LEADERSHIP IN THE ARTIFICIAL INTELLIGENCE ERA

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Abstract
Technological advances are growing at a very accelerated pace, particularly Artificial Intelligence (AI), which has led to a surge of commercial interest in automation and robotics. "Technology is now at the point of taking us into a magical age," Alphabet (Google) chairman Eric Schmidt quoted in January 2017. Bolstered by the fourth industrial revolution, robotics is used by many industries in order to perform a wide range of tasks, while AI is now able to assist in making complex decisions in an increasing array of applications. The concept of Artificial Intelligence implies the potential for better efficiency and enhanced consistency. Using simulated artificial neurons and algorithms, AI systems are being incrementally adopted by many industries for their improved performance over their human counterparts. However, according to many researchers, the increased use of AI is resulting in a proportionate decrease in human labor while creating gaps at different levels within the organization. Consequently, accommodating this evolutionary transformation and managing the transformational balance between humans and robots, or the huros[1] workforce, has become a mounting challenge on today's leadership. This paper outlines the major challenges that management leaders must face while adopting Artificial Intelligence technology in their organizations. As result of a qualitative research study, we identify critical areas of focus in the transition towards the management in the AI era.

Keywords
Leadership; artificial intelligence; management; governance; digital transition; industry 4.0.

Introduction

According to the father of *Artificial Intelligence*, John McCarthy, it is **"***The science and engineering of making intelligent machines, especially intelligent computer programs.***"** (Childs, 2011). Artificial Intelligence is the development of computer systems that can perform tasks reflecting human intelligence generated from the idea of "*Can computers think*?" It refers to machines with the ability to exhibit intelligence and perform cognitive functions ascribed to humans. Despite McCarthy's explanation, there is no specific standard definition of AI that has been agreed upon; it is hard to be defined since human intelligence cannot be fully understood (Nilsson, 2009). It is a branch of Computer Science that aims at making a computer, a computer-controlled robot, or a software think intelligently, and similarly to human's intelligence and thinking methods.

[1] *Huros: a term created by the researcher to refer to robots performing human jobs at the workplace.

The most basic form of AI uses data while performing rule-based calculations or learning algorithms in order to make decisions or predict outcomes.

The concept of what defines AI has changed over time, but the fundamental objective has always been to build machines which can think like humans. It can be thought of as simulating the capacity for abstract, creative, deductive thought, and particularly the ability to *learn*. It is as well, a machine that can *perceive* its environment and take *actions* autonomously that maximize its chances of success at some specific goals (El Homsi, 2018).

AI is empowered by some new technologies that are considered the catalysts or the backbone of Industry 4.0 (Schwab 2017). Some of these are: The Internet of Things (IoT), Cloud Computing (CC), and Big Data (BD).

- *Internet of Things (IoT):* It is a technology that connects objects together at any time and any location. It uses the internet and special sensors in order to communicate and drive actions involving machine-to-machine and machine-to-human interfaces. IoT creates value and simplify the management of information.
- *Cloud Computing (CC):* It is a centralized web-based computing system to store data resources. Cloud computing services can be offered by a service provider who would maintain the infrastructure; it works without a specific location and on demand basis, delivered by information technology (IT) resources. It enables users to manage and process their data at lower costs.
- *Big Data (BD):* It is the huge and complex electronic datasets that are difficult to be managed by means of traditional software and hardware. These can take various forms such as virtual, physical or a combination of both.

Leadership is the catalyst of every organization; it is responsible to provide vision, strategy and clear direction. However, due to advances in technology, leadership of this era is facing difficult and complex challenges, and many leaders feel ill-prepared to tackle the various types of obstacles. The most intricate factor is the *accelerated pace of change*, which is intense and difficult to cope with (Gentry, Eckert, Stawiski, & Zhao, 2016). Added to that, is the complication of the new technology that requires a constant updating of knowledge and skill enhancement. Moreover, there is a need for developing leaders who can effectively deal with people *and* AI, since the current trends are heading more towards human / machine groups that have proven to be more efficient and productive than groups comprised by only one or the other; consequently, giving shape to a new business model and structure.

Literature review

A research project by MIT Sloan (MIT Sloan Review 2018) was conducted over five years (2013-2018) and surveyed 27,300 respondents in 161 countries from 28 industries, including 150 interviews with executives. It determined that AI is a very tempting trend; however, it is up to every organization to conduct a needs-analysis in order to decide which technology best fits the organizational needs. Some organizations might not need AI, whereas implementing AI might require reorganizing the company to be more agile, risk tolerant and experimental. The biggest challenges impacting the company's ability

to compete in a digital environment are multifaceted. Challenges pertaining to working in a constantly changing and ambiguous environment, getting people to take risks, and acquiring the right technology are considered very difficult. The study pinpointed a huge gap between learning and development as a major obstacle. For developing organizations, technology is changing the nature of the work that people normally do. Learning is very important, but the need to update skillsets is a greater challenge since traditional ways of training such as on-line courses and training programs would not help to instill behavioral change. In this case, on-the-job training would be more practical than traditional training. However, digitally maturing organizations create an environment for learning through experimentation, feedback, and iteration. They are better at sharing results of failures, encouraging new ideas, and experimenting so all the involved parties can learn.

