Using customers' logics to commercialize welfare innovations: How a metal firm makes sense of an aesthetic logic

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Abstract

The article examine sense-making of institutional logics as actors interact 'here and now' which is neglected in extant neo-institutional research. The empirical context consists of a customer-supplier relationship in the form of a public private innovation (PPI) project aiming to develop an innovative bed for psychiatric hospitals. The study investigates how a metal firm's managing director makes sense of an aesthetic logic enacted by the firm's public customers. The aesthetic logic is manifested in the public customers' demand for a new look in healthcare beds that differs from the traditional 'metallic' look. The method is based on a 1½ year longitudinal case study consisting of the PPI project. This is supplemented by a document study about the historical development of healthcare beds in Denmark. The findings show that multiple logics are manifested in the project: a functionality logic, an aesthetic logic and a market logic. Particularly, the aesthetic logic dominates throughout the innovation process. The firm first resists the aesthetic logic, but through continuous sense-making the firm put meaning into the logic by drawing on a market logic oriented toward using aesthetic elements to differentiate the bed at a broader market.

1. Introduction

Neo-institutional theory states that organizational and individual actors are embedded in larger institutional environments, where socially constructed logics direct practices, values, beliefs and meaning that are taken-for-granted in organizations and individuals in society (Lounsbury & Boxenbaum, 2013; Thornton & Ocasio, 2008; Friedland & Alford, 1991). Most often the concept of logics is investigated in relation to how logics develop over long periods of time with focus on the development of co-existing logic or how one logic normally replaces another (e.g. Ertimur & Coskuner-Balli, 2015; Durand et al., 2013; Dunn & Jones, 2010; Lounsbury, 2007; Vargo & Lusch, 2004; Thornton & Ocasio, 1999). Also, logics research focused on agency have emphasized how individual actors (individuals and organizations) may seek to influence prevailing logics or create new ones over time (Hayes et al., 2011; Rao & Giorgi, 2006; Lawrence & Suddabay, 2006). Thus, extant research on logics has tended to focus on the historical development of societal logics or how single actors seek to influence logics over long time periods. How such societal logics are actually dealt with by actors at a micro level 'here and now' is neglected in extant research (Glaser et al., 2014; Zilber, 2013). As such, there is a call to investigate the underlying mechanisms in which societal logics are experienced and understood by individuals while they actually play out (Zilber, 2013; Greenwood et al., 2011). Such underlying mechanisms of logics particularly include how sense-making of logics occur through social interaction between individuals (Hallet & Ventresca, 2006; Weick et al., 2005).

This study contributes to neo-institutional theory by investigating the concept of logics at a micro-level through an interactionist approach focused on social interaction between individuals. As such, logics are not to be understood merely as macro-level abstractions loosely coupled from interacting individuals at the micro-level, but as something which individuals may interpret, elaborate and put meaning into as they interact with each other (Hallet & Ventresca, 2006). The article aims to reconcile and link the rather abstract concept of macro-level logics with micro-level interactions, where logics are dealt with by the individual actor. Based on a longitudinal observation study of customer-supplier interactions in a Public Private Innovation (PPI) project focus is set on how a private metal firm's managing director makes sense of a dominating aesthetic logic enacted by public designers 'here and now'. The research question is: *How does a firm make sense of an aesthetic logic as it interacts with public customers throughout an innovation process and how does this sense-making affect the firm's commercialization?*

The PPI project aims to develop a new healthcare bed for psychiatric hospitals and it includes a public procurement tender. The tender is based on a network logic related to the PPI field level. This logic is oriented toward co-creation across the public and private sector as a way of governing (Ansell & Torfing, 2014) to create new welfare innovations targeted the public healthcare system. The public tender is a manifestation of a network logic, as it is based on co-creation between the public customer and a supplier firm in relation to the development of the innovative bed. The public customer consists of two Danish regions. There are five regions in Denmark, which are responsible for the public hospitals.

The public tender incorporates two dominant logics related to the healthcare bed: A functionality logic and an aesthetic logic. These two logics are manifested in specific requirements in the tender, where the aesthetic logic is related to the visual form of the bed and the functionality logic is related to the functional and technical features in the bed. Particularly the aesthetic logic seems to be dominating in the public tender, which is manifested in requirements to incorporate aesthetic elements into the bed to make it look appealing and 'homely'. In relation to this the public customers demand a 'new look' of the bed which should differ from the traditional 'metallic' look that dominates existing beds within the healthcare system. The public actors in the PPI project consist of designers. The design profession may draw from different logics related to both functionality and aesthetic (Durand et al., 2013). However, due to the dominating emphasis on aesthetic elements in the new bed, the designers in this PPI project are expected to enact an aesthetic logic as the dominating logic guiding them throughout the project period. The firm winning the tender is a metal firm specialized in metal processing. The firm has previously developed metal beds for the shipping industry. However, it has no hands-on experience with working with aesthetic elements in relation

to its products. Therefore, it is unfamiliar with the aesthetic aspects incorporated in the public tender. However, it is familiar with a functionality logic focused on the technical engineering aspects of the products it produces. Also, it is familiar with drawing on a network logic oriented toward co-creation, as it mostly have close interaction with its (potential) customers, which is evident when firms aim to commercialize successfully (Anderson et al., 1994; Håkansson & Snehota, 1989).
The firm's unfamiliarity with an aesthetic logic is expected to trigger the managing director's sense-making when experiencing this logic, as it is enacted by the public actors throughout the innovation process. The article argues that, while the managing director interacts with the public actors throughout the innovation process he makes sense of the aesthetic logic by drawing on a market logic oriented toward differentiation. The result of this is that the firm intends to use the aesthetic elements as a competitive advantage when commercializing the new healthcare bed at a broader healthcare market beyond psychiatric hospitals. As such, while confronted with an aesthetic logic the managing director gradually generates his own meaning to it by drawing on a market logic.

The next section presents the theoretical approach focused on institutional logics and sense-making in the context of PPI in healthcare. This is followed by the methodology describing a document study of the historical development of the look of healthcare beds in Denmark and an in-depth case study consisting of the PPI project. In relation to the document study the findings suggest that an aesthetic logic seems to be emerging in relation to the development of new beds for psychiatric hospital. Also, the findings suggest that in order to make sense of the aesthetic logic enacted by the public designers involved in the PPI project, the firm draws on a market logic oriented toward differentiation. By perceiving the aesthetic elements as a competitive advantage that differentiates the bed from other healthcare beds the firm adopts a broader commercialization focus, as it aims to target more segments (non-psychiatric patients) at a broader healthcare market.

