DIGITAL TRANSFORMATION STRATEGY

Case: Crown World Mobility
Abstract

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ABSTRACT

Smart and connected product dramatically effect to entire business industries when it occurs. It provides marvelous opportunities for new functions and generates far more reliability method. The purpose of the thesis work was to find a strategy for companies to driving success in digital transformation and under the impact of the smart and connected product.

The theoretical part of the thesis consists of defining smart connected products and presents key elements to success in digital transformation.

The research is conducted following the desk study. The study case was written base on Crown World Mobility company. The author had a chance to work with this company in a project related to digitalization. In the project, the company expected to identify new ways of doing their traditional services that will become more attractive to the corporates also relevant to our private customers. The topic of the project is “Customers for life – optimizing the omnichannel service delivery through digitalization.”

Keywords

Digitalization 1, Smart connected products 2, digital transformation 3
Contents

1 INTRODUCTION .................................................................................................................. 1
  1.1 Research background .................................................................................................... 1
  1.2 Thesis objectives, research questions, and limitations .................................................. 2
  1.3 Theoretical framework ................................................................................................. 3
  1.4 Methodology and data collection ................................................................................... 3
  1.5 Thesis structure ............................................................................................................. 4

2 SMART AND CONNECTED PRODUCT ............................................................................. 6
  2.1 Definition ....................................................................................................................... 6
  2.2 Functions of smart and connected product ................................................................... 6

3 THE EFFECT OF SMART AND CONNECTED PRODUCTS .............................................. 9
  3.1 Competitions ............................................................................................................... 9
  3.2 Industry boundaries ..................................................................................................... 9
  3.3 Competitive advantage ............................................................................................... 10
  3.4 Value chain in marketing and sales ............................................................................. 11

4 DRIVING DIGITAL STRATEGIES .................................................................................. 12
  4.1 Digital transformation strategy .................................................................................... 12
    4.1.1 Technology capacities ......................................................................................... 13
    4.1.2 Leader capacities ............................................................................................... 13
  4.2 Digital consumer journey ........................................................................................... 14
    4.2.1 The consumer decision journey ........................................................................... 14
    4.2.2 Digitizing the consumer decision journey ........................................................... 16
    4.2.3 Digital customer engagement ............................................................................... 17

5 CASE STUDY – CROWN WORLD MOBILITY .................................................................. 19
  5.1 Company background .................................................................................................. 19
  5.2 The disruptions and forces to change in Crown World Mobility ................................... 20
  5.3 Crown World Mobility digital transformation journey ................................................ 20
    5.3.1 Technology capacities ....................................................................................... 20
    5.3.2 Leader capacities ............................................................................................... 24

6 CONCLUSION .................................................................................................................... 26
  6.1 Answers to research questions ..................................................................................... 26
  6.2 Validity and reliability ................................................................................................. 27

7 SUMMARY ....................................................................................................................... 28

LIST OF REFERENCES ......................................................................................................... 30
1 INTRODUCTION

1.1 Research background

Fifty years ago, business industries experienced two waves of IT-driven competition. The first wave, which raised from 1969 to 1990 is the appearance of automated information collection. It allows to process individual activities automatically such an order processing, pay the bill. This new capacity creates value chain automation. The second IT wave is the inexpensive and ubiquitous connectivity of the Internet. It allows coordination and integration across individual activities. Firms can disperse and integrate globally with their stakeholders. Now, we have entered a new IT wave; it is an essential part of the product itself – “smart and connected products.” All the products are embraced with sensors, microprocessors, data storage, controls, software which improve the productivity and efficiency of the products. As part of the effect from the Internet of Things, the smart connected product can gather data, be used as a service and create services by itself without a lot of interfering of human. (Poster et al. 2014, 66.)

Intelligent and connected product dramatically effect to entire of all business industries when it occurs. It provides marvelous opportunities for new functions and generates far more reliability method. It enhances the productivity and capabilities across all the tradition product boundaries. From those, it leads to the disruption in the value chain and forces the company to rethink about its business entirely. There is a new type of products complete alter the business industry. Such as, the DVD rental industry was collapsed because of the stream live video and music available on the Internet (Jon Spira 2017). The boundary between industries has been blurred, and digital capabilities are driving the shift of economic. (Gupta 2018, 20.)

The author has an interest in the topic because of the concern in business development in the future. There has been a dramatic change in the last decade because of the Internet of Things and advanced technology. Many firms were on top of their own business industry and profoundly believed that there was nothing that can damage their business. However, the invention of the Internet had made the game change and led a lot of big firms to the edge of extinction. It was because they had not reacted to the change. The bigger the firm is, the earlier action of following the difference will be needed. Now, the born of smart connected products has influenced all industries.

Case study based on Crown World Mobility company. The author had a chance to work with this company in a project related to digitalization. In the project, the company ex-
pected to identify new ways of doing their traditional services that will become more attractive to the corporates also relevant to our private customers. The topic of the project is “Customers for life – optimizing the omnichannel service delivery through digitalization.” Therefore, the author has an inside view of the company. The company had a long history with 50 years old. as growth stable in the explosion of technology, Crown World Mobility is going through the digitalization process. Its facilities launched many new digital services to upgrade their facilities and optimize the business’s operation.

1.2 Thesis objectives, research questions, and limitations

The purpose of the thesis work is to demonstrate how smart connected products are transforming the competition. This thesis also suggests how companies could drive in digital strategy to catch up with the transformation of technology. Therefore, the thesis identifies key elements to lead the digital transformation and digital customer experience. The study case will give a concrete example of how and why Crown World Mobility is seeking for digitalization.

