

# Employee perceptions of BYOD in South Africa: Employers are turning a blind eye?

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## ABSTRACT

As mobile Information and Communication Technologies (ICTs) become greater entrenched in society and with the nature of work changing, more and more international organizations are embracing and/or considering formalizing the phenomenon of 'Bring Your Own Device' (BYOD). The gist of BYOD is the use of privately owned devices and software to access and work with organizational resources. There is however little that is known about the degree to which organizations in South Africa are embracing the BYOD phenomenon. In this paper, we explored how employees in organizations in South Africa perceive the use of their privately owned devices for work. The results from 61 employees suggest that there is a strong awareness of the BYOD concept among employees. Employees also appear to believe that although their employers are aware of the use of privately owned devices for work, the employers are reluctant to formally create BYOD organizational strategies. The findings suggest that the laxity of employers in South Africa to deal with the BYOD phenomenon as an issue of strategic importance could result in considerable security challenges for organizational data.

## Categories and Subject Descriptors

K.4.3 [Organizational Impacts]: General

## General Terms

Management

## Keywords

BYOD, ICT Consumerisation, South Africa, ICT Managers.

## 1. INTRODUCTION

The ease of acquiring and owning ICT devices today means that more employees own an ICT device of some sort, which they sometimes use to conveniently access and work with organizational information (Nascio, 2012). Previously, such ICT devices could only be afforded by organizations and were used primarily to support organizational functions. In the "old" organizational dispensation, the ICT department provided and supported any organizational device primarily used for work. The privately owned

devices today have the ability to access organizational data in much the same way as those supplied by the organization, for example email.

The consumerisation of ICT, in particular the mobile device, is evident from the explosion in the number of shipments of devices within the last few years. For example 2013 saw the year in which smartphones outsold feature phones and saw sales of 1.8 billion mobile phones (mobiThinking, 2014). The ITU reports that there are currently 6,915 million smartphone subscriptions worldwide and that in the five years between 2008 and 2012, the percentage of people who own more than one phone steadily rose over the years from 33.50% to 52.15% (ITU, 2014). The rising number of ownership of mobile devices is a direct indicator of the rising global consumerisation in the mobile technology market, a direct reflection of the consumer-oriented generation that we live in today.

The recent literature on BYOD suggests that employees are increasingly opting to use their privately owned devices for work purposes (Afreem, 2014) and that some international organizations have gone ahead to create formal BYOD policies and strategies. For example Intel, which is considered to be a pioneer in BYOD, began their formal BYOD journey in 2010 and has over 19 000 employees participating in the BYOD program (Gruman, 2012). CISCO on the other hand has embraced BYOD and supports 35 000 Macs which were once viewed as alien devices in their formerly "Windows only" environment (Gruman, 2013). The main driver for the BYOD policies is to protect organizational data and reduce the organizational expenditure to employees and third-party providers (Nascio, 2012). The most popular BYOD devices are mobile; smartphones, tablets and laptops (Disterer & Kleiner, 2013; mobiThinking, 2014; Schadler & McCarthy, 2012). These mobile devices are today sophisticated enough to outperform the traditional devices provided to the employees by their organizations.

There is however little research that has been done to understand the BYOD phenomenon especially in emergent and developing economies (Disterer & Kleiner, 2013). In this paper, we therefore set out to explore, how employees in the Gauteng Province of South Africa perceive the BYOD phenomenon. Gauteng is the economic and population hub of South Africa, 34.7% and 24% respectively, and is the largest contributor to the South African economy (STATS-SA, 2013). Gauteng as such provides a broad perspective of the different organizational types and employee profiles that exist in South Africa

The remainder of the paper is organized as follows; the next section presents the literature on the consumerisation of ICT and BYOD.

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The research questions to be explored are elicited from here. The following section presents the research approach used to guide the collection of data. The analysis of data and discussion follows. The last section presents the conclusions and contributions of the paper along with some of the paper limitations.

