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THE RELATIONSHIP BETWEEN BENEFITS OF ERP IMPLEMENTATION AND SUPPLY CHAIN PERFORMANCE: A STUDY ON TURKISH MANUFACTURING FIRMS

Arif Selim EREN

Asst. Prof. Kahramanmaraş Sütçü İmam University
Faculty of Economics and Administration
International Trade and Logistics Department
arifselimeren@hotmail.com
<https://orcid.org/0000-0001-7274-1113>

Oğuz Emre BALKAR

Lect. Erzincan Binali Yıldırım University
Vocational College
Management and Organization Department
Logistics Program
oguzemrebalkar@gmail.com
<https://orcid.org/0000-0001-5853-0926>

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Abstract

This study aims to identify whether there are relationships between the benefits of ERP Implementation (ERPI) and Supply Chain Management Performance (SCMP) in Turkish manufacturing firms context. The study includes a detailed literature review on both ERPI and SCMP. In this direction, a questionnaire adopted from previous studies has been created. The relevant questionnaire, which was obtained research ethics committee approval, was applied to a randomly defined sample of 284 manufacturing firms from various sectors. Obtained data was analyzed via the use of reliability, descriptive statistics, correlations, factor and regression analyses. The results of the study empirically proved that ERPI benefits are related to SCMP measures.

Keywords: ERP Implementation Benefits, Supply Chain Management, Manufacturing Firms.

ERP İMPLEMENTASYONUNUN FAYDALARI VE TEDARİK ZİNCİRİ PERFORMANSI ARASINDAKİ İLİŞKİ: TÜRK İMALAT İŞLETMELERİNDE BİR ARAŞTIRMA

Öz

Bu çalışma, Türk imalat işletmelerinde Tedarik Zinciri Yönetimi Performansı (SCMP) ve ERP İmplementasyonunun (ERPI) faydaları arasında ilişki olup olmadığını belirlemeyi hedeflemektedir. Araştırma, ERPI ve SCMP üzerine detaylı bir literatür değerlendirmesini içermektedir. Bu doğrultuda; daha önce yapılmış çalışmalardan elde edilen bir anket oluşturulmuştur. Etik kurul izni alınan ilgili anket, çeşitli sektörlerden rastgele seçilen 284 imalat işletmesine uygulanmıştır. Elde edilen veriler, güvenilirlik, tanımlayıcı istatistikler, korelasyon, faktör ve regresyon analizleri kullanılarak değerlendirilmiştir. Çalışmanın sonuçları, ERPI faydalarının SCMP ölçütleriyle ilişkili olduğunu ampirik olarak kanıtlamıştır.

Anahtar Kelimeler: ERP İmplementasyonunun Faydaları, Tedarik Zinciri Yönetimi, İmalat İşletmeleri.

1. INTRODUCTION

Due to the economic developments caused by globalization, improving technology and changes in the customer demands, business enterprises need to cope with harder conditions in the current context (Helo et al., 2008: 1056). They need to evaluate and make changes in their production processes (Dezdar and Ainin, 2011: 914). These innovations require skilled information management (Maguire et al., 2010: 87). Therefore, firms need to use decision support tools for better management (Huang and Palvia, 2001: 280). Enterprise Resource Planning (ERP) software enable the managers to see what is going on in the plants (Finney and Corbett, 2007: 330). ERP implementation (ERPI) is reported to have many benefits for the organizations (Gavidia, 2016: 102). ERPI benefits are classified in prior studies as strategic, tactical and organizational (Yang and Su, 2009: 722).

Supply Chain Management Performance (SCMP) is another issue that the managers should consider in better management of the firm (Okrent and Vokurka, 2004: 639). This concept can be defined as the performance of the enterprise in management of supply chain in order to have better lead times (Huang and Handfield, 2015: 4), integration of the suppliers (Storey et al., 2006: 758), customer services (Beamon, 1999: 290) and cost management (Banomyong and Supatn, 2011: 23). The enterprises can manage the internal (Won et al., 2007: 445) and external relationships with business partners via the use of effective SCMP measures (Vanichchinchai, 2014: 137).

The aim of the present study is to investigate whether there are relationships between ERPI benefits and SCMP measures. In order to do so, a detailed literature review is conducted and prior researches are analyzed in terms of subject, methodology, measures deployed and findings. After having satisfactory findings from the literature review, the study included an empirical study including the adoption of a questionnaire from earlier studies. Obtained data is analyzed via the use of reliability, descriptive statistics, correlations, factor and regression analysis. The results of the study empirically proved that ERPI benefits are in relation with SCMP measures.