The research question is an important part to guide the author and readers. It is crucial to start your thinking about them with a question rather than simply a topic heading. The questions build the structure for the thesis and set up a frame for what the reader will learn about the subject. (Hemmings et al. 2019)

**What is the effect of smart connected products to the business competition?**

**What should companies do to succeed in digital transforming?**

The research problem of the thesis can be divided into the following sub-questions:

1. What is a smart and connected product?
2. How do smart connected products affect competition in industry boundaries, competitive advantage, and value chain?
3. What are the key elements for digital transformation?
4. How to digitalize the customer journey?

The thesis takes into consideration of theoretical investigation and practice research. This thesis work aims to answer both two of research questions. The first question investigates in the core problem of the subjects. The second question seeks the solution for those problems. Finding answers for all the questions will build a professional view of the business digitalization and support companies a basic guideline to success in this transformation. However, the thesis also has its limitations and issues that should be taken into
consideration. The success in transformation into digital business depends on many factors, and different business industries have its character so that the solution cannot work absolutely. The suggestion time frame for the digital transformation process is various from different industries.

1.3 Theoretical framework

The theoretical framework in this thesis firstly concentrates on defining smart connected devises. In the beginning, the author introduces with general concepts of intelligent and connected products and the effect of them to business. As comprise the concept and its impact on business better, Michael E Porter and James E. Heppelmann’s theory is viewed. Harvard Business Review published Michael E Porter and James E. Heppelmann’s theory. Secondly, to understand and know how to react to the effects and driving in digital transformation process better, the digitalization concept in operation and customer decisions journey, marketing is introduced. The customer decision journey is familiarized from McKinsey&Company theory (2009).

Most of the theoretical framework comes from the articles of How smart and connected products are transforming competition and companies, published by Harvard Business Review. The second significant contributor to the theoretical framework was the book Driving Digital Strategy, made by Sunil Gupta and published by Harvard Business Review Press. The third contributor to the conceptual framework was the book Leading Digital, was written by George Westerman, Didier Bonnet, and Andrew McAfee. Harvard Business Review Press in 2014 published it.

1.4 Methodology and data collection

At the beginning of the research, it is essential to select the approach used in the study. This thesis was carried out following the desk study or another term “desktop study” method. Indeed, the study is conducted purely through research rather than physical investigations such as a survey or interview. The data is collected from existing, unpublished resources. Desktop studies can provide an initial understanding of a subject or situation, identify potential risks and inform the detail, scope and methodology of subsequent investigations. (Management Study Guide 2019.)

There are two types of desk research data techniques Internal desk research and External desk research. First, the internal desk research collects the information which is generated internally within the organization. The advantage of these techniques is the invokes
internal and existing organizational resource to collect the data. Second, external desk research collects information outside the organizational boundaries relevant to the topic. The resources of these techniques can come from the internet; the government published data and communicate with customers. (Management Study Guide 2019.)

The data collection method is participant observation. This means the researcher attempts to participate fully in the lives and activities of subjects. Therefore, the researcher becomes a member of their group, organizations. This allows the researchers to share their experiences by observing and feeling it (Saunders et al.2009, 290.) The author worked with the company in a project - named "customer for life – digitalization". The project ran in four months from September to November 2018. Therefore, the author has a general knowledge of in which direction the company and inside materials. Besides, the data is provided by an internal employee in Crown World Mobility.

1.5 Thesis structure

The thesis has two main parts: the theoretical part and study case. The next figure shows the thesis structure. The outlines of each chapter will be presented following the diagram below (Figure 1).

**Figure 1 Thesis structure**

The thesis opens with an introduction part, which explains the thesis objectives, research questions and shows the general view of the thesis structure. Chapter two defines the concept of smart connected products and identifies the key characteristics of those products. Chapter three provides a deeper look at the smart and connected product by explaining the effect of smart and connected products in business competition. The influence of smart connected product in competitive focuses on three main areas: industry boundary, competitive advantage, and value chain in marketing.
Chapter four explores the success path in digitating transformation. Companies success in this digitalization excel at two essential capacities. They build their digital capacity by identifying what is the company’s position, customers’ needs. Basing on that information, companies can determine what kind of technologies they should invest in. They also create a robust digital leadership capacity to drive the transformation. All in all, it is the “recipe” of successful digital companies.

Chapter 5 describes the study case, Crown World Mobility. The study case is a typical example to illustrate the reason why companies should consider digital transformation. Besides, it also describes how Crown World Mobility applied the digital transformation strategy.

Chapter 6 is the conclusion of the research, in which answers to the research questions as well as for sub-questions are provided. Reliability and validity of the thesis are discussed. Suggestions for further research are given. The thesis ends with chapter 8, in which the summary of the study is presented.
2 SMART AND CONNECTED PRODUCT

2.1 Definition

Smart and connected products comprise three main components. They are physical components, smart components, and connectivity component.

First, the physical components are electrical and mechanical parts. For example, in a car, they are the frame, display screen, or battery. Second, smart components are software, sensors, analytics, and controls. In the car, the smart component, for example, is the tires sensor which measures air pressure. Third, the connectivity components comprise the ports and other parts which allow the product to connect to different product and send the information to other devices. The connection could be from one to one device, one to many, or many to many devices at the same time. The connectivity has two purposes. It helps the product exchange information to other devices or products. Also, the connectivity components create an extension function for all connected for products. (Poster et al. 2014, 67-68.) The Nespresso Prodigio, for example, is a coffee machine maker was designed with connectivity feature. It can connect to the user’s phone app. Through the app, users can set up time which they want the machine to make coffee. (Nespresso 2019.)

