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Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

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Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

Abstract

This study is under taken to discuss and analyze the impact of Bring Your Own Device (BYOD) model in the SMEs sector. While the scope of BYOD is quite large, we are looking into the SMEs sector with focus on the Leather, Surgical, Sports and Apparel firms in the Sialkot region of Pakistan.

Sialkot has around seven thousand five hundred SMEs involved in the Leather, Surgical, Sports and Apparel products. All products manufactured are of export quality and mostly shipped to Western Europe and North America.

Unified Theory of Acceptance and Use of Technology or UTAUT is taken as the foundation of our work and to support the argument of BYOD in the SMEs. While the concept is new in has been tested in the developed world as something working successful we are looking the impact of BYOD into the family owned firms in four export oriented businesses i.e Leather, Surgical, Sports and Apparel.

As the starting point we have involved seventy nine middle and senior managers from Sialkot region to study the impact of BYOD. Job Satisfaction, Productivity and work flexibility are the variables we have studied in this paper. Since family owned businesses are very closed to outside world the response we received from the respondents is quite low. One hundred seventy five experts were contacted and only seventy nine responded to request to complete the questionnaire.

Results have been very convincing and study shows the strong impact of BYOD on the organizational sustainability.

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Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

Introduction

In twenty first century prospect with all its instability and dynamism, numerous firms are contending in an unpredictable and testing environment which is consistently changed by numerous variables running from globalization, innovative improvement and progressively fast dispersion of innovation, to the advancement and utilization of new technologies (Disterer & Kleiner, 2013). Recently, a new model Bring Your Own Device (BYOD) has turned into the most well popular model for organizations to give adaptability to employees because the business condition is requesting to give increasingly adaptable work tactics ways by enabling cell phones (Eslahi, Naseri, Hashim, Tahir & Saad, 2014).

Therefore, people are increasingly more familiar with the opportunities and advantages acquired from the utilization of individual cell phones to such a degree, that they are eager to bring exclusive gadgets into their expert circles to satisfy business errands, thus adopting the new trend bring your own device (BYOD). Although there is great interest from employees to most likely carry their own gadgets into the working environment, BYOD isn't without hazard, with some alluding to BYOD as “Bring Your Own Danger” (Doargajudhur & Dell, 2018).

Nowadays, Organizations are entering a new race of technological advancement by adopting the new concept of bringing your very own device (BYOD) in their everyday business tasks, while in the meantime expecting to keep up their data security management norms. BYOD is advantageous for employees as it enables them to lead business whenever they want. In any case, this has brought about organizations reexamining their data security management, as BYOD now broadens the data security management boundaries to anywhere the employees take their gadget and wherever there is a system passageway. (Musarurwa, Flowerday, & Cilliers, 2018).

Literature Review

Concept of BYOD

The concept of BYOD was introduced by Malcolm Harkins in 2009 who was a Intel's chief security and protection officer (Roman, 2012). In the wake of seeing that most of the workers bring their very own advanced mobile phones, tablets and portable gadgets at work, as opposed to getting worried about loss of big business information security and representative profitability, he proposed a strategy to grasp this pattern and use it as a method for reducing the cost and enhanced productivity (Kohne, Ringleb & Yücel, 2015).

The recent IT trend around the globe, Bring Your Own Device, is where workers are urged to make utilization of their own gadgets to access organizational information. The concept of BYOD is an idea that enables workers to use their personal technological gadgets to remain associated with the organization to get the desired information from the organization. Therefore, BYOD programs enable employees to get complete access of administrations as well as information on their own tablets, mobile phones, and different gadgets (Afreen & Rahat. 2014). This term Bring Your Own Device (BYOD) can also be referred as; Bring Your Own Phone (BYOP), Bring Your Own Technology (BYOT), Bring Your Own PC (BYOPC).

Sustainability

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

Sustainability has turned into a critical issue in the prominent press, corporate meeting rooms, political enclosures and the scholarly world. The United Nation's 1989 Brundtland Commission defines sustainability as “development that meets the needs of the present without compromising the ability of future generations to meet their needs”. Sustainability shows both difficulties and opportunities for organizations and it can overcome economic pressures and fit the future needs of the environment (Tsai, Tsai & Chang, 2013). During the last two decades, Sustainability is considered to be main controversies to which significantly more attention has been paid. The crucial analysis of the organizational based knowledge shows that sustainability is the main concern (Tyler, Bibri, & Tyler, 2007). Along these lines, sustainability has transformed into an ambitious concern of most of the organizations. Sustainability is accomplice with the long-term objectives and proposal of an organization. It is basically the capability of organizations to sustain itself (Shahbudin, Nejati, & Amran, 2011).

