

AI in Consulting

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<p>Artificial Intelligence (AI) is a revolutionary concept that has changed how multiple industries' function and the quality of services offered to customers. From driverless cars, personal assistants, to customized and personalized products. Especially in the business world, AI has made it possible to better understand collected data to enhance, prevent, grow and streamline all aspects of the business. It is very important to note that AI in itself is a very complicated technology and there aren't many companies whom are able to harness it to its fullest.</p> <p>Consulting is a common concept used in all fields of business especially in the current 21st century. There are many decisions that need to be made on daily bases by business firms and entities at large. The decisions are of great significance and if caution is not taken, they may prove to be costly to business firms and organisations. As such, it is only prudent to embark on consulting, a process in which business entities, organisations, and companies seek outside expert opinion and guidance concerning a particular business decision.</p> <p>The topic was researched by conducting an interview with an expert and an extensive research on business consulting and AI, as well as how AI is implemented in the consulting industry.</p> <p>What was concluded from the research is that currently AI is used in consulting but in very select situations and that it is not the go-to technology that will fix all the problems. Consultants view AI as one of many tools and that the right tool will be chosen only after an extensive analysis of the company and their processes.</p>	
Keywords Consulting, Business Consulting, Artificial Intelligence, Implementation, Future	

Table of contents

1	Introduction.....	1
2	Theoretical framework.....	2
2.1	Business Consulting	2
2.2	Reasons for hiring consultants	2
2.3	Different types of consulting	4
2.3.1	Strategy Consulting	4
2.3.2	Management Consulting	5
2.3.3	Operations Consulting.....	6
2.3.4	Financial Consulting	7
2.3.5	IT Consulting.....	7
2.3.6	HR Consulting	8
2.3.7	Consulting Conclusions.....	9
2.4	Artificial Intelligence	9
2.5	Significance of AI	12
2.6	Advantages of AI.....	14
2.7	Disadvantages of AI.....	15
2.8	How AI is Impacting the Consulting Business.....	16
2.8.1	How AI is Impacting the Consulting Business (Conclusion).....	20
2.9	Benefits of AI to Consulting Companies.....	20
2.10	Benefits of AI to Cusomters.....	21
2.11	AI use Cases Implemented in Consulting	22
	Examples of How Consulting Companies Apply AI in Consulting	22
2.12	How AI is viewed in the consulting industry and is it a threat to the consulting industry	24
2.12.1	AI in the Nearest Future	24
2.12.2	Is AI a Threat to the Consulting Industry?	24
2.12.3	Conclusion	25
3	Research methodology	25
3.1	Interview as a research method	25
3.2	Research Design	26
3.2.1	Selection of the Person Interviewed	26
3.2.2	Data Sources	27
3.2.3	Data Collection	27
3.2.4	Interview questions.....	27
4	The Interview	28
4.1	Introduction to EY	28

4.2	Introduction to the consulting unit and how they are providing value to the customer through strategical data, analytics and AI?.....	28
4.3	How client problems are approached and when AI technologies are implemented as a solution?	28
4.4	Introduction to a case where different companies from different fields including municipalities were interviewed on how have they tried to amass the benefits provided by AI related technologies?.....	29
4.5	How a procurement process proof of concept inspired a customer to rethink and upgrade a certain department?.....	30
4.6	How do customers view the future, what capabilities they have and how are they preparing for the future?.....	30
4.7	The future of AI and How it Will Affect the Consulting Industry	30
5	Discussion	32
	References.....	34

1 Introduction

Artificial Intelligence (AI) is a revolutionary concept that has changed how multiple industries function and the quality of services offered. From driverless cars, personal assistants, to customized and personalized products. Especially in the business world, AI has made it possible to better understand collected data to enhance, prevent, grow and streamline all aspects of the business. It is very important to note that AI in itself is a very complicated technology and there aren't many companies whom are able to harness it to its fullest. Currently most implementations of AI are implemented by using machine learning and deep learning.

As different implementations of AI have radically changed multiple industries, the consulting industry has been slower in evolving and adopting the tools provided by the technology. The Living Dictionary Lexico, defines AI as: "The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages".

The main objective of the research is to demonstrate and provide the reader a good understanding on how business consulting is conducted currently and how AI is incorporated into the solutions or services provided to the customers. Also, one of the main aspects of the research was to find out when AI is seen as a viable solution to help the customer needs. The purpose of this research is to introduce the reader to consulting and how AI is currently implemented and used in the industry.

One of the researches goals is to find out if the views of the interviewed expert are similar to what is established in the theoretical part and in accordance to the literature, as well as how does the industry function in reality.

The research is not meant to be a scientific paper with accurate research data regarding the topic. The research uses secondary data such as literature and articles about the stated topics and primary data from an interview, which was conducted with an experienced expert from the consulting field.

2 Theoretical framework

2.1 Business Consulting

Consulting is a common concept used in all fields of business especially in the current 21st century. There are many decisions that need to be made on daily bases by business firms and entities at large. The decisions are of great significance and if caution is not taken, they may prove to be costly to business firms and organizations.

As such, it is only prudent to embark on consulting, a process in which business entities, organizations, and companies seek outside expert opinion and guidance concerning a particular business decision. Consultants, therefore, provide expert knowledge in their respective areas to business entities for a fee that is agreed upon. Consultants are tasked with the responsibility of advising business firms on what are the best practices to engage in depending on the situation at hand (Nahavandi and Chesteen, 1988).

Consulting is a large field in business as there are many areas of business that require advice to a very large extent. The overall objective of business owners for hiring business consultants is to improve the performance and efficiency of the business in all aspects (Chrisman, 1989).

There are many types of consulting that are available in business but the main types of consulting that are universally recognized include; management, strategy, operations, information technology, human resource, and marketing consulting. Consulting companies are recognized for their expertise and knowledge, which is acquired by hiring the best talent as well as implementing the latest and best frameworks. Consultants are hired to solve problems, and, in most cases, it is cheaper to just hire a consultant for a certain project than to hire a full-time employee. Consultants also provide organizations and companies with a new perspective and valuable know-how through earlier experiences from similar projects conducted throughout the years. Parikh (2015) explains consulting as, "a helping relationship provided based upon expertise and experience".

2.2 Reasons for hiring consultants

One of the main reasons that a business may decide to hire a consultant is if a business is experiencing changes. At the time of the change, it is ultimately the norm that some of the activities that the staff is supposed to engage in are new to them and on the other hand, certain decisions have to be reached upon, hence there is a dire need to have a consultant whom is an expert and therefore experienced in the particular area.

Consultants usually play a critical role in fostering change in business firms (Jacobs, and Chase, 2014). For instance, a business firm that deals with the assembling of spare parts for motor vehicles may decide to have a change and hence start dealing with the production of full vehicles. At this point, such a business firm will need a consultant who will guide and provide advice on the best practices for the business firm to achieve the set objectives regarding the change.

Consultants are very creative and usually bring new ideas into the business. Often these ideas haven't been initially realized by the staff of the business firm. As consultants usually work for many companies and organizations, they perfectly understand the market and the situation at any given time, and they give additional insights on what are the best practices to engage in. The market conditions in businesses usually fluctuate and consultants are always at the forefront regarding information about the situation in the market, of which business owners and employees may not know about. As a result, consultants will bring their own ideas and infuse their creativity into the business firm based on their knowledge concerning the market, its surroundings, and the world of business at large. In the end, they will most probably impact the business firm positively. (Parikh, 2015).