Intelligence with connectivity capacity opens a new function for the product. The capacity of smart and connected products can divide into four categories monitor, control, optimization, and autonomy. Following those sequences, each category is the foundation to build the next functions. (Poster al. 2014, 69).

2.2 Functions of smart and connected product

Smart connected product provides the information to monitor. Due to the sensors and external data sources, smart connected products can send information related to its location, operation, and the environment surrounding. (Poster al. 2014, 69) For example, Sony produces a Smart Tennis Sensor for Tennis Rackets. It was attached to the end of the handle. The product can be seen in Figure 2. That small sensor collects data of player such
as how many time players hit the ball, at which position and measure the power which player used in every hit. (Sony 2019.)

Figure 2 Smart Tennis Sensor for Tennis Rackets (Sony 2019)

Those are a valuable piece of information to improve game performance. This function gives users more information to both users and producers to enhance the product following their purposes.

Users control products systems entirely through various remote-access options. (Poster et al. 2014, 69-70). For example, the smart coffee machine - Nespresso Prodigio with the sensor and external app resources, it allows users control when the machine makes coffee via a phone app. In other words, the users do not need to stay near the products to control how it works.

Smart and connected products can optimize their performance by the combination of monitoring data and remote-control capability. Due to the massive amount of data collected, applying smart data analytics to create the pattern of data, smart connected product can create an intelligent control. That optimizes the capacity, operation of product. In a higher level, it allows users to predict services and repair shortly. (Poster al. 2014, 71).

For example, VOI - Electric Scooter Sharing company attach the tracking devices into their scooters. The tracking devices send information of its location to the app. Therefore, their customers who have access to their app can locate where to pick up the scooter
around the city. This optimizes the using capacity for all their scooters. (Voi scooters 2019.)

The final capacity is autonomy. The combination of monitoring controlling and optimizing the lead to the autonomy capacity. Indeed, the smart and connected product can make decisions by itself (Poster al. 2014, 69-70.) For example, Soft Robotic Fish, named Sofi has a capacity of swimming under the ocean and searching targeted object by itself. The fish was designed to navigate and avoid objects from seeking objects. (Katzschmann et al. 2018.)

**Figure 3 Capacities of smart and connected products (Poster et al. 2014)**

In short, intelligent and connected products capability can group into four categories: monitoring, control, optimization, and autonomy. (Poster al. 2014, 69-70.) The summary of smart connected products' functions can be seen in Figure 3.

The appearance of smart connected devices builds a new intelligent network system – or a phenomenon called the internet of things. It is disrupting all industries and forcing the digital transformation in all businesses. (Gupta 2018, 20.) The Internet of things (IoT) implies the extension of Internet connectivity into physical devices. It embraces with electronics, Internet connectivity, and other forms of hardware (such as sensors), these devices can communicate and interact with others over the Internet, and they can be remotely monitored and controlled. (Watts, S 2016, 2-4.)
3 THE EFFECT OF SMART AND CONNECTED PRODUCTS

3.1 Competitions

According to Poster (2014), smart and connected products are changing competition in many industries. At the most fundamental level, firms need to ask questions to identify the impact of it on the competition:

How does the shift to smart, connected products affect the industry boundaries?

What new types of strategic choices will smart, connected products require companies to make to achieve a competitive advantage?

How do smart, connected products affect the configuration of the value chain?

The next parts will describe detail the effect of the smart connected product in three areas. They are industry boundaries, competitive advantage, and value chain. (Poster et al. 2014, 66-70.)

3.2 Industry boundaries

The competition is no longer limited within the traditional industry boundaries because of smart and connected products. The shift of competition from the functionality of a single product to the performance of a large connected system has been changing the picture of competition, in which all individual products connect and interface with each other redefined the industries boundary. In that extensive system, the firm contributes one part to run the systems together with many other players (Gupta 2018, 20-24.)

Smart connected products create a digital system which lowered barriers of entry. It increases the level of competition. Digitization is creating online platforms that facilitate production and transaction and allow minnows to compete head-to-head with sharks (Dobbs el et. 2016, 39). It is shifting the balance of power between giant, established companies and smaller, nimbler start-ups, moving value from sector to sector and blurring the boundaries between them. Smart connected products create a digital platform in which sellers and buyers can meet. Those platforms have dramatically reduced the transaction cost of finding and selling goods and services. For example, Airbnb is a platform to connect homeowners with travelers who need a place to stay (Gupta 2018, 60-61.) Smart and connected products create a new way to understand the customer as well as to build competitive advantages. Understanding customer experience and the customer journey over time is critical for firms. Nowadays, customers interact with firms through touching points in multiple channels (Lemon, Katherine N 2016.) Therefore, the ability to collect information
from smart and connected products provide a powerful tool for business to understand customers deeply.

3.3 Competitive advantage

The smart, connected products change the concept of competitive advantage. Competitive advantages are no longer come from low cost or products differentiation. As the scope of a business stretch, addition its competition and its industries boundaries expand more than before, the core competencies have been changed. Digital strategy to excavate customer data becomes a new trend of creating a competitive advantage. Data is the most valuable assets more than ever before. (Gupta 2018, 21.)

Smart, connected products generate a massive number of customers’ data which is a critical asset of a company. “Data is the new oil,” the same as physical assets. However different from physical assets which its value will be wear during using, data’s value does not get “use up.” It can be recreated and used in multiple applications without reducing its value. The value of data is regularly increasing as more information is collected. Data helps company deeply understand customers and their demand pattern. The base that knowledge of the customer, companies can forecast consumer demand accurately and reduces its inventory days. (Gupta 2018, 21-29.)