2. Theory

2.1. Institutional logics in the context of PPI in healthcare

Focus on logics in institutional theory emerged from Friedland and Alford (1991) who aimed to 'bring society back in' to institutional theory. Institutional logics are defined as socially constructed patterns of practices and meaning that are taken-for-granted in organizations and individuals in society, and these logics are at the same time shaped by individuals and organizations over time (Thornton et al., 2012; Reay & Hinings, 2009; Friedland & Alford, 1991). The taken-for-grantedness includes actors' expectations for appropriate or expected behavior in other actors (Barley & Tolbert, 1997). As such, logics are defined as being both material and non-material. The material aspect is characterized by structures and taken-for-granted practices rooted in actors' activity and actions (Jones et al., 2013; Friedland & Alford, 1991). Also, only recently institutional scholars has focused on the materially of logics as related to physical objects (Friedland, 2013; Jones et al., 2013). The non-material aspect is related to taken-for-granted beliefs and values (Friedland & Alford, 1991), which influence actors' sense-making where they rationalizes or interpret others or their own behavior or beliefs in order to provide it with meaning (Thornton et al., 2012; Lounsbury & Crumly, 2007; Barley & Tolbert, 1997).

Research in logics has long been dominated by a focus on investigating the development of logics at a societal level over a long period of time by using archival data (Zilber, 2013). Responses has been made to this macro level approach, for instance through the approach of institutional entrepreneurship and institutional work (Lounsbury & Boxenbaum, 2013; Greenwood & Suddabay, 2006; Lawrence, 1999), that emphasize the importance of agency in individual powerful actors seeking to influence their environment and prevailing logics over time. However, these approaches have been criticized of overemphasizing a 'hero' image in actors by putting much weight on the reflectiveness and actions of single actors (Lounsbury & Crumley, 2007). Also, there tends to be a focus on the outcome in relation to whether actors 'succeed' in

creating, maintaining or changing logics over longer time periods, thereby neglecting the analysis of how meaning is enacted by individuals 'here and now' and how they make sense of logics (Zilber, 2013). Thus, research in institutional logics has mainly focused on the societal level or single actors. However, as logics are continuously shaped through social interaction (Zilber, 2009; Hallet & Ventrsca, 2006; Barley & Tolbert, 1997), it seems necessary to focus on logics through an interactionist approach. Taking this approach the article aims to address a call for research concerned with focusing on the micro level, where actors experience and enact logics through interaction 'here and now' (Zilber, 2013; Greenwood et al., 2011).

The institutional field of PPI in healthcare is in focus. A field consists of similar organizations that all together, constitute an institutional field (DiMaggio & Powell, 1983). This empirical context is an ideal setting to investigate sense-making of logics through an interactionist approach, because PPI projects includes close interaction between public and private actors who are likely to differ in terms of which logics they draw on and are influenced by. PPI projects refer to a relationship in which public and private actors collaborate as development partners to develop new innovations targeted the public sector (Evald et al., 2014; Nissen et al., 2014; Weihe et al., 2011). This is a complex setting as it consists of two institutional environments, namely the public and private sector (Rainey & Bozeman, 2000). Both in the public and private sector a field level network logic directs both private firms and public organizations toward co-creation with external actors in order to produce value, which stands in opposition to an in-bound focus (Sørensen & Torfing, 2012; Eggers & Singh, 2009; Vargo & Lusch, 2008). In Denmark, a network logic focused on inter-organizational co-creation is particularly manifested in the growth of PPI projects which amounted to over 249 in 2014 (Brogaard & Petersen, 2014). These projects have especially been established within the institutional field of PPI in healthcare as 177 of the projects have been established within the healthcare system. Also, the focus on PPI is manifested in policy initiatives – e.g. Denmark's first national innovation strategy launched by the government in 2012 and in new public procurement rules launched in 2014 and 2015 which introduces a new procurement procedure concerned with the option to include PPI projects in the tender.

The public tender included in the PPI project in this study incorporates two logics which are manifested in the requirements to the bed: A functionality logic and an aesthetic logic. A functionality logic is rooted in a modernist tradition focused on the technical engineering aspect, where functionality of an object precedes form (Guillen, 2006). On the other side, an aesthetic logic is rooted in a post-modernist tradition focused on the artistic aspect, where form precedes the functionality of an object (Durand et al., 2013).
Particularly, the aesthetic logic seems to dominate the PPI project, as the public customers is much focused on incorporating a 'new look' into the bed. This aesthetic logic seems to be in a state of 'becoming' (Hernes, 2008) in relation to the development of new healthcare beds, as the development of traditional hospital beds mainly has emphasized functionality as central. The aesthetic logic emerges from aesthetic requirements made by the public customers in relation to the development of the new bed for psychiatric hospitals. The look of beds at regular and psychiatric hospitals in Denmark has not changed much since the 19th century and it looks like a metal bed. The main shifts in the history of the healthcare bed have not been related to its visual appearance. It has been related to the possibility to raise and lower the bed mechanically, which was introduced in early 20th century and revolutionized in the early 1990's as an electronic lifting system was implemented into the beds (Kjeldsen, 2014). However, the bed developed in the PPI project in this study additionally puts weight on the visual form of the bed which is related to an aesthetic logic (Guillen, 2006) and differs from a metal look characterizing the traditional healthcare beds.

2.2. Sense-making

In order to dive into the micro level and truly investigate logics in daily interactions between actors the study seeks to 'capture' logics through the lenses of theory of sense-making. Sense-making is concerned with the interpretations and meaning that actors make of information or events (Wieck et al., 2005; Weick,

1885; Gioia & Chittipeddi, 1991). Focus is set on how the PPI firm makes sense of the logics influencing the PPI project, *while* the logics are enacted by individual public and private actors throughout an innovation process. Particularly, focus is set on situations where the firm seems to be 'puzzled' by the enactment of an aesthetic logic by one or more of the actors as they interact, as this sort of contradictory situations may trigger sense-making (Weick, 1995). The term 'enacted' means that logics are put into use through a social process, where actors produce their logics which are often rooted in taken-for-granted preconceptions within a specific context (Weick, 1988). Shortly, the term 'enactment' means that logics are brought into existence by actors.

