

# DRIVERS OF E-BUSINESS VALUE CREATION IN BANKING SECTOR IN JORDAN: A STRUCTURAL EQUATION MODELING APPLICATION

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## **ABSTRACT:**

*With the development and growth of internet, its applications of e-banking, e-commerce, and e-business became irreplaceable channels regarding its fast access, rich content, and smooth interactivity. High investments are paid toward improving the quality of service offered by the banks. This paper is dedicated to empirically investigating the drivers of e-Business value creation in the Jordanian banking sector. This work summarizes the main differences among employees of Jordanian and foreign bank regarding their perspectives. Many of the competing foreign banks to the Jordanian banks are enforced with huge financial capital, having long periods of banking practices and are employing cutting-edge technologies and tools. To minimize the technological gap, Jordanian banks are working hard to develop their e-Business services. This in one hand has to enhance their trust, satisfaction, and commitment toward existing customers and entice new comers on other hand. Based on business model of Amit and Zott, i.e. the four constructs of e-Value framework (efficiency, complementarities, lock-in, and novelty), four hypotheses have been formulated to test the differences in the drivers of e-Business value creation between Jordanian and foreign banks. A survey questionnaire in a form of paper-and-pencil was delivered personally to 200 employees from four main Jordanian banks and 200 employees from four foreign banks working in Jordan. The questionnaire was formed and constructed to test the proposed hypotheses. the findings in this study based on the SEM and T-test analyses, revealed important implications that will help banks' managers to make well-informed decisions and policies regarding investments and resources allocation for implementing e-Business strategies and ventures. The paper concludes with discussing the importance of these findings for practitioners and for future research on value accrued from e-Business services.*

## **KEYWORDS**

*E-Business, Value Creation, Bank, Structural Equation Modelling and Jordan.*

## **1. INTRODUCTION:**

As we enter the 21st century, business conducted over the Internet (which is referred to as “e-business”) with its reachable, dynamic, richness, rapidly growing, flexibility, ubiquitous and competitive capabilities promises new avenues for the creation of value. The term E-Business was initially crafted in a thematic campaign by IBM in (1997) and subsequently defined as “a secure, flexible, and integrated approach to delivering differentiated business value by combining the systems and processes that run core business operations with the simplicity and reach made possible by Internet technology” (<http://www.ibm.com>).

Under the value-centric approach, the ultimate objective of all organizations is to create value. Organizations create value by producing valuable outputs in the form of goods, services or

information and delivering the outputs to consumers. Part of the value created in the value creation process is captured by organizations as revenue and others are captured by consumers.

Value creation in e-Business is one of the most debatable issues among researchers and practitioners in justifying the e-business investments where skepticism about the value of e-Business is still questionable due to the gap between spending on Internet-related technologies and the perception about the tangibility of value from e-Business. They are struggling to determine whether e-business delivers value to Internet-delivered businesses, and if so, what drives that value? The concept of value is a fundamental economic concept at the core of what an organization does, since only superior value creation against competitors opens up the opportunity for superior profitability. However, even though value creation in e-Business is an outcome of the efforts of the all parties that enable online transactions, each party looks for its own benefit as regards value created.

The author of this study contend that value creation should be considered in formulating e-business strategies since it is a construct that is hard to identify, define, conceptualize, quantify and measure. However, a problem for managers, planners, strategists, economists, policy makers, investors and researchers is to understand the value of these strategies and their links to performance improvements.

The banking and other financial services sector is one of the most advanced in the usage and diffusion of technologies. Being essentially information business, they do not produce physical products and have been trading electronically for decades. For these reasons hardly any other sector is better suited for e-Business which, in fact, is progressing very quickly. ICT impacts on all aspects of the activity and is undoubtedly one of the main driving forces in the sector. Banks in Jordan as one of the first movers participating on the Internet are creating new online businesses while new services and products are utilizing the opportunities the Internet provides to innovate with e-Business applications.

In this study, e-business value refers to the value accrued to the banks where value may be expressed as the ability of e-business channel to enhance the business performance of the bank. Hence and grounded in the Amit and Zott e-Value framework, we constrain our measurements of value creation through carrying out e-Business applications in banks to changes in four related facets of banks performance—efficiency, complementarities, lock-in, and novelty. Hence, the e-business value construct represents an integrative measure of the level of Internet-enhanced business performance along these four drivers. The value drivers represent the key opportunities for creating new values in e-Business and are derived from the new relationships among participants in the value network, including suppliers, partners, competitors, and customers.

By the way, this study as far as we know will be the first in the MENA (Middle East and North Africa) region that examine the topic of e-Business value creation from empirical perspective, we hope that this work will be the solid ground for upcoming efforts in this debatable area for developing countries in general and MENA countries specifically. We are deeming that this study is worth investigating.

## **2. THE AMIT AND ZOTT E-VALUE FRAMEWORK**

E-business value rests on a business model that responds to relevant value drivers. We think that certain key aspects of the e-business model will play a key role and possess the power of influencing e-business value directly and significantly. We have adopted a framework of value drivers in e-business developed by [1]. Empirically, they identified four interrelated value drivers: Efficiency, Complementarities, Lock-in, and Novelty (Figure 1). Amit and Zott work on value

creation was compared to other theoretical frameworks in entrepreneurship and strategic management that makes valuable suggestions about possible sources of value creation. These are value chain analysis, Schumpeterian innovation, Resource-based theory, Strategic network theory, and Transaction cost economics.

