

**How the Adoption of a Sustainability Strategy builds on
Organisational Competitive Advantage: A *Pharmaceutical*
Case Study**

Research dissertation presented in partial fulfilment of the requirements
for the degree of
MSc in International Procurement and Supply Management

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26th August 2019

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I certify that the dissertation entitled:

How the Adoption of a Sustainability Strategy builds on Organisational Competitive Advantage: A Pharmaceutical Case Study submitted for the degree of: MSc in International Procurement and Supply Management is the result of my own work and that where reference is made to the work of others, due acknowledgment is given.

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Dedication

This dissertation is dedicated firstly and foremost to my best friend and wife, Amanda Boylan. Thank you for your constant support and encouragement throughout the many challenges presented during my Master's degree. Without your support I would not have been in a position to dedicate the time to achieving this goal. Secondly, to my kids for showing great understanding and patience whilst my time was dedicated to completing the dissertation.

I would also like to dedicate this to my family who always believed in me and for their unwavering support throughout the entire process.

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Abstract

How the Adoption of a Sustainability Strategy builds on Organisational Competitive Advantage: A Pharmaceutical Case Study

David Boylan

The purpose of the research is to understand how the adoption of a sustainability strategy builds on competitive advantage.

The research approach was exploratory in nature and an interpretivist approach was taken through the undertaking of in-depth interviews. Data was collected through a number of conducted interviews with employees from the pharmaceutical organisation, Takeda. These were semi-structured in nature and consisted of varying questions which provided for greater discussion in relation to the research objective.

The research served to uncover the positive relationship between sustainability and organisational competitive advantage, with significant benefits presented throughout the findings.

Limitations to this research were evident as the research is only concerned with one pharmaceutical organisation, who also happens to be one of the largest pharmaceutical organisations globally. Recommendations for further research are identified to further enhance the research.

The importance of top management support in relation to achieving a sustainable environment is evident. Support and investment are required for the implementation to be successful. Sustainability must be driven from the very top of the organisation as it must be enabled and empowered all the way through the organisation.

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1 Introduction

1.1 Overview

This research will be investigating how the Adoption of a Sustainability Strategy builds on Organisational Competitive Advantage within a Pharmaceutical company through an exploratory research method. Through this, the research will be exploring how sustainability impacts on the benefits achieved by the organisation as a result of the strategies implemented and how this strategy impacts on both the environment and societal issues that the world is currently faced with.

1.2 Research Purpose

The purpose of the research is to understand how the adoption of a sustainability strategy builds on organisational competitive advantage.

The world is in ecological crisis, with 2016 being the second warmest year on record in the US (NOAA, 2017). 2016 in the US seen 15 separate weather and climate disasters causing 138 deaths and \$46B in damages. The world we live in is changing and it is far from a secret. Water tables continue to fall, temperatures continue to rise, forests continue to shrink at alarming rates and an increased and ageing population is being experienced. By 2100 it is expected the world's population will be around 11 billion (UN World Population, 2017). Poverty is already an issue globally and the population increase will pose an enormous challenge to growing food shortages. We must be able to respond to the challenges raised by demographic growth, the limited resources the planet contains and social inequality.

For a very long time it has been felt by many business leaders that it is either profit or sustainability but not both. The perception that an organisation that engages in sustainability will not be profitable is something that the business world needs to move on from otherwise the issues mentioned previously will never be dealt with and the world will continue to spiral out of control.

The research aims to challenge this perception by trying to understand if a competitive advantage exists for those organisations that engage in long-term sustainability strategies as opposed to only focussing on short-term profit gains.

1.3 Significance of the Study

By exploring the idea that there is a competitive advantage to be gained for pharmaceutical organisations that engage in a strategy of sustainability, it can further enhance their ability to compete and operate well into the future. As more and more organisations begin to act more sustainably, the current social and environmental issues can only be improved.

Although the research will be limited to one pharmaceutical organisation, Takeda, the results will also be beneficial to other organisations that may be considering a switch to sustainability. While researching their secondary data they can use this information to decide if a program of sustainability is worth the initial investment.

The conducted research can also provide further knowledge to organisations on the type of areas that require specific attention to ensure that their approach to sustainability is in line with best practices.

1.4 Research Objective

As previously mentioned, the exploratory research objective will be to understand how the adoption of a sustainability strategy impact on an organisations competitive advantage. The research will be exploring if and how investment in sustainability improves and organisation competitive advantage or if it is a nice to have that contributes little or no benefit.

1.5 Structure of the Study

The dissertation will be separated into 6 separate chapters. Each one of the chapters will be contributing to the research objective and the process for exploring the proposition. The first chapter is designed to introduce the purpose of the research, the significance of the study, the research objective and how the research will be structured.

The second chapter provides a complete literature on sustainability and the role it plays in relation to an organisation ability to achieve a competitive advantage. The literature review is key in order to fully understand each part of the research objective. The literature is broken down into the key areas identified within the literature review and also contains the conceptual framework that will guide the research.

The third chapter is the methodology and research chapter. This chapter aims to clarify the methodology and strategy that was used to collect the primary data which is qualitative in nature. For the purpose of this research an interpretivist approach was taken through the undertaking of in-depth interviews.

Chapters four and five present the findings from the collection of the primary data. It also contains a discussion section which contrasts and compares the findings with the conducted literature review. The findings and discussion chapter are designed to explore the results of the research.

The final chapter highlights the implications, limitations and recommendations for future research. It also contains a section for both conclusions and reflections. The following chapter is a literature review that was explored for understanding the research objective further.

2 Literature Review

2.1 Overview

In today's globalized world, organizations face increased competition and tighter regulatory requirements. Environmental sustainability strategies are also expected from organizations in order to reduce the environmental impact that the product and service they provide have on the world (Smith and Rootman, 2013). There is a consensus among scholars that if the world continues to operate on its current path there will be extreme consequences as it is not sustainable. Sustainability provides a pathway to dealing with the many issues facing the world. Business has a significant role to play in solving the issues we face and Walck (1995) suggests that business has more power to impact change on the planet than Governments or activists by re-designing the economic system. The implementation of the UN's sustainable goals across businesses is seen as a major initiative in dealing with the global threats presented by climate change.

There may be no agreed definition of sustainability, but it is often referred to as "meeting the needs of the present without compromising the ability of future generations to meet theirs" (Beattie, 2015). There may be no consensus on the meaning of sustainability, there is however a common acceptance that it involves the consideration of social, economic and environmental aspects. The emphasis that is placed on different aspects of sustainability is part of the reason why there is a different interpretation of what sustainability is (Cowell *et al.*, 1999).

Business plays a significant role in the issues the world faces today and addressing these issues has now become critical to achieving a sustainable future. Many believe that there is a business case for implementing sustainability strategies and through the implementation of these strategies, organisations can achieve a competitive advantage. Nidumolu, Prahalad and Ranagswami (2009) believe that sustainability is now the key driver of innovation and through making sustainability a goal they can achieve a competitive advantage. If business can view their decisions and opportunities through the concept of

creating shared value, (Porter and Kramer, 2011) feel this will achieve not only economic success for the organisation, but it will also be to the benefit of both the environment and society while Hart and Milstein (2003) claim that a significant opportunity exists to create profit for shareholders, but at the same time drive a much more sustainable world. A significant report carried out by MIT Sloan Management and the Boston consulting group found that companies that focus on material issues report up to 50% added profit from sustainability and by building sustainability into the business models they double an organization's chance of profiting from its sustainability activities (Felde *et al.*, 2017).

However, in order to achieve the competitive advantage through the business case there are obvious costs that exist and this is the main reason why some organisations feel that the implementation of a sustainability strategy will in fact erode their competitive advantage. An article by Katherine Earley in the Guardian (Earley, 2016) discusses a recent report on companies plans to report on SDG's. The report showed that less than half of companies intend to engage with the goals set out by the UN.

There are a number of key areas that organisations need to focus on in terms of sustainability which will be reviewed in more detail in the literature. These key areas include productivity gains which can be achieved through reconceiving products and implementing new technologies to reduce environmental impacts such as water usage, energy use and waste reduction. Investment is required which comes with a cost but the question really is, will investment in the short-term result in long term gains, thus providing a secure economic future and provide a competitive advantage. Other areas considered as opportunity for increasing competitive advantage through sustainability measures include increasing reputation or legitimacy (Fombrun, 1995; Markwick and Fill, 1997; Greyser, 1999), considering employee well-being (Blackburn, 2004; Porter and Kramer, 2011; Willard, 2012) and continually innovating and increasing capabilities (Porter, 1990; Nidumolu, Prahalad and Ranagswami, 2009; Whelan and Fink, 2016).

2.2 Organisation Productivity

Organisations have always been looking for ways for improving productivity and cutting costs. The issue over the years is that too many have looked at it in terms of short-term gains as opposed to looking at the long-term benefit of investing now in order to secure the future. Many business leaders have the erroneous perception that they can have profits or sustainability, but not both. Such perceptions probably have their roots with the idea presented by Friedman (1970) where the only real concern for business is to continually turn a profit.

