variations regarding the number of prevalent institutional logics and the extend of domination. Thus, while in some fields one dominant logic prevails and mainly prescribes organizational functioning, other fields can be described as more pluralistic when multiple logics influence organizational functioning more equally. On the other hand, while institutional pluralism refers more broadly to settings where organizations find themselves as guided by multiple logics, institutional complexity explicitly refers to settings where actors are confronted with *conflicting* institutional logics that appear as contradictory to them (Greenwood et al., 2011; Kraatz and Block, 2008). Further, as outlined by Vermeulen et al. (2016) institutional complexity is particularly present when different logics imply incompatible prescriptions for action and where no clear prioritization of logics persists.

One of the most prominent research foci has been on *hybrids* or *hybrid organizations* which refers to organizations that are able to combine diverging institutional logics that have originally been perceived as contradictory (Jay, 2013; Fossestøl et al., 2015; Battilana and Dorado, 2010; Smith and Besharov, 2019). While some studies suggest that hybrid organizations are able to converge these diverging logics and can create sustainable organizations, others suggest that organizations' hybridity can lead to conflict and eventually to organizational dismiss (Pache and Santos, 2010; Smith and Besharov, 2019; Besharov and Smith, 2014; Almandoz, 2012). For instance, Mars and Lounsbury (2009, p. 8) show at the example of eco-entrepreneurship that two different logics that are commonly anticipated as "in inherent opposition", *the market logic* and *social activist logics*, can in fact peacefully converge.

Other authors such as Battilana and Dorado (2010) emphasize the importance of forming a shared organizational identity that comprises elements of all prevalent logics that are relevant for organizational functioning in order to sustain a newly founded hybrid organization. The authors argue that creating such a shared organizational identity can counterbalance potential tensions between organizational subgroups that carry diverging logics. At the case of two microfinance companies Battilana and Dorado (2010) particularly highlight the organization's hiring strategy and their

socialization approach as central aspects to form an evened organizational identity and thus to create sustainable hybrids.

Further, Almandoz (2012) examines at the example of newly founded community banks the role of the background of founders in two competing logics, the *community logic* and the *financial logic* for the outcome of novel hybrid organizations. His study suggests that open conflict between different logics can lead to a reduced organizational legitimacy, while on the other hand, an equivocal organizational purpose can result in a reduction of conflict and therefore function as a facilitator for establishing new organizations.

Otherwise, Battilana et al. (2015, p. 1660) suggest the creation of "spaces of negotiation" in order to successfully mediate between the different goals of an organization's subgroups. Theses spaces of negotiation account for arenas where organizational subgroups can discuss how to address daily tasks. By comparing two companies' strategies to handle tensions between different subgroups guided by diverging logics, they revealed that these spaces of negotiation can foster the sustainability of a company. However, put the other way around, the company that lacked such spaces of negotiation faced significant internal conflict.

Again other authors such as Pache and Santos (2010) argue that depending on the intra-organizational representation of diverging and competing logics, logic multiplicity can lead to intra-organizational conflict between its internal members and thus inhibit organizational functioning. Further, the authors propose five different responses that organizations take when faced with logic multiplicity. These are (1) acquiescence, (2) compromise, (3) avoidance, (4) defiance, and (5) manipulation. The authors further argue that when different logics are strongly represented within an organization but diverging organizational goals are desired, the last three responses are more likely to occur, leading to significant conflict and potentially to organizational breakup. Otherwise, when only the means by which to achieve otherwise common goals are diverging, the first two strategies are more likely to occur, entailing a limited conflict potential. Overall, the authors show the importance of aligned goals for organizational stability when multiple logics are strongly represented within an organization, while differences regarding the means are more likely to be managed through responses such as acquiescence and compromises (Pache and Santos, 2010).

Alternatively, Zilber (2002) shows at the case of an Israeli rape crisis center that competing logics can co-exist within one organization, but can also entail potential for conflict due to diverging interpretations of the meaning of practices. Furthermore, Tracey et al. (2011) show in their analysis of a social enterprise in the UK, which tried to offer support for homelessness while remaining a business-like design, that competing logics within one organization can eventually end in organizational failure. Furthermore, while acknowledging the struggles that can arise for organizations due to institutional pluralism, Kraatz and Block (2008) argue that logic multiplicity can also turn out

to be a facilitator for organizational success by making them more enduring when organizations manage to integrate multiple logics and thus gain an increased legitimacy. Similarly, authors such as Stark (2009) or Jay (2013) show that the co-existence and combination of multiple logics can increase organizations' sustainability and innovativeness. However, while Stark (2009) emphasizes an extended adaptability of organizations due to the co-existence of diverging logics and thus diverse ways to interpret actions and outcomes as an important factor for organizational success, Jay (2013) shows that logic multiplicity can but does not necessarily lead to an increased innovativeness.

Again other authors, such as Binder (2007) emphasize the importance of individual agency to blend multiple logics and thus to sustain organizational functioning. Throughout her case study on the diverse responses of different departments at the housing company "Parents Community", Binder (2007) shows that institutional logics do not merely function top-down, determining organizational action. Instead, Binder (2007) highlights that organizational actors interpret and combine multiple prevalent institutional logics in diverging ways and can take conscious actions. While emphasizing the agency by individual actors and the diverse and creative ways in which individual actors can respond to complex environmental pressures, Binder (2007) particularly underscores the possibility to peacefully blend multiple logics which contributes to sustain organizational functioning.

Additionally, Mitzinneck and Besharov (2019) emphasize the importance to ensure the organization's members' participation and engagement in order to sustain organizations in settings characterize by voluntary participation of actors guided by diverging logics. In their study of eight German renewable energy source cooperatives, the authors particularly highlight the role of compromising to maintain members' participation, describing three distinctive compromising strategies. First, the authors describe temporal compromise which refers to the oscillation in prioritization of diverging logics throughout different projects. The second strategy described is structural compromise which refers to the practice of enabling individual members within the organization to choose projects that suit their values implied by their respective logics best. Finally, the authors mention collaborative compromise which comprises the practice to democratically negotiate and take decisions based on the combined interests and values of carriers of each logic (Mitzinneck and Besharov, 2019).

Further, McPherson and Sauder (2013) argue that actors can in fact utilize different logics as strategic tools, drawing back upon alternative logics in respect to their needs and goals. At the case of the work at a drug court, the authors describe individual actors as capable of intentionally using diverging prevalent logics, demonstrating the agency of actors.

In addition, Reay and Hinings (2009) emphasize the role of building collaborative relationships between actors who adhere to diverging logics in order to handle the co-existence of competing logics at the case of the health care system in Alberta, Canada. The authors argue that forming such collaborations between diverging actors is an important factor to resolve potential tension between

carriers of different logics and hence enabling all actors to achieve common goals. Further, the authors propose a combination of maintaining the different actors' respective and distinct identities together with building collaborations that are based on mutual benefits as a potent strategy to manage rivalling logics and thus enabling the arrangement of sustainable institutional formations. The authors describe four main mechanisms or elements of these collaborations that contribute to the management of competing logics which are (1) to separate decisions made by the different actors guided by diverging logics, (2) to incorporate informal opinions by actors stemming from other logics in their decision-making process, (3) to create an additional, shared rationale and (4) to work together on new innovations in distinct sites. Additionally, comparable to Binder's (2007) emphasis on actors' creative agency to combine different logics, Reay and Hinings (2009, p. 648) mention the "resourcefulness, abilities and energies of individuals to develop workable solutions in spite of competing logics".

Moreover, Dalpiaz et al. (2016) discern different strategies how an Italian manufacturer managed to successfully utilize two different logics in order to improve organizational performance. The authors underscore the actors' agency to proactively reinterpret different aspects of two diverging logics either by synthesizing or enriching them, and thereby creating new business opportunities. However, while describing these strategies, the authors also state that research on how logics can be combined are very rare. Nevertheless, the authors suggest that the success of the company to successfully combine different logics emerged from the company's high awareness of the different logics at hand.

Overall, it becomes evident that researchers have heavily investigated the question how multiple logics instantiate in organizations, identifying organizations that show multiple logics in a competing, peacefully co-existing, synthesized, or in a blended fashion. Further, previous research has shown, that logic multiplicity can entail substantial troubles for organizations to manage between the different values, practices, and demands that are implied by different logics. However, it also revealed that logic multiplicity can have major organizational benefits by making them more adaptive, innovative, and sustainable. Now, an open question that is still widely discussed is *when* does logic multiplicity lead to an improved organizational functioning and when does it deteriorate organizational success? And what role does actors' agency play in order to increase their chances of success?

To answer the question when logic multiplicity entails contestation and conflict and thus can result in deteriorating organizational functioning, and when it does not, Besharov and Smith (2014) developed a framework that identifies four different ideal types of logic multiplicity which each constitutes a different kind and degree of potential conflict. The categorization of these four ideal types is based on two central dimensions, namely *logic compatibility* and *logic centrality*. Building upon their creative work to address this substantial question of logic multiplicity, their framework will be an essential part for this thesis. Therefore, Besharov and Smith's (2014) framework will be explained in more detail below.

2.4 Logic Compatibility and Logic Centrality Matrix

In this section, the framework developed by Besharov and Smith (2014) is described in more detail. First, their concept of logic compatibility is described. Second, the concept of logic centrality is elucidated. Finally, the four ideal types of logic multiplicity within organizations which the authors suggest to differentiating different degrees of conflict, are examined.

2.4.1 Logic Compatibility

Besharov and Smith (2014, p. 367) define logic compatibility as "the extent to which the instantiations of logics imply consistent and reinforcing organizational actions". In other words, logic compatibility can be described as the degree to which different prevailing logics materialize in coherent goals of action among different actors within one organization. Following the argumentation by Thornton, Ocasio and Lounsbury (2012) that institutional logics should be analyzed across different levels, namely the institutional, organization and individual level, Besharov and Smith (2014) delineate how the instantiations of logic multiplicity at each of these levels impacts the extent of logic compatibility.

Regarding the institutional level, Besharov and Smith (2014) argue that the logic compatibility depends mainly on the number of professional institutions that are prevalent within an institutional field and their respective relationships. Generally, competing professional institutions with overlapping claims on resources and power imply low logic compatibility. Alternatively, a single present professional logic or multiple professional groups with clearly defined roles of control commonly result in high logic compatibility (Besharov and Smith, 2014).

At the organizational level, Besharov and Smith (2014) emphasize the importance of the way organizations hire new members and their socializing practices. The authors argue that newly hired people who strictly adhere to a certain logic are less likely to internalize multiple logics which leads to low logic compatibility, while less strictly bonded members can be socialized to balance between varied logics which contributes to high logic compatibility.

Aside from the institutional and organizational level, many scholars have highlighted the agency of individual actors on the way logics are interpreted and enacted (Hallett and Ventresca, 2006; McPherson and Sauder, 2013). Accordingly, Besharov and Smith (2014) define the individual level as the final level of analysis that is relevant for logic compatibility. Following the thoughts of Greenwood *et al.* (2011), Besharov and Smith (2014) point out that the actors' enactment of logics depends significantly on the thickness of their relationships within the organization as well as with field actors. Based on this, the authors argue that high logic compatibility is reached when the ties to field actors who follow certain logics is weak, or in case the intra-organizational relationships are well established.

2.4.2 Logic Centrality

The second dimension that Besharov and Smith (2014) identified as crucial to explain the heterogeneity of logic multiplicity is logic centrality. They define logic centrality as "the degree to which multiple logics are each treated as equally valid and relevant to organizational functioning" (Besharov and Smith, 2014, p. 369). This means that logic centrality is low when the core work tasks of an organization are determined by a single dominant logic and high when different logics are similarly central for core organizational operations. Further, as for logic compatibility, Besharov and Smith (2014) differentiate three different levels of analysis to ascertain the level of logic centrality.

At a field level, centrality is influenced by the structure and power distribution among main institutional actors that are relevant for the organization. If several institutional actors impose distinct and clear demands on an organization, logic centrality is high (Besharov and Smith, 2014).

Alternatively, at the organizational level, there are two main aspects that shape the degree of logic centrality: the organization's mission and strategy and its resource dependency. Regarding an organization's mission and strategy, centrality is high if the organization's mission implies the reliance on several fields of expertise and their respective logics (Besharov and Smith, 2014). Further, Jones *et al.* (2012, p. 1539) showed at the example of the formation of the de novo category "modern architecture" that an organization's dependence on specific field actors can significantly influence its core work operations. In case an organization relies mainly on a few field actors, logic centrality is low, whereas a diversified reliance on nondominant field actors implies higher logic centrality (Besharov and Smith, 2014).

Regarding the individual level, Besharov and Smith (2014, p. 370) argue that logic centrality depends on the actors' "adherence to logics" and their "relative power". They state that logic centrality is lower if actors are more strictly guided by a specific logic due to their social network and position within the organization and if the power within an organization is unequally distributed between different actors who are guided by different logics.

2.4.3 Four Ideal Types of Logic Multiplicity within Organizations

Building upon these two dimensions of logic compatibility and logic centrality, Besharov and Smith (2014) define four ideal types of organizations that imply different potentials and natures of conflict. These four ideal types are: (1) contested, (2) estranged, (3) aligned, and (4) dominant. These different types are illustrated in Figure 1 below.

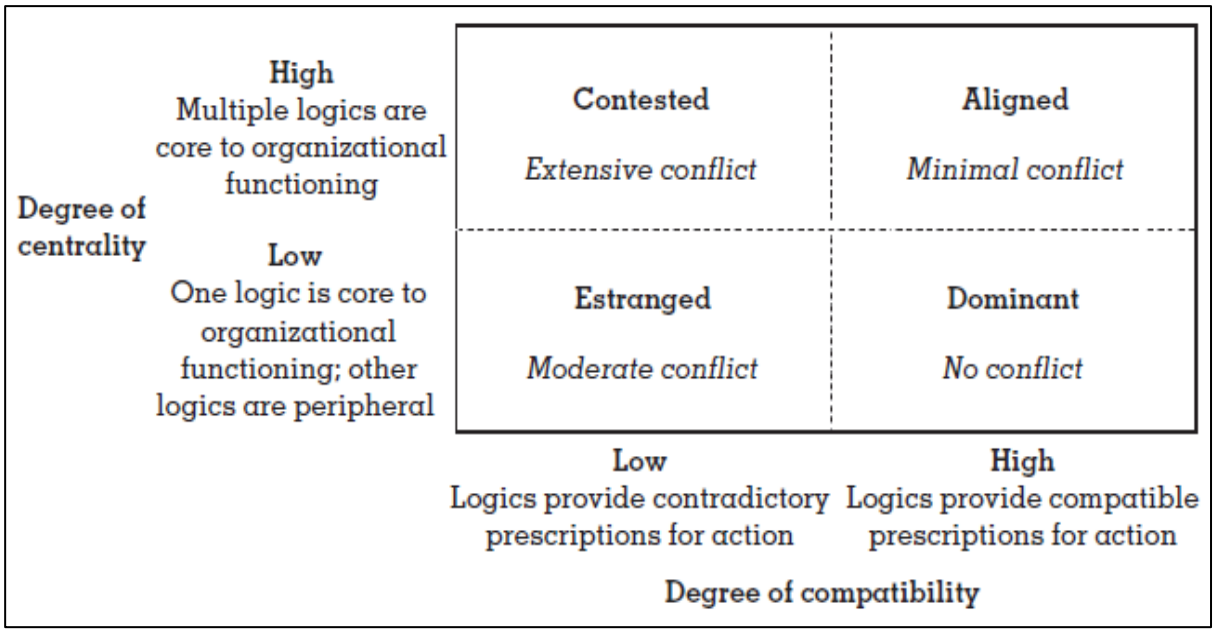

Figure 1: Types of Logic Multiplicity within Organizations (Adopted from Besharov and Smith, 2014)

First, the ideal type of a *contested organization* is defined by high logic centrality and low logic compatibility. Consequently, such an organization is characterized by multiple logics that impose different demands on it, while none of these logics clearly dominates. Further, the goals of actions are inconsistent and different groups of expertise strive for power and control over essential resources. Overall, the contested organization is shaped by continuous and significant conflict as it lacks clear guidance for its members on strategy and identity. (Besharov and Smith, 2014) As exemplified by Battilana and Dorado's (2010) study of two microfinance organizations, this type of organization is likely to face a significant struggle for organizational stability and a deteriorating performance.

Second, in case an organization is characterized by low logic compatibility and low logic centrality, it is called an *estranged organization* (Besharov and Smith, 2014, p. 372). In this scenario, an organization faces inconsistent goals and guidance for appropriate action due to the low logic compatibility of the associated logics. However, low logic centrality implies that the organization's core work operations are mainly shaped by one dominant logic, while other logics remain peripheral. As a result, the potential for escalating conflicts is limited. Nevertheless, as the study by Townley (2002) on institutional change due to competing logics in a Canadian cultural resource management company showed, there is a clear potential for peripheral logics to migrate to the core operations of an organization in the long run. Thus, an estranged organization is considered as partially instable considering the long-term perspective if several, incompatible logics become central for organizational functioning over time (Besharov and Smith, 2014).