The 21st century is marked by a plethora of emerging technologies that are not only creating change but also *disruption* to every industry (Manyika et al., 2017). These are incrementally becoming integrated into every aspect of the individual and business lives with no exception. AI, as specified in a report for the Greenpeace Environmental Trust, is one of few emerging technologies that might offer "hope for the betterment of the human conditions" (Arnall, n.d.). The advancements of AI technologies have greatly flourished and propagated into various fields and can be subdivided into several types. According to the World Economic Forum 2016 (World Economic Forum, 2016), digitalization is an essential factor of the 4th industrial revolution; therefore, it is becoming very eminent that every organization seeks for the appropriate smart technologies that best fit its needs.

Applying AI technologies seems easy and attainable, however, due to the availability of a wide variety of different relevant technologies make this objective more complex and costly (Schwab, 2017). Add to that, the pace of change is very dynamic and difficult to cope with; it creates challenges at the macro and the micro levels of the organization and brings about changes in economies, societies and demographics. Despite these facts, business leaders opt to experiencing this transformational era due to the fears of being left behind.

The pathway to reaching the full potential of these promising technologies is full of challenges, risks and most likely uncertainties (Eder, 2017) that leadership has to address. Added to that, is the ever-growing need to update skillsets since technology is changing the nature of the work that people normally do. However, when applied accurately, AI can support and augment human capabilities so that to perform at optimum aptitudes. It enables for new business models where leaders must reimagine their various business processes in order to integrate the smart technology while building organic teams associating human with AI systems (Daugherty & Wilson, 2018). Spurred by all these notions, it is greatly noticeable that leadership is at the heart of all decisions and changes that are taking place. Therefore, leaders of those organizations are responsible to formulate the appropriate strategies to bridge the gaps while assuring smooth transitions and most importantly to be aligned with the management strategies. Leaders must set the right objectives and plan the best tactics in order to implement these while taking into consideration all the factors including the unknown.

Research goals

The goal of this paper is to outline the major challenges that management leaders must face while adopting Artificial Intelligence technology in their organizations. Several scholars, researchers and authors wrote about the leadership of the digital age and gave suggestions on how it should be and perform (Walsh, 2019; Daugherty & Wilson, 2018; Walsh, 2015; Eder, 2017; Jakubik & Berazhny, 2017; Herold, 2016; Roose, 2019); however, the gap is still to learn about the effect of adopting these technologies on the leadership style. Therefore, the research question is:

What would be the impact of a novel and emergent technology such as, Artificial Intelligence software / applications on leadership?

Moreover, the aim of this research is to understand the *impact* of AI technologies on the leader as a *person*.

Data and methodology

This research is about the *Leadership Challenges in the Artificial Intelligence Age***,** and the qualitative study that has been conducted tackles two important parameters that are relevant to the research; *AI* and *leadership*. The collected data have been analyzed and the most relevant finding are presented.

Modern technologies are prevailing due to the various advantages they can offer whether in terms of shortening distances and simplifying the communication process; therefore, we have taken advantage of the technology and addressed our research questions through a semi-structured skype-call interviews that has been conducted based on a pre-arranged and agreed upon date and time.

***Process*:** Prior to the skype interview, the interviewee receives an email with all the details relevant to the purpose of the project and the list of questions that I intend to ask. As well a copy of the "participant consent form" that they need to sign and resend via e-mail. The process is flexible in terms of whether obtaining the answers written beside the interview or not since some may state clearly that they are limited in time and cannot provide the answers written. All interviews must be captured on a voice recorder, for further review and analysis.

***Variables*:** In order to investigate the main research question and have answers, several variables should be taken into consideration. In this quest, it is noticeable that AI as new technology would have an impact by causing disruptions and change; thus, the variables that need to be measured at the leadership level could be change, new skills, competencies, personal characteristics, traditional leader, contemporary leader. Here after the list of questions prepared to be used in every interview:

1. Do you think that change causes disruption at the organization? How?
2. How leaders can manage to overcome the periods of continuous change?
3. How does the transition to AI affect leaders on the personal level? Does this contribute to developing new leadership characteristics?
4. What are the skills and competencies that contemporary leaders should develop?
5. In which ways are leaders of this era different from the traditional leaders?