But as stated earlier, environmental sustainability strategies are now not only expected from organizations in order to reduce the environmental impact that the product and service they provide have on the world, but they are being demanded. Climate change, material resource scarcity, water scarcity and energy and fuel availability are just some of the ten global sustainable megaforges that the world and the organisations that operate in it face (KPMG, 2012). This is a point noted by Hart and Milstein (2003) who state "increasingly, global capitalism is being challenged to include more of the world in its bounty and protect the natural systems and cultures upon which the global economy depends." Pollution prevention and the efficient use of resources are critical to achieving a sustainable organisation and improvements in these areas is also one of the most cost-effective ways of reducing environmental impact (Hart and Milstein, 2003; Kuosmanen and Kortelainen, 2005; Henri and Journeault, 2009).

The business cases that are put forward for sustainability suggest short-term investment can result in long-term gains (Hart and Milstein, 2003; Porter and Kramer, 2011; Willard, 2012) which contradicts the thinking that you have to decide between profit or sustainability. In his book, *The New Sustainability Advantage: Seven Business Case Benefits of a Triple Bottom Line*, Willard (2012) suggests that organisations can increase profit by 51% - 81% and can avoid profit erosion of potentially 16% - 36% by using best-practice sustainability approaches. Some of the benefits are achieved by trimming down operating costs through reduced energy costs, reduced waste costs, reduced materials and water expenses. By achieving reductions in these areas an organisation is

also reducing their risk of potential fines and litigation as environmental policies continue to grow.

A waste management policy can significantly cut costs. Not only can disposal costs be significantly reduced but through the likes of re-design of packaging it is possible to stop generating the amount of waste in the first place. Increasing recycling efforts should also play a significant role in waste management efforts. Curkovic (2003) believes that through environmentally responsible manufacturing organisations create an opportunity to save on disposal costs through minimising waste. Unilever had 240 factories achieve zero non-hazardous waste to landfill and in the process saved \$225 million (Triple Pundit, 2017). Through this they can also avoid the threat of environmental fines, discover potential new opportunities, protect the environment and also increase employee morale (Shrivastava, 1995; Nidumolu, Prahalad and Ranagswami, 2009; Porter and Kramer, 2011).

Reduction in energy, waste and water can all have a significant impact on the organisations bottom line as these are all direct savings. Investment may be required to improve technologies, but the long-term gains outweigh the initial cost. Empirical data presented by Christmann (2000) would suggest that there are cost advantages and competitive advantage to be gained through best practice environmental management which is a cornerstone of the UN sustainability goals. This is further enhanced by a report carried out by McKinsey (2011), where Dow Chemical reported that through an investment of less than \$2 billion between 1994 and 2011 to improve its resource efficiency they achieved savings of more than \$9.8 billion from reduced energy consumption and water waste in its manufacturing processes. Merck, one of the leading pharmaceutical companies in the World set new goals and targets for waste, water and energy reductions in 2015. By 2017 they managed to reduce water usage by 18% based on 2015 levels while emissions reduced by 13% (MSD Responsibility, 2018).

Procurement policies can also contribute to productivity. The mind-set of lower cost suppliers as the best option can be flawed as working with suppliers to improve productivity will often work out better, rather than simply using the option of lowering cost (Porter and Kramer, 2011). They suggest suppliers that

are marginalized will not remain productive in the long term and quality can be impacted as a result of continually cutting costs. Having relationships with suppliers where technology is shared and access to information or finance is provided can benefit both organisations in the long-term.

In today's globalised world distribution and logistics play a significant role in an organisations environmental impact but it is also very expensive and it is only set to increase based on the levels of resources available. Local sourcing for example cuts down on energy and transportation costs whilst also reducing inventory carrying costs (Porter and Kramer, 2011). Organisations should look to more fuel efficient vehicles such as hybrids or smaller vehicles (Nidumolu, Prahalad and Ranagswami, 2009) as a way of both reducing cost and reducing carbon footprint. By working with a third-party logistics provider, organisations can also look at shipping product groupage to avoid large trucks travelling around half-full. These providers can also suggest the most economical routes and best modes of transport when it comes to shipping product. This supply chain re-designing can reduce environmental impact whilst also reducing cost for an organisation.

2.3 Reputation

Competitive advantage is not only gained in terms of reducing cost. This is one element, but there are other considerations when it comes to sustainability, one of which is reputation. Fombrun (1995) describes reputation as a strategic asset that produces tangible benefits. These benefits include premium pricing for products, increased employee loyalty, lower rates for capital and labour and goodwill of consumers when issues arise. Fombrun also believes that a strong reputation creates a strategic competitive advantage for the organisation. This is an opinion also shared by Greyser (1999) and Markwick and Fill (1997) who note that good reputation provides an organisation with distinctive and credible appeal.

The emerging risks related to the Global megaforges point to the risks related to ever tightening regulation which can result in fines and litigation thus impacting an organisations reputation. Tighter legislation is starting to be enforced and will

continue to increase in the coming years making it more difficult for organisation to operate in non-sustainable ways. Legislation requirements differ globally but Nidumolu, Prahalad and Ranagswami (2009) point to the fact that organisations that adhere to the most stringent rules globally gain an advantage in terms of first mover advantage and manufacturing facilities can obtain greater economies of scale when it comes to component sourcing and production operations as they are not managing multiple types based on local legislation.

It can also result in a loss of customers who switch to a competitor as they may be seen as being more sustainably focussed. A poor reputation can have a detrimental effect on an organisation, yet many organisations still do not report on what they are doing (Nikolaeva and Bicho, 2011). But reporting and integrating stakeholders' views such as customers, suppliers, regulators and communities into businesses practices can enhance reputation and legitimacy as it increases external confidence (Hart and Milstein, 2003). It can also act as a catalyst for increased sustainable practices.

Society is becoming more aware of the impact that companies play in environmental and social impacts such as pollution, waste and child labour. According to Walker and Wan (2012), companies are viewed as one of the major causes of climate change and social injustice in the world. This is one of the reasons that organisations are being pressured into acting more sustainably. Shareholders are also becoming more aware of the sustainable requirements being demanded by consumers and are not as willing to invest in companies that are not seen as sustainable, all of which put the long-term success of an organisation at risk. With the increased awareness from society and shareholders on how organisations are operating comes the risk to the overall reputation.

With an ever-increasing use of outsourcing and the use of suppliers on such a global scale it is imperative that organisation protect their reputation through supplier management processes. In order to avoid reputation damage it is important that the purchasing group or supply chain team have full visibility of international suppliers in terms of ensuring they follow strict codes of conduct and that both social and environmental misconduct is not present at the

suppliers premises (Reuter *et al.*, 2010). Organisations reputation can quickly unravel if there are issues within the supply chain that have not been identified and dealt with at an early stage which is why supplier management is crucial.

Reputation is also a risk when it comes to an organisation's employees. Employees are part of the same society that are looking to business to do more. Research highlighted by Whelan and Fink (2016) shows that more and more employees are focussing on an organisations mission, purpose and work-life balance. Employees are looking to organisations to provide value to society and the environment. They also want to be treated as stakeholders when decisions are being taken when it comes to sustainability measures. Whelan and Fink (2016) point to the fact that in some studies employee productivity rose by as much as 16% and morale increased by as much as 55% in organisations with strong sustainability programs.

Losing staff to competitors on the basis of sustainability has become more of a threat recently as awareness continues to grow. The experience lost and then gained by competitors is an obvious issue as you not only weaken your own competitive advantage but your competitors is also strengthened. The cost of retention issues is also quite high and can impact on competitive advantage. Hiring new staff is not a cheap exercise (Bratton and Gold, 2006).

2.4 Employee Wellbeing

The wellbeing of employees and the significant role they play in an organisations future survival have been neglected when compared with the like of environmental sustainability (Pfeffer, 2010). Looking after the welfare of employees can be seen by some organisation as being a threat to competitiveness for example, as a result of the cost of providing health care (Kossek, Valcour and Lirio, 2003) or the cost of training. But employee wellbeing has become more prevalent in recent years and organisations that do not recognise employee wellbeing or work-life balance as being important may lead to employee resentment due to a perceived lack of support (Kossek, Valcour and Lirio, 2003).

But Baptiste (2008) would argue that an organisation's most important asset is their people and through effective development and deployment of employees, they can offer a competitive advantage that is both distinctive and non-imitable, achieved through employer and employee engagement. For an organisation to remain sustainable, enhance performance and survive long-term it is important they promote the wellbeing of its employees (Currie, 2001). This is a view which is reinforced by Schuster (1998) who purports that a significant relationship exists between superior organisational performance and attention to employees.

Competitiveness depends on the productivity with which organisations can use natural resources, capital and labour. Therefore, a key area of focus for organisations is centred on the productivity of employees as a healthy organisation is crucial for the long-term survival of an organisation (Baptiste, 2008). In order for employees to be productive they need to be operating under certain conditions such as health and safety, feel a sense of belonging and motivation, receive appropriate training and earn a decent wage so they don't feel external pressures around housing etc. (Porter and Kramer, 2002). Investing in healthcare and prioritising employee safety at work, which traditionally was viewed as a cost is now seen as a more cost effective approach when compared to the cost of lost workdays through illness or injury and reduced employee productivity (Porter and Kramer, 2011). Health insurance policies also provides employees with a sense security when it comes to economic wellbeing (Pfeffer, 2010) as they don't have the stress of worrying about cost should an issue arise.