2. LITERATURE REVIEW

Measuring the effectiveness of business processes is vital for the development of the firms (Beamon, 1999: 276). The SCMP is reported to be an essential decision tool to evaluate the firm performance (Lee et al., 2007: 446). On the other hand, ERPI is reported to have many benefits for

the enterprise (Soja, 2008: 112). Thus, these two concepts can affect the business performance (Purwoko et al., 2015: 225). Prior literature handled these concepts in many contexts and for different purposes. Because of this fact, the literature review classified these two concepts into ERPI benefits and SCMP measures.

For measures of SCMP, the literature is rich in prior studies. That is why there have been attempts to develop scales for SCMP measures (Chan and Qi, 2003: 209; Tummala and Schoenherr, 2011: 474; Grosvold et al., 2014: 292). For instance, Beamon (1999: 275) focused on cost, time and customer issues and conducted a research on measures of SCMP. Time was in the focus of Atilgan and McCullen (2011: 11). Besides, Banomyong and Supatn (2011: 20) developed SCPAT measure in order to measure the SCMP. They included customer, demand, communication and handling. Moreover, Micheli et al., (2008: 846) reported that project orientation, partnership and standardization can be used for measuring SCMP. Similarly, Stewart (1995: 38) defined SCMP measures in structural and organizational issues. On the other side, Storey et al., (2006: 754) focused on information management, supplier behavior and drivers of SCM for measurement of SCMP.

The literature is also rich in studies interested in the financial dimensions of SCMP. For instance, Field and Meile (2008: 185) dealt with efficiency, responsiveness and information management. Information sharing, is also included in Zailani and Rajagopal, (2005: 379) and they dealt with customer, productivity and flexibility. Furthermore, Ortas et al., (2014: 332) proposed an econometric model for the subject. At the same time, Wang and Sarkis (2013: 871) focused on costs savings. Moreover, Huang et al., (2014: 64) and Yew et al., (2005: 367) dealt with market share, ROA and ROI from the economic perspective. Cost and services were the main focus of Varsei et al., (2014: 242). Lastly, Laosirihongthong et al., (2013: 1088) also addressed the economic issues as indicators of SCMP.

Operational measures are adopted by Zelbst et al., (2009: 665) and Schaltegger and Burritt (2014: 232). Whereas, Forslund (2010: 351) focused on target setting and system analysis. Papakiriakopoulos and Pramadari (2010: 1297) also deals with operational measures and deploys product accuracy and number of imperfect orders as SCMP measures. Even more, Prajogo et al., (2016: 220) were interested in costs, rejection rate and wrong supplier deliveries. Coronado et al., (2011: 43) also included shipment and inventory management as indicators of SCMP. Vanichchinchai (2014: 126) addressed costs, flexibility and relationship management. Forslund (2015: 652) and Zailani and Rajagopal, (2005: 379) also dealt with relationship management and also dependence and integration. Integration is also assessed by Won et al., (2007: 444). The paper implies that the degree of integration is parallel to the growth in the SCMP. Harland (1997: 70), Won et al., (2007: 444) and Jeong and Hong (2007: 578) focused on external issues for SCMP. Besides, these Cadden et al., (2013: 86) paid attention to organizational points of SCMP. Similarly, Arif-Uz-Zaman and Ahsan (2014), Bai et al., (2012: 78) and Chavez et al., (2012: 235) covered costs, time, quality and flexibility for SCMP measures. Besides these, Hwang and Min (2015: 541) also included time, variety, reliability and quality in SCMP measures. On the other hand, inventory management was the focus of Yew et al., (2005: 367).

Besides all of these studies on SCMP, Yang and Su (2009: 722) directly focused on the ERPI benefits and SCMP. They included internal, external, customer orientation and cost issues. The scale

of the study is adopted in the present study. Furthermore, operational benefits are assessed by Helo et al. (2008: 1045).

