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Adoption of Business Model Canvas in Exploring Digital Business Transformation

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Abstract: Digital Business Transformation (DBT) values and contributions are still unrecognized by many organizations. Managers face problems in initiating their digital transformation due to the challenges and complexities in the realization of these processes. Business Model Canvas (BMC) – known as a semantically enriched tool for business model analysis and design – is a rather novel approach proposed to solve this problem. It is used to highlight organizations' capabilities and verify the role of IT systems in organizations. Further empirical investigations are required to identify BMC's role in DBT and specify the main changes caused by IT systems. For this purpose, a case study of "The Faculty of Scientific Research at Zarqa University" is used to demonstrate how BMC can be utilized as a part of the DBT process, where a new internal IT system for Scientific Research is introduced, and BMC is implemented through. The Scientific Research Information System (SRIS) has been used to manage the research in the faculty. The BMC design was implemented pre and post-using the SRIS. A proposed model was derived based on the difference between both implementations. A quantitative approach using an online questionnaire was accomplished to evaluate this model and measure its new elements post using SRIS. The research results show that Key Activities, Key Resources, Value Propositions, Customer Relationships, and Channels are the main zones related to DBT. In addition, the changes in the elements of Key Resources are the essential motive and the cornerstone of DBT.

Keywords: Business Model Canvas, Business Models, Digital Business Transformation, Information Technology, Scientific Research Information System.

1 Introduction

Information Technology (IT) Systems are business enablers with different capabilities that address business needs such as communication, storage and manipulation, integration and collaboration, and research and simulation [1]. Still, many organizations have a problem adopting these new IT systems and recognizing how to succeed in launching their Digital Business Transformation (DBT) [2]. In addition, Information systems have an impact on improving performance in organizations; however, not all of the values and contributions of these systems are captured and implemented through business models to achieve business purposes. Thus, business models have shown a limited understanding of accelerated technological changes and radical innovation. Prior studies have also shown complexity and challenges in shifting to new business models [3].

A successful business depends on technologies as much on Business Model (BM) design. Therefore, new BMs are also related to technology development [4]. Presenting Information systems in BMs and analyzing the BMs before using these systems involve DBT [5]. Re-designing BMs after using information systems anticipates verifying the role of IT systems in DBT, and it can also highlight a significant aspect of an organization's new dynamic capabilities [4]. Furthermore, it resolves the research's limitations in understanding and facilitating the design of BMs [6].

BM terminology has been used in organizations' business perspectives. However, this understanding has created a contradiction between the high importance of the term utilized by organizations and its low level of obvious meaning [7]. A semantically enriched Business Model Canvas (BMC) can be a solution to this contradiction. A BMC is a tool for analyzing and designing BM. This tool comprises nine segments based on thorough literature and previous research in BMs' field [8].

In this paper, we presented the design of BMC for the Faculty of Scientific Research at Zarqa university in Jordan. The

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BMC design was implemented before and after using an IT system that manages the Scientific Research in the university. The differences in both designs were utilized to explore a model proposed in DBT. Thereupon, this paper aims to facilitate understanding and performing DBT in organizations.

In addition to the introduction, this paper is organized as follows; Section 2 and 3 present a generic overview of DBT and IT, Section 4 presents the literature on the BMs and the BMC, and Section 5 demonstrates the design of BMs using the faculty of Scientific Research Case Study, Section 6 conducts the research design and methodology, Section 7 shows data analysis and results. Finally, Section 8 concludes this paper.

2 Information Technology

Information Technology (IT) was used to point to hardware and interconnection of systems, while Information Systems (IS) referred to software and applications. Afterward, the term IT was expanded to cover all these components [1]. A more explanation of IT is related to defining its roles. Adomavicius and others [9] summarized these roles: (i) a product and application role that reflects technologies that are developed from different components and provide interaction with users in a certain context, (ii) a component role that supports other technologies as a subsystem, and finally (iii) an infrastructure role which matches technologies that work jointly with product and application role to add or extend value such as peripheral devices.

