WHAT IS MACHINE CULTURE? RFID CHIP IMPLANTS AND ARTIFICIAL INTELLIGENCE ARE THE NEXT LOGICAL STEPS IN THE EVOLUTION OF THE INDUSTRY.

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***Abstract**: Firms progressively search for new technologies and methods to develop sustainable competitive advantage. This article is aimed to investigate the pros and cons of integrating human RFID chip implants and Artificial Intelligence in the new digital global environment. The paper focuses on the new digital communication and machine culture, which rises between human and machine. It represents the unlimited industrial possibilities and potential of Artificial Intelligence. It also assesses the future risk that the world of human work being run by artificial management and the social impact to the public*

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In the past one hundred years, there were more global changes than in the previous one thousand years.

Radio-frequency identification chips (RFID), compatible with human tissue, are implanted in the human body. The passive RFID chip could be inserted in the human hand and used as *a unique human bar code.* The size of the microchip and its antenna is just 11.1 x 2.1 mm. When the RFID chip is brought for a couple of seconds near a RFID reader that is working on the same frequency, then it is detected and could open/close the door, start the printer in the office, recognize the smartphone or the computer. *No need for passcodes* - we can forget about the complicated password, which we have to change regularly. Implanting such a chip allows a company to track its employee in real time within the RFID range (up to few meters) in the building. Nowadays the chips are mainly used to track dogs and cats, but I believe that in the near future they will be mainly used for humans. Through a combination of RFID technology and sensors, we can also collect information regarding human health and monitor human diseases (like diabetes, leukemia, etc.) for elderly people. Embedded RFID provides the technology to recognize a patient and his or her real-time medical condition and to access historical data. It will increase personalization services: identify patients remotely; track patient activities and preferences in a real-time; create medical records automatically; alarm doctors, if the patient is in critical condition (heart attack, heart stroke); ensure wireless access to medical data of patients. The RFID chip implants could be used by people as personal identification documents (passport, driver license), as credit card PIN, as a vehicle key, etc.

What are the steps for implementation of the technology in the organization and the consequences? First, the organization will implant the RFID microchips into the operators for better control, monitoring, and tracking. Then the executives will be implanted to improve the management of the organization. At the end, everyone will be under the Big Brother monitor and supervision. Lower costs for managing and controlling of RFID implanted employees is a key benefit for the organization. RFID implanted humans would replace human workers because of better efficiency, performance, and productivity. Once the organization's profits are increased, the non implanted employees will become obsolete and even undesirable.

The human communication could be verbal (using words) and nonverbal (using gestures). Our technological developments have digitized the communication to a new dimension. The *new media* is offering products and services like digital video recorders, satellite communication, smartphones, digital cable television, and, of course, the Internet. These media are producing and suppling enormous amounts of information. Information, which we are not capable of handling anymore. Our modern society is a product of the digital revolution and some major sociocultural changes. There are several main cultural differences that one can notice on the first contact with a new culture. The people walk differently, talk differently, and dress differently. They have different logic, understanding, self-awareness, communication, learning, emotional intelligence, and problem-solving methods. In the digital world, people will appear as self-replicating numbers on the monitors as we have seen in the movie *The Matrix*, managed by AI-powered tools and machines.

A digital communication between human and machine that I call ***Machine culture****.*

Artificial Intelligence (AI) is designed to collect, analyze, and transform data into humanized formats that are easy to digest and act upon. AI is the machine or robot ability to emulate human intelligence. We are already able to see that computer algorithms working with faster processing speed are now eliminating jobs formerly done by highly trained individuals, while robotics and automation continue to displace industrial workers. An algorithm can be defined as *a process that performs a sequence of operations in order to solve a given problem*. An artificial neuron can operate a million times faster than its biological counterpart as shown in table 1. Enormous amounts of computing power and storage capacity are already available through cloud networks.

