

# Chapter 11

## Managerial Decision Support in the Post-COVID-19 Era: Towards Information-Based Management

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### ABSTRACT

*The COVID-19 pandemic accelerated trends to digitalization and automation, which allow us to acquire massive datasets useful for managerial decision making. The expected increase of available data (including big data) will represent a potential for an increasing deployment of management decision support systems for more general and more complex tasks. Sophisticated decision support systems have been proposed already in the pre-pandemic times either to assist managers in specific decision-making processes or to perform the decision making fully automatically. Decision support systems are presented in this chapter as perspective artificial intelligence tools contributing to a deep transform of everyday management practices. Attention is paid here to their new development in the quickly transforming post-COVID-19 era and to their role under the post-pandemic conditions. As an original contribution, this chapter presents a vision of information-based management, which far exceed the rather limited pre-pandemic visions of evidence-based management focused primarily on critical thinking.*

### INTRODUCTION

The COVID-19 pandemic hit the global economy hardly and influenced various aspects of the society worldwide in a complex way. In fact, the society and the volatile economies cannot be expected to return completely to the state before the crisis. Foss (2020) claimed that the COVID-19 outbreak revealed weaknesses in current strategic managerial decision making and that organizations strong in digitalization passed through the crisis more smoothly. The world has changed greatly within the critical year 2020 and pre-COVID-19 experience of managers turns out not to be useful in certain fields. On the

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other hand, the accelerated digitalization and automation as the consequences of the pandemic represent new opportunities for management decision making and particularly for the development of management decision support systems. In fact, Verma & Gustaffson (2020) recommended to rely on artificial intelligence tools in management because of increasing uncertainty in world trade or heterogeneity of customers, who are reshaping their consumer habits.

Managerial decision making naturally takes place within a given economic environment. The economies worldwide were strongly affected by the pandemic and the recovery will be painful, even if there was no other wave of the pandemic or none other short-term disruption. Economic losses and short-term recessions with an increase of unemployment and poverty as consequences of the pandemic are currently believed to be very heterogeneous, as different countries have different level of economic resilience. In spite of reduction of travel, tourism and hospitality, globalization of the economies will continue and companies desiring to expand will have opportunities to fill the gaps e.g. in international trade to replace a temporarily lower supply of goods or in industrial production based on quickly implemented innovations. Let us now discuss a couple of examples how managerial decision making is affected by the particular situation due to the COVID-19 outbreak in 2020.

Consumer behavior seems to be modified due to the pandemic and Donthu & Gustaffson (2020) claimed these modifications to remain forever. In fact, customers started to vary their shopping behavior quite significantly; a prominent example is their adherence to e-shops, often focusing on those with convenient forms of delivery. Software tools are able to overcome managers in marketing decisions e.g. for a deeply segmented market with customers divided to clusters (groups) according to their lifestyle, social status, opinions, interests, and activities.

Neither can strategic management much rely on pre-COVID-19 concepts, as the economies became more vulnerable (non-robust). To illustrate how managers (or investors) have to rethink basic (macro) economic concepts, let us mention the TTCI (Travel & Tourism Competitiveness Index) presented by the World Economic Forum. TTCI evaluates the tourism infrastructure every year for every country, while we believe that the role of hygiene factors demands should be much increased compared to pre-COVID-19 numbers; in tourism investments, it is thus necessary to put a great emphasis on hygiene and safety compared to pre-COVID-19 recommendations (Kalina et al., 2020).

Apart from economic transformations worldwide, technological progress represents another consequence of the COVID-19 pandemic. Various advanced technological innovations allow to solve challenges presented by the pandemic, which affected practically all areas of human activities. Of course, the pandemic accelerates the digitalization processes, which started already beforehand (Salminen et al., 2017). The novel technologies introduced after the outset of the pandemic include innovations for new working trends (platforms for work from home or team collaboration hubs), fast 5G-networks, payments by credit card, online chat apps for e-shops, mobile applications (technically very different from web apps), etc. In fact, an extensive digital transformation of managerial processes in companies will be necessary already in the near future in order to survive in the business transitions. We believe that the technology for data collection and analysis will be more accessible, and we expect in accordance with Varian (2014) that managers (rather than statisticians) will be more involved in the data analysis. On the other hand, an ongoing digitalization may put managers under even greater pressure, so that they may even face negative health consequences, as warned by Zeike et al. (2019). Apart from digitalization, automation processes will be able to replace employees. Automation is also connected to the so-called internet of things, i.e. connecting and integration of technologies (e.g. cooperation of robots within industrial production processes. Both digitalization and automation lead to a production of data, which

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