The value drivers represent the key opportunities for creating new values in e-business and are derived from the new relationships among participants in the value network, including suppliers, partners, competitors, and customers.

### **2.1 Efficiency:**

This driver of e-Business value creation can be defined as value creation through a decrease of the transaction costs involved in the value chain activities of the business. The indicators are related if e-business had contributed to the achievement of efficiency gains. Specifically, if e-business had increased sales volumes, the products and services varieties, and geographical reach. Likewise, if e-business had led to a decrease in lead times, the number of intermediaries, the number of errors and/or returned goods, and – perhaps most importantly – costs.

Examples of online banking services adding value through efficiency include the substitution of traditional, paper-based transactions via e-Banking services, and the provision of instant information and transactions through the bank's website and mobile technologies.

### **2.2 Complementarities:**

This driver of e-Business value creation can be defined as the provision of value beyond the core, basic and expected attributes of a product or a service [2]. Indeed, virtual interfaces allow offering through hypertext links the bundling of complementary products and services that can create value by exceeding customer expectations. Those complementary products can either relate to vertical extensions of the initial offer (simulations, customer support, etc...) or horizontal ones (other products and services fulfilling associated customer needs. Specifically, complementarities as a value driver indicate the degree that e-business had contributed to such things as a wider product variety, product bundling, a simpler buying process for the customer, collaboration between partners (inter-firm transactions), and integration of activities in the value chain.

Examples of online banking services adding value through complementarities include sending SMS to a customer's mobile phone after making withdrawn transaction.

### **2.3 Lock-in:**

This driver of e-Business value creation can be defined as allowing providers to create a competitive advantage through actual and/or perceived user switching costs [2], hence augmenting the attractiveness of their business. Online interfaces can be used to generate switching costs through online customer management techniques such as personalization, familiarity and bookmarks. as far as customer retention (Lock-In) is concerned, to indicate the degree that e-business had contributed to such things as personalization of products and services, easy access to information about individual customers, customers' access to more information or knowledge, making it harder to switch supplier, customization of products and services by customers themselves, bonus or loyalty programs, and virtual communities.

Examples of online banking services adding value through lock-in include creating e-COP having all customers to interact and share their information, claims, ideas and suggestions with the bank.

## 2.4 Novelty:

This driver of e-Business value creation can be defined the fulfilment of existing or new customer needs by combining in a new way existing techniques, tools or knowledge. Internet-based technologies can hence be combined with available banking service offers to create value, either through new business models [1] or existing ones. They can use the internet, in new, innovative ways that may revolutionize financial intermediaries, monetary, tax and privacy policies [3]. In sum, to indicate whether e-business had created opportunities for innovation (Novelty) in terms of new products and services, new product features, customer driven pricing, first mover advantages, new transaction mechanisms, customized information directly to customers, and interactive dialogue with the customer.

Examples of online banking services adding value through novelty include launching new banking services through smart phones technology.

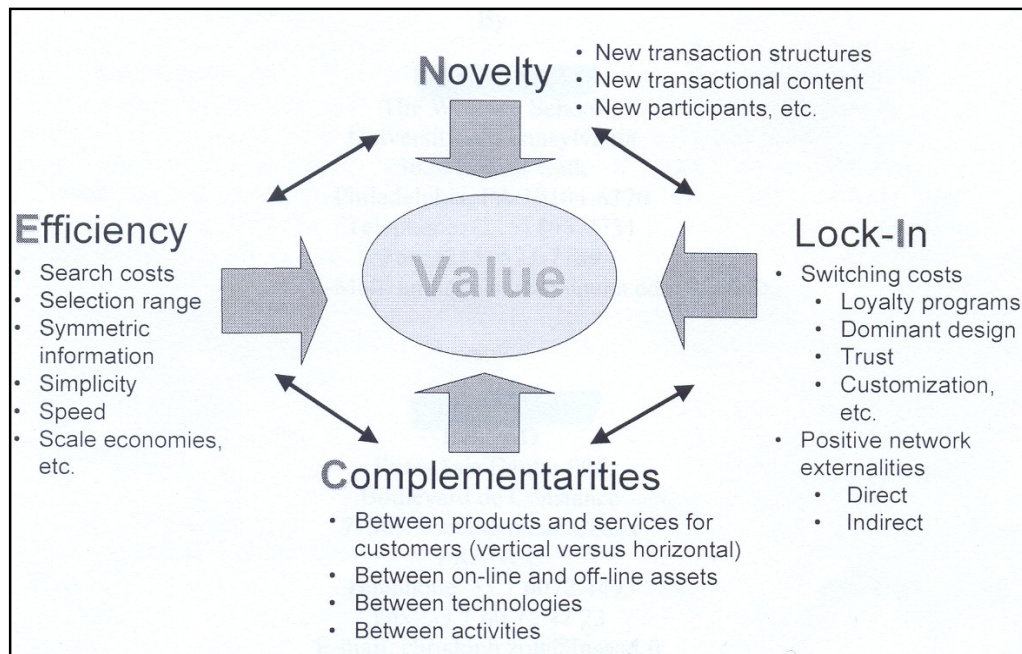


Figure 1. Drivers of Value Creation in E-Business (Amit and Zott, 2001)

## 3. RELATED WORKS

Doern and Fey (2006) have conducted an inductive interview-based study aims to develop a model to describe the e-commerce business model that create value in Russia. The results of the study identified eight key drivers of e-commerce value creation in Russia (accessibility, ease of search, ease of use, trust, complementarities, novelty, lock-in and efficiency). They concluded that the interaction between these value drivers and characteristics of the external environment affect how value is created by e-commerce business models in Russia.

