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Intelligent Industry: The Next Era of Transformation

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The CEO Corner
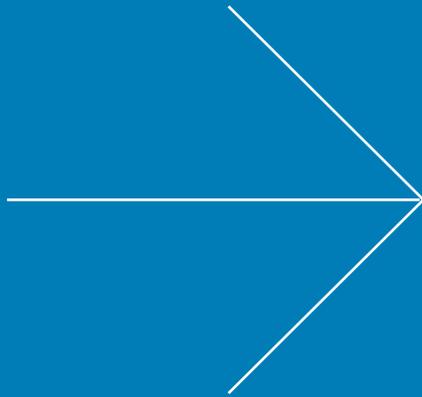
Börje Ekholm
President and
Chief Executive Officer,
Ericsson

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In discussion with

Aiman Ezzat
Chief Executive Officer,
Capgemini

Capgemini

Börje Ekholm
President and Chief Executive Officer,
Ericsson

Börje Ekholm has been president and CEO of the Ericsson Group since January 16, 2017. Prior to this, he was CEO of Patricia Industries, a division of Investor AB and his previous positions include president and CEO of Investor AB between 2005 and 2015. He is a board member of Telefonaktiebolaget LM Ericsson, Alibaba Group, and Trimble Inc.

Aiman Ezzat
Chief Executive Officer,
Capgemini

With more than 20 years' experience at Capgemini, Aiman Ezzat has a deep knowledge of the Group's main businesses. He has experience working in many countries, notably the UK and the US, where he lived for more than 15 years. Aiman was appointed CEO in May 2020. Before that, he served as the Group's COO, from 2018 to 2020, and CFO from 2012 to 2018. Aiman is also on the Air Liquide Board of Directors and is a member of the Business Council.

The Capgemini Research Institute spoke to Börje and Aiman to understand how the new era of digital transformation will look like, the role of connectivity technologies in shaping this next phase of transformation, and the new business models likely to emerge in the coming years.

ACCELERATING THE TRANSFORMATION

What will the next phase of digital transformation look like and how do you think it will impact global industry?

— **Börje:** Over the last few decades, organizations have focused on incremental changes and driving traditional operational efficiencies. I think that initiative has run its course. A much more fundamental transformation is going to be needed, where we use emerging technologies in a completely new way. That will involve digitalizing production and re-engineering whole processes.

It used to be that enterprises had to make a choice between more reliable but restrictive fixed connectivity and lower-performing wireless connectivity. Today, we don't need to make that trade-off of agility versus performance. High-performance, energy-efficient wireless connectivity will be instrumental in digitalizing enterprises and is going to have a similar impact to that which wireless connectivity had in digitalizing the consumer experience.

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>
> Börje Ekholm

— **Aiman:** We coined the term "Intelligent Industry" to describe the next generation of digital transformation. Intelligent Industry is about fostering synergies between the digital and engineering worlds to help companies build intelligent products, operations, and services, at scale. Intelligent Industry brings together engineering, IT, and digital and thereby allows a convergence of the physical and virtual worlds.

We can, for example, now integrate a physical factory with its digital twin and use sensor data, machine learning, virtual reality, and cloud-based technologies to improve production efficiency and to imagine new products and services.[1]

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Aiman Ezzat

The unprecedented developments in and demand for a number of technologies is helping industries redefine themselves. They are now creating intelligent value chains and developing new ecosystems, such as mobility, smart cities, and connected healthcare. This, in turn, will allow organizations to transform their products and the processes they use to deliver those products. On top of that, they will be able to surround these products with an array of new, data-driven services.

ROLE OF 5G

What is the role of 5G in transitioning to this next phase of transformation?

— **Börje:** I think 5G is critical, but it is not only 5G; it's the convergence of cloud technologies, big data, artificial intelligence (AI), IoT, and 5G at a critical juncture in time. 5G is like a horizontal platform that allows enterprises to innovate on top of it. The fiber-fast speeds and performance characteristics of 5G form the basis of this next era of transformation. This transformation would not happen if you removed 5G connectivity; equally, it wouldn't happen if you removed cloud, so there is more than one vital element.

1 Capgemini, "See benefits of building digital twin of your factory with Capgemini," August 2021.

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The convergence of cloud technologies, big data, AI, IoT, and 5G is critical to the next phase of transformation"

Börje Ekholm

— Aiman: 5G is a key catalyst in driving Intelligent Industry. The massive machine-type communications and the ultra-reliability that 5G provides allow industries to accelerate the digitalization of their core processes, at scale. Today, 5G is enabling diverse applications, such as remote monitoring, video-based inspection, predictive maintenance, AGVs (automated guided vehicles), and cobots (collaborative robots designed for direct human interaction). It also allows organizations to learn from its data, thus maximizing performance and creating real business value.