Meanwhile, there have been many contributions to the literature on ERPI benefits. Gavidia (2016: 97) summarizes these benefits as job improvement and better organizational workflow besides operational efficiency. Operational issues are also mentioned by Maditinos et al. (2011: 60) and Esteves (2009: 25). Among the operational benefits better inventory management is examined by Okrent and Vokurka (2004: 637). Besides these, Dezdar and Ainin (2011: 911), Schniederjans and Yadav (2013: 364) and Snider et al. (2009: 4) also dealt with the organizational benefits of ERPI. However, Garg and Garg (2014: 424) dealt with strategic, technological, people and project management aspects. Huang and Palvia (2001: 276), Mehrjerdi (2010: 308), Purwoko et al. (2015: 222) and El Savah et al. (2008: 288) also focused on the organizational and internal benefits of ERPI.

On the other hand, external benefits of ERPI are examined by Udechukwu and Al Said (2010: 78). Katerattanakul et al. (2014: 186) has a scope of improvements in integration and communication. Integration is also assessed by Nga et al. (2011: 132) and Soja (2008: 105). Communication has become the main issue of Aladwani (2001: 266), Elnaby et al. (2012: 618) and Yu (2005: 115). On the other hand benefits related to leaning and waste reduction are examined by Bendoly and Schoenherr (2005: 304). On the other hand, Panayiotou et al. (2015: 628) and Huang and Handfield (2015: 2) dealt with the issues related to lead times. Besides these, better risk management is mentioned by Pan et al. (2011: 107) and Saatçioğlu (2009: 690).

The Critical Success Factors (CSFs) of ERPI has been the main issue of many studies. Soja (2006: 418), Remus (2007: 538) and Finney and Corbett (2007: 329) identify these factors in project management perspective. This perspective is empirically supported by Doom et al. (2010: 378), Françoise et al. (2009: 371), Kale et al. (2010: 758), Beheshti et al. (2014: 357) and Žabjek et al. (2009: 588). The usage of CSFs as benefits of ERPI can be observed in Lawrence et al. (2013: 218).

To sum all up, one can see that there have been many research on identification of ERPI benefits and SCMP measures. However, the literature is limited in relational studies among these concepts, except Yang and Su (2009:722).

3. ERP IMPLEMENTATION BENEFITS

Firms are reported to have many benefits from ERPI (Huang and Handfield, 2015: 5). They can manage their operations in a better way because of the information provided by these software (Assem et al., 2008: 289). They can also have advantage in struggling with resistance to change in the organizational context (Mehrjerdi, 2010: 314). The literature is rich in studies trying to identify CSFs of ERPI (Snider et al., 2009: 4). These CSFs are being used as the benefits of ERPI (Lawrence et al., 2013: 218). Yang and Su (2009:722) summarizes these benefits into three categories namely operational, tactical and strategic.

3.1. Operational Benefits

ERPI affects the operational efficiency of the enterprise in many ways (Pan et al., 2011: 119). Initially, the whole production system can be observed with the use of this software (Mehrjerdi, 2010:

314). Shorter lead times (Snider et al., 2009: 12), waste reduction (Bendoly and Schoenherr, 2005: 310), improved operational flexibility (Schniederjans and Yadav, 2013: 368) and employee performance (Žabjek et al., 2009: 594) can be mentioned in operational benefits of ERP systems.

3.2. Tactical Benefits

ERPI can help the managers of the firms in tactical issues such as better resource management (Esteves, 2009: 29), performance improvement (Garg and Garg, 2014: 439), quality management (Nga et al., 2011: 140), improved decision making (Helo et al., 2008: 1051) and better customer relationship management (Okrent and Vokurka, 2004: 638). These benefits can contribute by combining the mentioned functions together (Assem et al., 2008: 295).

3.3. Strategic Benefits

The managers of the firms can benefit from ERP software in strategic issues (Remus, 2007: 547). They can build business innovations (Mehrerjedi, 2010: 316), build external linkages (Esteves, 2009: 29), observe the ongoing trend in the sector (Maguire et al., 2010: 78) and improve product variety (Beheshti et al., 2014: 358). These benefits are reported to have an effect of SCMP.

4. SUPPLY CHAIN PERFORMANCE

SCMP has always been a matter that the firm managers face especially in customer relationship management and other functions of the enterprise (Foslund, 2010: 354). Therefore, there have been many attempts to develop measures for effective determination of SCMP (Zailani and Rajagopal, 2005: 389). These attempts conducted the birth of a junk of literature based on this subject. Many classifications have been done for specific purposes of the former studies, but the present study adopts the classification of Yang and Su (2009:722) as it is the only study handled the same subject with the present one. This classification includes four main areas for effective SCMP measurement namely internal and external issues besides customer and cost perspectives.

