

Chapter 5

Key Challenges to Data Management in the Fourth Industrial Revolution

Richard Afedzie

Pentecost University, Ghana

Fidelis Quansah

University of Professional Studies, Accra, Ghana

James Atta-Panin

Pentecost University, Ghana

ABSTRACT

This chapter explores the numerous challenges impacting data management in the fourth industrial revolution. It highlights the importance of data management in the era of technological and industrial development in the 21st century business world. It draws attention to the value of countries enacting policies and reforms to curtail the rate of cyber-crimes and hacking into sensitive information of organisations whose operations occur significantly in the cyber realms. Much focus is given to the literature on legal policies enacted in many Western nations to prevent and minimize the consequences of data breaches. It draws attention to the benefits of effective data management in organisations and the key reasons considerable focus should be given to it from national governments across the globe.

INTRODUCTION

The fourth industrial revolution has been at the forefront of significant technological advancement in the 21st century business and socio-culture landscape. There are several developments in the areas of digitisation across every aspect of our socio-economic wellbeing. The meteoric rise of globalisation and industrial growth has all been aided by the Fourth Industrial Revolution which is primarily underpinned by technological innovations. The Fourth Industrial Revolution has been associated with names such as

DOI: 10.4018/978-1-7998-7740-0.ch005

Key Challenges to Data Management in the Fourth Industrial Revolution

“Integrated Industry”, “Smart Industry” primarily to signify the technological milestone in industries and the world of work (ONIK, Chul-Soo, & Jinhong, 2019).

There has been one key indicator that has become synonymous with the Fourth Industrial Revolution data management and its relation to technological innovations and creativity on a massive scale. This specifically is the advancement of technology which has resulted in the digitization of commercial transactions and social engagement in our 21st century world (Chan, 2018). The proliferation of social media platforms and digital revolution of our socio-economic interaction has created the essential need of safeguarding data management against criminal activities (East African Cyberspace Workshop, 27/11/2011). Data management is the administrative role that seeks to acquire, validate, store, and protect data, basically to allow accessibility, reliability, and readiness of the data for its users (Nsengimana, 2018). Data management is also about the process of gathering, keeping, and securing data efficiently for users (GSM Association, 2019). The role of data managements intends to create a secure environment for data to be used responsibly and appropriately against the infringement of a person’s rights.

BACKGROUND

Fourth Industrial Revolution is defined as the surge in technological development often associated with innovations in the manufacturing and industrial landscape of the 21st century business world (Ndung’u, 2018). The Fourth Industrial Revolution has shaped the means of interaction and online learning across all sections of the society. Over the past two decades, more services are available online with the exponential growth of technological development; a key component of the fourth industrial revolution. This era of technological innovation has enriched the socio-economic lifestyles of both the development and developing countries (The Economist, 1/28/2012). There has been enhanced advancement in medical services and breakthrough in treating many incurable diseases (Atieno, 2017). The resulting outcome of online services requires the effective protection of data users against cyber criminals. Similarly, technological development related to the Fourth Industrial Revolution provides a lot of data that requires the collection, processing and securing data for its rightful purpose. Data management has therefore become a valuable research area of study because of the need to secure data from the wrongful domain for exploitation by cyber criminals.

Although much of the challenges related with data management and governance have been written by scholars in the field of Information Technology, Computer Science and Information Management, little information has been shared in the areas of product data, consumer data and geolocation data in a comparative review of developing and developed world. This chapter seeks to examine some of the key challenges associated with product data, consumer data and geolocation data management in the fourth industrial revolution within the context of developed and developing world.

This chapter examines some of the issues of fraud and exploitation often related with data management and security. Additionally, the chapter seeks to explore some of the ways to enhance safety of consumers’ vital data information during their daily business operations. Further, the chapter reviews literature on data management, privacy and protection in the fourth industrial revolution. The review covers literature from the last decade and it studies some of the key privacy issues hampering with the security of product data, consumer data and geolocation data management in developed and developing world. To analyse some of the challenges and ways to manage data in the developed and developing world, this chapter would be undertaken in three sections.

12 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/key-challenges-to-data-management-in-the-fourth-industrial-revolution/284718

Related Content

An Empirical Assessment of Technology Adoption as a Choice between Alternatives

Ernst Bekkering, Allen C. Johnston, Merrill Warkentin and Mark B. Schmidt (2009). *Information Resources Management Journal* (pp. 23-44).

www.irma-international.org/article/empirical-assessment-technology-adoption-choice/37207

Hyper Video for Distance Learning

Mario Bochicchio and Nicola Fiore (2005). *Encyclopedia of Information Science and Technology, First Edition* (pp. 1361-1366).

www.irma-international.org/chapter/hyper-video-distance-learning/14439

Dataveillance: Employee Monitoring & Information Privacy Concerns in the Workplace

Regina Connolly and Cliona McParland (2012). *Journal of Information Technology Research* (pp. 31-45).

www.irma-international.org/article/dataveillance-employee-monitoring-information-privacy/72709

Innovation Link Between Organization Knowledge and Customer Knowledge

Helen Mitchell (2005). *Encyclopedia of Information Science and Technology, First Edition* (pp. 1524-1528).

www.irma-international.org/chapter/innovation-link-between-organization-knowledge/14467

Goals and Requirements for Supporting Controlled Flexibility in Software Processes

Ricardo Martinho, Dulce Domingos and João Varajão (2010). *Information Resources Management Journal* (pp. 11-26).

www.irma-international.org/article/goals-requirements-supporting-controlled-flexibility/43718