What are the most promising use cases of 5G in the industrial world?

— Börje: In manufacturing, for example, the seamless, ubiquitous connectivity provided by 5G allows a different level of automation, improving productivity. We are starting to see completely remotely managed factories, for instance. Drones are another area where I see significant potential. Wireless connectivity is changing the way we conduct inspections and manage security. Mines are utilizing wireless networks to connect all the machinery they use, not just for increased productivity, but also to improve safety. There are significant improvements in drilling capacity and a reduction in fatalities and injuries. In ports, it is now possible to track every container. We also have AGVs that move the containers and goods around the ports, leading to significant efficiency gains.

What needs to change to accelerate 5G adoption within industrial organizations?

— **Börje:** Telecom companies need to take an active role in demonstrating the benefits of 5G within the customer environment. They should also develop and make available a portfolio of solutions to address each of the various network-deployment scenarios. Professional-services companies also have a role to play here in providing manufacturing and industry-specific expertise, and in driving connectivity solutions based on customers' needs. We work together to bring this power of connectivity to enterprises.

— **Aiman:** Among industrial organizations, early adopters of 5G say they have already achieved greater operational efficiencies. Despite these positive outcomes, our research shows that industrial 5G adoption is still developing, with just 30% having reached the pilot and implementation stages.[2] Challenges such as the lack of 5G devices and difficulties in identifying the most appropriate use cases and in accessing vertical-specific solutions are obstacles to 5G adoption. If they want to fully leverage these opportunities, industrial organizations should get a clear understanding of 5G's capabilities and build a business case for its adoption as soon as possible. This business case should be followed by a multi-year roadmap that incorporates a network roll-out plan, the launch of new applications, and migration of existing applications. They can also actively work with other players in the ecosystem, including telecom companies, service providers, and startups.

> **Among industrial organizations, early adopters of 5G say they have already achieved greater operational efficiencies."**

Aiman Ezzat

2 Capgemini Research Institute, "Accelerating the 5G Industrial Revolution: State of 5G and edge in industrial operations," June 2021.

INTELLIGENT OPERATIONS AND SERVICES

Could you share some best practices and lessons learned from Ericsson's manufacturing facility in Tallinn, Estonia or the 5G smart factory in Lewisville, Texas?

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Börje Ekholm

— **Börje:** We live in a world where manufacturing is done offshore and then the products are shipped to consumers. But, by bringing in new technologies, we can manufacture closer to the end consumer, thus driving efficiency; it is much easier to transport components than to ship finished goods. When we announced the plan for our factory at Lewisville in 2019, the idea was to be closer to our end consumers, the operators in the US. This factory is now recognized as a "global lighthouse" by the World Economic Forum, based on the technologies deployed and the impact they have had.[3]

What have we done there? We employ all the latest communication technologies. We have invested in AGVs, digital twins, and augmented reality (AR) to improve operations. The lessons learned from this factory operation have a broader significance for manufacturing companies, too: they ought to rethink their manufacturing footprints.

What are the new service or business models that you see emerging in the coming years?

— **Börje:** I think this is yet to be defined. But just as sharing and renting models are becoming prevalent in the B2C world, we may start to see more "as-a-Service" models in the B2B space. Cloud is already delivered this way but other products, be they machinery or parts, will also be sold more through a service model. This is already happening for jet engines, air

3 Ericsson, "Ericsson USA 5G Smart Factory recognized as 'Global Lighthouse' by the World Economic Forum," March 2021.

compressors, and smart lighting systems. This model benefits customers, as they can use a product for a fraction of the upfront investment required to purchase it. Manufacturers can continue to offer enhancements to the product by offering the customer software updates. But the sustainability of these business models is only driven by the benefits generated, and it all comes back to the question of how you create value for the end consumer. However, I do think sharing models are going to be more prominent going forward.

— Aiman: With the rapid development of IoT, cloud, AI, and 5G, "servitization" is definitely in the cards. The vast amounts of data that organizations are able to collect and analyze, supplemented by the data they are sharing with their ecosystem partners, means they are better positioned to offer data-driven services associated with their products. This shift from "product" to "product + services" will open up new revenue opportunities for organizations. At the same time, organizations will have an even greater need to ensure that customers' expectations are met. For instance, if an organization is using Robotics-as-a-Service for their warehouse operations, it will expect the service to deliver higher productivity, since the manufacturer of these robots has the means to monitor these robots and proactively address potential maintenance and performance issues.

