

Innovation management for the transition to digital fluid power

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Abstract

The concept of digital fluid power has been a source of excitement for researchers in this field. However, are companies prepared to make the transition between the traditional way to develop fluid power to the digital one? Our assumption is that in addition to technological change, it is also important to pay attention on the impact on innovation management inside organizations.

Keywords: Digital fluid power, fluid power trends, innovation management

1 Introduction

The transition to a digital era has also arrived to fluid power systems. According to Linjama [1], digital fluid power can be defined as “hydraulic and pneumatic systems having discrete valued component(s) actively controlling system output.” In other words, the design of a digital fluid power system is more than use digital control of analog systems. Although there are some challenges on component development, control modeling, simulation, and handling of dynamic effects, technological development of some fundamental components such as digital pumps, digital cylinders and transformers have already been achieved [2].

It seems clear that on the technology level, research on digital fluid power system design has advanced well [3]. However, what is not clear is if managers have been preparing their organizations to deal with the transition to use a new technology. Having this challenge in mind, the aim of this paper is to investigate how would you encourage advancement inside the setting of a large mature business? How to foster an organizational ability to use both the capacity to simultaneously operate in markets where effectiveness, control, and incremental change are prized and to likewise contend in innovations and new markets where adaptability, autonomy, and experimentation are required [4].

To achieve these goals, we are going to review the literature on ambidextrous organization to understand how it may apply to the case of digital fluid power.

The remainder of this paper is organized as follow. In section 2, we review the concept of ambidexterity and the main trends on digital fluid powers. Section 3 presents the methodology used to validate this research. In Section 4 we present an analytical framework that will help innovation managers to facilitate the technological advancement.

2 Organizing for the new and for the old

The principal versatile test confronting firms was the need to both endeavor existing resources and capacities (exploitation) and to accommodate adequate innovation (exploration) to abstain from being rendered superfluous by changes in business markets and technological change. Considering the possibility that diverse structures are required for exploitation and exploration, the literature on the topic recommended that for long run survival, companies are expected to engage in both.

To become an ambidextrous organization. It is recommended that this could be refined by setting up self-sufficient exploration and exploitation subunits that were basically isolated, each with its own arrangement of individuals, structure, and procedures focused on guarantee the utilization of assets and skills simultaneously.

3 Research Design

For the purpose of this paper, we have used the literature review to understand what are the technology demand related to innovation in digital fluid power together with the literature on innovation management related to the need to achieve ambidexterity.

References

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