4.1. Internal Business Process Perspective

ERPI provides information for all of the processes being held in the organization (Huang et al., 2014: 69). Therefore, the managers can have a glance of the whole enterprise wherever they want (Jeong and Hong, 2007: 583). SCMP deals with many aspects of interior processes as it affects the external, customer related and cost management issues (Arif Uz-Zaman and Ahsan, 2014: 595). That's why, the performance of the SCMP is crucial for all of the interior processes.

4.2. External Business Process Perspective

SCMP has an effect on external processes (Prajogo et al., 2016: 220). Better ERPI is reported to have positive effects on SCMP (Hwang and Min, 2015: 557). The external processes are directly related to the market share and sales volume (Zailani and Rajagopal, 2005: 384). The quality of the goods being purchased (Micheli et al., 2008: 850), information sharing with suppliers and retailers (Field and Meile, 2008: 190), flexibility in deliveries (Huang et al., 2014: 68) and better inventory management can be mentioned as external processes in SCMP (Yang and Su, 2009: 729).

4.3. Customer Service Perspective

The future of the enterprise is bound to the management of customer relationships (Jeong and Hong, 2007: 589). In today's competitive environment, no firm can pronounce itself as the only supplier of the global markets (Stewart, 1995: 41). Competition is in all sectors and the firm should deploy some strategies in order to sustain the commitment of the customer (Papakiriakopoulos and Pramadari, 2010: 1312). SCMP deals with the time spent on responding the customer demands (Banomyong and Supatn, 2011: 23), the quality of the product in terms of returns (Hwang and Min, 2015: 546), range of flexibility provided to the customers (Chavez et al., 2012: 242), delivery speed (Harland, 1997: 72) and shipment notifications for proper deliveries (Beamon, 1999: 284).

4.4. Cost Management Perspective

Cost has always been a matter for the managers as the global competition is being observed in all sectors (Yew et al., 2005: 373). Thus, SCMP deals with the reduction of the costs for proper deliveries (Papakiriakopoulos and Pramadari, 2010: 1303), increasing the total revenue (Chavez et al., 2012: 237) and decrease in the total costs (Laosirihongthong et al., 2013: 1092). ERPI can demonstrate all of the idle times and resources being spent in the plant (Jeong and Hong, 2007: 584). So, these constructs should be handled together.

In line with other studies (Jeong and Hong, 2007; Assem et al., 2008; Pan et al., 2011; Lawrence et al., 2013; Arif Uz-Zaman and Ahsan, 2014; Hwang and Min, 2015) that related to research subject, some hypotheses can be derived;

H1: Operational benefits of ERPI positively affect internal processes of the firm.

H2: Operational benefits of ERPI positively affect external processes of the firm.

H3: Operational benefits of ERPI positively affect customer relations of the firm.

H4: Operational benefits of ERPI positively affect cost management in the firm.

H5: Tactical benefits of ERPI positively affect internal processes of the firm.

H6: Tactical benefits of ERPI positively affect external processes of the firm.

H7: Tactical benefits of ERPI positively affect customer relations of the firm.

H8: Tactical benefits of ERPI positively affect cost management in the firm.

H9: Strategic benefits of ERPI positively affect internal processes of the firm.

H10: Strategic benefits of ERPI positively affect external processes of the firm.

H11: Strategic benefits of ERPI positively affect customer relations of the firm.

H12: Strategic benefits of ERPI positively affect cost management in the firm.

5. EMPIRICAL STUDY

ERPI is reported to have many benefits to the firms (Nga et al., 2011: 133). SCMP is also reported to be in relationship with the usage of information technology (Forslund, 2010: 365). These concepts

have their specific aims, but these is need for research to investigate the relationships among these constructs, as they integrate the whole processes being held in the enterprise.

The present study aims to investigate the relationship between ERPI benefits and SCMP measures. In order to do so, it contains a detailed literature review. However, the literature is mainly based on CSFs of ERPI and measure development in SCMP. Thus, the present study deployed the methodology of Yang and Su (2009: 722) and conducted a field study to investigate the relationships between these two concepts.

