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Competing through renewal:

Dynamic capability at Bang & Olufsen

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B&O BANG & OLUFSEN

Abstract

The accelerating development of technology within the industry of electronic consumer goods have caused changes that required companies to renew themselves and adapt to the modified environment. Theory of dynamic capability seeks to explain companies' ability to renew themselves in the face of a changing environment. However, the theory can be considered fairly complex and just how a company can exercise dynamic capability is not particularly evident from current literature. Through a case study of the Danish AV-company Bang & Olufsen, this thesis accommodates the complexity and examines how a mature company in the electronic consumer goods industry can exercise dynamic capability when striving to compete in a market characterised with frequent market changes.

A company's dynamic capability can be disaggregated into three capacities: *Sensing opportunity*, *seizing opportunity*, and *resource alteration*. To advance the theory, it was examined what internal factors that influence how a company senses and seizes opportunity, and how different approaches of resource alteration can be exercised. The thesis investigated Bang & Olufsen from 1991 till present time by combining secondary data with insights from semi-structured interviews with multiple B&O employees, a board member, and an industry expert.

Findings show that B&O has exercised dynamic capability through the various modes of resource alteration, including brand extensions, partnerships, new distribution channels, and releasing workforce and business areas. Internal elements including R&D processes that combine knowledge, path dependency to resources (e.g. core competencies) and its cognition about these were found to affect what opportunities B&O sensed and seized. The thesis contributes to the theory of dynamic capability by clarifying how dynamic capability can be exercised in an empirical case. It is emphasised that how a company can exercise dynamic capability depends on internal factors and previous paths, why thorough self-assessment of core competencies and resources is advised before responding to change. Future research of other cases is necessary to verify a more general applicability of the findings and further advance on dynamic capability.

Table of Content

Acknowledgements

This final product is the result of a sincere interest in the Danish company B&O that has been struggling for the majority of time that the authors can remember, but has remained meaningful to many Danes and are today still listed among the 'coolest' brands in the world. When considering how to conduct an analysis of B&O's longevity despite challenging conditions, different analytical perspectives have been evaluated. Yet, the concept of dynamic capability, that we made acquaintance with over the period of our master studies, was intriguing and offered an interesting perspective to firm survival in an ever-changing world.

For his valued assistance and guidance in both the academic process of writing a thesis as well as his knowledge and prior discoveries related to B&O, we would like to express our gratitude to our supervisor, Professor Jens Frøslev Christensen. Furthermore, we would like to thank all of the interviewees that have taken their time to contribute with perspectives and insights on B&O. The thesis would lack substance if it were not for your assistance. For that, we thank you for your time, Christian Frost, Jakob Kristoffersen, Jesper Smidt Clemmesen, Majken Schultz, Martin Rasborg, Morten Grubbe, and Sofie Østergaard Neble.

1. Introduction

Market changes have become a frequent challenge for companies. Disrupting innovations (Christensen, Raynor & McDonald, 2015) and nonlinear business dynamics (Burgelman & Grove, 2007) demand companies to act, while the accelerating pace of technological development has influenced how businesses operate and has increased competition in several markets. Empirical findings suggest that industry leaders maintain their competitive advantage for increasingly shorter time spans (Wiggins & Ruefli, 2005). Due to the decrease of product life cycles, a company must constantly search for new knowledge to innovate and develop its product portfolio (Chesbrough, 2003). Constantly adapting to industry and technological changes to stay competitive thus seems a necessity for the contemporary company. How can companies do so? Some suggest that to cope with changes in the environment, companies need to renew themselves (Dierickx and Cool, 1989; Floyd and Lane, 2000). Some companies survive by accustoming to changes; some even prosper from them, while other companies whither. Inability to renew itself and accustom to change has in many cases proven disastrous. Noted victims to change are previous mastodons such as Smith Corona (Danneels, 2010), Nokia (Huy, Vuori, & Duke 2016) or Kodak (Anthony, 2016), all former leaders of their markets that had to let go of their prosperous market positions. Contrary, companies such as Intel and IBM have encountered the same ordeals, but have both repeatedly succeeded to adapt and overcome changes (Burgelman & Grove, 2007; Harreld, O'Reilly, & Tushman, 2007).

This raises a fundamental question: Why can some companies build competitive advantage by adapting their resources while others fail to sustain it through times of high velocity and market changes? Why did Smith Corona fail while Intel prospered? One of the most prominent theories on how a company complies to change revolves around the term 'dynamic capability', which refers to a company's ability to renew itself and its resources in the face of a changing environment (Teece, Pisano & Shuen, 1997). In order to exercise dynamic capability a company must be able to scan, interpret, and learn from the environment, which revolves around the term, *sensing*. Having sensed an opportunity it must decide what opportunities to *seize* and how to do it (Teece, 2007), which can be done by various modes of resource

alteration (Eisenhardt & Martin, 2000). Doing so successfully may be the difference between failing and prospering.

Notably, within technology-intensive industries the importance of knowledge and innovation has increased due to the rapid technological changes, shortening of product life cycles and growing technological complexity (Bannert, Valerie & Tschirky, 2004). The industries are characterised by factors such as disruptive innovation, ever-changing consumer demands and intense competition (MarketLine, 2015). New technology may challenge a company's core product category and if it wishes to compete it might need to renew itself, thus exercise dynamic capability. Failing to do so, a company may find itself being dependent on a product category that is in decline, which may ultimately mean the demise of the company (Danneels, 2010).

1.1 Problem statement

With the theme set above, what can a company do to survive and compete when faced with demanding market changes? This is in particular interesting to examine in regard to the industry of electronic consumer goods, as history has shown us several cases of market leading giants, including the cases mentioned above, which within a short period of time have eroded and diminished due to changes in technology and competition. Examining this will be done through lenses of the aforementioned dynamic capability theory as it seeks to understand how a company can achieve and sustain competitive advantage (Teece, Pisano & Shuen, 1997). Yet, the framework can be considered fairly complex and just how a company can exercise dynamic capability is not particularly evident from current literature (Kraatz & Zajac, 2001; Arend & Bromiley, 2009). This thesis seeks to accommodate this problem and aspire to clarify how a mature company within the industry of electronic consumer goods may exercise dynamic capability in its attempt to compete in an ever-changing market. It will be examined how a company can sense and seize opportunities (Teece, 2007), while reconfiguring its resources to cope with a changing business environment (Eisenhardt & Martin, 2000; Teece, 2007). Thus the aim of this thesis' examination can be formulated in the following research question.

1.2 Research question

How can a mature company in the electronic consumer goods industry exercise dynamic capability when striving to compete in a market characterised with frequent market changes?

From the research question, two sub-questions can be derived, which advance the application of dynamic capability and assist to answer the research question:

1. What internal factors influence how a company senses and seizes opportunity when responding to market changes?
2. How can a company exercise dynamic capability through resource alteration?

A company's ability to exercise dynamic capability origins from its capacity to 'sense' and 'seize' (Teece, 2007). The first sub-question will seek to investigate if there are internal factors that constrain how a company senses and seizes. Answering this will help to advance the theory by examining if companies have to take certain internal factors into consideration when renewing itself. Prior research has suggested that internal factors, such as core competencies, path dependency, and resource cognition, affect managers' ability to renew the company (Prahalad & Hamel, 1990; Teece, Pisano & Shuen, 1997; Danneels, 2010). Hence, unveiling these internal factors' influences may advance one's comprehension of how dynamic capability can be exercised. With these influences in mind, the second sub-question will seek to investigate how a company may alter its resources when exercising dynamic capability, another dimension to dynamic capability (Teece, 2007; Eisenhardt & Martin, 2000). By examining how different approaches of resource alteration can be exercised and why the various modes are used, an understanding of how a company can renew itself may be advanced.

Investigating these sub-questions structures the thesis and can lessen the complexity of dynamic capability as it disaggregates the concept into its different capacities of 'sensing', 'seizing' and 'resource alteration', and clarifies how a company can exercise dynamic capability by focusing on one element at a time. The examination of each sub-question will assist in answering the research question and eases the process of analysing dynamic capability.

1.3 Purpose

Existing research has already elaborated on dynamic capability theory and its role in competitiveness. However, this research has in some cases been characterised as abstract, vague, esoteric (Kraatz & Zajac, 2001) and hence complex to grasp. Other authors have taken the dynamic capability theory and applied it to empirical cases to advance the theory and examine its impact on firm performance (Danneels, 2010; Pablo et al., 2007; Lampel & Shamsie, 2003). Yet, it is found that there is a dearth of empirical cases demonstrating how dynamic capability can be applied can be applied (Barr, 2004) even with the recent case studies on the subject. The purpose of this thesis is to explore and elaborate on the dynamic capability to further reduce the existing gap with regard to the connection between dynamic capabilities and firm performance (Barreto, 2010). This will be done through an empirical case study of a company still fighting for survival in 2017. Through an empirical case study of Danish Bang & Olufsen, the thesis will demonstrate how dynamic capability can be practiced when responding to market changes. It will emphasise what influences how a company renews itself and what different options of renewal can entail. From the case study, the thesis provides an example of how a present company has dealt with market changes and exercised dynamic capability. With the empirical case study, the thesis aims to contribute on existing research and expand the theoretical and conceptual foundation of companies competing in changing environments and how they can renew themselves.

1.4 Delimitations

A primary delimitation of this thesis is that the case study will only investigate how dynamic capability has been exercised in a single company within the electronic consumer goods industry. This was a deliberate limitation due to the extensive nature of investigating dynamic capability in a company, as the considerations and actions driving dynamic capability are often rooted in internal processes that require in-depth analysis to interpret. With the resources at hand, the thesis aimed to provide one in-depth case study rather than multiple insubstantial case studies. Consequently, the thesis narrowed its scope to only concern companies within the industry of electronic consumer goods. The empirical evidence from a single case study is still believed to lessen the vagueness of dynamic capability and generate preliminary implications for later testing.

Also, the case study will not include all scenarios where B&O has responded to changes. There are other cases that reflect how B&O has exercised dynamic capability than the ones analysed in the thesis. Consequently, this thesis does not provide complete insights of how B&O has done so. Yet, cases have subjectively been chosen based on interpretation of gathered data where the cases with the highest relevance to the research question have been examined. Additionally, as the thesis is constrained by a limited timeframe, it was decided to examine fewer cases in detail rather than examining various cases shallowly.

Furthermore, the case study is delimited from investigating cases of proactive dynamic capability, meaning that a company exercise dynamic capability to create changes and not as a response to them. As discussed by Burgelman and Grove (2007) a company may also exercise dynamic capability for rule-changing renewal. Even with B&O's prior innovative capabilities, no cases of B&O shaping the electronic consumer industry with rule-changing new products or technology was discovered in the focal period. Therefore, the study only investigates rule-abiding dynamic capability where renewal is exercised as a response to external change.

1.5 Case company

The electronic consumer industry has repeatedly been an industry of investigation in case studies seeking to explore companies' responses to change, due to the industry's nature of frequent technological changes and tightening of competition (Burgelman & Grove, 2007; Danneels, 2010; Anthony, 2016). A salient example of a mature company in the electronic consumer goods industry having to renew itself in the face of a changing and demanding environment is Danish Bang & Olufsen (B&O). B&O will be the case company investigated to answer the research question. Historically, B&O has been known as a first-mover in the Audiovisual-market (AV) introducing cutting-edge technology and features into its product portfolio, thus being a company that influenced the future of the industry. However, since the 1990s, B&O has struggled to find a profitable path and has had difficulties in innovating proactively. Being a minor company up with against large incumbents, hence having less resources than its competitors, new technologies like flat screen TVs have challenged B&O, as it have not been able to keep up with the increased pace of technological innovation (Frost, 2017). Difficulties of being agile to adapt to the new technologies has made B&O fallen behind

as it has not had the necessary range of products that customers demanded. As a result, revenue has declined in its core products, profits turned into losses and its market value has dropped considerably (this will be shown in figure 3 in a later section).

Running with negative numbers on and off for decades, it has repeatedly been necessary for B&O to respond by renewing itself if it was not to continue its declining path. Numerous business developments have been carried out at B&O to cope with the demanding times; streamlining the company, partnerships with big market players, investing in a patented innovation through university collaboration, brand extensions to enter new markets and product categories, and launching a sub-brand to name a few. Recent years' initiatives have indicated a slight progresses internally, however, B&O is still not operating at its previous capacity. A thorough review of B&O will follow in a later section.

1.6 Disposition

The thesis will be outlined as follows. First, the method will be explained and discussed for its strengths and weaknesses when assessing the validity and reliability of the thesis. Following, a review of current literature on the dynamic capabilities view will form the theoretical framework of the paper. Next, a detailed description of B&O, its history, and selected cases that form analytical intersection points are outlined in a case description. This will lead to the analysis of the case study, that will be divided into the two subsections; 1) sensing and seizing opportunity, where it will be examined what internal factors have influenced how B&O has sensed and seized opportunity when responding to market changes. 2) Resource alteration, where it will be analysed how B&O has exercised dynamic capability through the various modes of resource alteration: leveraging existing resources, creating new resources, accessing external resources and releasing resources. Eventually, a discussion of the findings will suggest managerial and theoretical implications of the study, as well as its limitations and how further research may additionally help to extend the dynamic capabilities view.

2. Methodology

The aim of this section is to provide an overview of the research methodology that has been applied to examine the research question with the developed theoretical framework, which

will be presented later. It will be discussed how the choice of research method, approach, and data collection are interrelated. Lastly, notes on the methodological limits are presented.

2.1 Research method

As a result of the theory being complex and containing various elements, this thesis focus solely on the case of B&O allowing an in-depth analysis. Former research papers have followed a similar methodology, including Danneels' (2010) attempt to investigate dynamic capabilities in Smith Corona and Burgelman's (1991; 1994) studies of the transitioning in Intel from memory chips to microprocessors. The case study method allows to build in-depth and rich empirical descriptions to develop the investigated theory (Saunders, Lewis & Thornhill, 2016).

B&O is an attractive firm to do a detailed and historical case study on due to several reasons: First, B&O's struggle is recent and to some extent still ongoing, hence creating the possibility to locate and interview key individuals within the organization that have experienced the challenges recently. Second, the organization is one of the most known, loved and respected companies in Denmark. As a result, it gets a vast amount of attention from the press, increasing the amount of books, articles and other material that have already been written about comparable themes, which in return has eased the data collection process. Third, as it has happened in recent times, data were possible to find through online databases. Finally, because the company is publicly traded, material such as financial statements, managerial discussions, stock market data, and press releases were available.

The thesis will specifically investigate the timeframe of 1991 till present time, as the theme of this thesis is found highly applicable to this focal period. Why will be discussed in the case description. The most salient examples to dynamic capability are formed into analytical intersection points. These include significant changes that B&O has encountered and the actions B&O has carried out to address these. The case study of B&O makes it possible to clarify in depth how a recent company has exercised dynamic capability as a response to market changes. Studying a company that has had difficulties in adjusting to market changes, which B&O in many occasions has, may (compared to an unproblematic case) have higher potential for adding to the theory of dynamic capabilities as '*More informative, often, than*

success stories are stories about failure—especially the failures of once successful enterprises to adapt to new circumstances.' (Williamson 1999: 1093 fn 3).

Despite the prior research on dynamic capability, constructs and linkages between theory and empirical evidence are still not clear and due to the complexity of the theory, relevant hypotheses could not be specified a priori (Saunders, Lewis & Thornhill, 2016). There is a wealth of information about dynamic capability, yet not in the context that this thesis is examining it. Theory has described what dynamic capability is, but few have sought to analyse how companies needing to renew itself in the face of market changes can exercise it in practise. Therefore the thesis adopts an exploratory research design, meaning that it seeks to clarify 'how' dynamic capabilities functions and 'what' influences how it does so (Saunders, Lewis & Thornhill, 2016). Conducting an exploratory study using the case study method allows the thesis to identify linkages and clarify them, which is accordingly to the purpose of the thesis.

2.2 Research approach

As the thesis seeks to modify the existing theory of dynamic capability an 'abductive' method is adopted (Saunders, Lewis & Thornhill, 2016). Researching a problem statement, which is found to be underexplored in practice, it was found infeasible to have an unidirectional relationship between theory and practice as in the 'inductive' and 'deductive' methods (Bryman & Bell, 2011). Relying solely on a 'deductive' or 'inductive' method could not be applied due to the complex explanation of the theory and little amount of empirical evidence within the topic of how a company can exercise dynamic capability (Saunders, Lewis & Thornhill, 2016). Therefore an 'abductive' method was adopted that allowed the thesis to move back and forth between observations and theory to continually adapt the framework and use of theory. In order to investigate the case of B&O, dynamic capability theory could not solely explain all outcomes. It was necessary to be able to combine a range of different theories in order to form the best 'explanation' for how B&O exercised dynamic capability. The flexibility stemming from an explorative approach was in line with the choice of adopting an abductive approach. As the comprehension and knowledge about the case of B&O developed, this research approach allowed the authors to combine new theoretical aspects to identify and explain patterns.

Qualitative data

Collecting data through qualitative methods was in line with the thesis' exploratory nature, as it allowed the authors to explore unforeseen themes and adapt the data collection accordingly. As emphasised by Barr (2004) "(...) *qualitative methods provide the opportunity to identify and explain complex relationships without having to pre-specify either the variables involved, or the nature of the relationship between them. Qualitative studies allow one to simply ask questions rather than test whether the answer you expect is correct"* (Barr, 2004: 167). Hence, the qualitative method was adopted as it allowed the authors to explore dynamic capabilities without having prior expectations to the outcome from the B&O case. In this case study, the qualitative method encompassed the data collection techniques of interviews and archival information.

2.3 Empirical data

With the qualitative method, both primary and secondary data was gathered in order to build a detailed understanding of B&O and its actions in the focal period. Data has been gathered and analysed in a continuous cycle throughout the course of the thesis. Secondary data formed the initial understanding of B&O and with the use of selected theory, identification of possible analytical intersection points was established. Next, shortcomings in secondary data were found and were sought to be settled by gathering and analysing primary data. Findings from the interviews then led to an advancing analysis that followingly needed a new round of interviews in order to validate and further examine the data. This iteration of analysis and interviews continued during the period of the study, which can be seen in a simplified version below.

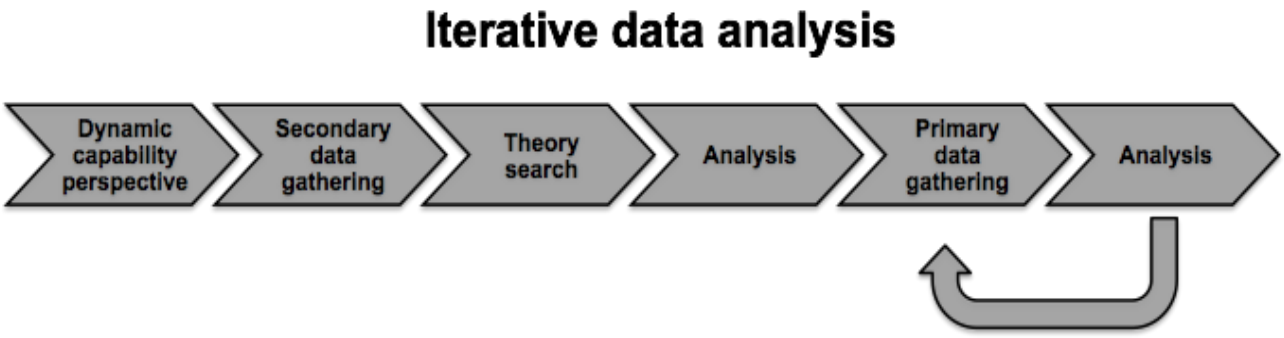

Figure 1. Source: Created by the authors.

Secondary data

The first step of the data gathering was to develop a comprehensive collection of publicly accessible sources of information. Here, secondary data about B&O and the industry in general were collected. Most of the secondary data came from articles from the Danish business paper, Børsen, where more than 1.500 articles mentioning B&O were browsed. These articles included information regarding certain events in the company, comments from industry experts, the journalists' own perceptions, and statements from B&O. Børsen was used over similar business papers due to the access the authors had because of the partnership Børsen have with Copenhagen Business School. Additionally, annual and interim reports from B&O, and books written about B&O were used to get an understanding of the firm's history, products, performance and challenges.

Based on the above collection of data, a timeline of events was constructed to consolidate the knowledge. Doing so made it possible to create links between B&O's financial performance, market changes, and new initiatives, which guided later choice of analytical intersection points. The use of secondary data was a time efficient way of acquiring necessary information compared to collecting it oneself. Yet, as secondary data only yielded partial information and was not adequate to answer the research question solely, primary data were found needed to further investigate and verify the cases.

Primary data

The next phase of collecting data was driven by semi-structured interviews. These were conducted with key individuals that could help to acquire a more detailed, and at times, internal perspective of B&O. They were found to be able to provide valuable and knowledgeable insights, which is important for exploratory research, where the interviews usefulness often rely on the quality of the contributions from interviewees (Saunders, Lewis & Thornhill, 2016). This limited biases of relying solely on secondary sources and making detailed knowledge about the challenges and responses of B&O accessible. Semi-structured interviews were adopted in order to not only gather data about pre-selected themes but also explore new insights developing during the interviews (Bryman & Bell, 2011), which is beneficial for explorative studies (Saunders, Lewis & Thornhill, 2016). With the semi-structured approach, the pre-defined questions functioned as points of departure and were designed first, to discuss pre-defined areas of interest and second, to keep conversation going that could potentially give rise to new areas of interest. This allowed the respondent to elaborate on themes that the authors had not involved prior to the interview. Following an abductive approach, each interview's questions were modified prior to the interview session as knowledge of B&O developed.