The article put emphasis on the more intangible aspect of logics which focus on how actors make sense of logics as they interact in different situations (Zilber, 2009). In relation to this emphasis is put on how the firm make sense out of situations, where it experience its own logic as being in contradiction to the logic of the public actors. As such, the article takes the perspective of the firm. The *cognitive* intentions and/or interpretations of the individual are out of the scope of this article. As such, what is traced in the analysis of the empirical investigation is the visible manifestations of the firm's sense-making that is triggered through interaction with public actors (e.g. what is being said and/or how the firm react to a situation, as it makes sense of a logic enacted by public actors). Especially, sense making is manifested as individuals make sense of or interpret each others' vocabularies (Weick et al., 2005).
In neo-institutional theory Weick's (1995) definition of sense-making is recognized as an interruption in an ongoing flow of interaction, where something not expected or understood triggers sense making where meaning it put into what interrupted the flow (Thornton et al., 2012; Weick, 1995). However, Weick has been criticized for overlooking the role of larger institutional contexts in explaining actors' sense making (Weber & Glynn, 2006), which is something this study seeks to take into account.

To best avoid the bias there may be, e.g. in interviews where actors may have after rationalized how they perceived a situation retrospectively, observation studies seem suitable as this method gives access to investigate logics that are enacted 'here and now' through interaction. The extent of awareness is beyond the scope of this article. However, it is recognized that the actors' enactment of logics may be influenced by each other through social interaction, e.g. as the perception of one actor can make another actor to reciprocate or confirm this perception in order to act in an expected way (Chen & Bargh, 1997). Also, it is important to note that actors may not always be guided by what seems to be expected from them. And as a logic enacted in one situation moves through time and across space from context to context, it undergo a process of transformation and translation, which may involve shifts in the meaning given to it.

3. Method

3.1. Document study

Through the document study data is extracted from archival records concerned with the historical development of healthcare beds within the Danish public healthcare system. Multiple sources are used to develop an analytical narrative of the historical development of healthcare beds within the Danish public healthcare system. The main access to the documents is through the Danish Museum for Nursing History. The historical data extracted from the reviewed documents goes back to 1904. The data mainly covers material from the Journal of Nursing founded in 1901 and old textbooks such as Handbook for Nurses first published in 1904 (see Appendix 1 for an overview of the reviewed documents). As a secondary source of data collection informal conversations are held with two employees (a registrar and museum manager) at the Danish Museum for Nursing History.

3.2. Case study

The study is based on a single in-depth case study consisting of one PPI project. The table provides a brief description of the case.

Table 1: Case description

Short case description	Participants in the PPI project
The PPI project started in 2013 and ends in the spring 2015. The aim of the project is to develop a new innovative bed for psychiatric hospitals. The project includes an EU tender in the form of 'pre-commercial procurement' including supplier-customer interaction throughout the development process. The project started in the beginning of 2013 where user and patient needs were investigated by the public actors. In the spring 2014 the tender was won by a firm which formed a firm consortium with sub-suppliers. The development of the bed took place through an innovation process lasting for one year, where the firm and public actors interacted closely with each other.	*Private actors* A metal firm which formed a consortium of four firms who are sub-suppliers. The firm's managing director (an engineer) was involved in the innovation process. *Public actors* The Region of Southern Denmark and the Capital Region of Denmark. Three designers were involved in the innovation process, where one of these functioned as a project leader.

Case selection

The single case is selected based on theoretical sampling. This means that it can richly describe the existence of the studied phenomenon (Eisenhardt & Graebner, 2007). In accordance to Eisenhardt (1989, 2007) it is important to be selective in relation to what to focus on in the case study in order to avoid 'describing everything' and to secure case research quality. As such, throughout the data collection focus is based on the research question. The case is selected based on the following criteria:

- The firm and the public actors should differ in terms of professions across the public and private actors. As such, the firm in the case is dominated by technical professions related to metal (such as smiths, engineers and technicians), as the firm's core business competence is related to metal processing. The public actor professions are related to the design profession.
- The firm engaged in the PPI project should be a newcomer in the PPI context. The rationale behind this criteria is that it enhances the possibly that sense-making may be triggered, because the firm is not used to engage in development relationships with public actors focused on public healthcare innovation compared to relationships with other industrial firms.
- The researcher should have good access to the PPI project including access to participate in meetings, testing sessions etc. in order to be able to investigate the research question properly.

The limits of a single case study are related to limits in generalizability and observer biases such as misjudging the representativeness of a single event whereas multiple cases enlarge external validity (Leonard-Barton, 1990). However, whereas multiple retrospective cases increase the external validity, a longitudinal, real-time study can increase internal validity by enabling one to track cause and effect and also, a single case provides the researcher with the opportunity to add 'flesh' to the study of institutional logics (Brignall & Modell, 2000).

Data collection

The empirical data collection took place throughout the 1 ½ year longitudinal study of the PPI project. In order to strengthen the findings the empirical investigations are based on methodological triangulation involving the use of several data collection sources (Denzin, 2006). These include participant observation, in-depth interviews with project participants and document studies (Appendix 2 provides an overview of the data records from the observation study and interviews).

Systematic combining

Parallel to the data collection the data analysis is continuously conducted. This may give rise to new questions and reframing of the perceptions of the findings (Eisenhardt, 1989), which means that case descriptions are rewritten several times. Also, a redirection in the search for relevant theory is something which evolves throughout the research process. Such a process is, in accordance to Dubois & Gadde (2002), characterized as systematic combining and it involves a 'constantly going back and forth from one type of research activity to another and between the empirical observations and theory' (Dubois & Gadde, 2002). Also, the different data sources are combined throughout the research process involving the observations study, in depth interviews and gathering documents related to the PPI project (such as protocols of user-tests made several times throughout the project period and official documents published about the PPI project).