Starting from this perspective, the present study conducted a questionnaire adopted from the former studies (Micheli et al., 2008: 851). The questionnaire is translated into target language (Laosirihongthong et al., 2013: 1096). To avoid common method variance problem, the scales in questionnaire were adjusted into statements that create no linkage between variables (Podsakoff et al., 2012: 549). In order to test disconnection and auto-correlation between variables, the preliminary test of the questionnaire, which received the ethics committee permission, was applied to the researchers and practitioners (Won et al., 2007: 446). Necessary changes have been done. After having satisfactory results from the pre-test, the questionnaire is sent to a sample, randomly defined from the industrial database of The Union of Chambers and Commodity Exchanges of Turkey (UC CET). In order to have higher response rates, the author conducted follow up phone calls (Field and Miele, 2008: 194). As a result, 284 responses have been obtained.

According to descriptive statistics analyze of the data; most of the respondents were males (82.4 %) and married (70.4 %), ages differed from 21 to 55 (working age) and most of them were undergraduate (57 %). The number of top managers were low, whereas the number of lower level managers were high. Seniority differed from less than one year to more than ten. The ages and the seniority were in coherence. Responses are gathered from different sectors. Mainly, textile, logistics, food and electronics sectors were in dominance. Lastly, the number of people employed in the firms were mainly less than 100.

For preliminary analyses, descriptive statistics are measured. The means and the standard deviations were similar with the other items aimed to measure the same variable. In addition, Cronbach alpha scores are assessed in order to see the reliability of the data (Won et al., 2007: 447).

Table 5.1. Reliability Statistics

Variable	Number of items	Cronbach Alpha Score
Internal Business Process Perspective	5	.911
External Business Process Perspective	5	.917
Customer Service Perspective	3	.818
Cost Management Perspective	6	.920
Operational benefits	5	.884
Tactical benefits	4	.860
Strategic benefits	5	.881

The Cronbach Alpha scores for all of the variables were higher than the acceptable thresholds (Yang and Su, 2009: 736). The measures for SCMP reported higher reliability than the measures deployed in order to measure ERPI benefits.

Table 5.2. Correlations

	EBP	CSP	Cost	IBP	Tact	Ope
CSP	.722**					
Cost	.633**	.646**				
IBP	.617**	.688**	.625**			
Tact	.479**	.562**	.588**	.587**		
Ope	.601**	.681**	.615**	.735**	.616**	
Stra	.600**	.604**	.591**	.669**	.585**	.660**

** Correlation is statistically significant ($p < 0.01$).

EBP= External Business Perspective, IBP= Internal Business Perspective,

Cost= Cost Management Perspective, Tact= Tactical Benefits, Ope= Operational Benefits,

Stra= Strategical Benefits, CSP= Customer Service Perspective.

The means of the same variables are calculated. These means are applied correlations analysis with Cronbach alpha scores. The results showed that all of the variables are related to each other. External business processes is found to be more correlated to customer services. Internal business processes are correlated to operational benefits of ERPI. These results revealed that these concepts are related to each other. However, there is need for deeper analysis of the data, as the intentions of the sample might vary in factor analysis. Also, there is need for regression analyses for hypothesis testing. The hypotheses are depicted in Figure 5.1.