## 2. INFORMING LITERATURE

### The rise of the Consumerisation of ICT

There is a diffusion of devices from enterprises into private households (Niehaves, Köffer, Ortbach, & Katschewitz, 2012) in what is now referred to as the consumerisation of ICT. The consumerisation of ICT is largely driven by the ability to work and play anywhere and anytime, also known as ubiquitous computing. Other reasons for the growth of consumerisation are the reduced prices of the devices (Herring, 2011), increased power and ubiquity (Blount, 2012), the increased use of social media for both personal and work life (Blount, 2012), and the arrival in the workforce of a generation that has grown up with ICT devices and the internet (D'Arcy, 2011).

The consumerisation of ICT is as such beginning to reshape the relationship of the ICT department with employees who prefer to use their privately owned devices for work. As a consequence, the consumerisation of ICT is also reshaping the nature of the work environment with modern day employees preferring to redefine how and where their work is done (National-Research-Council, 1999). The boundaries between work and personal life are becoming increasingly blurred (Wright, 2013). The research therefore sought to understand the following sub-research question:

*RQ1: How do employees acquire their mobile devices?*

The main advantages of consumerisation are in the mobility, flexibility and convergence of media that is afforded to individuals. Mobility extends computing and the Internet providing more freedom to individuals in their personal life and at work (Jarvenpaa, 2003) allowing for the "anything, anywhere, anytime" scenario (Disterer & Kleiner, 2013). Flexibility allows employees to work and play (Disterer & Kleiner, 2013) (Varshney & Vetter, 2000) with only one device (Disterer & Kleiner, 2013). The convergence of media (video, text, data, sound) additionally allows employees to access personal as well as organizational data using their privately owned devices (Morrow, 2012). Organisations can also deliver new knowledge and increase their training platforms using the employees own devices (Moschella, Neal, Opperman, & Taylor, 2004). Eventually, the premise is that the costs of ICT devices in an organization ought to reduce.

Consumerisation however has some disadvantages mainly in the form of security and privacy concerns, and the increased demand on the function of the ICT department (Herring, 2011). More devices mean increased capacity requirements to manage each device. For the ICT department, each new device carries the potential danger of less control over what is transmitted and how it is transmitted. The associated danger is losing organizational data (Garlati, 2011). Other disadvantages include increased telecommunications charges for additional bandwidth for connectivity of consumer devices and the accompanying legal and regulatory issues these bring (ENISA, 2012).

The following two sub-research questions were therefore explored.

*RQ2: How often do employees use their personal devices for work?*

*RQ3: How important to the employee are the different types of mobile devices to perform work?*

The above trend towards the consumerisation of ICT has resulted in the BYOD phenomenon.

### Understanding BYOD

BYOD implies that employees utilize their personal devices for both work and personal tasks (Jones, 2012; Reddy, 2012). With the advent of BYOD employees are increasingly accessing privileged organizational information and applications. Organizations are required to understand and address the implications of unknown devices entering their environments. Security is cited as the main concern (Mansfield-Devine, 2012). Other concerns regarding BYOD include governance, legislation, device types and internet dependency (Marshall, 2014). Some of the benefits of BYOD have been noted as increased productivity, lower corporate costs and less technical training for employees (Stagliano, DiPoalo, & Coonelly, 2013).

The following two sub-research questions were therefore explored:

*RQ4: How do employees perceive their employers readiness to allow the employee to use their devices for work?*

*RQ5: What do employees think about using their personal devices for work?*

The consumerisation of ICT, and the growing number of employees using their personal devices to perform work related tasks, has led some organisations to create BYOD policies and strategies. The BYOD responses are designed to allow employees the freedom to use their personal devices while mitigating the security and associated concerns of the ICT department.

However, the literature suggests that many organizations are reluctant to actively embrace and implement a BYOD response mainly for a number of reasons. Firstly, some organisations perceive that the ICT function is already overstretched in terms of the skills needed to support the organisation (Disterer & Kleiner, 2013). Other organisations have strong concerns about the security of their organizational data (Afreen, 2014; Mansfield-Devine, 2012).