Many of the consultants are very skilled and they are good trainers. That is why it is imperative to hire them with the sole objective of training and teaching employees on pre-defined aspects of their work. Consultants usually blend theory and practice, therefore, making them the most suitable option for training employees (Jacobs, and Chase, 2014). These days it is very difficult and financially expensive to send employees for training or to learn new skills and know-how needed in their job-description. Be it an institution or a sole course. The best option is to hire a consultant whom can come to the business premises and teach the employees in the premises, while the employees can carry out their daily tasks normally. Training is an experience and therefore it is a continuous process which incorporates theoretical and practical aspects.

When a profitable company becomes unprofitable and its revenue starts dropping it is evident that there are problems or a lack of innovation as the root cause. As a company becomes unprofitable it affects their assets, cash-flow, income and their employees. In these situations, it is only prudent to hire consultants whom will be able to help in reviving the poorly performing organisation. The consultants will conduct a thorough analysis on every aspect of the organisation, which will eventually help them pinpoint the areas which are dysfunctional and find the problems. Based on the collected data they can provide

solutions and advice on how to revive the business to its prior glory and profitability (Rasiel, 1999).

It is also common practice that new companies and organizations hire consultants when they need advice on how to penetrate certain markets, and what are the best practices and activities to achieve their goals. Today, it is rather difficult for a new company to be simply formed, enter the market and immediately become successful (Sciglimpaglia, Welsh, and Harris, 2013).

There are many challenges that newly formed business entities, companies, and organizations face and as such, it is imperative to hire consultants whom are experts in multiple areas. The consultant will guide the business owners on stringent measures to take so that their businesses will thrive. Consultants are very knowledgeable, and they know, for instance, why the markets are behaving in a certain way at a given time. As they have accumulated knowledge over a long period of time they also know when the best time is to invest in the market, hence they are very crucial to newly formed business entities. (Verlander, 2012).

2.3 Different types of consulting

As highlighted earlier, there are different kinds of consultants whom are experts and specialize in their respective fields. Consulting is a profession and the major categories include: management, strategy, operations, information technology, human resources, and marketing consulting. As such, the different consulting roles that are there will normally fall into these main categories. Consultants have specific roles that they adhere to while implementing the given project. The projects can be fully implemented by a consulting company, which means that every person involved in the project will be a consultant from the respective company. There are also projects in which companies' own employees are working with the consultants together to implement the project. Currently there is also a rise in projects that include consultants from multiple consultant companies especially in the information technology field (Verlander, 2012).

2.3.1 Strategy Consulting

For companies and organizations to remain competitive and profitable, they must use the best and relevant strategies available. Therefore, they have to seek advice from strategy consultants. Strategy consulting is unique when compared to other types of consulting as it prioritizes the long-term vision of the company. Strategies that consultants advise a company to adopt must be strategies that will help the company to achieve its long-term

goals. These goals need to be achieved through adequate implementation and also the aspect of cost and profit must be considered (Verlander, 2012).

The strategies that consultants give should be cost-effective, efficient and yield in profits. It is important to highlight that strategy consultants usually operate at the highest level. The failure or success of a company will be attributed to the consultants especially if the proposed strategy fails. Top managers and directors are usually directly involved in strategy consulting as there are many strategic topics, which are very sensitive. Such strategic topics include economic policy, government policy as well as functional strategy and in these scenarios the top management has to be involved. Strategy consulting is confined more to the aspect of advice rather than implementation unlike the other types of consulting (Nahavandi and Chesteen, 1988).

Therefore, strategy consultants mainly focus on analyzing by employing their analytical skills as they are supposed to advise top management and directors of organizations and companies on, which strategies are the best strategies to adopt. That is why they are not entirely concerned with overseeing the implementation of the strategies.

2.3.2 Management Consulting

Usually, organizations face many problems and it is rare for an organisation to indicate that all is well and that there aren't any problems. Any problem that arises irrespective of the magnitude of the problem will at a point affect the performance of the organisation. Every organisation and business firm adequately seeks to improve their performance and develop plans that will effectively push for improvements (Werr, and Stjernberg, 2003).

This is what constitutes to management consulting in which they help organizations improve their performance. With the objective of improving the performance, there are several factors that management consultants usually consider, and these include the existing organisational problems (Chase, Kumar, and Giuliani, Peter, 2010). Management consultants have to vehemently analyze these problems and develop plans that will ultimately solve the problems for the improvement to be realized. Management consultants are all-round people because they are engaged in many elements of and within management.

As such, management consultants are attached to other types of consulting such as strategy, operations, and human resource consulting, because management is found in all of the departments regardless of the functions in the department. Management consultants are also referred to as organisational advisors as they concern themselves

with a variety of issues in regards of the organisation. They are not simply attached to one role. Through management consulting, businesses improve their performance, and this translates as growth for the business. The growth of a business usually comes with the ability of solving problems as well as finding new and better ways of doing things. (Appelbaum, and Steed, 2005)

2.3.3 Operations Consulting

There are many operations conducted in organizations and business firms, and all these operations are aimed at achieving the objectives as well as enhancing efficiency. There are many players involved in the operations, from the top management to the employees conducting the simple tasks. As such, operations have to be conducted smoothly and in timely fashion. When there are problems regarding the effectiveness and efficiency of operations, operations consultants are called into action. Operations consulting is, therefore, the implementation and advisory services that a company seeks with the aim of improving its internal operations as well as performance in the value chain (Jacobs, and Chase, 2014).

The roles of operations consultants are defined as they are tasked with the responsibility of looking at the systems that are used in the companies of business entities in which their services are sought. Some of the major level of operations that take place in organizations and firms include production, sales, marketing, customer service and distribution just to mention a few. These operations have to be streamlined, eliminating any loopholes that may lead to inefficiency (Chase, and Kumar, 2010).

All these operations are done with a specific target to meet. Operations consultants must assess the highlighted levels of operations for them to be able to determine the root of the problem. Based on the assessment and analysis they give their advice on the course of action to be taken. Operations consulting is closely linked to strategy consulting and this is because as highlighted earlier, strategy consultants are basically perturbed with the long-term goals that a business entity has prioritized and for these goals to be achieved, the operations of the organisation will be vital. As such, it is the responsibility of operations consultants to see to it that the goals set by strategy consultants are achieved through efficient operations. Operations consulting seek to get both advisory services and implementation support from operations consultants (Chase, Kumar, and Giuliani, Peter, 2010).

2.3.4 Financial Consulting

Firms and organizations usually acquire financial consulting when they realize that they have problems in managing their finances. There are many factors that prove that there is poor management of finances and these include: increased expenses of which some of them are not accounted for and problems with savings even if an organization is performing well. At this juncture, organizations decide to go for financial consultants and these consultants play a colossal role for their clients (Vukotic, Anicic, and Vukotic, 2017).

The first step that financial consultants undertake when their services are sought for by organizations is assessing the current financial position. This step is critical as it will give an insight on what is the best plan to put forward with the aim of better managing the finances of an organization. When the financial position of an organization is assessed and determined, there are other factors that must come into consideration before a plan is put forward by the financial consultants. For instance, tax issues, saving strategies, and insurance covers must be considered to get a true picture of the situation at hand (Rasiel, 1999).

The process of financial consulting is paramount to an organization as it gives a financial consultant the chance to provide information and the necessary advice on investment strategies. Also, through financial consulting, an organization is given an advice on how to manage the everyday expenses of the business and also embark on appropriate saving strategies. A good example of an area that an organization would require the services of a financial consultant is when an organization decides to venture into the international market. A financial consultant would be imperative in this instance as the organization would seek advice with the aim of understanding various international tax laws. This is important for any organization to avoid breaking any foreign countries laws and to abide by the set rules (Advisors, 2018).