According to the Knowledge Management field, IT is categorized into Integrative and Interactive artifacts [10]. Interactive artifacts are associated with applications that support interactions and communications between individuals of an organization. On the other hand, integrative artifacts are applications that allow the storage and retrieval of information. In our paper, an internal Scientific Research Information System (SRIS) is the IT artifact that has been demonstrated. The SRIS is classified in both IT artifacts, as an interactive and integrative application.

3 Digital Business Transformation

Digital Business Transformation is concerned with organizations that transfer main processes to IT solutions, causing a significant shift in a business environment [11]. Others suggest that IT use should be remarkable in DBT at least in three dimensions [2]: user experience, processes, markets, customers, relationships, and new organizations. Mergel and others [12] reviewed different definitions for DBT, such as introducing an efficient service delivery, generating a new BM using IT and achieving customers' needs, and emphasizing cultural change in an organization. Their final results reported that DBT is a comprehensive approach and an endless process highly affected by external drivers such as new ITs.

Vaska and others [13] concluded that DBT affects most industries' creation, capture and delivery of value. Their study also showed that the DBT field is still developing, and DBT research is mainly distributed among three topics: Shared platforms and ecosystems, new enabling technologies, and disruptive technologies. A platform is "any combination of software and hardware that has rules, interface, and standards that enable and permits providers of complements to create value and interact with users" [14]. Disruptive technology is defined as a technology that changes the rules of competition by substituting measurements of performance that organizations use to compete [15]. Enabling technologies can indicate the nine pillars of industry 4.0, such as cloud technology, the internet of things (IOTs), and cyber security [16].

After all, technologies can fail or develop an unpredictable or uncertain direction that also applies or affects BM evolution that supports sustainability [17] [13].

4 Business Models

A Business Model is based on defining the behavior through which organizations achieve value that customers pay for to translate into profits [18]. It describes "the rationale for how an organization creates, delivers, and captures value" [8]. It also shows how parts of a business are aligned together without focusing on a specific dimension. Consequently, it is a way of sustaining an enterprise business and a platform that connects processes, resources, and services, resulting in an advantage [19].

BMs have different forms and are usually linked to an existing company where they summarize a particular kind of behavior [20]. Scholars classify such BMs forms according to different typologies. Baden-Fuller and Morgan [20] derived two kinds of BMs from the name and labels that companies use. One is the scale or nutshell model that describes things in the real world, and the other is the role model, which is an optimal case to be followed. Nielsen and Lund [21] summarize three typologies of BMs, which include generic, broad, and narrow BM definitions. Generic BM definitions imply ontology for BM, components that establish a business, and general industrial attributes. Broad BM

definitions include the method of performing a business, a focus on all enterprise systems, the architecture for value generation, and roles and relationship descriptions. Finally, narrow BM definitions describe unique internal parts, infrastructure for value generation, and an understanding of processes, links, and networks that create value.

4.1 Visual Business Models

Different approaches were presented to visualize BMs. Kaplan [22] has constructed a BM of three elements which are the operating model, customer experience, and financial model. These elements are constructed by answering three questions: How does an organization create value? How does it deliver? How does it capture? Another approach to a four-box BM framework was proposed by Johnson and Lafley [23]. The four cornerstones of this framework are customer value proposition (CVP), which involves value creation, profit formula that refers to the way of capturing value for the organization and shareholders, and finally, key resources and key processes, which represent the means of delivering value for the customers and organization such as products, technology, marketing, and development. Lindgren and Rasmussen [24] have also used the CVP and profit formula in their BM cube. However, they added to these two building blocks new five ones, which are: customers that define whom the organization serves, value chain that describes what value chain roles an organization provides, competencies in an organization such as processes and assets, networks such as suppliers and partners, and visible and invisible relations that relate all these building blocks.