Observation

Participant observation is used with focus on both observing and participating in the events of the actors being studied on a relatively long-term basis in order to investigate, experience and represent the social processes that occur in that setting (Emerson et al., 2001; Atkinson & Hammersley, 1994). This provides the researcher with the possibility to learn the more tacit parts related to e.g. events taking place (DeWalt & DeWalt, 2002). As the more explicit parts can be observed directly (e.g. what is being said and done), the implicit part of observation is concerned with for example sensing disagreement through feelings (DeWalt & DeWalt, 2002). In total, 58 hours of observation has been made by participating in shorter meetings, whole day work meetings and a testing session at a psychiatric hospital. Field notes are produced in 'the field' as proposed by Emerson et al. (2001) which means that they are written more or less simultaneously with the occurrence of the events, experiences and interactions they describe and recount.

As a way of guiding the observation an observation guide is used and this is based on the research question and theory on sense-making and logics. The observation directs the observation to focus on critical events occurring during the innovation process. These events are concerned with the appearance of contradictory logics between the firm and public actor(s) as they interact. The logics may be enacted through the meanings the actors put into things and their intensions (Zilber, 2013). The meanings may be about the mental reasoning actors' put into things and how they make sense of things, and this is a more intangible aspect of logics. If the meanings of actors is 'interrupted' sense making may be triggered. For example, sense-making may occur in situations where something incomprehensible that 'puzzles' an actor triggers interpretation and rationalization of the incomprehensible (Weick et al., 2005).

Observing critical incidents during the innovation process is central for the study. The critical incident technique is used to identify 1) occurrences and recurrences of situations where sense-making of an aesthetic logic is activated by the firm throughout the innovation process, 2) how the firm reacts on the critical incidents, 3) actions taken by firm and public actors during the critical incidents and 4) changes (if any) in how the firm and public actors have acted afterwards. A critical event corresponds to a situation where something not expected take place (Weick, 1995), e.g. deviations in the interactions where the firm is 'puzzled' or do not understand the public actor. As such, the critical event triggers sense-making subsequently and/or in the situation. Focus in the article is on how the firm tries to make sense out of the situation when an aesthetic logic is enacted by the firm itself and the public actor(s) as they interact during the innovation process.

In order to address the bias related to the researchers' own views and interpretations generated during the observation study (Hirschman, 1986), one other researcher has participated in 2 whole-day working meetings as part of the observations while taking observation notes.

In depth interviews

In total 4 in-depth interviews have been conducted with the public project manager or the managing director of the firm. Each interview lasted about 2 hours and was recorded and transcribed. Two of the interviews were held shortly after the first critical event and the last two interviews were held after the last critical event in the end of the innovation process, where the bed was being developed. Also, informal conversations has taken place with the managing director and the public actors in relation to the observation studies at the whole day working meetings held at the firm's headquarter.

Project documents
During the study I gained access to several documents related to the project including the tender material, (revised) project plans, protocols of user-tests of the bed, notes taken by the public actors in the form of 'to do' lists, several of pictures of the bed which had been created in computer software program and so forth. Also, throughout the project period there has been email correspondence with the public actors involved in the project. Further documents related to the project have been gathered from the two regions webpages. These documents are concerned with general information about the project including and information about the workshops held before the tender process aiming to explore user and patient needs. The documents from the regions' webpages have particularly been analyzed with an aim to investigate how the psychiatric bed is presented to the public in order to verify the manifestation of an aesthetic logic.

4. Findings

The findings are centered on three critical events related to the research question. As such, what is in focus is how the managing director makes sense of an aesthetic logic, as he interacts with public actors throughout the innovation process where the bed is being developed. Other critical events may have occurred in relation to other issues; however, what is in focus in this study is sense-making in relation to an aesthetic logic.

4.1. Document study

Based on the investigation of multiple document sources, this section provides an analytical narrative of the historical development of healthcare beds within the Danish public healthcare system.
Around 1900 the healthcare bed at Danish hospitals was made of iron and was fairly simple in its form. Two main principles guided the selection of healthcare beds at hospitals: 'Easy to clean and not too low' (Handbook for Nurses, 1910). Also, there seemed to be a preference for healthcare beds in iron, which the following quote illustrate: 'The frame of the bed should be in iron and not too low as the necessary hand grips then become problematical – 50-60 cm. is appropriate' (Handbook for Nurses, 1925). A major change was introduced in the early 20th century, as the possibility to raise and lower the bed mechanically was incorporated into the bed (Danish Nurse Council, 2014). Throughout the century functional adjustments are continuously incorporated into the bed related to the possibility to elevate the bed in different positions.

With some variation the expressed demands in relation to the construction of healthcare beds is similar throughout the century and is mainly oriented toward functionality and cleanliness. This is further illustrated in the following example from the 1960's: 'The bed should be elevated, so it is easy for nurses and doctors to work beside it. Also, the bed should not be too wide as nurses should be able to reach across it. The following measurements are appropriate: Length: about 2 cm. Height (without mattress): about 70-80 cm. from the floor. Width: about 80-90 cm. The bed should be easy to clean and the construction simple. It should be manufactured in a material that can withstand washing' (Handbook for Nurses, 1969, 1959).
The major changes in relation to the development of healthcare beds have not been related to its visual form but to the functionality of the bed. Besides the possibility to raise and lower the bed mechanically, which was introduced in the early 20th century, another major change was introduced in the early 1990's. In

1989 the firm LINAK developed an electronic lifting system making it possible to raise and lower beds by pushing on a bottom and subsequently such a system has been implemented into healthcare beds at Danish hospitals (Danish Nurse Council, 2014).
Overall, the findings in the document study show that for over 100 years a functionality logic seems to have guided the major changes related to the healthcare bed in the Danish healthcare system. As such, the PPI project in this study reveal how an aesthetic logic seems to be in a state of 'becoming' (Hernes, 2008), as it emerges from aesthetic requirements (e.g. in the public tender material) in relation to the development of a new kind of bed for psychiatric hospitals. Such requirements have not previously been emphasized in beds within the healthcare system, as the main focus in relation to the beds have been on their functionality and cleanliness from the perspective of the health professional user.

