



Relevance of Flexible Business Applications for Organizational Sustainability in Rapid Changing Business and Technological Environment

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Abstract

In today's time, a business application is the backbone of any organization and dependency of organizations on information provided by these systems is too high. In rapid changing business and technological environment, flexibility of business applications appears to be one of most relevant factor for organizational sustainability (financially and socially). In this paper, a linkage between flexible business applications and organizational sustainability under an environment consisting of rapid change in technology and business practices is developed and discussed. It is attempted to find out the factors pertaining to relevance of flexible business applications to organizational sustainability. This paper also aims to discuss applicability of results of this research on business applications closely linked with emerging technologies such as big data and cloud etc., hence provide scope of future research. Findings are supported with a review of literature regarding business applications flexibility, greater focus has been given to derivation of relevance of business application for organizational sustainability.

Keywords: Business applications, Business environment, Flexibility, Information systems, Organizational sustainability, Technological environment

1. Introduction

In this paper, Relevance of flexibility of Business Applications for organizations will be discussed to make organizations sustainable financially and socially over a period of time. Scope of flexibility will be limited to parameters such as business application requirement, business application usage, and business application change. In this study scope of sustainability is limited to social and economic sustainability in rapid changing business and technological environment. We are considering rapid changes in business and technological environment as in today's time business process changes very fast and technological life cycle is becoming too short. In most of the organizations, most of their business applications are not sustainable in long run. These applications lack flexibility in terms of business application requirement, business application usage, and business application change. Most of the time business applications are not directly linked to sustainability. Business applications are not flexible enough to cater the need of time with respect to rapid change in business and technological environment. Business applications are vulnerable to change in organizational processes. Due to these issues most of the time

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business applications lost their relevance in organizations and not able to provide return on investment. Looking into these issues, attempt will be made to achieve relevance of flexible business applications to organizational sustainability through literature review.

2. Research Methodology

This paper lists and discusses various parameters related to relevance of flexible business systems to organizational sustainability. Relevant data will be gathered from various research papers already published. Various journals like IEEEExplore, Emerald, Springer and Communications of the ACM websites have been searched with keywords like 'Business Applications', 'Information Systems', 'Organizational sustainability' etc. Efforts will be made to select research papers relevant to Information Systems, Flexibility and Organizational sustainability.

'Flexible Business Applications', 'Organizational sustainability', 'Changing Business and Technological Environments' are described in detail and a relation drawn between 'Flexible Business Applications' and 'Organizational sustainability'. We derive and discuss parameters of relevance of flexible business application to organizational sustainability.

3. Literature Review

There has been considerable amount of research already been done in area of flexibility of business applications and organizational sustainability. Some research has been done to define flexibility of organizations and much research has been conducted on Organizational Sustainability. While conducting this review, rapid change of business and technological business environment is considered. In this article, Parameters of flexibility and sustainability is collected and will organizes under rapid changing business and technological environment. Attempts are made to derive a relevance of flexibility of Business Applications for organizational sustainability.

Different means can be drawn from the flexibility concept, and it is vague in nature (Golden & Powell, 2000). An organization entity such as any area of organization or Information Systems or even organization may see flexibility as inherent property (Golden & Powell, 2000). There are various other views possible. So, it is very important to describe flexibility very clearly. In next section, we will define flexibility for this paper. A framework has been developed by Jacome (2007) which features characteristics of components which determines flexibility. IS Flexibility has been defined in four dimensions i.e. People, Process, IT and Data by this framework. Each four dimensions have various characteristics (Jacome, 2007). This model has been modified by Byrd, Madariaga, Byrd and Mbarika (2010) and more refined characteristics have been added for four dimensions. Characteristics modified by Byrd et al. (2010) are presented in Table 1:

Table 1: Characteristics of Four Dimensions

People	Process
Communication Skills, Skills- Capacities, Business Knowledge, Work related Issues, Change Oriented Managers, Business Unit teams, Positive change attitude, Constraints	Planning, Governance, Complete Specifications, Simple Implementation procedure, Global vision, Open Documentation Issues in process redefinition, Importance of process
IT	Data
Standards, Software Issues, Type of Software, IT Management, Documentation, Third party software advantages, Systems Integration, Project Management, Software Interface Management	Data Definition availability

Source: Byrd et al. (2010)

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Flexibility to use, flexibility to change an information system has been defined by Gebauer and Schober (2005) and discussed together with business process characteristics parameters such as uncertainty, variability and time-criticality. A systematic review of Information systems flexibility has been done (Anwar, Masrek & Sani, 2017) and technology adoption from ERP point of view has been discussed by Joseph, Nwankpa and Roumani (2015). Li and Yin (2007) have developed conceptual frames and models of measurement of the Information systems strategic planning flexibility.