***Interviewees*:** for the purpose of this research, the interviewees should fit into two categories of leaders who are willing to share their own personal and professional experiences. The designated leaders should be, CTO, CEO, CIO and business owners who are related or specialized in AI.

1. Leaders who are experiencing a transition to AI technologies.
2. Consultants who experienced working with other leaders who are transitioning into AI.

Data Analysis: the data collected from 6 interviews has been analyzed following both the step-by-step and iterative approaches. Then data has been organized by similar and dissimilar categories or themes in order to be labeled / coded. Therefore, the basic approach to be used is the conventional one where codes are derived from data. Table 1 provides a more precise description of the dataset in terms of the specificity of the interviewees' profiles and roles in their organizations.

Table 1. Interviewees' profiles

Title	Country	Profile summary
CTO at Volkswagen Data: Lab	**Munich, Bavaria, Germany**	Ph.D. in Particle Physics and several years of experience in scientific research in large international collaborations. Member of the ATLAS experiment at CERN. Data Analytics and Machine Learning for production use cases, in partnership with AWS. Member of the Senior Platform Team implementing the platform; contributing to data architecture, data management and standards for data modeling. Works at the Volkswagen Data: Lab in Munich and focuses on different aspects of data science. Main areas of expertise: Data analytics Machine learning Applied AI and the technical challenges behind their industrial implementation.
Co-founder Chief Executive Officer at OGMA Communication Co.	**Austin, Texas US**	Specialties: • Design and Innovation • Artificial Intelligence • Machine Learning / Deep Learning (CNN, RNN) Technology executive with hands-on experience in Artificial Intelligence, Product Development, and process Improvement. Leader with strong analytical skills seeking to create value for organizations. I am the originator of the CREŌ problem solving model and the author of five books: "Harmonization", "A Business Carol", "Corporate Sigma", and "TPS-Lean Six Sigma", and the latest is Artificial Intelligence: A leader's Guide to Building the Future.

Co-Founder of Bluemanifold Former CTO & Professor, now focused on Causality & Complex Systems	**London, UK**	Specialties include: • C-suite advisory • Emerging technologies & the 4th Industrial Revolution - Help stakeholders navigate the technology landscape, and the impact that such technologies may have upon a given domain or organization
Director | Leadership | Vision | Strategy | Technology | Digital Transformation | Portfolio | IoT | Cloud | Edge | AI/ML	**Calgary, Alberta, Canada**	A seasoned, energetic and innovative leader that can direct an organization in the visioning of a market strategy, development of an economic business case and execution of an aggressive project plan. Proven track record building and motivating dynamic cross functional teams to achieve business goals. Technology visionary who creates innovative solutions based on cloud & edge computing, machine learning & AI and other new IoT technologies that enable game-changing outcomes. Results driven, entrepreneurial and focused on company and employee growth.
Head of Systems & SW QA Engineering at Brain Corporation |Robotics |Autonomous Systems |AI|Cloud|	**San Diego, California, US**	Head of Systems & Software QA Engineering for Autonomous Mobile Robotics(AMR), Autonomous systems and Cloud technologies. Working together with a world class team at Brain for Autonomous Mobile Robotics for QA Engineering efforts, end to end Testing & Validation, Automation development, Scaling and Commercialization support.
Senior Human Resources Executive	**Switzerland**	Driven Senior Human Resources Executive with sound experience in consumer goods, health technologies, biopharmaceutical and services industries. Combine pragmatism and leadership with a high level of integrity and dedication. Achieve tangible results by providing vision and operational partnership to the business, with a strong focus on organization effectiveness, people development and change management.

Findings

In this section we review for each of the above listed research question the themes that have emerged during the interview. We summarize them with some diagrams.

Question 1: Do you think that change causes disruption at the organization? How?