4.2 Business Model Canvas

Business Model Canvas is another technique that visualizes business models [8]. This technique has been introduced to facilitate understanding BM by making the BM concept simple and relevant. It presents a template that links the infrastructure to the client for an organization [21]. The BMC has nine different segments that build a business model. Some of these segments are common with the previous BMs but might differ in their naming. The segments are value proposition, customer, customer relationships, channels, key resources, key activities, key partners, cost structure, and revenue. Customer relationships are the relations that an organization generates and continues with a particular customer segment. Channels describe how to reach customers to deliver value. Key resources are assets that enable BM to work. Key activities are critical actions an organization must do toward BM work. Key partners are suppliers and partners. The cost structure is all costs that are afforded for BM operation. Finally, revenue streams are the cash an organization gains from a customer.

5 Applying BMC to the Faculty of Scientific Research

The faculty of Scientific Research has a significant role in all universities. It involves different activities that are related to research, including audit, communication, review, fund, and archiving. In this section, we demonstrate the BMC using the internal system of this faculty at Zarqa university in Jordan. The BMC has been implemented with/without the new Scientific Research Information System (SRIS). The staff in the faculty were involved in building and validating the BMC in both approaches. Differences between these two approaches were used to present our conceptual model and determine which segment of BMC should be evaluated regarding the impacts of SRIS adoption.

5.1 BMC Pre-Using SRIS

A BMC has nine segments that need to be explored and represented by an analyst. Specific questions are used to support the discovery of the key determinants of each segment. Table 1 shows the suggested questions by Open Group [25] that are used in this research with the case study of Scientific Research Deanship (SRD).

Table 1: Suggested Questions for extracting BMC elements [25]

Segment/ Building Block	Question(s)
Value Proposition	What values are delivered to customers? Or Which customer needs are supplied?
Customer	What kind of customers are created for?
Customer Relationships	What relationship does each customer expect to create and retain?
Channels	How is the value proposition delivered to the customers? Where can customers obtain products?
Key Resources	What resources are needed to create and deliver the value proposition?
Key Activities	What activities does the value proposition need? What activities are most significant for customer relationships, channels, revenue, and other segments?
Key Partners	Who are the key partners or suppliers?

Cost Structure	What are the most significant costs to create and deliver a value proposition?
Revenue	What value do customers pay for? Or What is the revenue or the returned value?

Applying these questions to the SRD case study will fill the corresponding answers in the segments of the BMC, as shown in Fig. 1.

5.2 BMC Post-Using SRIS

Scientific Research Information System (SRIS) is considered an interactive and integrative system. It enables storing files and accessing these uploaded files by authorized researchers. It also permits communications between the researchers through commenting and accrediting or rejecting various files. Zarqa University in Jordan has developed its SRIS in the last few years. SRIS is expected to change different areas of internal business which need to be investigated. Therefore, we have demonstrated the BMC using SRIS to discover and explain these changes. The previous questions which are used to extract the elements of BMC are also used after applying the SRIS. The BMC with its changed blocks is colored and implemented in Fig. 2.

