

# Chapter 53

## Production Information Systems Usability in Jordan

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### ABSTRACT

*Enterprise systems are becoming more important as they support the efficiency and effectiveness of operations and reduce cost. In this chapter we explored the literature related to production information systems (PIS), enterprise systems, and other applications and their influence in an industrial zone in Jordan. Constructs from the Innovation Diffusion Theory were used, where results indicated that the adoption rate is acceptable and all variables have high means with respect to their evaluation by managers, but only two variable significantly predicted intention to use. In a second study that explored the status of IT usage in manufacturing firms using a different sample, results indicated that accounting information systems were widely used and distribution systems and manufacturing aiding systems were the least used. Other findings, conclusions and future work are stated at the end of the chapter.*

### INTRODUCTION

The industrial sector in Jordan is one of the main dimensions in the economic life of the country and is a major contributor in local production figures. Statistics indicate a contribution of 21.5% of the local production in the year 2006, which concluded 90% of the national size of exportation (Jordan Industrial Chamber Website, 2008).

Thus, the attention paid to this sector is one of the factors that lead to improving this sector's efficiency and productivity. Statistics also indicated that this sector employs 15% of The Jordanian workforce, which is a high percentage compared to other sectors (same source).

Research defined innovation as an intellectual performance that leads individuals to problem solving, or the intellectual effort that leads to non-repetitive or ordinary results (Trairy, 2008). Gnam (2005) used another definition of innovation but in

DOI: 10.4018/978-1-4666-1945-6.ch053

the higher education quality area, where he claimed that innovation is doing something good and not bad. Finally, Smadi (2001) stated that employee innovation in the manufacturing area in Jordan was more prevalent in small-size businesses than in larger ones, where he explored 870 employees and studied their inclination to adopt the Kaizen model in improving work environment.

One of the most important tools that help in improving this sector is information technology (IT), where its role in this sector ranges from supporting operations to a major role in automation and control of operations. The important role of information technology in manufacturing especially in reducing cost and pushing operations forward, and adding value to the manufacturing process, which satisfies firms' objectives. The importance of production information systems (PIS) is becoming vital to all manufacturing firms to gain and sustain competitive advantage. The adoption of PIS is becoming a priority to firms in this sector especially those who work in alliance with foreign (global) firms.

The word adoption is not a secret one, firms need to convince their employees and managers to effectively use and utilize information systems in a way that achieves firms' objectives. What makes this adoption more important, is that when we deal with complex systems (like EIS or PIS) users need more attention and involvement to guarantee their acceptance and thus the full benefit from such systems (Wang, Hsieh, Butler & Hsu, 2008). Research indicates the importance of users' adoption when dealing with new technology. Users are cautious to use new technology unless they believe it will bring to them some advantage, and would be easy to use. Also, they need to make sure it is compatible with systems they used before and many other factors that influence their perception of technology. This study reviewed the literature related to the technology acceptance area and adopted the innovation diffusion theory (IDT) proposed by Rogers in early 1983 (Rogers, 1995; Moore and Benbasat, 1991). This study reviewed

also the literature in the area of production systems explored the factors predicting the rate of adoption of such systems through the reported opinions of managers in this sector. Finally, conclusions and future work are stated at the end.

## **BACKGROUND**

Many theories tackled the adoption of new technology concepts and proposed a variety of theories and models that exceeded hundreds of propositions and variables. The argument in this domain emphasizes finding the suitable set of "factors" that can predict users' behavior with respect to using new technology. Most theories and research utilized the users' "intention to use" the technology as a surrogate to actual usage of the technology. Thus, many theories used "Intention to Use" (ITU) as the dependent variable, and proposed many predictors ranging from two variables to more than ten in some cases. The following section will explore the literature related to the IDT and other theories in the technology acceptance domain, then literature related to production information systems and enterprise resources planning systems usage.

### **Production Information Systems**

Enterprise Information Systems (EIS) control all major business processes with a single software architecture in real time (Turban, Leidner, McLean & Wetherbe, 2008). Under the EIS category, the same authors list production information systems (PIS), Supply Chain Management Systems (SCM systems), Customer relationship Management Systems (CRM systems), Product lifecycle management systems (PLM systems), and Enterprise Resource Planning systems (ERP Systems). EIS account for 54% of licensing revenues, and expected to have the highest growth rates (expected to be \$55 billion in 2012) (McCrea, 2008). Our focus in this study is more towards PIS and ERP

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