Before products become smart and connected, data has been created mainly by internal operations and transaction across the value chain – ordering process, sale interactions, customers visit, and so on. The other supplement for data resource comes from research, survey, and another external source. By combining the data, companies know something about customers, demand, costs - but less about the functioning of products. Now, smart connected products can provide information about the product itself. It generates real-time readings that are unprecedented in their variety and volume. Data becomes a core asset of the corporation. Data analytics can detect the root cause of a problem and predict impending bearing failure days or weeks in advances. For example, in a car sensor in engine temperature, throttle position, and fuel consumption will reveal how performance correlates with the car’s engineering specifications. (Poster et al. 2015, 99-100.)
3.4 Value chain in marketing and sales

The value chain describes the full range of activities that firms, and workers do to bring products or services to its end use and beyond (Tom Mc Guffog 2016).

The impact of smart and connected products in the value chain press across all functional units. In the scope of this thesis, it will focus on marketing and sales areas.

Smart, connected products creates a new customer relationship. Smart connected products maintain the connection between manufacturers and product users. In traditional products, companies rely on customers to learn about product needs and performance. Now, smart connected products can relieve information about customers’ needs and satisfaction. For example, a traffic solution, road signs were upgrades with smart connected products. It measures traffic speech and volume. Those signs allow advanced data mining of traffic patterns and support law enforcement and other customers remotely monitor and manage. In this case, the relationship between customers and companies shifted from selling signs to selling long-term services (Poster et al. 2015, 104-105.)
4 DRIVING DIGITAL STRATEGIES

Smart, connected products are forcing companies to redefine their business industries and rethink nearly everything they do. Even giant firms also embrace the digital transformation vision to grow strong and survive in the impacts of smart connected products. The new capacities of smart connected products allow companies to maximize operation efficiency by digitalization, using technology to improve operationally. For example, GE is an industrial giant that operates in 180 countries since 1892. Over the century, their competitive advantage and strengths are its engineering, superior product design, and manufacturing. In 2010, they recognized the future of improvement lays in a digital platform, analytics instead of physical development in products. Their CEO emphasized that Uber and Airbnb have no assets, yet they are valued more than auto manufacturers and hotels. In 2011, GE decided to transform GE into an industrial digital company. It started with a new GE software. GE begins its digital journey to improve the productivity of its assets. Its analysis showed a 1 percent efficiency gain could lead to billions of incremental dollars for its customers. Its Distal twin and asset performance – management (APM) tools allowed GE to forecast the maintenance, minimize downtime, and optimize asset. That is the reason why it could save billions of dollars for its customer (Gupta 2018, 64-68.)

4.1 Digital transformation strategy

So how to lead the company to transform into digital savvy? Westerman (2014) presents that two factors make companies which succeeded in transforming into digital which are digital capacities and leader capacities. Digital capacities are the capacity to identify what kind of technologies can apply to business. Leader capacities are the ability to lead the change in the organization. The succeed in transforming into digital is defined as the increased profit for the company after applying new smart technologies. Companies which succeed in transforming into digital are 26 percent more profitable than their industry peers and generate 9 percent higher revenue from their physical assets. (Westerman et al. 2014, 13-18.) Those two factors embrace the same vision with Poster who wrote two articles about how smart and connected products changes competition and companies. He also stated that the strategy for companies to go beyond the effect of smart connected products included two factors. First is strategic positionings by seeking which smart, connected product capabilities and features should the company pursue to do thing differently. Second is operational effectiveness. The effectiveness is gained through a robust control and IT center business. (Poster et al. 2014, 76.)
4.1.1 Technology capacities

Digital transformation cannot happen without astute digital investment. Companies which succeed in digital transformation such as Nike, Starbucks, UPS and so on have one in common. They apply technologies to re-connect to the customer, change the operational process, and business. (Westerman et al. 2014, 27.)

So where do we start? A significant first step is to know where and how to invest in digital opportunity. Companies need to decide which feature will deliver value to customers relative to their cost. The size of the investment is not as important as the reason—and the impact. Technology to change the way they do business—their customer engagements, internal operations, and even business models. New technologies such as social media, mobility, and analytics are not goals to attain or signals to send their customers and investors. These technologies are tools to get closer to customers, empower their employees, and transform their internal business processes. (Westerman et al. 2014, 24.)

A next step is to optimize companies’ internal processes digitally. You can digitize core processes, change the way employees work, create real-time transparency, or make smarter decisions. However, this is a foundation step. The successful companies like Nike, Starbuck, and UPS go well beyond simple process improvements. They see technologies to rethink the way they do business, breaking free of outdated assumptions that arose from the limits of older technologies (Westerman et al. 2014, 52.)

4.1.2 Leader capacities

Gaining a real digital advantage also requires leadership and organization structure. The next step is to establish the right digital governance. It is imperative because it acts as a guideline to drive companies’ digital initiative in the right directions (Westerman et al. 2014,106.)

Michael Poster (2015) mentioned, because of the rich and complex, and strategic importance of data, it is not feasible for each function to manage the data itself. Companies are creating dedicated data groups to extract the most information out of the new data resources. It consolidates data collection, aggregation, and analytics, and are responsible for making data and insights available across functions and business units. The new data organization is often led by C-level executives, the chief data officer, who reports to the CEO or sometimes to the CFO. (Poster al. 2015, 110.)