Ana Rosa et al. (2007) have conducted an exploratory study to investigate value creation for online news industry, through surveying companies' websites from USA, Canada and Europe. They explored creation of value by new intermediaries on Internet and the web content aggregators from the value chain and value creation perspectives. They applied the four drivers

(efficiency, complementarities, lock-in, and novelty). The results provided a knowledge base to describe value chain of the industry, the main players of the sector, and its roles in the value chain.

Zott et al. (2000) have investigated strategies for value creation of e-commerce companies through a survey of 30 European e-commerce companies. The results identified two main strategies for value creation in e-commerce which are the efficiency that e-commerce business models exhibit, and the degree to which they create stickiness.

Radhakrishnan et al. (2008) have examined the relationship between IT and business value from process-oriented perspective. They analyzed data from over 80 firms to find differential business value created by IT along a number of process oriented dimensions.

Hulten (2012) has studied customers' perceptions of the value of upgraded product offerings using data from 93 managers in the Swedish business-to-business sector. The results indicated that communication of the value usage situations are positively associated with the customer-perceived value drivers. They concluded that Lindblom's theories on muddling are instrumental in explaining why it is difficult for a customer to accurately assess the value of a new solution.

Faroughian et al. (2012) have examined the value and risk in business-to-business e-banking. They have tested the functional relationships between three types of risk (performance, financial and psychological) and the benefits and components of value that includes e-service quality as an antecedent of value and satisfaction, word-of-mouth and intention to switch as outcomes of value. Using data collected through a postal survey from 167 UK-based SME organizations, the results confirm the significant but differential impact of the three types of risk on the two value components.

Richards and Jones (2008) have identified a core group of expected CRM benefits and examined their ability to increase a firm's value equity, brand equity and relationship equity which are components of customer equity.

O'Cass and Sok (2013) have examined innovation driven value creation in B2B service firms through exploring the role of managers and employees in the creation and delivery of superior value to customers via the firm's innovation capability. The results showed that a service firm's innovation capability has a positive effect on the firm's value offering, the value offering has a positive relationship with customer perceived value-in use and this in turn has a positive relationship with firm performance.

Hackney et al. (2004) have studied the strategies for value creation in electronic markets. They developed a framework encompassing e-market ecosystems, e-alliances, e-knowledge and e-systems. Their model is believed to be of value for conceptual assessment of virtual business communities.

Lin (2007) has investigated whether the firm IT capability of a firm can create economic value and competitive advantage in US banking industry. Based on a cross-sectional sample of 155 banking firms, the study results indicated that both IT capability and human capital investment contribute directly to the overall value-creation performance of banking firms.

Padilla-Melendez and Aguila-Obra (2013) have examined online value creation through web and social media usage by museums. They have presented a theoretical framework for understanding the online strategies of museums' use of web and social media. They have utilized the sources of

online value (efficiency, complementarities, lock-in, and novelty) and measurements of Internet performance, such as the Alexa Internet ranking.

Christensen and Methlie (2003) have explored value creation through e-business by focusing the impacts of Internet-enabled business transactions. They assumed that firms may reap the benefits of engaging in e-business only if they are able to develop, adopt and use Internet-enabled business models (e-business models). In this study, several economic and financial performance measures were used as value indicators. A survey was conducted in Norwegian enterprises. For a vast majority of the enterprises participating in this study, there have been no significant changes in key economic and financial indicators since they took up e-business. However, their research demonstrated that there is an association between value creation and e-business conduct. E-business value creation is associated with relevant e-business value drivers, namely efficiency, complementarities, customer retention, and innovation.

Amit and Zott (2001) have examined E-commerce business value for Internet companies by examining how a sample of American and European e-businesses creates value. Their e-value drivers' model suggests that the value-creation of e-businesses rests on four interdependent dimensions, namely: efficiency, complementarities, lock-in, and novelty.

#### 4. RESEARCH METHODOLOGY:

The e-value drivers' model to e-business value creation, described in section two, reveals how value is created through e-business. It has suggested that the creation of economic value be evaluated in light of four factors: efficiency, complementarities, novelty and lock-in. Therefore, an initial framework depicting the relationship between the four drivers of e-business value and value creation is shown in figure 1.2.

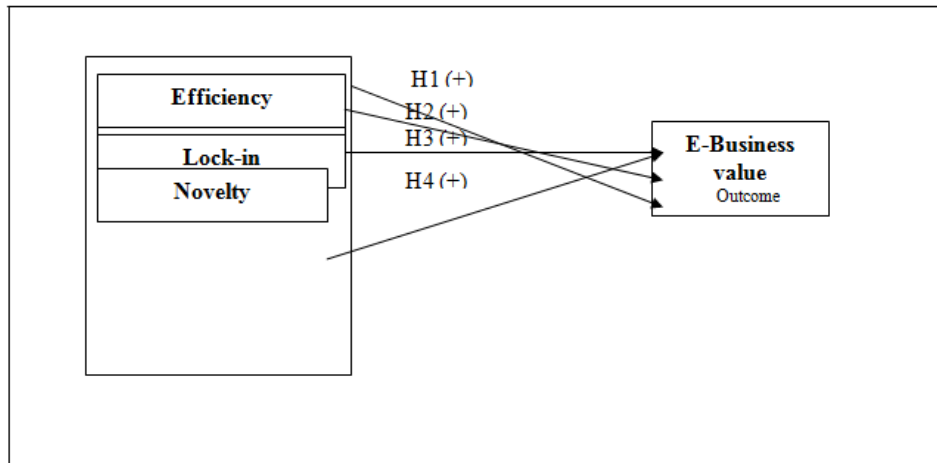


Figure 2. Framework Depicting the Relationship between the Drivers and e-business Value