Organisations that are not concerned with sustainability measures and the wellbeing of employee's risk attracting and retaining them. The recruitment and retention of employees is vitally important to the success of any organization. Millmore (2003) argues that the ability to attract, hire, retain and develop the most capable talent is the single most important determinant of an organisations' strategic effectiveness. Failure to attract and retain the best employees will obviously impact on your overall competitiveness as you not only weaken your own hand, but you also potentially strengthen your competitors as they move to other companies. There is also a significant cost

involved in hiring and training new staff as a result of retention issues (Bratton and Gold, 2006).

Employees can derive a greater sense of belonging and pride in their work and to working for a company that demonstrates a commitment to important environmental and societal issues through its sustainability initiatives (Varadarajan, 2017). Whelan and Fink (2016) draw attention to recent studies that found employee morale was 55% better in companies with strong sustainability programs when compared with organisations with poor ones. The study also found employee loyalty was 38% better and organisations that adopted environmental standards have seen a 16% increase in productivity

In order to create and nurture a sustainable workforce, employment practices that link employee wellbeing and work-life balance to employment experiences over the course of employees' working lives need to be established and implemented (Kossek, Valcour and Lirio, 2003), thus enabling them to perform well over time. To be recognised as a socially responsible organisation, the effect of management practices on employee physical and psychological well-being must be taken into consideration (Pfeffer, 2010).

2.5 Innovation & Capabilities

Innovation and improving organisation capabilities is a key component of achieving a competitive advantage through sustainability (Hamel, 1998; Porter and Kramer, 2011; Varadarajan, 2017). Nidumolu, Prahalad and Ranagswami (2009) believe that sustainability is now the key driver of innovation and that sustainability should be the cornerstone for all innovation. They are of the opinion that organisations that make sustainability a goal can achieve a competitive advantage. This is an opinion shared by Rodriguez, Ricart and Sanchez (2002) who purport that innovation is a source of competitive advantage that not only generates value for the company but it also generates value for society on the whole. In his book, "Leading the Revolution", Hamel (2000) suggests that organisations that are close-minded to innovation will falter or fail. He shows why only companies that continually reinvent

themselves and their industries will be able to survive as innovation will be the best source of new wealth going forward.

Innovation can be manifested in many ways such as new production processes, new approaches to marketing, new product design, entering new markets previously not considered or a new way of conducting training. It always involves investments in skill and knowledge, as well as in physical assets and brand reputations (Porter, 1990)

Innovation has the ability to not only reduce the environmental impact of an organisation, but it can also reduce costs. However, in order to achieve this, an organisation must invest in pollution prevention technologies (Hart, 1995; Christmann, 2000). These technologies can contribute to an organisation cost advantage as they highlight inefficiencies in existing production processes thus increasing the potential of cost-savings (Porter and Linde, 1995). Using new technologies to anticipate and comply with future environmental regulation also provides an advantage over competitors as compliance cost risks are reduced. It also reduces the likelihood of production disruptions as opposed to an organisation who is trying to introduce last minute changes in order to be compliant (Dierickx and Cool, 1989; Nehrt, 1996; Christmann, 2000). As mentioned earlier, reducing impact also has a positive impact on organisation reputation thus making brands more attractive to consumers which provides additional competitive advantage. The literature would suggest that using innovative new technologies is clearly the way to proceed.

Innovation also plays a key role in meeting growing consumer needs when it comes to sustainable products and meeting unmet needs such as health. Today's consumers expect more transparency and honesty from organisations and to be able to choose more sustainable, eco-friendly, competitively priced, high quality products which is achieved through re-design of existing products and developing brand new products (Nidumolu, Prahalad and Ranagswami, 2009; Whelan and Fink, 2016). The Nielsen Report (2014) found that the percentage of people willing to pay extra for products and services from companies committed to positive social and environmental impact was on average globally 55% whilst Latin America and Middle East/Africa was 63%. The report also found that 51% of millennials were willing pay extra for sustainable

products and that they regularly check packaging and labels to ensure positive social/environmental impact. 49% also stated they would prefer to work for a sustainable organisation. Another study showed that 84% of emerging market consumers make cause related purchases at least annually (Edelman, 2013)

This requires investment but without investment in research and development (R&D), organisations will not be generating new products. For example, pharmaceutical organisations must continually invest in R&D in order to continually prosper due to the threat of generics post patent expiration and increased competition from competitors. This also means they are continually looking at ways to meet the many unmet needs in the world of medicine, but with it comes the opportunity for new customers in existing markets whilst also the opportunity to enter new and emerging markets (Porter and Kramer, 2011). Organisations that are not constantly considering the generation of future products and services will fail to continue to prosper upon which shareholder value are reliant (Hart and Milstein, 2003). McKinsey (2011) estimates that the clean-tech product market, for example, will reach \$1.6 trillion by 2020, up from \$670 billion in 2010 further emphasizing the need to continually innovate when it comes to sustainability.

2.6 Conceptual Framework

Various important theories and frameworks have been introduced within the literature review that suggest an organisation can improve their competitive advantage whilst also improving conditions within the society and environment in which they operate.

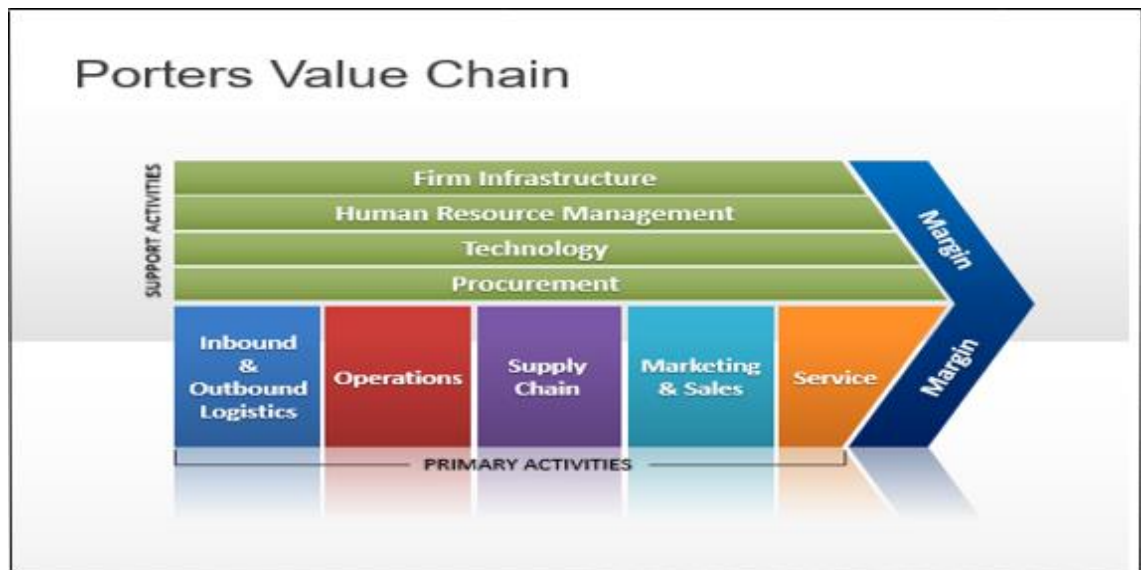
In their "Creating Shared Value" (CSV) theory, (Porter and Kramer, 2011) believe that an organisations purpose must be centred around CSV and not just profit. They believe CSV "will drive the next wave of innovation and productivity growth in the global economy". Shared value is created through reconceiving products and markets to address societal issues, redefining productivity in the value chain which impacts on areas such as water and energy use and enabling local cluster development.

In his book, "The New Sustainability Advantage: Seven Business Case Benefits of a Triple Bottom Line", Willard (2012) suggests that by addressing environmental and sustainable issues in a systematic way it will create the opportunity to concentrate on core business objectives such as reducing waste at manufacturing sites (water & energy), employee turnover which reduces cost of re-hiring, improving productivity, reducing risk and increasing profit.

Empirical data such as that presented by Christmann (2000) would suggest that there are cost advantages and competitive advantage to be gained through best practice environmental management. The case for competitive advantage through sustainability measures is further emphasised through various studies and reports such as the Nielsen Report (2014), McKinsey (2011) and Felde *et al.*, (2017).

In order to marshal all the different concepts and theories and to understand if a competitive advantage truly exists and a positive impact on environmental and societal issues is possible, Porter's Value Chain framework (Porter, 1985) is the over-arching framework. The framework (Figure 1) consists of nine value activities that together create added value to an organisation's margin or profit. The framework is made up of two sections: (1) The primary activities are made up of activities concerned with all of the stages related to the production of a product through to sales and (2) The support activities which all support the primary activities. Although not classified as an activity, the margin is often known as the tenth activity. This is where value to the organisation is captured. The value chain framework can be used to look at the value being created in each activity. For the purposes of the research, the framework has been modified slightly. Inbound and outbound logistics were combined into one activity and Supply Chain was added as a new activity.

Figure 1: Porter, M. E. (1985) 'The Competitive Advantage: Creating and Sustaining Superior Performance',



The areas identified within the literature relate to organisation productivity, reputation, employee wellbeing and innovation & capabilities. The value chain model will enable the research to view each of the component areas found within the literature and better guide the findings.

Although the value chain is concerned with organisation profit as being the value creation, the framework will also enable insight into the environmental and societal value creation that is being made. Each activity is being viewed for competitive advantage but the related questions will also provide significant insight into environmental and societal impact as they are intertwined with organisation profit.