BRIDGING THE TALENT GAP

How is this new phase of transformation redefining the skills that employees need, and will organizations be able to bridge the skills gap?

— Börje: This is a crucial aspect of the digital transformation and there is a big skills gap. The consensus in our company is to take investment to the level required to ensure we have the right skills for the future. The skillset required for an operator in the new working environment will be

very different from that of someone working in a factory a few years ago. We have to ensure that skill shift is a part of our OKRs (objectives and key results), and we should have clear plans to execute them by understanding the value they bring to us, individuals, leaders, and company. There is also a need to invest in the education system to provide the market with new capabilities in the long term.

— Aiman: As Börje mentioned, there definitely is a talent gap in the market today. Organizations are turning to upskilling initiatives that not only boost employee morale but also result in long-term savings. They need to look at their technology investments and assess their impact on the workforce; identify the skillset that's going to be in demand; and develop a learning plan to meet that demand. There is lot more work that needs to be done across sectors on upskilling, however. At Capgemini, we reskill people every 18 months on average and we are increasing the number of training days per person.

SUSTAINABILITY THROUGH TECHNOLOGY

How can technology aid an organization's sustainability efforts? Can you share some of the best practices from your organization regarding sustainability programs?

— Börje: The biggest issue the world faces is the climate crisis. At Ericsson, we have said that we, as a company, should be carbon-neutral in our own operations by 2030. But, I am challenging us to beat that. We have reduced our own carbon footprint by 70% over the last decade, since 2012. But, given what we know today, we can do more, faster.

Our 5G factory in Lewisville is now powered by 100% renewable electricity, partly from onsite solar energy, but we're also buying certified renewable electricity from the utility grid. It's all about using as much renewable power as you can and thinking about the efficiencies we can produce. Secondly, we use 25% less energy here than in our other factories. It's clear that new technologies are not only driving labor productivity, but also energy productivity. We have reduced indoor water usage by 75%. These things are important in driving sustainability.

We also invest a lot in making our own products more energy efficient. We call that "breaking the energy curve." Every mobile generation in the past has increased energy consumption. With 5G, we think we're at the point where we can accommodate the likely increase in data demand without using more energy.

100%

Ericsson's 5G factory in Lewisville is now powered by 100% renewable electricity, partly from onsite solar energy.

— Aiman: At Capgemini we are committed to becoming a net zero business, and will be carbon neutral by 2025. And as an organization connected to so many large players, we can have a really strong impact well beyond our company. To achieve a sustainable future, collaboration with clients, suppliers, and other stakeholders is a must. We have among the most ambitious offerings of the market that can help our clients reduce their carbon emissions. For example, we built a platform using cloud and AI for European scientists, public authorities, and industry representatives to better explore information from the European Space Agency (ESA). This platform looks at indicators such as air quality and spread of deforestation, and facilitates decision making in near-real time. It has multiple applications, from analyzing rice crops to predicting clean-energy production or monitoring natural disasters such as floods.[4] Today, organizations are definitely aware of the need to be sustainable, and technology is a key enabler.

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OUTLOOK

What does the evolution to 6G look like and what further technological innovations will 6G enable?

— Börje: We think there are a couple of demands that 6G is trying to fulfill. We call the first one the "internet of senses," where we will see a very tight synchronization between the physical world and its digital representation, leading to an immersive physical experience. Telepresence, for instance, is one such application where you can experience the physical world remotely with lifelike fidelity. This means users can interact with digital replicas of

4   Capgemini, "Capgemini takes a stance against climate change by developing tools to better understand our planet," January 2020.

other users or objects using multi-sensory interactions, extending the audio-visual experience with haptic [transmitting information through touch] or olfactory experiences. You can think of this as the ability to feel the fabric while you buy clothes. You could also see this being extended to immersive sports experiences.

The second demand 6G serves is connecting intelligent machines, allowing close interaction between the virtual and real machines; for example, interactive robots that you can configure as well as interact with. E-health is going to be big, too. We're going to see the emergence of completely new ways to track our health.

6G will allow us to build a sustainably connected world. While 5G allows us to do some of these things already, 6G will make these things monumentally better.

Börje Ekholm
President and
Chief Executive Officer,
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