SUPPORTING BUSINESS MODEL INNOVATION BASED ON DEEP LEARNING SCENE SEMANTIC SEGMENTATION

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Abstract

The capacity to create innovative Business Models (BM) has become the foundation for numerous businesses. Business Model Innovation (BMI) grows more significant as digitalization influences our everyday lives and prompts the development of better approaches for working, imparting and collaborating in this computerized universe of Industry 4.0. In this paper we present a conceptual architecture which can be applied in the modern video-conference systems with the help of semantic segmentation. The scene represents an environment, intended for discussion of ideas in business modeling. The semantic segmentation allows each pixel of an image (or video) from the scene to be related or classified to a specific type of object. In this way it is possible to interpret the description of a scene by the machine. Thus, with the help of the proposed architecture, the processes taking place between objects and people in the surrounding environment can be analyzed for the purpose of digitization of BMI by modelling human behavior and cognitive processes into logical expressions that can be digitized and automated. The semantic segmentation is considered as a basic element in this type of interaction. We demonstrate the effectiveness of our algorithm in with real data examples.

Keywords: Deep learning; semantic segmentation; teleconference; business model innovation.

1. Introduction

Organizations have consistently adjusted with the evolving times, yet the deluge of digital innovation technologies, such as mobile, cloud, social, and big data analytics has quickened the pace at which the organizations need to advance and how much they change the manner in which they develop, work, and serve their clients. Business Model Innovation (BMI) and Business Models (BM) have become obligatory for any organization. According to [4], BM and the process of BMI can be described as phenomena with patterns and mechanisms. Building on this, the BM as a conceptually distinct construct may provide theories with new explanatory power and reach.

Artificial intelligence and deep neural network architectures are entering the modern world through the ability to analyze certain types of problems, replacing the need for human intervention and taking action to increase the ability to achieve a goal. In this aspect, deep neural networks can be applied as an innovative approach to support efficiency and effectiveness in business modeling. The modern literature describes various developments at the theoretical and applied level, the main challenge of which is the modeling of human behavior and cognitive processes in an appropriate digital form. This in turn allows computer analysis of complex problems in order to make optimal decisions. In this sense, there is a need to develop effective methods and algorithms to bridge the semantic gap between the way one understands the scene and the way machines interpret it.