4.2. Case narrative

The PPI project aims to develop a new innovative bed for the new psychiatric hospitals in Denmark. The project includes an EU tender in the form of 'pre-commercial procurement'. This is a tender form that includes supplier-customer interaction throughout the development process of a new innovative solution which form is not known beforehand. The public customers of the new psychiatric beds are the Region of Southern Denmark and the Capital Region of Denmark. The firm and supplier winning the tender in the spring 2014 is a metal firm specialized in metal processing and has 14 employees. Most employees are engineers, smiths and technicians. The main business area of the firm is to produce lifting systems, especially for otium chairs and beds, and the firm is specialized in welding, laser carving and lacquering of metal. Its core competence lies within metal machining processes. In relation to this the firm has its own production hall equipped with a laser carving machine, welding robot and a large lacquering system. The lifting systems have been sold to customers at the industrial market in Denmark and Japan for several years. The firm has long had relationships with other firms (suppliers, customers and development partners) in Denmark and internationally, e.g. in Holland and Japan. It has no prior PPI experience and it has not been responsible for producing a bed for the healthcare market previously, however, it has been a supplier of lifting systems to a Japanese customer producing beds for the Japanese healthcare system.

The public tender was won by the firm in the spring 2014 and the bed went into production in the spring 2015. One year before the tender was launched the two regions formed what was called a 'design team'. Three designers were employed and they conducted field research at psychiatric hospitals in order to identify user needs among patients and employees. Also, idea workshops were held involving user-participation. One of the designers from the Capital Region of Denmark states sums up the needs in the following statement at the region's webpage:

For the patients it is much about comfort and aesthetic, while the health professional of course puts weight on security and functionality.

After the user-involvements, the findings were collected into overall requirement specifications for the psychiatric bed, which were to be included in the pre-commercial procurement tender. The overall specifications in the tender material are centered on the following areas, where the first element reflects an aesthetic logic and the other elements reflects a functionality logic related to the more functional aspects the bed should contain:

- Well-being – e.g. specifying that the bed should look 'homely' and pleasant.
- Safety – e.g. specifying that the bed should be stable and be able to withstand a restraint situation and that sharp corners should be avoided to avoid that the patients harm themselves.
- Operation – e.g. specifying that the bed height should vary from 45-90 cm for proper working posture.

- Ergonomics – e.g. specifying that it should be possible to elevate the bed at four places: head, back, knees and feet.
- Cleaning – e.g. specifying that a free space of 15 cm of free space under the bed is needed for the sake of cleaning and that the materials can withstand strong detergents.

As the document study shows, the aesthetic logic is a new emergent orientation guiding the look of the bed being developed, as the traditional beds since the early 1900 merely has emphasized functionality and cleanliness and aesthetic elements have been absent. Functionality and cleanliness are still present in the new bed and these elements are especially focused on the needs of healthcare professionals. The aesthetic logic is guided by the needs of the end-users, the patients, which are involved in the early process of deciding the form of the bed. The rationale behind the aesthetic logic particularly seems to be concerned with a 'confrontation with the look of a typical hospital bed' by making a bed which 'does not symbolize restraint' and 'has a different non-hospital-like design', as stated at the official webpage of the healthcare innovation centre in the Region of Southern Denmark (Health Innovation Centre of Southern Denmark, 2015). As such, the aesthetic logic is also manifested in written words through the public presentation of the bed. After the public tender process the firm and the two regions enter into a development relationship. The public sector participants consist of three designers, where one of these functioned as a project leader. The firm participant is an engineer and the managing director of the firm. Throughout the 1 year innovation process where the bed is being designed and developed the managing director and public actors collaborate through multiple meetings mainly taking place at the firm's headquarter.

In the initial part of the innovation process the managing director finds it challenging to grasp the aesthetic logic. He seems to resist it by maintaining a metal focus, which leads to disagreement with the public actors who does not value the 'metal-look'. However, during the innovation process where he interacts with the designers at multiple meetings he learns more about how aesthetic elements in the bed make it more visual appealing. Also, in between these meetings he starts to reflect on expanding the firm's market focus. Instead of merely targeting the bed to patients at psychiatric hospitals, he starts to consider other segments in other healthcare markets such as patients in the ordinary hospital market and elders in the municipal healthcare market. His resistance and perception of the aesthetic elements changes, as he becomes more aware of the expanded market opportunities and that the aesthetic elements might differentiate the bed from existing beds in the healthcare system. In the following meetings where the final design of the prototype of the bed is being developed the managing director is keen to use aesthetic elements and downplay the metallic elements in order to differentiate the bed from what healthcare beds typically looks like. During the innovation process several meetings are also held with sub-suppliers (e.g. firms who sell or produce batteries, rubber and actuators) who are mostly contacts from the firms existing network. 9 sub-suppliers ended up providing components to be incorporated into the bed in the final phase of the innovation process. In the last half year the public actors made several arrangements with several psychiatric hospitals, where the developed prototype of the bed was tested by healthcare professionals and patients.

4.3. Critical events during the innovation process

The following section is centered on the critical events which triggers the managing director sense-making of an aesthetic logic, as he interacts with public actors throughout the innovation process where the bed is being developed. Focus is set on the time leading up to an event and the time after the event where the firm makes sense of the aesthetic logic enacted through interaction by the public actors.

Critical event 1: About four months after the tender was won by the firm conceptual drawings and mock up's of the bed has been made and the prototype production is soon to be initiated. At this time the firm's managing director seems to resist the aesthetic logic enacted by the public actors and this leads to

disagreements in relation to the design of the bed. The first critical event take place at a whole day working meeting at the firm's headquarter. In beginning of the meeting they discuss the project plan and especially the time schedule as the project is behind schedule. One of the public actors seems frustrated as she expresses that a prototype of the bed needs to be developed soon, because it needs to be tested at several psychiatric hospitals in the autumn. Subsequently, they start to discuss the form of the bed, while they look at several iterations of computer-made drawings of the bed made by one of the public actors. The managing director leaves into the firm's production hall in order to have a welding test produced in the form of two metal pipes welded together. Afterwards he shows the welding test to the public actors. He explains how he imaging that the corners of the bedside could be made. However, one of the public actors expresses that this will create a 'metal-look' and impairs the aesthetic look in the bed. The public actors prefer to have it made into one single piece and they now start to talk the possibility to make the bedside in white plastic. The actual word 'aesthetic' is a part of the public actors' vocabulary several times and the managing director does not question it. However, he seems puzzled about what they are saying and he does not seem to understand why the bedside metal parts cannot be welded together. There is clearly disagreement among the public actors and the managing director. Shortly after the whole day meeting, the event leads to a decision made by the public actors, which is concerned with involving an external design consultant firm in the project. This design firm is paid by the two regions to re-think the concept of the bed and come up with an idea to how the bed should look like. A few weeks after the first critical event the design firm delivers a series of pictures and descriptions of different design suggestions of the bed.