The following sub-research question was explored:

*RQ6: What do employees think are the benefits to business when the employees use their personal devices for work?*

## 3. RESEARCH DESIGN

The research was deeply exploratory and qualitative in nature in seeking to understand how South African employees currently perceive the emergent trend of the consumerisation of ICT as seen in the BYOD phenomenon. The main reason for adopting an exploratory design in the qualitative approach was because of the emergent nature of the BYOD phenomenon and the desire to understand the lived experience of employees. Exploratory research, as was this research, is drawn upon when investigating new areas of inquiry and the goals of the research are to scope out the magnitude or extent of a particular phenomenon, and to test the feasibility of undertaking a more extensive study regarding that phenomenon (Bhattacharjee, 2012). The essence of qualitative research is to understand and appreciate the lived experience of what is under investigation within context.

The research as a starting place focused specifically on employee perceptions of the use of their personal devices for work. The research was limited to employees in the Gauteng province in order to understand what dimensions of BYOD need to be studied at a more extensive level. Data was collected using a free online survey

tool provided by Google Forms®. The questions for the survey were drawn from the research questions elicited in the literature review above in Section 2. The population was selected as employees in the Gauteng area. A non-probability convenient sample using the snowball sampling method was selected because of the ease of access to the researchers and for the ability to target people who met the sampling criteria being sought for.

Participants were sent emails with a website link to the online survey inviting them to complete the questionnaire and forward the same email to other employees within the Gauteng province. 61 valid responses from employees in various organisations were received over a period of 7 months from September 2013 to March 2014.

### Data analysis tools

The data collected was of a qualitative nature and was therefore descriptively analyzed with contingency tables in SAS Enterprise Guide 5.1© using the Table Analysis feature. Face and content validity was done using the literature as a basis for developing the questionnaires as seen in section 2. Reliability, the extent to which a set of variables measures what it is intended to measure (Hair et al. 2010), was provided for by using the same online questionnaire with all employees.

## 4. RESEARCH FINDINGS AND DISCUSSION

In the following section we discuss the outcomes of the data analysis.

### Demographic Profile

The following table outlines the demographic profile of respondents and the devices that they own respectively.

			Smartphone	Tablet	Laptop	Desktop
Sex	Female	Count	10	6	13	6
		% within Sex	76.9%	46.2%	100.0%	46.2%
		% of Total	16.4%	9.8%	21.3%	9.8%
	Male	Count	45	14	42	24
		% within Sex	93.8%	29.2%	87.5%	50.0%
		% of Total	73.8%	23.0%	68.9%	39.3%
Total	Count	55	20	55	30	
	% within Sex	90.2%	32.8%	90.2%	49.2%	
	% of Total	90.2%	32.8%	90.2%	49.2%	

**Table 1: Demographic Statistics**

There were a total of 13 female (21.3%) and 48 male (78.7%) respondents. Of the 61 respondents, 90.2% own a smartphone, 32.8% own a tablet, 90.2% own a laptop while only 49.2% own a desktop PC. The figures confirm the mobile nature of the workforce. As reported in the literature employees are increasingly moving from a scenario where their primary work device is fixed, to a scenario where the primary work device is mobile and is always connected (D'Arcy, 2011; Revenaugh & Schweigert, 2013). The preference for a tablet or desktop computer is evidently not high. It is nonetheless notable that the number of tablets owned is lower than the ownership of the desktop. The results in the exploratory study stand in contrast with suggestions in the literature and media that the tablet will quickly replace the desktop and laptop (mobiThinking, 2014). For example, Ally (2013) contends that the user friendliness and the powerfulness of tablets and smartphones will result in their overtaking laptops and desktops (Ally, 2013). The data from the employees does not confirm the popular assertion.

## Device Acquisition

Table 2 shows the results on the method of acquisition of the devices.

		Smartphone	Tablet	Laptop	Desktop
Chose it and paid for it myself	Count	42	17	10	22
	% within device	76.4%	85.0%	18.2%	73.3%
	% of Total	68.9%	27.9%	16.4%	36.1%
Chose it but company paid for it	Count	1			
	% within device	1.8%			
	% of Total	1.6%			
Subsidized by the company	Count	6	3	10	
	% within device	10.9%	15.0%	18.2%	
	% of Total	9.8%	4.9%	16.4%	
Supplied by the company	Count	6		35	8
	% within device	10.9%		63.6%	26.7%
	% of Total	9.8%		57.4%	13.1%
Total	Count	55	20	55	30
	% within device	100.0%	100.0%	100.0%	100.0%
	% of Total	90.2%	32.8%	90.2%	49.2%

**Table 2: Device Acquisition Statistics**

Table 2 suggests that except for laptops the primary means of acquiring ICT devices lies more with the employee. 63.6% of the laptops are supplied by the employer. It is surprising that 73.3% chose the desktop and paid for it themselves. Prior studies show that most BYOD tablets and laptops are funded by the employee with no support from the organization (Rains, 2012). Table 2 reveals a shift in purchasing decisions of ICT devices from employer to employee.