Third, the ideal type of an *aligned organization* is defined by high logic compatibility and high logic centrality (Besharov and Smith, 2014, p. 373). Accordingly, such an organization is guided by

multiple logics that are each central to the organization's core belief and value system. Further, this eclectic core identity leads to consistent organizational actions and reflects the goals of multiple logics. As a result, the potential for conflict in this type of organization is generally minor. Conflicts arising from the contestation of multiple logics are commonly insignificant due to the consistency of their implied goals for action. (Besharov and Smith, 2014)

Finally, an organization that is characterized by high logic compatibility and low logic centrality is named *dominant organization* (Besharov and Smith, 2014, p. 373). As in the last ideal type, logic multiplicity in this case implies goals for actions that are consistent and reinforcing. However, a dominant organization is characterized by a dominant logic that transcends the other logic(s) and predominantly shapes the organizations core operations. Due to the high compatibility of logics and their clear hierarchy, conflict in the dominant organization is very minimal. However, as indicated by the study by Jones *et al.* (2012, p. 1539) on the formation of the de novo category "modern architecture", conflict can arise externally if an organization tries to extend its approach to other organizations within the broader field. (Besharov and Smith, 2014).

Open Questions

Some studies have already applied Besharov and Smith's (2014) study in different settings and with different focuses. For instance, Voltan and De Fuentes (2016, p. 446) utilized Besharov and Smith's (2014) matrix to investigated the conflict potential that arises in organizations influenced by multiple logics at the inter- and intra-organization level at the case of what they term "scaling social innovations", highlighting the importance to strategically address the management of competing logics. While comparing different collaborative efforts to create social innovations, the authors emphasize that finding ways to embody multiple logics leads to better organizational outcomes rather than centralizing organizational control and basing organizational functioning on one dominant logic. However, while acknowledging the importance of managing multiple logics, the authors also emphasize the need for more detailed research on the ways how logic multiplicity can be managed.

Alternatively, Brantnell and Baraldi (2020) explored the implications of logic multiplicity for individual practices at the case of academic inventors in the field of medical innovations. By applying the matrix described by Besharov and Smith (2014) on the individual level rather than the organizational level, the authors identified that the absence of interaction between different logics is the most common pattern for academic inventors in the field of medical innovations. Further, their findings show that academic inventors' behavior in medical science is mainly guided by a single logic, rather than by a diverse set of logics.

These studies illustrate the insights that can be gained by applying and advancing Besharov and Smith's compatibility-centrality matrix. However, both studies mention being the first in their respective fields, emphasizing the need for future research to refine, approve, and extend our

knowledge on the implications of logic multiplicity on individual and organizational behavior (Brantnell and Baraldi, 2020; Voltan and De Fuentes, 2016). A special emphasize is thereby on the role that agency can play to affect the instantiation of logic multiplicity within one organization, or as Besharov and Smith (2014, p. 378), underscored: "future research can use our framework to extend insight into how logics and agency interact to affect logic multiplicity within organizations."

Further, previous research on the interplay and implications of multiple logics has primarily focused on common organizational forms such as manufacturing firms (Greenwood et al., 2010; Dalpiaz et al., 2016) a multinational law firm (Smets et al., 2012), microfinance organizations (Battilana and Dorado, 2010), business schools (Kodeih and Greenwood, 2014), social enterprise (Mitzinneck and Besharov, 2019; Smith and Besharov, 2019), or accounting, architecture and publishing organizations (Thornton et al., 2005). On the contrary, research that investigates the interaction of multiple logics in a competence centers that involved multiple professions has been rare. Many previous researchers that explored the implications of logic multiplicity have been focusing on one particular profession, e.g. Mars and Lounsbury (2009) focused on eco-entrepreneurs or Dalpiaz et al. (2016) studied a manufacturing firm concerned with household goods. Studies on complex organizational forms that involve multiple professions, even stemming from different sectors such as the private and public sector are rare. Only a few scholars such as Nicholls and Huybrechts (2016) have explored the implications of logic multiplicity in inter-organizational relationships at the example of Fair Trade, or Borlaug and Gulbrandsen (2018) have analyzed how the prevalence of multiple logics in competence centers can impact the identities of individual researchers. However, although these studies aim in a similar direction, specific studies on competence center formation and development have been mainly absent, even though competence centers depict an extraordinary case to explore the implications of logic multiplicity where multiple professions come together. As mentioned in the beginning of this thesis, AddLife involves partners from (1) academia, including universities and research institutes, (2) public organizations, (3) healthcare, (4) industry, and (5) innovation support, offering an exceptional setting to analyze logic interaction during the early phases of organizational formation.

Furthermore, as mentioned by McPherson and Sauder (2013), while many studies describe the contestation of multiple logics in different settings, none of these studies provide a detailed explanation of the micro-level actions that enable actors and organizations to mediate between the diverging demands from different institutional logics. Therefore, this thesis intends to explore this gap, with a particular focus on the early phases of organizational formation.

3 Methodological Approach

In this section, this master's thesis' methodological approach is described. First, the general research design is introduced, and the empirical context is delineated, followed by the description of the chosen data collection methods and the sampling method. Subsequently, the approaches to analyze the data with regards to the three research questions of this thesis are explained. Finally, considerations regarding the reliability, validity and ethical concerns are discussed and main limitations are elaborated.

3.1 Research Design – Case Description

The central phenomenon that is investigated in this study is how diverging institutional logics that guide different stakeholder groups of a competence center interact during the initial phases of competence center formation. As described by Yin (2018), research that does not demand for control over behavioral events and which analyses events that are contemporary favors a case study as a research method. Further, the nature of the above described research focus and its dependency on a concrete contextual conditions suggests the use of a case study (Yin, 2018; Yin and Davis, 2007). In addition, Bryman and Bell (2011) show that a case study is very useful when the complexity of a specific case is intended to be captured and a detailed analysis of a case is of interest. Accordingly, a case study design was chosen as the most appropriate research approach for this master's thesis. In specific, this master's thesis studies the case of the competence center *AddLife* during its initial phase of formation.

Further, as stated by Yin (2018) the selection of a case study is preferred when it has a high revelatory potential and it entails an unusual opportunity to learn. Accordingly, *AddLife* offers a great opportunity to extend our knowledge of the implications of logic multiplicity in a complex setting such as competence centers. As mentioned by Borlaug and Gulbrandsen (2018), centers of excellence in research and innovation are commonly based on the collaboration of experts from different spheres, including the private and public sector as well as academia. Similarly, the center of excellence *AddLife* comprises stakeholders from five main spheres which are (1) academia, including universities and research institutes, (2) public organizations, (3) healthcare, (4) industry, and (5) innovation support., offering an exceptional setting to analyze logic interaction during the early phases of organizational formation. The specific partners of AddLife are categorized and depicted in Figure 2 below.

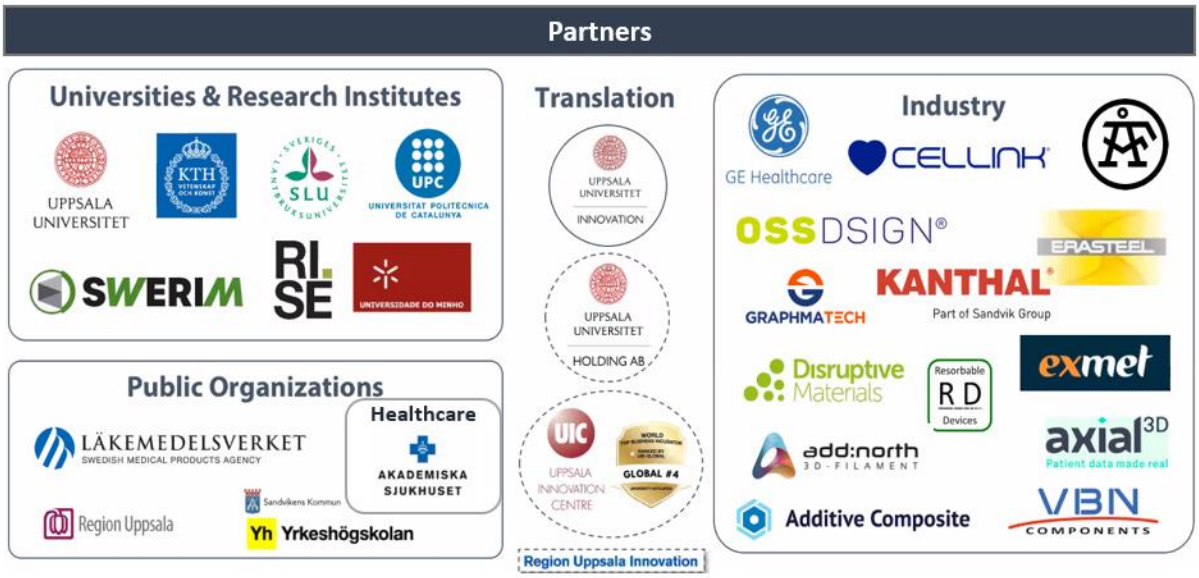

Figure 2: AddLife Partners (Adopted from Uppsala University (2020a))

3.2 Data Collection Methods

While quantitative research focuses mainly on quantifiable data sources, qualitative research is centered around data sources providing a rich context (Bryman and Bell, 2011). Further, Yin (2018) delineated six main types of sources for evidence which are used in case study research. These sources are:

1. **Documentation**: Relevant documentation can vary from emails and personal documents to reports, administrative documents or news articles. The main strengths of this source of evidence are its stability, the specificness of the information written in documents and the broadness of topics that can be covered. However, main drawbacks are potential difficulties to access and identify relevant documents, and the risk of bias from the author of the document which has to be considered when using this type of data (Yin, 2018).
2. **Archival records**: This source of evidence comprises data types that range from organizational records, to maps or secondary survey data which can be particularly valuable for historical analysis. Similarly to documentation, archival documents are very stable and can cover broad issues of interest. However, although archival records are generally seen as precise, they should be handled with caution regarding the context when they were created (Yin, 2018).
3. **Interviews**: According to Yin (2018), interviews in case studies can be described as more or less structured conversations that are guided by the research questions of interest. Commonly, two main approaches of qualitative interviewing are discerned which are unstructured and semi-structured interviews. While the unstructured interview approach relies mainly on the situational development of the interview without following predetermined interview questions,

the semi-structured interview involves the use of an interview guide. This interview guide comprises a set of questions that are intended to be asked, although the order and form can be adapted to the situation. Further, the semi-structed interview still encourages the flexibility to follow emerging leads during the conversations (Bryman and Bell, 2011)

4. **Direct observations**: As the name indicates, this source of evidence includes direct observations of the setting or environment where the phenomenon of interest occurs. Common scenarios where direct observations take place are meetings, group activities, or production work among others. A main benefit of this approach is that it allows the researcher to view the broader context in which the data is collected. Alternatively, this approach requires a high amount of time and depends substantially on the observer, thus the risk of an observer bias is high (Bryman and Bell, 2011; Yin, 2018).
5. **Participant observation**: While the observer in direct observations is mainly passive, the observer actively interacts with the environment being studied in a participant observation. In this way, the researcher can experience the issue of interest from an insider-perspective and can manipulate the environment to create more opportunities to investigate relevant scenarios. However, this approach entails an even higher risk of bias by the observer and it can become very time consuming (Yin, 2018).
6. **Physical artifacts**: In some cases, the analyses of physical artifacts can complement other sources of evidence, if a specific artifact is central for the phenomenon studied. Such artifacts can include specific tools, equipment, art or similar. These can be insightful to identify and analyze key cultural elements or operations based on tools. On the contrary, such artefacts are often not available and can pose challenges in the selection process of relevant artifacts (Yin, 2018).

As suggested by Yin (2018) case study research of high quality should always be based on multiple sources of evidence. Accordingly, to get a more valid view of the institutional logics within AddLife and their interaction, the data collection method was intended to be threefold.

First, relevant documents were reviewed to get a first indication of the institutional logics prevalent within AddLife. These documents include official administrative documents such as the application form of AddLife, as well as the organizations' websites, and minutes or reports of the main event that has happened so far in AddLife, the kick-off meeting. Further, annual reports from the involved companies and the public organizations' reports were reviewed. While these documents have to be analyzed and handled with caution, they serve as a preparatory information tool and are used to complement the findings from other sources.

Second, eleven semi-structured interviews were used to gather in-depth data about the stakeholders' logics, logic interaction and regarding the agency of actors to interact with logics. The interviews

covered multiple respondents from three distinctive stakeholder groups in AddLife, (1) the academia stakeholder group, (2) the industry stakeholder group and (3) the public stakeholder group. The applied sampling process is explained in more detail in the next section. The approach to use semi-structured interviews was chosen because it ensures flexibility while still following a transparent structure that repeats for each interview (Bryman and Bell, 2011). As mentioned by Bryman and Bell (2011), semi-structured interviews are preferable when specific themes or incidents are intended to be understood and analyzed while still allowing to follow the leads revealed during the interview, which is very useful for this study. Additionally, the semi-structure allows a considerably deep understanding of the different contexts of each stakeholder while ensuring that comparisons can be drawn between the different cases (Bryman and Bell, 2011). Further, due to AddLife's late starting point with regards to the given time frame for this thesis, the interviews had to be conducted in a very short time period. To achieve this, some interviews were conducted by a second interviewer. To ensure that the same topics were covered within each interview, an interview guide was created (see Appendix A). To analyze the data, the interviews were all transcribed and coded, except for one interview because the interviewee preferred to be not recorded. Instead, extensive notes were taken during the interview. Further, once relevant quotes were selected from this interview and from other interviews were respondents preferred to approve the use of quotes, the respondents were asked for permission to use the respective quotes.

Third, the data collection was intended to be supplemented with direct observations of the different stakeholders during consortia meetings. In addition to main meetings of all stakeholders, internal meetings about AddLife by the individual organizations were intended to be attended. This would have added another complementary perspective on the different stakeholders and would have contributed to a more comprehensive understanding of the stakeholders' logics since it "captures behavioral patterns, but also the subjective experience of organizational reality and the ongoing negotiations between members and subgroups over the interpretations and understandings of this reality" (Zilber, 2002, p. 237). However, due to the Coronavirus, attending such meetings was not possible which will be further discussed in the limitations section.

3.3 Sampling

In accordance with the research design of a case study, theoretical sampling was applied. Theoretical sampling is advantageous in this case since it is not clear in advance what percentage of members of a specific stakeholder group of AddLife should be interviewed in order to understand which logics are prevalent within AddLife. Instead, data was intended to be collected until theoretical saturation for each logic was reached (Bryman and Bell, 2011). However, due to a limited response rate from the stakeholders in AddLife, theoretical saturation was only partly reached. Considering the vast number of stakeholders, additional interviews would have offered a more detailed understanding of the logics

involved. Nevertheless, reoccurring and saturated patters were already found during the conducted elven interviews, suggesting that a satisfactory number of interviews were obtained.

The population for this case study covers all stakeholders within AddLife. Accordingly, to be more precise, this case can be categorized as an embedded single-case study which includes the analysis of subunits, namely the different stakeholder groups who are involved in AddLife, each comprising a set of individual organizations that are part of AddLife (Yin, 2018). Moreover, as described by Bryman and Bell (2011) first relevant cases to be investigated and secondly the people within each case need to be determined. As mentioned before, there are currently more than twenty stakeholders associated with AddLife. The aim of this study was to capture the different logics of each stakeholder group involved in AddLife. However, these stakeholder groups consist of sub-stakeholders. For instance, academia is one stakeholder group in AddLife but consists of many different individual stakeholders such Uppsala University, KTH, SLU or Swerim. To gain a comprehensive understanding of the prevalent logics of each stakeholder, stratified purposive sampling was applied to ensure that persons from these different stakeholder groups are considered and to ensure that as many different organizations within each stakeholder group were covered. To identify relevant persons in the first place, the official application form of AddLife was reviewed which listed the main contact person for each organization regarding AddLife. All of them were contacted. Further, in order to identify additional relevant subgroups within each stakeholder, Reed *et al.* (2009) suggest using an iterative approach such as snowball sampling. Thus, the sampling approach was combined with snowball sampling to identify these subgroups.

As mentioned before, in order to discern the institutional logics that are prevalent within AddLife, to identify their interaction during the early phases of competence center formation, as well as to generate potential approaches that facilitate the formation of competence centers, overall eleven semi-structures interviews have been conducted with different partners of AddLife. One interviewee was interviewed from two perspectives due to the interviewee' dual role in AddLife, thus overall twelve perspectives were captured. All interviews lasted between 30 to 60 minutes. Overall, seven interviews have been done with academic partners, three with industrial partners and two with partners from public organizations. However, AddLife members stemming from the healthcare side and innovation support could not be reached. Due to the Coronavirus, difficulties to reach healthcare practitioners have been expected which will be discussed in more detail in the limitations.

Further, to supplement the interview data, relevant documentation has been reviewed, including the official application form of AddLife, meeting notes, websites and research articles of academic partners, annual reports of the different industrial partners, as well as reports of the public partners.

A list of the interview participants and their respective stakeholder group is depicted in Table 1 below. To ensure the respondents' anonymity, all names have been coded.

