

Chapter 23

Introduction to Section V: BigMedilytics and Looking Forward

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BigMedilytics (Big Data for Medical Analytics) was the largest EU-funded initiative to transform the healthcare sector. By applying state-of-the-art Big Data and AI technologies, the project intended to achieve breakthrough productivity in the health sector by reducing cost, improving patient outcomes, and delivering better access to healthcare facilities simultaneously. To do so, the project introduced 12 studies as testbeds exploring a large range of different problems and covered the three general themes: (a) Population Health and Chronic Disease Management, (b) Oncology, and (c) Industrialization of Healthcare Services. In addition to this, studies have been conducted with partners in 12 different countries. In various cases, partners from multiple countries contributed to one single study, for instance, a data provider (e.g., hospital) in one country and a technical partner to apply Big Data technologies in a different one. This, of course, increased the number of hurdles and challenges to overcome. The first section of this volume focused on the challenges associated with such cross-disciplinary and cross-jurisdiction collaboration.

The previous sections and their corresponding chapters presented the fine-grained view of the different contributing BigMedilytics studies. Each study reported the main idea, the solution, and the learnings they made. Those learnings can be valuable in initiating a similar project addressing a similar problem. On the other hand, many of the presented problems can be very study-specific. They might depend on a variety of aspects, such as certain regulations within a given country, particular company workflows that have been established over many years, and also the background and experience of the involved employees. This section instead tries to provide a more general and transversal overview of the project. More specifically, this section builds on the study-specific learnings and presents a more generally applicable overview according to different aspects. What can we learn from the experiences made?

The chapters in this section summarize the core outcomes and core learnings of the twelve study projects. The studies provided the opportunity to gather not only scientific results but also experiences and knowledge within the projects and across projects. Chapter 24 (The Interactive BigMedilytics Website) presents the BigMedilytics Blueprint Website, collected scientific results and learnings across all studies, but also transversal level, and can be explored interactively. The BigMedilytics Blueprint Website is considered one of the most crucial outcomes as it combines all relevant project data/outcomes and can be explored according to the perspective of different stakeholders, such as data scientists, patients, hospital decision makers, and privacy officers. Chapter 25 (Data Processing in Healthcare using CRISP) presents, based on the experience we made during our project, a blueprint to set up a Big Data project in healthcare. This blueprint is based on the CRISP-DM schema, a cross-industry standard process originally developed in the context of data mining. The chapter describes how CRISP-DM can be adapted to a Big Data healthcare project, including the different steps to take and which aspects need to be taken under consideration from multiple perspectives (e.g., business, legal, and technical). One of the significant features of the project was the collaboration of multiple stakeholders based on various technologies. At the same time, though, that technology can be disruptive and change the relationships between those stakeholders. Chapter 26 (Technology Acceptance in Healthcare) discusses the experience of technology acceptance during the runtime of BigMedilytics, and how traditional models of technology introduction can benefit from the experience of the project. Finally, Chapter 27 (General Learnings From the Horizon 2020 Project BigMedilytics) summarizes the key learnings across the BigMedilytics study projects. While each study presented its study-specific learnings in the previous chapters, Chapter 27 (General Learnings

From the Horizon 2020 Project BigMedilytics) presents 19 general problems, challenges, and learnings that occurred in multiple studies. Those 19 learnings are assigned to different high-level themes, namely, “general learnings,” “data,” “technology,” and “validation,” and might be valuable for future Big Data and AI projects in healthcare.