2.3.5 IT Consulting

IT consulting is without a doubt the hottest field currently, as the need for technological solutions and implementations of the latest software within companies is immense and very relevant. As the technological advancement is accelerating it is enabling the birth of new software, frameworks and solutions on yearly bases. Companies have to keep up with the trends and be able to implement the newest and hottest solutions to stay relevant in their respective fields and markets (Wieandt, 2008).

Today, the field of information technology has been the main area of focus and for business firms and organizations to compete fairly and successfully, they must fully utilize information technology. As such, business firms must consult experts in this area with the aim of seeking advice on how to best utilize technology to enhance their performance and competitiveness. In this context, therefore, IT consulting is the process by which business firms have to go the extra mile and seek the services in terms of advice from experts (consultants) in this field (Wieandt, 2008).

Apart from giving advice on the actions to undertake, IT consultants also provide the actual work and help in implementing what they think is the best action or solution. For instance, IT consultants may design unique and customized software solutions for an organisation and assist in determining how effective and efficient the hardware devices, as well as the programs that are currently being used in an organization, are. There are multiple terms that are used to refer to IT consulting and these include tech consulting, IT advisory, and business technology services (Wieandt, 2008).

Of late, there has been a huge increase in the demand of IT consultants due to the increased cyber-attacks and hacking. Organizations have to be very vigilant to minimize the chances of the systems being on the receiving end of being hacked by hackers. For instance, an organization may decide to launch a new application in which the organization has to seek the services of an IT consultant who will help the organization oversee the application's development and also troubleshoot any issues that may arise with it. On the other hand, the IT consultant would definitely need to train the staff of the organization on how to use the new system as consultants are always employed on a short-term or project basis (Wieandt, 2008).

2.3.6 HR Consulting

The human resource department is a critical department in the world of business as it deals with the welfare of the employees and finding the right talent for the company. As it is the case, employees form an integral part of a business entity, therefore their interests and health must be prioritized to ensure that they give their best services to their workplaces. The HR consulting is the steps undertaken by an organization or a firm to seek experts' advice and services at large in order to help the organization or the firm to maximize the efficiency of their HR operations and also implement appropriate policies (Redman, and Allen, 1993).

As stated, the employees are at the center stage when it comes to human resources and hence the services of HR consultants are sought by organizations and firms when it

comes to recruitment and transition phases with the need to place the best employees in the correct roles. As there are systems that are put in place in organizations to deal with the welfare and the interests of the employees, the HR consultants usually embark on research on the functionality of these systems and communicate what they think should be done. Other areas that the HR consultants engage themselves in include assessing how to communicate issues, looking at employees' remuneration, as well as how changes in organizations are managed as these changes ultimately have an effect on the employees (Suomi, 2008).

For instance, an organization may decide to open up more stores in a certain location and needs to recruit employees. An HR consultant will be essential in this case as the organization will require the services of the consultant regarding advice on the criteria to be used during the recruitment process and how to efficiently implement the hiring process (Suomi, 2008).

2.3.7 Consulting Conclusions

Major decisions cannot be made in the current competitive world of business without consulting. Consulting is a process through which business entities use to seek advice and services from experts who are the consultants as they are specialized in specific areas and their contribution is of great significance. Many of the decisions made by company c-suites are made based upon the advices and services given by consultants. There are different scenarios that present the need to hire consultants.

These scenarios include when there are changes that business entities are experiencing, the need for new and creative ideas that will make a difference in the business, the need to train and teach employees, the need to revive a failing or declining business, and when new businesses want to start their operations. As from the discussion, there are many types of consulting but many of these types fall under the main categories which are management, strategy, operations, information technology, human resource, and marketing consulting. Consultants in these main categories of consulting play different roles regarding the kind of advice and services they give when they are consulted.

2.4 Artificial Intelligence

Artificial intelligence refers to the development of computerized systems that are able to undertake tasks independently that would ordinarily be performed by human intelligence. Examples of these tasks include speech recognition, visual perception, language translation and decision making among other tasks (Taulli, 2019).

From an objective standpoint, AI can be studied as part science and part engineering whereby:

- A. Solve real-world problems through AI as a conglomeration of ideas that would represent knowledge, its use, and the assembly systems (Loukides & Lorica, 2016).
- B. Establish which ideas concern knowledge representation, assembling systems and knowledge use explaining the various intelligence sources (Loukides & Lorica, 2016).

The paper has conducted a comprehensive and in-depth research on the available bodies of knowledge on AI, the benefits, its disadvantages and disadvantages as indicated below.

The first steps that began the Artificial Intelligence (AI) journey were when Alan Turing wrote his paper, which was called "Computing Machinery and Intelligence". He focused on machines that were intelligent thus inventing the "Turing Test". The initial idea would lead to an important hallmark of innovation in technology, and computers that proved to be of use in the 2nd World War and in the future (Tauli, 2019).

The machine intelligence concepts that emerge from the various data studies and code algorithms reveal that all technology-based devices from the first computers to the current smartphones have been developed through and from people. AI, which was at first slowly developed in the earlier periods, has the steps from then undertaken proven to be vital to a lot of the progress that is currently witnessed with the existence of gifted robots (Mijwel, M. 2015).

Many people are under the impression that AI's only goal is to save money by replacing human work. However, the objectives to inculcate AI are much bigger than decreasing costs, since the idea of totally replacing human effort is impracticable as it hasn't yet been made possible to endow computers with all the perceptions, actions, abilities and reasoning that humans exhibit. Nonetheless, intelligent computers and minds complement each other's abilities to realize opportunities that none could realize alone (Kaplan & Haenlein, 2019).

For example, in the business world, computers are enabling people to obtain pertinent information, to schedule tasks, allocate resources and to highlight outstanding irregularities in databases. AI, through computers, is also helping engineers to develop more effective strategies of control, to create advanced designs, to identify future hazards and to explain past choices (Winston, P. 1993).

In addition, AI has since been critical to shedding new light on some traditional questions that have previously only be viewed from the psychological, philosophical and linguistic lenses. The reasons for these are that:

- A. Computers and their metaphors aid thinking: Working with computers has led to the adaptation of a rich new language, not only on how to do things, but also how to describe them. The analogical and metaphorical use of AI concepts involves a more influential thinking that concerns thinking (Kaplan & Haenlein, 2019).
- B. Computers and their models force precision: the implementation of a theory exposes conceptual oversights and mistakes that would ordinarily be overlooked even by the most careful and seasoned researchers. Theory implementation also uncovers major roadblocks that were previously not recognizable as problems prior to the commencement of the experimenting and thinking cycles (Loukides & Lorica, 2016).
- C. The implementation of computers quantifies the requirements of tasks. Once a computer program completes tasks, statements that are upper-bound can be written in order to establish how much processing information to do a particular task requires (Tauli, 2019).
- D. Computer and AI programs are usually patient, and they don't require eating or sleeping (Winston, P. 1993).

Furthermore, it is easier to deprive a computer and its programs of some pieces of information or knowledge in order to test how important the pieces are, which is impossible to achieve with animal brains with a precision (Winston, P. 1993).

It should, however, be noted that the intention to enable computers to become more intelligent is not equal to wanting to configure them to stimulate intelligence. Instead, AI excites the individuals whose intent is to discover the principles that are exploitable by reviewing the intelligent information processors as opposed to those just made of neural tissue. Thus, there is neither a discrimination against employing methods that seem to involve human intelligence nor an obsession to mimicking it which therefore leads to new points of view that bring along new methodologies and new theories (UNICRI, 2017).

