

Position Paper:

**How the Technological Development of 5G affects  
Swedish industrial companies in China**

Sten Li, Anders Wall Scholarship Holder 2020

Swedish Chamber of Commerce in China

Abstract

The 5G technology is developing rapidly and will inevitably affect many companies directly or indirectly, now and in the future. 5G should be viewed as the infrastructure that is necessary for enabling opportunities for companies in a number of different application areas that are difficult to anticipate today. What is clear is that there is potential for companies to progress with the help of 5G through e.g. streamlining processes and making interconnectivity more stable and reliable. The impact that Swedish industrial companies in China expect from 5G varies even within the same industry, but an awareness and a holistic perspective is nonetheless crucial in order to stay ahead of the curve and maintain competitiveness.

*Keywords:* 5G, technology, technological development, impact, Sweden, China

## Introduction

As the technological advancement of 5G develops rapidly, more and more businesses are realizing the potential of gaining competitive advantages through strategically implementing the technology. At the same time, it remains difficult to foresee what benefits and challenges lie ahead, which means that it often remains unclear what actions can and should be taken today to achieve long-term competitive advantages.

China is at the forefront in the development of 5G technology, leaving foreign companies on the Chinese market at a crossroad; to embrace and adapt to the new business environment, or risk being at a disadvantage compared to their competitors who choose the first option.

While companies across different industries may be unaffected or affected in various ways, this position paper aims to present how Swedish companies believe the technological development of 5G will affect their businesses in China. The findings presented are based on interactions and interviews with people holding key positions in several notable Swedish industrial companies operating on the Chinese market, specifically related to 5G.

## Background

According to Campbell et. al (2017), 5G will *enable* \$12.3 trillion of global economic output by 2035 and *generate* \$3.5 trillion in output in the global 5G value chain. It will continue to fuel the global GDP growth long-term while supporting 22 million jobs by the same year. Innovation and progressive change across all vertical industries and in our societies will be supported through the 5G mobile network (Elayoubie et. al, 2017), as it will serve as an enabling

technology with the capacity for both ongoing improvement and stimulus for complementary innovation (Teece, 2019). Researchers and businesses alike anticipate the impact of 5G technology in the global economy to be significant, something Tăbușcă (2020) likens to a revolution.

### **Empirical Findings**

The contents of the following chapter are the findings from individual interviews with people holding key positions within Swedish companies in China. Industries represented mainly include B2B companies who supply their products to OEMs. While companies in other industries were contacted, they were not able to contribute to the findings for various reasons.

#### **5G as an enabling technology**

Similar to how the early generations of wireless mobile telecommunications technology served as the infrastructure for messaging and mobile gaming, the current development of the 5G technology also aims to build the infrastructure to enable new application areas.

Following the launch of the iPhone by Apple in 2007, the development of 3G and 4G technology accelerated. The demand for internet roaming and mobile gaming was increasing significantly, while the mobile network infrastructure was taken advantage of by large technology companies such as Google and Amazon as well as Alibaba and Tencent, which in turn continued to stimulate the development of the infrastructure.

Experts are convinced that the 5G technology will change the game, but unsure how. Technological application areas such as big data, artificial intelligence and internet of things are often mentioned in these contexts, and most industries expect 5G will amount to stability.

Another factor that will push the advancements of 5G is finding ways to monetize it. This can be juxtaposed with the development and release of the internet; being free and open for everyone to use, businesses found ways to take advantage of the technology and subsequently monetize the infrastructure in countless number of ways, which accelerated the speed of its development. This all starts with 5G; the best racing car will never be developed without the road being built first.

### **Practical implications of 5G**

The Swedish companies interviewed see that the development of 5G affect them, or do not affect them, from different perspectives. While certain companies see both direct and indirect opportunities and challenges, more traditional companies see limited impact from 5G, if at all.

#### **Manufacturing processes**

As the 5G technology allows for interconnectivity through internet of things, in addition to mobile broadband and a high level of reliability, it will be easier to run more advanced and streamlined processes in the production line. Smart manufacturing will mean that parts of the production, quality checks and maintenance can be operated and controlled more remotely and have additional benefits such as energy conservation.

Development of other technologies such as artificial intelligence and deep learning will also be more accessible with the 5G technology available. For example, predictive maintenance and identifying the cause of errors will be possible with cameras being able to recognize deviations in the routine processes every hour of the day.

In contrast, other companies see only marginal benefits in the manufacturing processes, as today's technology already is sufficient. With little data to manage, using WiFi connections or

the currently available 4G network is believed to be more than enough. Therefore, 5G can also be viewed as something that is an improvement, but not at all revolutionizing.

### **Customer demand**

From an external point of view, the products that customers want may change over time. Companies who have their main clients within the automotive industry anticipate 5G will affect them indirectly through components or materials that need to be customized to fit their new product specifications. While the growth of electric vehicles on the market may lead to an increased demand of more electronic components, the key materials and mechanical components will continue to be a crucial part.

The important aspect is to have a close dialogue with the customers to understand their needs in order to continue to be able to supply them with their potentially new needs and retain them as customers. 5G may affect some parts, but it is not believed to significant enough to replace any parts of the existing businesses among the companies interviewed.

### **Analysis and Conclusions**

The contrasted views of the implications of 5G can be seen even within the same industry. While the larger companies amongst the interviewees had a specifically designated person or team focusing on these types of technologies and were rather elaborative in their answers, the smaller companies with fewer resources tended to base their decisions by following the relevant news surrounding 5G. Despite the differences, certain interrelated conclusions can be drawn.

**Crucial to be aware of 5G**

It is important for companies, regardless of if or how they anticipate 5G will affect them, to follow the development closely. The awareness is crucial, as the 5G technology is inevitable and may affect companies in unexpected ways when depending on the information available today.

**No directly negative impact of 5G**

While there may be challenges in adapting to what the implications of 5G will be, none of the companies believe that it will impact them negatively. Rather, it is anticipated to either have no impact at all or enable many new opportunities.

**Short-term operational vs. Long-term strategic perspectives**

Regardless of what, if any, effect 5G will have short-term, it is important to note its role with a holistic view. 5G in itself is not what will revolutionize companies, but it is the infrastructure that will enable many opportunities in the future. Whether or not your company will be affected directly or indirectly, now or in the future, it is important to be ready and ahead of the curve when it comes to 5G in order to remain competitive.

### References

- Campbell, Karen et. al (2017). The 5G economy: How 5G technology will contribute to the global economy. *IHS Economics & IHS Technology*.
- Elayoubi, Salah Eddine et. al (2017). 5G innovations for new business opportunities. *HAL archives-ouvertes.fr*.
- Tăbușcă, Alexandru and Tăbușcă, Silvia-Maria (2020). Impact of 5G Technology in Global Economy. Cybersecurity and Legal Issues. *Journal of Information Systems & Operations Management*.
- Teece, David J. (2019). 5G and the Global Economy: How Static Competition Policy Frameworks Can Defeat Open Innovation. *Competition Policy Internaional*.