A prior study found that 76.2% of tablets, 43.9% of smartphones, 75% of laptops were employee funded (Rains, 2012). Astani et al (2013) similarly showed that rather than all computing devices being supplied by organizations, personnel are bringing their own smartphones, tablets, and laptops into the work setting (Astani, et al., 2013).

The results suggest that with the exception of the laptop, more employees have choice over the device they use for work. The results confirm the notion that employees have a greater degree of choice in the device they use for work purposes, a suggestion which ought to support a BYOD strategy in most organizations. It was quite a surprise contrary to the literature that no employee in the study reported the tablet as having been supplied by the organization.

### Device Contribution to Work

The study also enquired about the criticality of the different devices to the ability of employees to complete their work.

Table 3 suggests that the importance of the smartphone and desktop to work as quite varied. The laptop on the other hand is considered primarily important with a score from 7 to 10 only, with 90.9% believing that the laptop is extremely critical to work – at the 10 score. The high score for the laptop compared with the desktop points to the shift in the workforce from a more sedentary type preference as dictated by a desktop to a more mobile preference in the laptop.

		Smartphone	Tablet	Laptop	Desktop
1.0	Count	3	4		5
	% of Total	4.9%	7.4%		9.1%
2.0	Count	1			2
	% of Total	1.6%			3.6%
3.0	Count	4	1		1
	% of Total	6.6%	1.9%		1.8%
4.0	Count	9			
	% of Total	14.8%			
5.0	Count	9			1
	% of Total	14.8%			1.8%
6.0	Count	10	5		3
	% of Total	16.4%	9.3%		5.5%
7.0	Count	11	3	1	5
	% of Total	18.0%	5.6%	1.7%	9.1%
8.0	Count	6	5	2	5
	% within Device	10.9%	25.0%	3.6%	16.7%
9.0	Count	1	1	2	1
	% within Device	1.8%	5.0%	3.6%	3.3%
10.0	Count	1	1	50	7
	% of Total	1.6%	1.9%	83.3%	12.7%
Total	Count	55	20	55	30
	% of Total	90.2%	37.0%	91.7%	54.5%

**Table 3: Degree of criticality to work of device**

It is worth noting that only 37% of the employees surveyed felt tablets have value for work, and 45.5% do not see the value of a desktop for work.

## The Use of Devices for Work Purposes

		Smartphone	Tablet	Laptop	Desktop
Always	Count	6	3	6	5
	% of Total	9.8%	4.9%	9.8%	8.2%
Never	Count	5	2	5	4
	% of Total	8.2%	3.3%	8.2%	6.6%
Sometimes	Count	44	15	44	21
	% of Total	72.1%	24.6%	72.1%	34.4%
Total	Count	55	20	55	30
	% of Total	90.2%	32.8%	90.2%	49.2%

**Table 4: How often own device is used for work**

Table 4 shows that employees tend to use their own devices for work especially the smartphone and the laptop. The tablet and desktop are rarely used for work. This finding is aligned to the data reflected in Table 1 showing ownership of the different devices among the respondent group. It further indicates the rising preference for mobility. Other studies indicate that the current generations are attracted by the flexibility that mobile devices allow (Ally, 2013; Rains, 2012).

## Perceptions of Employer Acceptance

		Smartphone	Tablet	Laptop	Desktop
No	Count	2	1	1	2
	% of Total	3.3%	1.6%	1.6%	3.3%
Not Sure	Count	9	4	10	5
	% of Total	14.8%	6.6%	16.4%	8.2%
Yes	Count	44	15	44	23
	% of Total	72.1%	24.6%	72.1%	37.7%
Total	Count	55	20	55	30
	% of Total	90.2%	32.8%	90.2%	49.2%

**Table 5: Perceptions about employer allowing the use of a privately owned device**

Employees generally perceive that employers will allow them to use their own devices to perform work as long as the organization benefits. The results support Astani et al (2013) research that showed how 77% of employers allow their personnel to use their personal mobile devices for work purposes.