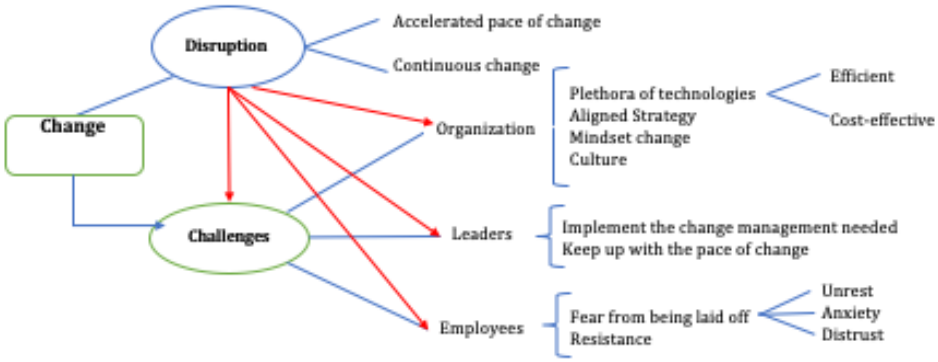

Figure 1. Theme 1: Challenges of change and disruption

The main theme (Figure 1) for this answer is change that causes disruption, and here 'challenge's is an emerging theme that is created due to the disruption that is cause by change but in particular due to the continuous and accelerated pace of change. The challenges are faced at various levels of the organization; these are the sub-themes. The organization's challenges are due to the disruption caused by the availability of a plethora of technologies and inventions that promise to solve organizational problems. However, the organization must be conscious of the fact that adopting AI technologies requires a change in the mindset and change in the culture which is hard to deal with. Technology adoption will not be successful unless all employees involved understand why change is necessary and how it will impact them. Otherwise, this will create fears from being laid off due to new technologies, and resistance to cooperate. This for certain would lead to management distrust, unrest and anxiety. Therefore, new strategies must be put in place and need be aligned with the new perspectives. This responsibility would be for the leaders who must formulate the best strategies and tactics in order to implement change management. It is challenging especially if the company operates in traditional ways and is not as flexible to adapt to new technologies.

Question 2: How leaders can manage to overcome the periods of continuous change?

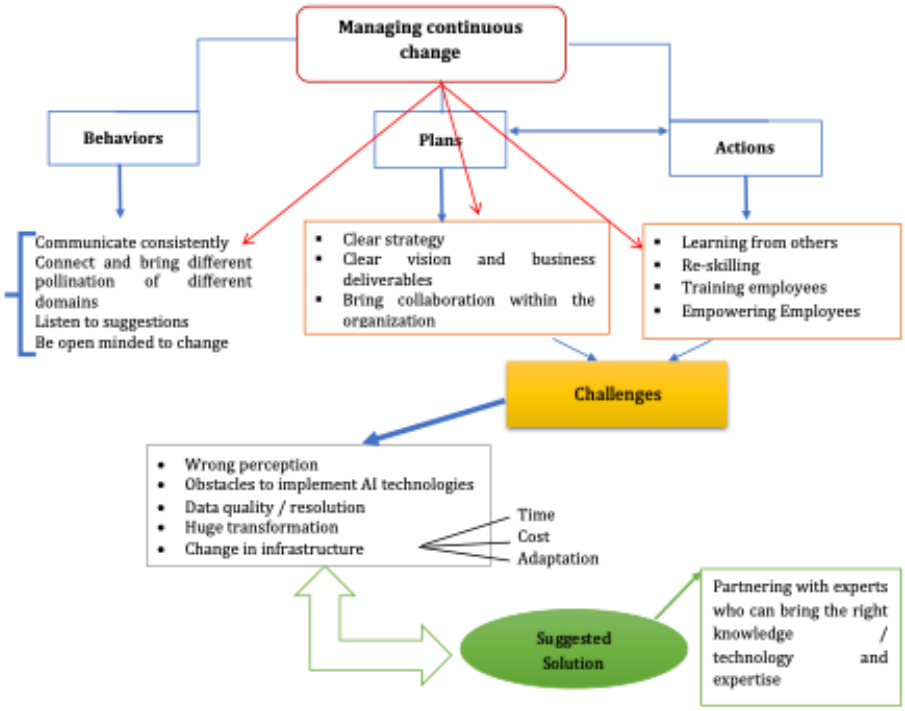

Figure 2. Theme 2: Management of Continuous Change

The main three themes for managing and overcoming the continuous change (Figure 2) are relevant to the leaders' abilities to adapt his behavior, plans and actions. Each theme has its sub-themes that are substantial for smooth transition. The leader must work on his own behavior by shifting to a mindset of openness, where communication connectedness and listening to others are crucial for change. Planning for clear strategy pertaining to the AI system must be implemented with clear deliverables in terms of the obstacles and the benefits generated from this new technology; as well as bringing up collaboration within teams to support the learning and reskilling needed by employees. The challenges theme emerges from the two main themes 'plans and acts' that show some roadblocks as sub-themes to be taken into consideration. Some of these are the wrong perception about what are the real benefits and challenges of a certain system; other difficulties emerge during the implementation stage, and this is due to quality of the data and its resolution. The process creates huge transformation at many levels that requires changes in infrastructure that is time consuming, costly and encompasses adaptation. Therefore, partnering with expert who can bring the right knowledge and expertise could be a solution.

Question 3: How does the transition to AI affect leaders on the personal level? Does this contribute to developing new leadership characteristics?

