Measurement of ERP Utilization Level of Enterprises: The Sample of Province Aydın

Özel SEBETCİ
Adnan Menderes Üniversitesi
Aydın Meslek Yüksekokulu
Merkez Kampüs
Aydın, Türkiye
osebetci@adu.edu.tr

Kâmil BİRCAN
Adnan Menderes Üniversitesi
Söke İşletme Fakültesi
Uluslararası Lojistik ve Taşımacılık
Bölümü, Söke, Aydın, Türkiye
bircankamil@gmail.com

Neslihan DEMİR
Adnan Menderes Üniversitesi
Sosyal Bilimler Enstitüsü
İşletme Anabilim Dalı
Merkez Kampüs, Aydın, Türkiye
demirneslihan85@gmail.com

Esma ACAYIP
Adnan Menderes Üniversitesi
Köşk Meslek Yüksekokulu
Atilla Koç Yerleşkesi
Aydın, Türkiye
esma_acayip_@hotmail.com

Extensive Summary

Introduction

In parallel to the advancements in information and communication technologies, commercial firms and organizations developed new management and business approaches in the second half of the last century. Computer software gradually gained prominence in firms. Enterprise Source Planning, internationally known as ERP, is one of these developments.

ERP can be briefly defined as a software package having an extensive and modular structure that allows for the management of all business processes from supply to distribution with an integrated data/information management system support.

ERP refers to "business making culture and philosophy" of a company. For an effective enterprise management, it should be possible to plan, observe, measure and evaluate enterprise sources. Numerous modern methods such as possessing a support information for decision making, ability to see the diversions between what is planned and what actually happens, ability to make "future prediction scenarios" based on

previous data during business management and efficiency, effectiveness and productivity at every point are necessary for enterprises.

This ERP need results from the phenomenon of "one has to know to manage" within the economic storm introduced by the means of communicating and transportation such as globalization of economy, customer profiles, production tools, production costs and supply chain, where race against the clock have accelerated.

Different ERP components have evolved in sectors with different needs. The ERP components in a manufacturing firm, in an export firm or in a chain store firm will be different. No matter how different they are, expectations are globally the same. The principle of "one has to know to manage" will be shaped according to enterprise needs.

Method

The aim of this study was to measure ERP system usage levels of the enterprises in Aydın province of Turkey. Data was collected from 83 enterprises in Aydın through questionnaires. Analysis of data showed that the majority of the enterprises achieved a high level of computer integration and thus had modern technologies in production. Another finding of the study was low ERP usage level. Analysis of variance showed that there was a correlation between the size of the enterprises based on the number of personnel, their 2012 profit and ERP usage. Correlation analysis showed that there was a positive and significant relationship between ERP characteristics and strategic advantages of ERP.

Findings

Majority of the enterprises that participated in the study were active in manufacturing sector, mainly including food and other sectors. It was found that the majority of these enterprises were medium-sized. %64.9 of the enterprises had revenue of higher than 1.000.000 TL. The majority of the enterprises were found to have a high level of revenue. As for production technologies, the enterprises were observed to have different production technologies. Of the enterprises, 29.8% used traditional machines, 29.8% used CNC type machines, 35.1% had special purpose machines, 56.1% had automated production lines, 14% has robots and 17.5% had production line service enterprises. 64.1% of the enterprises were family enterprises, 78.9% had ISO 9000:2000, 50.9% had ISO 14000, 40.4% had OHSAS 18001 systems and 22.8% had CE marking. As for the intra-enterprise department structure of the participating enterprises, it was found that the majority of the enterprises consisted of principle enterprise functions such as production, marketing, human resources, finance, accounting, purchasing and quality. However, only 36.8% of the participating enterprises had an R&D department.

Of the participating enterprises, 41 had a high level of computer integration, while 12 had no view. 4 enterprises did not have a high level of computer integration. As for the capacity utilization rates of the enterprises for the last 3 years, it was found that capacity utilization rates were 70.53% in 2010; 73.45% in 2011 and 75.49% in 2012. General of the enterprises that participated in the questionnaire showed an increasing trend from 2010 to 2012.

Of the participating firms, only 42.2% used an ERP software. As for the reasons for not using ERP by the 57.8% of the participating enterprises, it was observed that the most important reason was that ERP system was not considered as necessary. 29.4% of

the enterprises did not have suitable technical infrastructure. Analysis of the views of the enterprises that do not use ERP as to how long would it take to start an ERP system, it was found that the majority of the enterprises estimated a period of more than one year.

It was found that only 33.3% of the enterprises supplied this system using their own capital. The reasons for not using ERP modules were that, the module was not considered as necessary (19.3%); the module was not appropriate for the firm (7%) and data deficiency (5.3%). Reliability test was conducted for the evaluations of the participating enterprises on the characteristics of their ERP systems. Cronbach's Alpha value was found to be 0.603. This value reveals that the enterprise had reliable evaluations on the characteristics of their ERP systems.

We found that there was a correlation between the size of the enterprises based on their number of personnel and ERP usage. The enterprise having 50-249 personnel had higher levels of ERP usage. We found that there was a correlation between the size of the enterprises based on their income of a year and ERP usage. The enterprises having revenue of higher than 1.000.000 TL were found to use their ERP systems more than other enterprises. There was a positive correlation between ERP characteristics and strategic advantages.

Discussion

This study aimed to determine ERP system usage levels in enterprises in Aydın province. It was found that the majority of the enterprises that participated in the questionnaire were active in manufacturing sector, mainly in food sector. Analysis of the parameters such as the benefit of ERP modules, the contribution made by the units and which modules are preferred revealed that finance/accounting departments ranked the first. The fact that this result is the same for the firms that are active in manufacturing sector can be considered as an indication of the fact that ERP systems are mainly finance/accounting based systems.

Of the 83 enterprises that participated in the questionnaire, 36,8% used ERP system. As for the firms that did not use ERP system, it was found that they were unaware of the differences brought by the ERP system and the perception that technical infrastructure deficiencies are not suitable for the use of ERP system. Of the enterprise that use ERP system, the majority of them used this system for production planning and cost pricing using production management, marketing, strategic planning and purchasing modules.