The finding shows how employees believe that employers are not willing to assist in the purchase of personal devices yet are comfortable with the employees using the devices to perform work. As seen in the literature a large number of smartphones and laptops found in organisations are in fact employee-owned (Astani, et al., 2013) however only 29% of employers reimburse their employees for using their devices for business purposes.

## Perceptions of Employer Awareness of Employees BYOD

		Smartphone	Tablet	Laptop	Desktop
No	Count	4	2	4	4
	% of Total	6.6%	3.3%	6.6%	6.6%
Not sure	Count	13	4	15	7
	% of Total	21.3%	6.6%	24.6%	11.5%
Yes	Count	38	14	36	19
	% of Total	62.3%	23.0%	59.0%	31.1%
Total	Count	55	20	55	30
	% of Total	90.2%	32.8%	90.2%	49.2%

**Table 6: Perceptions about employer being aware employee use their own devices**

Table 6 shows that employees generally believe their employers know that privately owned devices are used for work purposes. Yegulalp (2013) argues that a BYOD organizational response is no longer an option for most organizations but should be a standard.

The study indicates that many employees believe that employers are well aware of their use of personal devices for work. In contrast, it is noted with interest that the literature indicates that only 7.6% of organisations have an official BYOD programme (Rains, 2012). Revenaugh and Schweigert (2013) outline that BYOD remains an informal practice in many organisations.

## Employee Reasons for BYOD

	Smartphone	Tablet	Laptop	Desktop
Better than what company supplies	26	12	29	14
% of Total	47.3%	60.0%	52.7%	46.7%
Familiar with my device	16	9	18	9
% of Total	29.1%	45.0%	32.7%	30.0%
Easier than what company supplies	9	4	10	8
% of Total	16.4%	20.0%	18.2%	26.7%
Better_collab_work_personal_life	26	11	26	18
% of Total	47.3%	55.0%	47.3%	60.0%
I do not know	2	0	2	2
% of Total	3.6%	0.0%	3.6%	6.7%
Total	55	20	55	30

**Table 7: Reasons for BYOD**

The majority of all the employees prefer their own device because it is better than what their organisations supplied in terms of productivity. Employees prefer devices that “reflect me” and are not selected by the ICT departments (D’Arcy, 2011); (Tokuyoshi, 2013). Reports indicate that BYOD aims to increase work experience and productivity (SogetiLabs, 2013); (Rains, 2012). It is noteworthy that familiarity with device comes as the third option in our study. Table 7 suggests that most employees have a strong opinion about the use of their own devices for work. As the study

by Rains (2012) shows that workers will use their own devices with or without a formal organizational BYOD programs since 77% highlighted employee demand as the top motivating factor for BYOD (Rains, 2012).

## Business Benefits of BYOD

	Smartphone	Tablet	Laptop	Desktop
Higher employee satisfaction	38	15	39	20
% of Total	69.1%	75.0%	70.9%	66.7%
Better customer service	25	11	26	14
% of Total	45.5%	55.0%	47.3%	46.7%
More employee efficiency	37	14	37	21
% of Total	67.3%	70.0%	67.3%	70.0%
Faster employee response	37	13	37	19
% of Total	67.3%	65.0%	67.3%	63.3%
Other	0	0	0	0
% of Total	0%	0%	0%	0%
Total	55	20	55	30

**Table 8: Benefits of BYOD**

Table 8 shows that overall; the use of privately owned devices provides a range of business benefits in more than just one way but most especially in terms of employee satisfaction and employee efficiency. The finding is supported by the literature which indicates that improved employee productivity and satisfaction are a key BYOD benefit (Disterer & Kleiner, 2013; Stagliano, et al., 2013).

## 5. CONCLUSION

The study set out to explore employee perceptions of the BYOD phenomenon using an exploratory qualitative approach from 61 respondents in the Gauteng Province. The emergent nature of the BYOD phenomenon meant that the exploration was guided by the current literature rather than informed by known theory.