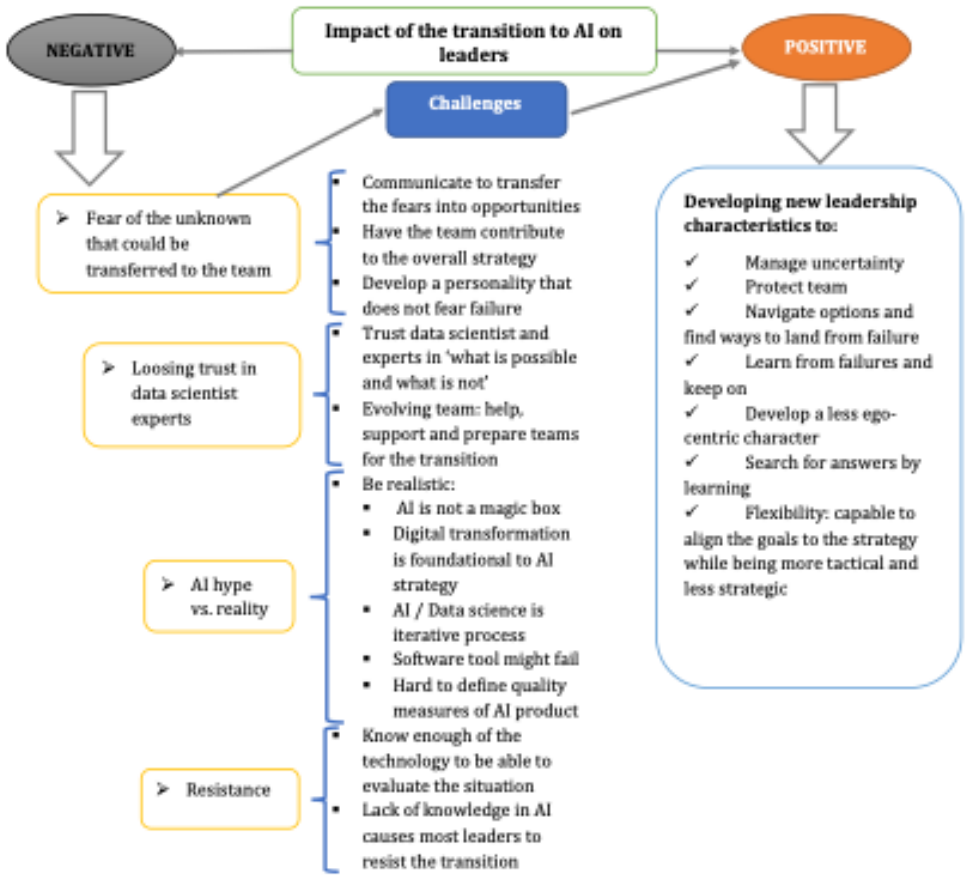

Figure 3. Theme 3: Impact of the transition to AI

The impact of the transition to AI on leaders generated two main themes (Figure 3) that are the negative impacts of AI on leaders and the positive impact. The negative impact has four sub-themes by which they discuss a subset of themes called challenges. Fear of the unknown, lack of trust, differentiate AI hype from reality and resistance are the main sub-themes for the negative impact that generate a subset of challenges depicting the impact. However, these will lead to the positive impact of the transition and the emergence of a new theme where leaders develop new characteristics as sub-theme, due to the challenges they face through the transition to AI.

Question 4: What are the skills and competencies that contemporary leaders should develop (with regard to AI technologies)?