Nyström and Mustaquim (2015) discussed three types of indicators related to sustainability for business applications i.e. Social, Environmental and Economic. Social indicators are Social Equity, Increased error tolerance, diversification approach, user satisfaction, cumulative contentment, social transparency and Economic indicators are Energy consumption, risk selection, stakeholder's gap reduction, error reduction, productivity increase, Organizational structure merging.

Piotrowicz and Cuthbertson (2009) built sustainability framework on three dimensions namely social, economic, and environmental and then further divided in to some sub-dimensions, i.e. social dimensions have health and safety, noise and employees sub-dimensions; economic dimension has quality, efficiency, and responsiveness sub-dimensions; environmental dimension has emissions, natural resource utilization, waste and recycling sub-dimensions.

Colbert and Kurucz (2007) defines sustainability as "keep the business going", while other term which is used in similar context refers to "future proofing" of entities or organizations.

Organizations use business applications mainly for administrative usage, such as accounting. These systems are usually integrated with other applications. Purposes behind use of business applications are to achieve strategic goals such as standardization of organizational sites (Glowalla & Sunyaev, 2014).

Business applications focus two main goals of an organization, i.e. core competencies, and strategic flexibility. It suggests that Information Technology support deployed for core competencies has ability to influence an organization strategic flexibility, hence will lead to superior organizational performance. This provides organizations with insights into the real value of Information Technology support needed for core competencies and perform better (Chen, Wang, Nevo, Benitez & Kou, 2017).

Organizational sustainability also depends on culture of the organization, and to study the culture is difficult due to its dynamic nature; thus the impact of culture is neglected in Information Systems research (Geeling, Brown & Weimann, 2016). Every Organization has a positive image for sustainable practices (Colbert & Kurucz, 2007).

Some of the major organizations in the Information Technology and Information systems Industry have started considering sustainability problems and issues. It can easily be seen that organizations are changing their approach towards Information Technology and Information Systems (Pamlin & Thorslund, 2004). Organizations should start concentrating to generate following opportunities such as producing environmental benefits and positive social and economic effects, to establish their clear goals, clear and transparent communication, business and export opportunities, potential for future development; all these areas to be integrated with IT closely to attain sustainable development (Pamlin & Thorslund, 2004). These systems need to be secure from various concerns related to information security (Singhal & Kar, 2015).

Today's external environment in which organization and business operate is rapid changing and technology life cycle is becoming very short day by day. Our way of doing business is being

changed by digital revolution, i.e. technological change, and only handful leaders are able to understand the scale of this change. The changes in Consumer and retail industry will be more in coming 20 years than during last 200 years (Morrison, 2017). Bray (2017) suggests that companies should avoid digitization without thinking of their organization business model. Many organizations solely focus on Information Technology, and they miss on their primary point, which is the requirement of new business processes.

4. Discussions

After looking in to the literature review, we list the parameters of Flexible Business Applications as below:

Business application requirement: -before selecting an application we should ask certain questions?

- Do we really need a system? Or it is just a “Nice to have” requirement?
- Which organizations function it should cover?
- What will be return on investment on business applications?
- Will integration with other systems needed?
- Whether to adopt open source or licenced technology?
- Is my Organization’s cultureready to adopt any business applications?

If answer to most of the questions is yes or positive, Organizations must go for the business application. If answer is no, then organizations need to re-think and first prepare themselves to adopt any business application in order to make the decision fruitful.

Business application usage: - To attain flexibility Business application usage is defined in such a way so that it supports flexibility. This has to be evaluated on the people, process and technology part (Byrd et al., 2010).Characteristics of usage may be defined as:

- User Interface
- Availability on Internet
- Secure application
- Fast, Easy to use and self-explanatory
- Accessible through mobiles, tablets etc.
- Provides Business Intelligence reports
- Provide analytics support
- Integrated with existing applications and able to integrate with new applications

Business application change: - Change in any business application can be considered one of the most important aspects of flexibility of business application. Some of the characteristics of business application change are:

- Frequency of change needed
- Magnitude of change needed
- Change adaptability of the system
- Change process
- Cost of change in terms of people, process, and technology
- Trainings

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Now two types of sustainability can be defined:

1. Social (Health, Safety, Employees, Society etc.)
2. Economic (Quality, Efficiency, profit etc.)

Although there the concept of environmental sustainability also exists, but we have limited our scope to social and economic sustainability only. All business application opted for organizations should promote Social and Economic Sustainability.

