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## Q&A-Five billion 5G subscriptions expected by 2028 with significant growth in emerging markets; R&D investments to continue: Erik Ekudden, Ericsson



Ericsson expects to see five billion 5G subscriptions over the next five years, with emerging countries such as India becoming key markets, **Erik Ekudden, Group CTO at Ericsson told the Reuters Global Markets Forum on Wednesday, January 18.**

“Big parts of Asia-Pacific are adopting 5G as the primary digital infrastructure, you can look at Latin America, you can look at Africa ... and in the most advanced economies there it's very much about 5G,” he said.

The Indian market could overtake Europe and closely match China in terms of volumes of 5G infrastructure soon, he added.

Ericsson also expects to keep investing and hiring to boost research and development efforts, Ekudden said.

Following are edited excerpts from the conversation:

### **Q: What is the status of the adoption of 5G by industries?**

A: We've already passed 1 billion 5G subscription at the end of last year. Our prediction is there will be five billion 5G subscriptions in five years time. It's skyrocketing when it comes to consumers using 5G. What was really interesting now is that we also see, partly from the pandemic and work from anywhere, that more are starting to prefer 5G because reliable network gives them a quality that they are expecting in their home for (Microsoft) teams and Zoom and so on. It is also picking up in the enterprise space. We have our own activities in smart transportation, smart utilities, smart manufacturing. We have our own factories being equipped with 5G. You get efficiency, connectivity, support of it, but what they really get is this better efficiency, better use of the resources and energy. Productivity goes up when you're using 5G factories. Also, in the enterprise space but this is never a quick thing because they have legacy systems (and) they need to start to modernize them, so that will take some more time.

### **Q: What is the status between developed countries and emerging and developing countries and where is the state of infrastructure support?**

A: We take digital infrastructure for granted, when we are now traveling and work from anywhere and consumers have enjoyed it for many years already. In the fourth era, they were digitalizing using mobile phones and the mobile technology. But the interesting thing is that the early markets for 5G rollout -- North America, Korea, Japan, Singapore -- they are now reaching high penetration when it comes to coverage. So you can expect 5G to work, if not pervasive, then very much out and about. India being one of the markets that started relatively later than the front running countries, but has in a very short time managed to roll out and deploy significant infrastructure in 5G already. Perhaps it's not so important to differentiate between very mature economies and emerging markets, it's more about the mindset for countries. Whether they want to leverage 5G as infrastructure because it creates jobs, connected societies, it's more about is it used as a tool it is meant to be or is it becoming just another mobile broadband? That's where we see some emerging markets really jumping into 5G as 'the' infrastructure for digitisation.

### **Q: Has there been any uptake in sale of standalone equipment over non-standalone gear?**

A: 5G comes in different flavours. The first step was rolled out was called non-standalone and it has a dependency on the already built out 4G network. That's more than 200 networks, that are using standalone. We have seen good traction when it

comes to standalone, which is sort of pure 5G. It's probably around 10% of the 5G networks that are today stand alone, so there is a big opportunity. But there's also a lot to do in terms of upgrading the networks to stand alone over the coming years, in fact, I think just 5G in its basic format, building 5G with what we call the mid bands, not existing frequencies that are used for 4G and early 5G, but the mid-band frequencies which is required for the high capacity, bandwidth and the latency. That has only been upgraded in terms of number of cellular sites in the world, around 20%. So it's 80% to go in terms of upgrading these 4G sites to have 5G capabilities in mid-band.

**Q: Does Ericsson have any targets on how quickly they want to cover that gap?**

A: I don't think I can give you a good timeline that that it applies across the world, but this will be a multi-year journey because even if I am very optimistic about emerging markets using 5G as a digitalization vehicle, of course they are 4G right now and it will be a number of years before they pick up in terms of 5G coverage so.

**Q: Just in terms of emerging markets, what is your focus in targeting those countries?**

A: I would say that, big parts of Asia-Pacific, are adopting 5G as this primary digital infrastructure. You can look at Latin America. You can look at Africa. These are also very important markets, in some cases for a combination of 4G and 5G, and in the most advanced economies there it's very much about 5G. We are actually serving, more or less all emerging markets.

**Q: Why are U.S. telcos looking to order less 5G here this year? How does that affect Ericsson?**

A: So I think the U.S. market, first of all, is a very early market. There has been a very big build out of 5G over last year 2022 and prior to that. What we are seeing in general is that they now have strong 5G infrastructure, they have got access to the C band, the so-called mid bands, and that is where they are continuing to fill gaps and of course continue to build there. We see that the U.S. will continue to strengthen their infrastructure, ultimately offering to customers both consumers as well as residential fixed wireless access and they are also, I think, quite eager to get into smart manufacturing.

**Q: Is there any difference in the equipment being used in India compared with that in the U.S.?**

A: No. We have one global standard. We are the company that is very much for openness and being able to mix and match. So one standard in India, applies in U.S., applies everywhere, India has a very aggressive plan not just in timeline but in using the latest technology. So they will use what we call the massive MIMO (Multiple-Input Multiple-Output.) India is using the latest technology that is also rolled out in Korea, Japan, U.S. and of course Europe.