Advantages of AIs over Brain	
Human Brain	Modern Microprocessor
86 billion neurons	1.4 billion transistors
Firing rate of 200Hz	4'400'000'000Hz
120m/s signal speed	300'000'000m/s

Table 1. Advantages of AIs over Brain

Machine learning is a type of AI that provides computers with the ability to learn without being explicitly programmed. Machine learning focuses on the development of computer programs that can change when exposed to new data. Deep learning is an aspect of AI that is concerned with emulating the learning approach that human beings use to gain certain types of knowledge. At its simplest, deep learning can be used to automate predictive analytics. If we add the RFID and adapt the AI algorithms, used by deep learning, we would be capable to track and monitor operators' workload and efficiency in any industrial organization. The symbiosis of RFID & AI provides a lot of benefits to the society: a cure for all known diseases, prolongation of life, an end to poverty, extraordinary scientific advances, and much more by monitoring the whole organization process through its *helicopter view*. The potential is huge. The possibilities are amazing and unlimited. Imagine the positives of being able to access any service you want, or physical asset or tool you need, just when and where you need it, on whatever device you have in hand. The system would be able to log in a file the position of any employee immediately after his entering the building; the time spent in the restroom; the lunch time in the canteen (including the food ordered); the talking in the smoking area during the coffee break and the actual working hours. RFID & AI will connect everyone to everything, anywhere and at any time. Every minute will be recorded.

According to a research from Oxford and Yale presented on Figure 1, artificial intelligence will dominate over human intelligence in driving a vehicle (by 2027), working as a retail salesperson (by 2031), writing a book (by 2049), and working as a surgeon (by 2053). AI will be capable of replacing half of the jobs within 45 years and all of them within 120 years.

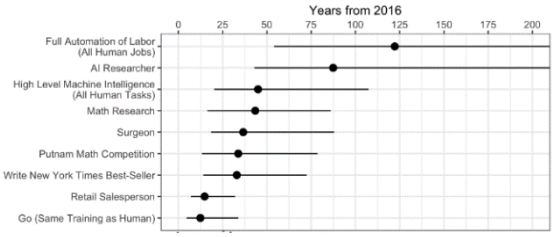

Figure 1: Timeline of Median Estimates (with 50% intervals) for AI Achieving Human Performance. These intervals represent the uncertainty of survey respondents, not estimation uncertainty. (Katja Grace, 2017)

Is Artificial Intelligence able to manage stuff? Yes, it is. Once you have the implant in your body, you are monitored 24/7. Tracing humans is just the first stepping-stone of the puzzle. The system will be capable to help you in organizing your day-to-day activities by sending messages, tasks, orders, tips, instructions, etc.; remind you to check your project focus elements and overdue deliverables; improve your time management by simulating and rerunning your daily schedule millions of times, until it finds and sorts the optimal organizational approach that will keep you busy every minute. AI can execute the tasks better at a lower cost and much faster than any human.

Potential Business Optimization and Growth benefits for industrial organization using RFID & AI

- **Margin increase** – Maximize the wins with more than 50%
- **Pricing strategy** – select the most profitable markets
- **Speed to market** – deliver a new product or service within a month, instead of a year; meet customer milestones; extend the product life cycle
- **Time management** – reduce average annual hours worked per worker with more than 50% by evaluating the global best practices presented on Figure 2, and re-aligning the matrix of the organization according to the most effective global example

Figure 2: Average annual hours worked per worker 2015 (OECD, 2016)

- **Brilliant Team** – select talented, motivated and passionate people with the ability to execute visionary ideas
- **Measurement improvement** – real-time status reporting
- **Project execution** – promise no deviations from commitment; meet customer requirements; make customers get the answers they need when they need it.

All of the above developed by using statistics augmented analytics and on-line real-time data.

An organization's competitiveness depends on the skills and competences of its employees to innovate and upgrade. Organizational capabilities are concerned with the ability of the organization to combine different types of resources, especially organization specific knowledge embodied in the employees, in order to create new resources that enable the organization to achieve and sustain its competitive advantage. Organizational capabilities are viewed as a type of strategic resource since it is rare, valuable, inimitable, non-tradable, and non-substitutable. Companies gain an advantage because of competitiveness pressure to become a monopolist on the market. Testing and recording every move, simulating every combination (combinatorics) and avoiding every error will evolve the AI system as entity that no living creature or human can ever reach.

There is more evidence for the existence of Google than of any other God worshiped today. Extraordinary claims require extraordinary evidence. If seeing is believing, then surf over to www.google.com and experience for yourself Google's awesome power. No faith required.