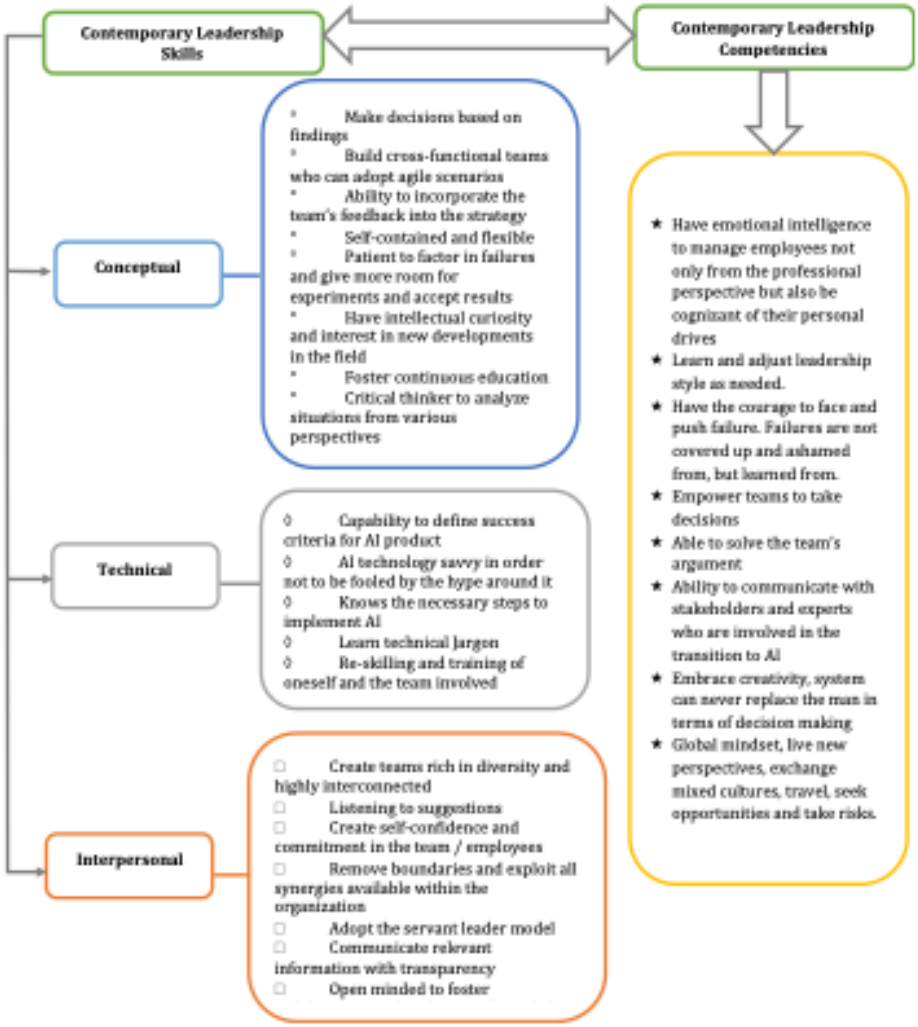

Figure 4. Theme 4: Skills for new leadership

There are two main themes to answer this question (Figure 4), these are divided by the skills as one theme and the competencies. The leadership skills theme has three main sub-themes that are the conceptual, technical and interpersonal skills that the contemporary leaders should develop. Every sub-them has a relevant subset of codes. The competencies theme has a list of sub-themes that discuss the competencies of the contemporary leaders.

Question 5: In which ways are leaders of this era different from the traditional leaders?

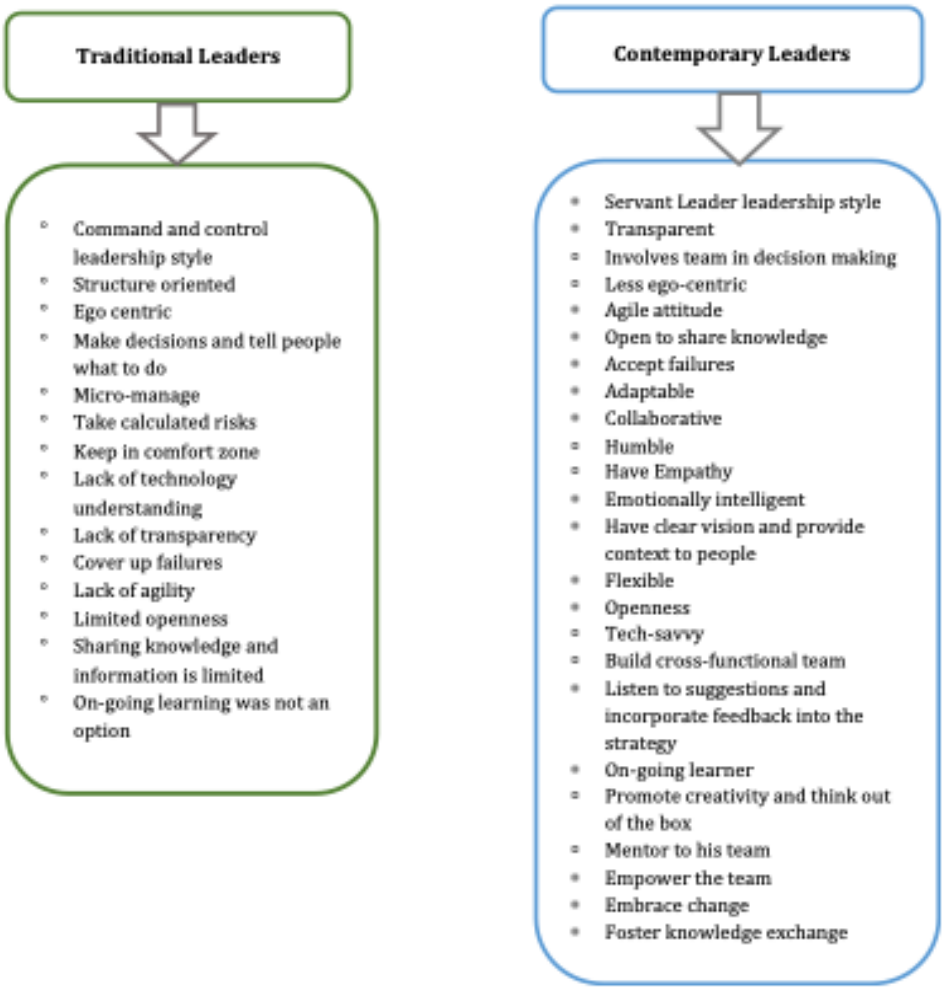

Figure 5. Theme 5: Traditional vs Contemporary Leaders

There are two main themes that are related to this question (Figure 5), the traditional leader and the contemporary leader. Every theme has various sub-themes that were mentioned and discussed by the interviewees. All interviewees agreed that there are new and contemporary attributes to the contemporary leaders that were not available in the traditional leaders. For sure there would be some commonalities between the two styles, but the focus was on these two only.