Organizational Sustainability

Organizations are currently not aware of this extraordinary asset; thusly, they want to oversee it more adequately through different activities for instance new technology models and concepts (Meyer & Sugiyama, 2007). Therefore, they can challenge others and can enhance their performance (Tsai, Tsai, & Chang, 2013).

Now days, Organizations are fully aware of importance of technology advancements with a specific end goal to proficiently utilize their savvy resources (Chuang, 2004). Obviously, we cannot perceive that organizations work in a vacuum. Rather, their activities and decisions impact a greater gathering than their immediate customers and investor. Organizations ought to be dependable to various factors to attain sustainability (Wikström, 2010). Organizations should look further for new technology models to sustain the market competition.

Benefits of BYOD

If we discuss the advantages of BYOD concept it truly improves the employee's performance, production and efficiency. Due to the execution of this concept the organizations data will be promptly accessible to employees on their own gadgets likes advanced mobile phones and laptops. Cost of the organization shall be decreased impressively as to gadgets and acquisition maintenance. BYOD concepts truly improves the employee's performance because because of usage of BYOD idea the organizational data and information is promptly accessible to them on their own gadgets (Ghosh, Gajar, & Rai, 2013).

Utilizing their own gadgets will help employees to deal with the gadget in a proficient way as they shall be more contented and familiar with the functionalities of the gadget and furthermore, workers can easily work from their home as per their convenience. Additionally, utilizing their own gadgets implies a representative will take an additional consideration for its protection and safety. Since organizational data and individual data are on a similar gadget the correspondence would be quicker and effective (Eslahi, Naseri, Hashim, Tahir & Saad, 2014). The rise of technological advancements in mobile devices makes them fundamental parts of organizational activities. Likewise, now a day the mobile systems are currently very much coordinated with the Internet like 3G, 4G and LTE advancements), in this way, in BYOD, the personal devices can be utilized to expand workers' fulfillment and hence decrease in organizations gadget costs (Shumate & Ketel, 2014).

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

Additionally, the increase in a company's attractiveness as an employer due to BYOD should be noted, which has an effect on techy young employees in particular. And BYOD facilitates the use of special personalizing functions, as devices are usually used by one single person and can therefore be customized to individual needs via stored profiles. Sensors implemented on the devices can also be used for localization (Disterer & Kleiner, 2013). Furthermore, the expansion in an organization's allure as a business due to BYOD ought to be noted, which affects techy new representatives specifically. Moreover, BYOD encourages the utilization of extraordinary customizing capacities, as gadgets are normally utilized by one single individual and can consequently be altered to singular needs by means of stored profiles. Sensors executed on the gadgets can likewise be utilized for restriction (Disterer & Kleiner, 2013).

Challenges of BYOD

The BYOD activity empowers employees to work on their own gadgets at workplace. However, there exists a clouded side to the BYOD marvel. At the point when not totally comprehended, it can be a risk for the IT security and hazard for organization's sustainability (Afreen, 2014). Recently, Bring Your Own Device has turned out to be a standout amongst the most prevalent models for undertakings to give portability and adaptability in work environments. This expands the extension inside and out for a worker to utilize its own innovation, yet thus makes numerous difficulties for the organization. Though, a large number of these advancements were not worked in light of big business necessities, so IT groups frequently feel awkward about security and supportability. (Eslahi, Meisam, et al., 2014). Among a ton of difficulties, security is the vital factor (Afreen & Rahat. 2014). BYOD can get numerous dangers and challenges and the greatest of all being information misfortune.

Impact of BYOD on Organizational Sustainability

Organizations' objectives with BYOD are to build the adaptability, opportunities and move ability of gadgets to oblige their employees work processes, which increment their efficiency and confidence. The implementation rate of BYOD in organizations enhance the premise of three principle key variables like employee code of conduct, security programs establishment and productive organizations rules. All these are driving variables in charge of the general execution of BYOD. (Dhingra, 2016).

To fulfill the versatility needs of the today's employees, associations have begun to grasp BYOD to acknowledge profitability gains and money saving advantages from enabling workers to utilize their innovation of decision in the working environment. While new advances can possibly bring huge authentic business benefits, they are additionally exposed against criminal abuses; offering ascend to new types of Information Security (IS) dangers (Dedeche, Liu, Le & Lajami, 2013). The quick spread of BYOD likely has numerous causes, including the notoriety of cell phones, effectiveness gains for users in synchronizing home and work assets, and profitability gains for managers in the development of the work circle and better incorporation of information resources (Brodin, Rose & Åhlfeldt, 2015).