Acquiring primary data through qualitative methods instead of quantitative methods, such as surveys, seemed beneficial, as it was easier to introduce the respondents to the purpose of the thesis and each interview. Additionally, it gave the respondents the possibility to ask for clarification if they did not fully understand the asked questions. Most importantly, the qualitative methods allowed for the necessary flexibility needed with the research's approach. This flexibility would have been unlikely to achieve with quantitative methods. Therefore, the likelihood of respondents yielding relevant answers for the analysis was greater, thus increasing the reliability and internal validity. This will be discussed more in details in the next section.

Seven interviews were conducted during the case study ranging from beginning of March till start of May 2017. More interviews were desired and additional respondents who were found interesting to interview were contacted, as it would strengthen the case study. However, it was only the seven that had the time and/or interest to participate. The interviews focused on

specific themes, events and circumstances vital to the research question. Additionally, questions that were in line with the interviewed individual's competences or area of work was integrated. The collected data coming from secondary sources were used in the interviews as the informants were asked to review and expand on certain statements and events. Most of the interviews lasted 1-1.5 hours and were all recorded with permission from the respondents. Some of the respondents were later contacted through email to clarify the history and findings to raise the reliability. Two rounds of interviews were conducted. The first round of interview, consisting of three interviews, helped advancing the comprehension of the analysed secondary data. Following, the gathered data were analysed. When analysing the cases certain shortcoming were identified why more interviews were needed. Thus, a new round of interviews were conducted, consisting of four interviews. As the interviews were all conducted in Danish, the authors have translated the respondents' answers, when the answers are used as quotes. All interviews were thematized to make it easier to go back to the interviews. The thematic analysis assisted in identifying themes and patterns from across the interviews to ensure the correctness of the insights (Saunders, Lewis & Thornhill, 2016).

The interviewees, their title, and their role are listed in table 1 below.

Overview of interviewees

Name	Title	Role
Christian Frost	Creative director - Duckshoot media	Industry expert and former salesman of B&O products. Author of "Bang & Olufsen - En kærlighedshistorie" focusing on B&O's history and its products. Had interviewed several key persons in the process of writing the book, here among former CEO; Tue Mantoni.
Jakob Kristoffersen	Concept and Design Manager - B&O PLAY	Manging the conceptualization for new product development in B&O PLAY from idea to execution. Worked for B&O prior to B&O PLAY was launched and have been a part of B&O PLAY from the beginning.
Jesper Smidt Clemmesen	Hardware engineer - B&O	Employed in B&O since 2010. Did first work with circuit board integration in B&O's TVs and later with its sound systems. Now works with the integration of Chineese engineering labour.
Majken Schultz	Professor at CBS and B&O Board Member	Proffesor of Organization and Management. Has conducted research on B&O. Majken is also part of the board of directors at B&O.
Martin Rasborg	Senior Manager, R&D, PDM - B&O	Have worked for B&O since 1992. Project leader at strategically important projects. Part of B&O's new product development 'Trinity'. Also responsible for sourcing strategy and finding new suppliers.
Morten Grubbe	Senior Manager, product life cycles in R&D - B&O	Worked for B&O from 2000-2002 and again from 2004 till present time (2017). Managing and maintains R&D in regards to the product life cycles and platform technology.
Sofie Østergaard Neble	PR Consultant & Social Media - B&O PLAY	Employed at B&O PLAY since 2013 and involved in international communication. Have a vital role when new products are being launched in B&O PLAY.

Table 1. Source: Created by the authors.

2.4 Limitations to the methodology

To ensure the trustworthiness of the thesis, a certain level of validity and reliability must be attained. Studies using qualitative methods are in general criticised on its validity and

reliability. The results are criticized for being based on the researcher's subjective interpretation rather than statistically significant data and that it often lack a standardized protocol for analysing the acquired data (Barr, 2004; Golden-Biddle & Locke, 1997). Due to the use of semi-structured interviews, the 'interviewer' and 'participant' biases (Saunders, Lewis & Thornhill, 2016) have affected the study. These biases among other limitations of the research approach will be discussed below.

Validity

The internal validity has to do with the correctness of the findings and whether they can be used to answer the research question (Bryman & Bell, 2011). Internal validity of semi-structured interview is generally considered to be highly achievable, if the interviews are conducted thoughtfully (Saunders, Lewis & Thornhill, 2016). To increase the internal validity, the participants of the interviews were carefully selected according to their presumed abilities to answer the raised questions. The semi-structured interviews allowed the interviewees and/or authors to have things clarified or eventual misunderstandings explained during the interviews, which raised the validity of their answers. To validate eventual areas that were not clear when processing the knowledge stemming from the interviews, follow-up questions were sent to the interviewees by email afterwards, in order to uphold internal validity. It must be emphasised that the small sample of interviews means that the insights may not be entirely comprehensive. Each interview guide was adjusted to increase the fit of the asked questions and the respondent's expertise. With this in mind, the validity is considered sufficient due to the respondents of the interviews' fit to examine the research question and the triangulation between the extensive gathering of secondary data and the primary data.

The external validity, or 'generalisability', is whether the findings from the case study of B&O may be equally applicable to other companies within the electronic consumer goods market (Bryman & Bell, 2011). The external validity of the study is limited, as the empirical evidence is specific to B&O, which itself is quite a unique company due to its legacy and high-end market position. In order to mitigate this issue, several similar case studies had to be carried out, which was out of the time scope of the thesis. Therefore, the findings from the case study are not claimed to be applicable to every company within the industry of electronic consumer

goods. Other companies might not be able to practice dynamic capability identically to B&O, but the findings can be used as an example on how a company can renew itself.

On the notion of generalizability, the thesis does not seek to identify a one-fit-for-all approach to how companies can exercise dynamic capability. Instead it seeks to clarify the processes inside of the theory and prove as an example of how a company can renew itself. Consequently, the generalizability is found to be limited.

Reliability

Reliability is attained if the collected data can be trusted, meaning that the same results would be found if the same study was carried out again (Bryman & Bell, 2011). This thesis started its data collection by an excessive examination of vast secondary literature. If similar research investigated dynamic capability in B&O conducted on the same secondary data as this study's, it is likely that the same analytical intersection points would be investigated, indicating some level of reliability. It is acknowledged that different authors might interpret articles differently, though it is not found to have a significantly negative impact on the reliability of this thesis. However, due to the case study's dependence on semi-structured interviews it is difficult to ensure the replicability of the findings (Saunders, Lewis & Thornhill, 2016). The study's reliability is likely to have been influenced by 'participant bias' meaning that the interviewees might have held back information or provided responses that were not reflecting their own perception, but rather what B&O would accept of them to say. As answers might not be a part their own perception, answers may differ from interview to interview (Saunders, Lewis & Thornhill, 2016).

As the interviews did not follow the interview guide from one point to another, the reliability may also have been affected by the various ways an asked question has been phrased. Other researchers might interpret answers differently than this thesis did. In other words, it must be acknowledge that the interpretation of the primary data is subjective due to the authors' preconceptions about these events. Hence, the findings may suffer from 'interviewer bias' (Saunders, Lewis & Thornhill, 2016). As a result, it may not be possible to get the exact same responses and findings from repeating the interview, hence the reliability of the thesis is weakened. Standardising the interviews could possibly help to overcome this, however, doing

so would be in conflict with the research approach and eliminate the flexibility needed to uncover the complex area of interest. The interview guides all revolved around the same themes and were based on the same standard questions, but were modified as the authors extended their understanding of B&O. To ensure that similar examination can be practiced, the interview guides are attached in appendix 2 to make the methodology transparent as possible thus increasing the reliability (Yin, 1994). Recreating the results are thus possible, but are found to be difficult due to the interview style, why the level of reliability is argued to be rather complex and may only be obtained to a limited degree.

Methodological Limitations

Compared to similar studies (Danneels, 2010; Burgelman, 1994) the data sample of the case study is relatively small. Only having conducted seven interviews might have left valuable information out from the analysed cases. As a result of the limited amount of interviews, the concluded remarks may be on a basis of too little data. However, the triangulation between the extensive secondary data and the gathered primary data meant that the reliability and internal validity of the study is argued to be sufficient to provide an insightful answer to the research question.

The interviews were done in retrospective, why they can be open to potential critique regarding memory loss and retrospective rationalizing. To deal with these biases the quotes were triangulated with other interviews and collected secondary data to examine if the respondent's answers are according to what other data indicated. Examining analytical intersection points in retrospective were to some extent challenging as all decision makers in B&O's at that time were not still employed in the company, why accessing sufficient data was at times found problematic. Examples of this were when analysing the case of the MP3-players and mobile phones where the full rationale behind these brand extensions could not be found. Such challenges was sought to be solved by interviewing people who had been employed or part of B&O in one way or another long enough to recall, to their understanding, the rationales behind the decisions.

Even though prior research has emphasised the single case study's ability to construct detailed insight on a concept and can effectively be used in theory development (Flyvberg,

2006; Graebner & Eisenhardt, 2007), the findings from B&O must be generalised with care. The limited generalizability means that the results cannot be applied to any situation and that a company within the industry of electronic consumer goods should be aware of the conclusions' limitations. B&O as a company can be seen as rather unique, why the findings of this thesis might not be transferable to all types of companies. B&O has positioned itself as a high-end brand within the AV-market and its position and reputation might provide it with ways to exercise dynamic capability differently than other companies can.

3. Literature review and theoretical framework

Scholars have long tried to understand why some companies survive and even thrive during times with market changes, while others struggle and by time perish. This thesis seeks to examine and understand this with the use of the theory of dynamic capability. The thesis will build on concepts of strategic management to answer the research question and this section provides an overview of significant literature used for the analysis. First, a definition of dynamic capability will be presented followed by a discussion on why an advancement of the resource-based view was needed. Different views on dynamic capability will be presented followed by the topic of core competencies and resource cognition. This will form the theoretical framework of the paper, which is discussed in the latter part of this section. Here, it will present how the thesis will use the presented theories in order to examine the research question.

3.1 Dynamic capability

Dynamic capability refers to a company's ability to renew itself in the face of a changing business environment. This thesis derives from Teece, Pisano & Shuen's (1997) notion of dynamic capability, which can be defined as a firm's ability to *"(...) integrate, build and reconfigure internal and external competences to address rapidly changing environments"* (Teece, Pisano & Shuen, 1997: 516). Several authors have since then developed the definition of dynamic capability: *"The abilities to reconfigure a firm's resources and routines in the manner envisioned and deemed appropriate by its principal decision maker(s)"* (Zahra, Sepienza & Davidsson, 2006: 918) or *"A dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness"* (Zollo & Winter, 2002: 340). The numerous

definitions of dynamic capability indicate that the theory has still not settled on a clear framework. Though from these advancements it is emphasised that dynamic capability revolves around a company's ability to modify its routines and the importance of resource configuration to address changes in the external environment. Consequently, this thesis adopts the definition from Teece, Pisano & Shuen (1997) as they emphasize the importance of adjusting its competences to a changing environment, which is found to be most fitting to the case of B&O.

Dynamic capability is a dynamic advancement of the resource-based view as the resource-based view has difficulties in explaining how successful firms endure over time with an increasing competitive environment. The resource-based view does acknowledge that competitive advantage is not infinite (Barney, 1991), however, it does not explain what mechanisms inside a company that determines its ability to adapt for longevity (Eisenhardt & Martin, 2000). Winners in these environments have been companies that have demonstrated timely responsiveness and rapid changes in their resource assessment (Teece, Pisano & Shuen, 1997).

Many strategic paradigms have sought to explain the determinant factors to financial superior financial performance within companies. The dominant perspective in the field of strategic management during the 1980s was the competitive forces approach developed by Porter (1980) focusing on how a company could be positioned to defend itself from competitive forces outside of the firm. However, as the unit of analysis is the industry and is group specific, it cannot help to explain differences in performance among firms from the same industry and with more or less the same position. These differences suggest internal differences, thus applying a firm-level unit of analysis seems beneficial. Dynamic capability that derives from the resource-based view allows for such firm-level analysis, which assumes that firms can be conceptualized as bundles of resources (Barney, 1991). These resources are seen to be the determining factor of competitive advantage and drivers of a company's financial surplus. This paper follows Amit & Schoemaker's (1993) argumentations that a company's resources can be divided into resources and capabilities. Resources are defined as stocks of available factors that are owned and controlled by the firm (Amit & Schoemaker, 1993). Capabilities are firm-specific processes that enable a firm to improve its productivity of the other 'resources'

(Makadok, 2001) or what makes it possible for a firm to deploy its resources (Amit & Schoemaker, 1993). If resources include certain attributes they may allow the firm to follow strategies that can create competitive advantage (Barney, 1991). Similar, if capabilities have particular characteristics they may provide a firm with several strategic options that can create competitive advantage (Prahalad & Hamel, 1990).

According to Teece, Pisano & Shuen (1997), companies who thrive in demanding market conditions are the ones who have the ability to change their set of resources to match new challenges. The view sees competitive advantage stemming from high-performance routines operating 'inside the firm' (Teece, Pisano & Shuen, 1997: 528). Teece, Pisano and Shuen emphasise that a company's ability to exercise dynamic capability is bound to its past actions and current position. They introduce the notion 'path dependency' (stemming from economics and social science referring to that 'history matters') to the dynamic capability theory. It is argued that a company is path dependent on previous investments, competencies, and routines, and if the changes that a company faces are too incompatible to established practices, a company may refrain from reacting to the change. Consequently, a company may find itself 'locked' to inferior technology or a declining product category, as it can be comprehensive for the company to adapt. If a company's capabilities become redundant in the industry, a company cannot instantaneously establish capabilities, as they are developed over time. Therefore it is argued that a company is path dependent to its capabilities.

3.2 Resource alteration

In Teece, Pisano & Shuen's (1997) article, they explain the mechanisms of dynamic capability in a firm. What is not clear from their research is how a company exercises dynamic capability, why other theories of dynamic capability is necessary in order to examine this thesis' research question. Eisenhardt & Martin (2000) advanced on the dynamic capability theory by suggesting that a company can exercise dynamic capability by altering its resources in four ways: leverage existing resources, creating new resources, accessing external resources, and releasing resources. By *leveraging* a company can utilize existing resources and apply them to new uses. A company can *create* new resources needed in order to follow new strategies if current resources do not allow for such pursuit. It can *access* resources externally by outsourcing, engaging in partnerships, among other approaches. These complementary

resources can be configured with a company's own resources. Finally, a company can *release* its resources in order to make use of them elsewhere.

To the authors' knowledge, there is not a vast amount of research that applies dynamic capability to practical use in a company. The most salient case may be Danneels' (2010) case study of the former company Smith Corona and how it attempted to exercise dynamic capability. Danneels (2010) suggests that decision-makers should consider all modes of resource alteration and their limitations when faced with industry changes. Danneels' research confirmed Eisenhardt & Martin's (2000) findings by demonstrating how Smith Corona attempted all four ways of resource alteration. Therefore, the thesis' research approach is inspired by Danneels' (2010) work and will conduct a similar study in order to investigate dynamic capability in the case of B&O.

3.3 Teece's advancement

In his later work of dynamic capability, Teece (2007) advances the theory by stating that it can be disaggregated into three capacities: 1) sensing opportunities and threats, 2) seizing opportunities, and 3) maintaining competitiveness by enhancing and reconfiguring resources. "*It is hypothesized that excellence in these 'orchestration' capacities undergirds an enterprise's capacity to successfully innovate and capture sufficient value to deliver superior long term financial performance*" (Teece, 2007: 1320). Having these capacities in a firm thus grants a company the possibility to maintain or gain a sustained competitive advantage. Teece's ambition with the framework was to explain the sources of enterprise-level competitive advantage over time, and provide guidance to managers, which correlates to the ambition of this thesis, though to a lesser extent. His established framework explains how a company must first discover contingencies, decide whether to pursue these contingencies, and continuously adjust to changes or provoke changes itself. The three capacities of dynamic capability is elaborated in the following:

Sensing opportunities

Teece (2007) argues that sensing opportunities and threats (for the remainder of the paper it will just be referred to as 'sensing opportunities') comes down to the firm's individual's capabilities to sense changes and development in the business environment. To identify changes, the company must constantly search, scan, and explore technologies and markets, both internally and externally of its industry. Having sensed opportunities the company must be able to filter out irrelevant information and shape opportunities by assessing the outcome of the change of technology, new entrants, suppliers, customers or likewise. A company's ability to recognize, assimilate, and utilize new knowledge can be explained with the term 'absorptive capacity', which is presumably enhanced by internal R&D (Schilling, 2013). Due to limited absorptive capacity and information degrading, as it is moving from floor level employees up to management, the impression or signal of an opportunity may not be acted on. To mitigate this issue, Teece (2007) refers to a company's 'analytical system', which is where all the gathered external knowledge and the company's internal knowledge are combined. This analytical system determines a company's ability to sense, filter, shape, and calibrate opportunities, and hence is a fundamental part of dynamic capability.

Seizing opportunity

Having sensed opportunities, Teece (2007) argues that the company must address it through new development of products, services, or processes. The company must under uncertain conditions make the selection between which different opportunities to follow. When seizing an opportunity, the company's prior business model may not always be fitting. Hence, it can be necessary to create a new business model that allows successful commercialization of the pursued opportunity. Teece terms it as the ability to 'delineate the business model' and argues that doing so may allow the company to capture larger value from the opportunity, compared to if it had not changed the business model (Teece, 2007). Furthermore, Teece emphasises that a company must acknowledge its own boundaries when seizing opportunity, meaning that it must be aware of its own capabilities. If it does not internally have the capabilities needed to seize an opportunity, it may not be value adding to seize it. In such a situation a company may externally find the complementary capability needed to profitably seize the opportunity.

Reconfiguring resources

Lastly, Teece argues that the company must constantly recombine and reconfigure resources as the enterprise grows, technology evolves, and the market changes. Without reconfiguration of resources, the company cannot maintain evolutionary fitness, which is the capability that enables firm survival (Helfat et al. 2007) and consequently not obtain sustained competitive advantage. A company may be tied to routines but must have an organization that allows the company either to gradually reconfigure its resources to adapt to incremental innovation or remodel the whole business when the industry is faced with radical innovation. Having the ability to constantly renew itself amplifies evolutionary fitness and hence a company's longevity.

3.4 Core competencies

Teece, Pisano & Shuen (1997) state that *"what a firm can do is not just a function of the opportunities it confronts; it also depends on what resources the organization can muster"* (Teece, Pisano, & Shuen, 1997: 513). A theory stemming from the resource-based view discussing a company's resources and the possibilities that these provide a firm with in relation to longevity is Prahalad & Hamel (1990) notion of core competencies. They argue that core competencies are the collective learning of an organization over time and are a company's capabilities that distinguish it from competitors. Core competencies are developed through continuous processes and cannot be created instantly. In order for a capability to be characterised as a core competency of a company, Prahalad and Hamel argue that three criteria must be fulfilled. First, it must provide the company with potential access to a wide variety of markets. Second, it must make significant contribution to the perceived customer benefits. Lastly, it must not be easy for competitors to imitate (Prahalad & Hamel, 1990). Having established core competencies allows a company to create 'core products', which contributes to competitiveness in a range of end products. Therefore, what seems to be a large diversified portfolio of business can rely on only a few shared core competencies, why core competencies can be seen as "(...) *an engine for new business development*" (Prahalad & Hamel, 1990: 283). Prahalad & Hamel (1990) thus argues, that how a company can adjust and reconfigure its resources to changes (Teece, 2007) are determined by a company's core competencies.

3.5 Resource cognition

The aforementioned research of Danneels (2010) added an essential element to dynamic capability with his addition of 'resource cognition'. This term refers to the identification of resources and the understanding of its fungibility and results in a manager's 'cognition schema'. This schema is the mental model that managers have of their company's resources and can be considered the manager's ability to ask 'what are our resources?' and 'what are the potential applications of our resources?' (Danneels, 2010: 21). Danneels argues that managers' resource cognition about their firm's resources determines how and to what extent dynamic capabilities is exercised, and influence which opportunities a company pursues. Insufficient resource cognition can lead to misinterpretation that can cause a company to follow an unprofitable path. Therefore, Danneels concludes that identifying the appropriate resources of one's company is decisive when exercising dynamic capabilities.

3.6 Alternative perspectives

It must be noted that dynamic capability theory is merely one perspective to understand competitiveness in a dynamic environment. Although the thesis will revolve around the concepts stemming from Teece, Pisano and Shuen (1997), other research is acknowledged to be able to contribute with interesting insights regarding how to compete in markets with change. Among other perspectives is Burgelman and Grove's (2007) case study of Intel where they explain corporate longevity by a company's autonomous and induced strategy processes that are needed to address challenges posed by nonlinear strategic dynamics. Nonlinear strategic dynamics occurs when a company changes 'the rules of the game' (Burgelman & Grove, 2007: 965). A nonlinear strategic dynamic that B&O needed to cope with was Apple's entrance to the music market with its MP3-players and the platform iTunes. To cope with this, Burgelman and Grove argue that leaders must be able to effectively balance induced (exploitative activities) and autonomous (explorative activities) strategy processes to meet the nonlinear strategic dynamics that the company will face - a fundamental question originally raised by March (1991). Burgelman and Grove's framework could have been applied to investigate to which degree the internal factors of B&O's balance between these strategy processes influences how it exercises dynamic capability, or how it may assist B&O in responding to market changes. Not to apply the framework was chosen, as Burgelman and Grove emphasise the difficulties in finding information about conscious and formal decisions

regarding resource allocation to autonomous initiatives. Yet, it was in their case presumably possible due to Grove's former CEO position in Intel. Autonomous processes can be difficult to identify as they are by definition not 'planned' (Burgelman & Grove, 2007) and would hence be unlikely to identify in the case of B&O for researchers with limited internal access and insight of B&O.