Discussion of the findings

This research was conducted aiming to have better understanding of the impact of AI technologies on leadership and exploring the ways that leaders have adopted in order to manage disruptions. Six leaders from different European and North American countries participated in this study; they are involved in the transition to AI and or have had the experience to work with leaders who went through this transformation. The participating leaders generously answered all the questions asked, discussed the challenges they are facing due to the accelerated pace of change and adoption of new AI

technologies, and most importantly, they transparently shared the impact of this transformation on their persona. The main findings of this study suggested that there are several challenges that leaders commonly share even though they are in different parts of the world.

Continuous change is causing disruptions at various levels of the organization and that requires consistent attention and responsiveness from stakeholders. This could be materialized by changing behaviors, plans and actions to accommodate the change. Adopting AI is not an easy process, yet it is iterative and entails total commitment and involvement. The process is accompanied with uncertainties that sometimes necessitates in some cases to push the project to fail. The old ways of leading do not work in the digital era, command and control styles became obsolete in such environment; empathy and servant leadership styles are taking place. The pressures and the challenges created by continuous change are shaping the new leadership that is very cooperative, open minded to connect with others and create cross-functional teams who can solve problems, tech-savvy, and equipped with calibrated attributes to mentor and nurture while keeping the momentum of learning steady.

All participants confirmed that this era is marked by the continuous and accelerated pace of change that is causing *disruption* to every aspect of the individual and business life. This phenomenon is triggered by the availability of new advanced AI technologies that are offering various solutions to industries, such as *increased productivity* and *enhanced efficiency*. These factors are creating an enticing environment for industries where the transformation / transition to AI became a necessity. However, this disruption creates numerous challenges at the levels of the organization, leaders and employees. Whilst adopting the most efficient and cost-effective technology remains a difficult decision in view of the availability of a plethora of AI technologies and applications. Therefore, the organization must formulate a strategy that is aligned with the required changes taking into consideration the implementation of the new technology. It is a huge transformation to the industry, and it requires a *mindset change* that can incorporate all the necessary changes patiently as it is an iterative process where the results are not guaranteed. The organization must work on its *cultural change* by means of communicating why the change is necessary, and the impact of the change on stakeholders including the benefits of adopting the AI technology. Leaders are at the heart of the organization where they must implement the change management considering the organization's strategy and the employees' needs. These are likely to be resistant to the new initiatives as they fear that the new technology will replace their jobs. This challenging situation would lead to employee's anxiety, unrest and distrust that the leader must manage as well.

Continuous change is synonymous to *uncertainty*; thus, in order to manage such change, leaders should be flexible to come up with appropriate solutions to problems. The findings suggested three dimensions to managing continuous change; the *behaviors*, the *plans* and the *actions*.

- ***Behaviors***: The leaders ought to behave in a proactive way, adapt very fast to new requirements, go the extra mile to support their units, have clear understanding of the core business values. Building *cross-functional teams* is crucial as it promotes learning and encourages team problem-solving. Leaders must keep consistent and open communications with their teams, listen to their suggestions and incorporate their feedback in the strategy.

- ***Plans***: The plans should include a clear strategy with clear deliverables, support internal collaboration and use the resources from within the organization. Hiring Data Scientists is not often the right decision, simply because they are from outside the company, they lack any understanding of the core business.
- ***Actions***: re-skilling and training employees are integral as they alleviate anxiety and distrust. Leaders must instill a learning environment where people are welcome to share knowledge and learn from each other. Accepting that the new norm is not a pre-defined job description and a clear list of responsibilities; there will be a shift on the types of jobs and knowledge required to execute those jobs. Hence, adaptation is as important as finding ways to keep employees busy by acquiring new tasks and responsibilities.

The transformation is a huge process that requires collective efforts; the AI implementation could be very challenging due to various obstacles related to the infrastructure that is time consuming and costly, for instance, the insufficient amount of data, its quality and resolution can slow the process. Added to that, the difficulty to contextualize the classifications of the AI models to the business process. Therefore, partnering with experts who can bring the expertise along with the required knowledge in technology, could be the right solution.

