

## Chapter 14

# Fast-Paced Technology Evolution Faced by Operators With the Needs Emerging From Work Model Changes and General Information Access for Customers

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## ABSTRACT

*This chapter presents insights about how NOS Inovação has reshaped their teams to get a more horizontal and holistic overview about their services (from development to operations) and how this change has positively impacted the development of new services targeting internet personalisation. Furthermore, this chapter also describes the NOS vision about Industry 5.0, where digital transition is a key enabler and presents a critical role in the future.*

## INTRODUCTION

Covid-19 brought to the surface the urgent need for a faster transition to digitalization. This transition

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also showed that the way we see digital tools and the way we work were key players in this transition.

The need to promote digital inclusion, to ensure that everyone had access to telecommunication services and to maintain continuity of everyday social, educational, and economic interactions and leaving no one excluded, was a big challenge.

The importance of the telecommunications networks, their resilience and scalability as well as their role in helping get more people online and its responsibility in developing better connectivity were also very well reflected in this time of crisis.

This dramatic change has occurred pushing not only the digital literacy and skills for all, but also the way teams were working. The remote working demands, a more and more agile mindset to build multidisciplinary teams to get a holistic approach about telecom services, products and network, sustained in transversal service quality KPIs ensuring that the industry was able to respond faster to the customer's needs in the digital world.

This chapter presents insights about how NOS Inovação has reshaped their teams to get a more horizontal and holistic overview about their services (from Development to Operations) and how this change has positively impacted the development of new services targeting Internet personalization. Furthermore, this chapter also describes NOS' vision about Industry 5.0, where digital transition is a key enabler and presents a critical role in the future.

## **BACKGROUND**

The evolution of society has been dominated by industrial revolutions which have changed the face of the modern world (Figure 1). The first revolution (Industry 1.0 - Mechanization) occurred in 1780 with the introduction of industrial production equipment driven by water and steam power. Approximately, one century afterwards (1870), the world witnessed to the second revolution (Industry 2.0 - electrification) where mass production was possible due to the electrical energy and assembly lines. In 1970, the automated production due to the rise of electronics, telecommunications and computers led to the third revolution (Industry 3.0 - Automation). The fourth revolution started with the use of cyber-physical systems (CPS) on connected devices to automated processes, and the development of technologies such as Big Data, Internet-of-Things (IoT), 3D printing and Artificial Intelligence (AI).

The IoT is a network over which the CPS connects to the Internet in an auditable and secure manner. On the other hand, a smart society will use a combination of cyber-physical systems and humans with support from intelligence and automation.

Since its introduction in 2011, Industry 4.0 – Digitalization has led to rediscovered growth and transformation in technology. Although with potential to create high impact, Industry 4.0 was only accelerated in 2020 due to the COVID-19 pandemic crisis.

COVID-19 brought to the surface the urgent need for a faster transition to digitalization. This transition also showed that the way digital was seen, and the way people were working, were key players in this transition. And because of that, the fifth revolution (Industry 5.0 – Personalization) started (Sarfranz, Z, 2021).

According to European Commission (European Commission, 2022), Industry 5.0 “shifts the focus from the shareholder value to stakeholder value and reinforces the role and the contribution of industry to society” as illustrated in the following Figure 2.

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