Chesbrough's (2003; 2014) paradigm of open innovation argues that a changing environment has meant that a conservative and centralized R&D (closed source innovation) has become obsolete. This change has fostered an open innovation approach, which entails that one's R&D must extend far beyond the boundaries of the company and that innovators should integrate expertise, ideas, and skills from external sources to the organization for the most effective operation (Chesbrough, 20003). The open innovation paradigm could be involved to get an understanding of the extent that B&O has changed its R&D processes in order to cope with the increase in technological innovation and need for open source innovation. Did B&O adopt an open source of innovation strategy too late, explaining part of its challenges to keep up with technological innovation? Yet, to limit the thesis' scope and focus on advancing the theory of dynamic capability, it was chosen not to include the paradigm.

3.7 Theoretical framework

The aim of dynamic capability is ambitious and the theory has not been without critique. Scholars have defined it as vague and non-operational (Kraatz & Zajac, 2001) and miss a clear theoretical framework with reliable results (Arend & Bromiley, 2009). Few cases have sought to examine how dynamic capability can be exercised by a company (Danneels, 2010), why it may be complex for managers to involve the theory in praxis. Eisenhardt & Martin (2000) try to mitigate the critique of dynamic capability by stating that it consists of various routines that have been subject of extensive empirical research in their own right outside of dynamic capability. Such routines inside of dynamic capability are cross-functional R&D teams, new product development routines, and technology transfer and/or knowledge transfer routines. Teece (2007) acknowledge in his own advancement that the framework of dynamic capability is rather imperfect. Though, he emphasises that*: "One should note that the identification of the microfoundations of dynamic capabilities must be necessarily incomplete, inchoate, and*

somewhat opaque and/or their implementation must be rather difficult. Otherwise sustainable competitive advantage would erode with the effective communication and application of dynamic capability concepts." (Teece, 2007: 1321). As a result of the imperfect theoretical framework, this thesis theoretical framework consists of a combination of Teece's (2007) and Eisenhardt & Martin's (2000) view on what dynamic capability is and how it can be exercised. The thesis follows Teece's (2007) argumentation that exercising dynamic capability can be disaggregated into the aforementioned capacities; 'sensing', 'seizing' and 'reconfiguration', where 'seizing' and 'reconfiguration' involves the four modes of resource alteration presented by Eisenhardt & Martin (2000).

To structure the thesis, the research question and analysis of it is divided into two sub-questions where the first sub-question will derive from Teece's (2007) notion of sensing and seizing, while the second sub-question will revolve around seizing and reconfiguration with use of the four modes of resource alteration. Though resource alteration is part of seizing opportunities, these modes are only a part of the second sub-question to hinder repetition and to ease the structure. The analysis will seek to identify processes within dynamic capability in order to make the framework more clear and transparent for managers. If it does so by examining the case of B&O, the purpose of advancing the theory may be reached.

Sub-question 1

The first sub-question will investigate which internal factors that influence a company when 'sensing' or 'seizing' opportunity. With the use of Teece's (2007) classification of dynamic capability it will be investigate how a company can sense and seize. In order to do so, the processes behind these capacities will be identified. As the thesis is founded on a resource-based view and dynamic capability perspective, a company's profitability is assumed to be a result of its ability to harness its resources and core competencies. Therefore, the analysis will identify B&O's core competencies and resources yielding a potential competitive advantage. In order to investigate the internal factors that influences the identified processes and capacity to 'sense' and 'seize', the analysis will examine Teece, Pisano & Shuen's (1997) notion of path dependency and its impact on dynamic capability. To which extent 'history matters' on B&O's ability to renew itself will be studied. Danneels (2010)' notion of resource cognition and its impact on dynamic capability will be analysed in order to demonstrate how B&O's

managers' understanding of the company's resources and their fungibility may influence the processes of dynamic capability. Understanding the resource cognition internally of B&O may help to explain why the company sought the different approaches to renewal.

The concepts of path dependency, core competencies, and resource cognition is according to theory suggested to both have an impact how a company 'senses' and 'seizes' opportunity. However, in the cases of how B&O has seized opportunity these concepts are fairly clear. Their impact on how B&O has sensed opportunity is not as evident, as this capability is more internal and hence the path dependency, core competencies, and resource cognition's influence is more tacit. Therefore these concepts will be analysed and elaborated on in the section of 'seizing opportunity' and not when discussing 'sensing'. How these may influence how a company senses opportunities can be examined in future research.

Sub-question 2

The second sub-question will seek to identify how a company may renew itself. According to Teece (2007) this action is performed when a company 'seizes' opportunity or 'reconfigures' its resource. These two classifications from Teece will be combined with Eisenhardt and Martin's (2000) concept of resource alteration. As the concepts of 'seizing' and 'reconfiguring' are considered to include some of the same elements, they are incorporated as 'alteration of resources'. For instance, creating new resources can both be done in order to seize a new opportunity as it can be a way to reconfigure current operations.

Eisenhardt and Martin (2000) note that each of the four modes of resource alteration is based on 'best practices', meaning that the specific procedures of how a company can leverage, create, access or release resources, has been studied intensively in other contexts than dynamic capability. Consequently, the analysis of the second sub-question will include supplementary theory in order to precisely investigate each mode of resource alteration. By identifying how B&O has used the various modes of resource alteration, this part of the analysis seeks to give practical examples of how a company has exercised dynamic capability.

The theoretical framework of the thesis is simplified in the following figure.

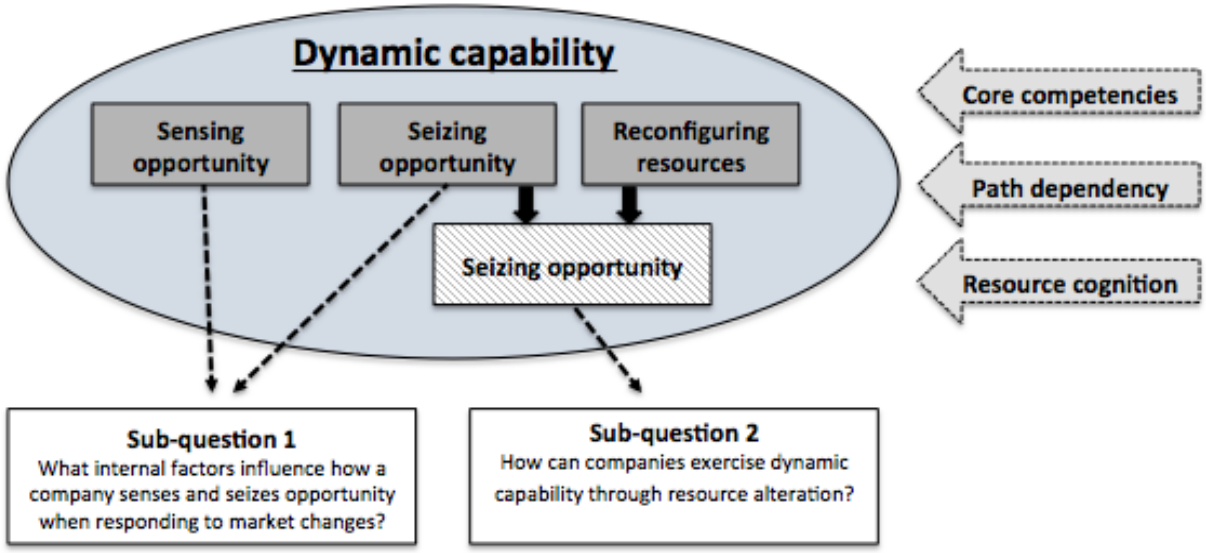

Figure 2. Source: Created by the authors.

4. Case description – Bang & Olufsen

B&O is a Danish consumer electronic company established in 1925 that provides high-end audiovisual (AV) products and solutions. The company can be characterized as an OEM, meaning that it does not manufacture every component in its products, but rather acquires it from external suppliers and integrates a variety of components into its own products. Historically, B&O has manufactured a large part of its components itself, but has over the years increasingly relied on components from suppliers. Today it is present in more than 70 countries. B&O's latest annual turnover was 2,633M DKK, which is a decrease of 40% from turnover fiscal year 2006/2007 (B&O starts its fiscal year in June) (B&O, 2016: B&O, 2007), when its turnover was at its highest. Since fiscal year 2008/2009 it has been running with negative annual results the majority of the time. Today the company has two areas of business: Bang & Olufsen, which offers high-end AV products and systems sold exclusively in Bang & Olufsen stores around the world, and B&O PLAY, which offers portable speakers and headphones sold through Bang & Olufsen stores, a web shop, and third party retailers.

The focal period of this study is from 1991 to present time (2017). Starting from 1991 was chosen due to the following reasons. First, B&O initiated major changes within its organisation beginning in 1991 due to years of unprofitability (Poulsen, 1997). Second, after having examined data, the authors found that this period can be seen as the beginning of B&O's financial struggles. Many of the same challenges B&O experienced in this period, such as high operating costs and difficulties in manufacturing products with solid margins, has been found in recent years as well. Lastly, the re-structuring of B&O performed in the 1990s has been subject to prior exploration why sufficient data was accessible. Despite of this focal period, it is helpful to summarize the history of B&O preceding this period. The following section will outline the most important parts of its history with a focus on changes within B&O's business environment and what is found to be B&O's main challenges. Eight cases will be discussed in detail, as they are key to the analysis of the thesis. The cases were selected by the authors on the criteria of their saliency to dynamic capabilities, as they are scenarios where B&O tried to renew and/or reconfigure its resources, or failed to do so, as consequence of environmental changes. These cases form the analytical intersection points of the study and are summarized in figure 3 below, where they are compared with the development of B&O's adjusted stock price in order to demonstrate the company's performance.

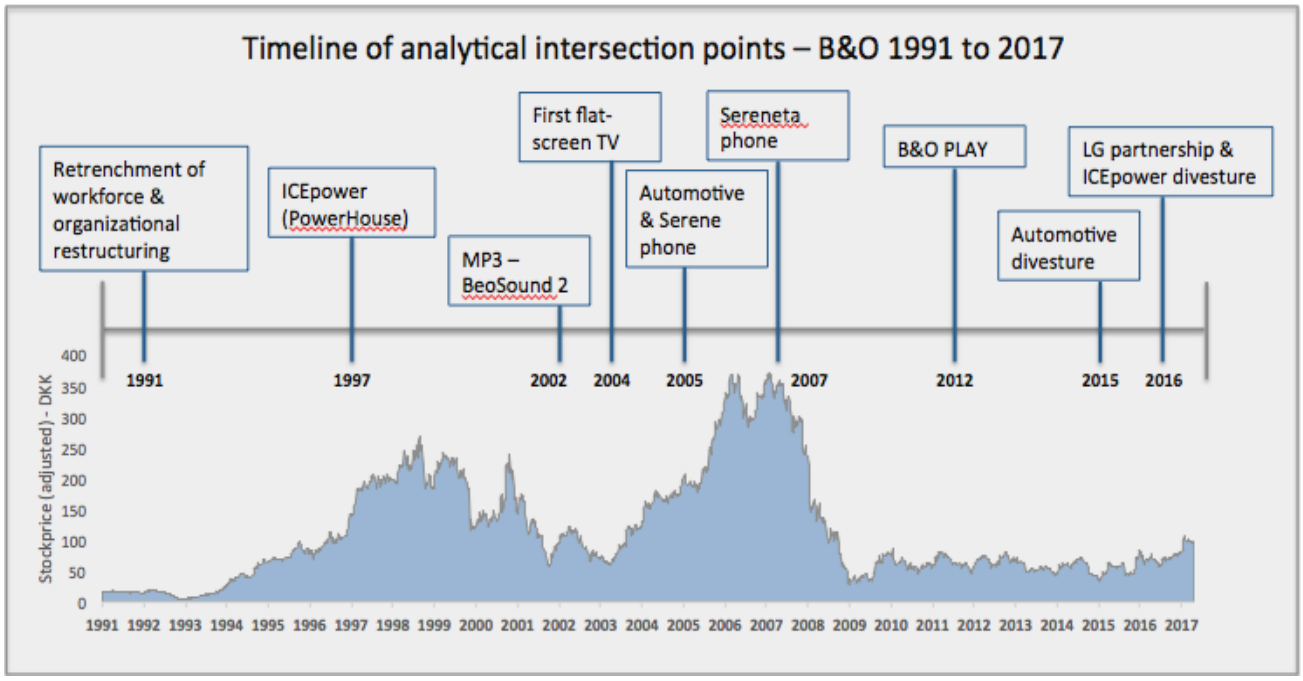

Figure 3. Created by the authors with stock market prices from Datastream (2017)

4.1 The early years

Peter Bang and Svend Olufsen established B&O in 1925 where the two engineers challenged the battery driven radios of the time. The duo's first successful product was the Eliminator that removed the need for batteries in radios and allowed them to be plugged directly into the power outlet. With the capital from their first success, they started to develop sound systems, which was the beginning of what proved to be one of B&O's core business areas to present time. Following this period, B&O introduced a range of successful radios and sound systems of high quality that provided the customers with revolutionary acoustics. In addition to its product portfolio of acoustics, B&O launched its first television in 1950 (DR Dokumentar, 2002). Critique of its products' visual appearance during the 1950s meant that B&O in the beginning of 1960s hired designers to the company on freelance basis to assist the company within the design processes. The relationship between B&O and the designers proved to be a decisive action for its future competitiveness as it helped B&O to differentiate itself from its competitors. Following the focus on products' visual appearance, B&O became recognized for both outstanding quality and superior design (Frost, 2016) and design became equally important as technological development (Poulsen, 1997). By the 1970s, B&O was a world known brand notorious for its design and in 1978 was displayed at a special exhibition at Museum of Modern Art in New York City (DR Dokumentar, 2002).

In the 1960s, several Danish radio- and TV-producers shut down as a result of international competitors growing bigger, especially Asian companies started to enter the AV market. The new entrants created a new challenge for B&O, which is still existing today, namely being a small company up against big market players (Schultz, 2017). Large companies, such as the South Korean companies Samsung and LG (named GoldStar at the time), started to provide AV products for the mass market and enhanced their profitability due to economies of scale. As smaller companies, such as B&O, cannot obtain the scale advantages with their smaller markets and were left with poorer margins. B&O survived mainly due to its international aim and focus on the niche market of high-end AV solutions. While the Asian companies focused on low-cost production, that was possible due to low wages, B&O concentrated on creating products with innovative features and great sound. Additionally, its capability of design helped B&O to gain traction in new markets (DR Dokumentar, 2002). With introduction of products that competitors could not match in terms of technology and features, B&O was a

front-runner on the market of exclusive AV solutions. B&O positioned itself as a high-end brand with prices above competitors. Evidence of B&O's ability to excel in both innovation, sound, and design was demonstrated through products such as the amplifier Beomaster 5000, the most powerful amplifier at the time, or the Beomaster 900K that combined superior design with first-of-a-kind features such as automatic frequency controls that enabled pre-selection of radio channels (Frost, 2016).

In 1981 B&O engaged in collaboration with Jydsk Telefon and later Ericsson to get access to the landline telephone market, where B&O created a range of phones (Frost, 2016). The phones were created in line with its focus on design and it turned out to be a successful product category for B&O (Grubbe, 2017; Frost, 2017).

After the company's profitable years of the 1970s and early 1980s followed significant losses. With the globalization, competition tightened further, especially from Japanese manufacturers, which challenged B&O. The increase in competition and B&O being a cost-intensive company meant poor results (Poulsen, 1997). Consequently, B&O presented its biggest deficit ever before in 1990. The same year, the Dutch company Philips bought 25% of the total shares of B&O. Philips had for many years been one of B&O's most important supplier of components. As a part of the deal, the two companies exchanged know-how and agreed to a shared utilization of technology (Bang, 1997).

4.2 Year 1991 – 2000

Due to B&O's unprofitable situation B&O initiated a reorganization and retrenchment of the workforce. The initiative, known as plan 'Break-point', should try to increase B&O's competitive parity (Poulsen, 1997). B&O increased its focus on marketing, strengthening of retailer performance, and outsourcing of non-core activities. B&O defined core competencies in the 90s as sound, video, design, craftsmanship and AV integration (Poulsen, 1997). Investment in these core-competencies, such as equipment for surface treatment of aluminium for design purposes (Poulsen, 1997), meant that B&O again became competitive and turned the negative result around. However, outsourcing of non-core activities made collaborations a necessity and B&O became dependent on its suppliers to get the technology from areas that were not within B&O's expertise. Product development became vital and B&O

now had the objective to launch one new product assortment a year, which was higher than previously. In the latter part of the 90s, B&O was trendsetting in terms of product content and design (Kirkegård, Olsson & Nielsen, 1996). As B&O began to perform financially better it was decided to buy back the stocks from Philips. The deal concerning exchange of know-how and a shared utilization of technology continued despite of the buy back (Bang, 1997).

ICEpower

B&O has over time had close relations to universities such as Aarhus Universitet and Danmarks Tekniske Universitet (DTU). Through the collaboration with DTU, B&O partnered up with Karsten Nielsen in 1994, which by 1999 turned into the joint collaboration of B&O PowerHouse (later ICEpower). The collaboration gave B&O access to Nielsens' patented improved class D amplifier. The amplifiers were smaller, lighter, and were more power and heat efficient, which meant that heat sinks found in traditional class A and B amplifiers were no longer needed. Consequently, this made it possible for B&O to create smaller speakers without compromising sound quality and made new formats of speakers possible (ICEpower, 2017b). Hence, obtaining the scientific knowledge and patent of Nielsen's class D amplifier proved valuable to B&O, as it increased the power within its speakers and gave higher flexibility when designing these.

The BeoLab 1 released in 1999 was the first speaker of B&O to include the technology and was at the time the most powerful B&O speaker (B&O, 2002). The access to a class D amplifiers meant that B&O was technologically up to date as the class D amplifier technology was not widely distributed in the industry at the time (Christensen, Olesen & Kjær, 2005).

ICEpower was in 2016 sold by B&O. Before the divestment, ICEpower had during its latest 5-year course presented a surplus of more than 100m DKK (B&O, 2010; 2011; 2012; 2013; 2014; 2015).

4.3 Year 2001 – 2009

A small player in a market with a rapid pace of technological innovation

B&O's market was stagnating in early 2000s, as consumers' willingness to buy was low, reducing the expected growth rate (Stokholm, 2001). B&O had several challenges at this point

in time. The development time of new products, which at that time was 3-4 years, was too slow in regards of the quick pace of technological innovation within the market (Børsen, 2000). Furthermore, B&O publicly stated that it was running behind with the introduction of DVD and flat screen TVs as the products weren't ready when customers demanded these (Beenfeldt & Bang, 2002; B&O, 2004). B&O had difficulties in integrating the newest technology in its product quickly enough. Innovation within the AV-market happened at a fast pace, which decreased product life cycles significantly (Grubbe, 2017). As a result of the faster pace of technological innovation, B&O stated that it needed to halve the development time of new products and raise the rate of product introductions with 50-100% in order to stay competitive.

From CRT to flat screens

TVs of the 20th century was dominated by cathode ray tube (CRT) technology. The nature of CTR meant that TVs were big and bulky, a feature that B&O utilized to create unique and well known designs such as the MX series (Frost, 2017). CRT TVs accounted for a large share of B&O's turnover (B&O, 2000; 2001; 2002; 2003; 2004). However, new technology was on the rise disrupting the CRT technology. In the late 1990s, Sony had released a range of flat screen TVs building on plasma and LCD technology. Plasma and LCD technology has a number of advantages compared to CRT. It allows TVs to be slimmer and lighter, it provides better video quality, allow screen size to be bigger, and are more power efficient (Tsai & Li, 2011). During the beginning of the 2000s, the new flat screen technology became increasingly popular and was emerging to become the dominant design of the industry (Madsen, 2012). B&O had sensed this shift in technology but stated that it was acted on too late. In the chairman report of September 2004 B&O stated: *"We're seeing a shift from cathode ray tube to flat screen technology which means that cathode ray tube TVs (…) will be replaced by new flat screen products over the next two-three years. This is a huge challenge particularly as we're also changing from analogue to digital technology"* (B&O, 2004: 2). From 2002 to 2004 the sales of CRT TVs dropped 70% (B&O, 2005b). B&O acknowledged that the change from CRT to flat screen technology was the greatest transformation of its product portfolio it had seen to date and the biggest change in the consumer electronic industry (B&O, 2005b). It was not until 2004 that B&O launched its first LCD TV, BeoVision 6 (Frost, 2016), several years later than competitors.