Westerman (2014) also emphasized the vital leadership role of a data management unit in
the process of digital transformation which he named that position as the chief digital officers (CDOs). The CDO’s job is to turn a digital cacophony into a symphony. He or she creates a unifying digital vision, energizes the company around digital possibilities, coordinates digital activities, helps to rethink products and processes for the digital age, and sometimes provides critical tools or resources. When this type of CDO role is created, organizational antibodies rise to attack it. Local unit chiefs may reject what they see as unnecessary interference from a position they consider illegitimate. That’s why a power CDO role requires a respected leader. And it requires close communication from the top of the firm that the CDO role—and its authority—is real. At Starbucks, (Westerman et al. 2014, 142-147.)

Another vital factor of digital leadership capability is a strong relationship or deeper collaboration and integration between IT and business. Michael Poster stated that the real successful transformation comes from linking different digital activities, and that can only happen if people are on the same page (Poster et al. 2015.)

Westerman’s research (2014) analyzed 150 executives in fifty companies around the world. The results also show that successful company in digital transforming – Digital Master has a strong relationship between their IT and business leaders. That relationship drives the change in their internal platforms and digital skills. In Westerman’s research, the core of the profound connection between IT and business is shared understanding. Shared understanding is the starting point for more significant changes in the IT–business relationship and the nature of IT. In Digital Masters, IT and business executives have deep trust and respect for each other. They are also very clear on their roles as they work together to make digital transformation happen. (Westerman et al. 2014, 223-225.)

In short, in the process of transforming the leadership capacities are built on two elements. When the relationship is active, the IT–business partnership merges customer and product knowledge, technical knowledge, organizational change capabilities, and IT capabilities into a single, continuous collaboration.

4.2 Digital consumer journey

4.2.1 The consumer decision journey

Consumer decision journey has been modified because of smart connected products. Before smart connected products, marketers take an initial step to approach customers. Marketing has always sought touching points - moments that most influence on customer decision. For many years, touching points have been explained through the metaphor of a
“funnel.” Customers start with several potential brands in their mind. Marketer pushes the marketing toward customers at each stage to direct customers to marketer’s brand. In the end, they decided to purchase with one brand. However, as a result of the explosion of products choice and the digital channel, the traditional funnel fails to capture all touching points and essential buying factors. Customers are moving outside the purchasing funnel, shifting the way research and buy products. As the impact of smart connected product, the consumer has more access to reach information resources, so that they understand what options they have (Court, D. et al. 2009.)

Today, we rather define touching point via “the customer decision journey” concept. The concept is described as a loop. The circle journey includes four states, included initial consideration; ongoing evaluation; the moment of purchase; and post-purchase experience. The experience journey starts with continuous exposure; people see and hear about brands. Their trigger starts when their need raises then consumer moves to the consideration stage. The people begin with small numbers of brands. For example, in the autos sector, the average number of brands in the initial consideration set is 3.8 brands. Then the potential consumer will move to the stage – called active evaluation. In this the step the number of brands which they are considering increases. It is opposite to the premise of the funnel going from broad to narrow. At that moment, people are active in purchasing, researching the products as well as research the available options via the Internet, reviews, ads which they did not pay attention before. Next, the potential consumer moves to the moment of purchase. In some products which sell in the retail environment, this is a critical moment. Many consumers have not made a decision when they come to the store yet. They make their mind in the store after seeing and touching products physically. After purchasing a product or service, the consumer experience product. Also, they could publish their experience via the Internet. Based on experience, with the product, they will decide to get into the loyalty loop or not. (Court, D. et al. 2009.)
4.2.2 Digitizing the consumer decision journey

Digital transformation is not just about a website or a point-of-sales system, but about an ability to connect with customers and transform their experience and drive the company (Westerman et al. 2014, 17). Digital tools have put customers into the driver’s seat allowing them to quickly reach and compare products and delivering to their doorsteps at a rock-bottom price. Therefore, the firms need to devise a suitable way to transform their consumer decision journey to be more digital. (Edwin van Bommel et al. 2014.)

What should firms do drive on the new consumer journey? The first focus areas are available and enough information about your products or services. The research shows the fragment of media and product’s information will dramatically reduce the rate of being selected by customers in the evaluation state. Also, as the shift away from one-way communication from two-way conversations, consumer-driven marketing is increasing. Consumers take control of the process of decision journey and actively pull the information helpful to them. Consumers are more likely to believe what read from Internet reviews, word of mouth, a recommendation from their friend rather than what companies tell them. That is a new touching point which marketer needs to master (Court, D. et al. 2009.)
Furthermore, in the age of explosion products type, there are two types of loyalty to the brand. Passive loyalists do not commit to staying with the brand. They are open with the message with the brand’s competitor. Other are active loyalists who are not reconsidering another brand when it comes to rebuy the product and make recommendations. They are a new touching points resource in the digital marketing customer driven. (Court, D. et al. 2009.)

Other focus areas are the discovery of customers in a new way. As mentioned before the capacity of smart connected products allows firms to collect a ubiquitous number of customer data. Companies need to take time to learn how people interact with your product, services systematically, and data to understand the customer by knowing what their pain is, their touching points are. (Westerman et al. 2014, 35.) The advance of smart, connected products provides a new journey for the company to understand the customer. Companies must apply advanced analytics to an extensive amount of unstructured data to get full customer portray. ClickFox and other similar system allow companies to track customer behavior in different online channels. Cloudera helps the company analyze unstructured data. R, Pega software work as a leaning machine which can obtain a massive number of customers data and predicts their behavior. (David C. Edelman et al. 2015, 93.)

