Unified Communication Technologies at a Global Automotive Organization

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INTRODUCTION

Information and Communications Technologies (ICTs) influence and shape the world and society (See-burger, Foth, & Tjondronegoro, 2015). This influence spans organizations and society, stemming from the foundational influence of electronic and computing technologies, spanning over six decades of the third industrial revolution (Skilton & Hovsepian, 2018).

The purpose of this study was to address the challenges of integrating and managing both the complex technology-oriented advancements in a multitude of organizations and fields, in terms of the developing Internet of Things (IoT), and human-centered, in the daily lives of people. Demands for communication between devices, sensors and systems are reciprocally driving an increased demand for people to communicate using, and manage, the undeniable rapid acceleration of the digital ecosystem of the IoT, and an unprecedented volume of data. This study will offer insights into key topics, such as organizational structure, strategic leadership, information technology management, business analytics, and digital transformation in the context of a global automotive organization, among others. It will be comprised of content allowing for greater breadth and range that highlights major breakthroughs, discoveries, and authoritative research results as they pertain to reference work, which should greatly benefit the expansion of coverage into aspects of organizational research, growth and development.

The main research question raised in the study was: *To what extent does digital transformation, implemented through Unified Communication and Collaboration (UC&C) technologies, impact improved productivity and enhanced facilitation of innovation within a global automotive organization?* A framework for the implementation of UC&C technologies was developed and implemented in one of the world's largest automotive organizations, General Motors (GM).

Following the development and implementation of the framework and digital transformation, qualitative and quantitative research were conducted, establishing observational and metric driven data to support analysis. A critical realist interpretation of the authoritative research results suggested that digitally transformed UC&C technologies can change the work practices of employees. The study concluded that

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digital transformation, delivered via a UC&C technologies framework, can impact productivity and create opportunities for driving innovation within a global automotive organization.

In terms of practical managerial significance and appropriateness for this book, this chapter is properly directed to the proposed target audience of the book, in that it presents findings for researchers, educators, students, professionals, and knowledge seekers all around the world.

Now that the general perspective of the article has been described, the objectives of this chapter will therefore specifically be to determine what the factors are impacting:

1. The digital transformation of UC&C technologies within global automotive organizations, and how can these be best applied?
2. Productivity and innovation within a global automotive organization during digital transformation via UC&C technologies, and to what extent?

BACKGROUND

This section will provide broad definitions and discussions of the topic and incorporate the views of others (literature review) into the discussion to support, refute or demonstrate the authors' position on the topic.

The Combinatorial Effect of Mobile, Transmission Control Protocol/ Internet Protocol (IP) and Sensor Technology

According to Sathi (2016), the potential impact of the Internet of Things from an organizational perspective will be between $4 and $11 trillion per year by the year 2025. Central to this forecast is the introduction of data and information services, powered by IoT enabled sensor technology. It has been predicted that driverless autonomous vehicles, enabled via connected mobile infrastructure, internet connectivity and an array of intelligent sensor-based technologies, will take dominance in taxi and ride sharing fleets by the year 2030.

Evolving through the Internet of Things and associated concepts, such as Industry 4.0, connected mobile sensor technologies provide opportunities for the creation of a context aware internet. Combined with machine learning and intelligent data strategies, this evolution of capability holds the potential to transition from data and information transmission to automated and assisted cognitive decision making (Perara, Zaslavsky, Christen, & Goergakopoulos, 2014).

The ability to sense, process and make decisions on information in real time is already opening up opportunities in new areas of the cognitive internet related innovation, such as the 'cognitive Internet of Energy' (Vermesan & Friess, 2015).

Challenges in Digital Transformation

A workplace is no longer only the physical office space, but rather a combination of physical, virtual, social, and mental spaces, which are interlinked with each other to form a collaborative working environment. The challenge for digital organizations within the age of the IoT extends beyond the digitization of organizational processes, connectivity, system integration and automated analysis of data; it is how to make these four spaces support the knowledge workers' tasks in a distributed work setting. There is no one rule to follow. Organizations should start the process by analyzing the work of knowledge workers.

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