Table 1: Interviewees

Stakeholder Group	Organizational Type	Code
Academia	University	ACA-1
	University	ACA-2
	University	ACA-3
	University	ACA-4
	University	ACA-5
	Research Institute	RI-1
	Research Institute	RI-2
Industry	Company	COM-1
	Company	COM-2
	Company	COM-3
Public	Public Organization	PO-1
	Public Organization	PO-2

3.4 Data Analysis

In this section, the chosen data analysis methods are explained. First, the research method that was chosen to capture the prevalent logics of the AddLife partners is described. Subsequently, the research method to identify possible implications for future collaboration within AddLife is elaborated. Finally, the data analysis approach to identify potential approaches to facilitate the formation of competence centers is explained.

3.4.1 Analyzing Logics within AddLife

This thesis' initial task was to capture the different institutional logics that are present within AddLife, before any statements about the interaction of such could be made. However, as mentioned by Reay and Jones (2016), the way institutional logics are measured is not straight-forward and to show that a certain logic can be identified depends on the argumentation of the researcher. Yet, as described by Reay and Jones (2016) qualitative approaches are highly eligible for capturing institutional logics, considering the in-depth and contextualized insights that are required to describe institutional logics which manifest in materials and symbols and are expressed in practices and language. However, the qualitative approaches that have been used to capture institutional logics have varied a lot throughout the past, lacking a coherent strategy. In their study on previous approaches to qualitatively capture institutional logics, Reay and Jones (2016) describe main benefits and challenges of different approaches, providing valuable ideas by previous scholars for capturing logics which will be adapted to the needs of this thesis.

As suggested by McPherson and Sauder (cited in Reay and Jones, 2016) a valuable technique to ensure that institutional logics are captured is to identify relevant categories that constitute an institutional logic which have been described by previous researchers to capture logics. Similarly, different categories that were identified by previous scholars were used in this thesis. Overall, four main categories that were recurrently described by the literature to reflect underlying institutional logics were used to distinguish the founding institutional logics of the main stakeholder groups in AddLife. These were (1) the mission and strategy, (2) the goals and their basis of attention, (3) sources of legitimacy, and (4) the perception of value of work. These categories are described in more detail below:

First, several institutional researchers such as Besharov and Smith (2014) or Purdy and Gray (2009) describe an organization's mission as a highly relevant reflection of the institutional actors that influence an organization and the respectively associated logics. Consequently, an organization's mission and strategy statements express the underlying institutional logics that guide the organization. Similarly, Thornton et al. (2012, p. 108) name the "basis of strategy" as one of the main factors that reflect an institutional logic. Aligned with the emphasis on strategy by Thornton et al. (2012), Pahnke et al. (2015) focused on the organization's basis of strategy to capture institutional logics. Thus, the mission and strategy were chosen as the first category to discern the different logics in AddLife.

Second, another important category that has been identified to express the influence of an underlying institutional logic are the descriptions of the stakeholders' goals and their basis of attention. As described by Besharov and Smith (2014) goals define what actors perceive as appropriate actions and thus reflect underlying values and assumptions. In a similar fashion, Thornton et al. (2012, p. 108) mention the "basis of attention" as a relevant element that reflects an underlying institutional logic and Pahnke et al. (2015) focused on the basis of attention (or in other words to which issues organizational members pay most attention to) in order to identify reveal underlying institutional logics. Correspondingly, the stakeholders were asked about the regular goals of their organizations in order to understand how the respondents described what elements lay at the center of their attention.

The third category that was identified by previous scholars to show the influence of an underlying institutional logic is termed "sources of legitimacy" (Thornton et al., 2012, p. 108). This theme covers who the stakeholders are that the respondents define as the most relevant in order to say if they are doing a good job or not – or in short who verifies their legitimacy. Similarly, Pahnke et al. (2015) discerned different logics in their study focusing on the sources of legitimacy as one distinctive feature to capture underlying institutional logics.

Finally, the fourth category that has been identified to reflect the influence of an underlying institutional logic is the respondents' descriptions of the main value of their work. Considering that institutional logics are defined as "socially constructed, historical pattern of material practices,

assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality" (Thornton and Ocasio, 1999, p. 804), the way actors interpret and define the value of their work is another category that reflects the central values, beliefs, and assumptions that guide their actions.

Accordingly, one part of the interview guide that was created focused on questions covering these categories.

Further, as examined by Reay and Jones (2016, p. 444) a prominent technique by institutional logics scholars to capture logics is to analyze "the occurrence, co-occurrence, and non-occurrence among symbols such as words". Similarly, Loewenstein et al. (2012) emphasize the role of analyzing the language both in a written and verbal form in order to identify patterns that show an underlying institutional logic. Therefore, to analyze the gathered data from the semi-structed interviews as well as supplementary documental data comprising the organizations' websites and annual reports as well as central AddLife documents including the application form and the AddLife kickoff meeting notes, the language used by the stakeholders in connection to the previously described categories that reflect the logics was reviewed. Further, as suggested by McPherson and Sauder who explained their technique to analyze and display the captured logics in Reay and Jones's (2016, p. 450) comparative study of the most prominent techniques used by institutional logics scholars, it is important to provide examples of quotes that can be tied to distinct institutional logics and to contrast them in tables since tables can be a powerful tool to "give a convincing picture of an institutional logic" and to compare and discern different logics. Accordingly, this approach was applied in this thesis.

3.4.2 Analyzing Logic Interaction

The second part of this thesis focuses on the identification of the implications of logic multiplicity for organizational functioning and future collaboration within AddLife. Building upon the identification of the logics present within AddLife in the first part, the interplay between them and the resulting implications were analyzed based upon the framework suggested by Besharov and Smith (2014). Within their article, the authors suggest specific elements that can be analyzed to indicate the centrality and compatibility of different logics. Further, the authors mention three different levels of analysis which are the field, organizational, and individual level (Besharov and Smith, 2014). Considering that the focus of this thesis is a newly founded competence center involving different stakeholder groups, the level of analysis for this thesis was the "stakeholder group level". The stakeholder group level refers in this case to the individual level described by Besharov and Smith (2014), aggregating the different individuals within different stakeholder groups. The stakeholder group level was chosen, since the implications for the functioning of AddLife regarding the interaction of the diverse stakeholder groups' logics was of interest. Consequently, a deeper understanding of the

stakeholder group perspective is the most relevant in order to understand the logic centrality and logic compatibility within AddLife.

Further, as described in the literature review, logic centrality is defined as "the degree to which multiple logics are each treated as equally valid and relevant to organizational functioning" (Besharov and Smith, 2014, p. 369). One important element to determine whether multiple logics are relevant for organizational functioning is the relative power that carriers of different logics have over core operations taken by the organization (Besharov and Smith, 2014). Therefore, the organizational structure and the decision-making process of AddLife is analyzed in order to determine the logic centrality within AddLife. In order to identify the relative power of the different stakeholder groups, the official AddLife documentation was reviewed, including the application form and the meeting notes. While these data sources enable a theoretical understanding of the organizational structure, the interview participants were also asked to the describe their roles in AddLife and the decision-making process regarding AddLife to complement the theoretical organizational structure with the practical implementation of the organizational structure.

On the other hand, as mentioned in the literature review, Besharov and Smith (2014, p. 367) define logic compatibility as "the extent to which the instantiations of logics imply consistent and reinforcing organizational actions". Further, the authors emphasize the importance of the consistency of the goals of an organization in order to reach high compatibility. Therefore, the different goals of the members of AddLife were analyzed with a thematic analysis, following the five main steps suggested by Braun and Clarke (2012). These five steps are to carefully read through all the data, to create first codes, followed by identifying first themes, reviewing the potential themes, and finally to refine and name the themes (Braun and Clarke, 2012). Through this process, common goals among the stakeholders in each stakeholder group were identified, and common goals shared by all stakeholder groups as well as differences regarding the goals found for the stakeholder groups crystalized.

3.4.3 Analyzing Facilitators for Logic Interaction

The approach that was chosen to identify potential approaches to facilitate the formation of AddLife is based on the inductive, grounded theory approach described by Gioia et al. (2013). As suggested by Gioia et al. (2013) when new concepts are developed in inductive, qualitative research, it is important to conduct and present the research in clear way. Thus, to strengthen the qualitative rigor of this thesis, the suggested five steps of Gioia et al. (2013) have been followed for this part of the thesis.

In a first step, all the transcribed interviews and notes have been read multiple times to become familiarized with the data. Subsequently, the data has been reviewed again and over thirty 1st order concepts have been developed. Second, these initial concepts have been compared and condensed to fewer concepts, called 1st order themes. In a third step, these concepts were then further reviewed and

combined to more abstract 2nd order themes. Forth, these themes and categories were rereviewed and further condensed to "2nd order aggregate dimensions" (Gioia et al., 2013, p. 20). These dimensions were generated intentionally in semi-absence of the literature in order to keep an open mind for new ideas, as suggested by Gioia et al., (2013), categorizing the 2nd order themes in more aggregated dimensions.

Fifth, these concepts, themes and dimension were then assembled into a so called "data structure" that visualizes these concepts, themes and dimensions and captures the progression of the data analysis (Reay and Jones, 2016, p. 451). This is mainly done to show the reasoning behind the approaches that have been identified and thus to ensure qualitative rigor.

Finally, the interrelations between the identified aggregate dimensions and themes were analyzed and displayed in a final, comprehensive figure, developing grounded theory. Eventually, the gathered concepts, themes and dimensions and their relationships are consulted with the relevant literature in the discussion chapter.

3.5 Reliability and Validity

Generally, in every research, considerations regarding its quality need to be taken. As described by Bryman and Bell (2011) although the concepts of reliability and validity mainly emerged in quantitative research, they are also valuable considerations in qualitative research.

The first criteria to consider is the study's reliability. However, as mentioned by Bryman and Bell (2011) social settings are always evolving and thus impossible to replicate entirely. Nevertheless, as suggested by Yin (2018) the most important tactic to address the issue of reliability is to ensure that the procedures that were followed are as comprehensible and well documented as possible. Thus, to address the issue of reliability, rather extensive descriptions of the data analysis approaches have been provided in this thesis. Further, several visualization aids have been used to show the evolutionary process from quotes to more abstract themes which was particularly important for the inductive parts of this thesis. Finally, an interview guide was created which would allow future research to follow the same interview procedure.

The second criteria to consider is the study's validity. Yin (2018) differentiates validity in construct validity, internal validity, and external validity which are thus all considered in this thesis. While, construct validity refers to the assessment whether appropriate measures where used to investigate the phenomenon of interest, internal validity is concerned with the question if the researcher's observations are well linked to the developed ideas (Yin, 2018). This was a particularly important consideration for the measurement of institutional logics, considering the concept's complexity. To ensure that relevant measures were used to capture the logics, the literature was reviewed and categories that were repetitively applied and described by previous scholars to describe logics were

determined. Additionally, to further improve the validity of this study, various data sources were used to cross-compare and verify the data obtained from the interviews with the documentational data. This triangulation approach was followed throughout the development of this thesis to minimize the bias of selective interpretation. Finally, regarding the external validity, or generalizability, it has to be noted that the findings were derived from a case study of a competence center. As described earlier, the competence center offered a good opportunity to study logic interaction considering the extraordinary agglomeration of different logics. As it is the nature of qualitative case studies, the aim was not to achieve statistical generalizations, but rather analytic generalizations (Yin, 2018). While statistical generalization aims for conclusions that are true for an entire population based on a probability sample, analytic generalizations aim to extend the current knowledge on some theoretical ideas, for example based on a case study (Yin, 2018). Aligned with this idea, the findings for the third research question suggest more generic approaches that could be important in other settings than the studied case. However, the findings of this qualitative case need to be verified, adapted, or falsified by future research, potentially including quantitative research methods.

3.6 Ethical Considerations

In addition to the previously described considerations regarding the quality of the study, ethical considerations have been taken as well. Following the suggestions by Bryman and Bell (2011) honest considerations regarding potential harm to the interview participants and the invasion of their privacy have been taken. To address this issue, all names, positions, and organization have been coded. The only necessary connection that needed to be made in this study was to connect the statements to the respective stakeholder groups. However, in one occasion the position could not be disclosed, because the respective paragraph was concerned with describing a specific position. To account for this issue, the corresponding respondent was asked directly for permission before using the statements and agreed to it. Further, all interviewees received a contact letter in advance, containing relevant information regarding the study's purpose and the data handling procedures to ensure an informed consent. All interviewees participated voluntarily with no obligations to do so.

3.7 Limitations

A main limitation of this study is the limited amount of interview partners that could be reached. To understand the whole picture of AddLife in detail, it would have been best if all partners could have been interviewed. However, considering the voluntary basis for participation and the time constraints of this thesis, it was not possible to reach all partners. Nonetheless, a good distribution of interview partners between academia, industry and public organizations could be reached which were identified as the main stakeholder groups within AddLife. A main drawback was however that no interview partners from the healthcare side could be included in the study, due a zero-response rate. Considering the current Coronavirus-crisis, such a result is not surprising, but nevertheless limiting the claims that

can be made about the logics driving the actors from the healthcare side. Therefore, future studies should investigate the healthcare's role to refine the findings of this study. Furthermore, direct observations were initially planned to complement the documentational and interview data, which was also not possible due to the Coronavirus. Finally, all interviews except one had to be conducted online (video calls) through different digital communication media due to the Coronavirus. As suggested by Bryman and Bell (2011, p. 660), physical interviews can be beneficial to "maintain rapport with respondents" which was partly more difficult through the remote form of the interviews. Further, the sound quality of the recordings depended on the quality of the internet connection which led to a few unintelligible parts of the recordings, although these were without any further detriments for this study.

4 Empirical Results and Analysis

In this chapter, the empirical results and the analysis from the embedded-case study are presented. The chapter is divided into three main sub-chapters. In the first sub-chapter, the logics that have been identified to be present among the stakeholder groups of AddLife are outlined. The second-chapter displays the logic centrality and logic compatibility of the logics carried by the different stakeholder groups within AddLife, concluding with the current state of AddLife according to the theory suggested by Besharov and Smith (2014). Finally, the third sub-chapter outlines potential approaches that have been identified which can help to increase logic compatibility by building intra-organizational ties and thus to minimize potential conflict.

4.1 Logics within AddLife

The first part of the embedded-case study lays the foundation for a better understanding of the different partners that are involved in AddLife. In order to understand what logics are present within AddLife, the founding institutional logics of the different partners that are involved in AddLife were captured. Overall, this chapter comprises two main elements. First, the findings for each logic are summarized and contrasted. Second, the connections that were made between the captured logics and the different stakeholder groups are examined.

4.1.1 Founding Institutional Logics

Overall, three main logics have been identified, which are (1) the academic logic, (2) the market logic, and (3) the state logic. These different underlying institutional logics have been discerned based on four main categories which were identified as relevant indicators for underlying institutional logics based on the literature. These categories are the mission & strategy, goals, perception of value of work, and sources of legitimacy. In order to facilitate the comparison of the different founding institutional logics, all three logics are summarized and contrasted along the four main categories in Table 2 below.