When B&O launched its flat screen TVs in 2004, B&O encountered a number of challenges. Its products were technically behind compared to competitors making B&O TVs not only more expensive compared to competitors but even of a lower technical quality (Frost, 2017). Simultaneously, B&O continued to manufacture its past cash cow, the MX series with CRT that was manufactured all the way till 2006 (Beoworld, 2007), even though it was an out-dated technology. The new flat screen design limited B&O's ability to excel on design (Grubbe, 2017). With CRT driven TVs it was easier to stand out from its competitors on design, as TVs had a bigger size that gave B&O more surface to work with. With the change to flat screens with a smaller surface, B&O was struggling to distinguish themselves through design to the same extent as previously (Bang, 2004; Grubbe, 2017). Simultaneously, TVs were digitized and evolved with the same rapid pace as computers (Grubbe, 2017), which proved as one of the greatest challenges for B&O as it shortened the life time cycle of TVs (Jessen, 2010). The rate of technological development of TVs has increased significantly with the change to digital TVs meaning that a flat screen gets out-dated in a matter of years, contrary to the old CRT TVs that last longer before getting outdated (Grubbe, 2017).

MP3-players

Following Apple's introduction of its iPod in 2001, B&O launched its first MP3-player, BeoSound 2, in 2002 in its attempt to capture market share in a growing MP3-market (Beocentral, 2017; Grubbe, 2017). The MP3-player was created together with Samsung. Additionally, B&O launched its second MP3-player in 2007, Beosound 6, also with Samsung (Børsen IT, 2007a). Beosound 6 was B&O's take on the new generation of nano MP3-players. The MP3 received heavy critique as experts did not settle with the price of $862, which was much higher than the price of an iPod Nano with the same memory capacity (Børsen IT, 2007a; Jyllands-Posten, 2007; CNET 2007). However, it did receive appraisal for its sound quality and design (Jyllands-Posten, 2007).

The sales of the MP3-players did not go as expected and when the financial crisis began in 2007, B&O began to suffer financially. In the beginning of 2008 B&O announced that it had to adjust its expectation of the coming financial year in a downward direction – a period of time where investors expected growth (Fruergaard Schrøder, 2008a). Due to the poor results, B&O

decided to cut back on the number of products B&O produced (Fruergaard Schrøder, 2008b; Vogdrup-Schmidt, 2008). Products with bad performance were cut off as B&O wanted to prioritize on those products with the best odds of succeeding (Vogdrup-Schmidt, 2008). One of these products was B&O's MP3-players.

Mobile phones

As mobile phones gradually took over from the landline phones, the demand for B&O landline telephones diminished. But in 2005, B&O announced that it had partnered up with Samsung to create a mobile phone (Hansen, 2005). The price of the phone, named 'Serene', was 8.000 DKK making it significantly more costly compared to other mobile phones on the market (Andresen, 2005). Serene was criticized for its price and that it did not have the new 3G technology or other technology that made it possible to access the internet, which other phones at that time had (Andresen, 2005).

In 2007, B&O announced a new version of its mobile phone named 'Sereneta', which B&O described as a transportable music player with a mobile phone integrated (Schrøder, 2007b). The phone was built upon technology from ICEpower that made it possible to create a speaker with intense power despite the small size of a phone (Schrøder, 2007b). Shortly after the mobile phones were removed from B&O's product portfolio due to the same reason as the removal of its MP3-players, due to a lack of sales.

Signs of improvement

By 2004 things were looking better. ICEpower was thriving, new products launches were more frequent (Bang, 2003) and B&O's financial statements showed evidence of a more efficient operation (B&O, 2005). B&O had launched its flat screen TVs and launches such as the TV BeoVision 7 and loudspeaker BeoLab 5 generated praise and resulted in an increase in revenues (B&O, 2005a; Bang, 2005). B&O had caught up on flat screen TVs and the demand for these was high (Bang, 2005). To maintain streamlined operations, B&O established a new factory in the Czech Republic and moved 75 workers from Denmark to this factory. Furthermore, B&O initiated a divestiture of its production unit in Skive (Clemmesen, 2017; DR, 2004).

Automotive

In 2005, B&O introduced a new business area called Automotive that created sound systems for cars (Bang, 2005b). B&O presented the new division through a partnership with Audi (Bang, 2005c). The deal meant that all buyers of the Audi car, Audi A8, were offered to upgrade the standard sound system to a B&O system. A year later the number of people who chose to upgrade were 10%, approximately 1.700 Audi-customers (Bay Nielsen, 2006). The technology inside the system is the aforementioned ICEpower class D amplifiers that made it possible to create a sound system that did not take up much space and without adding significant weight to it (B&O, 2017a). Furthermore, the low power consumption of ICEpower meant a smaller impact on the fuel consumption of the car.

The deal with Audi was later strengthened by adding more cars, including the Audi top-seller Audi A4 (Pedersen, 2007; Andresen, 2007). During the years B&O added more carmakers into the Automotive Division; first, Aston Martin in 2007 (Børsen Penge, 2007), then Mercedes in 2008 (Børsen Penge, 2008) and finally BMW in 2010 (Fast, 2010). Additionally, ICEpower technology was implemented in Volvo cars in 2006 (Nyholm, 2006). The revenue increased continuously and in the fiscal year of 2013/2014 the revenue coming from the Automotive Division was 613m DKK out of the total revenue of 2.86b DKK (B&O, 2014).

Many thought of the Automotive Division, like with ICEpower, as one of B&O's business areas with highest potential (Nielsen, 2007; Avisen, 2008; Ritzau 2012). But in 2015 the division was sold to the American speaker manufacturer, Harman International Industries (Madsen, 2015a). Hartman was the market leader in the market of sound system for cars (Madsen, 2015b). B&O received a prepayment of 1.17b DKK while B&O additionally will get yearly payments plus a license payment of each unit for at least 20 years worth a minimum of 12.7m DKK each year (Madsen, 2015a). B&O explained that the divestment of the division would make it possible to reduce the complexity of the organization's operations while focusing on the business-to-consumer market with its two remaining business divisions, AV and B&O PLAY (Madsen, 2015b).

The financial crisis

The beginning of the financial crisis in 2007 had a hard impact on businesses operating in luxury segments (Schrøder, 2007a). A large portion of the customer segment was no longer willing to invest in expensive Bang & Olufsen products that would be out-dated in a matter of years due to the exponentially advancing technology (Grubbe, 2017). Hence, B&O had declining profits following a drop in sales. Due to poor results, B&O started a focus on improving efficiency further and more than 500 employees were laid off throughout the following years. The financial crisis and the diminishing customer demands resulted in massive losses for B&O. Furthermore, competitors such as Sony and Loewe challenged B&O in Denmark (Bang, 2008a; 2008b), the big Danish retailer Fona cancelled its retail agreement with B&O due to bad performance (Andresen, 2009), and several of B&O's own retailers closed. The losses made, as previously stated, B&O stop the production and sales of its mobile phones and MP3-player to once again focus on core businesses (Fruergaard Schrøder, 2008b; Vogdrup-Schmidt, 2008). To show the extent of the financial crisis impact on B&O, it can be emphasised that the stock price of B&O dropped more than 85%.

4.4 Year 2010 – present time

In 2010 the market was showing signs of improvement. The luxury industry was experiencing a raise in sales (Børsen, 2010) and B&O's newly launched TVs were performing well (Bang, 2010). In 2011, B&O initiated the 5-year strategy called 'Leaner, Faster, Stronger'. Summarized, the 'Faster, Leaner, Stronger'-strategy emphasised an increased focus on strategic areas like sound and acoustic and the introduction of a new product category that takes advantage of these competencies of design and sound to increase the worldwide brand awareness and attract new customers (B&O Press Release, 2011).

B&O PLAY

The new product category proved in 2012 to be the launch of the sub-brand called B&O PLAY (Gullev, 2012). B&O PLAY offers transportable speakers and headphones to lower prices compared to B&O products. The sub-brand is likewise targeting a younger audience than the Bang & Olufsen brand (Gullev, 2012). New for B&O, a web shop was launched only stocking B&O PLAY-products. Additionally, B&O PLAY was being sold at a large number of third party retailers, not just in B&O's own B1-shops. Despite the lower prices, B&O PLAY still wanted to

keep focus on design, quality and sound, and the aim was to transfer the customers from B&O PLAY to B&O as the customers grew older (Gullev, 2012). Another big difference from Bang & Olufsen-products and the ones from B&O PLAY was how the products were manufactured. With products coming from Bang & Olufsen, big parts of the assembling process were still being done in Struer at that time. Components were delivered by partners and was thus used and integrated in Struer (Grubbe, 2017). Opposite, all parts of the production process in B&O PLAY-products have been outsourced to manufacturers in Asia to keep production costs low (Østergaard, 2017; Clemmesen, 2017) where only the tuning of the sound is being done in Struer (Grubbe, 2017). Additionally, the design process of the products is – like with B&O – done by external designers.

With B&O PLAY, B&O tried to catch the market trend of music digitization. They created strategic partnerships with big distributors including Apple stores and Danish mobile operator 3, whom furthermore helped B&O PLAY in accessing the new and younger audience (Østergaard, 2017).

Today, 5 years after the launch, the sub-brand has shown promising growth as seen in figure 4 below. B&O's annual report 2015/2016 states that B&O PLAY was responsible for 37% of the total revenue (970 mil DKK) and had a growth rate of 58% in the fiscal year (B&O, 2016).

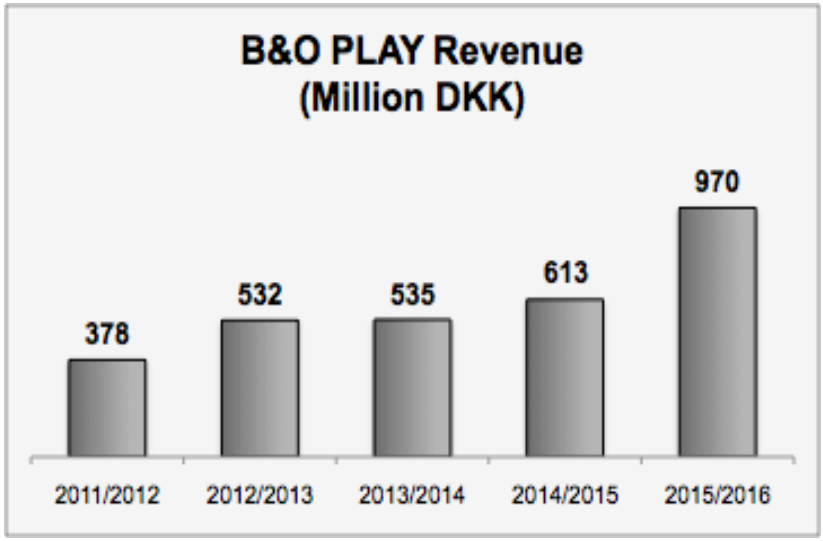

Figure 4 - Source: Authors own adaption of B&O (2012; 2013; 2014; 2015; 2016)

Despite B&O PLAY's profitability, B&O was still delivering poor results. B&O struggled to adjust to changing market conditions where major competitors such as Samsung loaded the market with well-designed products, with the newest technology, to a margin of the price that B&O could offer (Borsen, 2012). During 2012 and 2013, B&O delivered poor results and faced devaluation. One reason for the poor result was the lacking sales of the core-brand Bang & Olufsen in Europe, a market it is highly dependent on. Even with the failing European market B&O maintained continuous product introductions, here among the new BeoVision Avant and innovation-prize awarded wireless speakers. Nonetheless, B&O still suffered from having too high prices that did not match the consumers' high rate of product renewal. This made it evident that the struggles dating back to the financial crisis were still present. In order to maintain a high level of R&D the company was forced to seek capital from external investors, but failed to find it (Borsen, 2014). Primo 2015 the company advanced to look for potential buyers of B&O but this proved unsuccessful too.

Partnership with LG

In order to accommodate the need of maintaining a high level of R&D, B&O announced the strategic partnership with LG Electronics from South Korea regarding TVs (Trads, 2016). The partnership meant that B&O got access to LG's technology concerning TVs, which included the screen technology OLED that B&O had not worked with previously (Vejle, 2016). Partnering with LG was yet another move of B&O after having sold the Automotive Division and ICEpower, to create a leaner and profitable B&O. The former CEO, Tue Mantoni, explained that the partnership would make it possible for B&O to continuously be in the forefront of innovation of TVs, a market that was in big and frequent changes (Trads, 2016). Furthermore, the deal meant that B&O could benefit from economies of scale and acquires the necessary technological competencies (Trads, 2016). By getting know-how from LG, B&O could focus on its core competencies, sound and design. B&O would be in control of the design, concept, quality and sound (Rasmussen & Rissing, 2016). As a result, the TV-department in Struer was closed (Grubbe, 2017). B&O believed that the partnership would make it possible for the organization to reduce costs by up to 200m DKK (Grønnemann, 2016) where a part of this game from the reduced payrolls and the diminishing need for investing in new TV-technology (Trads, 2016). Finally B&O could now make TVs that they could capture profits from, which in

Tue Mantoni's words was the biggest difference from producing a TV before and after the LG-partnership (Rasmussen & Rissing, 2016).

In return from the partnership, LG gets money as well as access to B&O's capabilities. As an example, B&O has tuned the sound of LG's latest smartphones (Rasborg, 2017; Clemmesen, 2017).

4.5 Summing up

Today, the Bang & Olufsen brand shows signs of improvement and B&O PLAY continues to grow (Askjær, 2017). This means that B&O has halved its deficit from last year (B&O, 2016). B&O states that it will focus on strengthening its two brands by creating a more agile and profitable company in the time to come. As stated by B&O board member, Majken Schultz, the main challenge for B&O is becoming profitable again (Schultz, 2017). With the divestiture of Automotive and ICEpower, B&O is now driven by two primary business focuses: Bang & Olufsen (AV-products) and B&O PLAY. With B&O's strategic partnership with LG, B&O will once again try to be in front of the development of innovative and quality TVs, while taking advantage of its knowledge and competencies of sound and acoustics.

While B&O previously has been known for being a front-runner introducing innovative and breakthrough products, it has in the investigated timeframe been struggling to keep up with the industry's development. Consequently, B&O has continuously had to tighten its operations and lay off workforce. In the recent 20 years B&O has had difficulties to present the essential products in time which new technology has made possible. To mitigate the need for new technology, the joint venture of ICEpower was a case where B&O got access to innovative technology from external sources. Yet, B&O being too late to abandon CRT technology and adopt flat screens in its product portfolio is an example of B&O being late to market. In the focal period, B&O has attempted to increase profitability by widening its brand. Its engagement in the MP3-player and mobile telephones markets was unsuccessful cases of extending the brand, while Automotive and B&O PLAY have been prosperous extensions. These cases demonstrate scenarios where B&O has been responsive to external change and has exercised dynamic capability. The cases will be the analytical intersection points, which will be investigated in the following analysis.

5. Analysis

The company review of B&O has presented a number of developments and changes in B&O's market and surroundings in the focal period. How B&O has responded to tightening of competition, shortening of product life cycles and an increasing rate of technological development in its core product category, demonstrates the company's effort to exercise dynamic capability and helps to examine the research question. Sensing and seizing are according to Teece (2007) 'microfoundations' to dynamic capability and are the processes ahead of a company changing and reconfiguring its resources. To answer how a company can exercise dynamic capability, it will be examined what internal factors that influence how a company can 'sense' and 'seize'. Does internal factors constrain a company when exercising dynamic capability? Do certain internal processes make a company better at 'sensing' opportunities? And what influence what sensed opportunities a company can 'seize'? These are some of the questions that the first part of the analysis will seek to answer thus helping in answering how a company can exercise dynamic capability. As mentioned in the theoretical framework, theory of both dynamic capability and beyond are involved when analysing this.

How a company can exercise dynamic capability through altering its resource (Eisenhardt & Martin, 2000), will be examined in the second part of the analysis. Here, the analytical intersection points will be examined for the four modes of resource alteration (leveraging, creating new, accessing new, and releasing resources) and will be analysed with use of supplementary theory.

The purpose of the analysis is to advance dynamic capability theory making it more comprehensible for other scholars studying and managers trying to exercise dynamic capability through the case of B&O. Analysing this case contributes to dynamic capability theory with one more example of how a company having to renew itself in the face of changes has attempted to do so. Looking at how B&O has exercised dynamic capability can thus be used as an example and inspiration of how a company can exercise dynamic capability.

5.1 Sensing and seizing opportunities

5.1.1 Sensing opportunities

In order to identify opportunities from changes in its environment, a company must scan, interpret, and learn from the environment, hence sense opportunities and threats (Teece, Pisano & Shuen, 1997; Teece, 2007). As stated by Chesbrough (2003) the shortening of product life cycles and growth of external options, which is the case within the electronic consumer goods industry, raises the importance for companies to increase the rate of which they process knowledge. Likewise, in markets characterised with rapid innovation and short product life cycles, innovation becomes the primary source of competition (Schilling, 2013). A primary source of innovation lies within the organization's R&D. B&O has historically invested a lot in internal R&D (Severinsen, 2008). However, as the pace of technological innovation rises, the investment in new technology generated through R&D can prove to be risky due the risk of obsolescence. Furthermore, as technology quickly advances, the need to continuously invest in R&D is increased. Despite B&O prioritizing to invest in R&D it is only a fraction of what the giant AV-companies such as Samsung and LG invest, making it difficult for B&O to compete (Schultz, 2017; Rasborg, 2017). This section seeks to examine how B&O senses opportunities and what internal processes it makes use of in doing so. Currently B&O consolidates all its knowledge from suppliers, partners, and academia in its Creative Center, B&O's central R&D facility (Grubbe, 2017; Rasborg, 2017). This subsection will outline the interaction between B&O's internal knowledge and external knowledge coming from suppliers and academia, and how this interaction influences B&O's ability to sense opportunities.

Suppliers

In the consumer electronics industry, the same suppliers manufacture most components, thus B&O has a limited amount of suppliers to choose from (Kristoffersen, 2017). Being an OEM, B&O is highly dependent on these relationships in order to acquire the necessary components and know-how (Rasborg, 2017). Concept manager, Jakob Kristoffersen, states that new product development often starts by tapping into the knowledge of its suppliers and what new technology is available (Kristoffersen, 2017). In order to match customer needs, whether it was at the time when B&O was manufacturing most its own products, or now that most of it

is outsourced, it has always been vital for B&O to have processes that allows the company to tap into the newest technology offered by its suppliers. These suppliers provide B&O with necessary knowledge of technological development (Grubbe, 2017). Suppliers are thus found to be decisive for B&O in its sensing processes, as it is considered unlikely that B&O would have the same awareness of the technical features and possibilities that new development and technology allows without these.

The collaboration with Philips during the 1990s was providing B&O with more than just components. As mentioned in the case section, the collaboration included knowledge sharing and utilization of each other's technologies. B&O and Philips frequently met where Philips would enlighten B&O on the newest trends in technology (Bang, 1997). Today, the partnership with LG supplies B&O not only with manufacturing but also R&D of the newest know-how in terms of TVs. It brings insights of technology trends and shifts in customer demand to B&O, like it was the case with Philips (Grubbe, 2017). From such insight, the teams in the Creative Center prepare for upcoming technology and start to conceptualize new integrations and designs that it makes accessible (Kristoffersen, 2017). The knowledge creation process of tapping into the technical know-how of its suppliers allows B&O to focus on R&D within its core competencies of sound and design, which will be analysed in a later section. According to Powell, Koput and Smith-Doerr (1996) internal R&D is enhanced by including external knowledge. Including supplier knowledge may enhance B&O's R&D performance as it allows B&O to access research it could not investigate solely due to the costly nature of R&D in the electronic consumer good industry.

Academia

B&O has gotten valuable knowledge from the lengthy relationship with University of Aalborg and Technical University of Denmark, DTU (Grubbe, 2017). Like it was in the case of Karsten Nielsen and ICEpower, B&O engages in the particular research community of acoustics where knowledge from academia is sourced into B&O through collaboration with the universities. Led by Søren Bech, director of research at B&O, researchers of sound and acoustics, two areas that are consistent to B&O's core competencies that the analysis will get back to in a later section, are temporarily hired into B&O to carry out their research (Aalborg Universitet, 2017). Such relationship to academia allows B&O to tap into researchers' knowledge and

sense pioneering technology that might be in B&O's interest (Schilling, 2013). The most noteworthy of such collaborations was the one with Karsten Nielsen that eventually formed ICEpower, which can be considered an equity alliance in the form of a joint venture (Johnson, Whittington & Scholes, 2011). This collaboration allowed B&O to sense the applicability of class D amplifiers for commercial use in its speakers and ultimately acquire the competencies to do so. The collaboration is an example of B&O sourcing external knowledge from academia that functioned as a dynamic interplay between scientific knowledge, industry knowledge and user knowledge. ICEpower was built on Karsten Nielsen's know-how of acoustics and amplification, and B&O's brand, R&D facilities, and manufacturing (Christensen, Olesen & Kjær, 2005).

Creative Center

B&O's product-oriented R&D department, today called Creative Center, has the role of bringing chief technologists (meaning managers from the different areas of mechanics, hardware, software and system integration) together with the designers and product managers with customer and market insights (Grubbe, 2017; Rasborg, 2017). Here, chief technologists' knowledge (coming from personnel, suppliers, and academia), product managers' knowledge of the market (coming from customer insights and trends established from e.g. AV-fairs (Grubbe, 2017; Clemmesen, 2017)), and concepts of the designers are all combined (Rasborg, 2017) as seen in figure 5 below. Creating such cross-functional R&D teams that sources expertise from different areas is found to enhance innovation and product development (Eisenhardt & Martin, 2000) while increasing B&O's absorptive capacity, hence increases its ability to utilize external knowledge (Schilling, 2013). According to Cohen and Levinthal (1989), a firm's absorptive capacity shapes a company's ability to recognize the value of new information and utilize it efficiently. Consequently, the Creative Center is crucial for B&O when exercising dynamic capability as it combines B&O's sourced knowledge and may ultimately strengthen its ability to sense opportunities and threats. B&O's Creative Center can be compared to what Teece (2007) in his framework identifies as an 'analytical system' that learns, senses and filters opportunities. Following Teece's augmentation, these capabilities related to sensing opportunity are decisive for a company's ability exercise dynamic capability. For B&O and other companies in the electronic consumer good industry, it is found to be essential to have an internal R&D system that allows the company to integrate

external knowledge systematically. B&O is dependent on its suppliers in order to acquire the newest know-how and technology. The analytical system is then influential on how this knowledge can be applied in a way that allows B&O to use the knowledge to its advantage. Hence, B&O's Creative Center influences how it senses opportunity.