Based on the constructs of The Amit and Zott e-Value Framework and the above stated related works, A survey questionnaire was developed by the researcher consisting of (19) items (see Appendix 1) about the employees' perception of the degree of efficiency, complementarities, lock-in and novelty created from e-Business services offered by Jordanian and foreign banks (Table 1 and Table 2). The scale items represented in the survey instrument utilized a five-point categorical rating scale. A purposive sample of (200) employees from four Jordanian banks and (200) employees from four foreign banks in Jordan was selected. Eligible respondents were the

individuals in each bank best qualified to speak about the bank's overall e-business or e-banking activities. The questionnaire was delivered personally by researcher to the employees. The total number of returned questionnaires was (161) in a response rate of (80.5%) for employees from four Jordanian banks and (122) in a response rate of (61%) for employees from four foreign banks.

Table 1. Statistical Data about the Surveyed Jordanian Banks

<i>Bank Name</i>	<i>year of establishment</i>	<i>No. of branches</i>	<i>No. of ATMs</i>	<i>Samples of E-banking services</i>
Arab Bank	1930	80	139	Arabi Online is an easy, secure Internet banking Service.
Cairo-Amman Bank	1960	79	120	CAB On-Line is an easy to use state-of-art Internet banking service.
The Housing Bank	1974	110	187	Iskan Online
Jordan Islamic Bank	1979	72	94	The I-Banking.

Table 2. Statistical Data about the Surveyed Foreign Banks

<i>Bank Name</i>	<i>year of establishment</i>	<i>No. of branches</i>	<i>No. of ATMs</i>	<i>Samples of E-banking services</i>
HSBC Bank	1949	6	14	HSBC Online Banking.
Egyptian Arab Land Bank	1951	14	14	Aqari Online
BLOM Bank	2004	9	12	eBLOM Internet Banking Service.
National Bank of Kuwait	2004	8	8	Watani Online Banking Services.

## 5. THE RESEARCH HYPOTHESES

Four hypotheses have been formulated to test the differences in the drivers of e-Business value creation among Jordanian and foreign banks. They are:

H1: There is a significant statistical difference regarding e-Business value creation in terms of efficiency between Jordanian and foreign banks.

H2: There is a significant statistical difference regarding e-Business value creation in terms of complementarities between Jordanian and foreign banks.

H3: There is a significant statistical difference regarding e-Business value creation in terms of lock-in between Jordanian and foreign banks.

H4: There is a significant statistical difference regarding e-Business value creation in terms of novelty between Jordanian and foreign banks.

## 6. RESEARCH FINDINGS:

The descriptive statistics, correlation coefficients Matrices, Reliability test, factor analysis, Chi-square test, structural equation modeling and t-test for equality of means analyses have been used and the WarpPLS Version 3.0 and SPSS 17.0 software were employed.

The correlation coefficients between items along with their significance values were computed using “item-to-total-test”. The results reveal that correlation coefficients between items are roughly greater than (0.3), which indicates they are suitable for factor analysis.

The confirmatory factor analysis is conducted to assess the overall measurement models and examine the discriminant validity of the four drivers of e-business value creation, using four alternative models. For each alternative model, chi-square differences and the Goodness of Fit Index of model is examined to evaluate discriminant validities.

Factor analysis is conducted as a structure detection method for justified scales of e-business value creation drivers. In addition, factor analysis is conducted to explain how the four drivers of e-business value relate to the construct measuring it and to establish consistency of the items. The Cronbach's alpha is conducted to check the internal consistency of measures.

**6.1 Scale Reliability and Validity Analyses**

The internal consistency measures for all four constructs were conducted using Cronbach alpha tests. Table 3 presents the alpha values for all factors which vary from (0.73) to (0.88) which are considered acceptable for this type of study.

Table 3. Internal Reliabilities for the Scales in the Empirical Study

Scales	Number of items		Cronbach’s alpha	
	First stage	Second stage	First stage	Second stage
Effic	6 items	5 items	0.7906	0.8070
Comp	4 items	4 items	0.7295	0.7295
Lock	5 items	5 items	0.8815	0.8815
Novelty	4 items	4 items	0.7321	0.7321

An "item-to-total-test" was performed and the correlation should fall from 0.3 to 0.7, and the results are presented in the Tables 4,5,6,7.

Table 4 showed that the efficiency driver scale (Effic) has 6 items; effic 5 has been removed to increase alpha because total test correlation score less than .30 is (0.2846). Table 5 showed that the complementarities driver scale has 4 items; all the four items fall in the standard score to total test correlation, and their alpha is greater than (.7). Table 6 showed that the lock-in (Lock) driver scale appears to be a very good construct, there is no need to drop any of its items, and alpha is (0.8815). Considering the novelty variable, Table 7 showed that there is no need to drop any of its items.