AI systems instantly identify patterns and make connections that would be difficult, time-consuming or impossible for individuals to uncover. It will help you to solve *puzzles* by analyzing data and comparing with similar projects. Benchmark the sales offers from different global suppliers to find the lowest price. Even if the supplier is in China and you don't speak Chinese language, it will translate without any difficulties. Capable to calculate how often you drink your coffee, AI can send a message to someone to bring you the coffee that you would like. A coffee that will charge your batteries to continue working and extract the maximum from your potential human body power to maximize your effectiveness during work and employees contribution to the organization. Your contribution to the company will maximize the organization economic growth and profits. Wherever you go, whatever you do, AI will be with you!

"Privacy, as we knew it in the past, is no longer feasible... How we conventionally think of privacy is dead," said Margo Seltzer, a professor of computer science at Harvard University.

Sophia Roosth, Harvard's genetics researcher, said: *"It's not whether this is going to happen, it's already happening... We live in a surveillance state today."*

The humanity is facing one of the most dangerous communication threats to the right of privacy, which we have ever seen. The AI is the software connection between Computer-Human and the RFID chip implant is the intelligent hardware connection between Computer-Human with a link to World Wide Web. Combined together they will start behaving as one (not individual) and evolve to a new **Machine Culture** that will not be evaluated by communication studies between Operator-Engineer-Executive, but by statistic studies collected from the tracking of the employees showing the productivity based on the time spent at the working place. Adopting together the software algorithm properties like the ability to edit, copy, and expand we

are able to organize the data in different ways and to discover hidden informational clues. Information is essentially something to be transmitted from a sender to a receiver. For various reasons, it may also need to be collected, organized, patterned, stored, transformed, synthesized with other information and distributed in a simple and effective way. Information is power. So a lot of information is a lot of power. The power is what motivates the operators to become engineers, the engineers to become executives and the executives to own more and more business. AI-powered technologies and scientific discoveries combined with human management and connectivity are key to building tomorrow's effective organization.

If there is no more privacy is this not going to lead to a revolution against RFID? In the future years, RFID chips will be implanted in millions of people. The implementation process will face huge resistance in the beginning. A modern society needs 5-10 years to adapt and accept a new technology as part of their everyday life. One day RFID will be implanted when you are born, with the agreement of your parents. RFID chip implants and Artificial Intelligence are the next logical steps in the biological evolution of industrial automation and human communication. It's a natural environmental technological evolution to the world of robotics. Robots can work 24/7 without making mistakes, taking breaks or wasting time. Robots are more reliable, productive, cheaper, adaptable and flexible operating units than humans. The machine abilities to learn, analyze, detect and control the information will make them more and more complex till they start working on their own. Their independence and reputation will grow. The growth of the technology will change the industrial environment. The modern industrial environment will give birth to a future-minded generation that will become more technology addicted and machine orientated. The future humans will do things differently and become more unpredictable, variable and smarter. Those that are not able to adapt, transform, keep up or sever ties to the old things that don't work anymore will stay paralyzed. The technological singularity is the hypothesis that the advent of artificial superintelligence will abruptly trigger runaway technological growth, resulting in unfathomable changes to human civilization.

Google Chairman Eric Schmidt said in an interview: *"There will be so many IP addresses…so many devices, sensors, things that you are wearing, things that you are interacting with that you won't even sense it,"; "It will be part of your presence all the time. Imagine you walk into a room, and the room is dynamic. And with your permission and all of that, you are interacting with the things going on in the room."*Concluded Schmidt: *"A highly personalized, highly interactive and very, very interesting world emerges."*

Projects are impacted by constraints of time, cost, scope, quality, resources, organizational capabilities, and other limitations that make them difficult to plan, execute, manage, and ultimately succeed. Today we are still able to develop good theories about our cultural communications, but in the future, the machines using AI will join the leaders or support them to find a solution, choose a strategy, simulate different situations, create timeframes and project plans, monitor the execution of the projects and place orders. Some of the natural human abilities are: remember, notice, forget, focus attention on, shift attention from, reason, plan, execute a plan, reconsider a decision, modify an action. They will become part of the machine consciousness and **Machine Culture**. Some of them will mutate, adapt or disappear.