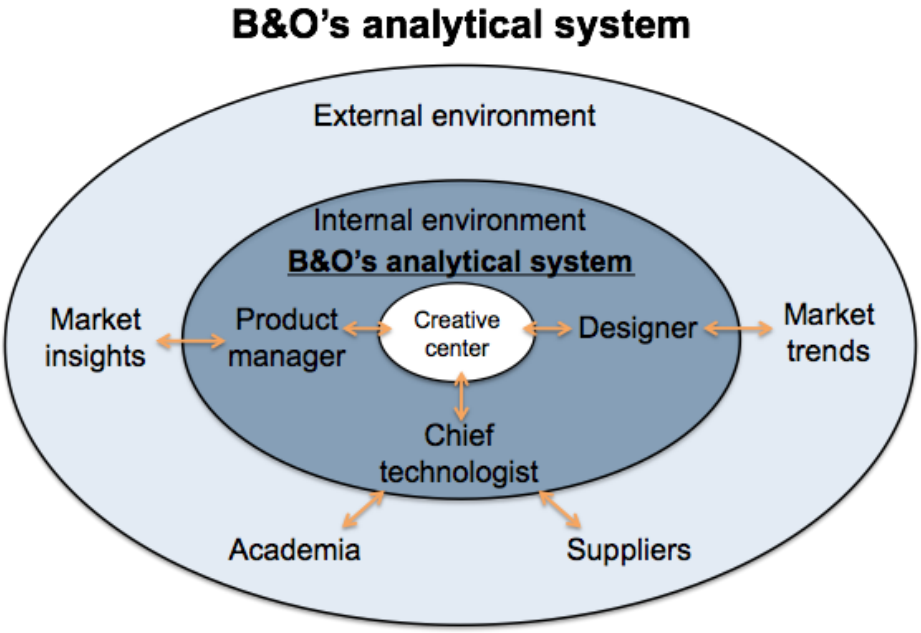

Figure 5. Source: Created by the authors.

As Teece (2007) argues, most emerging general trends can be hard to discern and a qualified analytical system is needed if a company is to increase its ability to sense which trajectory to follow. The gathered data did not reveal to which degree B&O's Creative Center increases its ability to sense opportunity. However, it can be stressed that B&O has processes that include the elements that Teece (2007) argues undergirds one's ability to sense opportunities and thus dynamic capability. B&O's engagement with partners such as LG, or previously Philips, are examples of how B&O struggles to cope with the challenge of being a small player in a market with significant R&D costs. B&O acknowledges its dependence on suppliers and makes use of its knowledge in the Creative Center. Therefore it is assumed that B&O to some extent has the capacity to sense opportunities and thus the first of three capacities needed for exercising dynamic capability (Teece, 2007). An example of B&O's ability to sense can be seen in the case of B&O responding too late to the flat screen technology. This was not due to a

failure in sensing the potential of the technology. B&O had 'sensed' the technology in time, as they also admitted in their chairman report (B&O, 2004). The problem was rather B&O's inability to invest in the technology and seize the opportunity at an early stage that made them fall behind competitors. Possible reasons for B&O seizing 'sensed' opportunity, among others, will be elaborated on in the coming section that analyses Teece's (2007) next step of exercising dynamic capability.

5.1.2 Seizing opportunities

Having sensed an opportunity stemming from new technology or a new market, a company must seize it through new products, processes or services. Companies do this by investing in development and commercialization activities (Teece, 2007). It is at this point a company must decide on which of the sensed opportunities it will try to pursue. Seizing is a company's attempt to keep or gain a competitive advantage by executing on sensed opportunities (Teece, 2007). But how does internal factors influence what a company seizes and how it can do so? As the definition of dynamic capability revolves around the notion of exploiting and reconfiguring internal resources to match external changes, it is necessary to identify B&O's key resources when examining how the company has exercised dynamic capability.

How the past constrains the future

The resource-based view, which dynamic capability origins from, suggests that companies obtain competitive advantage by responding to environmental opportunities through implementation of strategies that harness internal strengths (Barney, 1991). Thus existing resources are fundamental and must influence which opportunities it can seize profitably. Prahalad and Hamel (1990) refer to competitive advantage giving resources as core competencies. Hence, resources that are consistent with Barney's (1991) characteristics for yielding a company with competitive advantage, and core competencies that are in accordance with Prahalad and Hamel's (1990) definition are identified. This section seeks to examine how internal factors such as its existing resources may have constrained B&O when seizing.

As outlined in the literature review, Teece, Pisano & Shuen (1997) and Teece (2007) argues

that history matters and that it influences what a company can seize. Thus a company's future paths are shaped by the evolution it has already adopted. Trajectories and investments shape its competencies that "(...) *define what choices are open to the firm today*" (Teece, Pisano & Shuen, 1997: 515). Certain trajectories might form into core competencies (Prahalad & Hamel, 1990) and resources that allow for competitive advantage (Barney, 1991). Prahalad & Hamel (1990) argue that management's ability to combine technologies and skills into competencies empowers a company's ability to quickly adapt to changing conditions and the environmental opportunities that changes create, which corresponds well with its core competencies. As these core competencies are the result of the cumulative learning inside the organization (Prahalad & Hamel, 1990), it can be said that these are the result of the path the company has travelled. A company is thus found to be path dependent to its core competencies and resources and must follow new paths by seizing opportunities where it is possible to utilize core competencies.

Core competencies at B&O

B&O has consistently evolved around the ability to conceptualize innovative products from the available technology (Schultz, 2017). One of its core competencies with the investigated timeframe has been shaped by the company's consistent product development led by design and having the engineers accustom to the designers' concepts. Since B&O started to collaborate with external designers in the 1960s, a focus on design has been a primary factor in the way B&O creates products. B&O has since become known for its distinctive design. The relationship and interaction with external designers have resulted in B&O's core competency within design, which arguably has given B&O a competitive advantage over its competitors. This illustrates that core competencies can be conceived as relational assets and not necessarily, as Prahalad and Hamel (1990) claims should be fully internalized.

Since B&O started to produce radios in the 1930's, its products have been known for quality regarding sound and acoustics. Speakers such as Beolab 90 have been praised as an acoustically superior product (Hage, 2017), which is not the first B&O product that has been given such credit. Further evidence of the company's qualities within sound and acoustics can be seen in the former Automotive division where B&O created sound solutions for luxurious carmakers such as Mercedes, Aston Martin, and Audi as partnering up with these to improve

their sound systems are argued to be unlikely without B&O excelling within sound and acoustic.

In the 1990s, B&O defined its core competencies as sound, picture, design, audio and video integration, and craftsmanship (Poulsen, 1997). Today, B&O defines it as sound, acoustics, system integration, design and craftsmanship (Schultz, 2017; Grubbe, 2017; B&O, 2016). Notably, it is only 'picture' and 'video' that are not mentioned as core competencies today, which can be seen as a natural course of event after having outsourced its entire TV-unit following the established partnership with LG. The notion of 'craftsmanship' revolves around B&O's ability to choose, process and handle material such as aluminium, which is fairly unique compared to its competitors. This core competency can be considered as a coupling between the technological capability of processing material and the design capability of integrating it in its products. The coupling between assets has in previous research been discussed in terms of inter-asset specificity (Christensen, 1995). Yet, advancement on the coupling between assets is out of the thesis' scope and due to the connection between the capabilities of craftsmanship and design, craftsmanship will not be treated as a separate core competency throughout the analysis. The gathered data did not provide in-depth insights on the self-ascribed core competency 'system integration' and is left out of this paper's scope due to its technical complexity. Therefore, B&O's core competencies are defined as sound and design and are a simplification of B&O's own identification.

Following Prahalad and Hamel's (1990) characteristics of core competencies, both sound and design fulfil the characteristics. First, they provide B&O with potential access to a variety of markets. B&O's competencies of sound and design have as an example been transferred from the original Bang & Olufsen market to the new and younger B&O PLAY market as well as to the Automotive division's market. The cases are evidence of how core competencies can be used to enter new markets when composited in a different way. Second, B&O's core competencies are assumed to make a significant contribution to perceived customer benefits of products, as it is primarily through design and sound that B&O differentiates itself from its competitors (Neble, 2017). Finally, B&O's core competencies are assumingly difficult for competitors to imitate. B&O's excellence in its core competencies is embedded in processes that have been formed through many years of practice and can hence be considered tacit. It

cannot be assumed that a company can instantly deliver products with equivalent design in an acoustically strong performing product as B&O can due to its preceding path evolving around these core competencies. A number of competitors have tried to challenge B&O on design, e.g. by copying the design-style, but are either of poorer quality or introduced months after B&O has already launched such a product (Schultz, 2017).

The B&O brand as a resource

As noted in the literature review, this paper follows Amit & Schoemaker's (1993) distinction that "resources" can be divided into 'resources' and 'capabilities'. A firm is thus not just a sum of capabilities, it is equally a bundle of resources (Barney, 1991). Core competencies can be seen as the most significant capabilities a firm has. B&O has by relying on its core competencies of sound and design for decades created a unique reputation. This has founded the company's strong brand. B&O has in many years been named as one of the 'coolest' brands in the world and listed together with brands such as Google and Apple (Børsen, 2008). B&O's brand as a resource is assessed to have provided B&O with a competitive advantage in the high-end niche market and the findings suggest that the brand is one of B&O's most important resources (Frost, 2017; Schultz, 2017) following the argumentation of Barney's (1991) VRIN framework. Since the possible competitive advantage is gained by utilizing the B&O brand while exploiting core competencies, exercising dynamic capability can beneficially be done in a way that makes it possible for B&O to leverage the brand. B&O is aware of value stemming from the brand as a resource (Grubbe, 2017; Frost, 2017; Neble, 2017; Schultz, 2017; Kristoffersen, 2017; Rasborg, 2017). Similar to B&O's core competencies, the brand as a resource is not constrained to a single technology or product contrary to Smith Corona's brand, which Danneels (2010) demonstrated had limited fungibility and led to an overextension of the brand. The introduction of headphones in B&O PLAY and the Automotive Division is evidence of the brand being fungible to different product categories and markets, which will be analysed in a later section. Seizing opportunity by leveraging the brand is what marketing literature refers to as brand extension, which has been studied intensely (Keller & Aaker, 1992; Klink & Smith, 2001; Herr, Farquhar & Fazio, 1996). Brand extension is 'the use of established brand names to enter new product categories' (Keller and Aaker, 1992: 35). Extending an existing brand name revolves around the premise that consumers use their attitudes about the brand to draw conclusions about an extension product thus transferring

brand associations to new products (Klink and Smith, 2001). Seizing profitable opportunities is thus tied to ways that B&O can leverage this resource in different fashions, which follows Teece, Pisano & Shuen's (1997) argumentation of path dependency and competencies' influence when exercising dynamic capability. B&O's brand extensions are influenced by the brand's previous path (Herr, Farquhar & Fazio, 1996), meaning that B&O's strong product category association within the AV market may limit the brands' extendibility to other product categories, something that will be elaborated in the second part of the analysis.

When examining the cases where B&O has seized opportunities, it is in the accordance of the suggesting that a company is constrained to its core competencies and most valuable resources. Initiatives such as B&O PLAY, Automotive, ICEpower, mobile phones and MP3-players do all revolve around the core competencies of design and sound while utilizing the recognized brand name. B&O PLAY is based upon B&O's know-how of acoustics and has the same design process as Bang & Olufsen products (Kristoffersen, 2017; Neble, 2017; Grubbe, 2017). With the MP3-players and mobile phones B&O tried to utilize their core competencies to increase its product portfolio (Rasborg, 2017). Partnering up with brands such as Audi in Automotive would probably not be possible without its strong brand (Rasborg, 2017) and the ICEpower technology. All initiatives will be further examined later in the analysis.

Resource cognition

A company's previous paths, core competencies, and resources might not be the only internal factors that influence which opportunities that can be seized. A company's own perception of resources and competencies highly affects which opportunities it tries to take advantage of and which it does not (Danneels, 2010). This is what Danneels (2010) refers to as a company's resource cognition. Analysing B&O, two cases had strong indication of its resource cognition influencing how B&O seized opportunity.

One case where B&O's resource cognition may be considered flawed and influenced what opportunity it seized was when it extended its brand by entering the mobile phone market in 2005, a new product category to B&O. The phones, Serene and Serenata, were far from successful and the strategy of entering the mobile phone market was quickly dismissed. Despite that the phones were created in line with B&O's core competencies, with a focus on

design and sound, the phones were not successful. Although the phone was developed in cooperation with Samsung, B&O was highly involved in the development of the phone (Business, 2007). Looking at B&O's trajectory, creating a mobile phone was not a product area completely unfamiliar to B&O due to its previous success of manufacturing and selling landline telephones (Frost, 2017; Grubbe, 2017). However, the company's customer understanding and know-how within phone technology of landline telephones, established in the former Bang & Olufsen Telekom-department, was most likely not fungible to the mobile phone market, as this market was far more driven by computerized features than the landline telephones (Frost, 2017). Creating a mobile phone is thus argued to differ much from creating a landline phone. Customer understandings reflect an integrated mental model of the customers' identities, needs, lifestyles, and purchasing behaviours (Danneels, 2003). As such, customer understanding is a resource that a firm can utilize when attempting to renew itself (Danneels, 2010). Like Danneels' (2010), who found that managers' flawed cognition about its resources in the Smith Corona case made it extend its brand in an unprofitable manner, this case can be seen as an example of B&O's managers misinterpreting the company's resources of customer understandings. This led B&O onto an unprofitable path with its mobile phones (Rasborg, 2017). Evidence of the lack of customer understanding can be seen in both of the mobile phones cases. When the first phone, Serene, was developed, B&O wanted to leave out the camera function, opposite to other mobile phone companies that integrated cameras in most of their phones. Yet, Samsung pressured B&O not to dismiss the integrated camera, which B&O eventually accepted to integrate in the phone (Business, 2007). Assumingly, Samsung, that had been in the mobile phone industry for long, had more extensive customer knowledge than B&O and knew that creating a mobile phone without a camera was hazardous. When launching the second phone Sereneta, it was without a camera. Experts criticized the decision saying it was like 'creating a laptop that could not connect to the internet (Business, 2007). Additionally, Samsung had to pressure B&O to add the feature of an integrated email-system. Looking back, aware of the fact that the phones experienced somewhat bad performance, which may have been due to difficulties in extending the brand or simply making a bad product (aspects that will be analysed in a later section), it can be discussed if B&O's resource cognition was the reason for the failure. Creating a phone with minimal features, but to a significantly higher price than other mobile phones on the market, was a bold decision by B&O and one that did not pay off. Having a different cognition towards

its resources may have caused a different trajectory.

Contrary to the case of the two mobile phones, the recent strategic partnership with LG is an example of B&O assessing that it does not have the resources to develop and manufacture TVs itself if it is to remain competitive in this business area (Rasborg, 2017; Rasmussen & Rissing, 2016; Trads, 2016). B&O's resource cognition influenced the approach to which B&O altered its resources. Now, its core competencies of sound and design are applied when producing TVs, while the areas such as large-scale manufacturing and keeping up with the latest TV-technology, has been outsourced. This way of exercising dynamic capability is elaborated in the section of resource alteration.

Lastly, it is notable how much B&O emphasize its dependency on core competencies (e.g. Schultz, 2017; Grubbe, 2017; Rasborg, 2017; B&O, 2015; 2016). As just discussed and what will be further highlighted in the section regarding 'leveraging resources', all of B&O's business developments are centred around its core competencies, which is in accordance to Prahalad & Hamel's (1990) argumentation of staying competitive over time. Though, its dominant resource cognition of the importance of its current core competencies may hinder B&O in discovering new capabilities that can evolve into future core competencies. Burgelman & Grove (2007) propose that corporate longevity may come from coincidences in a company's evolution, which lead to new resources and processes that can be converted into competitive strategies. Examining if B&O's resource cognition and emphasis on its current core competencies has limited them in discovering these new resources can be seen fairly complex. However, as noted in the company section, B&O's own identification of its core competencies has not changed for almost 30 years, besides the removal of 'video' and 'picture' as a result of the partnership with LG.

Accordingly to the case of Smith Corona (Danneels, 2010), the analysis above suggests that a company's resource cognition is highly influential when a company performs dynamic capability. B&O's beliefs regarding its resources and core competencies affected which opportunities it tried to seize. Flawed cognition about these can influence a company to seize sensed opportunities that are unlikely to succeed making a company exercise dynamic capability that leads to unprofitability. This indicates that before a company determines how

it will try to perform dynamic capability, it is necessary to critically examine the company's resources and acknowledge that current cognition regarding its resources might not be correct.

It must be noted that the concepts of path dependency and resource cognition may both influence how a company senses opportunities. An example of resource cognition's influence on sensing could be the that managers of B&O solely thought of sound and design as capabilities where B&O could gain a competitive advantage, thus excluding exploration in other potential areas of competitiveness. Path dependency's influence on sensing could be that a company having invested heavily in one area of R&D is not willing to invest further resources in another area and therefore do not sense opportunities outside of its current business areas. Hence, a company's past actions conditions the alternatives management is able to perceive (Teece, Pisano & Shuen, 1997). Yet, as these concepts were more apparent when analysing cases of B&O seizing opportunity, it has been elaborated in this section and the influence it might have had of sensing is thus not examined. Future research could include these to advance the theory further.

B&O's challenges when seizing new opportunity

Previous research has shown the importance of investing in new technologies if a company is to survive in the long run (Chandler, 1990; Lazonick, 2005). B&O's path dependency may bias investment decisions and keep the company from investing in promising new technology or engage in a newly sprouted market, even though seizing such opportunity can be criteria for corporate longevity. This may also explain the absence of new core competencies in B&O. As discussed in the prior section of core competencies, B&O must rely on these to be competitive and is thus tied to them when deciding to follow an opportunity or not. If B&O cannot apply its core competencies of design and sound it may keep from engaging in a new trajectory. The liability of being a small company may also bias its incentive to seize an opportunity. New product development is often characterized by a process including idea generation, concept development and testing, development of business and marketing strategy, product manufacturing, and commercialization (Kotler & Armstrong, 2017). A similar process is present in B&O where the process starts in the Creative Center (Grubbe, 2017; Kristoffersen, 2017). These stages can all be fairly extensive to undertake, why investing in new technology

that is not fully developed or established is seen as risky due to the small size of B&O (Clemmesen, 2017). The potential risk of developing and launching a product that fails can entail major losses due to the resources invested in the development. Being a minor company with fewer assets compared to competitors, too many failed developments can be fatal for B&O (Clemmesen, 2017; Børsen IT, 2007b). Consequently, excessive risk-averseness may possibly bias B&O's management's decision-making when opportunities rise. A bias that Teece (2007) notes is not uncommon in managerial decision making when deciding what opportunities to seize. These mentioned biases may have influenced B&O when faced with seizing opportunities. Selected cases will be analysed in the following to further examine these influences to how B&O has seized opportunities.

Failing to seize flat screen technology

It can be argued that B&O failed to overcome its path-dependency and invest in the new technology when B&O first sensed the flat screen technology. Even though B&O had sensed the potential of the flat screen technology the company kept relying on its existing CRT-technology. When it eventually did seize the new LCD technology years after its competitors, it was too late and led to disappointing sales as B&O and its TV-products were technologically behind (B&O, 2004; Frost, 2017). Afuah and Utterback (1997) introduces a dynamic model of innovation, which characterizes the dynamic processes that take place within an industry and within the different firms during the evolution of a technology. Part of their model is the 'transitional phase' that includes standardization and establishment of a dominant design. With the plasma and LCD technology evolving into what can be characterized as a transitional phase, B&O was forced to respond in order not to fall further behind. The data collection did not clarify fully why B&O did not engage in flat screen technology until the transitional phase, however, one dominant explanation was identified It was explained due to risk-averseness stemming from B&O's size (Clemmesen, 2017; Rasborg, 2017). Management at B&O admit that they were aware of the technology's potential years before they engaged in the technology but had underestimated how swiftly the flat screen market developed (Bang, 2002). The management stated that B&O had to wait until the technology had become more mature before integrating it in its products (Beoworld, 2006). The new technology changed many of the processes of developing the TV and therefore required extensive investments (Clemmesen, 2017; Rasborg, 2017). B&O could assumingly not afford to bet on the technology

until it had shown signs of maturing thus being closer to a dominant design (Clemmensen, 2017). By the time it had matured and B&O engaged in the technology, competitors were far ahead.

The late introduction of B&O's flat screen TV may also be linked to B&O's core competency of design being challenged in this particular product category, as the smaller surface of a flat screen TV compared to CRT-driven TVs left less room for B&O to excel on design (Bang, 2004). B&O had to adapt its core competency to match the new TVs' dimensions (Grubbe, 2017; Frost, 2017).