Table 4. Correlation Matrix for Efficiency Scale

	EFFIC1	EFFIC2	EFFIC3	EFFIC4	EFFIC5
EFFIC1	1.0000				
EFFIC2	.5533	1.0000			
EFFIC3	.5164	.4286	1.0000		
EFFIC4	.2737	.1666	.7420	1.0000	
EFFIC5	.2397	-.0265	.1857	.2165	1.0000
EFFIC6	.6217	.1548	.6019	.7784	.4247
	EFFIC6				
EFFIC6	1.0000				

Table 5. Correlation Matrix for Complementarities Scale

	COMP1	COMP2	COMP3	COMP4
COMP1	1.0000			
COMP2	.4666	1.0000		
COMP3	.1750	.8214	1.0000	
COMP4	.2182	.1336	.4677	1.0000

Table 6: Correlation Matrix for Lock-in Scale

	LOCK1	LOCK2	LOCK3	LOCK4	LOCK5
LOCK1	1.0000				
LOCK2	.7636	1.0000			
LOCK3	.3043	.4112	1.0000		
LOCK4	.5800	.6717	.8009	1.0000	
LOCK5	.3043	.4112	1.0000	.8009	1.0000

Table 7: Correlation Matrix for Novelty Scale

	NOVELTY1	NOVELTY2	NOVELTY3	NOVELTY4
NOVELTY1	1.0000			
NOVELTY2	.4414	1.0000		
NOVELTY3	.6483	.6809	1.0000	
NOVELTY4	.3612	.1111	.2476	1.0000

Factor analysis is conducted to assess the overall measurement models, with rotated factor matrix checking unidimensionality among the items. The results are presented in the Table 8.

Table 8. Loading Factor of the Items of the Four Drivers of e-business Value Creation Rotated Component Matrix

	Component			
	1	2	3	4
effic1		.798		
effic2		.804		
effic3		.640		
effic4		.553	.519	
effic5		.315		
effic6			.409	
comp1			.632	
comp2			.783	
comp3	.437		.659	
comp4			.779	
lock1	.699		.419	
lock2	.813			
lock3	.788			
lock4	.663			
lock5	.497			.635
novelty1				.669
novelty2				.857
novelty3				.510
novelty4	.532			

Table 8 provides the results of the rotated factor matrix of the four drivers of e-business value creation and then the items which have a loading factor less than 0.40 are eliminated.

In order to establish discriminant validity among the four drivers, the drivers are needed to be shown as a non-related in reality [3]. It then uses the Chi-square test and the analysis of model fits. That is, the null hypothesis of chi square test is that the factor analysis fits the data. The non-significant model is desirable, whereas a statistically significant Chi-square test means that the

more factors are needed to account for the structure of data. Therefore, all the items of the four drivers are entered into factor analysis test. The Goodness of-fit test through the Chi-square value is recorded for four alternative models.

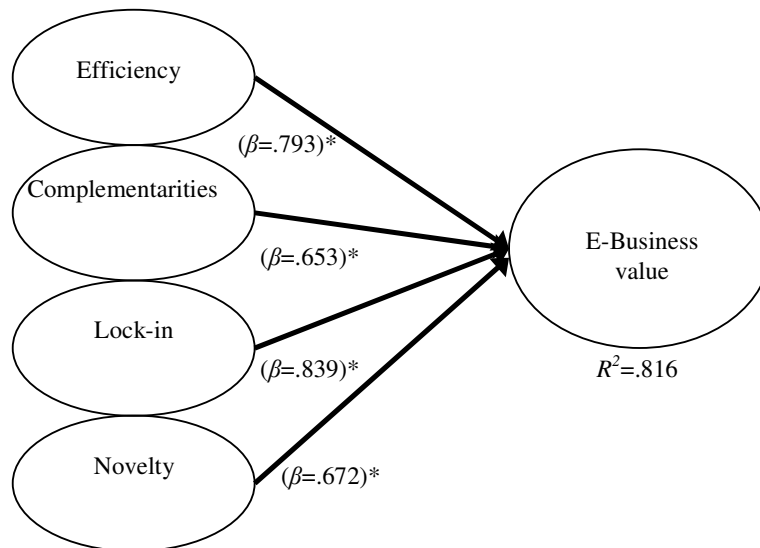
Table 9: Goodness of Fit Index and the significance of Chi-square for the drivers of e-business value creation

Alternatives	Chi-square (Goodness of fit index)	d.f
1	57.600(p<0.01)	13
2	105.714(p<0.01)	9
3	85.429 (p<.01)	14
4	44.000 (p<0.01)	9

Table 9 shows that the four alternatives are significant. Therefore, the null hypothesis of the model fitness should be rejected. The four models are significant to fit the data. Accordingly, the four drivers are shown as non-related in reality and thus indicate that the four drivers should be considered distinct.

### 6.2 Hypotheses Testing

For the purposes of validate the above research hypotheses, path diagrams using structural equation modeling (PLS-SEM) approach was used to. For each hypothesis, a model of regression was run separately for each of the independent variables (efficiency, complementarities, novelty and lock-in) for each bank. Accordingly, we examined the coefficients of the causal relationships between constructs, which would validate the hypothesized effects. Figures 3 and 4 illustrate the paths and their significance on the structural models. As shown in Figures 3 and 4, all paths are significant at the 0.05 level.



\*p<.05

Figure 3. Path diagram for drivers of e-Business value creation in Jordanian banks.