4.2.3 Digital customer engagement

Digitally engaged customers expect that products, services, and information will be timely and tailored to their specific needs. They want all of these at the precise moment they are looking, and on whatever platform they are using at the time. The more touch points you have, the higher the complexity of the interactions across channels and the better the need to understand them in detail. (Westerman et al. 2014, 34)

The digitally engaged customer means instead of waiting customer to come to your services, products, companies address customers’ need at the moment their need arises and some time event earlier. Nicolas Sigelkow called that digital engagement is the connection strategy. The strategy includes four areas: respond to desire, curated offering, coach behavior, and automatic execution. (Nicolas Sigelkow 2019, 63-73.)

To stay ahead in the competition, many companies such as Disney, McGraw-Hill, and Nike are developing their digital engagement by massively investing in data gather and analysis. Respond to desire means provide customers with services and products as quickly and seamlessly as possible. To offer an excellent respond to desire experience,
companies need to listen carefully to what customer wants. (Nicolas Siggelkow 2019, 63-73.)

Curated offering implies to actives in guiding the customer to offers and helping a customer at an earlier stage of the customer journey. This is the moment customer know what they need, but they have not decided how to fill that need. The key to this capacity is a personalized recommendation process. For example, if your customer is looking for a new toner cartridge to replace the old one. The company website system can track your customer purchase buying and suggest precisely correct one your customer bought before. It saves customers time of searching for their product. (Nicolas Siggelkow 2019, 63-73.)

Coach behavior is a higher level of engaging customer. The coach-behavior strategy is proactively reminded customers of their needs and encourage them to take steps to achieve their goals. For example, the printer itself can track the number of printed pages it had produced since the latter replace. The printer will send the information to its manufacturers, which knows the customer will soon need a new cartridge. Then it may send an offer of reordering in advance to the customer. Coached this way will save customer’s time and bring them the feeling of convivence. (Nicolas Siggelkow 2019, 63-73.)

Automatic execution strategy allows the company to meet their customer need even before they aware of those needs. The essential element of this strategy is a strong trust and flow of information from customers, and excellence in anticipating customers need. For example, Both HP and Brother printing companies have programs that automatically ship a new toner to customers whenever their printers send out a low ink signal. And soon we can imagine a day the refrigerator will send to milk factory a signal we are running out of milk. It will be ordering more and delivery in our doorbell the next morning. (Nicolas Siggelkow 2019, 63-73.)

If companies expected to achieve sustainable competitive advantage, the connected strategy will be a fundamental part of the business. It engages and reconnects to a customer in a new way more seamlessly, automatically.
5 CASE STUDY – CROWN WORLD MOBILITY

5.1 Company background

Crown World Mobility (CWM) belongs to the Crown Worldwide Group, which was established in 1965 by Jim Thompson in Japan. Nowadays, the firm has been expanded globally. Crown World Mobility operates in 46 countries and provides moving services in 184 countries. The top three biggest offices located in Hong Kong, New York, and Prague. In 2018, the company employed 1756 employees, corporate with over 2190 clients and provided 89,000 relocation services. (Crown World Wide 2019.)

As a business that has been relocating people for more than 50 years, the company is fully committed to assisting the effective deployment of global talent. Building on vast experience, CWM’s leaders actively seek innovative solutions to changing client needs as well as using immersive market intelligence and insight, captured by our Intelligence Hub, to anticipate the likely future path of the industry.

The breadth of services comprises a holistic offering which is advantageous partly for its efficiency, but also through the integration of complementary services and the ability of our people to deliver to a consistently high standard, worldwide.

Crown World Mobility provides comprehensive mobility services domestically and internationally. Solution services of the company are divided into four categories, which are International, Domestic, Self-services Moves, and Program Management. As a mobility provider, its services are unique in that they are capable of providing a comprehensive answer to client mobility challenges designed by industry experts, coordinated by in-house teams, and delivered worldwide by over 3000 highly service-oriented people.

While the company’s services deliver complete mobility programs, equally it serves to streamline solutions that respond to the specific requirements of an industry, a demographic, or a segment of the mobile talent population.

CWM has invested heavily in the digital transformation process. One of the motivations for the company to initiate this process is the changing of customer behavior and the effect of technologies. The company has step by step build reliable technologies capacities and leadership capacities for this transformation.
5.2 The disruptions and forces to change in Crown World Mobility

Gone are the days of all-inclusive and costly relocation benefits provided to international assignees ‘expats’ relocating from A to B. The industry has changed dramatically over the past ten years. In terms of the customers, millennials make up the majority of CWM’s customers. They are highly demanding in technology solutions. The company also see increasingly more people raising their hand to gain international experience, with fewer expectations of what company entitlements they’ll receive. In other words, employees are creating for differential culture experience

Two factors have disrupted CWM’s industry. Cost cutting is the first factor. Companies are merely reducing benefits and ‘cashing out’ services offering personal choice as to how this is spent. The second factor is technology. People are expecting more of a self-serve experience, e.g., replicating the interactions they have with Uber, Airbnb, and Netflix wanting to do things for themselves. Relocation companies while improving are slow to meet these expectations.

Moving is a highly emotional experience, no matter how many times you’ve done it. A high touch ‘human’ experience provided by companies like Crown cannot be discounted. However, the company needs to catch up and leverages off the opportunities that technology brings when it comes to more cost control, more agile and more memorable experience. Not to mention capitalizing on the growing opportunity to create entirely new services that deliver on the changing needs of our customers. New digital services to reconnect to customer

5.3 Crown World Mobility digital transformation journey

As mentioned in the previous part of the theory, there are two essential elements to success in digital transformation: technology capacities and leaders’ capacities. In the process of transforming CWM are building and strengthening both of those factors.