2.7 Conclusion

Competitive advantage is more than an organisations ability to make a profit. In today's world, trust and loyalty to a brand can be lost very quickly. Consumer appetite for an organisation to act sustainably is ever increasing. As to is the appetite of employees who want to work for organisations that they can be proud of but who also care about their employees. Wellbeing and work-life

balance are now very important to employees and organisations who do not take this seriously are in jeopardy of losing talent.

The literature reviewed would suggest that the adaption of sustainability goals can further increase an organisations competitive advantage whilst simultaneously improving the environment and society we live in. The business cases that are put forward for sustainability suggest that through short term investment, an organisation can reap long term gains. Reduction in energy, waste and water can all have a significant impact on the organisations bottom line as these are all direct savings. Investment may be required to improve technologies, but the long-term gains outweigh the initial cost. Innovation appears to be the way forward. To be successful long-term, an organisation needs to continually innovate and improve otherwise they will simply be bypassed by the competition.

3 Methodology and Research Design

3.1 Overview

When conducting research, methodology is the logic behind the chosen methods (Buckingham and Saunders, 2004), the general approach to research topics (Silverman, 2004). This chapter outlines the research philosophy, research strategy, data collected and analysis of the data. The research objective is to explore if and how the adoption of a sustainability strategy impacts an organisations competitive advantage.

Research philosophies enable the creation and clarification of the research design of the paper. In general, there are two type of research paradigms that scholars use, interpretivist and positivist (Malhotra and Birks, 2003). The positivists argue that in the social world, everything can be described objectively and broken into explainable fractions (Blumberg, Cooper and Schindler, 2008). This paradigm is concerned with quantitative research. Interpretivists on the other hand believe that conducting an objective research of the social world is not possible because the researcher's interpretation of the reality is subjective (Blumberg, Cooper and Schindler, 2008). This paradigm is concerned with qualitative research.

3.2 Research Philosophy and Approach

The objectives of the dissertation are to ascertain the impact of sustainability efforts on organisation competitive advantage as well as organisation impact on the environment and society. How competitive advantage and organisation impact on the environment and society as a whole is viewed can be quite subjective as it considers employee wellbeing, reputation, environmental benefits and societal impact as well as more tangible items such as cost reduction. As a consequence, the level of impact and advantage one associates with the organisation and their efforts will differ from person to person. As a result, the research will be based on the interpretivism philosophy. Each individual in the study will have their own interpretation of reality in terms

of what they do or do not expect and the qualitative method is appropriate as the belief of interpretivists is that reality is subjective (Saunders, Thornhill and Lewis, 2009).

3.3 Research Strategy

The objective of the research is to identify if the adoption of a sustainability strategy builds on organisational competitive advantage within the pharmaceutical industry. For the gathering of primary data, I conducted a number of in-depth interviews with employees of the pharmaceutical organisation, Takeda, using the literature review and conceptual framework to explore the impact of a sustainability strategy. Takeda's sustainable value report was referenced as secondary data to further emphasize the primary data findings.

As the interviews are considered qualitative and interpretivist in nature, the conducted interviews were semi-structured to allow the interviewee the opportunity to further provide their thoughts and feelings on the subject of sustainability and provide I, the researcher, with a greater sense of understanding the requirements and benefits proposed in the literature review.

The chosen conceptual framework, Porters Value Chain framework (Porter, 1985) is concerned with value creation through a number of primary and support activities. The framework was modified slightly to allow for the addition of a supply chain activity. The conducted literature review information encountered was considered during the design of the questions for the semi-structured interviews.

3.4 Collection Primary Data

This section outlines the sources of the primary data collected and also the access and ethical issues related to the collection of data.

3.4.1 Sources

The sources of the data collected were both qualitative and interpretivist in nature. The data collected through the conducted interviews is based on the interviewee's own interpretation of the importance of sustainability and the advantages that exist. Interviews were selected as the best research method as it provides greater in-depth information. In order to broaden the data collected, the interviews were conducted with employees at different levels within the organisation which included areas related to human resources, supply chain, innovation, corporate responsibility, manufacturing and sustainable procurement.

3.4.2 Access and Ethical Issues

In order to obtain the data required for the research I conducted a number of interviews with employees who are employed with Takeda Pharmaceuticals. I also used information contained with Takeda's 'Sustainable Value Report' which is a publicly available report. The participants interviewed for the purpose of the research does not have any ethical issues as an outline of the process was explained with each participant and further detailed in an e-mail prior to the interview.

3.5 Approach to Data Analysis

In order for the data collected to be relevant it is important it is correctly analysed and understood (Saunders, Thornhill and Lewis, 2009). The information

provided from the conducted interviews was contrasted and compared to the conducted literature review. The interviews were guided by the conceptual framework and the literature review. The interviews were semi-structured and the questions were designed to encourage participants to discuss their own opinions of sustainability and the benefits that exist for organisations who participate in sustainable strategies.

To analyse the qualitative data from interviews, the coding procedure was applied. In qualitative research, the process of coding involves data being broken down into different component parts, which are given names (Bryman, 2008). The coding process enables the categorisation and identification of relationships between the themes in the data collected. The initial coding was made right after the data collection.

3.6 Conclusion

The purpose of this research is to further contribute to existing knowledge in relation to sustainability and competitive advantage. This was achieved through the use of exploratory research which is guided by a slightly modified conceptual framework.

4 Presentation of the Findings

4.1 Overview

This chapter reviews and presents the findings that were generated through a 1:1 interview with employees of Takeda based on the research objective. The interviews were conducted with various employees working in different areas of the business and at different levels of the organisation. The findings were collected and recorded through the research design which was discussed in a previous chapter. The results are a result of qualitative data.

4.2 Findings

4.2.1 Company Overview

The pharmaceutical organisation chosen for the study was Takeda. Takeda are a Japanese company who have been in operation for 238 years as they were founded in 1781. They are a global biopharmaceutical company committed to bringing Better Health and a Brighter Future to people worldwide. Takeda see themselves as being a patient-focused, values-based, R&D-driven organisation. Takeda have a presence in about 80 countries and leading positions in both Japan and the US, which are considered the third and first largest pharmaceutical markets in the world (*Company Information | Takeda, 2019*). Since they acquired Shire in early 2019, Takeda have grown significantly larger and are now one of the Top 10 pharmaceutical organisations in the world with annual revenues of around \$30 billion (*Takeda Top 10 | The Japan Times, 2019*).

According to the CEO, Christophe Weber, Takeda have an unwavering commitment to building a sustainable society (*Sustainable Value Report | CSR | Takeda, 2019*). The report shows that Takeda plan to achieve this through areas such as Corporate Social Responsibility (CSR) initiatives, targets in relation

to the Sustainable Development Goals (SDG's), employee engagement and employee and societal wellbeing.

4.2.2 *Operational Productivity*

Based on the findings from the conducted interviews it is quite clear that operational productivity is clearly a source of competitive advantage for an organisation that is engaging in sustainability initiatives. The research showed that productivity linked to sustainability initiatives is manifested in many different ways and not just through energy savings, although this does play a significant role.

Energy use, waste management and water reduction are key elements to pollution prevention. Reducing the overall impact is a necessity and something that Takeda are working intensively to reduce. It is also something that is driven from the very top of the organisation as highlighted by one of the interviewees who noted;

“the CEO drives the plants to reduce energy and increase sustainability”.

In the same interview it was also noted that to further show commitment to sustainability, the CEO created a significant fund for sites to draw from for energy management improvements and sustainability projects. This is seen as being extremely valuable, as plants with tight budget constraints may not invest appropriately without this additional fund being available.

Takeda are reducing water, energy and waste in all areas. In order to ensure this is managed efficiently this is led on-site by reliability engineers who along with their respective teams have overall responsibility for ensuring targets are set and met. This dedicated team are also looking to future technologies to ensure they are always progressing and striving to improve further.

These initiatives are being carried out globally but some examples of these initiatives can be seen at one of the Takeda sites in Ireland which were highlighted during one of the interviews. At the site, all lighting is being replaced by LED lighting which is providing numerous benefits. The LED lights are much more

efficient in terms of energy use thus reducing carbon footprint. Although they are a little more expensive to purchase, the lifespan of LED lights is much longer resulting in lower overall energy costs. This is also having a positive impact on maintenance costs as the level of interaction is much reduced. The team is also upgrading old systems such as HVAC units and compressed air units with new improved models which are more efficient and carry much improved energy ratings. Again, the initial cost of upgrading the systems is being overshadowed by the savings being made in terms of both cost and efficiency. Waste management projects such as the introduction of a waste water treatment plant means this waste can be sorted on site as opposed to being sent to an off-site contractor which again is resulting in long-term cost avoidance. The team were nominated for the green energy awards which provided them with a great sense of pride which in turn leads to greater job satisfaction.

The site is also ISO 50001 certified and in 2018 they were certified to the new standard. This is an energy management system certification and something that the site in Ireland is extremely proud of. In order to maintain certification, the site must continue to show year on year improvements which is an additional driver to continuously improving. In 2018, the site experienced a 20% reduction in overall carbon footprint which resulted in an energy spend reduction of 4.4%. On a global scale, Takeda experienced a 25% reduction in CO₂ emission in 2017 compared to 2005 figures. For the same time period they have seen a 43% reduction in fresh water usage and a 76% reduction in final waste disposal (*Sustainable Value Report | CSR | Takeda, 2019*)

Takeda also have a sustainable procurement group which is contributing to operational productivity as highlighted through the research. This was identified in a number of areas such as switching to materials that can be re-used. This is significantly reducing cost as you are not in a constant state of buying more materials. This cost can then also be passed onto patients through product cost reductions thus making the medicine more accessible to patients.

