Analysing Competitive Advantage of IoT and Data Analytics in Smart City Context

Authors : Petra Hofmann, Dana Koniel, Jussi Luukkanen, Walter Nieminen, Lea Hannola, Ilkka Donoghue

Abstract : The Covid-19 pandemic forced people to isolate and become physically less connected. The pandemic has not only reshaped people's behaviours and needs but also accelerated digital transformation (DT). DT of cities has become an imperative with the outlook of converting them into smart cities in the future. Embedding digital infrastructure and smart city initiatives as part of normal design, construction, and operation of cities provides a unique opportunity to improve the connection between people. The Internet of Things (IoT) is an emerging technology and one of the drivers in DT. It has disrupted many industries by introducing different services and business models, and IoT solutions are being applied in multiple fields, including smart cities. As IoT and data are fundamentally linked together, IoT solutions can only create value if the data generated by the IoT devices is analysed properly. Extracting relevant conclusions and actionable insights by using established techniques, data analytics contributes significantly to the growth and success of IoT applications and investments. Companies must grasp DT and be prepared to redesign their offerings and business models to remain competitive in today's marketplace. As there are many IoT solutions available today, the amount of data is tremendous. The challenge for companies is to understand what solutions to focus on and how to prioritise and which data to differentiate from the competition. This paper explains how IoT and data analytics can impact competitive advantage and how companies should approach IoT and data analytics to translate them into concrete offerings and solutions in the smart city context. The study was carried out as a qualitative, literature-based research. A case study is provided to validate the preservation of company's competitive advantage through smart city solutions. The results of the research contribution provide insights into the different factors and considerations related to creating competitive advantage through IoT and data analytics deployment in the smart city context. Furthermore, this paper proposes a framework that merges the factors and considerations with examples of offerings and solutions in smart cities. The data collected through IoT devices, and the intelligent use of it, can create competitive advantage to companies operating in smart city business. Companies should take into consideration the five forces of competition that shape industries and pay attention to the technological, organisational, and external contexts which define factors for consideration of competitive advantages in the field of IoT and data analytics. Companies that can utilise these key assets in their businesses will most likely conquer the markets and have a strong foothold in the smart city business.

Keywords : data analytics, smart cities, competitive advantage, internet of things

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