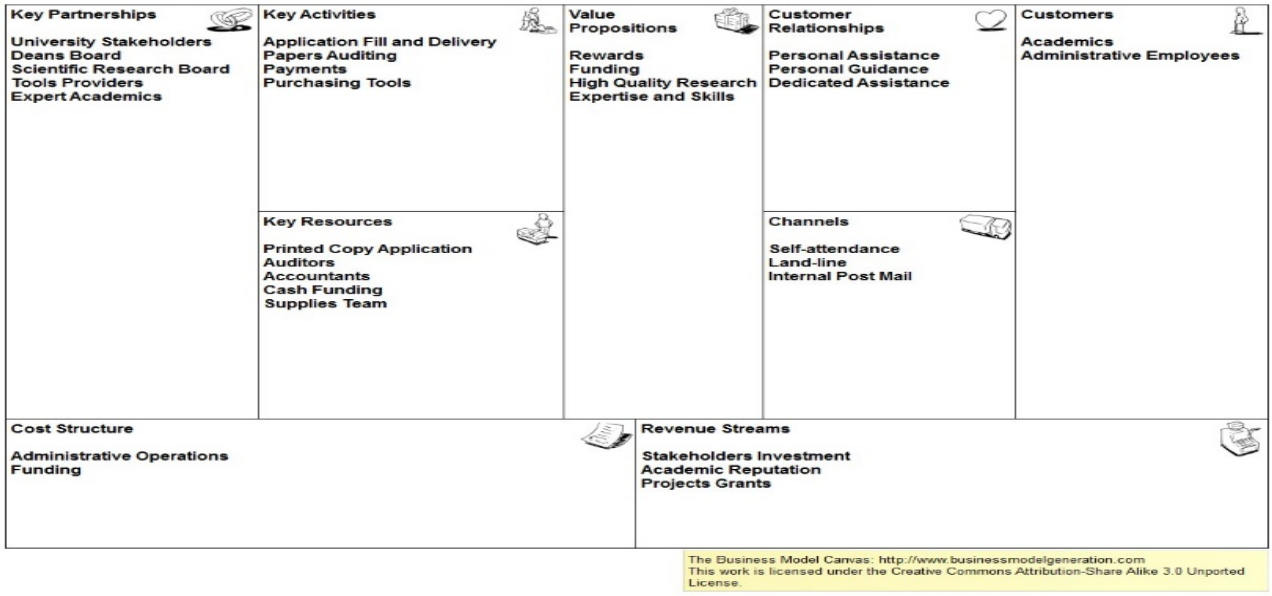

Fig. 1. BMC of scientific research deanship before applying SRIS

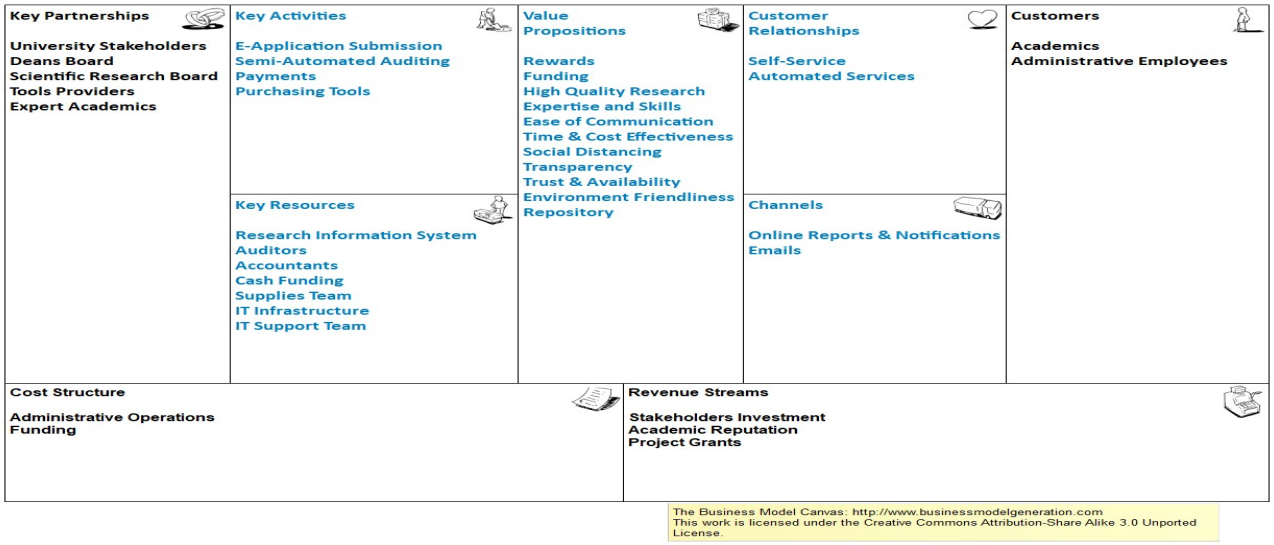

Fig. 2. BMC of scientific research deanship after applying SRIS

The comparison between the two BMCs shows the differences in the type and number of elements in five segments of the BMC (see Table 2).