The sustainable procurement team also work with suppliers and their suppliers to ensure that they are in a constant state of improvement when it comes to

environmental sustainability. Measuring suppliers for improvements in these areas helps to reduce the organisations global footprint and enables cost reduction. According to one of the interviewees it also leads to;

“a more stable supply chain and leads to much more productive workers”.

The team also works with suppliers to provide support and expertise for those that may be struggling to meet the demands that Takeda have. It was highlighted that simply replacing suppliers who are struggling is an extremely painful and costly exercise. It is a much more efficient process to work with suppliers to get them to the required standard which in turn will improve their productivity which is to the benefit of Takeda in the long-term. Another interviewee also noted that in order to improve suppliers' capabilities, Takeda are willing to invest in the likes of equipment where capacity may need to be increased or Takeda staff with specific technical skills will be deployed to work through any potential issues that may exist. In order to ensure continuity of supply, a strategy of dual sourcing is implemented where possible. This helps to ensure that Takeda are always in a position to supply product should a supplier experience an issue but more importantly it ensures that patients always have access to the required medicines.

Operational productivity also manifests itself through the supply chain and transport. As a global pharmaceutical organisation, Takeda are moving materials and product all over the world. While the cost of transport is out of Takeda's control, the method they choose is not. It was identified that Road and Sea freight are the preferred methods of transport for Takeda as Air transport is the costliest method and the one with the greatest environmental impact. It was noted however that although Air transport is significantly costlier it is important to understand all charges related to the shipping process such as port charges, unloading charges and customs clearance before taking a decision on the best method for a specific shipment and this is something that Takeda do in conjunction with their third party logistics providers. Where possible Takeda also ship using re-usable passive shippers as opposed to more expensive single use transport methods thus reducing costs.

Transportations costs are inevitable but in order to try and reduce the cost of long-haul shipments Takeda have created a regional distribution model which enables lower costs. The supply chain is set up so that manufacturing sites are set up in regions that will supply product in that particular region which keep global shipping requirements at a minimum. This creates a benefit in terms of both cost and environmental impact. It also reduces the wait time for patients who are trying to access medicine as the speed to delivery is much greater. The regional model also allows for a greater sense of demand. Due to the nature of the products being produced, demand can be quite unpredictable. Having the local intelligence helps Takeda to produce product as required which leads to better control of inventories and less obsolescence.

4.2.3 *Reputation*

The findings from the conducted interviews also highlighted the importance of sustainability in terms of reputation and the fact that there is a competitive advantaged to be gained by organisations who participate in it. During the interviews when questioned with regard to the importance of sustainability, some of the interviewee stated;

“there is a reputational advantage to being involved in sustainability”

“it is important in protecting our critical resources and to protect our reputation”

It was also noted that sustainability helps to address the many issues that exist such as slave labour, unethical manufacturing and environmental issues. All of these issues can impact on an organisations reputation if they are seen to be behaving inappropriately.

At Takeda they go by 4 pillars known as PTRB. These are Patients, Trust, Reputation and Business. All decisions within Takeda are taken through these pillars. As reputation is key to the success of Takeda, protecting the company reputation and enhancing it where possible was a message that was continually repeated throughout the interviews. It is a major factor in the

competitiveness of an organisation as it can have a negative impact in performance, as highlighted by one of the interviewees who stated;

“companies that do not look after this area will suffer reputation damage which will impact business performance”.

Sustainability efforts can impact an organisations reputation in many ways and why it is important that they engage in the process was highlighted throughout the research. Firstly, it is now being demanded by investors. If an organisation wants investment in the future and to continue to be successful, they must be engaged in sustainability efforts. During the course of the research this was spoken about by one of the interviewees who noted that investors are looking to invest in organisations that act sustainably and have long term views as opposed to those organisations who are only interested in short term profit making but will struggle to remain in business long term. Investors are looking at organisations that behave sustainably as being someone that is managed well. To further cement their comments, the interviewee pointed to a letter issued by Larry Fink, the CEO of BlackRock Investment Company where he outlined investor expectations of organisations in the area of sustainability (*Larry Fink's Letter to CEOs, 2019*). It is clear what the expectations are and in order to remain competitive, organisations that act sustainably will have an advantage over those that don't.

During the research it was noted that reporting is a necessity as full transparency is expected from the likes of investors. It is also something expected from potential employees who like to understand how an organisation is operating before committing to them. One of the interviewees stated that potential employees;

“will look at the sustainability report before they will look at a company's financial reports because they want to get a feeling for who the company is and what they stand for”.

Based on this, it is apparent that an organisation not participating and reporting on sustainability initiatives will struggle to attract and retain the best employees which is an obvious source of competitive advantage for an organisation. It

was also felt that reporting is something that helps to build company reputation externally and also builds trust with outside organisations and can lead to better stakeholder dialogue, all of which are to the benefit of the organisation. Another important item highlighted was the benefit internally, where it was felt that when senior leaders start to see the reports and where they stand within the industry it can create a greater drive to improve and move higher up in the reporting indexes.

Takeda set goals through benchmarking best in class sustainability organisations and looking at different frameworks. In order to provide confidence that the information being reported is trustworthy, Takeda assures the data through the use of an independent third party who confirms the information which in turn provides additional confidence. Takeda are strong when it comes to reporting their sustainability initiatives which can be seen by their comprehensive sustainability report. They also report on the UN sustainable development goals, an area where Takeda particularly stand out according to one of the interviewees who felt Takeda were;

“a leader in terms of referencing the sustainable development goals” and “the way it is treated at Takeda, they have raised the bar”.

Another area where Takeda's reputation can be impacted is through their Supply Chain. Having a sustainable supply chain means you have control and visibility of the complete supply chain, ensuring that you understand how your suppliers are operating and how their suppliers are operating. At the end of the day it is Takeda's name that is on the product and if one of their suppliers are behaving inappropriately it is Takeda who will suffer the reputational damage. This was noted by one of the interviewees who stated;

“their reputation is our reputation”

In another interview it was highlighted that an example could be seen in the Wyatt Pharmaceuticals waste management issue. In this issue, it was being investigated if Hormone Replacement Therapy (HRT) tablets made their way from the plant in Ireland to a pig feed company in Belgium. Wyatt had

disposed of the tablets to Bioland via another company called Cara but had no visibility as to how the material was being disposed of ('Wyatt Waste Scandal', 2002). It transpired that Bioland did not even have a license to handle HRT material.

When it comes to protecting company reputation, during an interview with a member of the sustainable procurement team, it was felt that;

"Takeda does have a strong due diligence programme"

Takeda have a strong code of conduct that suppliers must abide by. It was noted that the code of conduct is issued with all Request for Proposals (RFP) and supplier must confirm they have read it, understand it and conform to it. This is then part of the supplier audits that are carried out routinely to ensure compliance and to highlight any risks that may present itself. Supplier management structures are in place to meet with CMO's, ensuring visibility to how they are operating and monitoring business performance such as quality performance, compliance, ethics and environmental performance. It was also felt that by behaving ethically, an organisation could gain a significant competitive advantage through improved business performance, employee satisfaction and the enhancement of their reputation.

Sustainability is also important when it comes to compliance. If you are not meeting regulatory requirements when it comes to the likes of conflict materials you can suffer not only reputational damage but potentially fines and a revoking of a manufacturing license. Takeda report accordingly in these areas which is important. Building trust with regulatory bodies also helps when it comes to moving products from different regions in order to maintain continuity of supply to protect patients. It was felt that building relationships with regulatory bodies such as the FDA or EMEA and having that trust in place can facilitate rapid decision making which enables continuity of supply, protection of patients which in turn improves reputation.

Another important factor when it comes to sustainability is the social aspect. Takeda are producing many products, some of which are life saving drugs for rare diseases. Unfortunately, these can be expensive and difficult to obtain for some people. Takeda are very much aware of this and their access to healthcare efforts are important in making products available for those who cannot afford them. This was mentioned in one of the interviews and is also present in the Sustainable Value report where they mention their Affordability-Based Patient Assistance Programs (PAPs). These programmes are vitally important when it comes to improving the lives of many people around the world who would otherwise continue to suffer. Providing medicine, working with NGO's and other organisations to put structures and training in place to improve diagnosis for patients is clearly a benefit to society and it also benefits Takeda's reputation when it comes to being a truly sustainability focussed organisation.

4.2.4 *Employee Wellbeing*

The findings from the interviews conducted found that the promotion of employee wellbeing and work-life balance are vitally important to both employees and the future success of the organisation. In terms of how important employees are to the organisation achieving their goals and objectives it was noted by one of the interviewees that:

“at a fundamental level, people are the key”

It was also noted that a wellbeing programme for the organisation;

“is a must have”

In order for Takeda to be successful they need people to turn up for work and perform to the best of their abilities. It is recognised that if the work environment is not providing employees with the necessary tools to perform their job or if there are issues outside of the work environment impacting an employee, this is not a situation where performance will be at its peak. In order to improve these situations, Takeda feel it is important to offer a range of benefits to employees. For instance, they run health awareness programmes and offer confidential

24/7 counselling for both employees and family members who live with them. Employee benefit programmes also includes health insurance. This provides employees with a sense of security and the health insurance provider also provides employees with regular onsite information such as eating well, weight management, yoga classes and keep fit classes. This is helping to create an environment where employees feel safe, valued and more than just a number in a very large organisation.