Table 2: Founding Institutional Logics of AddLife Partners

	Academic Logic	Market Logic	State Logic
Mission & Strategy	"The mission of the association is, the … advancement for tissue generation and regenerative medicine technologies" (RI-1) "Every money that the association makes is to invest in the new, new technology or a new a new equipment that allow the research, moving forward in terms of the research …" (RI-1) "Our mission is to provide new knowledge and better solutions to medical problems where the biomaterial or implant design can be the change that is needed." (ACA-1)	"… for now, it's really all focusing on the product portfolio we have mainly now and gain larger market shares, and also enter some new markets." (COM-3) "Operating at the centre of an ecosystem working toward precision health – digitalizing healthcare, helping drive productivity, and improving outcomes across the health system" (COM-4)	"The mission we have is to support business life in the Uppsala Region. We would like to see strong and competitive businesses in the Uppsala Region." (PO-1) "Organization X exists to serve the people of Uppsala County." (PO-1) "Apart from that, we have money to support projects where businesses are involved." (PO-1) "Our mission is to ensure that patients and healthcare professionals have access to pharmaceuticals and medical devices that are safe and efficient." (PO-2)
Goals	"It's about bringing new research, generating breakthroughs in research" (ACA-2) "We try to present new tools that contribute to society" (ACA-2) "Of course, a big, big output for us is our PhD students, PhD graduations. So actually giving a research education …" (ACA-1) "… attract international talents to our university which will be good for the university and for the industry" (ACA-3)	"The long-term goal is that we will be a global provider of any kind of bone replacement solutions." (COM-3) "… so, then we will cover Europe, US and Japan which are, I think the three large markers for us. So now, it's really about even more to take higher shares of those markets." (COM-3) "The purpose of the company is to do R&D for the new surgical techniques … and do the necessary tests with those implants and the final aim is to bring it to market." (COM-1)	"Our goal is to create conditions for good health and sustainability for everyone living and working here." (PO-1) "We're trying to line industry with research and also commercialise research results." (PO-1) "Personally, I've been trying to use academic knowledge as a base for sustainable growth for companies and industries in Uppsala. " (PO-1) "X's task is to ensure that both the individual patient and healthcare professionals have access to safe and effective medicinal products and that these are used in a rational and cost-effective manner." (PO-2)
Perception of value of work	"… the main core value, what I do is, that's teaching the next generation of [profession X] … and contributing to the knowledge base within [profession X]. That would be sort of the essence of it." (ACA-4)	"… the main value if we compare it, compare it to competitors is that, I think it's an improved quality of life for patients." (COM-3) "And the other value is actually that the surgery time is shorter than our competitors due to design we have."	"The value of my work is to enable specific medicine to come into to the market or to the patients." (PO-2) "Since I am involved in the areas of the quality of the medicine, I cannot contribute much in the efficiency of the drug, but I can verify if it does

		(COM-3)	what it is supposed to do. So, it is safety and value for patients. " (PO-2)
Sources of legitimacy	"I have to deliver results to the researcher community and that can be in terms of publications, PhD theses, or master theses" (ACA-2) "And, of course, I mean for us, the most important thing or people for us are the PhD students." (ACA-1)	"For the company that would be customers who buy the implants. And also obviously big MedTech companies that evaluate our techniques." (COM-1) "And the owners. We are a company that is still living of investors' money, so we don't have enough sales to cover our costs yet. So, we are dependent on what they hope will come out." (COM-2) "Then the customers, surgeons' patients of course." (COM-3) "And then also all the regulatory bodies and authorities in the different countries that we are selling at or want to be selling at." (COM-3)	"It (organization X) is a democratic public body run by politicians. They make decisions and give assignments to us civil servants." (PO-1) "I am supposed to work with the green industry, with advanced production technology, life sciences. This strategy gives me a framework for how I should work. My top bosses are politicians." (PO-1)

4.1.2 Linking Logics to Stakeholder Groups

Based on the statements illustrated in Table 2 that were captured for the different stakeholder groups regarding the four main categories, the different stakeholder groups have been coupled with a corresponding underlying institutional logic. However, it has to be noted that as depicted earlier in the literature review, most organizations are not merely influenced by a single logic, rather by two or more. Nevertheless, while the stakeholders in AddLife have shown influences of multiple logics, for each stakeholder group, a dominant logic could be identified, leaving other logics at the periphery. Subsequently, the different influence from multiple logics on the stakeholder groups are only briefly described and the further focus was laid on the dominant logics within these stakeholder groups. The finding is depicted in Figure 3 below.

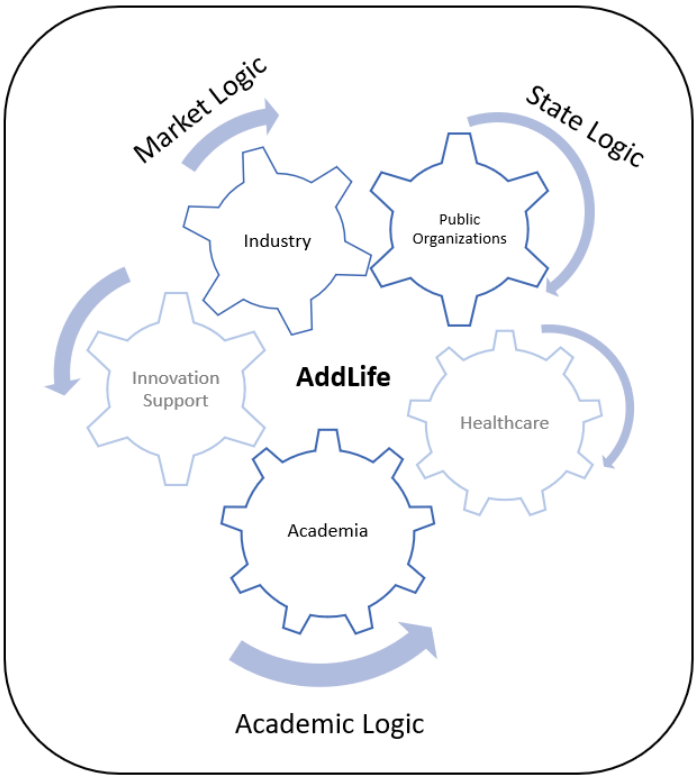

Figure 3: Dominant Logics in Stakeholder Groups

As shown in Figure 3, the AddLife stakeholders associated with the *group of academia* is mainly influenced by *the academic logic*. The stakeholders in this group of AddLife members showed a clear focus on research and education that shaped and guided their strategy, goals, attention and actions. For instance, respondent RI-1 from a research institute described the strategy of the organization as follows: "Every money that the association makes is to invest in the new, new technology or a new a new equipment that allow the research, moving forward in terms of the research …". As described in this statement, the focus of the strategy is on advancing research and developing new knowledge.

Further, most respondents from the academia stakeholder group emphasized the central role of research regarding their main goals. For example, respondent ACA-2 described one of the main goals as: "It's about bringing new research, generating breakthroughs in research". Additionally, while stressing research as a central goal of their work, respondents from universities have also shown a particular attention to PhD students, for instance as respondent ACA-1: "Of course, a big, big output for us is our PhD students, PhD graduations. So actually giving a research education …".

Correspondingly, when the stakeholders associated with the stakeholder group "academia" were asked about the value of their work, the focus has been on research and education as expressed by respondent ACA-4: "… the main core value, what I do is, that's teaching the next generation of [profession X] … and contributing to the knowledge base within [profession X]. That would be sort of the essence of it."

However, there have been variations among the stakeholders in this group, showing a secondary influence of the market logic, especially for research institutes. For both universities and research institutes, research remained at the core, but while universities were more focused on the educational part of the research, the research institutes oriented more towards the industry, focusing their research significantly on the demands of their industrial collaboration partners.

The AddLife stakeholders associated with the group *industry* have been found to be mainly influenced by *the market logic.* Naturally, the industrial stakeholders were centered around economic interests, focusing their organizational actions around the creation of a competitive market position. However, also for the industrial partners variations have been identified. The stakeholders that have been interviewed from industry are spin-offs from universities, which reflected in an increased interest in fundamental research by these stakeholders. For instance, respondent COM-3 mentioned: "Even though we are usually interested in also scientific publications of some of the results but maybe not always." Or respondent COM-1 showed an even stronger interest in research, stating: "The purpose of the company is to do R&D for the new surgical techniques focused on resorbable implants and do the necessary tests with those implants and the final aim is to bring it to market."

Nevertheless, although the industrial participants showed some remaining influence of the academic logic, partly explained by their academic roots, the core or the "final aim" was oriented towards the market, showing the dominance of the market logic for these partners.

Finally, the AddLife partners rooted in *the public sphere* have been identified to be mainly guided by *the state logic*. The stakeholders in this group showed a clear focus on driving the wellbeing of the community of interest, which varied from merely the Uppsala region to the general public of Sweden. While differing in the scope of attention, the public's prosperity remained the central value and influenced the cognition of these stakeholders. However, variations regarding the means, through which the goal of increasing the public's wellbeing should be achieved, differed among the interviewed stakeholders. While respondent PO-1 was more focused on the economic welfare of the public, respondent PO-2 was more concerned with the public's medical wellbeing. For instance, respondent PO-1 described the mission of their organization as: "The mission we have is to support business life in the Uppsala Region. We would like to see strong and competitive businesses in the Uppsala Region." On the other hand, respondent PO-2 described the main value of their work as: "The value of my work is to enable specific medicine to come into to the market or to the patients." And further as: "Since I am involved in the areas of the quality of the medicine, I cannot contribute much in the efficiency of the drug, but I can verify if it does what it is supposed to do. So, it is safety and value for patients." (PO-2)

Nevertheless, although the individual foci differed, the overarching influence of the state logic was captured to be shared by the public stakeholder group.

4.2 Logic Interaction

The second part of the embedded-case study builds upon the understanding of the partners that are involved in AddLife which was derived in the previous chapter. In order to understand how the different logics that have been assigned to the different stakeholder groups interact and what the implications are, aspects regarding the logic centrality and logic compatibility are analyzed. In the first part, the logic centrality is reviewed based on the stakeholder groups' relative power within AddLife. Secondly, the logic compatibility is analyzed, focusing on the different stakeholder groups' drivers and expectations regarding AddLife, reflecting their respective goals in AddLife.

4.2.1 Logic Centrality

As described in the literature review, logic centrality is defined as "the degree to which multiple logics are each treated as equally valid and relevant to organizational functioning" (Besharov and Smith, 2014, p. 369). Therefore, the organizational structure and the decision-making process of AddLife is analyzed in order to determine the logic centrality within AddLife. Since the underlying institutional logics that guide the different stakeholder groups in AddLife have been identified in the first part of the study, analyzing these stakeholder groups' relative power reveals the logic centrality in AddLife.

AddLife's organizational structure has been documented both in the AddLife application form as well as in the meeting notes of AddLife's kickoff meeting. While these data sources enable a theoretical understanding of the organizational structure, the interview participants were also asked to describe their roles in AddLife and the decision-making process regarding AddLife in order to complement the theoretical organizational structure with the practical implementation of the structure. An overview of the organizational structure of AddLife is depicted in Figure 4 below.

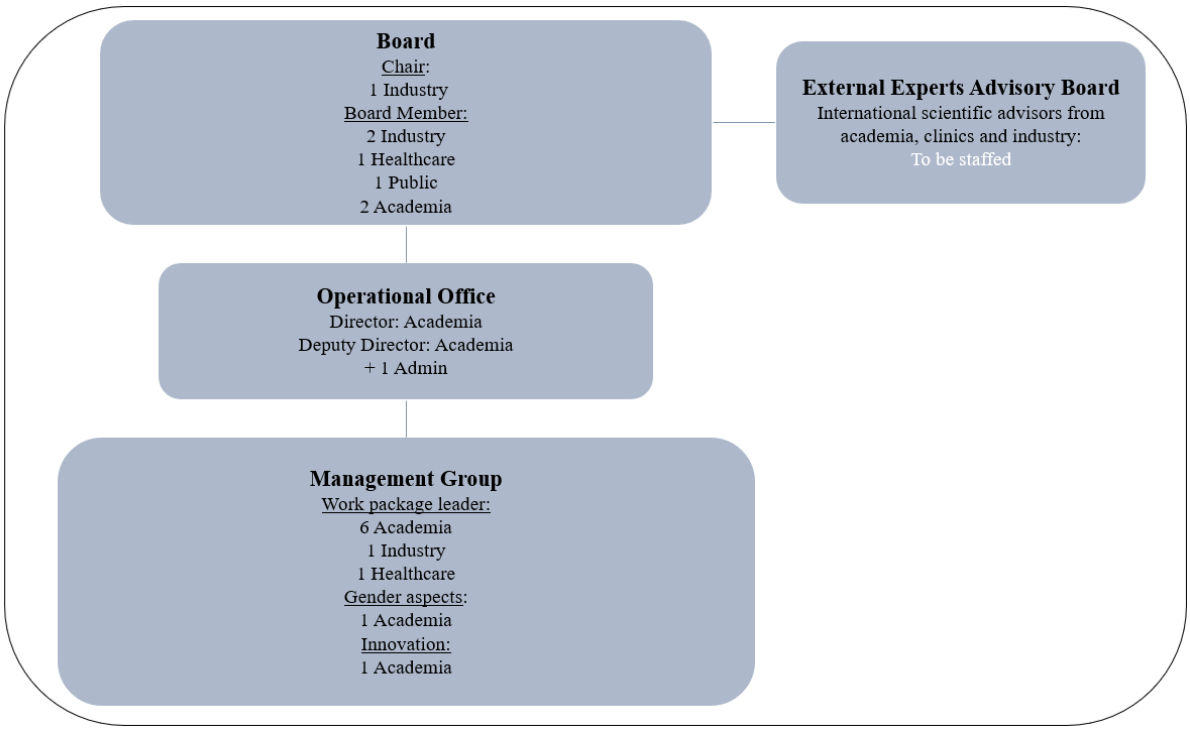

Figure 4: Organizational Structure of AddLife (Uppsala University, 2020a)

As shown in Figure 4, AddLife is organized in four main components, which are the board, the operational office, the External Experts Advisory Board (EEAB), and the management group.

The board of AddLife is the central decision-making organ that decides upon AddLife's strategic direction. Further, the board is "responsible for the initiation, decisions, implementation and monitoring of the research work in the operational plan. The Board also decides on the reformulation or the premature termination of research activities which do not progress satisfactorily."(Uppsala University, 2020b, p. 18). Consequently, it becomes clear that the board members have a significant amount of power on the core operations of AddLife. Further, as depicted in Figure 4, there are overall seven board members of which three are stemming from the industry, one board member is from healthcare, one member is from the public sphere and two members are from the academia side. Hence, the majority of the board members represent the industry. In addition to providing most of the board members, the industry also provides the chair of the board, which underscores the industry's central role in AddLife.

Otherwise, with two members of the board coming from academia, the academic stakeholder group provides the second most board members. Additionally, the academia stakeholder group of AddLife also provides the center director, which is another pivotal role in AddLife besides the board. The center director is part of the operational office and its main role is to lead "the scientific and operational activities" and to "coordinate the Centre and be the link between the Centre Board and the

Operational Office" as well as to report "to the Centre board" (Uppsala University, 2020b, p. 16). Further, the center director described the role as follows:

> "I'm the director. So I have, I would say my main role is, I have the responsibility to make it work basically and that we deliver good research results and that the collaborations are working and that we do the right things, because even though we have a center board, me and the co-director we would have to prepare everything for that. … So, really making sure that everything works smoothly. … and it's also of course a lot of project budgeting responsibility. And that is also in all the research projects of course …." (Center Director)

Thus, taking the central role of the center director on the operations within AddLife into account and considering that the center director stems from the academia side, the centrality of the academic stakeholder group for the core operations of AddLife becomes evident. However, the center director also mentioned a more facilitating role, being more a lubricant for the engine and mainly concerned with facilitating the work.

Further, despite the power of the center director on the operational activities, the orientation towards the industry in the decision-making process within AddLife becomes clear in the following description by respondent ACA-1:

> "… it's the way that Vinnova has decided that they [decisions in AddLife] should be organized and we should have this board and industry should be very much involved in the decisions on how to, how to move forward and which projects we should do and these things which is also because this type of competence center is kind of set up for collaborative projects. There's a lot of focus on like needs driven research and use for the companies."

Additionally to the board and the operational office, the third organizational arm of AddLife is the External Experts Advisory Board (EEAB) who's main role is to support the board with advice (Uppsala University, 2020b). Considering the relatively passive, supportive role of the EEAB and the fact that it has not been staffed yet, the role of this part during the early phases of the competence center formation was not prioritized and is thus not further considered.

Finally, there is also the management group which comprises the work package leaders, a responsible for any issues regarding gender aspects in AddLife, and one responsible for innovation support (Uppsala University, 2020a). Further, the management group "discusses the work and progress within all the projects." (Uppsala University, 2020b, p. 18). Further, the management group is supposed to asses any deviations from the project time plans and has to suggest approaches to address them. Moreover, the management group "also discusses the dissemination and exploitation of results by publication, commercialization etc." and it is headed by the center director (Uppsala University, 2020b, p. 18). Consequently, while the strategic direction and operational plan is set by the board, the concrete implementation and interpretation of the overarching plan depends upon the management

group. As shown in Figure 4, the management group consists with eight out of ten members mainly of members from the academia stakeholder group, and only of one member from the industry side and one member from the healthcare side. This also shows the relatively high power of the academic stakeholder group in AddLife.

Overall, it can be noted that the industrial stakeholder group as well as the academic stakeholder group both possess a significant amount of power in AddLife. While overall more central positions are taken by the academia side, especially regarding the management group and by providing the center director, the industry side has a significant influence within the board of AddLife, which is after all the main decision-making organ within AddLife. While the healthcare side and the public side are also part of the central organizational organs of AddLife, there are overall less representatives from these sides compared to the industry and academia group. Based on the analysis of the representation of the different stakeholder groups within all the different organizational parts of AddLife, the centrality of both the academic logic, the market logic, as well as the state logic can be determined. The centrality of the three different logics captured in part one is shown in Figure 5 below.

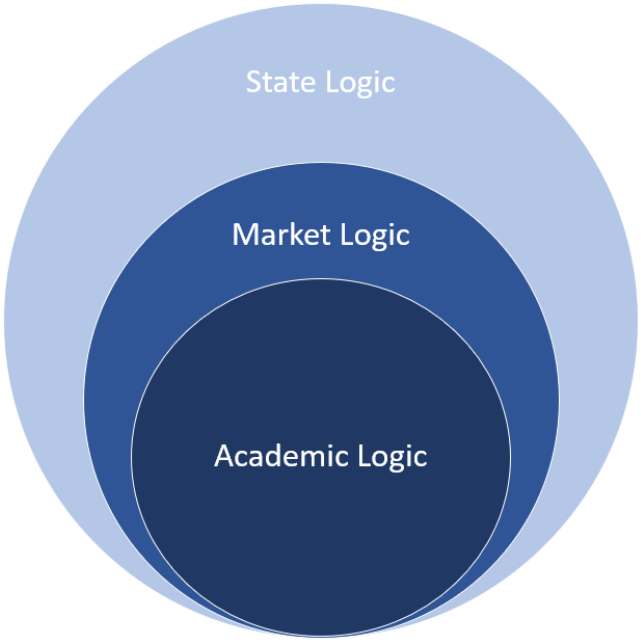

Figure 5: Logic Centrality in AddLife

As depicted in Figure 5, the academic logic is identified to be the most relevant for the organizational functioning of AddLife. However, as also shown in Figure 8, the academic and the market logic lay both at its core, having both a pivotal influence on organizational functioning in AddLife. On the other hand, the state logic was identified to be more peripheral in AddLife, incorporating a more facilitating role.

