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# The Performativity of BYOD

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## Abstract

*Bring-Your-Own-Device (BYOD) is a trend introduced by a large IT corporation in 2009 realised as a consequence of the consumerization of Information Technology. BYOD is described as the phenomenon of using personal mobile devices connected to corporate networks to perform work. This study aims to understand consumerization of IT and BYOD in the Tertiary Education sector, particularly the context of BYOD in universities in both the United Kingdom and Malaysia. The study will commence with a pilot case study in the Computer Science Department of a UK University to explore its current systems and support for staff and students, gathering insights on the consideration of BYOD for the department. As this is a phenomenological study, Actor Network Theory (ANT) is selected as an initial lens. This seeks to create a 'timeless snapshot' of phenomena in time, space and social change. This paper aims to set the scene for the study in terms of the performativity of BYOD by reviewing the literatures pertaining to the history of BYOD, and the implementation of BYOD in the commercial and education sectors.*

**Keywords:** Bring-Your-Own-Device (BYOD), IT Consumerization, ANT, Performativity, Sociomateriality

## 1.0 Introduction

The rapid and increase in the use of laptop computers, smartphones and other mobile information and communication technology (ICT) have a huge impact on modern lives. Mobile devices and technology have become part and parcel of human activity where large segments of people are dependent for their social existence on these emerging technologies. Bring-Your-Own-Device (BYOD) is a trend introduced by a large IT corporation in 2009 (Burns-Sardone, 2014; Yin, Liu, & Liu, 2014), realised after the identification of the consumerization of Information Technology (Gartner, 2005; Moschella, Neal, Opperman, &

Taylor, 2004). This phenomenon is described as using personal mobile devices connected to the corporate network to perform corporate work.

Moschella et al. (2004) describe consumerization as the 'dual-use' of devices both for personal use on public network infrastructure and at the workplace. Christensen's disruptive technology (Clayton, 1997) has been presented in the Computer Science Corporation (CSC) research and Advisory Services Position Paper (Moschella et al., 2004), where it was predicted that somewhere in 2003 – 2005 the emergence of new technology could become a 'threat' to most organisations; distracting their normal procedures. They also predicted that the new technology would actually replace traditional systems; no longer posing a threat to most organisations. BYOD in this context can be perceived as the phenomena yielded by this consumerization of technology. The innovation of these technology driven products attracts many consumers to own and use them to the fullest, be it from making telephone calls, text messaging, taking pictures, getting connected virtually to performing business tasks, for example, placing orders and holding meetings online. This trend is projected to grow in the future. Harkins (2013) mentions that the number of Intel's employees owning their own mobile device and using it at work has increased from 10,000 – 30,000 in 2010 and he projects the number would continue to grow about 56,000 in 2014. Law (2013) concludes that this phenomenon introduces a new ecosystem which influences human activity systems at most organisations, higher education sectors and almost every one of us on an individual basis.

Nowadays, many people own mobile devices which make them accessible in terms of social networking. People are virtually interconnected through ICT based constructs such as Facebook, Twitter, LinkedIn, WhatsApp, Instagram and many other social network channels. Hinchcliffe (2011) describes this as "a tectonic technology shift" introducing a massive change in this transition of technology, likely to persist as the future digital era.

In order to understand both people, technology and their relationship, it is important to know how people 'interpret' the technology. This can be done through the Actor Network Theory (ANT) (Callon, 1986a; Latour, 2005) and a socio-materialist perspective (Orlikowski & Scott, 2008). This study intends to analyse the fundamental associations between human and material actors, mixing both people (human) and technology (material) (Cecez-Kecmanovic, Galliers, Henfridsson, Newell, & Vidgen, 2014). From here, the performativity of each aspect of actors with regard to BYOD phenomenon will be observed.