Critical event 2: While the design firm worked on developing a new concept for the bed the public actors and the managing director have worked separately for a while. The second critical event does not take place in a formal meeting. Instead, what lead up to the event are informal conversations between the managing director and the retired founder of the firm. They talk about expanding their market opportunities in order to be able to profit from the bed in addition to the sale to the psychiatric hospitals included in the public tender. Afterwards, he particularly reflects upon regular hospitals as a market opportunity and the possibility to adapt the bed to hospitals – for instance by removing the grip on the bed used to fixate psychiatric patients. In the following interview quote he reflects upon this expanded commercialization focus:

We have thought about; could it be used at normal hospitals… even though we are a metal producing firm, we do definitely not think that the existing hospital beds are pretty. (Laughing). Nothing has really been done with the design of these beds in many years… So you ought to believe that there is market there.

Besides the expanded commercialization focus the statement illustrate that he considers the aesthetic elements in the bed as something unique, which may generate value for future customers . In addition to the home market, the managing director also reflects upon international market opportunities such as the Dutch and Japanese healthcare market. The firm has network connections in these countries both with sub-supplier and customer firms.

Critical event 3: The third critical event occurs at a whole day meeting at the firm's headquarter. This takes place a short time after the public actors have received the suggestions of a concept of design of the bed consisting of several pictures gathered together in a catalogue. At this meeting the managing director and one of the public actors sit next to each other and draw on the bed in a computer software program. Also, they draw several pictures with a pen on pieces of paper while they explain suggestions to each other. Both the managing director and the public actor are used to draw and it seems to facilitate the development of a common understanding of each other. During the day the public actor also has telephone conversations with one of the other public actors situated in the Capital Region of Denmark. As they spend time drawing and discussing different kind of elements incorporated in the bed they seem to develop and agree upon a

common understanding of the form of the bed. The following meetings are similar and there seems to be a flow in the innovation process. Through this time the managing director seems to reflect upon the aesthetic elements incorporated into the bed as he learns from the public actor's knowledge on how to make the bed appear aesthetic. Sitting side by side to draw seems to facilitate the managing director's sense-making as the aesthetic elements become visible in the bed. During this time the managing director seems to become more open to challenge his way of thinking which he expresses in the following interview quote:

Designers do not think about whether it can be produced or not and this is quite beneficial, because then they are not tied up by something… When we (in the firm) think about design, we think about sizes of pipes, can you bend it and so forth. You do not challenge yourself in the same way, as when a designer draws something seemingly crazy and you think that it is impossible, but then when you start to try to work on it you find a solution.

Also, he talks about expanded market opportunities at several occasions and he seems to puts meaning into the aesthetic elements by perceiving this as a competitive advantage for the firm in order to differentiate the bed from existing beds in regular hospitals. The public actor do respond to his reflections, e.g. by emphasizing that hospitals may have different requirements to a healthcare bed compared to psychiatric hospitals meaning that the bed designed for psychiatric hospitals cannot necessarily be used in other contexts in the same form. After the third critical event the public actors tacitly decide not to use any of the suggestions delivered by the external design firm.
Near the end of the innovation process the firm receives an inquiry from a hospital in Norway and Holland concerned with getting more details about the bed (e.g. in the form of pictures). However, the firm does not aim to commercialize the bed to others before it has been put into use at the psychiatric hospitals. It then plans to take contact to other Danish hospitals and to bring the bed to both national and international healthcare exhibitions.

5. Discussion

5.1. Drawing on a market logic to make sense of an emergent aesthetic logic

The study shows three central findings. The first two findings in the in-depth case study are related to the development that occurs in relation to the firm's sense-making of an aesthetic logic throughout the innovation process, revealing how logics are made use of at a micro level as actors interact 'here and now'. The increasing dominance of a market logic emerges throughout the innovation process, as the firm makes sense of the aesthetic logic. The third finding is related to how the firm's sense-making affect its commercialization of the new bed. The findings are summarized in the following:

1. The document study reveals that an aesthetic logic is emerging in relation to the development of the new bed for psychiatric hospitals. Opposed to a functionality logic, which has previously guided the development of hospital beds, an aesthetic logic puts emphasis on form which precedes functionality (Durand et al., 2013). An aesthetic logic seems to dominate the innovation process as it is enacted by the public actors. It is guiding the public actors to create a new look of healthcare beds that differs from the traditional 'metallic' look that has dominated beds within the healthcare system for over a 100 years. However, the aesthetic logic co-exists with a functionality logic, also manifested in the public tender, and a market logic. The market logic especially comes to dominate during the last part of the project period, where it guides the firm manager as he makes sense of the aesthetic logic. The aesthetic logic co-exist with a functionality logic and a market logic.
2. To make sense of an aesthetic logic the firm draws on a market logic oriented toward differentiation by perceiving the aesthetic elements as a competitive advantage in the bed. The market logic facilitates the manager's sense-making. In relation to this, the firm adopts a broader

commercialization focus, as it aims to target more segments (non-psychiatric patients) in a broader market (regular hospitals in Denmark and international markets).

3. Prior to the firm's sense-making of an aesthetic logic the firm had a narrow focus on one segment (psychiatric patients) in one market (psychiatric hospitals).

The functionality logic plays a role during the innovation process as there are many formal requirements which need to be taken into account as the bed is being developed. However, this logic does not seem to cause any triggering of sense-making. Also, the aesthetic logic seems to be particularly dominating throughout the innovation process.