Table 2: A Comparison between Two BMCs Pre AND Post-Using SRIS

BMC Segment	No. of Elements Pre using SRIS	No. of Elements Post using SRIS	Remarks
Key Activities	4	4	Changes are mainly in the type of elements, specifically the form of activities. The number of elements is the same.
Key Resources	5	7	The number of resources increased after adding SRIS-related resources. However, few resources stayed the same.
Value Propositions	4	11	Significant changes are obvious in this segment. The application of the SRIS identified many new values.
Customer Relationships	3	2	Using SRIS has resulted in a decrease in the number of elements in this segment. No assistance or interaction with customers is necessary.
Channels	3	2	Type of channels are changed by using SRIS

6 Research Design and Methodology

After the demonstration of the BMC before and after using SRIS, both Canvases are verified and validated by the staff and the Scientific Research board of the faculty. The verification test includes checking the correctness of BMC elements. Correctness shows no missing or additional elements in each segment of both Canvases. The validity test also ensures that the BMC elements in both approaches are right. The BMC content pre and post-using SRIS is checked to be right by the agreement of the representatives of the Scientific Research Board. Each segment of the BMC with its elements is questioned to be right in its position and existence.

The development of BMC after using the SRIS has identified changes in five segments. These segments are the essential variables of the proposed model that we have suggested to understand a DBT for an organization (see Fig. 3). The new Key Resources segment presents the independent variable that drives DBT since the change in existing Key resources is mainly assigned to the adoption of a new Key IT system resource (SRIS), which causes the overall change. It also enables the changes of the other components or the dependent variables. Other changed segments respond to New Key Resources by generating new elements. Key Activities, Customer Relationships, Value Propositions, and Channels are the respondent and dependent variables. Changes in these variables rather than others could be related to their direct connection to using new technological resources. This means that they are highly affected by the use of new technology. However, each of these variables requires an empirical investigation to test and confirm the impacts of new technology adoption on them. Thus, a case study approach with a quantitative method is accomplished for this test. An online survey questionnaire was developed using a five-point Likert scale to assess the derived model variables. The online questionnaire was distributed to 37 departments using a link. This link was sent directly through the university email to 269 academics in 37 departments of 13 faculties.

Upon the previous literature and presenting the research model, the hypotheses are proposed in this research:

H1: “Utilization of specific Business Model Canvas segments facilitates the illustration of Digital Business Transformation”. H1 is the main hypothesis that we need to test in this paper. Acceptance of the main hypothesis is determined by demonstrating the changes that SRIS has made on particular segments of the BMC. These changes are translated into the following sub-hypotheses.

H1-1: The SRIS resource has made a significant difference in Key Activities.

H1-2: The SRIS resource has made a significant difference in Value Propositions.

H1-3: The SRIS resource has made a significant difference in Customer Relationships.

H1-4: The SRIS resource has made a significant difference in Channels.

7 Data Analysis and Results

Transformed segments in the BMC are assessed using an online survey questionnaire. Ninety responses were received from all academics in different faculties. The questionnaire has paragraphs that assess and correspond to the new elements of the BMC changed segments; Key Resources (3 paragraphs), Key Activities (4 paragraphs), Value

Proposition (7 paragraphs), Customer Relationships (3 paragraphs), and Channels (3 paragraphs). Key Resources paragraphs present the independent variable that verifies using the SRIS and its related resources. The impact of SRIS resources on remaining segments or dependent variables is measured using Descriptive Statistics and Regression Analysis.

Internal consistency of the questionnaire's paragraphs using the reliability method is performed before analyzing the questionnaire responses. Cronbach's alpha measure was used to test the reliability of the questionnaire. The Cronbach's Alpha coefficient value using 20 items with 90 cases/responses is 0.948, which is considered an excellent range.

7.1 Demonstration of the DBT Model

As we have mentioned, the BMC, after using SRIS, has changes and new elements. Each new element was translated into one or more Likert scale questions in the questionnaire. In addition, a group of questions reflects one of the BMC segments we presented in the DBT model. The responses to these questions support the evaluation of the DBT model and address the hypotheses we have proposed. Descriptive statistics for each of the following variables that present a segment in the DBT model were used to analyze these responses:

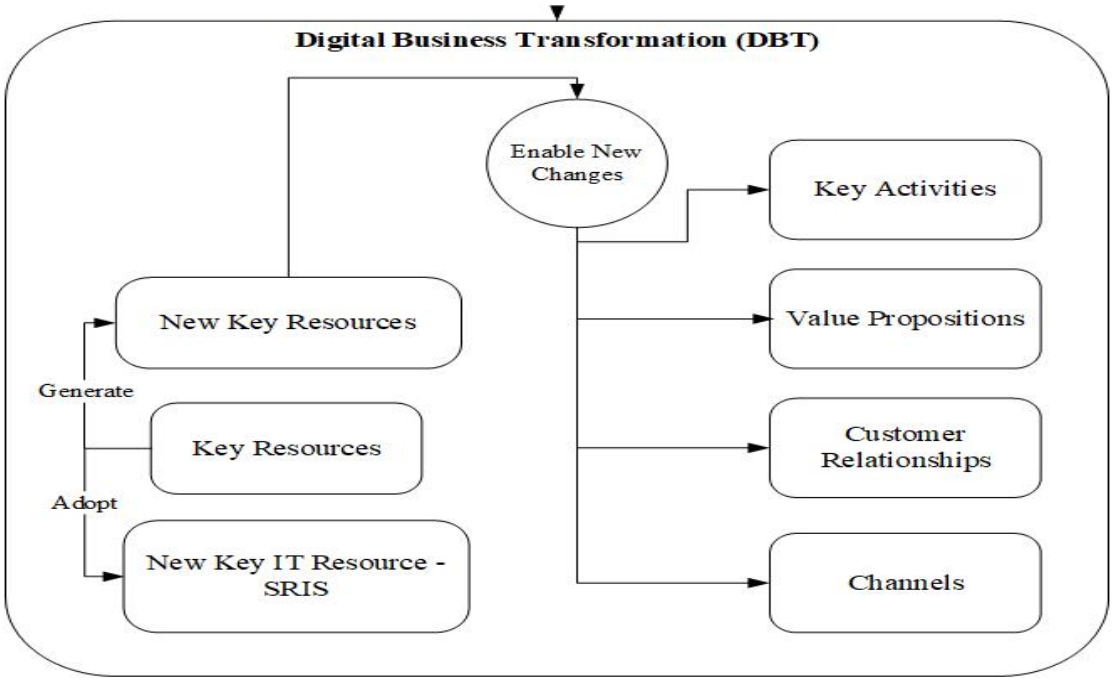

Fig. 3. Digital Business Transformation Model

- Key Resources

Key resources are the independent variable in the DBT model. Three questions were assigned to assess this variable (see Table 3). Q1: The SRIS is the basic system for completing scientific research requests for faculty members. Q2: The presence of an information technology infrastructure guarantees the continuity of work and completion of transactions related to the university members. Q3: The presence of an IT support team is essential to solve the technical problems that a faculty member on the SRIS faces. Q3 reported the largest number of strongly agreed or agreement among responses and reached 91.1 percent of the sample with a maximum mean.

Table 3: Descriptive Statistics of Key Resources

Questions	**Mean**	**Std. Deviation**	**Variance**
Q1	4.19	0.748	0.559
Q2	4.16	0.792	0.627
Q3	4.26	0.696	0.485
Note: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree. N = 90			

- Key Activities

Key Activities present the first dependent variable in the DBT model. Four questions were assigned to assess this variable (see Table 4). Q1: Current applications which are submitted for scientific research (awards, fees, project

support, conferences, and workshops) do not require hard copy filing and hand-to-hand delivery by academics. Q2: The status of the application is verified electronically through the system without communicating with the Deanship of Scientific Research. Q3: The submitted applications are audited, and comments are passed through the SRIS without the necessity to print the application. Q4: Any financial claims related to projects, fees, and awards are sent through the SRIS. Q2 reported the largest number of strongly agreed or agreements and reached 92.2 percent of the sample.