There are however a few misconceptions about AI. One of them is that it has the ability to reduce the emotions that are usually characteristics to human beings. It is thought that when people are partnered with computers and are undertaking tasks that were previously performed by their fellow human beings, they tend to be disconnected from the general emotional aspects involved in the tasks that they are performing. The success of the particular systems that they are working with becomes paramount which

results in giving a much lesser attention to the situation's emotional aspects whereby they are more machines than humans. However, the truth of the matter is that human beings cannot be converted to become machines. They cannot fail to relate to clients in the most suitable manner as they seek to effectively meet their needs (Mijwel, M. 2015).

Another misconception associated with AI is that it has the capacity to generally reduce the elements of human intelligence. It is viewed from an ethical standpoint where it is argued that the heavy reliance on AI is an acknowledgment of the insufficiency of human intelligence which necessitates the use of computers and machines, in addition to asking whether it is ethical in order to create human beings' replicas and intelligence given the fact that intelligence is nature's gift to man (Kaplan & Haenlein, 2019).

Machines have no moral or emotional values and they only perform what they are programmed to do, thus they cannot be judged to be either wrong or right. They cannot also make decisions in unfamiliar situations, as their actions will end up being either incorrect or resulting in a breakdown. Furthermore, AI sets the stage for the dismissal of the general human value as it is increasingly proven that they are easily dispensable. However, this view is generally incorrect since individuals have the chance to keep up with their general states and continue to undertake the practices that assure their organizations success (Reddy, K. 2018).

AI can also be divided into sub-categories and they are: Machine Learning, Deep Learning and Natural Language Processing. In machine learning computers are given algorithms upon which they can function without being extensively programmed. (Expert System, 2017) Through machine learning and the algorithms machines can learn and predict data. In some occasions deep learning is considered a sub-category of machine learning and it consists of multiple layers of artificial neural networks. The neural networks are built by mimicking the human brain (Tauli, 2019).

2.5 Significance of AI

Artificial intelligence enables humans to become more intelligent: The same psychological knowledge concerning human information and its processing can assist computers to become more intelligent. Similarly, the theories that are primarily derived from computers as the objective more often result in practical directions for human thinking. Through AI research, many methods and representations that people seem to unconsciously use have not only been crystallized but they have also been made easier for individuals to deploy and use (Mueller & Massaron, 2018).

For example, in the early years of AI research, James Slagle indicated that computers have the ability to solve problems in integrated calculus and more so at college freshmen levels. However, today, computer programs have the capabilities to undertake certain mathematical analysis tasks faster and at sophisticated levels. KAM program is one such example that specializes in non-linear dynamics and it is an important subject to scientists who investigate the equations that govern the interactions between complex objects (Mijwel, M. 2015).

Artificial intelligence systems have proven to learn from examples where otherwise most learning programs tend to lean towards experiences or data. The objective surrounding the tasks in experience-oriented learning is the discovery of how computer programs learn human behavior through reasoning in the midst of new experiences and in the view of common-sense knowledge. Thus, the goal of data-oriented learning programs is the development of practical programs capable of mining databases with exploitable regularities (Winston, P. 1993).

In the medical field, AI has proven to be useful in increasing the performances of physician and medical practitioners in hospitals to the advantage of the patients who are regarded as the facilities' clients. For example, the hospital staff can employ computer systems that are specifically developed to categorize patients who are at higher risks. AI systems accurately analyze and specify the physiological issues that various patients in the hospital could be facing through providing adequate information that would result in quick interventions (Al-jumeily, Hussain, Mallucci & Oliver, 2015).

Thus, such processes establish the efficient use of limited hospital resources, while the hospital can focus on solving the patients' health issues and improve their quality of life. AI and computer systems are also able to assist in the hospitals' decision-making processes, which will save them valuable time that the physicians and other medical personnel would need to efficiently help their clients. For example, AI has been applied to determine the interaction levels of various drugs on patients to determine whether they have some synergistic or antagonistic effects (Nadimpalli, M. 2017).

AI also comes in handy when conducting repetitive tasks which, if otherwise performed by a human, becomes quite monotonous and prone to inefficiencies. Generally, machines are able to think faster than humans, and it is therefore used to conduct multi-tasks. Additionally, AI through machines is often used to undertake dangerous tasks in which equipment parameters can be adjusted through time and speed as calculation-based parameters. For example, when human beings play computer games or operate computer-controlled robots, they are actually interacting with AI, where the computer is usually the opponent. AI functions in the game by responding to the initial human

movement or decision. Additionally, AI, unlike humans, require no refreshments or breaks. AI programs usually dictate that they can continuously perform for long hours without getting distracted, bored or tired which otherwise are human characteristics when inefficiencies in tasks performed are evident (Reddy, K. 2018).

AI has also greatly assisted in standardizing certain processes and expectations. Presently, as customer awareness becomes more enhanced in most parts of the world, there has been an increased need to improve the quality of products produced by various companies. Through particular cases, companies want to ensure that the various services and goods they produce not only have the ability to attract, but also retain their customers. One of the best methods to ensure this is through standardization, whereby the process enables consistency in ensuring a high possibility of retaining the very element that results in success against the many similar products that are in the market. Such actions are quite imperative as they increase the chances of achieving the best outcomes that relate to having services and products that meet the multiple quality dimensions that are in place for the purpose of benefitting the customers. Thus, companies employ various AI aspects to increase the standardization levels that they undertake on the products to improve the chances of achieving the optimal and desired profitability outcomes (Nadimpalli, M. 2017).

2.6 Advantages of AI

AI has been quite useful in areas that would greatly harm human life. Artificial intelligence has, therefore, enabled companies to protect the lives of the people who work for them by substituting human effort with intelligent machines, a case example being the mining industry. Some mines have proven to be quite dangerous for human operations. In such scenarios, mining companies have actually created machines and vehicles that can operate in such locations without any human manning. In the very likely event of an accident, or a collapse of the mine walls, the equipment could be damaged, but the lives of the people involved in the mining activities are preserved (UNICRI, 2017).

Secondly, the banking and finance industries utilize AI to ensure that they have the capabilities to observe the various activities that happen within the establishments' business. One of the goals is to mitigate the occurrence of a fraud, that is where AI systems come into the picture by investigating the various malpractices that different stakeholders of the companies might be involved in. This helps prevent actions that would result in different kinds of losses that companies could incur (Ward, and Marr, 2019).

AI systems also assist in strengthening the companies' trading systems to ensure that they produce results that reflect the desirable outcomes upon which different activities have been undertaken by the company. Through such actions the industries are able to maintain some form of order as the AI systems ensure that all other sectors that are dependent on them are not at risk. The systems also ensure that the investors' cash that are brought on board are used in the most desirable manner by avoiding losses that are otherwise avoidable in a generally successful company (Fekety, M. 2015).

In the medical field as well, Artificial intelligence has been critical to the drug formulation and clinical research processes. AI assists in analyzing the vast amounts of molecular data that is relative to drug formulation, to establish the general effects that they would exhibit for the specific drugs that they release into the market. AI has also enabled pharmaceutical companies to investigate different drug characteristics that they are developing to deal with side-effects that could result from drug usage and therefore guarantee an element of patient safety as they develop medications that have lesser chances of resulting in adverse effects (Al-jumeily, Hussain, Mallucci & Oliver, 2015).

AI is also quite important in business and especially in the shipping industry. AI enables the shipping companies to move various cargos that they are handling in an appropriate manner. This happens through installing appropriate computer systems that can directly monitor cargo movements. They can monitor all their cargos and not only ensure that the products reach their destination on time, but also provide the information of the products whereabouts to the customer. A good example is Sydney's Port Botany's container terminal. The system that has been put in place monitors the cargo that moves around in various destinations in a bid to meet the demand of the clients whom require the services of various products. AI assists in ensuring efficiency in such processes due to the fact that any problems that might be identified are dealt with in a way that would ensure successful shipping. Logistics and shipping establishments also identify any prevalent mishaps that could occur through the supply chain to increase the chances of achieving the best results through some actions that when instituted would achieve maximum success (Ward & Marr, 2019).