The firm makes sense of the aesthetic logic enacted by the public actors by drawing on a market logic oriented toward differentiation and it seems to integrate the two logics so they support each other. It seems to make sense for the firm to put even more emphasis on the aesthetic elements in the bed, as it eventually considers targeting the commercialization of the bed to a broader market than the psychiatric hospital market and to other segments than psychiatric patients. As such, it becomes more focused on producing a bed containing aesthetic elements in order to differentiate the bed from other healthcare beds. By integrating an aesthetic logic with a market logic the firm combines elements in what may also be called a 'both/and' approach (Hargrave & Van de Ven, 2009), which means that no logic replaces the other. The manifestation of the two logics seems to co-exist, which previous studies have shown to be an empirical phenomenon, though it is most commonly found that one logic eventually comes to dominate (Ertimur & Coskuner-Balli, 2015). For example, a study made by Reary & Hinings (2009) find that a medical logic and a business logic co-exist within the Canadian healthcare system while also being in conflict with each other and Ertimur & Coskuner-Balli (2015) find co-exiting logics related to spirituality, fitness and business in the U.S. yoga market.

The firm's sense-making in this study is centered on interpreting the aesthetic logic as a differentiating aspect, which may give it a competitive advantage when the bed is to be commercialized broadly. However, the firm neither replaces a market logic with an aesthetic logic or vice versa, instead they end up co-existing in a convergent way.

The following three pictures illustrate the traditional beds used at regular and psychiatric hospitals within the Danish public healthcare system (two first pictures from the left). A functionality logic dominates these beds where 'functionality precedes form' (Durand et al. 2013). An aesthetic logic dominates the prototype of the psychiatric hospital bed developed in the PPI project (the first picture from the right) but it co-exists with a functionality logic also incorporated into the bed. The picture illustrating the new innovative bed has a less 'metal-like' look compared with the traditional beds and reflects the integration of both an aesthetic and functionality logic. Also, a market logic is related to the aesthetic logic incorporated into the bed, as it facilitated the firm manager in his sense-making of the aesthetic logic. As such, he draws on a market logic oriented toward differentiation from other healthcare beds in order to make sense of the aesthetic logic.



The aesthetic logic in the study seems to be connected with a network logic dominating public governance at a field level. This logic guides public organizations to collaborate with external actors, such as private firms and end-users (e.g. patients), when developing new innovative solutions for the public sector (Ansell

& Torfing, 2014; Sørensen & Torfing, 2012). The network logic's orientation toward end-user involvement seems to influence the manifestation of an aesthetic logic in this study. As illustrated in the findings, the PPI project included user-involvement both before the firm became involved in the project and during the tests of the prototype of bed. Particularly the end-users put much emphasis on comfort and visual form opposed to the healthcare professionals who mainly put emphasis on functionality and cleanliness of the bed. As such, it seems that a network logic oriented toward user-involvement influence the manifestation of an aesthetic logic, which is a new logic to incorporate into the development of healthcare beds.
However, as illustrated in Gotzsch's (1999) investigation of the automobile industry, drawing on an aesthetic logic is not a new phenomenon, as firms in different industries for long have been design oriented in relation to their product development activities. As such, a dominant aesthetic logic that is 'new' in one context may be 'old' in another context. Also, the dominance and enactment of such a logic may vary over time and across contexts, as logics are always in a process of change and may be interpreted differently depending on the context (Zilber, 2013).

5.2. Critical events influencing the sense-making process

Diving into the micro level makes it possible to shed light on how an individual firm manager seeks to understand its customers through interaction, which seems necessary in customer-supplier relationships (Anderson et al., 1994). The customers are new to the firm in this study. As such, the firm seems to explore new knowledge in a new environment (March, 1991) by deciding to engage in this PPI project involving close interaction with designers. The firm's core competence is related to metal production and throughout the innovation process the managing director learns about aesthetic elements and at the same time he exploits the firm's own core competences about metal and lifting systems. However, the flow in the innovation process is interrupted by a sequence of critical events.
The **first critical event** is characterized by the managing director's resistance and lack of understanding of the aesthetic elements highly favored by the public actors in the project. He seems to maintain a dominating focus on metal during the first couple of months of the innovation process. This indicates a manifestation of loose coupling between the aesthetic logic and the firm, as the managing director seems to preserve and manifest the firm's organizational identity focused on metal and this includes avoidance of the logic being unfamiliar to it (Meyer & Rowan, 1977). During a whole day meeting the managing director does not seems to understand why a few metal parts of the entire bedside cannot be welded together. In order to express to the public actors what he means he leaves into the firm's production hall in order to have a welding test produced in the form of two metal pipes welded together. As such, he objectifies what makes sense to him in the current situation and it seems like he objectifies the firm's core identity (Rafaeli & Pratt, 2006) being strongly related to metal. However, the welding test invokes a response in the public actors which does not comply with what the managing director expresses. One of the public actors expresses that this will create a 'metal-look' and impairs the aesthetic look of the bed. The word 'aesthetic' is used several times but the managing director does not seem to have adopted the word into his vocabulary. This situation leads to a disagreement and afterwards the public actors include an external design firm into the project. Such a situation triggers sense-making as it interrupts the workflow by confronting the managing director with something different of what he believes makes sense (Weick, 1995). What seems to make sense for him in this situation is related to metal. As a result, a continuous sense-making process is activated in the managing director, which is related to the **second critical event**. This event does not take place in a formal meeting but is activated by conversations between the managing director and the retired founder of the firm regarding expanded commercialization opportunities at other markets targeted other segments than psychiatric patients. Having reflected upon expanded commercialization opportunities the managing director seems to find it easier to make sense of the aesthetic elements the public actors want to be built into the bed. This happens during the **third critical event**. As the managing director meets with one of the public actors at the firm's headquarter, close interaction takes place in a common space and he now seems more willing to lean about the visual appeal