Table 4: Descriptive Statistics of Key Activities

Questions	Mean	Std. Deviation	Variance
Q1	4.16	1.027	1.054
Q2	4.27	0.747	0.557
Q3	4.07	0.804	0.647
Q4	4.04	0.935	0.874
Note: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree. N = 90			

- Value Propositions

Value Propositions are proposed as the second dependent variable in the DBT model. Seven questions were assigned to assess this variable (see Table 5). Q1: The SRIS is characterized by facilitating communication with the Deanship of Scientific Research and its staff. Q2: The SRIS achieves cost- and time-effectiveness for the university and faculties' members. Q3: The use of the SRIS enhances the social distancing that is required during pandemics and epidemics. Q4: The SRIS achieves transparency in dealing with all requests submitted by faculties' members. Q5: The SRIS can be described as an environmentally friendly option for saving printed papers and using hard copy files. Q6: The SRIS is available at any time and reliable to meet the requests of the academic staff. Q7: The SRIS establishes a warehouse for the research articles and applications of the academic staff, and it is easy to retrieve at any time. The largest number of responses strongly agreed or agreed with Q3 and reached 93.3 percent of the sample with a maximum mean.

Table 5: Descriptive Statistics of Key-Value Propositions

Questions	Mean	Std. Deviation	Variance
Q1	4.07	0.845	0.715
Q2	4.19	0.792	0.627
Q3	4.41	0.652	0.425
Q4	4.10	0.849	0.720
Q5	4.30	0.694	0.482
Q6	4.18	0.801	0.642
Q7	4.17	0.824	0.680
Note: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree. N = 90			

- Customer Relationships

The segment of Customer Relationships is the third dependent variable in the DBT model. Three questions were assigned to assess this variable (see Table 6). Q1: After training on the SRIS, a faculty member can use it without assistance or supervision from the scientific research staff. Q2: The services provided by the Deanship of Scientific Research have become fully automated through the SRIS. Q3: It is no longer necessary to offer personal guidance or follow-up to faculty members to address their requests after using the SRIS. The number of responses that strongly agreed or agreed with Q1 was the greatest and reached 90% of the sample. However, the number of responses strongly agreed with Q2 alone was greater than Q1.

Table 6: Descriptive Statistics of Customer Relationships

Questions	Mean	Std. Deviation	Variance
Q1	4.14	0.758	0.574
Q2	4.14	0.773	0.597
Q3	3.94	0.853	0.727
Note: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree. N = 90			

- Channels

The fourth dependent variable in the DBT model is the Channels variable. Two questions were assigned to assess this variable (see Table 7). Q1: The email sent by the SRIS is one of the main communication channels with the Deanship of Scientific Research. Q2: The SRIS accessed reports related to faculty members' applications, are considered an essential communication channel to clarify an application status. Although Q1 has reached the maximum mean, the number of responses that strongly agreed or agreed with Q2 was the greatest and reached 88.9 percent of the sample.

Table 7: Descriptive Statistics of Channels

Questions	Mean	Std. Deviation	Variance
Q1	4.18	0.829	0.687
Q2	4.17	0.675	0.455
Q3	3.74	0.955	0.911
Note: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree. N = 90			

The overall descriptive statistics in Table 8 were used to analyze the responses. The key findings are summarized by the following:

- There is an overall agreement or strong agreement on the new elements of the BMC.
- The segment of Value Propositions has recorded the highest mean. The value regarding Social Distancing with the paragraph "The use of the Scientific Research Information System enhances the social distancing required in light of pandemics and epidemics" has scored the highest mean among values (mean = 4.41, significance = 1, rate = high). The Environment Friendliness value has followed Social Distancing in rating with high significance (mean = 4.31).
- More than 50 percent of the sample (n = 49) strongly agreed on the values regarding Trust and Availability in addition to the value of the Repository.
- Ninety percent of the sample (n = 81) have agreed or strongly agreed that the automated Scientific Research Information System is the basic system for completing scientific research requests for faculty members.
- More than 70 percent of the sample (n = 66) have agreed or strongly agreed that there is no longer a need for personal guidance and follow-up by the Dean's staff for faculty members to implement their requests after using the SRIS. Furthermore, more than 80 percent of the sample (n = 73) believe that services provided by the Deanship of Scientific Research have become fully automated through the SRIS.