2.7 Disadvantages of AI

One of the disadvantages of artificial intelligence systems is that they are only as good and effective as the data gathered and inputted. For example, a hospital might install an AI system that automatically classifies asthma as a high-risk disease and effectively declassifies pneumonia as a high-priority ailment unless it is well expressly stated that it is also a high-risk disease. Such cases create significant problems in a sense that the AI systems fail to adequately cater the patients who would come to the facility with an

urgency for treatment. Thus, patients who would be brought in suffering, for example from pneumonia could face an elevated level of the severity of that problem that he/she is suffering, where the individual would eventually succumb to the ailment that can otherwise be better handled through the use of appropriate AI systems (Sotala, K. 2012).

One of the main disadvantages concerning AI is the repair and maintenance costs where operational programs need to be regularly updated and re-configured to make machines faster and become efficient. In case of breakdowns, repair costs have over time proven to be quite high as procedures to restore lost data and codes become time-consuming (Fekety, M. 2015)

Another disadvantage is that machines do not improve with the experience that they derive from the functions they regularly undertake and only have wear & tear to show. Despite AI having the capability to store a lot of information, nonetheless, it is assessed and used quite differently than human intelligence. Therefore, without experience, machines are unable to adjust or respond to their changing/dynamic environments since there is no predefined situation in AI. Concerns and care are not in the vocabulary of AI where there is no sense of togetherness, human touch or belonging. There is also a failure to distinguish between inefficient and hardworking individuals (Reddy, K. 2018).

Imagination/creativity is not a forte of AI. Even though AI can assist in designing and creating, however, it cannot match the thinking power or originality that is associated with the human brain. Humans are highly emotional and sensitive intellectuals. They hear, see, feel and think, in addition to their thoughts being guided by feelings, which are characteristics that are completely absent in machines. The intuitive and inherent abilities associated with human beings are difficult to replicate in machines (Fekety, M. 2015).

A third disadvantage with AI systems is that their introduction automatically renders some of the human efforts redundant. Effectively, even though AI systems reduce company costs on one hand, on the other, the companies fail to create the levels of economic developments that would be so needed in a certain area. This is due to the fact that employment actually increases the levels of disposable income that people get to meet their needs. Therefore, in the absence of the human factor because of AI, companies would effectively lack the capacities to closely engage with their customers as they seek to ensure that their needs are met (Sotala, K. 2012).

2.8 How AI is Impacting the Consulting Business

Artificial intelligence refers to the development of computerized systems that are able to undertake tasks that would ordinarily be performed by human intelligence. Examples of

these tasks include speech recognition, visual perception, language translation and decision making among other tasks. In recent years, AI has proven to be a vital tool to improved efficiency and service delivery in most organizations. The financial services sector is an example of an industry that has been in the forefront in employing AI to almost all of its operations (Mueller & Massaron, 2018).

A case example is Amazon's *Alexa*; an artificial intelligence invention by the renowned company that has approximately over 15,000 skills which include playing some music, stating the weather, meetings and very recently further configured to address the economic questions asked by UBS group Ag clients which is a Swiss financial-services company with a global strategy. It is most probable that *Alexa*'s next point of call will be to book appointments, to analyze the financial markets or to even sell and buy shares which denote a significant shift in the industry from an active style to a passive style management (Libert & Beck, 2017).

The shift to AI solutions has also been felt in the consultancy industry whereby in reference to recent studies done, the U.S. boasts of a corporate-consultancy market estimated to be worth over \$60 billion. The shift is as a result of corporate leaders automating mundane tasks such as making telephone calls and calendar maintenance through RPA or chatbots. Nonetheless, AI has also helped support some more complex decision-making processes in critical areas such as budgeting, human capital, capital strategies and capital disbursements which have been the forte of many of the consultancy companies in the U.S. and beyond, such as BCG, Bain and McKinsey among other major consultancy and marketing agencies (Libert & Beck, 2017).

Machine intelligent applications and AI are already analyzing massive amounts of unstructured and structured data, whilst producing results in fractions of a second and in fractions of the cost that could be incurred by using the services of financial markets' consultants. Furthermore, machine intelligent algorithms have the capability of building computerized models that simplify complex phenomena by inferring the rules that form the data and detecting patterns, a process that proves to be quite difficult even for the smartest of the consultants. Perhaps in the near future, it is possible for CEOs to be inquiring from Amazon's *Alexa* "what are our company's products'/services' profitability lines or whom are our company's target clients and how can we reach them as opposed to hiring elite consultants (Columbus, L. 2017).

Secondly, most strategic business leaders attribute their intuition, hard work and years of industrial experience to their success in managing their respective organizations. However, much of these reasons are a result of deepened knowledge of the more

simplified information that has previously and traditionally proven difficult to analyze and gather through an exorbitant process. Nonetheless, AI is quickly closing these gaps where it is assisting human effort to push past its processing biases and capabilities. These developments are changing multiple jobs such as those of lawyers, consultants, and accountants, whose roles revolve around analyzing and providing advice. Subsequently, the current elite consultants are already in places such as an individual's wrist through 'Siri', kitchen-counter through Amazon's "Alexa" or the living-room through "Google-Home" (Ransbotham et al., 2017).

Thirdly, most corporate leaders have been relying on human resources to manage an organization's human capital. Many companies have employed HR consultants whom offer the best standards in mentorship, compensation and promotion decisions, which nonetheless have proven to be biased from time to time. Research after research has indicated how deep biases have affected the management of minorities and women. An example would be the case of women in business who have all along been regarded less positively than their male counterparts and therefore receive lesser of the helpful feedback messages available. Minorities have a lesser likelihood to be hired and they will also most probably face biases from their line and overall supervisors (Sciglimpaglia, Welsh, and Harris, 2013).

These imbalances & inaccuracies only seek to hinder organizations as the corporate leaders become less able to groom the talents brought forth by the organization's entire workforce through appropriately recognizing and rewarding performance. However, the introduction of AI has brought impartiality to these difficult tasks, an example being that AI is very good when placed to determine if one section of the company's employees is managed, compensated or assessed differently, e.g. "Google home", does our company have a gender pay gap? (He et al., 2018).

Fourthly, guesswork has been prevalent in many departments in most companies such as marketing and budgeting. In marketing, for example, AI is already well-documented in the patenting activities of the big five namely Alphabet, Facebook, Apple, Microsoft, and Amazon. The AI marketing patents are already in use in selling services and goods to clients. The patents ensure that resources are adequately allocated to different marketing options to maximize profitability. On budgeting and annual capital allocation processes, AI has been bringing value despite dramatic market changes over the years, where their technological advances and products increasingly become obsolete as companies employ the same capital allocation year in and year out (Ward & Marr, 2019).

Some companies have employed the services of various consultants, but the budget allocations have still been plagued with inertia, errors and unconscious biases, which

have resulted in some sections of the companies' businesses raking profits while others have not. Even when management teams commit to new digital initiatives, they usually end with non-profitability scenarios. However, AI assists in breaking out of the budgeting black-holes by keeping track of ROI in companies' commercial units or by ascertaining the amount that has been apportioned to the declining vs. the growing products'/services' lines (Kolbjornsrud et al., 2016).

Decision making through intelligent analysis of data can radically improve the values of the business. The analysis of data includes root-cause analysis, data mining, trend analysis, recommendation, prediction, and personalization. Compared to the traditional analysis by consultants and business intelligence, AI has proven to be capable of undertaking a deeper and broader analysis. In the past, traditional analysis, through consulting, and business intelligence were only limited to analyzing trends, causality analysis, prediction and data mining. However, currently, AI enables the continuation of learning and improvement by offering avenues to attract relevant suggestions and "personalized-analysis" (He et al. 2018).