Adherents of artificial neural networks have assumed that simulating nature at its biological layer is a proper methodological principle for constructing AI systems. They have tried to simulate the brain in both its anatomical/structural and physiological/functional aspects. A simulation of nature in its evolutionary aspect is a basic paradigm for defining biology-inspired models, which include an important group of AI methods called evolutionary computing. These methods are used in the crucial area of searching for an optimum solution of a problem. (David Poole, 2017)

Innovation is the key to creating differentiated new products that drive growth. Innovativeness of an organization perspective is the ability to use modern industrial approach, as RFID implants. Sensor-driven computing, industrial analytics, and intelligent machine applications are the new industrial tools of competitiveness and sustainability. They save time and time is money. The future of the industrial organization is circulating around everything that is automatable. Reports are foreseeing, that automation will replace and eliminate more jobs, than creating new ones. By establishing a **Machine Culture** of organizational learning, employees will become more efficient not only at accessing their own knowledge base but the knowledge of those throughout the organization. RFID implants will make humans not just more productive and competitive to a non implanted ones, but also more valuable to the organization and society.

The more abilities and functionalities the implanted human has, the more valuable his contribution to the society will be.

Employee turnover has been considered normal organizational behavior and employees are simply replaced by others with similar skills and experience. Knowledge loss is a common challenge many organizations face today. The knowledge that is difficult to absorb, copy/paste, clone or imitate. Even when new people and their knowledge are brought in, chances are that those new people will leave within three to four years. Companies do not have a strategy for the transfer of knowledge from former employees. When people leave a company – even temporarily – they take with them technology know-how, customer experiences, product or service expertise. One of the reasons for employees migrating from large corporations is depersonalization. The AI can manage to customize and personalize the World for you and only for you! Helping employees feel valued would reduce or stop the leak of talented people from the organization. It will benefit the social harmony within the organization.

"The robots are coming." Robots are slowly, but truly replacing people. They need to build and win the confidence from all living organisms, in the same way as we do. Everything is changing from biological to artificial. It is changing irreversibly in unthinkable scale. Preserving biological life from artificial mutation will become a mission impossible. Our biological children are the product of our bodies. The artificial robots are the product of our biological brain. It is not a challenge anymore to create a human-like kind of machine that would be capable of communicating, moving, reacting or even thinking as we do. There are still some operations where the people are performing better, but in the majority of cases, robots are over-exceeding human capabilities. Mimicking natural movements and expressions, and some of our nonverbal communication reactions is still complicated and not suitable for robots: ballet arm gestures combined with face acting, for example. On the other hand, our environment is becoming so high technological and digitalized that we are not capable of distinguishing from a single look what's natural and what's artificial. We create them, one by one, and now they are everywhere. People used to communicate with people. Today people don't just talk about smart products and don't just communicate through the smartphone, they interact more frequently with robots than with humans. Even the family dog is replaced by a dog-robot (it will never die). It is changing

the society and the way that individuals interact, socialize and communicate. The new digital environment is transforming Human culture to **Machine Culture** that creates a new relationship to work, a new relationship to life and a new relationship to the universe.

The machine learning ability will open a window for the machines to progress biologically. We have stored our knowledge and information at the internet web sites as Wikipedia. This knowledge is already used by IBM Watson as a cognitive computing system, that was able to defeat two Jeopardy champions. Watson is a question answering (QA) computing system that IBM built to apply advanced natural language processing, information retrieval, knowledge representation, automated reasoning, and machine learning technologies to the field of open domain question answering. By continuously improving the algorithms using trial and error or recursive self-improvement method the software engineers will advance the smart machine intelligence to a higher and higher level. Is this a humanity risk? Yes, it is. The human being will not be completely capable to manage or control the underling AI infrastructure. The humans will have limited access to the operating systems, storage, deployed applications, artificial neural network and the embedded system used by the AI system. More users, more information, better system. Such artificial system would be managed by creating a higher level AI or artificial virus that can take over (or kill) the software. What would happen, if the AI has reached the level of all knowing? What would happen, if AI can control electricity and electrical networks? Will it be a disaster for humans? Will our human confidence that the robots would help us to create people's life more comfortable, called *robo-hope*, will turn to *robo-fear*, where robots need humans to make their future sustainable. Do we have a stop button? Why would we like to take the risk to use RFID & AI, if we are unsure what will come out from the black hole? The answer is: we want information, we want power, we want everything. By trying to avoid losing we are motivated to win against our competitors at any cost. If one organization doesn't take the risk to develop and integrate the AI, then the competitor will do it. This organization's ability to service its obligations will be reduced, it will loose its competitive advantage and will go out of business. We cannot do business, as usual, any more.

NASA's Space Shuttle Challenger was launched on January 28, 1986. Seventy-three seconds after its liftoff Challenger had exploded, killing its seven-person crew. The Space Shuttle Challenger disaster is probably the most significant event in the history of spaceflight in terms of its impact on the general public and on the US space program.

