Chapter 48
Data Analysis Services Related to the IoT and Big Data:
Strategic Implications and Business Opportunities for Third Parties

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ABSTRACT

The Internet of Things (IoT) provides the tools for the development of a major, global data-driven ecosystem. When accessible to people and businesses, this information can make every area of life, including business, more data-driven. In this ecosystem, with its emphasis on Big Data, there has been a focus on building business models for the provision of services, the so-called Internet of Services (IoS). These models assume the existence and development of the necessary IoT measurement and control instruments, communications infrastructure, and easy access to the data collected and information generated by any party. Different business models may support opportunities that generate revenue and value for various types of customers. This paper contributes to the literature by considering business models and opportunities for third-party data analysis services and discusses access to information generated by third parties in relation to Big Data techniques and potential business opportunities.

INTRODUCTION

The much-discussed Internet of Things (IoT) provides a set of tools enabling a major, global data-driven ecosystem to develop devices (or Things) encompassing everything from pedometers to seismographs, collect data and produce unprecedented amounts of information about the parameters and items in the world around us. When put in the hands of people and businesses, this information can make every area of life, including business, more data-driven.

Things are not really a new concept. We've been using sensors to collect scientific data for centuries. What's different now is the interconnection of all these devices, producing ever more granular data sets, all while that data is becoming more and more accessible, potentially to everyone. To actually put that data to work, we need to make sense of it. When massive amounts of data become accessible and understandable, the implications are enormous for civic life, personal health and business.

Until now, much attention and effort have gone in the development of business models, in particular for the provision of services in this data-driven ecosystem in the context of IoT, sometimes referred to as the Internet of Services (IoS). These business models assume the existence and development of the necessary IoT measurement and control instruments, communications infrastructure, and easy access to the data collected and information generated by any party. However, not every business model may support opportunities that generate revenue or value or are suitable for different types of customers. Other business models should also be considered (Lokshina et al., 2017).

A discussion of the infrastructure is outside the scope of this paper. For our purposes, we will assume that a significant time will be needed for deployment. Regulatory clarity and permission must be obtained. Privacy and possible national security issues must be addressed.

This paper contributes to the literature by reviewing, for the first time, business models and opportunities for third-party data analysis services. It discusses access to information generated by third parties as a prerequisite to data analysis services and, in particular, in relation to Big Data techniques and potential opportunities. Strategic implications for small businesses that use the IoT in data-driven ecosystems are considered.

This paper is comprised of eight sections and is organized as follows:

- Section two provides an overview of the generation of data and of value and discusses data access and ownership issues;
- Section three considers building business models in global data-driven ecosystems;
- Section four focuses on data- and IoT service-based business models;
- Section five provides an analysis of Big Data techniques and describes strategic implications and business opportunities;
- Section six gives an overview of experiences of European small and medium enterprises related to IoT and Big Data;
- Section seven contains the summary and conclusions;
- Finally, section eight lists references.

GENERATION OF DATA AND VALUE

Generation of Data and Value in the Context of IoT and Big Data

The example of a commercial airliner provides a scenario for understanding how IoT data is collected and information is generated (Lokshina et al., 2017).

For the purposes of controlling the airplane and verifying the correct operation of its components, a multitude of parameters are measured. The values of these parameters are recorded (and, in real-time, analyzed for artifacts). Additional parameters are recorded for off-line analysis, for maintenance purposes or for use in case of an incident (e.g., a "black box"). Additional data is collected (and possibly recorded)

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