Even though the case of flat screen technology serves as an example of B&O failing to replace the 'dysfunctional' CRT technology and did not seize the trending technology until suffering from late-mover disadvantages, there are three cases that demonstrates B&O successfully seizing opportunities.

Seizing new technology from academia – ICEpower

Having sensed the commercial potential in class D amplification from B&O's close collaboration with Karsten Nielsens and his Ph.D. project at DTU, B&O seized the opportunity and hired Nielsen. This allowed B&O to acquire his know-how as well as patents related to class D amplification – capabilities that were not widely distributed in the industry at the time (Christensen, Olsen & Kjær, 2005). Engaging in collaboration with Nielsen and forming ICEpower, gave B&O greater freedom when addressing aesthetic and functional concerns in speaker designs due to the smaller amplification modules. The technology improved acoustical attributes in speakers, as the amplifiers were more powerful than previous used technology. Going up-stream to get access to the pioneering technology, allowed B&O to utilize its core competencies in both design and sound. An example is the product BeoLab 1 where ICEpower technology allowed B&O to create a speaker with a unique slim design, thus utilizing design capabilities (Frost, 2017), while having powerful acoustical attributes (B&O, 2002) building on B&O's core competency of sound. The ICEpower technology resulted in B&O being able to offer products with improved amplification modules among the first on the market, meaning that B&O was among the frontrunners in the latest technology concerning speakers. Having 75% ownership of ICEpower also meant that B&O could restrict Nielsen's

patented amplification technology from competitors, increasing the value B&O could capture from the innovation, assuming that patents are strong and enforceable. Had B&O simply sought class D amplification modules externally, B&O would not have been able to restrict competitors from the technology. Seizing the opportunity and engaging in ownership of Nielsen's technology meant that emulators could not benefit from it and had to seek class D amplification modules from other sources. Seizing opportunity by acknowledging own boundaries, meaning that B&O recognizes that it should not invest in creating the technology itself, and managing a complementary technology, as B&O did with class D amplification technology, is noted in Teece's (2007) framework as enhancing a company's ability to seize opportunity. Thus the ICEpower case serves as an example of B&O seizing opportunity and evoking dynamic capability, which was influenced by the external knowledge coming from academia and the technology's fit to its core competency.

Seizing new markets – B&O PLAY & Automotive

With the digitalization of music and increase in streaming, B&O had sensed the growing market of transportable sound that was created by smartphones' ability to provide the user with his music library at all times. This new market was characterized by users younger than B&O's traditional target segment allowing B&O to widen its market with limited cannibalization (Kristoffersen, 2017). The new market had other prerequisites than the Bang & Olufsen brand's market, which B&O adapted to when seizing this new opportunity. Teece (2007) argues that it may be necessary for a company to alter its business model when seizing new opportunities. When developing the B&O PLAY concept, the company delineated one central aspect of its business model: the distribution was changed to match the new customer segment. Instead of solely selling through its own B1 stores and selected HIFI retailers, the B&O PLAY distribution was both widened and digitalized. B&O PLAY partnered up with Apple Stores and major third party retailers such as Elgiganten and Power, the two biggest consumer electronic warehouses in Denmark (Neble, 2017; Frost, 2017). Furthermore, B&O PLAY engaged in e-commerce for the very first time and established a B&O PLAY web shop. This was possible as the sub-brand was following industry standards, meaning that it offered its product with less technological features but to more accessible prices than Bang & Olufsen (Kristoffersen, 2017). Engaging in e-commerce was an important adaptation to the new segment's purchasing behaviour (Kristoffersen, 2017; Neble, 2017). By changing its

distribution channels, B&O seized the opportunity of the new B&O PLAY market by adjusting its business model, which follows Teece (2007) argumentation regarding business model delineation.

A similar approach of delineating its business model when seizing a new market was seen in the case of B&O Automotive. Contrary to the traditional Bang & Olufsen business, Automotive was selling business-to-business to a whole new customer market and relied on licensing agreements. In this new market B&O could also utilize its core competencies of sound and design, while tapping into the B&O brand. Partnering up with brands such as Aston Martin and Mercedes was assumingly possible due to the strong brand of B&O. Automotive does, like B&O PLAY, illustrate the ability to exercise dynamic capability by seizing opportunity through the utilization of core competencies and resources in an altered business model. Accordingly to Teece (2007) a company's ability to delineate its business model affects its ability to exercise dynamic capability. The two cases will be analysed more extensively in the second part of the analysis following Eisenhardt and Martin's (2000) four modes of resource alteration.

Delineating its business model was obviously not the only factor that made it possible to seize B&O Play and Automotive. As described in the theoretical framework, resource alteration (which is the focus of the second part of the analysis) is a way for companies to seize opportunities. The cases will thus be further examined when analysing the second sub-question focusing on resource alteration.

5.1.3 What internal factors influence how a company can sense and seize when responding to market changes?

The case study of B&O indicated that several internal factors influence how a company senses and seizes opportunity when responding to market changes. A company's knowledge processes influence a company's ability to sense. 'Sensing' rests on a company's absorptive capacity and its capability to combine internal and external knowledge. In the case of B&O, the linkage between its internal R&D and external sources of knowledge influences its ability to sense opportunity. B&O's analytical system, constituted by its Creative Center, is decisive for what B&O senses and consequently affects what opportunities B&O seizes. The findings

suggest that a small company within the industry of electronic consumer goods is dependent on external sources when it has to sense opportunities stemming from technological changes and innovation. Having an analytical system to process these external inputs is thus decisive for companies having to exercise dynamic capability.

The sensed opportunities that a company can seize are to a large extent found to be influenced by its path dependency to the company's resources and core competencies. Accordingly to the foundations of the resource-based view, B&O has only seized opportunities that allowed it to utilize its competencies within sound and design, while simultaneously being able to leverage its strongest resource, the B&O brand. Cases from B&O have demonstrated how the ability to delineate one's business model in order to take advantage of its core competencies and resources may influence a company's ability to seize. This can assist companies in renewing themselves by entering new markets.

The analysis suggests that seizing opportunities requires a critical assessment regarding its resources, as flawed resource cognition can lead to a company pursuing costly paths. In the case of B&O, assumed wrong beliefs about its customer understanding and exploitation of core competencies lead to an unsuccessful extension of its product portfolio when B&O launched its two mobile phones. This finding confirms Danneels' (2010) addition of resource cognition to the dynamic capability theory, which could help explain why companies follow certain paths. It was also discussed how resource cognition may hinder the discovery of new value-adding resources that potentially could evolve into new core competencies.

Lastly, it was demonstrated that small companies within the industry of electronic consumer goods may refrain from prematurely seizing opportunity of developing technology due to risk-averseness. Seizing technology that has not fully developed or established is found risky and can result in losses that have a harsh impact on its future competitiveness. This implies that the size of company influence how a company seizes opportunities. Consequently, the proposition of this thesis is that internal factors such as knowledge processes to grasp external knowledge sources, path dependent to its resources (e.g. core competencies) and the cognition regarding these, and a company's risk awareness and size influence how a company sense and seize opportunities.

5.2 Resource alteration

Dynamic capability theory argues that a company can gain competitive advantage in the face of changes by changings its set of resources (Teece, Pisano & Shuen, 1997; Teece, 2007; Eisenhardt & Martin, 2000). This section examines how B&O has used the various modes of which a resource can be altered when trying to renew itself: leveraging existing resources, creating new resources, accessing external resources, and releasing resources (Eisenhardt & Martin, 2000). The analysis is organized according to these. As discussed in the literature review, many of the processes to seize an opportunity is found in the theory of resource alteration, why this section will both analyse seized opportunities and reconfiguration of existing businesses of B&O. The purpose of this section is to identify specific ways to how a company can alter its resource base when exercising dynamic capability to assist answering this thesis' research question.

5.2.1. Leveraging existing resources

Part of dynamic capability is integrating resources. For example, new product development processes by which a company combines its varied skills to create new revenue-generating products (Clark and Fujimoto, 1991; Dougherty, 1992; Helfat and Raubitschek, 2000) can be such a dynamic capability (Eisenhardt & Martin, 2000). Leveraging resources thus allows a company to renew itself by exploiting existing resources, and applying these to novel uses such as new product categories and/or the entering of new markets (Danneels, 2010).

The sub-section will show how B&O has tried to leverage its brand, core competencies, and customer understanding when exercising dynamic capability. Some cases are evidence of the resources being transferable to new uses while others did not add value to new ventures.

Leveraging the brand

As discussed in the first part of the analysis, the brand is a highly significant and value adding resource for B&O. Strategies that seek to capitalize on the strength of the brand name are brand extensions, which have been discussed earlier. To summarize, brand extensions are a company's attempt to transfer brand associations and customer beliefs to the extended products. B&O's strong brand name enables a possible competitive advantage why leveraging this resource can be vital for B&O when trying to compete following Barney's (1991) view on

competitiveness. Having a strong brand name can, however, both be a blessing and a curse (Herr, Farquhar & Fazion, 1996). Three types of brand associations are found to highly impact its transferability: product category associations (e.g. B&O – AV-products), benefit associations (e.g. B&O – great design and sound) and usage situations associations (e.g. B&O – the home, or "on-the-move" after the introduction of B&O PLAY). The ease of cognitive access in customers' minds of a certain type of association may inhibit the accessibility of other associations (Meyvis and Janiszewski, 2004). Consequently, leveraging the brand is easier for B&O if the brand extension follows its brand associations. In the case of B&O the most accessible brand associations were found to be AV-products made with a focus on design and sound. In the next section it will be shown how B&O in various cases has tried to leverage the brand and it will be discussed how these brand associations may have influenced its brand extensions.

Mobile phones and MP3-players

The cases of the mobile phones and the MP3-players are examples of B&O trying to renew itself performing brand extensions by leveraging the brand (and core competencies, which will be discussed in the latter part of this analysis) (Rasborg, 2017), though it proved as an unsuccessful attempt. Accordingly to the definition of a brand extension, B&O attempted to transfer the brands' associations and customer beliefs of great sound and design into two new product categories. In the eyes of Meyvis & Janiszewski (2004), producing a mobile phone was both out of B&O's product category associations and its usage situation associations. Yet, the phones were, as mentioned, aligned with its benefit associations, sound and design. Though it was made with a focus on its core competencies the technology of the phone was inadequate and came with a significantly higher price than its competitors (Frost, 2017). Hence, it can be argued that the benefit associations of sound and design were not valued enough in the mobile phone market to compensate for the lack of technology and the higher price of the mobile phones. Specifically, it is argued that B&O did not succeed in overcoming its product category association why this brand extension chance of success was lessened. Consequently, B&O could not leverage its brand substantially as it only followed one of its three brand associations. Additionally explanation to the lack of success of this brand extension might be explained by being technologically inferior despite the integration of its core competencies.

Differently, the MP3-market was both aligned with B&O's benefit association and its product category associations, why the MP3-players were more according to theory's view of leveraging the brand (Meyvis and Janiszewski, 2004). Similar to the phones, the price of B&O's MP3-players were significantly higher than its competitors. The unprofitability of the MP3-players are more likely explained by poor market timing (Grubbe, 2017), a high price, and lack of complementary assets (Frost, 2017), than it is with the use of brand extension theory. Beosound 2, B&O's first MP3, was launched shortly after Apple introduced its first iPod, which later became market leading and subsequently had its own platform in Apple's iTunes. B&O introduced its second MP3-player in 2007, which too did not become an acceptable revenue-generating product for B&O. Even though the MP3-player was not a commercial success it may still be emphasised as a case of how a company can leverage its resources to adapt to new market opportunities though B&O might not have sensed and seized the opportunity timely. Both the example of the MP3-players and the mobile phones follow Beverland, Napoli & Farrelly's (2010) identification that failed brand extensions are driven by a mismatch between desired strategy and the capabilities necessary for success as B&O lacked complementary assets to both the mobile phones and MP3-players.

Automotive

The introduction of Automotive in 2005 serves as another case of brand extension in B&O. Automotive provided luxurious car brands with quality sound systems. Automotive followed all brand associations but the 'usage situation' that changed from 'the home' to 'a car'. It was presented together with its first partnership with Audi. Later, several other brands were added to the business including Aston Martin, BMW and Mercedes. The paper proposes that B&O, being a niche AV-company positioned in the high-end of the market, made it possible to establish partnership with the aforementioned car brands. Martin Rasborg, senior R&D manager at B&O confirms this saying that partnerships with for example Audi would never been possible if it was not for B&O's strong brand (Rasborg, 2017). The strong brand of B&O and its benefit associations of great sound and design are found to play a significant role in Automotive. These carmakers that are all found to have a strong brand themselves, would assumingly not enter a partnership with a company that would not be aligned with its own brand and proving as a valuable partner. Thus the case is an example of how B&O succeeded in leveraging the existing resource stemming from the brand.

B&O PLAY

Looking at the growth rate since the introduction, the brand extension of B&O PLAY seems to be the most successful brand extensions that B&O has performed in the studied period. When several B&O employees were asked what factors that have influenced the fast growth, all agreed that the brand was of decisive character (Grubbe, 2017; Kristoffersen, 2017; Neble, 2017; Rasborg, 2017). A board member of B&O even claimed that B&O might not exist today if it had not been for B&O PLAY, but that B&O PLAY is only possible due to the mother brand (Schultz, 2017). B&O PLAY was in the fiscal year of 2015/2016 responsible for almost 40% of the total revenue of B&O. The sub-brand's products were both aligned with B&O's product category and benefit associations. However, with portable products made for 'being on the go' the usage situation differed from B&O's usage situation associated to 'the home'. B&O PLAY's business model, as previously described, differentiates in several ways from B&O. Among the most significant changes was the change of distribution channels. To target a younger audience, B&O made partnerships with Apple and other big retailers. Like in the case of Automotive, the brand is found to be vital to make these partnerships possible. Stocking a brand name that is known and recognized worldwide is presumably adding value for retailers thus generating revenue for these. This can explain why B&O PLAY, despite of its brief existence, has been able to partner up with approximately 6.000 third party retail stores at the end of the fiscal year of 2015/2016 (Bang & Olufsen, 2016).

The brand value can also help shedding light to why B&O has succeeded in targeting a new customer group. Having a long and extensive history, not only in Denmark, has resulted in B&O having a high level of brand awareness. However, being a high-end brand with prices higher than the average, B&O's products have historically not been available to everybody. B&O PLAY's products are priced lower than Bang & Olufsen products, why the sub-brand is accessible for a broader audience. Found by neuromarketers, high prices may improve the perceived value of the brands products (O'Neil & Lambert, 2001). Because B&O PLAY carries the name of its mother brand, part of the perceived value of the product is transferred to B&O PLAY's products. Consequently, B&O succeeds in transferring brand association from B&O to B&O PLAY and leverages its brand in order to exercise dynamic capability. Without being able

to leverage the resource of the brand, B&O PLAY's success would likely have been reduced significantly.

Leveraging core competencies

It is evident from the above cases that most brand extensions have been sought by the utilization of its core competencies and putting these to new uses (Rasborg, 2017), which also has been discussed previously. This follows Prahalad & Hamel's (1990) argumentation that core competencies can be used as 'engines' for new business development. B&O PLAY's products are all created based on the same conceptualization and design processes as Bang & Olufsen products (Kristoffersen, 2017). The technical sound features of B&O PLAY products are also managed in B&O's sound-department in Struer (Grubbe, 2017; Kristoffersen, 2017; Neble, 2017). The cumulative knowledge of sound and design within B&O has arguably made it possible for B&O to create a sub-brand that revolves around the same competencies and capabilities (Rasborg, 2017). Automotive was likewise based on the core competencies. The sound capabilities and its technology from ICEpower made it possible to offer car brands an improved sound system, while the capabilities of design enhanced that the design was aligned with the car's aesthetics. In the cases of the mobile phones and MP3-players, B&O likewise tried to leverage its core competencies. However, this paper proposes that it was difficult for B&O to leverage the brand when creating a mobile phone as it was outside of its product category associations of AV-products. Furthermore, it has been discussed that the value of sound and design was not adequate to compensate for either technological flaws, significantly higher prices, and/or poor market timing. This indicates that leveraging core competencies and resources are not always sufficient to exercise dynamic capability if a company extends its brand outside of its brand associations or it lack supplementary resources.

Leveraging customer understandings

As argued in the first part of the analysis, customer understanding as a resource can be utilized by a company to renew itself and thus exercising dynamic capability. Customer understandings can be used to develop competitively advantageous products (Danneels, 2010). The thesis proposes that B&O's customer understanding was a vital source when extending its brand with B&O PLAY.

Flawed cognition about its customer understandings in the mobile phone market made B&O try to leverage these when pursuing this unprofitable brand extension. A case where B&O succeeded in leveraging its customer understandings is in the case of B&O PLAY. B&O PLAY is a case of how B&O utilizes its customer understandings when renewing itself. Having made AV-products created around sound and design for many decades, B&O has deep customer understandings within this market (Rasborg, 2017). Its knowledge of selecting, handling and processing materials (what B&O refers to as 'craftsmanship' when talking core competencies) are highly used when designing products (Kristoffersen, 2017). Additionally, as it is the same people who tune Bang & Olufsen products and B&O PLAY products, the knowledge of how customers evaluate the quality of sound can be exploited. Following Danneels' (2010) argumentation, deep customer understanding made it possible for B&O to develop competitively advantaged products, that were better tailored to customer needs than competitors' products, making a new market for B&O possible.

5.2.2 Creating new resources

When a company cannot leverage existing resources to adapt to changes, it may alter its resources by building or creating new resources internally to exercise dynamic capability (Eisenhardt & Martin, 2000). Development of new resources that constitutes new competencies requires second-order competence, which is the ability to create new competencies (Danneels, 2010; Levinthal & March, 1993). These second-order competencies have in previous literature been categorized as marked-related or technology-related competencies (Danneels, 2010). Marked-related competencies are created by customer understanding and a company's ability to enter new markets as a resource, while technology-related competencies consist of resources such as technological know-how and manufacturing facilities (Danneels, 2002; Danneels, 2010). When creating new resources the company must evaluate whether it has the necessary competencies, for example the technical competencies required to create new R&D processes or the marketing competencies to widen its distribution channel (Danneels, 2002). Thus creating new resources depends on a company's competency to explore markets or new technology and adding these competencies to the firm (Danneels, 2010).

Creating new resources can be done through exploring marked- and technology-related competencies simultaneously (e.g. creating a new resource with new technology to a new market) but can also be through exploring marked-related ones while exploiting existing technology-related competencies or vice versa (Danneels, 2002). Therefore, it may be difficult to tell an explorative creation of new resources and an adjustment of current resources from one another. When is it truly a new resource and when is the new resource created by leveraging and altering existing competencies? This dilemma of categorizing resource alteration by leveraging existing or creating new resources was present when analysing the cases of B&O. Since creation of new resources can be a complex internal process, acquiring data that made it possible to analyse has been problematic. Additionally, inspecting this in retrospective and thus required to seek insights from former employees of B&O or people who have been part of the processes was found difficult. Though in two recent initiatives, the product development process that was formed with the new Creative Center and the newer business development of B&O PLAY, data was accessible and did provide insights of resource creation in B&O. The cases demonstrates what new resources B&O created by exploring marked- or technology-related competencies and will be analysed in order to emphasise how B&O has exercised dynamic capability through its creation of new resources.

Creating a new internal R&D process

With the development of B&O's Creative Center in 2014, the company created a new product development process accommodate the shortening of product life cycles. The Creative Center replaced B&O's old R&D called 'Idéland' (Rasborg, 2017). The new process constitutes of teams that combines market knowledge from product managers, creative thinking from designers, and the technical insights of engineers from R&D. This 'trinity', as B&O refers to it, develops the products or concepts that has been suggested from explorative activities of B&O and been confirmed as a viable business projects that B&O should engage in. Prior to this new product development process, a concept would be developed in one department at a time and did not include the product manager's market insights to the same extent (Rasborg, 2017).

By creating a team-based product development process, B&O have been able to mitigate eventual misunderstandings between the departments, that previously existed as the designers would develop something that the engineers later would have to fit the technology

to, and that the product managers eventually would have to commercialize (Rasborg, 2017). The new process of conceptualization can be seen as more agile compared to the prior one.. The 'trinity' was created to shorten the time taken from idea to finished product needed to comply with the fast pace of technological innovation. The new product development is considered a newly created resource that was formed by new technology-related competencies of R&D processes developed internally, where the trinity enhances the interaction between the departments.

Creating new distribution

When B&O created B&O PLAY the distribution model was delineated from Bang & Olufsen's and *"…entirely new distribution channels were created"* (Kristoffersen, 2017: 17:24). Instead of solely selling its products through its own B1 stores or shop-in-shops (selected HIFI stores that has allocated an area for B&O products) as the Bang & Olufsen brand, B&O PLAY adapted to the new customer segment and exercised marketing second-order competencies (Danneels, 2010). The customer segment of B&O PLAY constitutes of younger generations compared to the Bang & Olufsen brand – a segment that has grown up with digitalization (Kristoffersen, 2017). Consequently, their purchase behaviour was different, which made it crucial for B&O to adapt if it was to meet the customers at their situated points of purchase (Kristoffersen, 2017; Neble, 2017). Cheaper prices assumingly decreased the need for expert-service, which allowed B&O PLAY products to be sold in less HIFI-specialized shops and consequently widened the distribution to non-specialized retailers. As this distribution was not an existing resource before B&O PLAY, it was necessary to create. B&O created a web shop for B&O PLAY products – a platform where the younger and 'more digital' segment are greatly represented (Smith, 2015). With the new segment more engaged in e-commerce and with prices that can be assumed not to discourage online purchase, the creation of the web shop is an example of B&O altering its resources by creating a new one in order to exercise dynamic capability. Likewise, B&O created new third-party retailer partnerships for the B&O PLAY products. These third-party retailers were not necessarily HIFI experts as with the Bang & Olufsen retailers, but varied from small individual consumer electronic stores, lifestyle shops, airport outlets and large consumer electronic retailers (Kristoffersen, 2017; Neble, 2017). The extended retailer network of B&O PLAY constitutes of approximately 6.000 stores worldwide compared to the Bang & Olufsen brand, which reaches little over 600 stores with the B1 and

shop-in-shops (B&O, 2016). These numbers verify, following the argumentation of Danneels (2002; 2010) that the new distribution of B&O PLAY was a newly created resource that constituted of new marked-related competencies.