Flexible business application's relevance to organizational sustainability is defined on three parameters:

- I. Strategic
- II. Operational
- III. Communication

Any flexible business application must support Organizational sustainability on these parameters. Figure-1 represents relevance of the flexible business applications relevance to organizational sustainability. These business applications and organizations works in highly changing business and technological environment.

- I. Strategic:- Strategic relevance means relevance to the strategic decision making. Whether system is flexible enough to provide a genuine support for a strategic decision making in order to achieve social and economic sustainability. Business application needs to be flexible in people, process, and technology that enable support for executive management. Strategic relevance is primarily useful for:
 - Long term decision making
 - Impacting all or most of the organization
 - Contribution to organization profit and society

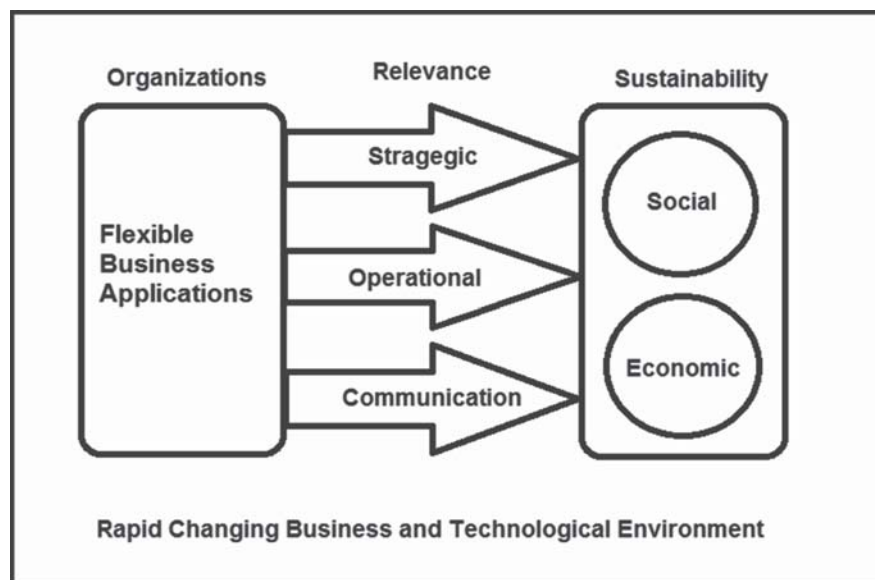


Figure 1: Relevance of Flexible Business Applications to Organizational Sustainability

II. Operational

Operational relevance of flexible business application means how it could be beneficial for its employees and internal process, how will it improve effectiveness of processes and improve organizational efficiency? Operational relevance of business applications provides a path to sustainability by providing:

- Process improvement
- Employee satisfaction
- Organization efficiency
- Organization Integration

III. Communication

Any flexible business application must be able to provide a tool for communication within and outside the organization and it should promote two-way communications. It actually helps at Strategic and Operational both levels. Communication plays an important role in improving organizational sustainability on both the areas, i.e. social and economic.

5. Concluding Discussion

In today's fast changing world for business and technology, a lot of research has been done on organizational sustainability, a little has been done to relate it to business applications flexibility. We tried to drive a relevance of flexible business applications with organizational sustainability. In this study, we have derived three parameter of flexible business application relevance to organizational sustainability i.e. Strategic, Operational, and Communication. If this relevance is discussed prior to implement or change business applications, a higher sustainability may be achieved, and failure of business applications may be reduced.

The outcome of this research may further be extended for taking case of latest technologies such as Big data (Babbar, 2017), Cloud, Internet of Things, etc. and hence provide a big scope of future research. Relevance of adopting Big data, Cloud like technologies may be derived for an organization.

6. Recommendation

After thorough analysis of literature, and by providing our relevance parameters for Organizational sustainability. We recommend that an organization, in order to achieve social and economic sustainability, must do a relevance test for its organizations. Organizations should not blindly follow others and adopt business applications. It will reduce failure of business applications and will provide better return on investment to organizations. Business application may be used as a tool to increase sustainability along with improving efficiency and increasing competitiveness. It will help organizations achieving better employee satisfaction, internal process effectiveness, organization efficiency. Last but not the least, organization capability to achieve its vision by deploying a flexible business application will enhance by means of various data analytics and business intelligence reports.

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