## **2.0 Literature Review**

### **2.1 Theory Review – IT Consumerization**

Moschella et al., (2004) discovered that the growth of IT innovations are targeting a consumer market. BYOD can be seen where the use of mainframes, minicomputers and other IT platform in organisations shifted to small enterprises and home users. The emergence of devices such as laptop computers and mobile phones, amongst others had a tremendous impact on the consumer market. IT consumerization became a part of business operation in many organisations. Gartner predicts that consumerization will affect information technology in many organisations. This can be seen in the success of mobile technology leads to Bring-Your-Own-Device (BYOD), a consumer driven product that can support many business operations with low cost (Gartner, 2005). IT consumerization is described as bringing employee-devices, tools and services into the organization (Thompson, 2010).

When Apple introduced the first smartphone some people went mobile in every aspect of their lives. Such people carry their smartphone and consider having a smartphone a necessity in their social groups. Steve Jobs described the iPhone as a “magical product” as it does many essential things for people (Apple Press Info, 2007). Gartner (2013) asserts that smartphones will become smarter than people by 2017.

### **2.2 BYOD in the industry sectors**

The BYOD Working Group of the USA’s Digital Services Advisory Group and Federal Chief Information Officers Council, has considered the BYOD trend and conducted three case studies that highlighted the successful execution of BYOD at a government agency (The White House, 2013). This trend is rapidly moving forward and has attracted many other organisations in various types of industries (Ravindran, Sadana, & Baranwal, 2013) as shown in Figure 1.

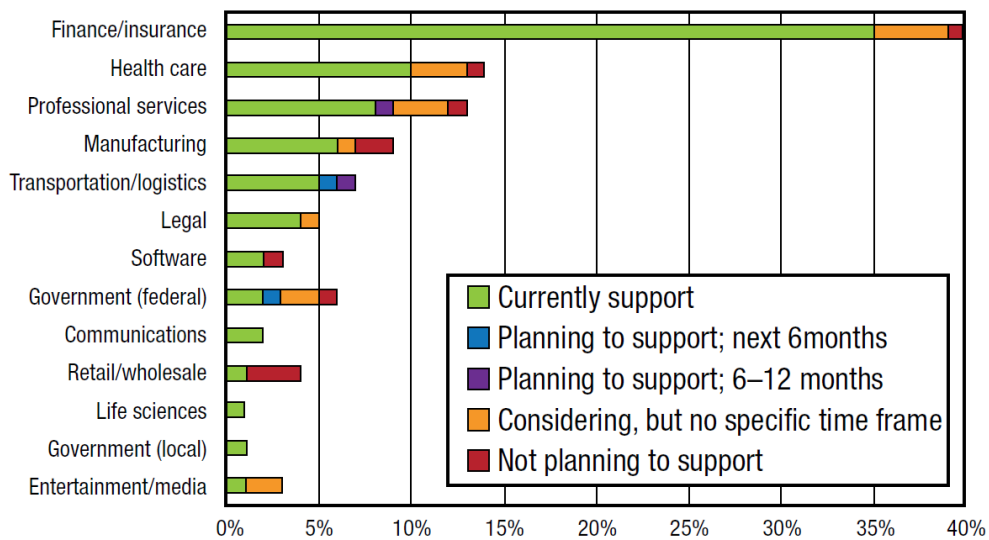


Figure 1: BYOD supported by various types of industries. (Source: ISACA journal, 2013)

### 2.3 BYOD in the education sectors

UCAS (2012) reports that more than 80% university students in the UK own smartphones. The BYOD uptake among the university community is increasing. In 2012, undergraduate smartphone owners that used devices for academic purposes had increased to 62% (Dahlstrom & DiFilipo, 2013). Pogar, Gligora, & Davidovi (2013) indicates almost half of the users are ready to use personal devices for educational purposes. Further, the adoption of BYOD to support teaching will supplement eLearning and mLearning initiatives as BYOD provides a ubiquitous learning environment in education.