**Q: Does India have the potential to replace the fall in volumes that you're experiencing from the U.S. side.**

A: I can't comment on the volume specifically, but what we're seeing is that India is very rapidly ramping up. I would not be surprised if we see that India, in terms of volumes will not only overtake Europe, will match U.S. in terms of buildout and volumes, and also get closer to where China is. China has a very strong and built out 5G, so India is on a path to really take a leading role in 5G and that's why we are very, very certain that India will use 5G in the way it was intended, which is to have coverage of 5G everywhere. So the volumes are really coming up in India, absolutely. India is a key market but India is also setting an example for the rest of the world.

**Q: What kind of research and development investments are you making? Will that decrease equipment costs in the near term?**

A: So R&D is a big part of our heritage is a big part of who we are. We invest significantly in R&D and continue to do so going forward. We have actually increased our headcount in R&D over the last four or five years by 5000+ R&D engineers, so we continue on the path of driving technology leadership. It is bringing down cost for our customers because as soon as we can use the latest technology, the latest ASICs or programmable hardware, we not only bring down the cost per gigabyte which lower energy consumption so we can really make operators reduce their carbon footprint, reduce the total cost of ownership. Of course in our case, conserve customers with much better performance. It's a driver for us and we will continue to cut costs, but we'll also drive more value because these 5G networks don't only serve mobile broadband. They start to serve enterprises under an SLA service layer level agreement so you can start the network, slice the network, and sell different parts of the performance for different purposes.

**Q: Is there an increase in budget for R&D?**

A: Our commitment to technology leadership is to be leading also on the R&D side and we have a strong R&D. In 2021 we're talking about around 4.5 billion EUR roughly in R&D. We think that's a level that is matching being an industry and technology leader. At the same time, we see that we can get efficiency gains in both in our R&D as well as across the whole company.

**Q: Are there any use cases for emerging technologies that Ericsson is excited about?**

A: Lots of excitement around new use cases. I think there is so much that will happen when we move from smartphones and handheld devices to wearables. Glasses is of course a big change over the coming ten years. We believe it will be the next user interface or paradigm shift after over the coming six to eight years. That also helps not only Ericsson, but it helps our customers because it means that you need to move some of the advanced processing from the smartphone. Not into your glasses, because they would be too heavy and clunky and they would require too much batteries. You would move them into the network, they would run in the network edge and still you would have a great user experience there. That's clearly exciting. Of course we're working with partners on realizing that as soon as it's technically and commercially possible. But I also see that this has application in the enterprise space. So when smart manufacturing gets this kind of help in the maintenance tasks, you have the education it could be on site or it could be reskilling, that's going to be an extremely important part. Then 5G is there as a digital infrastructure. 5G underpins all of this and I think that's where it will also get into new monetization models of how can you actually start to build applications that make use of all these great technology in 5G? We are very committed to make that possible with new network APIs and we've announced how we work with the ecosystem, both our customers as well as new application brands to be able to connect to the network over open APIs. But I think this will unleash unprecedented innovation on top of 5G, just like we saw in 4G.

**Q: Would you like to shed some light on why you think the metaverse from Meta was such a big failure?**

A: If we have learned anything about technology, it's that not only does it come unevenly, it comes in waves. In the early days it's easy to overestimate the maturity of everything from the technology itself to the ecosystem. It's way too early to say that it is not going to work. In fact it will work. The question is very much about getting everything along the value chain as well as along the system and technology chain to work together. We think of it as the cyber and physical world coming together both in the enterprise space as well as in home education as well as in everyday life. That's such a strong and compelling vision. I think many companies certainly subscribe to it. We all have our piece to contribute. This will not happen without the great network and ultimately that will be a 5G or even a 6G system.

**Q: The GPT Chat Box was an interesting way to wrap up an event for here in 2022. What are some developments in AI and machine learning space you expect to see this year and what role do you see Ericsson playing?**

A: So first of all, I think that. It's critically important to think about trustworthiness when it comes to AI. AI is and should be regarded as a very powerful tool. It should not be regarded as a replacement for humans. It's about augmentation, but that also means that we have great responsibilities as developers, as innovators as industry to care for. What AI does for networks is to use all the operational data, all the operational capabilities and create a better user experience. We have a lot to gain by including AI as part of the managed services as part of the services in general in the network, and that will happen during the 2023. Since you asked about the bigger picture of all the applications, I think that some of them already during 2023 will start to realize that it's not a great user experience unless you connect it back to a great network. That will start to see some early signs in 2023.

**Q: Does AI have you think a role to play in cyber security?**

A: I think that cyber is just one great example of where the capability of well trained, well supervised ethical AI has a strong role to play. In fact, if you look at the vulnerabilities, if you look at the threats, all of this cannot be manually handled. It needs to be automated and that comes back to sound implementation.

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