5.3.1 Technology capacities

In the process of digital transformation, CWM is investing substantially in technologies to create a new way to reconnect to their customer and to improve their operational efficiency. This part will describe three services which are transforming the company. They are e-Packing, Online Move Hub and Chatbot. e-Packing is the services was implemented. Online Move Hub just have applied since October 2018. A chatbot is under the development process.
e-Packing

e-Packing is a digital inventory solution which CWM invested in to optimize the internal process digitally. E-Packing is a digital inventory solution that uses photos and barcoded labels to capture accurate inventories. The system uses IOS devices and bar code scanner from capturing customer’s inventories digitally. Each package is labeled carefully with precise information of its contents. It allows Crown’s Staff to use photography to record details of the condition of customers belongings, providing the peace of mind and security for the customer. Items are classified by room and placed into boxes which are then electronically tagged. (Figure 6) (Crown World Mobility 2019.)

For Crown and our Service Partners, this is mainly improvement of efficiency in remote locations, or where packing crews are assigned to multiple tasks. Delivery crews can focus on unpacking items more efficiently, referring to photos taken at the origin if required. Additionally, scanning functionality recorded each state of the shipment. It dramatically reduces the chances of items being lost in transit and the claims. Besides, e-Packing is an environmentally friendly approach. It helps Crown reduce the unnecessary paperwork; document related to inventory. e-Packing demonstrates the move of digitalization in CWM. It takes advantage of technology to leverage valuable their existing assets. (Crown World Mobility 2019.)

e-Packing has exceeded the company’s expectations. e-Packing gain a lot of success and positive feedback from the customer. In Australia, e-Packing was operated in July and quickly hit 70% international move packed at the origin in August. In Hong Kong and Malaysia, the system consistently got positive feedback from the customer. (Crown World Mobility 2019.)

![Figure 6 e-Packing with barcode](Crown World Mobility 2019)
Online move Hub
Under the pressure that customer is changing behavior, Online Move Hub (OMH) was born. It is a digital services delivery channel intrinsic to CWM’s overall relocation proposition a customer experience. Online move hub is the place customers can access everything they need in relation to customer’s moving. It includes information, expert guidance, and support. Together with dedicated move management teams, OMH help customers monitor and manage customer’s move seamlessly, at any time any place. The visual of the services. (Crown World Mobility 2019.) Online Move hub version phone app can be seen in Figure 7.

Figure 7  Online Move Hub (Crown World Mobility 2019)

OMH is CMW’s effort in the digital transformation process and replying to the need of their customer. It is a new channel to enhance the move experience between the Crown and its customer. OMH helps the company get closer to their customer. The system provides an automatic process which customer can assess whenever they want. Customer and call for the support via a find vital Crown contact detail function. As mentioned before the majority of CWM’s customer is millennial. They are tech-savvy and prefer self-service. OMH is a solution to satisfy CWM’s customer’s expectation. It offers a self-serve solution, a quicker and easier online payment meant solution for the customer. Also, the system provides a moving timeline for the customer, so that customers can easily control their moving process. Addition, the system makes it easier for Crown’s staff to send and track proposals.
OMH is a new service with high potential for CWM to develop more in the future. The OMH system is an excellent resource for companies to gain a better understanding of the customer. For example, OMH provides standard task list that guides a customer through the general items they need to remember when moving. Besides, users also can create their task list related to moving into the system. By collecting those data such as task list, flight detail, documents i.e., the company will have a better view of their customers and optimize their services flow. In the future, the services can personalize offers for customer base on their behavior and document which upload in the system. The system soon will have the capacity to make services proposals to customer. It also allows the customer to book their pack dates and another booking process via OMH. Also, the company is planning to add a feedback system and recommend a friend to expand its operation. (Crown World Mobility 2019.)
Chatbot

CWM’s 2018 research shows that companies adopting chatbots to support their mobility program communication remains a future aspiration. Only 3% of companies are using them. Some companies cite challenges such as; questions may be phrased differently, and technology may vary from one region to another. This impedes some of the standardization required in chatbot technology. (Crown World Mobility 2019.)

Chatbots evolve from carrying out simple conversations to moving massive amounts of data through a system. The chatbot will become incredibly useful partners for smartly optimizing the relocation process. For example, a chatbot can populate cost of living budgets or gather valuable needs-assessment data through interactive questionnaires—a much easier process than the endless forms and emails of old. This automatic execution frees CWM’s employee from manually calculating. (Crown World Mobility 2019.)

5.3.2 Leader capacities

Establishing the management team for digital transformation is an important element for success. Understanding this key point, CWM established Intelligence Hunt (I-hub). I-hub’s four pillars are innovation & partnerships, PR, Clients, and One Crown. one Ambition. (Crown World Mobility 2019.)

I-hub has the responsibility to collect data and analysis. One of the first project, related to utilizing machine learning was born from I-hub units. Also, I-hub invests in startup idea, potential technologies include virtual butler platform, digitizing home search, intelligent machine learning—a chatbot. The team works closely with other departments. It gives them to explore a deeper understanding of the operation in each department. Therefore I-hub has the capacity to change the operation system digitally with minimum effect. In addition, I-hub not only provides innovation idea and services but also explore new partnership opportunities for the digital effort. I-hub develops the company operation and services digitally by cooperating with IT vendors and partners. (Crown World Mobility 2019.)