A productive and compelling BYOD strategy should clearly express all the targets and restrictions related with the use of the organization resources. It ought to portray all the of the activates that are allowed on the gadgets when they are working in the corporate systems administration frameworks. Numerous organizations don't have any appropriate design of data, framework

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

equipment and different assets which are to be exploited. To conquer this issue, a few models are created to provide software tools and security techniques to decrease the difficulties and hazards. At present, three security models are commonly utilized by organization stability or BYOD i.e. Mobile Information Management (MIM), Mobile Application Management (MAM), and Mobile Device Management (MDM). These product's assistance in controlling the representative possessed gadgets in their own and work purposes (Penang, Meisam & Maryam, 2014).

Organizations executing a BYOD system need to investigate the idea of practice security for PC gadgets. A monotonous procedure is implemented for advancement of security strategies to reveal, distinguish and avoid any security dangers (Dhingra, 2015). Organizations should clear the protection and private policies to the employees on work. Associations should plan their endeavors in a way that looks to limit the potential exposure of individual and private data (Robert & Mavretich, 2012).

Theoretical framework

BYOD is a phenomenon that is quickly spreading crosswise over organizations in the world at an extensive rate. The significant purpose behind this pattern is that individualized computing gadgets are presently very affordable for workers to buy (Weeger, Wang & Gewalt, 2016). Organizations have additionally come to understand the significance of BYOD in expanding representative efficiency, expanding work flexibility and reducing cost of IT and attaining financial savings (Mbalanya, 2013).

Based on the above literature following conceptual Framework can be derived:

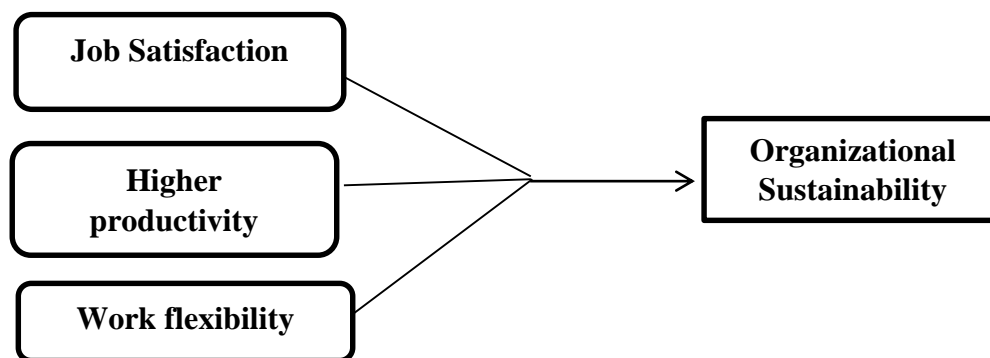


Figure 1: Conceptual Model Framework

The BYOD approach likewise enables employees to pick the innovations which best suits their jobs. Therefore, this can make a more prominent fulfillment for employees towards working with IT. At the point when a BYOD arrangement is actualized in an association, employees will in general care for their gadgets to a higher degree, as there is frequently a more noteworthy feeling of individual proprietorship.

An ongoing report by Acorn Marketing and Research authorized by VMware titled the "New Way of Work Study" found that 64% of representatives in worldwide organizations over the Asian and Australian locale revealed that their profitability had expanded because of effectiveness and convenience by choosing individual gadgets for work purposes which thus lead to more job

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

satisfaction, higher productivity and work flexibility (Pillay, Diaki, Nham, Senanayake, TAN & Deshpande, 2013).

- Job Satisfaction – employees are more productive with their preferred gadgets
- Work Flexibility – employees can easily access applications and information from anywhere, at any time
- High productivity – minimizes cost of operation

Methodology:

Data Collection:

The mode of data collection in this study is secondary data which has taken from the middle management in SMEs. It is used to investigate the impact of BYOD on organizational sustainability.

Frequencies of Categorical Variables

The section elaborates descriptive frequencies and percentage of scale variables.

	Categories	Coding	Frequency	Percentage
Improved employee morale	No extent	1	0	0
	Small extent	2	1	0.01
	Moderate extent	3	14	0.18
	Large extent	4	35	0.44
	Very large extent	5	29	0.37

In above Table: Improved Employee Morale 0% responds No extent, 1% respond small extent, 18% respond moderate extent, 44% respond large extent and 37% respond very large extent. So most of the respondents responds difference will occur on very large extent for improved employee morale by using idea of bring your own device (BYOD).