In order for Takeda to achieve their value proposition, it is highly dependent on employees delivering on organisation requirements which in turn meets patient needs. Learning is at the core of everything Takeda does and they feel it is imperative that employees are armed with the necessary tools to perform their jobs to the best of their ability. When speaking about learning at Takeda one of the interviewees stated;

“our learning environment provides individuals the opportunity to reach their full potential”

Training and development are key to achieving this. This better enables the employee to further enhance their own career aspirations. As employees feel valued it in turns leads to them becoming more engaged and more willing to get involved in more projects within the organisation. This also leads to improved productivity for the organisations benefit. People are empowered to make quick decisions which it was felt also drives performance.

Another area linked to employee performance was safety. In order for performance to reach its potential, employees must feel comfortable and safe in the workplace. Takeda drive a safety culture which is part of their daily meetings they have on the sites. They hire the correctly trained personnel working in this area which is vital to driving a safety culture. It was noted that safety is a necessary cost of doing business but it is;

“a critical driver of business success”

During the research it also became apparent that an organisations ability to attract and retain employees is impacted by their sustainability efforts. This is something that appears to be particularly prevalent amongst the younger generation which is now entering the workforce, but it is not just limited to this particular generation. In one of the interviews it was felt that when it comes to attracting and retaining employees, being engaged in sustainability and CSR had definite benefits and organisations that do not participate were at a disadvantage. It was highlighted in numerous interviews that sustainability is now being demanded by employees and customers. It is no longer a nice to have but an expectation. Takeda recently attended a number of events where they had a recruitment stand and this expectation was very clear. Questions were being asked about sustainability plans, environmental impact, how products are being made more readily available where it is not affordable and carbon neutral strategies. A clear strategy around sustainability is required so that it can be communicated effectively and to show alignment between company values and that of society. It is imperative when it comes to attracting employees and noted by one of the interviewees who stated;

"If we don't meet their needs they will go and meet their needs somewhere else"

It is not just important in relation to attracting new employees, retention also appears to be impacted by sustainability efforts. One employee linked their job satisfaction levels directly to how the company operates. It was also felt that employee job satisfaction increases with the feel-good factor of working with local communities and the environment. Another employee felt that they;

"would not be comfortable working for a company that did not have strong sustainability initiatives"

This was further strengthened by the fact that the interviewee left a previous organisation because it was felt that sustainable procurement was not used as a driver for change and improvement, rather it was used just to say they had it in place.

There are significant costs in hiring people and it is of significant importance that employee experiences the value proposition that was sold to them during

the hiring experience once they join the organisation, otherwise they will potentially move on quite quickly. This can result in reputational damage, but there are costs in terms of leadership time invested in the process, talent and acquisition time, preparation of contract and onboarding. After a short period of time the process may need to start again resulting in additional costs to the organisation.

Employee wellbeing is also manifested through an organisation's interaction with the local communities in which they operate. It was felt that it was important to 'give back' as it is extremely beneficial to the organisation that are being helped and it also provides employees with the opportunity to contribute and provides them with a feel-good factor as they are adding value back into the community. Takeda provides employees with time during their work hours to give back to society and work with local charities/groups to help them in any way possible using the skills they possess. This can be anything from mentoring programmes to helping local groups with safety statements they require. Employee volunteering has little or no cost to the organisation but provides great benefit to society as employees are raising awareness for these local communities. This can also lead to an increase in productivity, the organisation tends to have a more motivated workforce and reputation is improved.

4.2.5 *Innovation & Capabilities*

Innovation appears to be key to the future success of any organisation. The speed with which technology is moving and ever evolving means that organisations must be operating within this space. Sustainability and innovation are closely linked and according to one of the interviewees;

"sustainability is another form of innovation"

The ever-increasing trend, especially with the younger generation to move into the sustainability space is putting pressure on organisations to act sustainably and innovation has a significant role to play. For this to be successful, it requires

top management support and at Takeda it is felt they both enable and empower both sustainability and innovation which is driven directly from the CEO, Christophe Weber. Takeda understand this and they re-invest significant capital into both R&D and the creation of an innovation business team further enhances the prioritisation and importance it has within the organisation.

At Takeda, it was recognised that in order to be successful you must have the necessary capabilities in place. This is an area which was focussed on in terms of firstly identifying where capabilities were lacking and secondly by addressing the issues and making the necessary improvements. If you do not have the capabilities in place it is impossible to succeed. Big data can provide many benefits and in order to use this successfully Takeda invested in technical platforms at their manufacturing sites. To further enhance this, they worked with universities to get specialists in this area working alongside Takeda employees to ensure the best platforms were being used. They also employed people within the manufacturing facilities with the necessary skills and capabilities to roll out the improvements. They also ensure that best practices are communicated globally so that they can be rolled out in other facilities.

As a result of using innovation, Takeda are seeing significant savings. The use of data sciences in core manufacturing is improving yields, reducing lead-times, operation efficiency gains and patients are receiving products quicker. At one of the sites in Ireland digital technology is being used to track all utilities, enabling point to point measurements of usage. They also use digital platforms like data analysis tools which helps to track and trace all energy use on the site. This has the ability to flag when they are out of control or out of trend so these areas can be targeted for improvement. Without this innovative technology this would not be possible, leading to increased costs for the organisation. It is noted in the research that when you are getting new technologies in to save energy there is no short-term return on investment, but the results long-term outweigh the initial investment. Technology can also reduce cost when it comes to travel as it can now be limited as the likes of Skype or WebEx are utilised more and more to conduct global meetings. Travel is necessary on

occasion, but the need to be on the move all the time can now be limited as technology is utilised more, leading to reduce travel cost and the obvious environmental impact is being reduced.

Innovation also has a role to play within the supply chain. Forecast accuracy can impact on ensuring patient supply and it can also increase cost as a result of obsolete material. Producing product that may become obsolete will also require destruction which results in a double cost. Manufacturing sites are producing product based on the market intelligence that is being received. Innovation and the use of artificial intelligence (AI) is helping to improve forecast accuracy. Using data from all areas such as demand planning and commercial intelligence has enabled a forecast accuracy improvement of 8% in 1 year. This is helping to ensure continuity of supply and also in keeping waste at a minimum throughout the supply chain.

Regulation is another driver for sustainability and innovation plays an important role here also. There are the obvious advantages related to environmental impact and technology helps to get data quicker to ensure compliance. But there are also regulations when it comes to patient safety and one of the pillars of sustainability is society. Organisations will put at risk their ability to operate into the future if they are not meeting needs when it comes to this area. Regulation exists in relation to the tracking and tracing of all product manufactured and supplied within the supply chain. Technology is used to ensure compliance. However, when it comes to tracking and tracing Takeda feel there is a weakness in the legislation and rather than just meet the standard, they have moved a step beyond what is required. They use a new innovative solution which applies a digital fingerprint to all the material contained within the pack the customer receives. Using the Takeda App, customers can scan the product and get immediate feedback as to whether this is a registered Takeda product. This is helping to ensure that customers are confident that the product is safe to use and not a potential counterfeit product.

5 Discussion of the Findings

5.1 Discussion

The research aimed to determine if there was a competitive advantage to be gained for an organisation operating within the Pharmaceutical industry that is engaging in sustainability. In order to determine if this was possible, a number of interviews were conducted with personnel from the Pharmaceutical organisation, Takeda. These interviews provided a better understanding of the importance being placed on sustainability by employees, customers, investors and society in general. The interviews also pointed to the many advantages to be gained if sustainability becomes core to how the business operates.

In this chapter the findings from the conducted interviews are contrasted, compared and interpreted in relation to that of the previously conducted literature review. The findings are compared section by section and additional findings not represented in the literature review are also noted.

The first area identified within the research is related to organisational productivity which was a key area noted in the literature review. As already stated earlier, it is well understood that strategies in relation to reducing environmental impact are being demanded of businesses on a whole. It is suggested that the short-term investment required to significantly reduce these impacts is negated by the long-term benefits of doing so (Hart and Milstein, 2003; Kuosmanen and Kortelainen, 2005; Henri and Journeault, 2009; Porter and Kramer, 2011; Willard, 2012). By trimming down operating costs, organisations can reduce energy costs, reduce waste costs, reduce materials and water expenses. This is something that was very evident during the research. The research highlighted the fact that Takeda are investing substantially in these areas in order to reduce impact and they are seeing the benefits of the investment. By improving technologies and capabilities they have experienced reductions in all environmental areas such as energy, waste and water. The figures presented in the 'sustainable value report' enhance the findings as it is

noted that Takeda experienced a 25% reduction in CO2 emission, a 43% reduction in fresh water usage and a 76% reduction in final waste disposal. In one site in Ireland, the 20% reduction on carbon footprint they experienced resulted in a 4.4% reduction in energy spend. The improvements are also leading to cost avoidance related to areas such as maintenance, as the newer equipment requires less management on an on-going basis. These findings are very much aligned to that of Christmann (2000) who pointed to the cost advantages and competitive advantage that is to be gained through the implementation of best practice environmental management strategies.