New Media Consortium (NMC) reported in 2013 that, some significant universities support and implement BYOD. King's College London has implemented a private cloud platform through JANET (Joint Academic Networks) and students and staff can use their personal devices to access a virtual desktop from 150 countries. Students and faculties in Parkland Community College, USA can securely use their personal devices to connect to the College's wireless network and Learning Management System (LMS). The University of Wisconsin-Oshkosh offers a virtual desktop infrastructure as part of its BYOD program (Johnson, L., Adams Becker, S., Cummins, M., Estrada, V., Freeman, A., and Ludgate, 2013). At Paris Descartes University the interactive lectures using the moodle LMS, running on BYOD gets positive feedback from the students and also provides an opportunity for interactivity among

the lecturers (Badeau-mahmoud, Bouziane, Alvarez, & Harent, 2014). Universities cite this emerging trend because of its robustness, usability, availability and reliability in conjunction with the consumerization of technology (Gartner, 2005). BYOD has become the official method of delivery for 170 programs offered at Algonquin College, Canada since late 2014, and students are required to use personal devices during the program of study ([www7.algonquincollege.com/byod/](http://www7.algonquincollege.com/byod/)). These examples show some acceptance of BYOD in the university sector.

## **2.4 BYOD Benefits and Challenges in the University Sector**

There are still many higher education sectors that haven't taken up BYOD completely. BYOD, at some point, has positive and negative implications among education institutions. Badeau-mahmoud et al. (2014) evaluates that BYOD could improve the communication among lecturers and students as well as the interaction among students. It enthralls and inspires the students, and they are motivated to become more engaged in the learning process (Al-Okaily, 2013; Badeau-mahmoud et al., 2014). Similarly, students perceived smartphones as a useful tool in teaching and learning as they are used to the smartphone functions. Having said that, it can increase the level of confidence among students and could also ease the teachers' tasks in the classroom (Burns-Sardone, 2014). In addition, BYOD-ing could reduce the operating costs (Afreen, 2014; Al-Okaily, 2013; Burns-Sardone, 2014; Dahlstrom & DiFilipo, 2013; Emery, 2012). However, despite the upside of BYOD, issues are varied from many different perspective. In general, implementing BYOD can be difficult as the issue of "inequality" arises (Hockly, 2012; Sharples et al., 2013; Walsh, 2012). Security remains a factor of whether or not to consider using BYOD. Bradford Networks (2013) reported that most of the education institutions denied personal devices connecting to the campus network due to inability to scan the devices for security software and updates. The abuse of mobile devices usage in the classroom by the students can also be difficult to manage (Hockly, 2012).

## **3.0 BYOD performativity**

Applying Actor Network Theory (ANT) is appropriate in this research as BYOD associates humans and the technology. The interaction between both technology and humans appears to be getting stronger. Identifying actors in this research will trace the 'sociology of translation',

essentially looking at the building of relationships between identified actors (Callon, 1986b). Latour (2005) suggests that social interaction among actors creates 'social ties' and 'association' which are both different. Social ties are often fragile. ANT looks at the association among actors as 'a movement', 'a displacement', 'a transformation', 'a translation' and 'an enrolment' which then create a strong 'network'. Networks of association in BYOD study in the university sector can be examined by first identifying the actors in such networks. Actors comprise humans and non-human actors (Latour, 2005). Human actors in BYOD networks in the university sector particularly can be divided into the students (part-time and full-time), the teaching staff, and the IT managers while the non-human actors are the IT department facilities, the university facilities, personal mobile devices as well as the network. Their relationship and interactions are significant to each other as it will provide the performance of the interactions; the performativity of the BYOD trend in the university sector. A pilot case study will be initiated in the Computer Science and Information Systems Department in a UK University to explore its current systems and support for staff and students, also to elicit some insight on BYOD implementation at the department. Performativity of BYOD at the university sectors is viewed as the 'enactment' (Orlikowski & Scott, 2008). This study will also incorporate BYOD with the socio-material approach (Cecez-Kecmanovic et al., 2014; Orlikowski & Scott, 2008) as the relationships between both human and non-human actors are situated in both social and material ontologies.