This way, data analyzed through AI exhibits the tenets of true intelligent analysis in regard of decision making, risk management, and marketing among other areas that were previously inefficiently explored by consulting. For example, AI has enabled social networking-based credit scores, the optimization of previously existing scores or scoring for individuals with no previous credit scores (Carmona, 2019)

AI also generates analysis reports through the use of NLP (Neuro-Linguistic Programming), evaluate as well as analyze financial data/information. Additionally, AI is capable of detecting dynamic cheating patterns through identifying potential or ongoing fraud being undertaken in the disguise of real-time and complex transactions. AI also provides personalized health information that is based on research of customer behaviors and offers personalized and unique marketing and products by analyzing the products and the customers' DNA (He et al. 2018).

The consulting business that AI will drastically change is the insurance industry. The positions that are most likely to be affected include sales, marketing, and the management of insurance policies, claims, services, and underwriting. This will happen when synthetic technology, robots and speech recognition will most likely replace most of the product recommendations made by the insurance industry's human-customer services representatives. The inventions will recognize the customers' preferences and moods from their speech and thereby increase efficiency in sales and save costs. Also, the AI inventions will be highly programmable and standardized in terms of claims'

processing, the evaluation of damages, claims' settlements and pricing by the year 2027 resulting in job reductions by 170,000 (He et al. 2018).

The situation is not any different in Goldman Sachs where it recently automated all of the processes of its investment banking wing. The positions that remained were connected to having interpersonal skills such as establishing fruitful customer relations and sales. However, the company decided to maintain financial consultants for the company's IPO that would advise and oversee the automation of all the 146 clear processes (He et al. 2018).

The value chain in the insurance industry is also affected by the injection of AI. In the insurance products' development chain, artificial intelligence will actually assist actuaries to not only collect market data but to also optimize the actuarial models and to enable the products' maintenance staff and designers. This will help them understand the dynamics associated with demand and their competitors' products, whilst helping them adapt to the market rapidly, and accurately develop more superior products (He et al. 2018).

2.8.1 How AI is Impacting the Consulting Business (Conclusion)

The paper has shown how AI is complementing human efforts applied in most organizations. AI assists in ensuring that companies efficiently market their services and products and also ensure human capital is appropriately and productively managed. Additionally, AI assists in processing data in a much faster and efficient manner and plugs human inefficiencies through Robo advisors and Quant consultants whom offer better, more profound and faster insights. These benefits come at a portion of the time and cost that current consulting firms and other special skilled workers would have required.

2.9 Benefits of AI to Consulting Companies

While AI and automation have significantly disrupted some industries, most notably manufacturing and customer service, they have also undeniably had an impact on the consulting industry as well. Generally, the effects of these new technologies on consultancy firms are positive, and if harnessed correctly, AI and automation could significantly enhance how these firms operate as well as the services they provide to clients (Carmona, 2019).

1. AI Helps in data collection: AI technology has the capacity to collect, process and analyze a large quantity of data faster than an average human. Hence, it provides accurate results for businesses including sales, operations, supply chain and more (Taulli, 2019).
2. AI is efficient in Admin tasks: Robots are much more efficient at handling routine admin tasks than humans. Robotic process automation, also known as RPA, devices can help companies with a wide range of admin tasks; for example, creating and delivering invoices, matching incoming payments with the correct invoice, record-keeping, and much more. Some more high-end AI devices can provide decision suggestions, make more logical and consistent business decisions or to ensure regulatory forms are complied with to avoid non-compliance fines (Taulli, 2019).

Improved Productivity: Consultants can streamline mundane processes with financial software or schedule meetings, record conversations, and make restaurant reservations with a virtual personal assistant like Zoom.ai. Removing these responsibilities from junior staff members' workloads means that they can focus on more rewarding work resulting in higher engagement and productivity levels across the whole consulting firm (Carmona, 2019).

2.10 Benefits of AI to Customers

AI Personal Assistance/Virtual Assistance and Chatbots

One of the greatest achievements of Artificial intelligent is in chatbots and AI virtual assistance. They are specifically programmed to simulate human interactions and provide immediate, personalized responses. This will effectively eliminate unnecessary delays and errors in customer service, especially while handling customer complaints. By automating responses to customer queries, companies will be able to reduce training time for service representatives and save the revenue in handling highly repetitive service queries (Carmona, 2019).

Predictive Personalization

Predictive Personalization is the ability of AI powered technologies to predict the actions of users based on their previous behaviors. This feature provides customers with an exceptional satisfaction because it makes them feel that the technology is customized just for them (Carmona, 2019).

Visual, Voice and Text Engagement

The AI-powered visual engagement technology analyses facial expressions in face-to-face and video chat conversations. This augmented processing will use voice biometrics and nuances found in voice chords and modulations in phone calls in order to understand emotions. With the help of these AI-based algorithms, companies can determine how to route communications and identify satisfaction. This will help them deliver positive sentiments to increase lifetime values so that repeated business and more profitability could be achieved (Carmona, 2019).

AI-enabled Analytics for Crucial Customer Insights:

AI can play a critical role in providing companies with actionable insights by feeding intelligence into CRM, marketing automation systems, and other key operational tools. They can incorporate proven insights to improve customer engagement and empower employees by helping them in making informed decisions (Ward & Marr, 2019).

Tools such as facial recognition software, text analytics, and machine learning can be used by companies to know what their customers see, identify the right messaging and convey it in real time. AI-enabled customer journey analytics can sift through a much, much larger and more complex data space and thereby uncover many business opportunities (Carmona, 2019).

2.11 AI use Cases Implemented in Consulting

For example, Accenture, offers services in AI consulting, AI solution development, AI strategy, identifying AI use cases and Implementation. Again, they analyze data and help you come up with AI use cases. Also, Accenture does end to end AI consulting and implementation (Carmona, 2019).

AI use cases have been implemented in Fraud Detection, dynamic pricing, preventive maintenance of industrial assets, customer segmentation, cross sell and up sell, image analysis, classification and regression. Also, in areas like Finance, Pharma, retail, energy, healthcare, insurance and functions like sales and marketing, supply chain, HR, operations Technology, accounting and others (Ward & Marr, 2019).

Examples of How Consulting Companies Apply AI in Consulting

There are many services consulting companies offer to customers as AI solutions. Here I have picked the 6 most relevant and important examples in my opinion:

1. Recommender Systems.

A recommendation engine can be described as a shrewd salesman who knows the customers preferences. Recommendation system is implemented for products used in e-commerce, finance, media and other industries (Ward & Marr, 2019).

2. Image Recognition.

Making products to find images, filtering out unsafe user-generated content, making purchasing recommendations on taken photos. With the help of neural networks and machine learning technology. Systems can be trained to identify people and objects in images and build high value application. This is also one important area used in autonomous car development (Ward & Marr, 2019).

3. Identify What Humans are Talking About.

The common use case for NLP technology is a text-only interface or a spoken dialog system that can answer a human request. Also, NLP can be used to understand what customers think about your product, extract information about companies or people from news article and generate short description of text documents (Ward & Marr, 2019).

4. Fraud Detection

The cost of credit fraud amounts to billions of dollars yearly. Why rely on human-generated rules set for fraud detection? AI consulting companies can help you leverage machine learning to detect fraudulent and abnormal financial behavior. A system for fraud detection performs analytics and delivers risk scores in real-time with great accuracy (Ward & Marr, 2019).