When looking at organisation productivity, it is not only related to environmental strategies. It goes much further and the research showed that procurement play a key role when it comes to reducing cost, but also to ensuring a stable supply chain which in turn ensures continuity of supply which benefits the organisation in terms of sales. It also benefits patients, who rely on the products to manage and improve their standard of life. The research found that procurement and in particular a sustainable procurement team have the ability to reduce cost through sourcing better materials required for production and improving supplier performance in relation to environmental sustainability. By enabling improvements in this area, the cost benefits can then be shared between the organisation and the supplier. The link between procurement and increased productivity is something that was suggested by Porter and Kramer (2011) who felt that improving relationships with suppliers as opposed to marginalising them by demanding costs reductions would lead to improved productivity. This was also highlighted in the research as it was felt that replacing suppliers who are struggling is an extremely painful and costly exercise and that it is more efficient to work with suppliers in order to improve their productivity which is to the benefit of Takeda in the long-term.

Productivity gains are also possible when looking at logistics and the supply chain. It was noted in the research that costs are inevitable when it comes to transport, but they can be managed which is also suggested by Nidumolu, Prahalad and Ranagswami (2009) who spoke about more fuel efficient methods of transport as being a way of reducing both cost and carbon footprint. Takeda's preferred method of transport is Road or Sea as it is much

more cost effective than Air and also reduces their carbon footprint. To further reduce costs, they look at transport methods. For example, they use re-usable passive shippers as opposed to more expensive single use transport methods which is providing an obvious cost benefit as they are not buying shippers on a continual basis. To further reduce transport costs, Takeda use a regional distribution model which significantly reduces long-haul shipments. By setting up manufacturing sites to supply specific regions global shipping requirements are kept at a minimum which is reducing cost, reducing environmental impact and increasing the speed with which patients are receiving product. This model is very much aligned to the thinking of (Porter and Kramer, 2011) who spoke about the benefits of enabling cluster development and the benefits in relation to productivity through focussing on clusters and locations.

Reputation can create a key competitive advantage for an organisation (Fombrun, 1995; Markwick and Fill, 1997; Greyser, 1999) as it can result in benefits in areas such as premium pricing, increased employee loyalty, consumer loyalty, lower rates of capital and investment. This was a sentiment that was also evident in the research findings.

Regulation is becoming ever more stringent and organisations must adhere to these requirements otherwise they will face the prospect of litigation, fines and potential irreparable reputational damage. This was also mirrored in the research and it was also felt that organisations who do not meet regulatory requirements could even result in the revoking of manufacturing licenses which all but ends their ability to operate. Meeting regulatory requirements in relation to sustainability is a must but those who go a step beyond the requirements can gain a competitive advantage in terms of first mover advantage (Nidumolu, Prahalad and Rangaswami, 2009). An example of this at Takeda was discussed earlier where they are using new innovative technologies to further enhance patient safety by going beyond current regulations as it was felt that there are gaps in the regulation. Once the regulation tightens, Takeda are in a very strong position as they already have the technology in place to meet what will come.

Future investment into organisations from potential investors is also a major risk for organisations who are not taking sustainability seriously. Walker and Wan (2012) spoke of the belief the companies are viewed as one of the major causes of climate change and social injustice in the world and investors will simply not invest in organisations who have a poor reputation when it comes to sustainability. The research highlighted the fact that investors are only looking to invest in organisations that act sustainably, and have long-term views as opposed to only being interested in short term profit making. This point is further enhanced by the letter sent by Larry Fink, the CEO of BlackRock Investment Company to organisations, where he outlined investor expectations of organisations in the area of sustainability.

In the literature review, it was also noted that an organisations ability to attract and retain employees is impacted by their reputation in relation to sustainability. Employees and potential future employees are more concerned now with an organisations mission and purpose (Whelan and Fink, 2016) as opposed to how much profit they are making. The research findings clearly identified this area as a major area of concern for organisations who do not act sustainably and echoed the feeling that employees are less concerned with financial reports and more concerned with an organisation's sustainability reports. Their ability to attract and retain employees is an obvious area where competitive advantage can be gained or lost. Losing your best employees to a competitor strengthens their hand while at the same time weakens your own.

In order to fully ensure that reputation is protected it is imperative the organisations have full visibility and control of the supply chain. In order to prevent reputational damage, full visibility of how suppliers are operating in relation to social and environmental impact is a must (Reuter *et al.*, 2010). Supplier management is key to protecting organisation reputation and it is an area identified within the research as being key as it was noted that the reputation of the supplier has an impact on the reputation of Takeda. Having strong codes of conduct, continuous supplier audits and key metrics in place to monitor both business performance and environmental performance were highlighted as being key to controlling the supply chain and protecting organisation reputation.

When reviewing the literature for the research, the important role that employees play in the future success of an organisation became apparent. Baptiste (2008) argued that employees are an organisations most important asset and this was echoed in the research findings where it was stated that employees were the key to an organisation achieving their goals and objectives. It is therefore imperative that the wellbeing of employees is prioritised and viewed as vitally important (Currie, 2001), something which based on the research findings is understood at Takeda. This is in line with the requirements of Pfeffer (2010) who feels too many organisations are neglecting this area. A key area identified within Takeda in relation to the organisation achieving their objectives is associated with training and development. It is felt that employees must be armed with the necessary skills to perform their job to the best of their ability which in turn provides greater productivity to the organisation. It was also identified that providing employees with these skills enables them to reach their full potential and progress their own personal careers in line with their own aspirations.

In the literature review it was also recognised that an organisations overall benefits package is a crucial element of employee wellbeing. Productivity is heavily dependant on how the workforce feel they are being valued and treated, and areas such as healthcare, safety at work and earning a decent wage are identified as being key to providing employees with a sense of security and belonging which in turn provides for greater productivity (Porter and Kramer, 2002; Pfeffer, 2010). The research findings also identified this area as being key to future success, as organisations need people to perform and they understand that issues both inside and outside of the working environment can impact on performance. To that end, they ensure they offer competitive salaries and a wide range of benefits which includes private healthcare insurance, which includes confidential counselling for both employees and family members. They also drive a culture of safety within the company providing comfort to employees whilst also ensuring people are fit and healthy to come to work each day.

Employee wellbeing is also directly impacted by an organisations interaction with society which is a key component of sustainability. How organisations

interact and provide value for local communities directly impacts on employee morale. Organisations concerned with societal issues can lead to a much greater sense of pride and belonging for employees (Varadarajan, 2017) and this is echoed in the research findings as it is felt employees want to work for organisations who are prepared to address the many unmet needs of society and to greater benefit the local communities in which they operate. Employees feel it is important to 'give back' and Takeda provide employees with time during working hours to contribute to local communities and charities by providing them with the skills and knowledge they possess in order to provide as much benefit as possible. Takeda also have programmes around providing access to medicine to people who cannot readily access it or necessarily afford the product but are heavily dependent on it for improving their way of living. It is felt that this not only improves reputation but also increases employee morale, leading to a more motivated, productive workforce.

An organisations ability to attract and retain employees is closely linked to sustainability and therefore, employee wellbeing, which is something that can significantly impact on the overall effectiveness of an organisation (Millmore, 2003). Failure to retain staff can have a detrimental impact on reputation and can significantly impact competitiveness. The research pinpointed the demands being made of potential employees in relation to sustainability. They want to work for organisations that are considering and acting on environmental and societal issues. This is something also demanded from current employees and it is understood that failure to meet these needs will result in employees moving to competitors, who will provide what is being sought. Employee wellbeing is another part of sustainability and as such, organisations who are not meeting the requirements of employees will run into difficulties in the long run as it is both a time consuming and costly exercise to replace employees.

The literature review pointed to the important role that Innovation and improving organisation capabilities plays in relation to an organisations ability to achieve a competitive advantage through sustainability (Hamel, 1998; Nidumolu, Prahalad and Ranagswami, 2009; Porter and Kramer, 2011;

Varadarajan, 2017). It requires investment in technologies and research and development but the long-term benefits outweigh the short-term investment required. Technology can be used to reduce cost through reducing environmental impacts in the area of energy, waste and water whilst also benefiting in terms of highlighting inefficiencies in production processes (Hart, 1995; Porter and Linde, 1995; Christmann, 2000). The relevance of innovation and improving capabilities is not lost on Takeda as the research found that sustainability and innovation is driven directly from the CEO down through the organisation. Investment in technologies, R&D and improving capabilities is a necessity.

Through investment in technology and hiring staff with the necessary skills to implement the new ideas, Takeda have seen significant savings and cost avoidance in the areas of water, energy and waste. They are using data sciences which is improving manufacturing yields, reducing lead-times and resulting in operational efficiency gains all of which directly improves the organisations operating costs.

Investment in research in development is enabling them to continue to meet the unmet needs of patients. By continually improving current product portfolios or bringing new products to market they are creating a better standard of living for patients while at the same time creating new market opportunities. This is vital to the long-term success of the organisation and is seen as an area of opportunity highlighted within the literature review (Hart and Milstein, 2003; Porter and Kramer, 2011).

Regulation is another driver of sustainability and the use of new and improved technologies can provide an advantage over competitors when it comes to complying and anticipating future regulation (Dierickx and Cool, 1989; Nehrt, 1996; Christmann, 2000). This reduces the cost risks associated with non-compliance and also provides a greater likelihood the production disruptions and kept to a minimal as a result of last-minute changes which are introduced to ensure compliance. The research found that this is a particular area where innovation is providing great benefit as technology is allowing for real time data which is pinpointed areas for concern and enabling quick resolution of issues. The research also found that Takeda are concerned with future regulation and

they are looking beyond the current requirements and they are using technologies to highlight potential gaps in the regulation and moving beyond what is currently required which is providing a competitive advantage in relation to where regulation will eventually move to.