It is clear from the findings that employees in Gauteng, similar to the rest of the world, are becoming more mobile and are enjoying a great deal of choice in purchasing personal devices which they also use for work. In Gauteng however, tablets are not surpassing laptops yet as has been predicted in international media and literature. Tablets are further not one of the devices which organisations appear keen to purchase for their employees, nor are employees keen to use them for work.

The data similarly confirms the increasing shift from a desk workforce to a mobile workforce – the laptop is the primary device which is considered vital to the job compared with the desktop for which 45.5% did not see that it plays any role in work today. Additionally, an impression from the data suggests that employers feel entitled to their employees' personal devices for work purposes without having to bear the costs and challenges that accompany the devices. The impression is certainly worth investigating on a broader scale.

The study identifies that BYOD will continue to rise in South Africa as is already happening internationally. The growing consumerisation of ICT affects employers in greater scope than the employers appear willing to deal with. Hence, the study recommends that employers actively create and manage BYOD strategies in embracing the emergent trend.

## Limitations and Opportunities for Future Research

The research was exploratory as a precursor to a wider study, and was therefore limited in scope to the perceptions of only 61 employees in the one province of Gauteng. The wider study expects

to include the perceptions of employers, and to employ much more rigorous inferential analysis methods such as exploratory factor analysis. The space limitations of a conference paper also do not allow the questionnaire developed and the relationships with the research questions in the literature. The questionnaire is however available on request.

## 6. REFERENCES

- [1] Ackerman, A. S., & Krupp, M. L. (2012). Five Components to Consider for BYOT/BYOD. International Association for Development of the Information Society.
- [2] Afreen, R. (2014). Bring Your Own Device (BYOD) in Higher Education: Opportunities and Challenges. International Journal of Emerging Trends & Technology in Computer Science, 3(1).
- [3] Ally, M. (2013). Mobile learning: from research to practice to Impact Education. Learning and Teaching in Higher Education: Gulf Perspectives, 10(2).
- [4] Astani, M., Ready, K., & Tessema, M. (2013). BYOD issues and strategies in organizations. Issues in Information Systems, 14(2), 195-201.
- [5] Bhattacharjee, A. (2012). Social Science Research: principles, methods, and practices.
- [6] Blount, S. (2012). The Consumerization of IT: Security challenges of the new world order: CA Technologies.
- [7] D'Arcy, P. (2011). CIO strategies for consumerization: The future of enterprise mobile computing: Dell CIO Insight Series.
- [8] Disterer, G., & Kleiner, C. (2013). BYOD Bring Your Own Device. Procedia Technology, 9(0), 43-53. doi: <http://dx.doi.org/10.1016/j.protcy.2013.12.005>
- [9] ENISA. (2012). Consumerization of IT: Top Risks and Opportunities. Retrieved from <http://www.enisa.europa.eu/activities/risk-management/evolving-threat-environment/consumerization-of-it-top-risks-and-opportunities?searchterm=top+risks>
- [10] Garlati, C. (2011). Trend Micro Consumerization. London: Gartner.
- [11] Gruman, G. (2012). Afraid of BYOD? Intel shows a better way. Retrieved from InfoWorld website: <http://www.infoworld.com/d/consumerization-of-it/afraid-of-byod-intel-shows-better-way-204123>
- [12] Gruman, G. (2013). Cisco shows how to manage 35,000 Macs. Retrieved from Infoworld website: <http://www.infoworld.com/d/consumerization-of-it/cisco-shows-how-manage-35000-macs-226305>
- [13] Herring, M. (2011). Consumerization - The shift from personal to personalised computing. Retrieved from <http://www.economist.com/node/21530921>
- [14] ITU. (2014). ICT Facts and Figures 2013: Mobile-cellular subscriptions (Statistical). Retrieved 27 May 2014, from International Telecommunication Union
- [15] Jarvenpaa, S. L. (2003 ). Mobile commerce at crossroads. Communications of the ACM 46, 41-44.
- [16] Jones, J. (2012). BYOD: Organizations Question Risk vs Benefit. Retrieved from <http://blogs.technet.com/b/security/archive/2012/08/02/byod-organizations-question-risk-vs-benefit.aspx>