4.2.2 Logic Compatibility

In this section, the logic compatibility is analyzed. As mentioned earlier, Besharov and Smith (2014, p. 367) define logic compatibility as "the extent to which the instantiations of logics imply consistent and reinforcing organizational actions". Further, the authors emphasize the importance of the consistency of the goals of an organization in order to reach high logic compatibility. Therefore, the different goals of the stakeholder groups in AddLife are described and contrasted below. The goals have been derived based on the eleven interviews conducted, as well as the AddLife application form and the kickoff meeting notes. The different themes that were identified for each of the stakeholder group are illustrated in Figure 6 below.

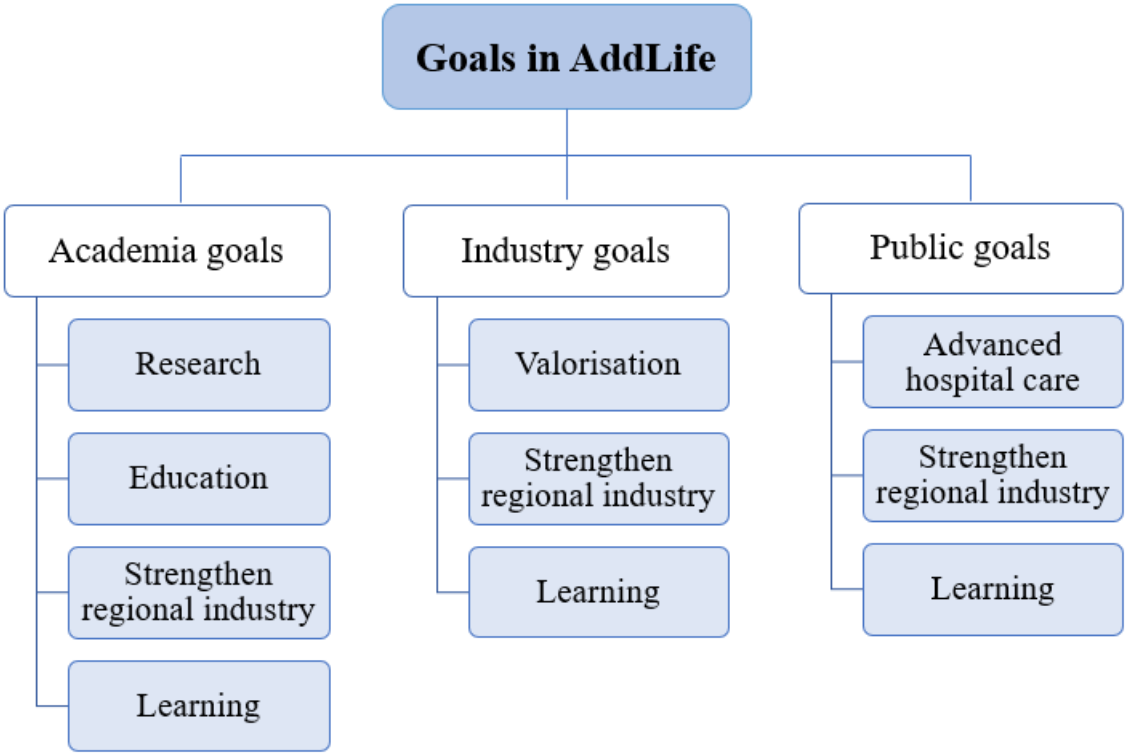

Figure 6: Goals in AddLife

Reviewing the different goals of the three main stakeholder groups within AddLife, commonalities regarding the goals were identified as well as differences crystalized. Since the goals' consistency or potential inconsistencies are of interest regarding logic compatibility, each identified theme is explained in more detail in comparison among the three stakeholder groups.

Similarities

Overall, two main goals were identified to be present among all three stakeholder groups which are to *strengthen regional industry* and *learning*. Each of these themes is further elaborated and contrasted among the three stakeholder groups below.

First, all three stakeholder groups shared the goal to **strengthen the regional industry** based on the efforts and initiatives taken within AddLife. The academia stakeholder group showed the ambition to generate "scientific results of high value for the industrial partners" (Uppsala University, 2020b, p. 13) and expressed the general goal to strengthen the relationships with the industrial partners in order to foster common projects (ACA-1). Further, the academia side expressed the goal to both create industrial value for the existing partners from the industry side, but also mentioned the creation of future start-up companies and spin-offs as another aim, as explained by respondent ACA-3:

> "Possibly also maybe startup companies. So, there are lots of smaller companies within the center as you know, so another thing would be to strengthen research that can help them to grow larger. But also maybe creating new startup companies."

Thus, one goal of the academia side can be summarized to strengthen the regional industry, mainly through directly strengthening the industrial partners involved or potentially to contribute to the general regional industry through the generation of new start-ups or spin-off companies.

Similarly, one focus of the industrial stakeholder group was laid upon generating indirect value for their companies through the creation of stronger potential industrial partners in the region. For instance, respondent COM-1 mentioned:

> "It's about to drive research within AM in the region to also create manufacturing capabilities we need, so we can be, have our own manufacturing here. Well, not belonging to the company but we could hire in. We could hire capacity here in town instead in the US which is a hassle."

Correspondingly, respondent COM-3 stated a similar goal:

> "We lack availability of suppliers for some of our components which are 3D printed or additive manufactured. They are, there are more in the middle of Central Europe, not so much up in the Nordics. And of course, it, the lead times become longer when it's longer to ship products. So, I think that's also an interest to see can some of these things come out of this as well that can really benefit the companies."

What this shows is that one main strategic goal that the industrial stakeholder group shares with the academia side is to strengthen the regional industry in general, which in return can indirectly benefit them in the long run through the creation of strong suppliers and complementary manufacturing capabilities.

Furthermore, respondent PO-1, stemming from the public stakeholder group, showed a similar interest in the creation of industrial value and described a main goal in the following way:

> "From a business perspective, I would like to see the creation of new companies, existing companies getting better, new products and technology being created, new insights in new materials, anything that can strengthen their competitiveness in the market."

In line with the goals of the academia side and the industrial side, the public stakeholder group expressed the goal to enable a stronger regional industry and mentioned for instance regulatory know-how as a main contribution to achieve this goal as described by PO-2: "We also believe that we could contribute with raising awareness within the community on the need to raise awareness on the regulatory aspect."

In summary, to strengthen the regional industry was identified to be a central goal that was shared among all stakeholder groups.

Otherwise, another commonality among the three stakeholder groups' goals was the possibility of **learning** from each other. For instance, respondents from the academia side mentioned: "And I am interested in the knowledge that might come out while doing the testing and exploring the new knowledge that is developed." (ACA-4) Or alternatively one respondent from a research institute mentioned: "… and that is what we are looking for also, for different partnerships and understand what is going on in different areas in AM." (RI-2)

Overall, most respondents from the academia side expressed a similar interest to gain new knowledge from the diverse partners involved in AddLife and to learn from each other.

Comparably, the industrial stakeholder group showed the interest to create learning opportunities for the involved companies in order to gain new knowledge in the field of AM in life sciences. For instance, respondent COM-3 mentioned: "… what has been discussed early in this AddLife was also that we are able to put together courses that we can have for companies. Because I think we need to higher the level of competence in this area."

In a similar way, the public stakeholder group also expressed the goal to learn from the different partners involved in AddLife in order to gain firsthand knowledge about the developments in AM in the area of life sciences, or as respondent PO-2 described it: "Additive Manufacturing is something that will be come into the drug area. To be able to give advice and to be able to handle applications with this type of manufacturing, we need to keep up with what's going on."

Thus, in summary it can be noted that all three stakeholder groups expressed the common goal to strengthen the regional industry, either directly by generating research results that contribute to the business of the industrial partners, the creation of new start-ups, or indirectly through fostering complementary industrial partners that all contribute to a higher AM competence in the area. Furthermore, all stakeholder groups expressed the goal to learn from each other and to gain new knowledge.

Differences

Although the overall goals to strengthen the regional industry and to create learning opportunities were expressed by all three stakeholder groups, differences in the focus of attention regarding the goals of AddLife were also identified.

First, one main goal that was stated by the public stakeholder group besides the industrial value and the opportunity to learn was to create tools that can be applied in the daily work of healthcare practitioners and thus to enable an **advanced hospital care**. For instance, respondent PO-1 mentioned: "We are also involved with the hospital, with doctors. They would like to see things that they would like to see daily for advanced hospital care, and models for preoperative planning and such." Thus, despite being interested in the industrial value created though AddLife, the public stakeholder group also emphasized the creation of relevant use cases for the healthcare sector as a main goal.

Otherwise, one main goal that was merely expressed by the academia side was to conduct excellent **research** which is of high academic value and contributes to the research community interested in AM applications for life sciences. For instance, respondent ACA-3 mentioned: "And of course, then, another thing is to create this excellent research in this network. I think that is good for the entire Europe, actually, but especially good for Sweden." Similarly, many respondents from the academia stakeholder group stated the advancement of their respective research fields as an important goal. For example, respondent ACA-1 described it in the following way: "So, it was really to get the research in additive manufacturing for life sciences so far for my application area going in, in a good way."

Overall, most respondents from the academia stakeholder group expressed the goal to drive the research in their respective fields of interest and to be able to conduct studies in their research areas. Thus, a main goal for the academia stakeholder group can be summarized as generating scientific progress in the respective research fields.

Furthermore, another goal that was identified for the academia stakeholder group was the aim to enable an excellent research **education** for PhD students and future researchers. This goal mainly included two aspects. First, one part of the goal "education" for the academia stakeholder group was to educate students in excellent research with the final aim to eventually publish their theses and research articles. For example, respondent ACA-2 mentioned: "And then I think, a main outcome will be merits for students, publishing their theses and papers." Second, another part that was mentioned in relation to the goal of education was to be able to attract talented potential PhD students and hence to enable a supply of researcher skilled in AM in the region, or in other words as described by respondent ACA-3:

> "And sure that (AddLife) will also attract good PhD students working with additive. Even if all of those don't get to work in the medical industry, I'm sure that they can also do good things in other

> industries working with additive. So, it's also a long-term supply of researchers familiar with the additive."

Overall, it can be concluded that the two distinctive goals that were discerned for the academia stakeholder group are to conduct relevant academic research and to enable an excellent education.

On the other hand, a distinctive goal that was identified for the industrial stakeholder group was the generated research's **valorization**. Naturally, the AddLife members from the industry side were highly interested in the creation of industrial value for their own companies. Accordingly, the industrial stakeholder group was for example concerned with the patenting of the research results generated for their own organizations, as described by respondent COM-3:

> "Of course, make sure that X gets something out of it. But otherwise, because we invest in both man time, man hours, but also actually cash. Quite a lot so you want to get something out of it. … So, one of my senior scientists he would be a supervisor, core supervisor for that PhD student. So, I think the results that are coming out from that, that is something that probably X will patent."

Furthermore, while expressing the goal to generate benefits for their own companies in terms of new products, new technologies, or new materials (COM-2; COM-3), another goal that was mentioned by some of the industrial partners was to ensure that the research conducted does not interfere with their core business, e.g. if the results are unbeneficial for the company's core business or if they conflict with the patents they already possess. For instance, respondent COM-2 described a main goal as: "… ensuring that what they [academia] do is not in any way hindering our strategy, so that they don't work with things that hurt our patents." Similarly, respondent COM-3 highlighted that it is important that the research conducted is not in conflict with the current business of the company:

> "Even though we are usually interested in also scientific publications of some of the results but maybe not always. And that sometimes can be difficult because if it is stopped up, and the aim is maybe to publish some of the results and then maybe this result doesn't come out as you wanted, as a company, then of course you don't want to publish it. But of course, the university wants to publish it because no matter what the results they want to have this scientific publication. Because maybe there is a PhD student involved that needs to have a publication."

However, although acknowledging the potential conflict that can arise from these diverging goals, respondent COM-3 also mentioned a way to avoid this conflict in AddLife: "… some other collaborations have been so much closer to the core product we have today, because they have really done work on that product. And of course, then it's been more sensitive. This will be, this will not be in direct correlation to the product we have out in the market."

Nevertheless, as noted by several respondents, it will remain a major challenge to balance between the different goals of the academia side and the industry side considering their diverging focus areas, either on research and education or on the valorization of the research results (ACA-2, ACA-3, ACA-

5, COM-2, COM3, and PO-1). On the other hand, the goal specifically stated by the public stakeholder group to create applications that enable an advanced hospital care does not imply inconsistent organizational functioning, since the final aim of the efforts in AddLife is to "provide patients with an enhanced quality of life" (Uppsala University, 2020b, p. 10). Thus, the goal of the public stakeholder group to enable an advanced hospital care is widely compatible with the goals of the industry and academia stakeholder group.

Overall, it can be concluded that although several common grounds have been found and mutual benefits have been emphasized by all stakeholder groups, there are also some goals of the three stakeholder groups are to some degree diverging. However, it was also stated by most participants that these different goals can successfully be aligned through different approaches that need to be taken, which will be analyzed in more detail in chapter 4.3.

4.2.3 Current State of AddLife

Before the strategic approaches to mediate between the different goals implied by the underlying institutional logics of the three stakeholder groups are described, the current state of AddLife according to the identified logic centrality and compatibility is captured.

As shown in chapter 4.2.1, the logic centrality is high, since both the academic logic and the market logic guiding the academic stakeholder group and the industrial stakeholder group respectively, are central for core operations in AddLife. Otherwise, the state logic was identified to be not as central for the functioning of AddLife as the market logic or the academic logic, considering the comparably smaller representation of the public stakeholder group within central operational and the decision-making bodies in AddLife. Nonetheless, considering the market logic's as well as the academic logic's high influence on core AddLife operations, the logic centrality within AddLife remains high. Further, since the academic logic and the market logic are captured to be central for AddLife's functioning, those two logics are the determining factors for the logic compatibility in AddLife.

On the other hand, considering the intrinsically different goals of the different stakeholder groups, but also the significant early efforts taken to mediate between these goals, the logic compatibility can be best described as "medium". The intrinsic goals might be different (education and research for the academia side and commercial value for the industrial side), but that does not necessarily mean that these goals have to be inconsistent. Theoretically, it is certainly possible to align these goals, but it remains an open question if they will also be aligned in practice. Key factors that can affect how well these different goals are aligned in the near future will be described in the next chapter.

However, considering the logic centrality as high and the logic compatibility as medium within AddLife, the current state of AddLife can be captured to be in between the ideal organizational type

described by Besharov and Smith (2014) of the *aligned organization* and the *contested organization* as depicted below in Figure 7.

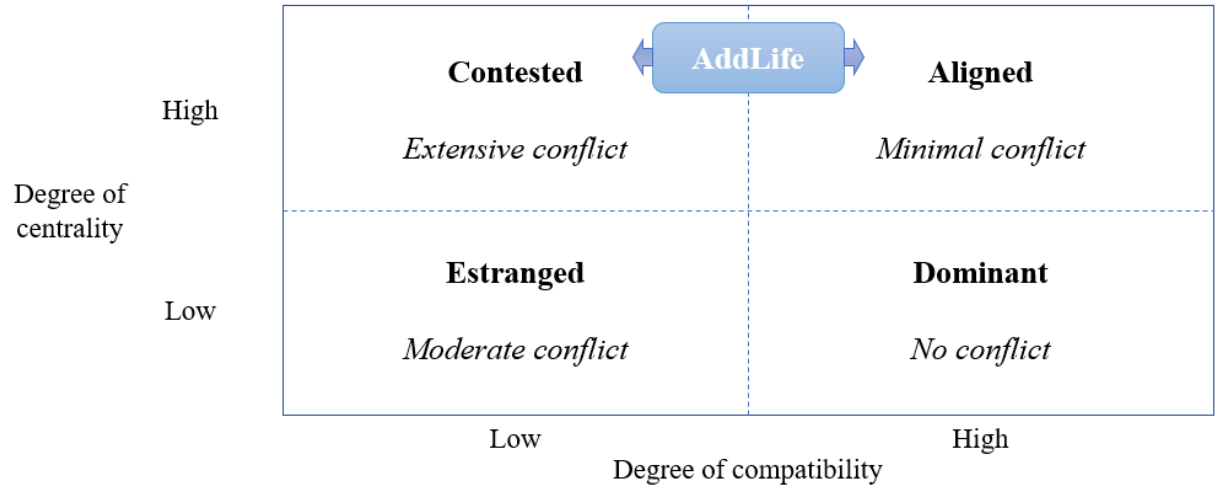

Figure 7: Current State of AddLife (Adopted from Besharov and Smith (2014))

As mentioned by Besharov and Smith (2014, p. 371), when an organization is characterized by high logic centrality and low logic compatibility it can be described as a "contested organization". The authors assign a relatively high potential for conflict to these kinds of organizations since low compatibility leads to the confrontation between carried values and goals, and results in diverging strategies and approaches how to achieve these goals. Similarly, there are multiple institutional logics at the core of AddLife, implying different goals, at least partly, which could lead to the lack of *"a clear guideline as to which goals should prevail"* (Besharov and Smith, 2014, p. 371). Further, a state of high logic centrality and low compatibility can lead to continuous internal fights over power within AddLife as well as resources and the strategy of the organization. Further, this can in return lead to major troubles to gain external legitimacy which is crucial for organizational survival (Besharov and Smith, 2014). Similarly, as shown in the earlier chapter, multiple stakeholder groups have theoretical power over resources and the strategy of AddLife, which leaves a remaining degree of uncertainty regarding the organizational functioning.