5.2 Conclusion

The overall research objective of 'how the Adoption of a Sustainability Strategy builds on Organisational Competitive Advantage: A Pharmaceutical Case Study' was interpreted as being positive as it is viewed that there are many advantages to engaging in a strategy of sustainability.

When we view sustainability through Porters Value Chain framework it is apparent that for sustainability to be successful it is imperative that the support activities and the primary activities are working in tandem. In order to reap the benefits in relation to organisational productivity at a manufacturing level, it is highly dependent on the investment and implementation of improved technologies or the sourcing of better materials from the procurement departments. When the infrastructure is in place and driven from the very top of the organisation through investment and improving capabilities, there is a clear benefit in relation to profit margins.

The research findings and the conducted literature are very much aligned. The findings further emphasize the undoubted benefits that can be achieved through a sustainability strategy.

6 Concluding Thoughts on the Contribution of this Research, its Limitations and Suggestions for Further Research

The previous chapter discussed the findings in relation to the role of sustainability on organisation competitive advantage. The findings were presented and analysed, accompanied with concluding thoughts in relation to the research objective and outcomes.

In the final chapter of the dissertation, the implications of the findings, as well as the research limitations and further research are discussed. The aim of the final chapter is to highlight areas that could benefit the research further and to make suggestions for further exploration.

6.1 Implications of Findings for the Research Questions

As already previously discussed within the discussion and conclusion of the findings, the results of the qualitative research serve to provide a significant impact on the research objective.

The findings demonstrate that through a strategy of sustainability an organisation has the ability to further enhance their competitive advantage. In some areas it requires short-term investment such as research and development, upgrading technologies and further enhancing capabilities, but the overall long-term benefits outweigh this investment. Opportunities exist in relation to cost savings and cost avoidance, but there are also many other advantages highlighted throughout the research such as the potential to build on reputation. The results also serve to show the benefits that exist in relation to the environmental and societal issues that exist. Significant reductions in the areas of waste, water usage and energy usage are visible. It is clear from both the literature review and the findings that sustainability is now being demanded of organisations and those who choose not to engage in such practices would appear to be at a significant disadvantage.

6.2 Contributions and Limitations of the Research

The research is exploratory in nature and is limited to one Pharmaceutical organisation, Takeda Pharmaceuticals. Takeda are also one of the largest pharmaceutical organisations globally. Their significant available resources do not necessarily represent how small and medium sized pharmaceutical organisations may operate. As the research revolved around one organisation, the pool of people interviewed came from within that organisation potentially creating a bias based on the culture of sustainability within the organisation.

As a result of available time and travel restrictions the research was somewhat limited in relation to manufacturing operations within the organisation. The interviews conducted showed many advantages in relation to manufacturing operations in Ireland but it was not possible to check if this was also the case with overseas facilities even though corporate results presented in Takeda's 'sustainable value report' would suggest that they are very much aligned.

6.3 Recommendations for Practice

In order for an organisation to implement and achieve a strategy of sustainability it is imperative that it is driven and supported by management at the very top of the organisation. Support and investment in new technologies and improving capabilities is a given but a culture of sustainability from the very top of the organisation is required and sustainability must be enabled and empowered throughout the organisation.

6.4 Recommendations for Future Research

This research focussed on how sustainability builds on an organisations competitive advantage through the study of one Pharmaceutical organisation, who are also one of the leading Pharmaceutical organisations globally. Further exploration should be conducted on other Pharmaceutical organisations of differing size as opposed to purely focussing on the large organisations. This could potentially provide more insight into the impact sustainability has on competitive advantage. By incorporating smaller and medium sized

organisations into future research it should also shed some light on the possible outcomes for those organisations who do not have the significant scope for investment that the larger organisations have.

6.5 Final Conclusion and Reflections

The final chapter provided insight into how the research findings were beneficial in addressing the research objective. It also addresses areas that could be explored in future research within this area. I have recommended that the research be extended further by focussing on additional organisations within the Pharmaceutical business area, whilst also ensuring future research incorporates small and medium sized organisations.

Through my research I have found that sustainability is no longer a nice to have for organisations, but a must have. It is being demanded that organisations do more and take responsibility for how they operate. By acting sustainably and having a strategy in this area it becomes apparent that sustainability has the potential to significantly build on the competitive advantage of an organisation.

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Appendices

Appendix A – Interview question design

Interview Question	Reference Point from Literature Review	Where	Who
How important is it to have relationships with suppliers as opposed to pure cost-based decisions?	suppliers that are marginalized will not remain productive in the long term and quality can be impacted as a result of continually cutting costs	2.2 Organisation Productivity	Porter & Kramer
Are Takeda implementing sustainability initiatives to reduce their impact on the environment? If so, how?	Pollution prevention and the efficient use of resources are critical to achieving a sustainable organisation and improvements in these areas is also one of the most cost-effective ways of reducing environmental impact	2.2 Organisation Productivity	Hart & Milstein
What benefit/advantage is Takeda getting from these initiatives? Is there a tangible benefit to the environment as a result of the initiatives?	Increase profit through best practise sustainability	2.2 Organisation Productivity	Willard; Christmann
	Waste Management Policy - cost cutting	2.2 Organisation Productivity	Curkovic
Are employees supportive of these initiatives?	Waste Management Policy - increase employee morale	2.2 Organisation Productivity	Shrivasta; Porter & Kramer; Nidumolu, Pahalad & Ranagswami
What new technologies are you using to reduce impact?	Investment in technologies required in pollution prevention	2.2 Organisation Productivity 2.5 Innovation and Capabilities	Christmann; Hart
Do Takeda consider TCO when considering which suppliers that they do business with? What benefits does TCO present.	Local sourcing for example cuts down on energy and transportation costs whilst also reducing inventory carrying costs	2.2 Organisation Productivity	Porter & Kramer

<p>Transportation costs continue to rise and have a significant impact on the environment – what are Takeda doing to tackle this issue?</p>	<p>Organisations should look to more fuel-efficient vehicles such as hybrids or smaller vehicles as a way of both reducing cost and reducing carbon footprint</p>	<p>2.2 Organisation Productivity</p>	<p>Nidumolu, Prahalad and Ranagswami</p>
<p>Is environmental impact considered when taking decisions with regard to freight choice?</p>			
<p>Do you use a third-party logistics provider? What benefit does this bring to Takeda?</p>	<p>Third-Party Logistics provider benefits</p>	<p>2.2 Organisation Productivity</p>	<p>Porter</p>

Appendix B – Example of conducted interview findings

Interview with Susan Tillmann - Head of Innovation (14 June)		
Question	Quote/Information	Time
How do we use innovation to drive sustainability?	There is a lot to gain from innovation.	2.40
	Using data science's in core manufacturing sites for yield improvement, OEE.	3.40
	Identifying a lack of capability and improving this area. In order to use big data for the benefit of the company plants were provided with technical platforms. IN order to ensure best platforms were used they worked with Universities to get 3 specialists to work with Takeda teams	5.00
	Employed people in the plants with the skills and capabilities to roll out these improvements (Quality, Sustainability & Performance)	7.00
	Collaborate globally on best practices to roll put in other sites	8.00
Are we seeing the benefits of innovation	Yes, we are (see presentation sent) improved yields, reduced lead-time to get product to patients quicker, improve processes	9.25
What are the drivers for using innovation?	There are many drivers for this, regulation, patient, trust, reputation and business (PTRB). If we are at risk of impacting any of these, we will not do it regardless of how good the business case may be	11.40
	This is lived by the CEO and the reason why I remain working for Takeda	13.25
How do we ensure patient supply through innovation?	We use Artificial Intelligence (AI) to improve forecast accuracy (see slides).	14.25
	Using all available data from production planning, demand planning and mapped against data from commercial teams which has helped improve forecast accuracy by 8% in 1 year.	14.45
	This is resulting is significant savings	15.20
Patient comes first - how do we utilise innovation to ensure we supply safe products?	We must comply with track and trace regulations (Unified Product Identifier) to ensure the supply chain is being controlled and we know where our product is	16.10
	"There is a gap in the legal requirement" and our Global Product Protection Team are observing which products and markets are at risk of counterfeiting	17.00
	Takeda has taken steps ahead of other companies using digital authentication which is a new innovative solution for tracking and tracing. Digital photos are taken of the packed product on the production line and a digital fingerprint is created and applied using all the material contained within the pack. Using the Takeda App, you can scan the product and get immediate feedback as	17.40

	to whether this is a registered Takeda product	
	UPI enables Takeda to meet regulation but new innovative technology is enabling Takeda to close gaps where weakness in legislation exists	20.40
	Without top management support none of this would be possible. IN Takeda they enable and empower sustainability and innovation	21.50
Do you believe innovation is pivotal to the future success of the organisation and if so, why?	Yes, speed of technology is extremely quick and always evolving	24.40
	Strong trend of the younger generation "going green" and towards sustainability and innovation has to play a key role in achieving this through using technology to use environmentally friendly materials	26.00
	Pressure from society and governments to do more	26.45