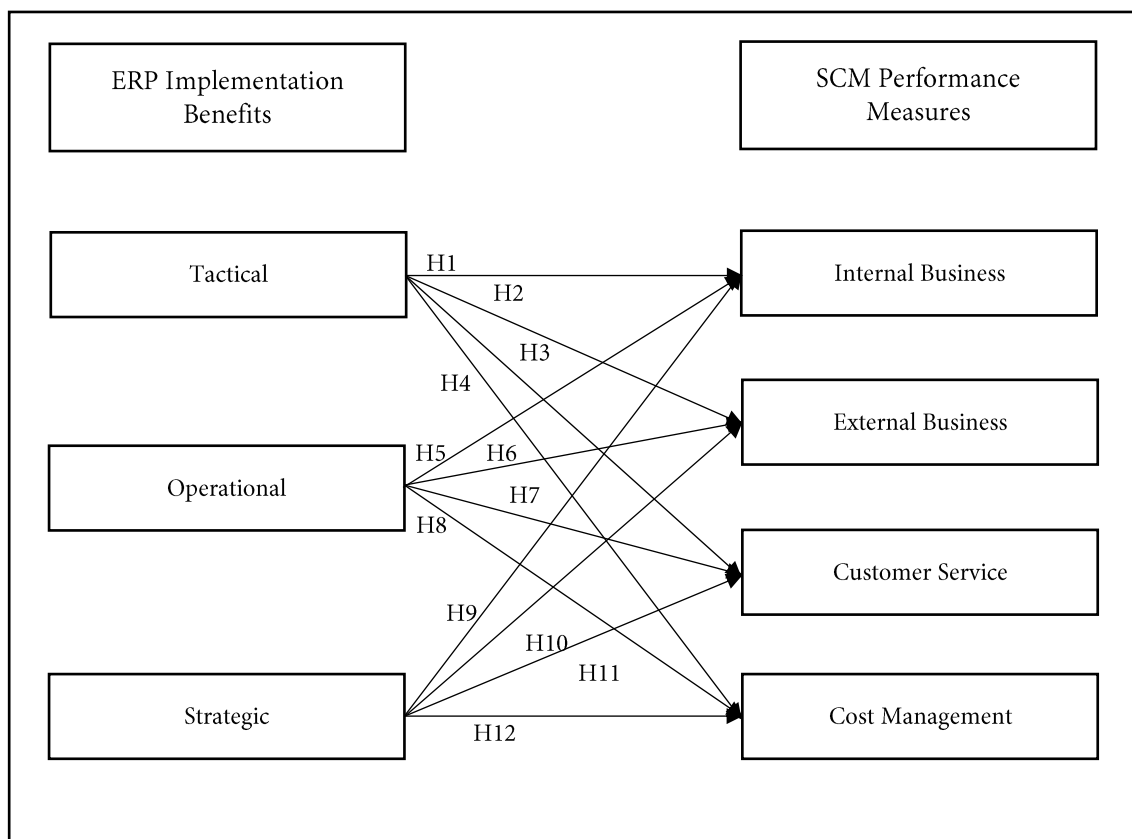


Figure 5.1. Hypotheses of the Research

In order to test these hypotheses, Exploratory Factor Analyses (EFA) are applied to the data. Initially the SCMP measures are analyzed. The KMO and Bartlett tests proved that efficient number

of people are obtained for factor analysis (KMO=.833, Bartlett=> p<0.01). The communalities showed that any variable is related to another variable. A Total Variance Extracted (TVE) value of 74.994 % is obtained, which means that the data has construct validity (Cadden et al., 2013: 91). The values are rotated with varimax rotation and every item is listed under the aimed variables (Zelbst et al., 2009: 672).

Table 5.3. SCMP Measures Rotated Component Matrix

Items	Component			
	1	2	3	4
S1		.785		
S2		.775		
S3		.748		
S4		.657		
S5		.740		
S6			.666	
S7			.814	
S8			.722	
S9			.747	
S10			.640	
S11				.698
S12				.735
S13				.776
S14	.709			
S15	.844			
S16	.818			
S17	.762			
S18	.685			
S19	.683			

Another EFA is applied to the ERPI benefits as the theory of the research includes two main variables. The KMO and Bartlett tests proved efficient number in sampling has been obtained (KMO=.818; Bartlett=> p<0.01). The communalities proved that every item is related to another item in EFA. A TVE value of 70,423 % is obtained. This also means that the analysis has construct validity.

Table 5.4. ERPI Benefits Rotated Component Matrix

Items	Component		
	1	2	3
S20		.650	
S21		.812	
S22		.822	
S23		.758	
S24		.628	
S25			.752
S26			.744
S27			.779
S28			.751

Items	Component		
	1	2	3
S29	.820		
S30	.824		
S31	.670		
S32	.842		
S33	.643		

The EFA proved that the theory of the research is depicted in the data. However, there is need to do regression analyses in order to test the hypotheses derived. The ERPI benefits are used as dependent variables and the SCMP measures are used as independent ones.

Table 5.5. Regression Results

Variables	Strategic		Operational		Tactical	
	Beta	Sig.	Beta	Sig.	Beta	Sig.
EBP	.186	.004	.068	.238	-.023	.736
CSP	.097	.155	.235	.000	.187	.012
Cost	.173	.004	.145	.007	.305	.000
IBP	.379	.000	.441	.000	.282	.000

The results of the regression analyses revealed many useful findings for the literature. The R-values of the analyses were 0.726 (strategic), 0.784 (operational) and 0.662 (tactical). This proved that the findings of the regression analysis is valid in nearly three fourth of the data.