- [17] Mansfield-Devine, S. (2012). Interview: BYOD and the enterprise network. *Computer fraud & security*, 2012(4), 14-17. doi: [http://dx.doi.org/10.1016/S1361-3723\(12\)70031-3](http://dx.doi.org/10.1016/S1361-3723(12)70031-3)
- [18] Marshall, S. (2014). IT Consumerization: A Case Study of BYOD in a Healthcare Setting. *Technology Innovation Management Review*(March 2014: Emerging Technologies).
- [19] mobiThinking. (2014). Global mobile statistics 2014 Part A: Mobile subscribers; handset market share; mobile operators Retrieved 27 May, 2014, from <http://mobithinking.com/mobile-marketing-tools/latest-mobile-stats/a/#subscribers>
- [20] Morrow, B. (2012). BYOD security challenges: control and protect your most sensitive data. *Network Security*, 2012(12), 5-8
- [21] Moschella, D., Neal, D., Opperman, P., & Taylor, J. (2004). The “Consumerization” of Information Technology. Paper presented at the Leading Edge Forum.
- [22] Nascio. (2012). Good Technology- BYOD Best Practices Retrieved 13 March, 2013, from <http://www.nascio.org/events/sponsors/vrc/BYOD%20Best%20Practices.pdf>
- [23] National-Research-Council. (1999). *The changing nature of work: Implications for occupational analysis*. Washington D.C: National Academy Press.
- [24] Niehaves, B., Köffer, S., Ortbach, K., & Katschewitz, S. (2012). *Towards an IT Consumerization Theory—A Theory and Practice Review Working Papers*, European Research Center for Information Systems No. 13. Münster: European Research Center for Information Systems.
- [25] Rains, J. (2012). Bring Your Own Device (BYOD): Hot or Not? HDI Research Corner. Retrieved from <https://news.citrixonline.com/wpcontent/uploads/2012/04/BYOD-Hot-or-Not.pdf>
- [26] Reddy, A. S. (2012). *Making BYOD work for your organisation: Cognizant Research*.
- [27] Revenaugh, L. D., & Schweigert, M. E. (2013). BYOD: Moving toward a More Mobile and Productive Workforce. *Business and Information Technology*. Retrieved from [http://0-digitalcommons.mtech.edu.innopac.up.ac.za/business\\_info\\_tech/3](http://0-digitalcommons.mtech.edu.innopac.up.ac.za/business_info_tech/3)
- [28] Schadler, T., & McCarthy, J. (2012, 8 March). *Mobile Is The New Face Of Engagement*. Retrieved from [http://cdn.blog-sap.com/innovation/files/2012/08/SAP\\_Mobile\\_Is\\_The\\_New\\_Face\\_Of\\_Engagement.pdf](http://cdn.blog-sap.com/innovation/files/2012/08/SAP_Mobile_Is_The_New_Face_Of_Engagement.pdf)
- [29] SogetiLabs. (2013). BYOD, Big Data, Cloud Rank High Among Top Trends for 2013. [Article]. *Security: Solutions for Enterprise Security Leaders*, 50(4), 25-26.
- [30] Stagliano, T., DiPoalo, A., & Coonelly, P. (2013). *The Consumerization of Information Technology: La Salle University Digital Commons*.
- [31] STATS-SA. (2013). Mid-year population estimates. Pretoria: Retrieved from <http://www.statssa.gov.za/Publications/P0302/P03022013.pdf>.
- [32] Tokuyoshi, B. (2013). The security implications of BYOD. *Network Security*, 2013(4), 12-13. doi: [http://dx.doi.org/10.1016/S1353-4858\(13\)70050-3](http://dx.doi.org/10.1016/S1353-4858(13)70050-3)
- [33] Varshney, U., & Vetter, R. (2000). Emerging mobile and wireless networks. *Communications of the ACM* 43(6), 73-81.
- [34] Wright, A. (2013). 5 Trends Changing the Nature of Work. *HR News*. Retrieved from <http://www.shrm.org/Publications/HRNews/Pages/5-Trends-Changing-the-Nature-of-Work.aspx>
- [35] Yegulalp, S. (2013). *Making BYOD Work- BYOD Deep Dive: Infoworld*.