February 2018, after the acquisition of Time Relocation, CWM’s global I- Hub function set a new phase in the company’s digital transformation. The I-hub unit is soon to be complete the online Lump Sum Management Tool is undergoing its final integration phase in preparation for global deployment. This tool will give employers greater financial transparency and will offer relocating employees more flexibility and control over their relocation. (Crown World Mobility 2018.)
6 CONCLUSION

6.1 Answers to research questions

The research focuses on digital transformation which leads by the effect of smart and connected products. The main goal is to understand the impact of the smart connected product to business and competition. Based on those, the thesis builds a suggestion on digital transformation. That is why the main research questions are:

**What is a smart and connected product?**

Smart connected products have three components: physical, smart, and connectivity components. Smart and connectivity components create advanced functions for products. Those products can monitor the product’s condition, external and internal environment surround the products. They also provide a control function. The combination of monitor and control allows smart; connected product create algorithms. Basing on those algorithms the product can optimize their performance and operation. The best function of smart and connected products is autonomy. It means the products and executes tasks automatically without the interference of human.

**How do smart connected products affect competition in industry boundaries, competitive advantage, and value chain?**

Smart and connected products change the world sense of competition and business. The thesis focuses on three areas, which are industry boundaries, competitive advantage and value chain. The appeared of smart and connected product blur all the business industries boundary. It allows sellers access to all customers around the world and lowers the barriers of entry. It also means the level of competition is increasing.

Additionally, the competitive advantage is no longer belong to low cost and products differentiation. Competitive advantage now comes from the understand customers via their data and take advantage of those data to satisfy the customer and cut cost. Finally, the value chain in marketing areas changes because of a new customer relationship. It is no longer a one-way communication as the traditional method. Now, customers actively seek the information of their need and contact to producer following many channels.

**What are the key elements for digital transformation?**

Technology capacities and leader capacities are two key elements which lead companies to success in digital transformation. Technology capacities are the capacity to identify what kind of technologies can apply to business. To be excel in this capacity, it requires
companies to understand their business process and their customers to make the right decision in what kind of technologies should invest. The second element is the leader capacities. A leader is a crucial element to lead the digital transformation. They turn the digital investment into a digital advantage. In order to build leader capacities, companies need to form a special IT unit. This unit includes marketers, designers, and engineers to work together to develop and launch new digital products and apply technology into the business.

How to digitalize the customer journey?

Smart and connected products have changed the purchase behavior of the customer. Therefore, instead of describing customers' purchasing process via the metaphor of a funnel, now it is described as the customer decision journey. There are four states in the journey which are the initial consideration; active evaluation; select the brand and products; post-purchase experience.

The smart and connected products have changed the way customer interact with the brand. Now customers actively come to products and services via the internet. Therefore, in marketing areas, marketer need to focus on providing sufficient information about their products and services and take care of customer feedback on the Internet. In addition, an active loyal customer is a valuable resource for the company in the online marketing channel. Finally, companies need to take advantage of technology to understand the customer in a new way via data analysis.

Connection strategy is a fundamental method to engage customer digitally. It provides a strategy to achieve a sustainable competitive advantage. The strategy comprises four states: respond to desire; curate offering; coach behavior, and automatic execution.

6.2 Validity and reliability

Validity and reliability contribute to a critical part of the thesis. Both prove the level of accuracy and considering the research. Validity revere to the credibility of the research. Validity measures the area to which the findings of the research correspond to the original goal of the thesis and answers the given research questions. When the data provided is valid, it must also be reliable.
7 SUMMARY

The purpose of the thesis work was to find a strategy for companies to drive successfully under the impact of the smart and connected products. The study starts with the introduction of the smart and connected products and the explanation of their functions. Next, the study clarifies the impacts of the smart and connected products in business competition. The scope of business competition is divided into three areas, which are industry boundaries, competitive advantage, and value chain in marketing. The main part of the thesis describes a detailed strategy on how companies are drive-in digital transformation. Finally, in order to illustrate the theoretical part, the study case is presented. The study case bases on the digitalization process of Crown World Mobility company.

In conclusion, the first chapter, smart and connected products are comprising three components: physical, smart and connectivity components. In another world, they are products embedded with sensors, software, and connectivity that allow exchanging data information between the products and its environment, manufacturer, operator/user, and other products and systems. Thank that design, intelligent connected products can monitor, control, optimize and autonomy.

The second chapter discusses the impact of smart and connected products in competition and businesses. The impacts focus on three main areas which are industry boundaries, competitive advantage and value chain in marketing and sales.

The third chapter, the thesis examines critical elements that constitute the success of the digital transformation. Part I focuses on elements that are essential to execute digital transformation. First, it is technology capacities – the capacity to identify what kind of technologies can apply to optimize business process and customers' satisfaction. Second is leadership capacities - how executives drive change. Part II explores the change in customer behavior in purchasing. It provides a new concept – a customer decision journey. This concept captures fully all touching points which lead customers to decide to buy your products. To digital customer decision journey, it is important that companies take good care of the description of products and services. Customers will eliminate brands which have a fragmenting profile in social media or the Internet. Internet review and the world of mouth are empowering the consumers. Therefore, the company also need to pay attention to this area. Besides, active loyal customers are a valuable resource for the company to marketing companies’ products, services. This part also describes a distinctive approach to engagement customer in their decision journey – connection strategy. The strategy has four states, includes responding to desire; curate offering; coach behavior, and automatic execution.
Chapter five is the study case to give a concrete example of how a company transforms itself to be more digital. It bases on the Crown World Mobility (CWM) company case. CWM is one of the leading companies in providing relocation services for the business customer and individual customer. The company has a long history and global business operation. Technology and cost-cutting currently are two biggest factors which force the company to transform itself. Therefore, CWM is facing a lot of challenges in this transformation process. In order to tackle this challenge, CWM is building its technologies capacities and leader capacities. The company has launched and invested substantially in new digital services to improve their operational process and customer experiences such as Online Move Hub, e-Packing, and Chatbot. Also, the Intelligence unit was established to lead new digital services and connect departments digitally.
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