Further, while there are still uncertainties regarding the organizational functioning visible, the relevance of finding common grounds for organizational survival was also stated, for instance by ACA-1: "I'm hoping some of, the initial partners at least, that we will strengthen our collaborations over time and that they would also become stronger members. Because you know after five years we're evaluated and then we might get another five years. So, the hope is that we will get this second part, and then we can grow over time."

Thus, it can be noted that for the organizational stability and survival of AddLife, increasing the compatibility between the academic and the market logic, which are at the core of AddLife, will remain a deciding factor. In case the logic compatibility in AddLife can be increased, the potential for conflict could be reduced, moving towards the aligned organizational type (Besharov and Smith, 2014).

Finally, as described by Besharov and Smith (2014), when an organization is characterized by high logic centrality and high logic compatibility, the potential for conflict is expected to be minimal. While logic centrality is still high in this case, implying the relevance of two distinct logics for organizational functioning, the high logic compatibility implies that the decisions made within the organization are not taken on the premise to follow either the one or the other logic, but rather to balance between both of them. However, as noted by Binder (2007) to balance between distinct logics that are both at the core of the organization requires the creative act of the actors to create practices that balance between both worlds. Thus, the remaining question is what actions can be taken to higher logic compatibility which will be answered in the next chapter.

4.3 Building Ties

As described in the last chapter, since logic centrality is high within AddLife, the relevant factor that decides the extent of internal conflict and organizational stability is the degree of logic compatibility. This means that in order to reduce the potential for conflict within AddLife, high logic compatibility is desirable.

Further, in line with the argumentation of Besharov and Smith (2014) that strong intra-organizational ties have a significant impact on the logic compatibility within one organization, the thicker the intra-organizational ties, the higher the logic compatibility and thus the lower is the potential inner-organizational conflict. Thus, an important question from a managerial perspective is, is there something that can be done to enhance the thickness of the intra-organizational ties in order reduce potential conflict?

Throughout the case study of AddLife, three main approaches have been identified that were repeatedly mentioned to facilitate the formation of new ties and to strengthen the thickness of intra-organizational ties. These approaches were (1) to create a sense of community, (2) to establish an open communication flow, and (3) to organize personal meetings which are each described below.

4.3.1 Create Sense of Community

The first approach that was identified during the case study was to create a sense of community. Overall, this approach covered three main sub-themes that were mentioned by several respondents which are to *reinforce synergies*, to *ensure engagement*, and to *connect projects*. All three of these

sub-themes contribute to the creation of a sense of community within one organization which in return strengthens intra-organizational ties. Below, each of these sub-processes is elaborated.

Reinforce Synergies

The first sub-theme *reinforce synergies* covers the aspect that in order to create a sense of community among the different stakeholders involved it is important to emphasize the mutual gains for each partner involved in AddLife. For instance, respondent ACA-5 described one of the most relevant factors to a successful collaboration in the following way:

> "I think, it's been good in previous collaborations, this has been researcher to researcher and occasionally researcher to entrepreneur. They have seen the benefit where two worlds meet. … both parties have seen the potential upside in a collaboration and understanding that both will benefit."

As described by this respondent, by making it clear that each partner is better off through a collaboration and clarifying the ways in which each side benefits, good collaborations can be created. Similarly, respondent ACA-3 described the importance to make sure that every partner understands that if you are united within one organization, you can generate better results than if you are alone: "What would bring the Uppsala, this center, even further [is] building on strength from the cumulative strength of the members in the consortia." Or respondent PO-2, who described it in the following way:

> "In the research groups it was a bit competitive from time to time and not very open. In my current work, you don't see that at all. So, I guess try to make sure that everyone feels that if we do this together, we can achieve something better."

What becomes clear from these statements is that, when new organizations are formed that include diverse partners from different fields, one important contributing factor to mediate between the different backgrounds and goals is to create a sense of community by emphasizing mutual gains and synergies that can be created within one common organization. The finding suggests that when synergies between different partners from various spheres are identified, these should be highlighted and used to lay common grounds on which strong intra-organization ties can be build.

Ensure Engagement

Another sub-theme that was identified was the importance to ensure the engagement of the different partners from the different sides in AddLife. For instance, respondent COM-2 mentioned:

> "Generally, it is always better to have fewer parties that are really engaged, rather than having many, some of which are not really interested in being in the consortium. …. It's better to make sure that everybody that works in the project really knows what they are going to do there and that they are really engaged, with regular meetings that are face to face."

As described by this respondent, the quality of the intra-organizational ties depends to some extent on the engagement of the different partners. Thus, one approach that can be derived from this is that in order to achieve a higher engagement by the individual partners is, it can be beneficial to keep the number of partners limited. The suggestion is that by having fewer members, it is easier to keep the partners engaged.

However, despite this specific strategy how to achieve high engagement of the partner involved, it can generally be noted that to ensure the engagement is an important approach to consider in order to strengthen the sense of community which in return facilitates logic compatibility and thus reduces the potential for conflict.

Connect Projects

Thirdly, another important practice to create a sense of community and thus to increase logic compatibility is to connect the projects within the organization. As mentioned by respondent ACA-4, keeping the connections between the projects can be a crucial success factor for organizational functioning:

> "The reason why it [another competence center] has been so successful is because we try [to keep] all the connections between projects, so we avoid to have a "project hotel", thus keeping it as one center, not as a number of separate projects."

Or as described by respondent COM-1:

> "If you don't know each other from before, you'll have to get to know each other when you start. Otherwise, everybody will work on their thing, and if they don't get together, there is a risk that they will not understand what the other party is doing. It is not going to be a collaboration, but just bits and pieces that someone should try to merge. … For the leader of each work package, I think they have a very important role to try to bring people together and give the feeling of community."

The approach that becomes visible from this that it is important to keep the individual projects connected and to ensure that the different subgroups within the competence center are working in the same direction. Further, a main benefit of keeping a constant exchange between the individual projects and aligning their agendas is that a sense of community can be created and strengthened.

Overall it can noted, that the creation of a sense of community can be an important approach in order to increase the quality of the intra-organizational ties and thus to increase logic compatibility which in return reduces the potential for conflict, as described by Besharov and Smith (2014). The findings are summarized in the data structure Figure 8 below.

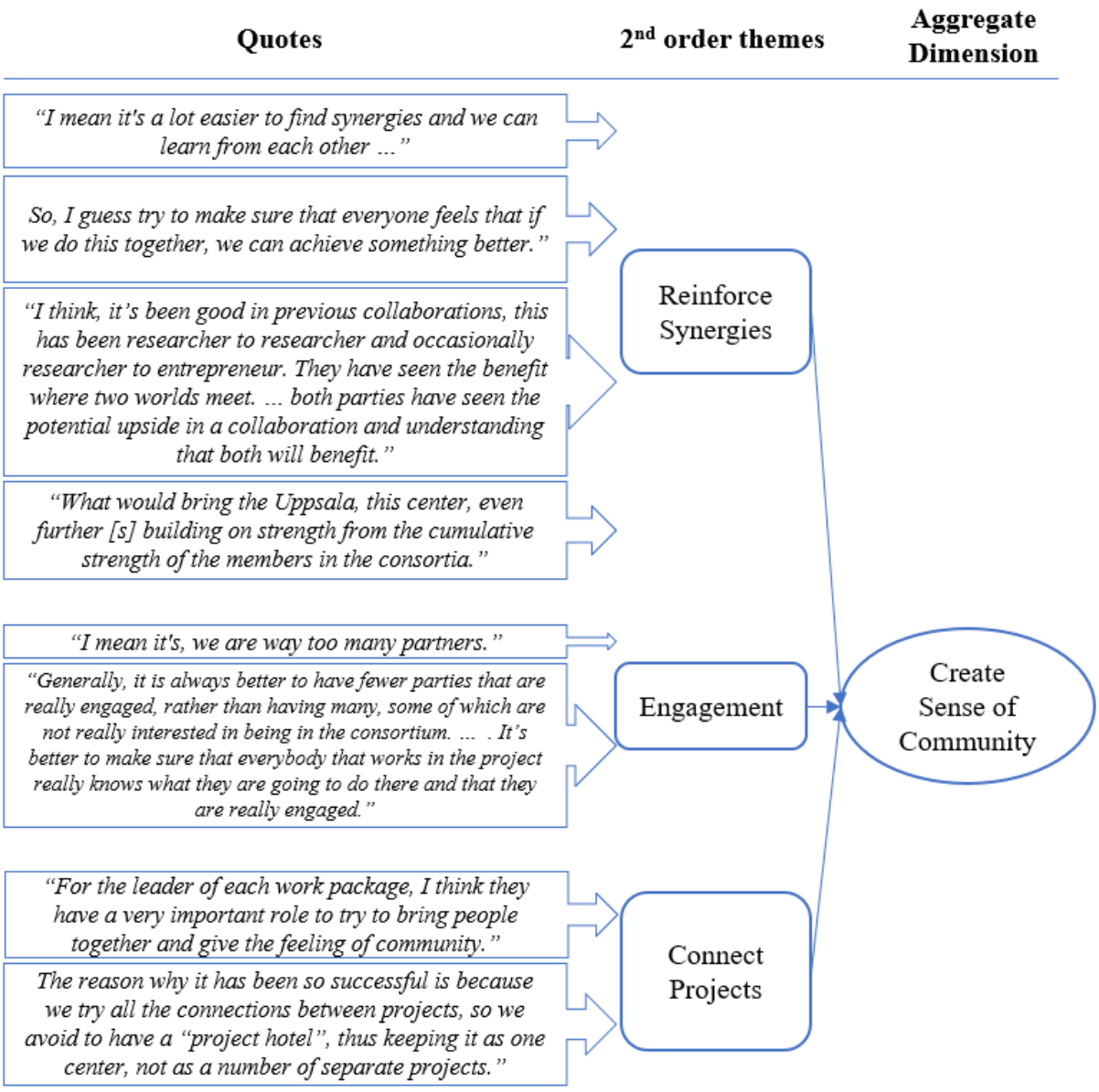

Figure 8: Data Structure – Create Sense of Community

4.3.2 Establish Communication Flow

The next approach that was identified as a relevant factor to enhance intra-organizational ties and thus improve organizational functioning is to establish a working communication flow. While the idea that having a good communication flow is by no means original, it is still important to understand what a good communication flow entails. Throughout the case study, three main sub-themes became visible which each contribute to a good communication flow between actors from different fields. These sub-themes are to *clarify roles*, to *encourage asking questions* and to *match expectations*.

Clarify Roles

The first sub-theme of the approach to establish a good communication flow is to clarify the different roles of the organizational members. The importance to clarify roles was mentioned by several respondents, for instance respondent ACA-4 described it as follows: "You said the very important things [for good collaborations], and that is communication, explain who does what and why, and understanding the other persons' situation and so on."

While many respondents mentioned the relevance of clarifying roles in a similar way as respondent ACA-4, the respondents emphasized different aspects, why the clarification of roles is important for strong intra-organizational ties. One respondent highlighted the importance to clarify roles because it ensures that the resource flows are managed in a fair way (ACA-1). As depicted earlier, there are multiple stakeholder groups and different individual stakeholders involved in the center board of AddLife which is its main decision-making organ. Thus, the respondent mentioned that it is important that the roles are clear for everyone in the board, so the resources that are available to fund different projects of the involved partners are distributed in a fair manner, avoiding potential conflict over different interests of the individual partners.

Further, another respondent highlighted clear roles as a significant factor to improve the collaboration between different partners from academia and the industry because it ensures that the organizational actions are directed in a consistent way. The respondent specifically referred to the problems that can arise in a later stage, if the industry stakeholders try to redirect the research in another direction which in return does not allow the researcher, potentially a PhD student, to publish and thus to finish their studies (ACA-2). Thus, the respondent mentioned that the roles should be clear from the beginning, avoiding later attempts to redirect the organizational actions in terms of research which would otherwise lead to damaged ties and intra-organizational conflict.

Encourage Asking Questions

The second main sub-theme of establishing an open communication flow is to encourage asking questions. Several respondents emphasized that in order to have well-functioning partnerships with different partners from various backgrounds it is important create an atmosphere where everyone feels encouraged to ask questions, not being afraid to ask even very simple things. For instance, respondent RI-2 mentioned:

> "When you involve people of all backgrounds, you have to take a lot of time to understand each other. … That was a big problem in the project I was talking about. People assumed that everybody knew about each other's background, why it is interesting or not. So, you have to be mindful and always try to guess the knowledge gaps, explain things in detail. You shouldn't be afraid to explain very simple things."

Considering this idea, the relevance of asking questions in order to understand the background of the different partners involved and to close knowledge gaps becomes clear form this. However, another aspect raised is the importance to encourage questions in order to avoid assumptions and misunderstandings or as respondent ACA-3 put it:

> "And also speak to each other, don't presume just because somebody says something that's actually the truth. Pick up the phone and call the person and discuss. Avoid misunderstandings as much as possible and discuss it so much that you have a clear view off what you like."

Overall, it can be noted that an open communication flow based on the encouragement of asking questions helps in order to understand the different perspectives and background of the different partners and stakeholder groups better and helps to avoid assumptions and misunderstandings which in return could otherwise lead to conflict and weaker intra-organizational ties. While this is certainly relevant for partners from the same institutional field, it is potentially even more relevant for partners from different institutional fields, since the differences in the backgrounds are likely to be even more significant. Naturally, there can be significant knowledge gaps between the diverging fields of expertise between different actors within one stakeholder group, for example between two researchers at a university from different research fields. However, as shown in the earlier chapters, there are even more fundamental differences among the diverging stakeholder groups involved in AddLife since they are guided by different institutional logics. Thus, in order to overcome these differences and to ensure that organizational actions are guided by consistent goals, to encourage asking questions is even more important for partners stemming from diverging institutional fields. Without an open communication flow that encourages questions, it is more likely that the diverging underlying assumptions, values and goals of the different stakeholder groups are not matched, which was also emphasized by several respondents and leads to the last sub-theme of an open communication flow: *Match expectations*.

Match Expectations

When the respondents talked about previous problems in inter-institutional partnerships between academia and industry, to match the expectations was another common issue. For instance, respondent RI-1 mentioned:

> "So, basically, that was the main difficulty that we sometimes had. So that is, say that we will do it at some certain point and when we go to present or when the partner comes to present work, it is not what we expect. And, and this for me is about communication. So, for AddLife I also suggest that we should have a very established communication process to manage expectations and of course, that leads to good partnerships."

Related to the previous sub-theme of encouraging asking questions, the statement by respondent RI-1 shows the importance of an open communication flow in order to align the different expectations of the different stakeholder groups, and thus to avoid disappointments and deteriorating ties. Specifically,

regarding the interaction of the academia side and the industry side, aligning the expectations about the outcomes of the competence center seems particularly important as indicated by respondent COM-3 who mentioned:

> "The end goal is different as well. Even though we are usually interested in also scientific publications of some of the results but maybe not always. And that sometimes can be difficult because if it is stopped up, and the aim is maybe to publish some of the results and then maybe this result doesn't come out as you wanted, as a company, then of course you don't want to publish it, but of course the university wants to publish it because no matter what the results they want to have this scientific publication. Because, maybe there is a PhD student involved that needs to have a publication."

The statement by respondent COM-3 reflects the common issue that was raised by several respondents to match the expectations of the academia side and the industry side regarding the outcome of the research that is done in a competence center. As mentioned earlier in the sub-theme *clarify roles* it can be the case that the industry stakeholder group expects that if the research is related to their core business, they have the right to stop the research if necessary. However, the academia stakeholder group expects to publish research papers, potentially created by PhD students who need to publish no matter the results in order to finish their education. Thus, it becomes evident that in order to avoid later conflicts deriving from diverging expectations, it is important to communicate and match the expectations early on. One approach that was mentioned by respondent ACA-5 to manage these different expectations was to conduct research outside the core business of the industrial partners, but still relevant enough to remain interesting for the industry side:

> "We are doing research [in another competence center] on a level that it is important to both academia and industry, but not so close to industry that it creates a conflict. It is important to make sure that the work performed in academia is at a high academic level. Therefore, I am always cautious towards research that is focused more on development for industrial partners…"

What can be derived from this approach to mediate between the diverging expectations of the different stakeholder groups is that there are certain ways to combine the diverging goals of different stakeholder groups, if the different goals are well communicated. The approach described by respondent ACA-5 shows an example how organizational actions can be steered in a way that lives up to the interests of partners from different institutional fields, eventually creating consistent goals.

