PATRICK NICOLET

Group Executive Board Member, Capgemini

Ali ASLAN

We have had policy makers, international organisation, innovators and now, Patrick Nicolet of Capgemini, will give us the industry perspective on a subject which I am sure you and your colleagues have thought about a lot.

Patrick NICOLET

Capgemini is the largest IT services company in Europe, so I will present the practitioner view. Before that, I will express my absolute personal conviction that, as Holger highlighted, machine-performed tasks will never replace human beings. That is a lack of clarity in our taxonomy today when we discuss Artificial Intelligence and the age of the machine, when it comes to it a machine is a machine. When you look at the components of machines, especially in Artificial Intelligence, it starts with algorithms, which are at the heart of the technology. An algorithm is a mathematical answer to a clearly defined problem, which may or may not be complex, for example, a salesman's trip, and sorting data. Then, you have a lot of technologies around it, like speech recognition, natural language processes, semantics, biometrics, deep learning swarm technologies, which is about how drones fly together for example, chatbots, etc. However, at the heart there is the algorithm, which is both a strength and a limitation.

What do we see now in terms of implementation in enterprises? The first step is something that started with the first industrial revolution, which is touch and move. We started not with robots, but with automation, because for economic reasons, it is better to invest in technology that does something simple and repetitive, so that you depreciate your investment much faster. Then came more sophisticated robots and expensive robots that painted cars in assembly lines. Now, we have developed capabilities so that they can interact and co-work with human beings, with everybody having a task. This was the first human sense, because all these tasks can be categorised along human senses. These were the first and they have been around a while and they are gaining pace in information technology. The first deployment of Artificial Intelligence was called Robot Process Automation, which is just doing a script that another programme asks you to run, and it is very simple and repetitive.

The next era which is coming, and the second sense targeted by Artificial Intelligence, is based on the sense of listening and talking. This is the most advanced in terms of technology development and when you discuss with people from vendors' R&D, such as Microsoft, Google and other in that space, they believe than in five years from now, speech recognition and language capabilities from machines will be better than human beings, who all make mistakes when they speak, interpret, and understand. Today, it would be a huge leap because when you ask your phone with Siri, Android, etc., the rate of response is 30%. Of course, if you ask what the weather is like in Marrakech, you will get an answer. If you ask a more complex question you will not; you will get a polite answer but not the one you want. By the way on a sociological note, virtual assistants are very polite, which creates problems with human interactions afterwards. That is the first area of development, which is attached in terms of activities to everything related to call centres, help desks, which is an important part of the activity.

The third development, watching and monitoring, is more than 10 years away and again the timeline is defined by when the technology will be better than human beings. You have seen a lot about face recognition and what you can do, and it will completely change elements related to cybersecurity. However, in terms of what vision can do now, it is used to perform self-healing. That means you can detect faults in hardware or systems through this technology, and then anticipate and automatically launch system self-healing. There are big developments, as you know, in cybersecurity, because this is a much more advanced capability than we have today, notably when it comes to identifying human beings. There is a start-up in India called 3Di, where you can open a bank account just looking at your screen and the recognition means you do not have to touch your computer. You talk and move, and the machine recognises you and it is good enough to go. This is the next development ten years from now, but it will accelerate.

The impact on employment will be more limited than the first two, because everything that is about moving and touching, and about listening and talking will have bigger impact, while here it opens a new field.

The next area is about knowledge and in my view, this is a big revolution. As human beings, and Google started like this, we used to build libraries or knowledge repositories. In fact, with AI, this is meaningless. You do not need to build a repository, you need to build the ability to ask the question and access the data wherever it is. Yesterday, we had a question about too much data, about fake news, and there is a lot of structured and unstructured data, and the structured data is not structured in the same way everywhere, so you can regard it all as unstructured. You scroll through all this data which has increased enormously and 80% is totally irrelevant, but it is produced by the machines. I will come back to this because it has profound implications for education and the question of how you build you knowledge.

The next area of development is analytics, which is another human capability. Here we started with so-called business intelligence, which is trying to understand patterns from structured data. That is historical, analytics are forward-looking, so you must understand trends and adapt to it. There is quite a lot of progress being made here and a lot of the human machine interaction is driven by analytics; the type of service you offer, the customisation, etc. Primarily, this is what is changing the business model for all industries. In analytics, you also have machine learning, where you can programme a machine to learn by itself how to do a task. You have probably all read about the big breakthrough, AlphaGo Zero from DeepMind, a Google subsidiary. It is a machine that could learn the game of Go, without human interaction, because when you launch a robot, you always have human beings to help it, that is the 30%, 70% questions. What you do when you cannot answer the 70%? Someone does it and then the machine learns from the answers and progressively improves. AlphaGo Zero is a real breakthrough, because this machine began to learn the game of Go, without human interaction or training. That is a new frontier and we will see what happens next.

These are the areas where we see the application. Thanks to Thierry, I have been able to attend sessions of this type two times before, so I have talked about the impact for employment and the social impact. However, I think the biggest one will be on education. Mari alluded to it to, and I am convinced that it starts at the very earliest age. The way we look at the world compared to the past is fundamentally different and the type of work organisation will be completely distributed, so the hierarchical, social model, none of our institutions are geared to address these elements. I will stop here.

Ali ASLAN

Thank you, Patrick. I think we have listened to four very intricate and diverse presentations, as far as where this field of AI is going to take us. We have had risk versus opportunities. We have had opportunism, if you will and optimism, versus some slightly pessimistic remarks. I am looking at the time, we have approximately 20 minutes left and with your permission I would like to take the opportunity to call on some individuals in the audience to address the panel.