Table 5.6. Hypothesis Testing Results

Hypotheses	Support
H1: Operational benefits of ERPI positively affect internal processes of the firm.	Yes
H2: Operational benefits of ERPI positively affect external processes of the firm.	No
H3: Operational benefits of ERPI positively affect customer relations of the firm.	Yes
H4: Operational benefits of ERPI positively affect cost management in the firm.	Yes
H5: Tactical benefits of ERPI positively affect internal processes of the firm.	Yes
H6: Tactical benefits of ERPI positively affect external processes of the firm.	No
H7: Tactical benefits of ERPI positively affect customer relations of the firm.	Yes
H8: Tactical benefits of ERPI positively affect cost management in the firm.	Yes
H9: Strategic benefits of ERPI positively affect internal processes of the firm.	Yes
H10: Strategic benefits of ERPI positively affect external processes of the firm.	Yes
H11: Strategic benefits of ERPI positively affect customer relations of the firm.	No
H12: Strategic benefits of ERPI positively affect cost management in the firm.	Yes

The results of the regression analysis is used in testing the hypotheses of the research. The operational benefits of ERPI is found to have a positive effect on IBP. Thus H1 is supported. There are similar findings in prior literature (Finney and Corbett, 2007: 329). On the other hand, the operational benefits of ERPI is not found to have a positive effect on EBP. So, H2 is not supported. This finding can be accepted as a limitation for the research. Yet, operational benefits of ERPI is reported to have a positive effect on CSP (Bendoly and Schoenherr, 2005: 310) and cost management (Huang and Handfield, 2015: 4).

Moreover, the tactical benefits of ERPI positively affect the IBP, CSP and cost management (Yang and Su, 2009: 743). Nevertheless, these benefits are not found to have a statistically significant effect on EBP. This finding can also be accepted as a limitation for the research. Furthermore, the strategic benefits of ERPI positively affect the IBP (Snider et al., 2009: 14), EBP (Esteves, 2009: 30) and cost management of the firms. However, no statistically significant effect is detected in CSP. This can also be accepted as a limitation for the present study. As it can be observed from Table 5.6, most of the hypotheses are supported. But the results also showed that the measures used for EBP and CSP should be reviewed for different contexts.

6. CONCLUSION AND DISCUSSION

The present study aimed to identify whether there are relationships between ERPI benefits and SCMP measures in Turkish manufacturing firms context. In order to do so, initially a detailed literature review has been done and the SCMP measures and benefits of ERPI are investigated. Prior literature is reviewed in terms of subject, methodology, scales deployed and findings. As a result of this attempt, it is observed that CSFs of ERPI (Yu, 2005: 115) and measurement development for SCMP (Coronado et al., 2011: 45) were in the focal point of the literature. Among these studies, only Yang and Su (2009:722) deals with the relationships between these two concepts. Therefore, the present study adopted the scale of this study and it is translated into target language (Laosirihongthong et al., 2013: 1096).

The industrial database of UCCET is used for sampling. The sample is randomly defined and they are provided an e-mail including a link for the questionnaire. As the response rate of the questionnaire was low, the author conducted follow up phone calls and was able to collect data from 284 respondents (Grosvold et al., 2014: 296).

The analysis of the data included preliminary analyses (reliability, descriptive statistics and correlations) and deeper analyses (EFA and regression). By preliminary analysis, it is observed that the sample's data is found to have reliability. Moreover, all of the constructs were found to be in correlation. With the use of EFA, the author observed that the theory of the research is confirmed. Lastly, the regression analyses proved that most of the hypotheses are supported.

By looking at the findings of the research, the operational benefits of ERPI can be accepted to have positive effect on IBP, EBP and cost management. In addition, the tactical benefits of ERPI effects IBP, CSP and cost management positively. Moreover, the operational benefits of ERPI effects IBP, CSP and cost management in a positive way. These findings may be used in comparing the results of following studies in different context by academics. The practitioners can accept these two concepts as a whole and plan their activities accordingly.

The present study has also some limitations. Although, the EFA proved that efficient number of respondents are obtained, there is need for application of greater samples in order to generalize the findings. In addition, the measures deployed for EBP and CSP can be analyzed in detail as the hypotheses testing gave statistically insignificant results. However, the hypotheses of Yang and Su (2009: 722) are not fully supported. This shows that the scale should be revised in different contexts.

To sum all up, firms can benefit from ERPI and effective usage of SCMP can result effective operational, strategic and tactical benefits for the enterprise. If the company focuses on internal and external activities, improves customer relations and follows more effective cost management policy, the benefits will affect not only the company but also all actors throughout the supply chain network. Therefore, the managers of the enterprises should plan, conduct and control all of the functions of the firm synchronously.

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