Overall, it can be summarized that an open communication flow, including to clarify roles, to encourage asking questions and to match expectations can be an important factor to strengthen intra-organizational ties and hence to mediate between different institutional logics. The findings are summarized in the data structure Figure 9 below.

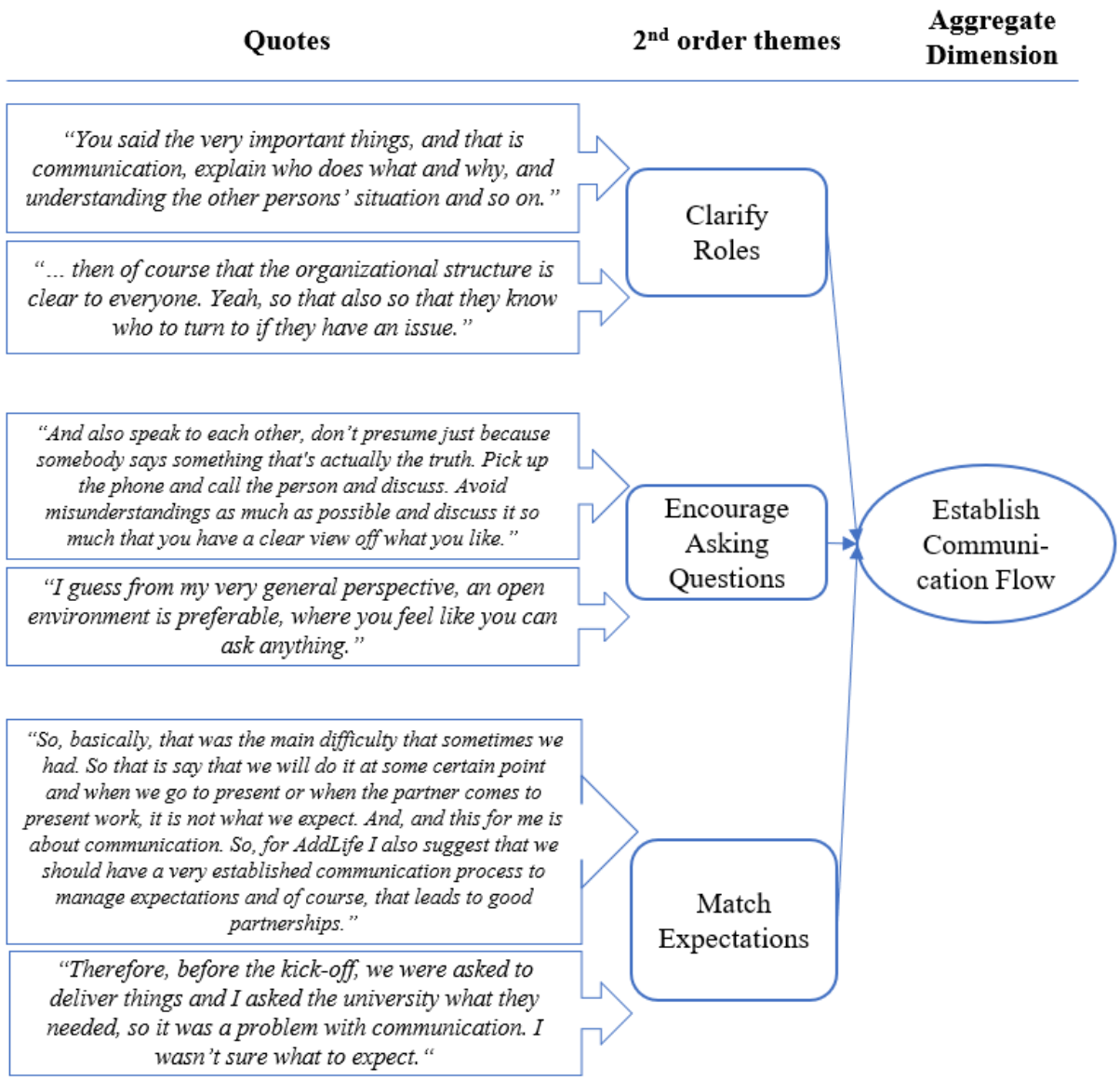

Figure 9: Data Structure – Establish Communication Flow

4.3.3 Organize Personal Meetings

Finally, the third central approach that was mentioned by several respondents to build strong intra-organizational ties (which in return increases logic compatibility and thus reduces conflict) was to organize personal meetings. The relevance of this factor became visible when the respondents were asked about AddLife's kick-off meeting which had to be conducted in an online version due to the Coronavirus. Although all participants mentioned that the meeting went very smooth and could not have been done better regarding the circumstances, most of the respondents highlighted the importance to have personal meetings in order to establish relationships, as suggested in the following three statements:

> "It [the online kick-off meeting] was really smooth, but it's different when you meet a person and you started talking to starting new collaborations in new partnerships." (ACA-3)

> "Of course, it's always the circumstances we are under now does not make it easier and the personal meet is very important." (RI-1)

> "I think it is important to meet physically to establish relationships." (PO-1)

One main issue that becomes visible from these statements is that the personal meetings really lay the foundation for building up intra-organizational ties. While the first two approaches are mainly about strengthening the intra-organizational ties, this approach focuses on the initiation of the ties and thus represents a main starting step.

Nevertheless, while emphasizing the relevance of personal meetings to start new relationships, another main issue raised under the approach of organizing personal meetings was to enable discussions among the different partners (RI-2; COM-1). Enabling discussions for example through workshops is both a starting point for the relationships but also an amplification factor for the other two approaches.

Overall, organizing personal meetings was noted as an additional approach to start and facilitate the other two approaches. The findings are captured in the data structure Figure 10 below.

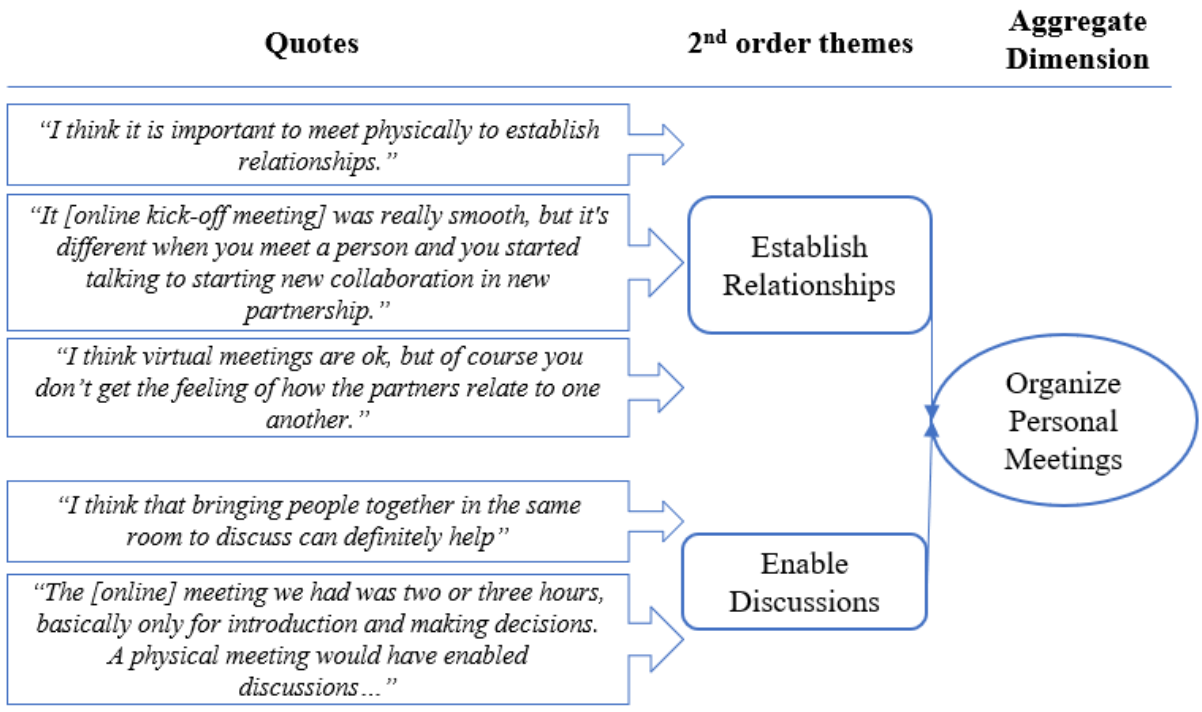

Figure 10: Data Structure – Organize Personal Meetings

4.3.4 The Approaches' Interconnectedness

Overall, it can be summarized, that there are different ways to strengthen the intra-organizational ties among the different partners. The main approaches found in this study were (1) to create a sense of community, which includes to reinforce synergies, to ensure engagement, and to connect projects; (2) to establish an open communication flow, encompassing to clarify roles, to encourage asking questions, and to match expectations; and finally (3) to organize personal meetings, in order to start new relationships and to enable discussions. A main commonality of these approaches is that they are all based on the fundament of building trust, or as respondent ACA-3 mentioned it:

> "And build trust! It is extremely important to build trust, especially when you come from different fields and backgrounds, you must create an environment of psychological safety. … It is more important in cross-functional collaborations than anywhere, because you are moving and working in fields which are outside your comfort zone."

As highlighted by respondent ACA-3, especially in cross-functional collaborations building trust is very important, because the backgrounds are so diverse. For an organization such as a competence center which naturally involves multiple stakeholder groups stemming from various fields of expertise and different institutional fields, it is important to create an environment that allows every member to unfold their full potential. The consideration that all the above-mentioned approaches contribute to create such an environment underscores the relevance of these approaches for the early phases of organizational formation. Furthermore, it can be noted, that these approaches are all interrelated, enabling and enhancing each other. The approaches' interrelation is illustrated in Figure 11 on the next page.

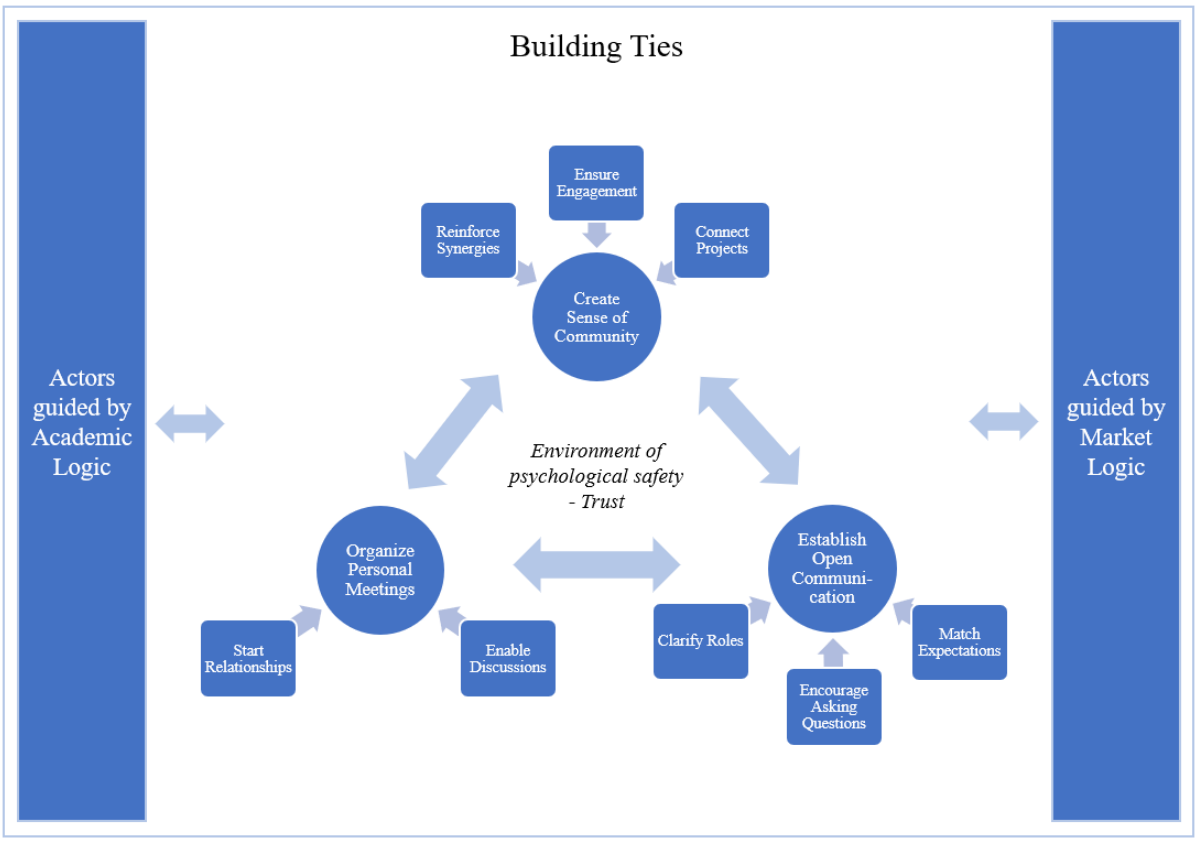

Figure 11: Interrelation of Approaches to Build Strong Intra-Organizational Ties

As illustrated in Figure 11 at the example of two groups of actors guided by the market logic or the academic logic respectively, building ties can be a bridging factor between them. Further, the illustration shows, how each of the three main approaches (to create a sense of community, to establish an open communication flow, and to organize personal meetings) can enhance and be enhanced by the other approaches. Additionally, the respective contributions of the sub-processes to each main approach is depicted. Finally, Figure 11 also shows how all three approaches create an environment of psychological safety by building trust, which is the outlined state that fosters the successful combination of multiple logics within one organization.

5 Discussion

The main purpose of this master's thesis was two-pronged: The first main intention was to understand logic interaction in complex organizational forms such as competence centers better and what the implications of logic multiplicity during the early phases of competence center formation are. The second main intention was of a more practical nature, to contribute to a better understanding of AddLife and the stakeholder groups that are involved in order to identify approaches that can facilitate AddLife's formation. By doing so, the intention was to make a contribution to higher the chances of letting AddLife's visions "to become a global player in the education, research and development of additively manufactured materials and components for science applications, and thereby provide patients with an enhanced quality of life" become reality (Uppsala University, 2020, p. 10). Accordingly, the three research questions that guided this master thesis were:

RQ1: What founding institutional logics foregather during the early phases of competence center formation?

RQ2: How do these institutional logics interact during the early phases of organizational formation?

RQ3*:* What approaches can facilitate the interaction of diverging logics?

Below, the findings of this study with regards to these research questions are discussed in consultation with the literature and this study's main contributions are elaborated.

5.1 Logics in AddLife

The first research question of this master's thesis aimed to identify the different institutional logics that are prevalent within the different stakeholder groups in AddLife. As described in the previous chapter, three main logics were captured which were (1) the academic logic, (2) the market logic, and (3) the state logic. By identifying these different logics, some contributions could be made regarding institutional theory and more practically to AddLife.

Firstly, the descriptions by previous institutional scholars such as Fini and Toschi (2016) or Colyvas and Powell (2006) of the "academic logic" were corroborated since the logic of the academic stakeholder group in this case study matched well with the theoretical descriptions of the academic logic. Overall, the academic stakeholder group reflected the academic logic, being concerned with the promotion of science as described by Fini and Toschi (2016) and paying significant attention to education and research, activities commonly perceived as legitimate in academia (Colyvas and Powell, 2006). In a similar way, the logics captured for the industrial stakeholder group and public stakeholder group in AddLife matched with the descriptions of previous researchers on institutional logics about the market logic and the state logic, respectively. Further, although the focus of this thesis was laid upon the logics that were found to be the dominant ones within the respective stakeholder groups, it

must be noted that for each stakeholder within the different stakeholder groups, influences of other logics were indicated. For instance, the research institutes were identified to be centered around the academic logic, but also showed influences of the market logic. This finding aligns with the growing acknowledgement of logic multiplicity as the norm within organizations, rather than being only the case for exceptions (Vermeulen et al., 2016; Besharov and Smith, 2014). This also suggests that future studies could focus on gathering a more elucidated view on the different logics guiding each individual stakeholder within the competence center, potentially identifying how the preexistence of different logics among different stakeholder influences the logic interaction of the dominant logics. For instance, if two partners want to establish a relationship within a newly founded organization, one carrying the market logic as the dominant one and the care logic as a peripheral one and the other partner carrying the care logic as the dominant one and the academic one as a peripheral logic, would that facilitate the formation of strong ties and how would that affect organizational functioning? Does it increase the chances of organizational success if the members share to some extent the same logics, or does it make no difference?

