Chapter 25
A Cognitive Analytics Management Framework (CAM–Part 3):
Critical Skills Shortage, Higher Education Trends, Education Value Chain Framework, Government Strategy

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ABSTRACT

The main objectives of the chapter are to evaluate the impact of the tsunami of big data, business analytics, and technology on the delivery and diffusion of knowledge around the world through the use of Internet-of-things and to design future academic education and training programs. Global and local trends are analyzed to evaluate the impact of the digital tsunami on the delivery and diffusion of knowledge; to identify the shortage of critical skills, drivers of challenges, hot skills in demand, and salaries in big data/business analytics; to highlight obstacles to make informed decisions. CAM education framework is proposed to design customized higher education and training programs to meet current shortage and future generation with the relevant and rigorous skills to boost productivity growth and to impact society and professional domains in the digital economy. Finally, new ideas on how governments, academic institutions, technology companies, and professional employers can work together to reform the traditional education value chain and integrate the "massive open online courses" to achieve mass diffusion of knowledge, to transform people from loyalty to parties, clergies, and dictatorships to society's loyalty, and to develop a culture of shared-value in a move towards a smarter and fairer planet in the 21st century.

INTRODUCTION

SAMSA - *S*hared values; *A*nalytics; *M*ission; *A*ctivities; and *S*tructures- were introduced in Chapters 1 and 2. SAMSA is a mission-based framework to create sustainable cognitive knowledge development and a smarter planet in the 21st century. One of its objectives is the integration of strategic management and performance measurement fields using cognitive frontier data analytics to measure shared values to guide the process improvement at organizations. After the previous explanation journey of SAMAS components, the roles of academic education institutions, governments and society stakeholders to prepare future generation with the right critical skills are still to be explored. The exploration aim is to guide the development of strategic initiatives to unlock the value of the new abundant digital data using the new advances in management, science and technology.

Using the research mindset of previous chapters, reviews of the literature on relevant trends, change drivers and skills shortages worldwide will be conducted. The best-world practices will be identified to determine the essential blocks of academic rigor and relevance in order to propose the *C*ognitive *A*nalytics *M*anagement (*CAM*) framework for academic development. The CAM framework would help education institutions in the development of higher education programs based on strategic shared value missions to serve social needs and to provide critical skills in shortage in the fast growing digital area. The essential components when revising a mission will be highlighted to determine the desired strategic positioning on the shared value spectrum to determine offerings in degree programs. There will be no-unique shared value education models that would fit all societal needs but many customized ones based on regional needs and interests of academic departments that would deliver the CAM initiatives. Since CAM is a multidisciplinary field in nature, several academic departments can host it based on own specific focus. However, it is advisable to agree on the suggested common name (CAM) for the purpose of developing a strong unifying brand to avoid the past dilution that happened to different fields including decision science, operations research, management science, and industrial engineering from one side and artificial intelligence, expert system, and cognitive system from the other side. Irrespective, the right CAM model that will be emerged based on assessment, engagement and consultation of the relevant stakeholders (academics, employers, advisory boards, partners, policy makers among others) would be better than relying solely on the traditional view of only academic providers which are partly to blame for the current causes and shortage of critical skills. Finally, the chapter will provide summaries of the main findings of the three chapters and conclude with a positive futuristic view on the world development in the 21st century.

GLOBAL EDUCATION CHALLENGES AND TRENDS

McKinsey's center for government published in January 2013 a report on "education to employment: designing a system that works". It is based on analysis of a survey of more than 100 education-to-employment education value chain initiatives from 25 countries and stakeholders views, (McKinsey 2013). The countries were selected on the basis of innovation and effectiveness of their education initiatives. It surveyed stakeholders including youth, education providers, and employers that were selected from nine countries (Brazil, Germany, India, Mexico, Morocco, Saudi Arabia, Turkey, United Kingdom, and United States). The report's findings are summarized into six main highlights which are explained as follows:

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