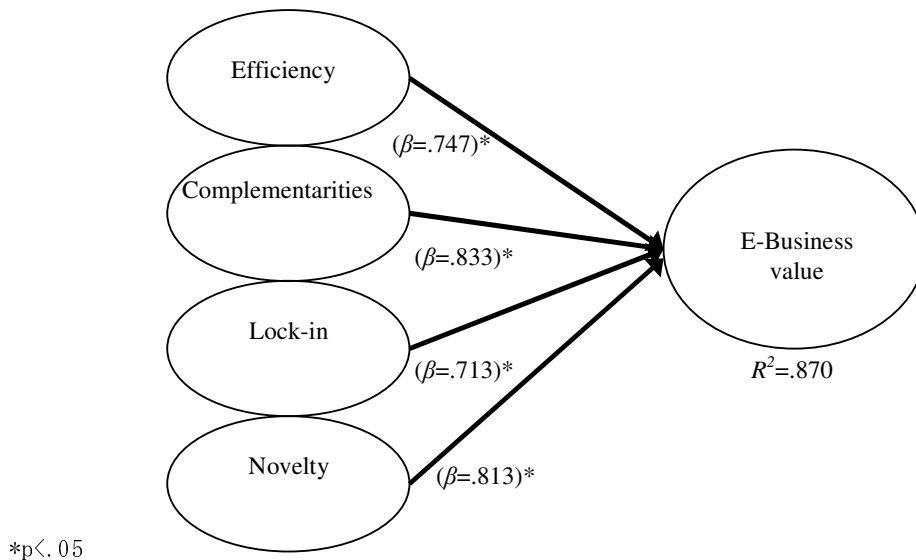


Figure 4. Path diagram for drivers of e-Business value creation in foreign banks.

As shown from the above Figures, e-Business value level perceived by the employees of Jordanian banks group and customers of foreign banks group, respectively ( $R^2 = 0.816, 0.870$ ) is reflected by efficiency, complementarities, novelty and lock-in. For Jordanian banks, the results show that the all drivers account for 82% of the variance in e-Business value level. This can be interpreted that 82% of the e-Business value level is referred directly to efficiency, complementarities, novelty and lock-in. while still 18% of e-Business value level might be attributed indirectly to other tangible or intangible factors such as, customers' trust, satisfaction and commitment with the bank services, employees' experiences and demographics, personal characteristics of customers, online customers' behaviors, banks' economic strength, technological factors, cultural factors, societal factors,... etc. As for foreign banks, the results show that the all drivers explain 87% of the variance in e-Business value level. This can be interpreted that 87% of the e-Business value level is referred directly to efficiency, complementarities, novelty and lock-in. while still 18% of e-Business value level might be attributed indirectly to other tangible or intangible factors such as, customers' trust, satisfaction and commitment with the bank services, employees' experiences and demographics, personal characteristics of customers, online customers' behaviors, banks' economic strength, technological factors, cultural factors, societal factors,... etc.

Specifically, for Jordanian banks the results show that efficiency, complementarities, novelty and lock-in drivers affect positively and significantly the e-Business value level ( $p < 0.05$ ). As shown in Figure 1.3, efficiency driver accounts for 79% of the variance in e-Business value level perceived by employees of Jordanian banks; complementarities driver accounts for 65% of the variance in e-Business value level perceived by employees of Jordanian banks; lock-in driver accounts for 84% of the variance in e-Business value level perceived by employees of Jordanian banks, and novelty drivers accounts for 67% of the variance in e-Business value level perceived by employees of Jordanian banks. For Jordanian banks, that means most of the 82% of the variance in e-Business value level is attributed to efficiency, complementarities, novelty and lock-in.

Furthermore, as shown in Figure 4, for foreign banks the results show that, efficiency driver accounts for 75% of the variance in e-Business value level perceived by employees of foreign

banks; complementarities driver accounts for 83% of the variance in e-Business value level perceived by employees of foreign banks; lock-in driver accounts for 71% of the variance in e-Business value level perceived by employees of foreign banks, and novelty drivers accounts for 81% of the variance in e-Business value level perceived by employees of foreign banks. For foreign banks, that means most of the 87% of the variance in e-Business value level is attributed to efficiency, complementarities, novelty and lock-in.

Table 10: Group Statistics

Driver	Bank	N	Mean	Std. Deviation	Std. Error Mean
Efficiency	Jordanian	161	4.0825	0.76920	0.05873
	Foreign	122	3.6459	0.74360	0.06394
Complementarities	Jordanian	161	4.0253	0.60402	0.05791
	Foreign	122	4.4618	0.63953	0.06932
Lock-in	Jordanian	161	3.8471	0.90049	0.05535
	Foreign	122	3.4321	0.95027	0.06496
Novelty	Jordanian	161	3.9253	0.58203	0.05647
	Foreign	122	4.5639	0.61290	0.06623

Table 11: t-test for Equality of Means

Driver	Mean Difference	Std. Error Difference	T	Sig (2-tailed)
Efficiency	0.36241	0.10239	3.394	.002
Complementarities	0.39594	0.11356	3.151	.002
Lock-in	0.26371	0.10876	2.461	.004
Novelty	0.29458	0.12491	4.937	.001

For the purposes of hypotheses testing, the employees’ perceptions of the differences upon the four drivers of e-Business value creation have been analyzed for both Jordanian and foreign banks. As shown in Table 10 and Table 11, the hypotheses H1, H2, H3 and H4 were supported in the testing. Table 10 shows the mean scores and standard deviations between the two groups of banks. Table 11 shows the mean difference and t-value, together with significant 2-tailed ratios between the two groups of banks. These differences in perceptions of employees upon the four drivers in the two groups were examined using t-test for Equality of Means. As shown in above Tables, significant differences were found for efficiency, complementarities, novelty and lock-in based on the bank (i.e. Jordanian or foreign). The findings in this study indicate that efficiency and lock-in from the perspective of employees of Jordanian banks are the most critical drivers of e-Business value, but the influence is not as strong as that of complementarities and novelty drivers from employee’s perception of e-Business value in Jordanian banks. While complementarities and novelty have influence from the perspective of employees of foreign banks on e-Business value, but the influence is not as strong as that of efficiency and lock-in.