From a more practical perspective, this thesis contributes to a better understanding of the different stakeholder groups involved in AddLife. However, this thesis' findings should be taken with caution, considering the aggregated level of analysis that was chosen for this thesis by focusing on the "stakeholder group level". Naturally, there are differences between each stakeholder within each stakeholder group, and for extensive and complex organizations such as a university one should also expect differences among the individuals involved in AddLife. As described in the literature review, while actors are bounded by institutional structures, they also have the agency to act and interpret institutional logics in different ways (Thornton et al., 2012). Nevertheless, focusing on the stakeholder group level revealed similarities within these groups as well as more aggregated differences between these groups. Understanding the institutional contexts that the diverse stakeholders in AddLife are stemming from hopefully contributes to a positive appreciation of each stakeholder group. Further, as suggested by Dalpiaz et al. (2016) intentionally drawing on different logics can facilitate organizational innovativeness and success. Aligned with this idea, this study hopefully contributed to an increased awareness of the different logics prevalent in AddLife and facilitates a constructive combination of them. As highlighted by Binder (2007), organizational actors interpret and combine multiple prevalent institutional logics in diverging ways and can take conscious actions to peacefully blend multiple logics which in return could contribute to sustain organizational functioning. However, awareness of the different logics is the first step before conscious actions can be taken. Thus, this thesis hopefully contributed to a higher awareness of the diverging, prevalent logics in AddLife.

Finally, the findings of this thesis tried to contribute to a better comprehension of the relevance and theoretical implications of enhancing logic compatibility on organizational stability, which will be described in more detail in the next section.

5.2 Logic Interaction

This master's thesis' second research question aimed to find out how the prevalent logics within AddLife interact during the early phases of organizational formation in order to better understand the implications of logic multiplicity for competence centers.

Overall, high logic centrality regarding the academic logic as well as the market logic was found. Recognizing the different stakeholder groups' relative power within AddLife as a substantial factor to understand logic centrality within an organization, this thesis aligns with the argumentation of Besharov and Smith (2014). Further, while Besharov and Smith (2014) describe the relative power of organizational members who adhere to different logics as a central determinant for the relevance of these logics for organizational functioning, this study extends that view by including the concrete decision-making processes as a supplementing consideration to better comprehend the centrality of diverging logics at the individual level.

Further, the logic compatibility between these two logics was described as medium, accounting for commonalities and differences regarding their institutional demands within AddLife. One relevant aspect to note is the different stakeholders' ability to appreciate the logics and implied demands of other stakeholder groups as shown in the overlaps of the stated goals. This ability to hijack different logics matches with the descriptions by McPherson and Sauder (2013) who proposed the ability of practitioners at a drug court to hijack others' logics that are present within the same organization. As concluded by McPherson and Sauder (2013), this ability can foster organizational success while adhering only to one's own institutional logic can hinder organizational functioning in a setting that is characterized by multiple present institutions. Similarly, the findings of this master's thesis suggest that the negotiation between different logics and thus the goals and interests of the diverse stakeholder groups within the competence center is crucial in order to sustain organizational functioning.

Furthermore, as described by Kraatz and Block (2008) successfully embodying multiple logics within one organization can increase the organization's legitimacy and thereby making the organization more enduring. Otherwise, as mentioned by Almandoz (2012) open conflict between different logics can reduce organizational legitimacy which is particularly important for new organizations. Endorsing both authors' ideas, this study's findings underscore the relevance to align the different stakeholder group's goals in order to reduce internal conflict and thus to ensure organizational legitimacy especially during the early phases of organizational formation. Consequently, this study suggests that finding ways to align diverging goals is important for every competence center who needs to sustain various partners from diverging institutional fields since minimizing internal conflict can grow external legitimacy in the field and thus enable access to future funding.

Finally, as mentioned by McPherson and Sauder (2013), while many studies describe the contestation of multiple logics in different settings, none of these studies provide a detailed explanation of the

micro-level actions that enable actors and organizations to mediate between the diverging demands from different institutional logics which leads to the last section of the discussion – building ties.

5.3 Building Ties

This master's thesis third and final research question aimed to answer how the formation of a competence center can be facilitated. Through the embedded-case study conducted in this thesis, three main approaches have been identified that contribute to building ties between partners stemming from different institutions and thus mediating between their respective logics. These were (1) to create a sense of community, (2) to establish an open communication flow, and (3) to organize personal meetings, each constituting of two or three more detailed sub-processes.

The first approach to *create a sense of community* comprised the sub-processes to reinforce synergies, to ensure engagement, and to connect the individual projects. Comparably, authors such as Battilana and Dorado (2010, p. 1432) have emphasized the importance to create a "common organizational identity" in order to sustain organizations that embody multiple logics at its core. However, while Battilana and Dorado's (2010) study focused on the role of an organization's socialization and hiring processes in order to enable the creation of a common organizational identity, this master's thesis revealed micro-processes that can contribute to create a sense of community and hence to build strong ties between organizational members stemming from diverging institutional fields. Additionally, this thesis' findings align with the observations by Mitzinneck and Besharov (2019) who emphasized the importance to ensure the organization's members' participation when actors guided by diverging logics are central for organizational functioning. Similarly, this thesis' findings suggest the approach to ensure the engagement of the organizational members to increase logic compatibility and thus foster organizational success. Furthermore, this study identified an additional sub-process that contributes to the creation of a sense of community, which is to connect the different projects within the competence center. As described in this study, connecting the individual projects involved in AddLife can facilitate the formation of a shared purpose or feeling of community, which in return can increase logic compatibility and thus reduces the potential for conflict.

The second approach to *establish an open communication flow* contains the sub-processes to clarify roles, to encourage asking questions, and to match expectations. In a similar way, Battilana, Sengul, Pache, and Model (2015) suggest the creation of "spaces of negotiation" in order to successfully mediate between the different goals of an organization's subgroups. These spaces of negotiation include both mandatory meetings as well as formal processes to ensure a consistent exchange of the two worlds involved in hybrid organizations. This matches with the approach described in this thesis to establish an open communication flow. However, while the focus of the authors' suggested approach to create spaces of negotiation addresses issues of continuous organizational work, the described approaches in this thesis aim to understand what it takes to foster the formation of an

organization, thus emphasizing relevant approaches for the early phases of organizational formation. Nevertheless, it can become an important contribution to the competence center in the long run to use such continuous spaces of negotiation in order to sustain the created relationships and to ensure organizational stability.

Furthermore, scholars such as Pache and Santos (2010) or Mitzinneck and Besharov (2019) have highlighted compromising as an important strategy to manage potential tensions between different actors guided by diverging logics. Similarly, this study's findings suggest the approach to match expectations and thus to align the respective goals. In a sense, matching expectations can be understood as a special form of compromising which is focused on the early phases of organizational formation. Matching the expectations of diverse interest groups that follow diverging goals naturally involves some degree of compromising. However, matching the expectations is particularly important during the early phases of organizational formation, while other forms of compromising strategies might become more relevant in a later stage of AddLife. Hence, this thesis contributes to the understanding of compromising as an approach to mediate between diverging logics, elaborating a particularly important form of compromising during the early phases of organizational formation which is to match expectations.

Finally, the last approach to *organize personal meetings* was emphasized in order to show the relevance of personal meetings in order to establish relationships in the first place and further to enable discussions which can foster the other two mentioned approaches. It might seem obvious that personal meetings are relevant, however, sometimes the obvious things are the most important ones. Interestingly, only the study by Battilana et al. (2015, p. 1676) mentioned personal meetings in form of "spaces of negotiation" as a relevant approach to manage logic multiplicity. Otherwise, within the vast array of reviewed studies on logic multiplicity the role of personal meetings to manage logic multiplicity has been mainly absent. Nevertheless, as shown in this study, establishing flourishing cross-institutional partnerships relies on building functioning ties which after all are founded on personal meetings as emphasized by almost all respondents in this study. Thus, this study finds support for the importance of personal meetings as a starting point for building ties during the early phases of competence center formation.

Overall, it can be noted that the three identified approaches in this thesis overlap to a certain extent with the descriptions of previous scholars on important factors that influence the chances of successfully embodying multiple logics within one organization which reckons the findings of this thesis. Further, the findings of this study are in line with the argumentation by Reay and Hinings (2009) who emphasized the importance of building strong collaborative relationships among actors guided by diverging logics in order to achieve mutual benefits and goals. An additional contribution made in this study is the delineation of several micro-processes and the illustration of the approaches'

interconnectedness which was depicted in the last chapter. The illustration showed the reinforcing nature of each of these approaches and how they contribute to build trust and thus to establish ties between actors stemming from different institutional fields. As shown in the literature review, there are many ideas by diverse researchers on factors that influence the stability and success of organizations that draw on multiple logics. However, a comprehensive framework that combines different ideas to strategically improve the chances of success during the early phases of organizational formation has been missing. The proposed interconnected approaches to build ties could be a starting point for future researchers to further explore strategic approaches and their interactions which can foster organizational formation when faced with logic multiplicity.

In summary, the suggested approaches underscore how agency and logics interact and what the implications for the manifestation of logic multiplicity within one organization are. Thus, it contributes to the knowledge gap described by Besharov and Smith (2014, p. 378) who encouraged: "future research can use our framework to extend insight into how logics and agency interact to affect logic multiplicity within organizations." This master's thesis showed which actions could be taken during the early phases of organizational formation in order to influence the instantiation of logic multiplicity within a competence center and thus hopefully contributed to grow our understanding of the interaction of agency and logics.

6 Conclusion

Combining diverse institutional logics under one roof is a complex task and its implication are still discussed among institutional scholars. Although the rapidly growing body of research in recent years shows the vast potential of a better understanding of this topic, *how* diverging logics can successfully be embodied within one organization is still an open question. Thus, this master's thesis aimed to contribute to this discussion and thereby to facilitate the formation of AddLife. To achieve this, an embedded-case study was conducted. Based on semi-structured interviews and documentational data first prevalent founding institutional logics within AddLife were captured. Along four main categories derived from the literature, three distinct logics were identified which were the academic logic, the market logic, and the state logic. By identifying these logics, this master's thesis contributes to an enhanced understanding of the backgrounds, interests, and expectations of the different stakeholder groups in AddLife. However, the generated knowledge about the different stakeholder groups should be treated in a sensitive manner, considering this thesis' aggregated level of analysis about entire stakeholder groups. Although the knowledge about the prevalent logics creates a general understanding of the stakeholder groups in the competence center, it should be clear that every individual is different and interprets these logics in diverging ways. Further, as highlighted before, several stakeholders were found to draw on multiple logics despite their dominant logic. Thus, the theoretical conceptions generated about the different stakeholder groups should not be used to "put people in boxes", but rather to appreciate the diversity at hand and to provoke fruitful thoughts about how the mutual understanding of each other's institutional background can facilitate the outcomes of a competence center. As indicated in this thesis' discussion, drawing on multiple logics can lead to an increased organizational legitimacy and further enhance the innovativeness of the organization.

Subsequently, based on the generated understanding of the founding institutional logics that come together within the competence center, the implications of embodying multiple logics were investigated. Along the dimensions of logic centrality and logic compatibility, the implications of logic multiplicity within AddLife were examined, corroborating the importance of logic compatibility for organizational successes when two or more logics are central for organizational functioning. Overall, several common grounds among the actors stemming from diverging institutional fields were identified as well as some remaining differences. Building upon the logic compatibility and logic centrality matrix by Besharov and Smith (2014), this study showed the relevance of intentional actions to mediate between different logics and thus to increase logic compatibility. Once again it should be noted that such institutionally contingent differences are by no means a justification for compartmentalization but should rather be appreciated as a source for insightful negotiations and mutual inspiration. As this thesis showed, successfully mediating between the different logics is one decisive factor that facilitates organizational success by reducing internal conflict.

Finally, three interrelated approaches were introduced which can contribute to an increased logic compatibility by building ties within one organization between actors guided by diverging logics. These approaches were to create a sense of community, to establish an open communication flow and to organize personal meetings, each comprising several subprocesses. The discussion showed the reckoning of these approaches in different other studies, but also showed the novelty of the indicated framework of interrelated approaches to mediate between actors influenced by diverging institutional logics. Overall, these approaches depict a main contribution of this master's thesis by delineating different micro-level actions that can be taken by actors to increase logic compatibility and thereby to increase the chances of organizational success. Future research is thus encouraged to adapt, extent, and refine the indicated framework.

Overall, this master's thesis teased out challenges that organizations face during the early phases of organizational formation when multiple logics are to be embodied. However, as the case of AddLife shows, combining the strengths of actors from different institutional fields can yield great potentials for scientific progress and innovations. By combining actors from academia, industry, healthcare, innovation support, and public organizations, AddLife aims to advance our understanding of AM applications in life sciences and thereby to provide patients with an enhanced quality of life. Similarly ambitious undertakings are needed to generate new ideas that can solve the challenges of society today. As this master's thesis showed, successfully combining different institutional logics in one organization paths the way to connect complementary strengths and thus depicts an auspicious source to generate the ideas of tomorrow.

7 Self-reflection and Future Research

This master's thesis has been a tremendous learning experience, raising more new question than which could be answered within this thesis. Thus, several ideas for future research are presented below.

First, the limited access to the diverse spectrum of stakeholders involved in AddLife and the given time constraints leave room for improvement. The variety of stakeholders within AddLife is immense, thus the abstract level of main stakeholder groups could be refined, and differences should be elucidated. Further, for several stakeholders, the existence of multiple logics was indicated, especially for the stakeholders who were closer to the interface of two logics as in the case of research institutes. Thus, it could be very interesting to investigate these research institutes in detail to see how they manage to serve both institutional sides. Additionally, especially the role of actors from the healthcare side should be added to the perspective provided in this thesis. Although the industry and academia were found to be most central within AddLife, the interplay of healthcare logics with the other depicted logics could be investigated.

Further, the suggested approaches to build ties between actors from diverging institutional fields during the early phases of competence center formation could be adapted, extended and refined. Future research could specifically investigate the question whether these approaches apply in other organizational forms such as social enterprises or in other more conventional organizational forms and how the relevance of these approaches evolves along the evolution of the organization.

Finally, as mentioned in the beginning of this thesis, this study aims to contribute to a more extensive, longitudinal study, showing the change how different actors utilize the different logics within AddLife. It could be interesting to see whether the actors' participation in AddLife and their growing connections to other institutional fields extends their use of other institutional logics in alternative settings. Perhaps one consequence is that *hijacking* other logics as suggested by McPherson and Sauder (2013) becomes more frequent. Further, the creation of a sense of community could lead to the creation of new logic within AddLife, potentially a hybrid community logic. It could be interesting to see if this logic eventually emerges and if it does, how it contributes to the functioning of AddLife.

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9 Appendices

9.1 Appendix A – Interview Guide

Interview Guide

1. Personal Information
The first section of the interview includes some personal factual questions about personal information, such the personal background and the respondent's daily work.

- How does your past career look like?
- What is your current position in your organization?
- What does your job normally look like? Can you describe an event/ process that describes your daily work?

2. Information about the Organization
The second section captures general information about the interviewee's organization or department, if applicable:

- What type of organizational structure does your organization/department have?
- How would you describe the core values of your organization/ at your department?
- What are the main goals and the mission of your organization?
- Can you describe the main value of your/your organization's work?
- How would you describe the general strategy of your organization?
- Who are the key stakeholders you have to satisfy in order to sustain your business? (e.g. industry is often concerned with customers and investors; doctors have to satisfy patients etc.)
    - Do you face any conflicts of interest in your job/department/organization regarding these stakeholders?
- Do you work closely with any other organizations/actors, outside of AddLife?

3. Past/Current Experiences with Research Consortia
This section covers questions about the interviewee's participation in research consortia. Including:

- Have you worked on projects carried out within a research and development consortium, besides your current or future involvement in AddLife?
    - What kind of research consortia have you/your organization participated in (e.g. multidisciplinary, government funded etc.)?
- Has your personal/your organization's participation in a consortium produced positive results?

4. Participation in AddLife.
This section includes questions focused on the interviewee's and their organization's participation in AddLife. The interviewee is asked:

- What are your and your organization's main motivations to be part of AddLife?
- How would you describe your and your organization's role for AddLife?
- How do you decide what to do regarding AddLife?
- How is your participation in AddLife being managed? (e.g. creation of a separate team, creation of new transversal roles etc.)
- What are your expectations regarding future collaborations in AddLife?
- Have you identified any challenges and obstacles for your future work in AddLife?

5. Knowledge Bases

This section investigates the knowledge base of the interviewee and their organization at large. Therefore, the interviewee is asked about their own background and knowledge base, as well as any insight that they have on other personnel from their company currently engaging in AddLife:

- Are you aware of the different knowledge bases (expertise, backgrounds etc.) within AddLife?
- Have you had to overcome differences in background in your previous collaborations (besides AddLife)? How did you do that?
- How do you plan to overcome possible issues related to differences in expertise/background of AddLife members?

6. Interpersonal Relationships within AddLife

In this section, the interviewee is asked about the existence of any interpersonal relationship between the interviewee and other AddLife members:

- Do you have any relationship with other members of AddLife based on previous professional collaborations, family ties or friendship ties?
- Do you see them as an obstacle or an incentive?
- How did you experience the first kick-off meeting of AddLife? Can you describe the meeting from your perspective?

Open Questions:

- Is there anything else you would like to mention or highlight?
- Can you recommend anyone else who should be interviewed?