#### **4.0 Discussion and Conclusion**

In a rapidly changing digital society displacing the traditional social and material constructs where some emerging technologies are rapidly and widely accepted, many people – older and younger generations are taking the opportunity to make extensive use of these technology in almost every aspect of their lives. Almost every student in the university own a smartphone, tablet, laptop computer and other forms of mobile devices. This research aims to understand consumerization of IT and BYOD in the university sector. Pilot interviews were conducted to develop the project's epistemology with the IT Manager, two lecturers and some students at the Department of Computer Science and Information Systems in a UK University. It shows that most respondents are aware of the BYOD acronym and Bring-Your-Own-Device. According to the IT manager of the Department, it seems that his staff has discussed the phenomenon in general but not in great detail as there is no BYOD policy yet developed. It

will take some kind of assessment if they want to consider this in the future, such as different techniques and questionnaires, looking at what other universities and other departments are doing, discussion among groups of staff, the needs of computer science students and some pilot study may be conducted. Undoubtedly, when the IT department periodically refreshes its laboratories, and software, they have thought of something like BYOD, but it is not really being considered as a feasible solution at the moment. In contrast, the students from the foundation degree and undergraduate programmes said that they use their mobile devices to look for meanings and descriptions of new terms and concepts when the lecturers introduce them during the lectures. They normally do it during the short break given in the lectures. One of the students added the only setback is there are some cases where the students have no interest in the teaching topic, they misuse and abuse this BYOD to something which is irrelevant to the topic such as updating their Facebook, chatting and browsing. A few of postgraduate students see BYOD is crucial in the teaching and learning in the university as they can benefit in many ways. Part-time students particularly found the use of their devices to audio record the lectures.

From the perspectives of the lecturers, one had never seen the abbreviation of BYOD before. The lecturer seemed to understand BYOD after the definition of this construct was given. Based on the interview, it can be concluded that with the advanced technology, mobile devices are equipped with free apps audio and video recorders which can support teaching and learning in the classroom. Many realised that audio and video recordings of lectures are popular among students and they certainly have allowed it in the past. The emerging technology presents some difficulties. For example with students using their own device in the programming class, it can be difficult to ensure that the whole class is equipped with the same device with the same appropriate software. When asked about pursuing BYOD, whether it can be accepted or resisted, the reply was *“I think it would be useful, but I think it is an unsurmountable problem to ensure that everybody has a tablet. I don't see that is going to be solved”*. Another lecturer in the department is well aware of BYOD. He has never thought and considered BYOD-ing in his lecture as he thinks that it has happened naturally. In the programming subjects, students are allowed to bring their own laptops running on Windows, Linux or Mac; students also use the desktops provided by the department. There are no restrictions from the lecturer. He has seen that the students brought their own devices since at least three years ago. The idea of BYOD is not new, but it seems that the lecturers have never thought or considered it as they have well established way of lecturing with a particular style and with particular materials. Most of them are happy with the way they conduct their lecture at the moment. In considering



BYOD in the teaching and learning, the question “*Is it worth the overhead?*” arose. The issues are such as ensuring 100% of the class bring their own device as well as attendance is a problem. According to another lecturer, he sees potential challenges on the security front, but it’s not difficult to deal with as the systems group has been very professional and competent in dealing with security issues. When asked about considering complete BYOD setup, he said that without the provision of desktops by the IT department, many issues ranging from maintenance, software licenses, anti-virus and so forth can arise. Pushing students to bring their own laptop without having the computers in the lab will give the institution a bad image – “*They may look like a stingy or cheap institution ....*” There is a slight disconnection between human and non-human actors in this area and it appears to be useful to adopt sociomateriality approach to tackle this issue.

To start off in materialising a sociomateriality approach and ‘letting the technology (material) speak for itself’ (Cecez-Kecmanovic et al., 2014), this research will investigate issues on BYOD interacting with campus networks. It will also provide new insights and understanding with regard to BYOD for the university sector and the enablers and barriers that leads to BYOD in the university sector will be identified. The research will then conceptualize the BYOD phenomenon in the university sector and the impact it has for the identified actors will be studied. The performativity of BYOD will be relevant to sociomateriality and ANT method used to follow and observe the actors. This research is intended to contribute and cultivate the understanding of entanglement of sociomateriality in the future.

This research will further entail future case studies to look at broader perspective of BYOD from the UK University’s IT services as well as selected universities in Malaysia.

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