	Categories	Coding	Frequency	Percentage
Improved employee productivity and efficiency	No extent	1	0	0
	Small extent	2	0	0
	Moderate extent	3	4	0.05
	Large extent	4	47	0.59
	Very large extent	5	28	0.35

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

In above Table: Improved Employee productivity and efficiency 0% responds No extent, 0% respond small extent, 05% respond moderate extent, 59% respond large extent and 37% respond very large extent. So most of the respondents responds difference will occur on large extent for improved employee productivity and efficiency by using idea of bring your own device (BYOD).

Decreased work load	Categories	Coding	Frequency	Percentage
	No extent	1	0	0
	Small extent	2	0	0
	Moderate extent	3	7	0.09
	Large extent	4	50	0.63
	Very large extent	5	22	0.28

In above Table: Decreased work load 0% responds No extent, 0% respond small extent, 9% respond moderate extent, 63% respond large extent and 28% respond very large extent. So most of the respondents responds difference will occur on large extent for improved employee productivity and efficiency by using idea of bring your own device (BYOD).

Job Satisfaction	Categories	Coding	Frequency	Percentage
	No extent	1	0	0
	Small extent	2	0	0
	Moderate extent	3	0	0
	Large extent	4	32	0.6
	Very large extent	5	21	0.4

In above Table: Job Satisfaction that is mixture of Improved Employee Morale, Improved Employee productivity and efficiency, Decreased work load. 0% responds No extent, 0% respond small extent, 0% respond moderate extent, 60% respond large extent and 40% respond very large extent. So most of the respondents responds difference will occur on large extent for Job Satisfaction by using idea of bring your own device (BYOD).

Reduced operational costs	Categories	Coding	Frequency	Percentage
	No extent	1	2	0.03
	Small extent	2	16	0.20
	Moderate extent	3	43	0.54

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

	Large extent	4	18	0.23
	Very large extent	5	0	0

In above Table: Reduced operational costs 3% responds No extent, 20% respond small extent, 54 % respond moderate extent, 23% respond large extent and 0% respond very large extent. So most of the respondents responds difference will occur on moderate extent for reduced operational costs by using idea of bring your own device (BYOD).

	Categories	Coding	Frequency	Percentage
Reduced total cost of IT infrastructure	No extent	1	2	0.03
	Small extent	2	16	0.20
	Moderate extent	3	48	0.61
	Large extent	4	11	0.14
	Very large extent	5	2	0.03

In above Table: Reduced total cost of IT infrastructure 3% responds No extent, 2% respond small extent, 61% respond moderate extent, 14% respond large extent and 3% respond very large extent. So most of the respondents responds difference will occur on moderate extent for reduced total cost of IT infrastructure by using idea of bring your own device (BYOD).

	Categories	Coding	Frequency	Percentage
Increased in sales and revenue	No extent	1	0	0
	Small extent	2	2	0.03
	Moderate extent	3	16	0.20
	Large extent	4	29	0.37
	Very large extent	5	32	0.41

In above Table: Increased in sale and revenue 0% responds No extent, 3% respond small extent, 20% respond moderate extent, 37% respond large extent and 41% respond very large extent. So most of the respondents respond difference will occur on very large extent for Increased in sale and revenue by using idea of bring your own device (BYOD).

	Categories	Coding	Frequency	Percentage
Higher Productivity	No extent	1	0	0
	Small extent	2	0	0
	Moderate extent	3	11	0.79

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

	Large extent	4	3	0.21
	Very large extent	5	0	0

In above Table: Higher Productivity that is mixture of reduced operational costs, Reduced total cost of IT infrastructure and Increased in sale and revenue. 0% responds No extent, 0% respond small extent, 79% respond moderate extent, 21% respond large extent and 0% respond very large extent. So most of the respondents responds difference will occur on moderate extent for Higher Productivity by using idea of bring your own device (BYOD).

	Categories	Coding	Frequency	Percentage
Flexible working hours	No extent	1	0	0
	Small extent	2	2	0.03
	Moderate extent	3	4	0.05
	Large extent	4	32	0.41
	Very large extent	5	41	0.52

In above Table: Flexible working hours 0% responds No extent, 3% respond small extent, 5% respond moderate extent, 41% respond large extent and 52% respond very large extent. So most of the respondents respond difference will occur on very large extent for Flexible working hours by using idea of bring your own device (BYOD).