5. Predictive Analytics

To achieve predictive analytics capabilities means to know if a debtor will pay back the debt, what prospects are more likely to take action, which product a customer will click on, or what is the likeness of a particular illness. Statistical Modelling and machine learning techniques can be used to analyze past data to predict future outcomes (Ward & Marr, 2019).

6. Personal Assistance

Just like Siri and Alexa, they schedule meetings, book flight tickets, help you save money, get you dressed up for a night out and even talk to you when you feel lonely. They are personal assistances powered by AI not humans, even if they feel like human beings (Ward & Marr, 2019).

2.12 How AI is viewed in the consulting industry and is it a threat to the consulting industry

AI consulting is the business of helping companies implement AI technologies to improve their business (Tauli, 2019).

Artificial Intelligence is the new electricity and what this means is that, over a hundred years ago people didn't even know what electricity is and now it's a regular necessity in our daily lives. But gradually over time it was used by every single industry and it really transformed the way that companies work and operate. AI has the similar potential, there is no industry where it can't have an impact on in terms of automating, changing processes, to launching new kinds of services and innovations (Ward & Marr, 2019).

The technologies that have led to the growth of consulting companies over the last couple of decades, will lead to diminishing them. The increasing diversification of large global consultancies into specialties is the beginning to what is an inevitable change forced upon the industry (Libert & Beck, 2017).

Artificial intelligent is viewed as an important factor in consulting. Integration of Artificial intelligent related products are becoming very crucial for any successful business (Ward & Marr, 2019).

2.12.1 AI in the Nearest Future

Gartner predicts that by 2020 startups will dominate the artificial intelligence scene. This would reduce the domination of giant firms like Google and Facebook unless some acquisitions take place. Though it's early to make accurate predictions, if this happens AI vendors will become highly specialized and provide solutions in that specific area. Even if that prediction will come to fruition consultants would still continue providing integration and strategy consultations and will not perish (Panetta, 2017).

2.12.2 Is AI a Threat to the Consulting Industry?

These are challenging times for large consultant companies and small independent consultants, as they are forced to respond to the changes brought by AI. Consultants certainly fear AI more than other sectors like manufacturing, transportation, finance or Enterprise. Overtime enterprise technology vendors will inevitably build upon publicly available artificial intelligence frameworks made publicly available by giant companies like Facebook and Google to automate some of the tasks that recently minted undergraduate analysts performed for the large consulting firms (Libert & Beck, 2017).

Only time will tell how fast and deeply Artificial intelligent will threaten the consulting industry and how it will affect their business. Whilst AI will definitely change the industry it will also help it by giving consultants more powerful and efficient tools to better analyze the data and thus enable a better understanding of the companies they are consulting. It will take many years until AI systems become so sophisticated that they can provide valid decisions, so until then the consulting industry rest assured that their work will not be taken by AI (Libert & Beck, 2017).

2.12.3 Conclusion

At present, there is a huge demand for artificial intelligence related products, but supply is very limited. This is due to the fact that AI related products and systems are very hard to implement, expensive, require a vast amount of skilled workforce and data. It is also because the technology is very new and the data required to harness such systems is available only to few of the biggest companies such as: Google, Microsoft, Apple, Amazon, Facebook, Alibaba, Baidu and a few others. Currently there isn't a consulting company dominating the area of AI consultation, that is why it is a very desirable area and all consulting companies are fighting to get there.

It can be concluded that in about a decade from now, artificial intelligence will be a threat to consulting companies, as there will be no need for associates to work long hours turning a large chunk of data into understandable chart presentations. Business executive will stop relying on consultant experts and instead inspect the data provided by their AI systems. The main purpose of most technological advancement is to be able to do cheaper, better and more work in less time with less cost. That is why artificial intelligence systems can be seen as a threat to the consulting industry. What consultants provide that AI can't provide is still the human interaction and the level headed advise, which most companies still prefer.

3 Research methodology

3.1 Interview as a research method

Interview as a research method is one of the data collection techniques for qualitative researchers. It is a technique in which data is collected by asking structured, semi-structured or unstructured questions from the interviewee (Adhabi, and Blash-Anozie, 2017).

As stated by Adhabi and Blash-Anozie (2017), “an interview can be comprehended as an interactive process where a person asks questions to seek particular information”.

Qualitative research interviews are "attempts to understand the world from the subjects' point of view, to unfold the meaning of peoples' experiences, to uncover their lived world prior to scientific explanations." (Kvale, 1996)

Interview research has been criticized for being biased especially if there aren't different point of views of the subject. It is also being criticized for not being accurate enough to be considered scientifically valid, as there will be opinions and occasionally emotionally motivated factors Adhabi, and Blash-Anozie, 2017).

Interview methodology was chosen as the main method because there isn't much literature regarding the usage of AI in business consulting, how it is implemented and when it is recommended to the customer. As the subject is fairly new there hasn't been many researchers conducted about it.

By conducting the interview with a person commanding vast experience from working in the field, it was possible to get fairly accurate insights about the subject and how it is applied. This also provides an inside look about the thought process, which leads to the decisions provided by consultants to the customers.

3.2 Research Design

3.2.1 Selection of the Person Interviewed

The interview is conducted with an experienced senior manager from Ernst & Young. In this interview an overview of consulting and the role of AI is discussed. As well as the thought process of consultants, which steps are taken to identify and help customer's companies' problems and how the right solutions are provided. As Ernst & Young is one of the world's biggest consulting companies, the input is very valuable and provides great insight on the nature of consulting.

As there is only one interview there is a possibility of drawing wrong conclusions from only one point of view and that the amount of data is not sufficient. There is also a case for the fact that the information might be biased.

Nonetheless it is to be noted that most consulting companies function in the same way and have few variances in their frameworks, as well as their services. Consulting companies usually differentiate themselves from each other by specializing in certain fields and focusing on them.

3.2.2 Data Sources

The data used and collected includes primary and secondary sources. The primary source was the data gathered through the interview, which was conducted with a very experienced person in a high position. The secondary data includes information gathered through different articles, personal experiences, discussing the subject with other experts and literature.

3.2.3 Data Collection

The data was gathered by asking few open-ended and semi-structured questions in the interview. The goal was to let the interviewee speak about the industry and give his own insights freely, while guide him to cover the important aspects relating to the research. Secondary source information and data was analyzed and added as well.

The interview took place in EY's premises in Helsinki. The interviewee is a senior manager and Analytics lead of Transactions & Strategy in Ernest & Young. The interview was approximately 70 minutes long and was conducted in Finnish. The interview was divided into separate parts and given questions to help the reader understand what is discussed and what question is being answered. This way it is easier for the reader to keep up with the discussion.

3.2.4 Interview questions

Not all questions were asked but the interview covered all the subjects mentioned in the questions. Here are the questions that were prepared beforehand:

- Please introduce yourself, your history and your job description.
- What is AI in your opinion?
- Please give me an overview of how business consulting is done?
- What are the hot topics in different industries currently?
- Do you offer AI solutions and if yes what kind of?
- How do you determine what is the best AI solution for the customer?
- How do you view AI in regards of the consulting industry?
- What are your thoughts on the future of AI in consulting?

4 The Interview

4.1 Introduction to EY

EY is a multinational consulting company headquartered in London, United Kingdom. The fields that EY focus on include, but are not limited to, assurance, tax advisory, digital strategy, consulting, financial advisory and legal. EY is considered one of the “Big Four” accounting firms but has recently shifted their focus onto consulting by advancing their presence in the Digital & Strategic consulting area. EY employs 260,000 people in 150 countries. They also have a strong presence in Finland as they have 800+ employees and their headquarters is located in Helsinki (“Who we are – Builders of a better working world. EY – Global”, 2019).

4.2 Introduction to the consulting unit and how they are providing value to the customer through strategical data, analytics and AI?