5.2.3 Accessing external resources

When a company is to alter its resources and cannot access its internal resource base through leveraging existing or creating new resources, it can seek resources outside the firm (Eisenhardt & Martin, 2000; Danneels, 2010). There are multiple ways of doing so. Alliances and acquisitions can be seen as external sources when seeking resources to exercise dynamic capability (Eisenhardt & Martin, 2000). Such collaborations may provide a company with less risk, faster product development, or access to new markets and technologies (Powell, Koput & Smith-Doerr, 1996; Schilling, 2013). As discussed previously, B&O is in its nature dependent on external resources to exist, as it is an OEM (Rasborg, 2017; Grubbe, 2017). Most components in its products today are from external sources and the amount of resources acquired externally has increased, which partnerships such as the newly created with LG suggest (Grubbe, 2017). B&O is increasingly shifting towards an asset light business model (Schultz, 2017) meaning that B&O decreases its amount of capital assets compared to its operations and relies on external partners' resources (Wang et al., 2017). Prior studies have shown how asset-light strategies have enhanced performance in the global airlines and semiconductor industry (Wen, Huang & Cheng, 2012: Wang et al. 2017). These studies have indicated how companies can adopt an asset-light strategy to mitigate increasing R&D costs, lower risks, obtain economies of scale, and allow the company to focus on its core competencies. These are problems similar to the ones Powell, Koput and Smith-Doerr (1996) argue can be reduced through partnerships. Hence, adopting an asset-light strategy and engaging in partnership with LG could, according to theory, let B&O counter the problems stemming from being a small player in the changing electronic consumer goods industry. Partnerships, such as the one with LG, have over the investigated timeframe, provided B&O with external resources. Accessing external resources through partnerships have been a general manner when B&O has exercised dynamic capability. Though partnerships is found to be a way of overcoming strategic challenges such as high manufacturing costs due to lack of volume, the strategy can too be a hindering and a challenge for a firm. These will be discussed in this sub-section's analysis. The cases of B&O accessing external resources are analysed

below.

Partnership with LG

As analysed in the section of sensing opportunity, the partnerships with Philips and LG provided B&O with more than just components. They presented B&O with access to these consumer electronic giants' technology, know-how, and R&D. B&O board member, Majken Schultz, emphasised the cruciality of the partnership with LG as B&O has disposed of having it's own TV platform and instead rely solely on LG's (Schultz, 2017). Former CEO, Tue Mantoni, explained that the partnership with LG helped B&O to solve its strategic issue of assessing the newest technology while gaining economies of scale (Trads, 2016), which are according to the commonly stated reasons for outsourcing (McDougall, 2004). Leaving the manufacturing to LG provides B&O with economies of scale, meaning B&O can decrease its manufacturing costs. Following the partnership with LG, former CEO Tue Mantoni explained that B&O had had difficulties in making money on its TV due to high production costs prior to the partnership (Elstrup, 2016b). The whole development and manufacturing process of TVs is now done by LG. Only the design and tuning of sound is done internally by B&O (Grubbe, 2017) leaving B&O to focus on its core competencies. B&O is now dependent on LG for its entire product category of TVs responsible for 32% of turnover in fiscal 2015/2016 (B&O, 2016).

Accessing external resources through the partnership with LG has provided B&O with some of the benefits mentioned by Powell, Koput & Smith-Doerr (1996). B&O has eliminated the risk in the product development process, as this process is now divested to LG and no longer done internally. This may counter the bias of risk-averseness, mentioned in the section of seizing opportunity, stemming from B&O's relatively small size. When pursuing a new TV technology, for instance the rising OLED technology, B&O will no longer have as much at stake, as it has not devoted R&D and manufacturing processes to the new technology. The LG partnership gave B&O access to the new OLED technology, which B&O products did not have prior to the partnership (Schultz, 2017). Accessing the technology improved B&O's chances of providing products that were up to date with customer demand. Developing such technology internally would presumably be prohibitively costly. Instead B&O can allocate its resources to utilize its core competencies and adapt them to the new technology.

Allocating the product development processes to LG has further benefits for B&O. The partnership entails shortened product development processes (Rasborg, 2017; Schultz, 2017), meaning that B&O can be faster to market with products where the newest technology is integrated. Prior to the LG partnership, several B&O retailers criticised the company for the lengthy product development process and stated that it weakened its competitiveness to other consumer electronic retailers (Elstrup, 2016a). The challenge of having too long a product development process to meet market demands, which B&O has strived to improve since the beginning of the 21st century (Børsen, 2000), have been mitigated with the LG partnership (Schultz, 2017).

Furthermore, the partnership with LG has provided B&O with an extended access to the Korean market, another of the benefits mentioned by Powell, Koput & Smith-Doerr (1996). The partnership has allowed collaboration between LG's new smartphones and B&O PLAY. When purchasing an LG smartphone in South Korea, the customer gets a discounted price on a B&O PLAY headset. This agreement includes that B&O PLAY is displayed at LG's smartphone commercials or billboards (Grubbe, 2017). Hence, the partnership helped B&O PLAY in entering the new market of South Korea.

The partnership with LG demonstrates that B&O has decided that it cannot create the TV platforms itself due to the costs involved in R&D and manufacturing (Clemmesen, 2017; Rasborg, 2017; Schultz, 2017). B&O accessing resources from LG, exhibits dynamic capability as a response to the increasing rivalry in the market, frequent technological advancement, and shortening product life cycles, which increases the importance of innovation (Schilling, 2013). B&O being a relatively small company cannot benefit as much from the proportionality between value of cost reduction and volume of production (Klepper, 1997) and does not have the capacity to invest as much in innovative processes as competitors. Therefore, the partnership with LG is a case of B&O renewing itself to adapt to the changing environment by accessing external resources. The partnership with Samsung in the creation of B&O's mobile phones and MP3-players, where B&O relied on Samsung's technology, is a case similar to the LG partnership.

While partnerships, like the one with LG, have obvious benefits for B&O, they may also come with downsides and potential risk (Ellram, Wendy & Billington, 2008; Shelanski & Klein, 1995; Ring & Van de Ven, 1992). Doubtlessly, companies can gain cheaper access to high quality services and greater flexibility thus increasing its short-term competitiveness. However, it may gradually lose know-how and/or control of the outsourced processes, which will affect its long-term competitiveness negatively (Ellram, Wendy & Billington, 2008). Additionally, a company that outsources part of its value chain has to deal with supplier opportunism and the hazards that follow. Manufacturing and selling TV's has in many decades been one of B&O's core businesses. By laying off its own TV-department in Struer relying solely on LG, a potential risk for B&O is that it will lose its own understanding and know-how regarding TV-manufacturing. The dependency of LG will potentially increase over time. As a result, one of its core businesses is considerably driven by its supplier's capabilities. Although leaving its manufacturing to LG is a quick way of gaining state-of-the-art technology (Ellram, Wendy & Billington, 2008), it is unlikely that B&O will ever be ahead of LG in terms of product innovation within TVs. Historically, B&O has been an innovator and has been a company that has shaped its markets (Frost, 2017). By entering the partnership with LG, it seems less possible that B&O can follow up on its history. Additionally, B&O and LG are competitors despite the partnership and may cannibalize on each other's customers. Being competitors, LG might not give B&O access to the newest technology before having integrated it in its own products, why supplier opportunism exists and is a risk that B&O has to manage. This may for instance be done through specific types of contracts (Ring & Van de Ven, 1992). Despite trying, the data did not reveal how B&O has taken these risks into account other than meeting these challenges in the contract (Rasborg, 2017).

Joint venture with ICEpower

As analysed in the section of seizing opportunity, the ICEpower case serves as an example of B&O evoking dynamic capability determined by the external resources coming from academia. The joint venture consolidated the know-how of acoustics and amplification from Karsten Nielsen and B&O's brand, R&D facilities, and manufacturing. As noted by Christensen, Olsen & Kjær (2005) the joint venture between B&O and Karsten Nielsen demonstrates that a relatively small company like B&O is not tied to seek external resources solely from the large incumbents, such as Philips or LG. Furthermore, accessing the class D amplification through

an alliance is in general faster than if B&O had to develop the technology internally (Johnson, Whittington & Scholes, 2011).

5.2.4 Releasing resources

The last mode of resource alteration, releasing resources (Eisenhardt & Martin, 2000) may be performed in order to streamline a company and redirect resources into alternative uses, which could lead to organizational renewal (Danneels, 2010). B&O has various times released resources in order to make its operations more efficient coping with market changes or to pursue new growth opportunities. This has been done by laying off employees, changing its manufacturing processes and divest parts of the various business areas.

Releasing workforce and manufacturing

A common factor for the times that B&O was challenged on its profitability has been the importance of making the company's operations more lean. In 1991 when Anders Knutsen implemented the strategy 'Break-point', focus was on reorganizing the company structure. This included outsourcing of manufacturing and a reduction of employees, which meant that 710 employees were laid off (Poulsen, 1997). As emphasised in the case company section, this divestment allowed B&O to redirect the released resources into strengthening of marketing and retailer performance (Poulsen, 1997) in order to increase competitiveness. Another retrenchment was performed in the early 2000's when B&O was losing profitability due to a decrease in customers' willingness to buy (Stokholm, 2001). *"We are releasing resources for new growth projects"* the former CEO Torben Ballegaard Søren explained (Jakobsen, 2004). Employees were laid off to compensate the drop in sales and to redirect the resources to new AV systems (Jakobsen, 2004), thus to necessary product introductions. In both cases, B&O released resources through retrenchment of workforce to redirect resources into alternative uses, which had notable effect on the turnaround to profitability.

In 2004, B&O moved part of its production to the Czech Republic. 200 workplaces were outsourced from Denmark to the Czech Republic in order to gain a source of competitiveness by taking advantage of lower wage levels, explained a production manager of B&O (Børsen, 2004). Following, B&O sold its production unit located in Skive (Bang & Salomonsen, 2004). The unit had 275 workers and had in 40 years manufactured a considerable amount of B&O's

technological components. The divestiture was explained by lack of volume, why significant investments needed in order to keep up with the development of technology were found to be risky (Bang & Salomonsen, 2004). When partnering up with LG regarding the production of TV's, B&O laid off 55 employees that were all a part of the TV-unit in Struer (Gravesen, 2016). The partnership was estimated to help B&O reduce its cost with up to 200m DKK (Trads, 2016). Followingly, B&O sold its established production unit in the Czech Republic for 125m DKK in 2017 (Stigsgaard, 2017). Similar to the LG-partnership, it was released to follow B&O's strategy of becoming a less production-heavy company and instead adopting an asset-light business model (Stigsgaard, 2017; Wang et al., 2017). The challenge of being a small company with less volume, made B&O exercise dynamic capability by releasing part of its activities in manufacturing. These cases are evidence of B&O having to alter an important part of its business, manufacturing, to respond to the changes in its business environment. Due to the increase in the speed of the technological development, B&O could not keep relying on its own manufacturing processes that once proved as profitable and had to release resources that did not yield the necessary competitiveness (Eisenhardt & Martin, 2000).

Releasing products and business areas

As a consequence of the financial crisis beginning in 2007, further release of resources was carried out by decreasing its product portfolio (Venderby, 2008). Mentioned earlier, the mobile phones and MP3-players were removed from B&O's product portfolio. The products did not meet its revenue goals and releasing the resources involved allowed B&O to focus on AV-products that had more volume. "*We do not beat products like Apple's iPod anyways*," the new CEO at that time, Kalle Hvidt Nielsen, stated (Bang & Skouboe, 2008).

Described in the case section, the two business areas, ICEpower and Automotive were likewise released in respectively 2015 and 2016 in order to redirect resources towards the two remaining business areas, Bang & Olufsen and B&O PLAY (B&O, 2016). Both business areas had performed well as noted in B&O's annual reports. The divestiture of ICEpower released 32m DKK for B&O and part of the deal included B&O preserved access to the technology and kept license agreements that were part of ICEpower and responsible for most of its revenue (Ritzau, 2016). The divestiture of Automotive was a similar case. With the sale to Hamann, where B&O received 1.17B DKK, B&O engaged in a license agreement with

Hamann that will last at least 20 years, where B&O will gain a license payment for each unit sold from Automotive. Both the release of ICEpower and Automotive can stand as further evidence of B&O's strategy of increasingly adopting an asset-light business model. Whether striving for an asset-light business model is the only reason for the divestitures is unknown. Accessing data to investigate and fully understand whether other reasons existed was out of this thesis' scope and would likely be difficult to attain. Therefore, it can only surmised if it was associated to economic reasons or likewise B&O seeking to strengthen its liquidity.

5.2.5 How can companies exercise dynamic capability through resource alteration?

The findings demonstrate how B&O has altered its resources in order to exercise dynamic capability and serve as an inspiration to how other companies can do too. Leveraging the brand and core competencies allowed the company to enter new product categories and markets. The B&O brand was found to be partially fungible when performing brand extensions and it imply that companies may need to consider its brand associations before extending its brand to renew itself. The cases of B&O has shown what theory has suggested, that leveraging core competencies can be used as engines for business development (Prahalad & Hamel, 1990; Eisenhardt & Martin, 2000). Although core competencies and a strong brand assists when exercising dynamic capability through brand extensions, other aspects are found to influence the profitability of these such as market timing or additional capabilities and complementary assets. Additionally, the findings indicate that customer understanding plays a vital role when leveraging resources in brand extensions. Deep customer understanding resulted in the profitable sub-brand, B&O PLAY, while the lack of it is argued to be determinant of pursuing an unprofitable path within the mobile phone market. The analysis indicates that a company, when leveraging its resources in order to renew itself, has to examine its resources and its transferability to a great extent before extending its brand categories. This once again emphasise resource cognitions' importance in the exercise of dynamic capability.

With the creation of B&O PLAY, B&O's distribution had to be reconfigured. The new product category and customer segment meant that B&O had to alter its distribution. By exercising marketing second-order competencies, B&O extended its distribution channel by creating an online web shop and extended the third party distribution network. The shortening of

product life cycles made it necessary for B&O to shorten its new product development process. As a response, B&O created a new process that was constituted by cross-functional teams. By exercising technological second-order competencies, the new process was created, which assisted B&O in shortening the new product development time. These cases of B&O creating new resources emphasise how a company may create new resources in order to adapt to changes by the exercise of second-order competencies.

Partnerships with suppliers and academia have been a decisive factor when B&O neither leveraged nor created its own resources, and instead accessed external resources in order to renew itself. Alliances with suppliers have accordingly to outsourcing-theory, provided B&O with scale advantages, less risk, faster product development, and access to new markets and technologies. Despite the obvious short-term benefits for B&O and its influence on competitiveness, the partnership with LG is found to potentially have a negative impact on B&O's long-term competitiveness due to loss of knowledge and control. Likewise, supplier opportunism is found to potentially exist. Before accessing external resources through partnerships, a manager must weigh such benefits against risks when having to alter a company's resources.

Lastly, the cases from B&O show how releasing resources through workforce retrenchment and divestiture in manufacturing capabilities can be a way to alter resources in order to mitigate increasing R&D costs, lower risks, obtain economies of scale, and allow a company to relocate resources to areas related to core competencies. Another approach when forced to exercise dynamic capability can be to examine one's product portfolio. If necessary, a company may decrease its variety of products by releasing products where its resources were found to have better use elsewhere within the company, as B&O did with its mobile phones and MP3-players. Lastly, releasing whole business areas may likewise decrease complexity of a company's operations and can allow it to redirect its scarce resources to focus on other business areas.

6.Discussion

6.1 Findings

The purpose of the study was to advance the theory of dynamic capability by answering the research question concerning how a company can exercise dynamic capability. Market changes have multiple times challenged B&O to exercise dynamic capability. Tapping into suppliers and academia in interaction with internal R&D processes assisted B&O in sensing challenges and opportunities. Various internal elements including path dependency to resources (e.g. core competencies) and its cognition about these, company size and risk-averseness, were found to affect what B&O seized. Lastly, this thesis examined the various modes of resource alteration and how B&O tried altering its resources in order to perform dynamic capability. The company has in some cases been able to alter its resources profitably to renew itself in the face of demanding times. This was done through brand extensions, partnerships and alliances, new distribution channels and releasing workforce and business areas. These are among the approaches by which B&O altered its resources. Leveraging its core competencies and strong brand while adjusting its operations are found to play a vital role in renewing itself.

6.2 Implications

The thesis has provided a comprehension of the elements influencing a company's dynamic capability and examples of various modes of resource alteration that enables renewal and dynamic capability. As many implications have been found due to the nature of the research question, only the most interesting findings will be discussed below. These findings suggest the following managerial implications:

First, a company's ability to exercise dynamic capability origins from its capacity to gather and process knowledge, hence the ability to 'sense' is an influential first step in assessing what and how to respond to market changes. If a company, like B&O, is dependent on external knowledge sources, it is fundamental to have an 'analytical system' to grasp these external inputs when 'sensing'. This can be accomplished by having certain knowledge processes within the company. B&O has a cross-functional system where various managers, each with its unique knowledge and know-how (market knowledge, design trends, and technology

know-how), works together in new product development. Such an internal process may enhance a company's absorptive capacity and thus its ability to sense new opportunities that it can seize to renew itself.

Second, its resources, such as core competencies, are highly influential when exercising dynamic capability. Companies may identify its most valuable resources and try to utilize these when seizing its initiatives to renew itself. Utilizing core competencies can be a driver to brand extensions. An important finding of the thesis is that two of B&O's most successful brand extensions were done by delineating its business model. With Automotive, B&O changed from a business-to-consumer to business-to-business business model and with B&O PLAY it entered a new market and customer segment while changing its distribution. Hence, a company can exercise dynamic capability through brand extensions that utilize core competencies and that delineate its regular business model. However, not only does a company's resources influence how a company can exercise dynamic capability, but also its cognition about these resources matters. As it was in the case of Smith Corona (Danneels, 2010), it was found that resource cognition influences how a company exercises dynamic capability. Flawed cognition of its resources can lead a company to follow unprofitable paths. The findings imply that a company needing to exercise dynamic capability must critically assess its own resource cognition. A company should identify what its key resources are and assess the transferability of these into new applications. Being aware of its resources and its limitations can result in a lower likelihood of seizing unprofitable opportunities and faulty seek renewal through sub-optimal resource alteration.

Lastly, the thesis has provided salient examples of how companies exercise dynamic capability through resource alteration and why various modes are used. The main proposition of these findings is that a company can use all four modes of resource alteration (leveraging existing, creating new, accessing external and/or releasing resources). Leveraging existing resources can assist a company in extending its brand. If a company has deep customer understandings, these can be used to create competitive advantageous products, for example to enter a new market or extend its product portfolio. In the case of B&O, brand extensions are found to be an integrated part of its way of exercising dynamic capability, which was similar to the case study of Smith Corona (Danneels, 2010). However, not all brand extensions

resulted into profitable new ventures, confirming Beverland, Napoli, and Farrelly's (2010) findings that brand extensions are not as low risk as previously thought. If a company cannot leverage its resources, it may access resources by entering partnerships, which, like brand extensions, has been a continuous strategy of B&O when exercising dynamic capability. It can be an agile approach of getting state-of-the-art technology and obtaining scale advantages while decreasing the need for extensive R&D investments. Likewise, it can allow a company to focus on its core competencies. Yet, the thesis has discussed that even though partnerships allow undeniable short-term benefits for a company, it may harm its long-term competitiveness as it may gradually lose understanding and know-how of decisive processes. This can increase a company's dependence on the partnerships. Consequently, a company must counterbalance potential benefits and risk when altering a company's resources by accessing external resources.

6.3 Advancing the theory

The theory of dynamic capability has various times been met with critique of being vague, non-operational and has proven largely resistant to empirical observation (e.g. Kraatz & Zajac, 2001). A theme that likewise has been discussed in Danneels' (2010) and Eisenhardt & Martin's (2000) articles. This thesis has sought to advance the theory by confronting it with an empirical, present-day - and to a large extent - on-going case. B&O is a salient example of a company required to renew itself in order to compete in new market conditions. The study has arguably advanced the theory in different ways. Putting the theory to use in an empirical case provides a valuable understanding of the theory's potential operational use that helps to counter the theoretical critique. As the dynamic capability theory has helped to explain B&O's attempts to adjust to market changes, this thesis finds that stating the theory is vague and non-operational is a misunderstanding. The theory has helped to explain many of the analysed initiatives that B&O has sought why appointing it as non-operational is dismissed. Having confronted the theory to an empirical case, this paper suggests that terms such as *broad* and *complex* is more appropriate than vague, when discussing the applicability of dynamic capability theory. This is found to be more precise as dynamic capability is assessed to be best understood when combined with supplementary theory. The use of supplementary theories was found particularly decisive when addressing resource alteration in the case study of B&O. These findings are in consonance with Eisenhardt & Martin's (2000)

argumentation that dynamic capability consists of various elements that themselves have been subjects of extensive empirical research outside of dynamic capability. The thesis has to some extent helped advancing the theory by relating dynamic capability to other theoretical areas such as core competencies, brand extension, alliances, outsourcing, sourcing knowledge, R&D, product development and resource cognition. Findings suggested relationships between these and dynamic capability, and are argued to be relevant to understand when examining or exercising it. Some of these relationships have been connected in previous dynamic capability theory (Teece, 2007; Eisenhardt & Martin, 2000; Danneels, 2010) while some are new.