The high involvement of leadership in the transition to AI has several impacts that can affect him on the professional and the personal levels. These impacts could be negative which create lots of challenges, and positive that would support the creation and molding new leadership characteristics. The fear of the unknown that the leaders may face could be transferred to their teams, which may lead to *loosing trust*. The leaders' challenge is to transfer this fear to opportunity, keep up the open communication by sharing those feelings and being as honest and transparent as possible and build the strength to grow away from fear by discussing possible solutions with the teams and empower them to contribute in the decision making. The hype around AI technology is high and sometimes expectations are built accordingly; thus, it is very important for leaders to be knowledgeable, tech-savvy and capable to differentiate between hype and reality. Understanding AI concepts, jargons, and the necessary steps to implement AI prevent leaders from being resistant to this technology. AI is not a magic box, it is an iterative process that requires tremendous efforts prior to, through and post implementation. Added to that, it is hard to define the quality measures of AI products and in some cases, the software tool might fail. Leaders who manage to overcome challenges would build an immune personality that is able to manage uncertainty, navigate options and find ways to land from failures and learn, search for answers by learning, protect their teams and most importantly develop a less ego-centric character. The leadership of the digital / artificial intelligence era must develop very sophisticated skills and competencies in order to be compatible with the requirements complexity of the technology. The participating leaders confirmed that besides the re-skilling and the various trainings they are going through, they have developed new skills and competencies in order to manage the different obstacles they faced through the process of transitioning to AI.

The skills are divided into three layers: the *conceptual*, the *technical* and the *interpersonal*.

1. The ***conceptual skills*** are relevant to making decisions based on findings. Building cross-functional teams who can adopt agile scenarios, this is a new concept developed by leaders in order to have different perspectives for solving a specific problem. Patience to factor in failures and give more room for experiments and accept results. Have intellectual curiosity and interest in new developments in the field. Foster continuous education and critical thinker to analyze situations from various perspectives.
2. The capability to define success criteria for AI product as a ***technical skill*** and to be an AI technology savvy in order not to be fooled by the hype around it beside other criteria that were mentioned earlier.
3. The ***interpersonal skill*** of the contemporary leaders is very crucial as they include, creating teams rich in diversity and highly interconnected, listening to suggestions, creating self-confidence and commitment in the team / employees, removing boundaries and exploiting all synergies available within the organization, adopting the servant leader model, communicating relevant information with transparency, having an open mind to foster collaboration. In terms of the contemporary competencies, the participating leaders emphasized on several criteria that they needed to develop and enhance. Some of these are: to have emotional intelligence and manage employees not only from the professional perspective but also be cognizant of their personal drives, this new concept of leading is a competency as it is not meant for any leader, learn and adjust leadership style as needed, have the courage to face and push failure, failures are not covered up and ashamed from, but learned from, to empower teams to take decisions, to be able to solve the team's argument, have the ability to communicate with stakeholders and experts who are involved in the transition to AI, embrace creativity knowing that system can never replace the man in terms of decision making, have global mindset, live new perspectives, exchange mixed cultures, travel, seek opportunities and take risks.

These competencies are very interesting as they represent the courageous leader who possesses a competitive style that fits the 21st century and ready to lead the 4th industrial revolution. Unlike the contemporary leader the traditional leader cannot survive in the digital era since it is marked by agility and new concepts of thinking. For instance, command and control is replaced by servant style, ego centric by less ego-centered, make decisions and tell people what to do is replaced by involve people and integrate their feedback into the strategy, empowering instead of micro-managing and so on. The traditional leader was depicted as an "endangered species!"

Conclusions and future work

It can be said that the main objectives of this research were successfully achieved, and the questions were answered with a generous amount of information obtained from the participating leaders. However, some limitations were faced especially with the last question that was about the difference between the traditional and the contemporary leaders. The interview questions were more focused on the change and how leaders are managing to overcome the periods of change, and then the impacts of the changes by means of implementing the new AI technology, so through these discussions, the attributes of the contemporary leaders versus the traditional leaders were discussed

limitedly. Thus, when the last question was asked, the interviewee felt like this has been discussed during the interview. It is worth to mention that the interview experience with those leaders from different parts of the world highlighted and confirmed some of the research readings of the project.

The main implication of this study is that by identifying the critical areas of struggle of real managers, we can already frame the compelling issues and steer the research towards the most promising directions for providing them with relevant support. Although continuous change has always been central in period of transition, combined with the disruptive power of AI, existing practices could not be enough or well-adapted such as mere re-training or acquiring technical skills. It seems that AI transition might affect deeply the organization in its global structure and the staff's mindset. Therefore, current practices dealing with continuous change need to be reconsidered to face the specific challenges outlined in our research.

Future work includes to deepening the research in order to elicit more insights about the digital transition in the enterprise due to the spread of Artificial Intelligence technology. We aim at understanding the specificity of different industries such as the IT/Services sector, the BioTech/MedTech sector and the Manufacturing sector.

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