Table 8: Descriptive Statistics of Segments of the DBT Model

Segments / Variables with Related BMC New Elements	Mean	Std. Deviation	Variance
Key Resources (***SRIS, IT Infrastructure, IT Support Team***)	4.2000	0.65495	0.429
Key Activities (***E-Application Submission, Semi-Automated Auditing***)	4.1333	0.72399	0.524
Value Propositions (***Ease of Communication, Time & Cost Effectiveness, Social Distancing, Transparency, Trust & Availability, Environment Friendliness, Repository***)	4.2016	0.63632	0.405
Customer Relationships (***Self-Service, Automated Services***)	4.0778	0.66300	0.440
Channels (***Online Reports & Notifications, Emails***)	4.0296	0.64698	0.419
Note: 1=Strongly disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly agree. N = 90			

7.1 Hypothesis Testing and Correlation among Segments of the DBT Model

After analyzing the responses of each segment in the DBT model, we test the hypotheses in this research. This testing is based on predicting the relationship between the independent and dependent variables. In this paper, we assume that the Key Resources segment is the main independent variable proposed to enable all other segments of the DBT Model. The Key Resources segment implies using SRIS as the main resource and its related resources. Thus, without the change in the Key Resources segment, we will not expect any changes in other segments which present the dependent variables. A correlation test and simple linear regression analysis (SLRA) are used to verify the relationships among these variables.

The correlation between the independent variable, Key Resources, and the dependent variables, Key Activities, Value Propositions, Customer Relationships, and Channels, is measured using Pearson's Correlation Coefficient (R). An analysis of variance shows that the positive effect of Key Resources on the previous dependent variables is significant.

The (R) values sequentially equal (R = 0.492, 0.834, 0.720, 0.652) where ($p < 0.001$) (see Table 9). Accordingly, we conclude a significant positive relationship between Key Resources and other variables, including Key Activities, Value Propositions, Customer Relationships, and Channels.

Table 9: Pearson Correlation and Regression Analysis

Dependent Variable	Related Hypothesis	R	R^2	F
Key Activities	H_{1-1}	0.492	0.242	0.234
Value Propositions	H_{1-2}	0.834	0.696	201.410
Customer Relationships	H_{1-3}	0.720	0.518	94.672
Channels	H_{1-4}	0.652	0.425	64.968
a. Predictors: (Constant), Key Resources, Sig <.001[a]				

Since (R) values are positive and significantly different from zero, we can reject the null sub hypotheses of this study which are as follows:

H0-1: The SRIS resource has made no significant difference in Key Activities.

H0-2: The SRIS resource has made no significant difference on Value Propositions.

H0-3: The SRIS resource has made no significant difference in Customer Relationships.

H0-4: The SRIS resource has made no significant difference on Channels.

By rejecting all null sub-hypotheses, we reject the main sub-hypothesis (H0) of the study, which states that "utilization of specific Business Model Canvas segments does not facilitate the illustration of Digital Business Transformation" and accept the main hypothesis (H1), which proposes "a significant positive effect of utilization of specific BMC segments in facilitating the illustration of Digital Business Transformation".

8 Conclusion and Future Research

This paper aimed to present a new implementation of the role of BMC in Digital Business Transformation. The BMC has shown benefits in discovering/capturing changes in different business fields through its segments after using the Scientific Research Information System of Zarqa university in Jordan. These changes were related to the changes in the Key Resources segment of BMC. The segments which were mainly affected by Key Resources segment change were Key Activities, Value Propositions, Customer Relationships, and Channels. These segments reported new changes, which were agreed upon by a representative sample of academics in the university. Accordingly, a DBT can be defined by adopting Key IT resource(s) that causes and enables new changes in an organization's Key Activities, Value Propositions, Customer Relationships, and Channels.

In conclusion, using BMC can facilitate and simplify the move toward digital transformation. It also provides a bird's-eye view of the business we are running and predicts what changes we expect from key technological resources. Therefore, further studies are recommended to engage new BMs in digital transformations and utilize resource-based views to initiate digital business transformations.

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Conflict of interest

The authors declare that there is no conflict regarding the publication of this paper.

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