By examining the modes of resource alteration, this study has provided a better understanding of how these can be used when exercising dynamic capability. In other words, how resource alteration enables renewal. The thesis hopes that by looking at how B&O did things, it helps to identify the processes inside the theory, including the areas presented above, when other scholars examines the theory or when companies/managers find themselves in need of renewal.

It furthermore confirmed Danneels' (2010) addition to dynamic capability theory, resource cognition. Similar to the case of Smith Corona this was found to have a decisive influence in explaining what and how B&O exercises dynamic capability. Hence, "*It is not only resources that affect dynamic capability but also cognition about those resources*" (Danneels, 2010: 26). The use of the concept was likewise developed further as it might assist in examining the lack of new core competencies within B&O. If looking for new opportunities to utilize core competencies is the dominant cognition and focus of a manager, he may not notice new, potential resources that could evolve to core competencies and thus give the company a competitive advantage in the future and assist the company in renewing itself. Thus future research could involve examining the balance between exploitation of core competencies and the exploration of new resources, which will be further examined in the next section.

6.4 Limitations and further research

This study contributes to the, of our knowledge, underexplored area of empirical case studies of dynamic capability. Although the analysis has resulted in theoretical and empirically founded propositions, several limitations to it are present:

It should be emphasized that a single case study cannot demonstrate all possible approaches as to how a company can exercise dynamic capability. As this thesis suggests to categorising the theory as broad and complex by including numerous supplementary theories, it is likely that this thesis does not include all related concepts to the theory. The case can serve as inspiration, though what B&O did and succeeded in, might not be completely transferable to other cases within the industry of electronic consumer goods. The same thing can be said regarding B&O's less profitable brand extensions. As noted in the analysis regarding sensing and seizing, findings imply that a company is path dependent. B&O has had its very own path why its dependencies differ from other companies. The case of B&O tells but a fraction of how a company can alter its resources, but it can be viewed as a starting point for other scholars and managers investigating how a company can exercise dynamic capability. While the implication of supplier knowledge being valuable may be specific to the electronic consumer good industry that is dominated by a few large incumbents with extensive R&D, other implications such as resource cognition's influence can apply to most industries. The findings must, however, be used with care and should not be adopted in any context. For example, it cannot be generalised that any company should allocate resources to tap into academia to sense or seize up coming technology, yet for a company like B&O it can be essential. Further research of other cases must be conducted to verify a more general applicability of the findings.

The analytical intersection points have been chosen due to a subjective assessment of the fit to the dynamic capability theory. Analysing different intersection points may have given different findings and propositions. A more extensive analysis including other cases may provide a more detailed analysis of how B&O exercised dynamic capability. Furthermore, by examining and identifying certain changes in retrospective, it is difficult to find small and incremental changes that has happened within the industry and analyse what these have meant for B&O. Consequently, the thesis had to lump them all together and referring to these as technological innovation that decreased product life cycles.

As many aspects of the dynamic capability theory involves highly internal processes, such as R&D processes, knowledge sharing across the organization, and creation of new resources, a

further examination of these could be carried out to advance the analysis. As it was difficult to fully interpret and understand how these processes are carried out by B&O, the thesis could not integrate all concepts. An analysis could help illustrate how internal knowledge processes and resources have been changed to respond to market changes and what role these have had when B&O has exercised dynamic capability. Additionally, an analysis could examine how these internal processes are compounded to assist innovation. As suggested in the literature review, Chesbrough's (2003; 2014) concept of open innovation could be involved to get an understanding of how B&O's in-house R&D is enhanced by sourcing external knowledge and what impact it has on its ability to sense opportunity.

When this thesis has analysed core competencies, focus has been on the static competencies of sound and design that B&O has kept the last decades by presumingly adjusting these along the way. It has not examined if processes and innovation within B&O have resulted into new capabilities within the organisation that potentially can evolve into new core competencies. As shortly discussed in the section regarding resource cognition, B&O's emphasis on its existing core competencies may have hindered it in recognising new potential value-adding resources. Burgelman & Grove (2007) propose that corporate longevity depends on coincidences at different key moments in a company's evolution, which lead to new resources and processes that can be converted into competitive strategies. As mentioned in the literature review, they argue that a company's long-term competitiveness is highly affected by its ability to balance autonomous (explorative activities) and induced (exploitative activities) cycles. Senior manager of R&D, Martin Rasborg, explained in an interview that an important part of B&O's product innovation processes is exploration (Rasborg, 2017). Following Burgelman & Grove's (2007) argumentation, further research could examine if exploration and autonomous processes have led to new capabilities that have been converted to induced processes assisting B&O in renewing itself. Potentially, new core competencies could be caused by such autonomous activities giving B&O new potential ways to alter its resource thus exercise dynamic capability. Further research on the creation of new, potential core competencies could include Danneels' (2010) term, resource cognition. Integrating the concept could help to examine if managers' cognitions limit the creation of new potential valuable capabilities as they might be tied to previous comprehensions about a company's resources and core competencies thus hindering identification of possible new capabilities.

An interesting finding from the analysis was that B&O has changed its business model due to the frequent market changes (Schultz, 2017; Grubbe, 2017; Rasborg, 2017). To increase its pace of acquiring new technology and to gain advantages of scale manufacturing, B&O now relies to a large extent on alliances and outsourcing of its product development, what B&O refers to as 'asset-light'. Transaction cost theory (TCE) and outsourcing theory both claim that while it can provide short-term benefits, it might challenge a company's longevity (Ellram, Wendy & Billington, 2008; Schilling, 2013). As this paper has been analysing B&O in retrospective not giving much attention to its future competitiveness, future research could examine how adopting an asset-light business model, as a response to market changes, influences B&O's long term competitiveness. Do the decreased internal activities help B&O in competing in a market with frequent changes, or do the disadvantages of releasing control harm the product innovation and challenge the value stemming from the brand? Value that made it possible to profitably extend its brand with Automotive and B&O PLAY.

Lastly, the paper has some unresolved questions that was not possible to get an answer to. An example of such a question is why B&O sold Automotive and ICEpower despite profitable results. Was it to get liquidity due to a financial deficit or was it because of the strategy of focusing on its core businesses of B&O PLAY and Bang & Olufsen, as B&O publically stated? As questions like these can be seen as rather private to the company and its executive team, getting answers to these when being an external researcher was simply not possible.

Could B&O have done anything differently? Or was falling behind compared to its heydays inevitable? B&O could probably have acted differently resulting in a different path. A path that could be both more profitably as it could have resulted in its demise. Findings showed that its technology and customer understandings were not adequate to become a successful mobile phone brand for example. According to the findings regarding resource cognition, a more accurate understanding of its resources and competencies could assist B&O in choosing more aligned brand extensions. Some might also point out that a partnership like the one with LG could have been accessed earlier helping B&O to gain the needed state-of-the-art technology cheaper and more swiftly. However, the purpose of this study was not to identify where B&O failed or succeeded and point out how B&O's management should have done differently.

Instead, the purpose was to identify which initiatives can be explained with the use of dynamic capability in order to examine the theory's usefulness. The framework of dynamic capability does, to a great extent, as mentioned earlier, help to understand the things B&O has done in attempt to cope with market changes.

7. Conclusion

This thesis has sought to advance on the dynamic capability theory by answering how a mature company in the electronic consumer good industry can exercise dynamic capability when striving to compete in a market characterized with frequent changes. Two sub-questions were found vital to answer in order to meet this objective. One sub-question sought to answer what internal factors that influence how a company senses and seizes opportunity when responding to market changes, while the other investigated how a company can exercise dynamic capability through resource alteration.

Examining the presented research question was conducted through an empirical case study of the Danish AV-company, Bang & Olufsen (B&O). The thesis has several propositions. First, dynamic capability can be exercised through various modes of resource alteration (leveraging existing, creating new, accessing external and/or releasing resources) and these modes provide a company with several ways of renewing itself. A mature company can *leverage its resources* (e.g. core competencies, its brand, and customer understandings) in order to perform brand extensions if they are transferable to new uses and brand associations do not hinder these. Examples of possible brand extensions are to target different customer segments and/or engage in a new product category. If a company has a strong brand, it might be able to leverage this to partner up with value-adding brands from the new market in order to enhance its competitiveness. Additionally, brand extensions can be done by changing the composition of a product while altering the manufacturing process making the products more affordable and accessible to additional consumers. Exercising dynamic capability by extending its brand to a wider segment through lowering its prices might be reserved for high-end brands such as B&O. When renewing itself, through brand extensions or reconfigurations of existing businesses, a company might be required to *create new resources*. As the market changes, new resources can be essential in order for a company to be able to compete. Such

resources can be a new distribution making it possible to target a new customer segment or creating new product-oriented R&D-processes to counter a faster pace of technological innovation. Creating new resources to complement existing core competencies and resources are found to help a company when renewing itself and is done through second order competencies. Additionally, partnerships and collaboration with academia can be modes of how a company can *access external resources*. Choosing to access resources instead of creating them are found to both have potential positive as negative consequences. It can be a way for a company to acquire necessary resources, such as technology or manufacturing capability in a more agile and cost efficient way, as well as with improved quality than creating those themselves. Nonetheless, outsourcing fundamental processes might challenge the long-term competitiveness of a company as it may lose control and needed know-how of these processes, hence increasing the dependency on partnerships and collaborations. Lastly, a way of exercising dynamic capability can be by *releasing resources.* Essentially, this enables a firm to reconfigure its resources into other areas where they are found to have better use. Releasing resources can for example be done by laying off workforce, outsourcing manufacturing units, decreasing product portfolio, and/or releasing whole business areas. As changing markets may challenge a company's profitability as a consequence of new competitors or disrupting technology, reconfiguring its operation by releasing parts of it may be necessary to compete.

The above modes of resource alteration can thus be ways for companies in the electronic consumer goods industry to exercise dynamic capability. However, this paper argues that certain internal factors constrain a company when it senses and seizes opportunities. Sensing and seizing are the two other vital elements of exercising dynamic capability (Teece, 2007), which forms the basis of what resources a company seeks to alter and how it does so. When responding to market changes, how a company senses or seizes opportunity were found to be influenced by internal factors such as knowledge processes, path dependency to its resources (including core competencies), its cognition about these resources, and risk averseness stemming from a company's size. Before a company can seize and alter its resources in order to renew itself, it must be able to sense opportunities. Sensing is per definition an internal capability, yet external knowledge coming from sources such as suppliers and academia is found to assist significantly. Smaller companies within the industry of electronic consumer

goods that does not have extensive resources allocated to internal R&D are found to be dependent on external sources, such as suppliers, when sensing opportunities stemming from technological innovation. In order to discern qualified and unfitting information from one another, a company may benefit from having an 'analytical system' that combines cross-functional teams to filter and interpret knowledge coming from external sources. A company's internal system is found to affect a company's absorptive capacity and consequently how it assimilates and applies acquired knowledge, thus influencing what opportunities it seizes and how it exercises dynamic capability.

Furthermore, the thesis found evidence that a company is path dependent when exercising dynamic capability. Certain trajectories are shaped into core competencies (which do not necessarily have to be fully internalized as Prahalad and Hamel (1990) argues) and resources allowing a possible competitive advantage. The extendibility of these resources constrains how a company can renew itself in response to market changes, why a company's previous path influences which possible future ones it can follow. When resources and core competencies are transferable, a possible approach for a company to seize opportunities is by delineating its business model.

An important finding of the thesis was the notion of *resource cognition*. The main proposition is that not only does a company's resources influence how a company can exercise dynamic capability, but also the company's cognition about these resources affects it. The thesis argues that inaccurate cognitions about one's competencies can make companies follow unprofitable paths. Thus critical assessments of a company's resources are found important when exercising dynamic capability. Consequently, resource cognition is a fundamental influence to how a company seizes and exercise dynamic capability.

It should be stressed that a single empirical case company cannot foster all possible approaches as to how a company can exercise dynamic capability. Nonetheless, it is argued to be an advancement to the theory as it demonstrates how a recent electronic consumer goods company, B&O, a salient example of a company needing to renew itself to respond to market changes, has tried to exercise the concepts. The thesis has clarified and examined processes inside of dynamic capability in an attempt to test the theory's operational fit. The findings

suggest that the critique of dynamic capability being vague and non-operational (e.g. Kraatz & Zajac, 2001) is misunderstood. Instead, we suggest describing the theory with expressions such as *broad* and *complex,* as numerous supplementary theories are needed when examining the usefulness of the theory, supporting Eisenhardt & Martin's (2000) argumentation.

To conclude, the aforementioned various modes of resource alteration leave a company with different approaches to how a mature company in the electronic consumer good industry can exercise dynamic capability. Yet, a company must be aware of internal factors that influence what opportunities it senses and how it can seize these. Also, it should be aware of the various modes of resource alteration and recognise that each mode has its advantages and disadvantages. How a company can exercise dynamic capability depends on its previous paths, why thorough self-assessment of core competencies and resources is advised before responding to change. Doing so may allow the company to continuously renew itself and thereby stay competitive over time.

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9. Appendices

9.1 Appendix 1 – Interview Audio files

The following audio files are attached to the submission:

- Christian Frost.m4a
- Jakob Kristoffersen.m4a
- Jesper Smidt Clemmesen.mp3
- Majken Schultz.m4a
- Martin Rasborg.mp4
- Morten Grubbe.m4a
- Sofie Østergaard Neble.m4a

9.2 Appendix 2 – Interview guides

Interview with Christian Frost: Industry expert – Creative Director for Duckshoot
Media

Industry:

- Can you describe the AV industry in general?
- How has the AV industry changed in this period?
- What is some of the biggest challenges within this industry?
- How has the competition changed?

B&O:

- What have been B&O's strengths during time?
- Has B&O been better than its competitors?
- How much better has its products been compared to competitors?
- What have been B&O's weaknesses? Also weaknesses in its products?
- Which challenges has B&O had the last 30 years?
- Has there been a change in its customer segment?

- What has been its most successful business development?
- B&O launched at one time a mobile phone. What are your thoughts on this? Why did it not become popular?
- The same for MP3?
- You write in your book that it was a success to sell Automotive and ICEpower. Can you elaborate?
- How has B&O been at introducing new products? Why/why not?
- Have they developed products that maybe they not ought to have done looking retrospective?

PLAY:

- What do you think about the implementation of B&O PLAY?
- Why do you think that PLAY is a success?

Interview with Jesper Smidt Clemmesen: Hardware engineer in Bang & Olufsen

Industry:

- Can you explain the main market changes that you have experienced in your time at B&O?
- How have you reacted to these changes?
- How has competition changed?

B&O:

- Can you explain your role in B&O?
- What do you see as some of the biggest challenges for B&O?
- Which market changes has been the most challenging for B&O?
- What do you know about your partnership with LG? What do you give them in return?
- When you extend your product portfolio – is it attempts to leverage your brand?
- Is it also attempts to leverage core competencies?
- Did you create new resources in order to make the plasma TV?

- What made Automotive possible? Did you need to learn new processes to make a sound system for a car?
- We read that you were aware of the plasma TV technology, yet you fall behind. Why?
- What is the internal process when developing new products?
- Which departments work together in this process?
- How do you scan the market for new possibilities?
- Is it possible for you to create a better TV than LG as they produce the technology of it?

Interview with Martin Rasborg: Senior Manager in R&D – Product Development

Industry:

- Can you explain the main market changes that you have experienced in your time at B&O?
- How have you reacted to these changes?
- How has competition changed?

B&O:

- Can you explain your role in B&O?
- What do you see as some of the biggest challenges for B&O?
- Which market changes has been the most challenging for B&O?
- What do you know about your partnership with LG? What do you give them in return?
- When you extend your product portfolio – is it attempts to leverage your brand?
- Is it also attempts to leverage core competencies?
- What was the thoughts of launching a MP3-player and a mobile phone?
- Have you created new resources the last 30 years?
- Did you create new resources in order to make the plasma TV?
- What do you do if you notice that you don't have the necessary capabilities to match a certain challenge?
- What made Automotive possible? Did you need to learn new processes to make a sound system for a car?
- We read that you were aware of the plasma TV technology, yet you fall behind. Why?

- What is the internal process when developing new products?
- Which departments work together in this process?
- How do you scan the market for new possibilities?
- Is your brand your most important resource?
- Can you elaborate on the core competency of system integration?
- You started to outsource a lot. What is the thoughts behind this?
- Does it have any disadvantages? How do you take these into consideration?
- Is it possible for you to create a better TV than LG as they produce the technology of it?
- How do you leverage your customer understandings when you develop products? Was this a vital part of launching PLAY?

Interview with Sofie Østergaard Neble: PR Consultant and Social Media for B&O PLAY

The industry:

- Can you describe the AV industry in general?
- What is some of the biggest challenges within this industry?

B&O

- What do you see as some of the biggest challenges for B&O?
- What do you know about your partnership with LG?
- How do you see your balance of exploiting internal knowledge and exploring new external knowledge?
- Why do you think that B&O has struggled to compete the last 30 years?

B&O PLAY:

- Can you elaborate on PLAY and what has happened? When did certain things happen?
- Why do you think that B&O PLAY has been a success?
- Is it an advantage that B&O PLAY has the 'B&O' in its name?
- How does the production of the products in PLAY takes place? Is everything outsourced?
- How is PLAY different than Bang & Olufsen?

- What are the similarities of these two?
- How is the process of product development?
- What is the strategy behind PLAY?
- What are your strengths in PLAY?
- What value has partnership provided PLAY? Examples such as Apple and 3.
- Have you other kinds of partnerships than these? If yes, how does these help you?
- How do you research on customer demands?
- Who are your competitors?
- How do you search the market for new technology etc?
- Has it been necessary to create new resources in order to make PLAY possible?
- Which industry changes have you seen the last few years?

Interview with Jakob Kristoffersen: Concept and Design Manager at B&O PLAY

Industry:

- Can you describe the AV industry in general?
- How has the AV industry changed in this period?
- What is some of the biggest challenges within this industry?
- How do you search the market for new insights?
- How do you find suppliers?
- Which market changes have you experienced the latest years?

B&O:

- What have been B&O's weaknesses? Also weaknesses in its products?
- Which challenges has B&O had the last 30 years?

B&O PLAY:

- Can you explain your own role in B&O PLAY?
- Can you describe PLAY in years? When did certain things happen?

- What product categories have you extended to?
- When did you establish certain partnerships? Suppliers and retailers.
- Why do you think that B&O PLAY is experiencing this success?
- Is it an advantage that B&O PLAY has the 'B&O' in its name?
- What are your strengths in PLAY?
- How do you separate from Bang & Olufsen? What is the main differences?
- What is the similarities?
- What value has partnership provided PLAY? Examples such as Apple and 3.
- How is your new product development process?
- Which challenges have you experienced in PLAY?
- You have a partnership with HP. Can you tell about this?
- Do you have similar partnerships?
- How do you get new competencies within PLAY?
- Have you created new resources to make PLAY happen?
- Have you released any products in your time?

Interview with Majken Schultz: Board Member of Bang & Olufsen

The industry:

- What is some of the biggest challenges within this industry?
- How has the industry changed the last decades?
- What is some of the characteristics of the industry?

B&O:

- Which challenges has B&O had the last 20-30 years?
- Is being a small player a challenge for B&O in the AV-industry? How?
- How do you see B&O's attempt to adapt to its situations?
- What is it strengths?
- What are you good at when talking product development and innovation?
- How do you see B&O's possibilities in the future?
- Has B&O tried to extend its brand that is might not should have?

- What has been some of the mistakes that B&O has made the last decades?
- Did B&O sell Automotive and ICEpower to gain liquidity?
- Is the success behind B&O PLAY due to that it leverage the brand of bang & Olufsen?
- What is the future for PLAY?
- Does B&O lack economies of scale?

Interview with Morten Grubbe: Senior Product Manager for Product Lifecycle in R&D

Industry:

- Can you explain the main market changes that you have experienced in your time at B&O?
- How have you reacted to these changes?
- How has competition changed?

B&O:

- Can you explain your role in B&O?
- What do you see as some of the biggest challenges for B&O?
- What do you know about your partnership with LG?
- How do you see your balance of exploiting internal knowledge and exploring new external knowledge?
- Why do you think that B&O has struggled to compete the last 30 years?
- You have 'product life cycles' in your role of B&O. We have noticed that the PLC is decreasing. Is this a fair assumption? Can you elaborate on this?
- How do you try to find new ideas to new products and business developments?
- How do you search the industry for new technology and trends?
- What are you really good at in B&O when talking about product development and innovation?
- If you don't have the necessary competencies and resources within the firm. How do you acquire these?
- Why did you fall behind with the technology of plasma TVs?

- Was it a huge change for you that it changed from CTR to Plasma?
- You tried to extend your brand with a MP3 and mobile phone. What were the thoughts behind? Why did they not become successful?
- What are your thoughts on B&O PLAY?
- What does it mean for B&O that you are a small player up against big market players?