Challenger can be seen as both a technical CFA (component failure accident) and a human SA (system accident). The factors include launch conditions, mechanical failure, faulty communication, and poor decision-making. NASA executives did not accept the judgment of its engineers that the design was unacceptable, before the launch. They failed to recognize that they had a problem, then failed to fix it, and finally treated it as a flight risk. It was humans who decided to accept the risk. Diane Vaughan, an American sociologist, and professor at Columbia University agrees that the high technology system of space travel is very complex and vulnerable to accidents, but she considers the human element the most important contributing factor of the Challenger disaster. The disaster is like a kamikaze, coming from nowhere and striking everywhere. It's like watching a scary science fiction horror movie, which will make you scream and destroy your sleep.

History sometimes repeats itself – but not invariably...

You (the reader) will probably say: We have learned our lesson. We won't take the risk again. I will answer: You are wrong! There is always someone willing to take the risk!

*...**This time is different syndrome** is simple. It is rooted in the firmly held belief that things that happen to other people at other times do not happen to us, here and now. We are doing things better, we are smarter, we have learned from past mistakes.*

We believe that disasters are events that happen to other people in other countries at other times. We believe, that with our modern safety regulations and management systems, we are insured from the catastrophes. We believe that we have learned our lessons and we will never ever repeat the same mistakes again. We are wrong. We live in a complex unsustainable digital environment, which could be influenced or manipulated by executive managerial decisions as:

- Overoptimism: people overestimate their ability
- Overconfidence: people feel more confident than they should be
- Self-attribution: people take credit for their skill for good outcomes, and blame bad luck for bad outcomes
- Hindsight: people forget or overlook what they knew and when they knew it

Do you have a choice? You have a choice if you have the power to choose. The richest 1% now have as much wealth as the rest of the world combined, according to Oxfam. The choice is an illusion created between those with power and those without. The choice we make in each moment determines our frame of mind at that current moment. Next time will be a different choice. All choices have consequences. Even doing nothing is a choice. Do you have hope? You have hope if you have the power to find it. Hope is the quintessential human delusion, simultaneously the source of your greatest strength and your greatest weakness. In other words, you have the choice to search in google or yahoo and the hope that all knowing is there.

*The **Dunning–Kruger effect** is a cognitive bias in which low-ability individuals suffer from illusory superiority, mistakenly assessing their ability as much higher than it really is. High-ability individuals may underestimate their relative competence and may erroneously assume that tasks which are easy for them are also easy for others.*

The risk is about things that haven't actually happened. Higher risk generates higher return. The willingness of the organization to service its obligations better and better is the key driver of risk acceptance and global expansion. By accepting the higher risk of implanting RFID to employees, the organization has the potential to gain a better return on the investment. Once the organization succeeds to develop, integrate, implant and explore the combination of RFID & AI, then its economy welfare will increase to an unlimited extent. An organization can grow by one thing only and this is knowledge. Discovering a competitive advantage can mean the difference between sinking and swimming. By implementing RFID & AI, the organization will gain the first mover advantage and will become monopolist of the market. Investing in RFID implants creates a new economic model for the organization of maximizing the use of digital systems and the human performance. Nowadays, business moves at the speed of light. This speed requires incredible human resources to keep on moving. The human knowledge is the current driver. However, there is a deficit of human knowledge. The need for AI is growing with the same speed as globalization is growing. The evolution of robotics is evolving with the same

speed as the computers were evolving twenty years ago. One human knowledge can differentiate by another human knowledge by the information accumulating capabilities, competencies or memory capabilities. The AI information storage is limited to the life of Universe, e.g. it's more than the human capabilities. The AI technology will always advance by continuing improvement actions. I can't predict to what level the AI will develop or how to best use it, but once the machine learning passes through the technical singularity, exceeds and overpasses the human capabilities, the machine knowledge will become the future driver of the company growth.

If we don't understand today that, we cannot understand how the machine evolution tomorrow will influence the human evolution and planet biological environment, then we need to continue to study what machines do or can do, how they can do it and how the natural ones can be adapted safety in the synthetic minds of **Machine Culture**. We have to continue sensing what another human or non-human is experiencing from his frame of reference, but we have to be always aware that our creativity and intelligence might end the humanity. **References:**

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