of the bed from the public actor. Through their interaction the managing director seems to realize that the aesthetic elements built into the bed makes the bed look very appealing and he seems to understand the visual value in the new bed compared with a bed dominated by a traditional metal look. The public actor's talk about aesthetic does not seem to appear that unfamiliar to him anymore. On the other side, it seems to resonate with him and during the meeting he draw on words such as 'aesthetic' and 'nicely shaped' in his vocabulary. Especially, making use of words related to the subject of sense-making (the aesthetic elements in the bed), is a central part of the whole sense-making process (Weick et al., 2005). Furthermore, the managing director puts meaning into the aesthetic elements, as he sees this as a competitive advantage for the firm in order to differentiate the bed from other beds in the healthcare system. The aesthetic elements built into the bed supports this differentiation. As such, a market logic oriented toward differentiation seems to have facilitated a shift in the managing director's orientation toward the aesthetic logic, which is now perceived and understood in a very supportive way. This market logic includes commercial aspects focused on pursuing profitability and building up competitive advantages (Thornton, 2002), which is related to the firm's commercialization focused on initiating and developing sales of the new product to diffuse it in the targeting markets (Aarikka-Stenroos et al., 2014). However, as customers often express different requirements that suit their particular value perception (Ford et al., 1998, pp. 75) the aesthetic elements built into the bed may not be valued in the same way in other healthcare markets. Therefore, the firm may need to make several iterations of the bed in order to commercialize it more broadly and to make it fit with plural demands across healthcare markets such as the Danish and international hospital markets. Thus, managers engaged in PPI to develop new innovative products must carefully decide which elements of logics to couple and incorporate into their product. However, as the firm aim to commercialize the bed to hospitals at a broader market, it seeks to encourage a demand to purchase beds incorporating an aesthetic logic opposed to the traditional beds, which has dominated the healthcare system for a long period of time.

6. Conclusion

Current research on logics has tended to focus on the historical development of societal logics or how single actors seek to influence logics over long time periods. Thus, neo-institutional theory has neglected a focus on how logics are actually dealt with by actors on a micro level 'here and now' (Glaser et al., 2014; Zilber, 2013; Greenwood et al., 2011). This study does precisely that by combining a document study of the historical development of healthcare beds with observations of day-to-day interactions between actors through an in-depth case study. As such, the article makes a contribution to neo-institutional theory by diving into the micro-level, which is primarily done through longitudinal observation studies of a customer-supplier relationship in the form of a PPI project.

The PPI field in healthcare is guided by a network logic emphasizing co-creation between public organizations and private firms and users during the development of new welfare innovations (Ansell & Torfing, 2014), such as the innovative bed in this study. This field level network logic is particularly manifested in the increasing use of PPI projects. Diving into the field level this study focuses on a specific PPI project. Multiple logics co-exist within this project. The study show that a functionality logic, an aesthetic logic and a market logic co-exist. However, their dominance varies. The aesthetic logic dominates throughout the entire PPI project period. The functionality logic plays a role in relation to specific functional requirements but it does not seem to dominate the innovation process like the aesthetic logic. The market logic comes to dominate late in the innovation process, where the firm manager draws on it and in relation to this it facilitates his sense-making of the aesthetic logic.

As the firm manager makes sense of the aesthetic logic over time during the innovation process, it eventually shifts orientation from resisting the logic through loose coupling to comply with it, as it continuously interacts with the public actors. The meaning the firm put into this logic in order to make sense of it is facilitated by a market logic oriented toward differentiation. The firm perceives the aesthetic elements in the bed as value-adding and it starts to focus on other markets and segments than psychiatric

patients as commercialization opportunities. As such, the findings suggest that the firm seems to comply with an aesthetic logic as it reasons that making the bed more aesthetic may be a central competitive advantage.

6.1. Managerial implications

What makes sense for a single firm in a specific context (e.g. a certain business industry such as the metal processing industry) may not make sense for actors in other contexts. When a firm enters into other unfamiliar contexts it may face actors expressing different values and beliefs than the single firm. As such, in order to fully understand new customers an awareness of the institutional context in which the customers are situated seems central as institutional logics may influence what the customer values in a new product. Therefore, the firm needs to develop an understanding of the role of logics dominating a particular institutional context that lies beyond personal or organizational preferences in the customer.

Also, it seems central for a firm to challenge its own way to think about producing a product and entering a relationship with a new type of customer may facilitate this by enhancing learning opportunities and access to complementary knowledge – for instance about how to incorporate aesthetic elements into metal processing. In relation to this, entering into a relationship with designers may change a firm's way of thinking commercialization, e.g. by shifting focus on customers' purchasing as technology and price-driven to aesthetic-driven. For instance, aesthetic features in a new product may trigger positive sensory experiences in customers which generate positive responses to and preferences for a new product (Norman, 2004). As such, by putting more emphasis on aesthetic-driven consumption based on the emotional value that aesthetic elements in a new product triggers in customers, the firm itself may be able to cultivate new forms of value perception in their (potential) customers. Also, by aligning product development to aesthetic elements firms may become a central 'player' in cultivating more aesthetic-driven demands opposed to more functional and price-driven demands – e.g. within the healthcare system.

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Appendix 1

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Appendix 2

Data record

Type of data	Type content	Duration (hours)	Date
Dialogue meeting (face to face)	Dialogue meeting with public actors from the two regions before the tendering process to learn about the project.	2	09.08.13
Dialogue meeting (face to face)	Dialogue meeting with public actors from the two regions before the tendering process to learn about the project.	1	06.02.14
Observation	Kick off meeting at the beginning of the tendering process at the Region of Southern Denmark.	4	04.03.14
Observation	Working meeting with the firm and three public actors at the firm's headquarter.	5	28.05.14
Observation	Working meeting with the firm and three public actors at the firm's headquarter.	6	11.06.14
Observation	Working meeting with the firm and one public actor at the firm's headquarter.	6	18.06.14
Observation	Meeting with a supplier of plastic with the firm and three public actors at the suppliers' headquarter	4	25.06.14
Observation	Working meeting with the firm and one public actor at the firm's headquarter.	5	17.09.14
Dialogue (telephone)	Conversation with one public actor.	½	07.10.14
Interview (recorded and transcribed)	Interview with the public project leader at the Region of Southern Denmark.	1 ½	07.11.14
Interview (recorded and transcribed)	Interview with the managing director of the firm at the firm's headquarter.	1 ½	10.11.14
Observation	Test of the prototype of the bed (by users: patients and health professionals) at a psychiatric department at Odense University Hospital with the firm and two public actors.	7	13.11.14
Observation	Working meeting with the firm and one public actor at the firm's headquarter.	6	10.12.14
Observation	Working meeting with the firm and one public actor at the firm's headquarter.	6	21.01.15
Observation	Working meeting with the firm and one public actor at the firm's headquarter.	6	28.01.15
Interview (recorded and transcribed)	Interview with the public project leader (telephone)	1 ½	05.05.15
Interview (recorded and transcribed)	Interview with the managing director of the firm (telephone)	1 ½	05.05.15