Accordingly, Jordanian banks should pay attention to the facets of complementarities and novelty while focusing on the facets of efficiency and lock-in in order to improve the value endeavored from implementing e-Business applications. Further, Foreign banks should pay attention to the

facets of efficiency and lock-in while focusing on the facets of complementarities and novelty in order to improve the value endeavored from implementing e-Business applications.

These results indicate that employees of Jordanian banks have a higher positive perception about the efficiency and lock-in than employees of foreign banks, whereas employees of foreign banks have a higher positive perception about the complementarities and novelty than employees of Jordanian banks. Thus, H1, H2, H3 and H4 were accepted.

## **7. DISCUSSION OF FINDINGS:**

The results showed that efficiency, complementarities, novelty and lock-in had a significant influence on the e-Business value creation as perceived by the employees of Jordanian and foreign banks who are engaged in the bank's overall e-business activities and transactions. The research findings showed that the hypotheses 1, 2, 3, and 4 are fully proved through the significance of the four drivers.

Accordingly, efficiency driver contributes significantly and positively in enhancing the e-Business value creation as perceived by employees of Jordanian banks; it accounts for 79% of the change in e-Business value level. Furthermore, it contributes significantly and positively in enhancing the e-Business value creation as perceived by employees of foreign banks; it accounts for 75% of the change in e-Business value level. This indicates the significant role of the efficiency in driving the value created by conducting e-Business transactions in two groups of banks as perceived by their employees.

This means that the higher speed of transactions, the more degree of automation, the higher breadth and depth of information and services provided and the ease of access to potential transaction participants will lead to more value reaped through conducting e-Business transaction in the bank. In this sense, the efficiency driver will attract more customers and employees to fully utilize e-Business channel to perform their banking and financial transactions online at a lower costs. Further, the efficiency driver will push banks to adoption and applying e-Business to decrease the overall costs of the bank. These findings are consistent with the findings of [4], [5], [6], [7], [8] and [1].

Complementarities driver contributes significantly and positively in enhancing the e-Business value creation as perceived by employees of Jordanian banks; it accounts for 65% of the change in e-Business value level. Furthermore, it contributes significantly and positively in enhancing the e-Business value creation as perceived by employees of foreign banks; it accounts for 83% of the change in e-Business value level. This indicates the significant role of the complementarities in driving the value created by conducting e-Business transactions in two groups of banks as perceived by their employees.

This means that the more bundling of resources and capabilities and the more bundling of products and services will lead to more value accrued through conducting e-Business transactions in the bank. In this sense, the complementarities driver will let customers to appreciate more the bank's products and services when they have other products and services delivered by e-Business channel such as facilitated request checkbook, credit card, account statement or facilitated Inquiry about Interest rates, currency exchange rates, deposits and loans calculator. These findings are consistent with the findings of [4], [7], [9], [10], [8] and [1].

Lock-in driver contributes significantly and positively in enhancing the e-Business value creation as perceived by employees of Jordanian banks; it accounts for 84% of the change in e-Business value level. Furthermore, it contributes significantly and positively in enhancing the e-Business

value creation as perceived by employees of foreign banks; it accounts for 71% of the change e-Business value level. This indicates the significant role of the lock-in in driving the value created by conducting e-Business transactions in two groups of banks as perceived by their employees.

This means that the more direct incentives, high levels of trust and reliability and more network effects capabilities will lead to more value created through conducting e-Business transactions in the bank. In this sense, the lock-in driver will make customers more motivated to engage in repeat transactions through utilizing the e-Business channel. These findings are consistent with the findings of [4], [7], [6], [9], [10], [5], [8], [11] and [1].

Finally, novelty driver contributes significantly and positively in enhancing the e-Business value creation as perceived by employees of Jordanian banks; it accounts for 67% of the change in e-Business value level. Furthermore, it contributes significantly and positively in enhancing the e-Business value creation as perceived by employees of foreign banks; it accounts for 81% of the change in e-Business value level. This indicates the significant role of the novelty in driving the value created by conducting e-Business transactions in two groups of banks as perceived by their employees.

This means that the new combination of products, services and information, the new participants brought together and the new structuring of transactions will lead to more value created through conducting e-Business transaction in the bank. In this sense, the novelty driver will lead to delivering innovative banking products and services, new methods of working, distribution and marketing and entry to new markets through adopting e-Business channel to perform banking and financial transactions online. Further the novelty driver will be conclusive impetus for adoption and applying e-Business in the banks. These findings are consistent with the findings of [4], [5], [7], [8], [11] and [1].