	Categories	Coding	Frequency	Percentage
Improved employee working mobility	No extent	1	0	0
	Small extent	2	3	0.04
	Moderate extent	3	2	0.03
	Large extent	4	30	0.38
	Very large extent	5	44	0.56

In above Table: Improved employee working mobility 0% responds No extent, 4% respond small extent, 3% respond moderate extent, 38% respond large extent and 56% respond very large extent. So most of the respondents respond difference will occur on very large extent for Improved employee working mobility by using idea of bring your own device (BYOD).

	Categories	Coding	Frequency	Percentage
Decreased cost of living expenses	No extent	1	0	0
	Small extent	2	2	0.03
	Moderate extent	3	6	0.08

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

	Large extent	4	22	0.28
	Very large extent	5	49	0.62

In above Table: Decreased cost of living expenses 0% responds No extent, 3% respond small extent, 8% respond moderate extent, 28% respond large extent and 62% respond very large extent. So most of the respondents respond difference will occur on very large extent for Decreased cost of living expenses by using idea of bring your own device (BYOD).

	Categories	Coding	Frequency	Percentage
Work Flexibility	No extent	1	0	0
	Small extent	2	0	0
	Moderate extent	3	2	0.04
	Large extent	4	19	0.32
	Very large extent	5	38	0.64

In above Table: Work Flexibility that is mixture of Flexible working hours, Improved employee working mobility and Decreased cost of living expenses. 0% responds No extent, 0% respond small extent, 4% respond moderate extent, 32% respond large extent and 64% respond very large extent. So most of the respondents responds difference will occur on very large extent for Work Flexibility by using idea of bring your own device (BYOD).

Reliability Analysis

Table: Overall Reliability Statistics

Overall Reliability Statistics	
Cronbach's Alpha	N of Items
.723	9

Above Table: Overall Reliability Statistics depicts that reliability of data is significant because value of cronbach's alpha is 0.723 that is greater than 0.7. In general range of cronbach's alpha is between 0 to 1. We can use this data for further analysis, prediction and forecasting.

Reliability Statistics of Job Satisfaction	
Cronbach's Alpha	N of Items
.809	3

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

As shown in Table: Reliability Statistics of Job Satisfaction value of cronbach’s alpha is 0.809 that is greater than 0.7.so reliability is also significant for Job Satisfaction.

Reliability Statistics of Higher Productivity	
Cronbach's Alpha	N of Items
.280	3

Reliability Statistics of Work Flexibility	
Cronbach's Alpha	N of Items
.886	3

As shown in Table: Reliability Statistics of Work Flexibility value of cronbach’s alpha is 0.886 that is greater than 0.7.so reliability is also significant for Work Flexibility.

- So overall result is significant difference will occur by using idea of bring your own device (BYOD).
- Job Satisfaction and work flexibility is more important than higher productivity.

Results

Table IV: Results

Variables and Descriptions	Path Coefficient	CR	AVE	R2
---		---	---	0.45
Higher Productivity		0.74	0.53	
Job Satisfaction		0.84	0.65	
Work Flexibility		0.93	0.82	
Organizational Sustainability		0.4	0.44	
Higher Productivity>Organizational Sustainability	0.38*			
Job Satisfaction>Organizational Sustainability	0.31 ^{NS}			
Work Flexibility>Organizational Sustainability	0.49*			

* represent the 95% level of confidence; NS represents not significant

Above mentioned table shows that after achieving all the assumptions such as composite reliability and Average Variance Extracted two hypotheses are significant at the 95% level of confidence except job satisfaction toward organizational sustainability. This model explain the organizational sustainability about 45% (R²). Work flexibility is the strongest predictor towards organization sustainability.

Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

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Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

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Impact of Bring your own devices (BYOD) on Organizational Sustainability: A case study of SMEs in Sialkot, Pakistan

APPENDICES

APPENDIX I:

QUESTIONNAIRE

I am undertaking a research on “Impact of BYOD on organizational sustainability “as part of the requirements of my research. It is for this reason that I am requesting you to spare a few minutes to fill in the following questionnaire.

RESPONDENT INFORMATION

1. Your Name

.....

2. Your Position within the organization

.....

Impact of BYOD on Organizational sustainability	No extent	Small extent	Moderate extent	Large extent	Very large extent
1. Improved employee morale					
2. Improved employee productivity and efficiency					
3. Decreased work load					
4. Reduced operational costs					
5. Reduce total cost of IT infrastructure					
6. Increase in sales and revenue					
7. Flexible working hours					
8. Improved employee working mobility					
9. Decreased cost of living expenses					