The unit is fairly new and has a strategy-driven focus on providing value to the business through data, analytics and technology solutions. (Saarinen 18 November 2019.)

The unit provides growth strategy through data, thus focusing on optimizing and streamlining current processes close to the business core. They provide strategical analysis and help companies understand and develop their processes. The unit is mostly involved at the beginning of the value chain and they help companies understand and come up with use cases, proof of values or simple prototypes. Through process analytics and the data collected from the customers IT systems they can draw a very accurate, indisputable and transparent picture of the business.

They also provide solutions and services by conducting a thorough value recognition and validating user cases. By using lean and iterative concepts they can help find a validated sweet spot that is worth pursuing. These sweet spots are pursued by building light models, through workshops or other options. (Saarinen 18 November 2019.)

4.3 How client problems are approached and when AI technologies are implemented as a solution?

The unit implements an agnostic approach to the projects, in which they collect and review the data of the company, whilst understanding the problems and the needs of the customer. Thus, they can determine the best advisable solution and the necessary tools, be it the need to implement R coding language, Python, machine learning or whichever other solution to solve the problem. (Saarinen 18 November 2019.)

Rather than focusing on implementing a certain technology such as AI, the unit concentrates on finding the problems and after that they suggest the fitting solution. When they find development areas in the business the thought process is: How do we tackle this problem? How does robotics fit in this particular case and is it even sensible to robotize the process? Is process engineering or training a better option? AI in itself isn't always the only solution. The main goal is to streamline and improve the functions and the capabilities through data or to create value through various solutions and analytics. AI is only one of the solutions when considering all available solutions in the portfolio. (Saarinen 18 November 2019.)

4.4 Introduction to a case where different companies from different fields including municipalities were interviewed on how have they tried to amass the benefits provided by AI related technologies?

There were certain themes and key words highlighted in regards of each field. The interviewed companies were incorporating or looking to incorporate AI technologies to help them achieve the following developments. (Saarinen 18 November 2019.)

In the consumer sector the key words that were highlighted were: Communication, personalization, dynamic pricing, the formation of marketing offers and customization on an individual level. (Saarinen 18 November 2019.)

With the advancement of technology and systems that enable storing and knowing the customer it is very important to provide personalized and customized offers to differentiate and keep customers happy.

Manufacturing industry: Anticipatory maintenance.

Businesses in the industry invest big sums on their manufacturing machinery, that is why it is imperative to assure the maximum possible lifespan for the machinery. It is also important to avoid any downtime in production as it might heavily affect the businesses profits. That is why upholding a systematic and well-functioning maintenance can save such companies millions of euros. (Saarinen 18 November 2019.)

Financial industry: Risk management, regulatory compliance, supervision of money laundering risks, control of credit risks, fraud.

As expected, banks have to mitigate losses by anticipating and monitoring various risk factors and frauds, which are connected to money. These financial institutions have to

also comply with a growing number of regulatory laws that are put in place by governments and bigger entities such as the European Union.

Health industry: Identifying diseases that could be fatal to a patient if not treated and life-expectancy.

As AI is evolving it can identify diseases that a mere human eye can't distinguish. In some scenarios these are life or death situations. AI can help in minimizing human mistakes and boundaries. (Saarinen 18 November 2019.)

4.5 How a procurement process proof of concept inspired a customer to rethink and upgrade a certain department?

In this case the customer was thrilled by advised proof of concept, thus deciding to hire a team of three in-house employees into the company. The team was provided with a predefined operating model and processes. After that an environment in which the first experimental use case was built on top of a cloud architecture. The use case was a real time data pipeline from a few components, which were built around the use case. (Saarinen 18 November 2019.)

4.6 How do customers view the future, what capabilities they have and how are they preparing for the future?

The unit also provides a visionary approach in certain projects, which can be described as a future back thinking. In customer projects the customer is shown a picture of possibilities on how the future will look like, what does it mean to customer and how they can prepare to future trends at the same as they are optimizing their business. What are the upcoming trends and are AI capabilities needed currently or in the future? Also advising the customer on how to obtain the capabilities, be it through acquiring another company, collaborating or building the ecosystem.

The customer will be advised about the needed components and how to get there. The needs can consist of machine learning or for example a certain data type that will be needed in the future. (Saarinen 18 November 2019.)

4.7 The future of AI and How it Will Affect the Consulting Industry

Currently most of the data analytics is still descriptive or predictive, but the next big step is getting to the prescriptive data, which will have a big impact on businesses and interactions with customers. (Saarinen 18 November 2019.)

Analytical skills and the ability to read and compile data will be very important in the profession of consultants. As the amount of data will keep growing it is not viable to use excel anymore, thus it is required that consultants are able to use advanced tools. The usage of coding in for example SQL or R will make the process more efficient.

In the short term it is going to change a lot in regards of what is required from consultants but after 10-15 years it will be business as usual and a standard. The way data is gathered and how analysis is conducted will become easier and more efficient. Even though the way consultants work and the tools they use will change there is still the important element of understanding and rendering the data to the customer, and that will not change. Customer interaction will still stay as an integral part of the work picture as well as how the findings are portrayed to the decision makers and how they can be influenced. (Saarinen 18 November 2019.)

5 Discussion

The aim of the research is to present the reader insights and facts about consulting in general, and how AI is implemented in the industry through the interview conducted with an expert in the field. We can conclude from the findings that the extensive theoretical research conducted matches the views of the interviewee, thus it can be considered that they both validated what was established.

This research will be valuable to anybody interested in business consulting generally, how it functions, how AI is implemented in the consulting industry currently and what does AI mean to the industry in the future. It is also beneficial to a person wanting to know more about the various fields a person can work in while being a consultant.

The information acquired from the interview weren't surprising and further supported our initial expectations. Though there were interesting aspects about how AI is not always the go-to solution and how it is only one tool amongst various other tools to help customers in their problems.

The ambition of the research was to find out how widely AI solutions and tools were offered to customers as consulting solutions and what were the solutions? As well as have a better picture of the current capabilities of consulting companies in regards of AI and how well can they implement such solutions.

Unfortunately, the paper didn't establish thoroughly how AI is implemented in the consulting industry because there weren't cases from which such information could be derived. It was also understood from the theory and the interview that AI does not play a major role currently when deciding the right solution for customers. Consultants analyze the clients' needs and then decide on which approach is the needed approach regardless of the technology.

Clients' needs differ thus the solution they require vary greatly. Many companies don't know how to implement AI and how it would help them. That is when consultants come into the picture as they can suggest simple automation, RPA or chatbot functionalities to get the company started with AI. After the company gets more familiar with the benefits and the way AI functions, they can then build more complex and sophisticated solutions.

There are currently many smaller consulting companies whom specialize in providing only AI solutions. They help companies get started in implementing AI by offering simple analysis on what capabilities the company should focus on or by building them simple algorithms for certain tasks. The AI consulting industry is still a fairly new area and there aren't any major players that control it.

The findings support multiple other presumptions made for example in Harvard Business Review's article *AI May Soon Replace Even the Most Elite Consultants* about how the consulting industry is going to face big changes in the coming years. Even though in the interview it was stated that AI will help the industry to be more efficient and productive it is evident that in the long run AI is an imminent threat.

The findings of the research cannot be established as evidently valid because there was only one interview conducted, thus there isn't enough data for it to be scientifically solid. There is also a chance that the data is biased and inspects the subject only from one point of view. Nonetheless as the theoretical work and the findings in the interview were cohesive, we can conclude that there is truth to what is written in this paper.

The paper could be more credible if interviews are conducted with at least 2 more experts to ascertain the findings and eliminate the bias factor from the equation.

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