In that respect, as shown from the above Figures; the lock-in driver is the strongest creator of e-Business value level as perceived by employees of Jordanian banks (0.84) than other drivers efficiency, complementarities and novelty (0.79, 0.65, 0.67) respectively. That is attributed to the fact that most customers of Jordanian banks are Jordanian citizens where they trust more their banking and financial operations due to many political, social and economical effects. While, the complementarities driver is the strongest creator of e-Business value level as perceived by employees of foreign banks (0.83) than other drivers efficiency, lock-in and novelty (0.75, 0.71, 0.81) respectively. That is referred to the widening scope of foreign banks in several countries and so the need to bundling their resources, capabilities, products and services. As regards our study, the four drivers, complementarities, novelty and lock-in have found to be critical for boosting the e-Business value created for both Jordanian and foreign banks that are providing e-Business services.

Additionally, the results of the hypotheses testing verified that there are significant statistical differences regarding e-Business value in terms of efficiency, complementarities, lock-in and novelty between Jordanian and foreign banks. As shown in Table 10 and Table 11, these results indicate that employees of Jordanian banks have a higher positive perception about the efficiency and lock-in than employees of foreign banks, whereas employees of foreign banks have a higher positive perception about the complementarities and novelty than employees of Jordanian banks. Possible explanations for these findings are as follows: First, due to the fact that most of customers in the Jordanian banking sector are Jordanian citizens, hence they rely highly on Jordanian banks for conducting their banking and financial transactions at lower costs. Hence, efficiency is perceived more as e-Business value with Jordanian banks than foreign. This might be attributed to their demographics of Jordanians, political or social contexts and the financial and

economical stability of Jordanian banks. Second, considering that Jordanian banks are offering more customized and localized products and services, and the orientation toward achieving the expectations, needs, desires and interests of Jordanians, hence lock-in is perceived more as e-Business value with Jordanian banks than foreign. This is probably due to previous practices with the Jordanian banks in terms of speed of transactions, breadth and depth of information and services, as well as the ease of accessibility. Third, considering that foreign banks have huge financial capital, international banking expertise and practices, new methods of working, global markets, wide chain of participants and advanced ICT infrastructure which in turn led to providing bundling of new and innovative products, services, resources and capabilities. Hence novelty and complementarities are perceived more as e-Business value with foreign banks than Jordanian. This has been resulted in distinguishing foreign banks in terms of complementarities and novelty than Jordanian banks.

## **8. CONCLUSIONS AND FUTURE WORKS**

Due to the spectacular explosion in e-Business applications worldwide, still research has mostly been limited to the issues of diffusion, adoption, acceptance and usage of these applications in organizations. This study focused instead on exploration the value created by e-Business applications through investigation the drivers of the value created as a result of usage of these applications in the banking sector at Jordan.

Our contention was that e-Business value is created if and only if banks utilize business models that respond to the four e-business value drivers, namely efficiency, complementarities, lock-in, and novelty. Hence, the four potential drivers of value creation are present through carrying out e-business in both Jordanian and foreign banks. Our study revealed a relatively strong relationship between the creation of e-Business value and e-Business conduct in banks. Also, our value drivers represent key aspects of e-Business conduct. In our study each of the identified drivers of value creation commands different attention.

The main purpose of this study is to provide a context for better understanding of e-Business value and how the drivers of e-Business value creation are necessary for e-Business value and banks performance. Our study revealed that value creation through e-Business in banks can be achieved only by continuously developing and improving business activities associated with these particular value drivers. Success in this respect requires some thorough rethinking on part of responsible managers. In particular, it should be recognized that e-Business conduct is not like regular business conduct. Among other things, key value drivers are different.

The findings of this study have important implications for Banks' managers and practitioners in Jordanian and foreign banks to answer the question of whether and how e-Business investments create business value, because it is not clear to them how this value is created, and what are the drivers that boost that value, also which of them is most important. This study is providing them with a set of practical recommendations for attaining high levels of e-Business value through conducting e-Business applications.

First, with the help of this study the authors tend to investigate those drivers whereupon the e-Business value is based. Results obtained in the study also identified how the bank management (i.e., Jordanian or foreign) can create e-Business value by making well-informed decisions regarding the investments in e-Business applications and allocating the resources needed for that investments.

Second, this study revealed significant differences in the e-Business value level between Jordanian and foreign in terms of efficiency, complementarities, novelty and lock-in that may be



used in giving insights for management of both banks to pay more attention to the less-feasible drivers.

Finally, this study has demonstrated the complexity of issues concerning e-Business value creation for banks and subsequent adoption/rejection decisions of carrying out e-Business applications in their banks, and thus highlighted the need for contextual, service-specific perspectives in research as well as practitioner decision making on these matters.

This study is not without limitations, the sample size is not large enough. Therefore to increase generalization and accuracy of the study results, future studies should attempt a larger sample size.

The hypotheses of this study are tested on Jordanian employees, and so the generalizability of the findings is limited to the social, economical and cultural contexts. Therefore, cross-cultural or sub-cultural comparative studies should be conducted in the future to provide a useful empirical basis to enhance the validity of the findings.

The current research is limited to one sector the banking. Nonetheless, other sectors in Jordan can be studied and so this would improve the generalizability of the research findings.

We focused our study on banks conducting e-business that enabled B2C business model transactions, as a future research, we can study the B2B business model transactions. Moreover, A suggested future studies can be done from the perspectives of both customers and employees in banks. Further the demographics of customers can be studied as they might affect their perception on the value created from e-Business transactions.

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