

The Challenges of Using Information Technology (IT) As a Veritable Tool for the Empowerment of Women: a Road-Map.

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Abstract

Empowerment refers to increasing the spiritual, political, social, educational, or economic strength of an individual(s) and community(ies). It includes encouraging and developing the skills for, self-sufficiency, with a focus on eliminating the future need for charity or welfare in the individual or group. The natural endowment of the women/female folk is particularly informative when considering her enduring roles in any human endeavor. Nature has uniquely bestowed on the female to mother, nurture, unify and uplift the human society. Ideally, as a mother, she conceives, delivers, tends and fends for the child to a well- balanced adult. Similarly the IT (Information Technology) world, should borrow a leaf from nature by encouraging the women folk to participate at the conceptual planning and implementation stages in achieving the millennium development goals in Nigeria using IT strategies and tools (MILDEG). In this paper, therefore, the authors throw up the underlying challenges, opportunities and prospects of the empowerment of our female folks towards the technological boom of our nation, via the creation, use and application of IT and related technology.

Keyword: Information Technology (IT), Empowerment, Telecommunication links, VSAT, WITED, Electronic Fund Transfer, Job creation.

1. Introduction.

Before the advent of computers, maintaining and processing large collections of data were at best, awkward and time-consuming. The application of computers and communication technologies (popularly referred to as Information and Communication technology – ICT) has enhanced the capture, and manipulation of data/information; thus empowering the users of same. Information is one of the major determinants of economic and social development. One of the reasons behind underdevelopment of a country, individual, or any sector of the economy is bad / ineffective management of data. Daintith, John, ed. (2009) in (en.m.wikipedia.org), stated that “Information Technology (IT) in the context of business is the application of computers and Telecommunications equipment to store, retrieve, transmit and manipulate data”. Data, being the live-wire of any activity is vital and the importance of its timely capture, process, and transmission; through the use of computers related devices, cannot be over-emphasized. IT/ICT is the principal driver of economic, social, and cultural change; hence empowering the users (women, inclusive). However, the use of IT/ICT facilities are hindered by many challenges (Oladunjoye, M. I, Ajayi Ebenezer Akinyemi, Adeleke Tyelolu Olayemi, 2011).

2. Some Reviewed Literatures, and Discussions.

Mayuri Odedra-Straub (1996) opined that Information technology can be of great advantage in various economic sectors, if used for decision-making. Any decision that is not based on timely, and accurate data is bound to stunt any meaningful development and hence empowerment. Empowerment entails acquiring knowledge, fostering self-confidence, expansion of choices, participation in decision making and improving access to and control over resources, (Stromquist, 2005). ICT, when used effectively, can achieve all of these goals. With it, one can have access to unlimited resources (knowledge being the most important resource of all). It is able to improve women's standing, both economically (in terms of access to greater job opportunities/higher wages), and socially in terms of networking/social interaction. Mastering the basic IT/ICT skills should not be seen as an end in itself but as a vehicle for one to improve one's life through access to diverse and vast collection of online resources that will even assist teachers/educators to design curricular that will meet the socio-economic needs of women.

According to *Dayo Oketola (2012)*, “The deployment of information and communication technologies at all levels of education (primary, secondary and tertiary institutions), no doubt will contribute to the meeting of the Millennium Development Goals (MDGs) of gender parity in education”. Again, it will facilitate interaction and sharing of knowledge and learning experiences quickly and cheaply over long geographic distances and this will sustain women's interest in educational activity.

According to Ezeano et.al (2006) in Central Bank of Nigeria (1990), Information Technology (IT) is the ability for one to create, access, manipulate, store and transmit information in form of text, data, image and voice

through the application of computers, electronic devices and related technology, such as global system mobile phone (GSM), Micro-electronics, FAX, internet, Electronic Fund Transfer System (EFT), Automated Teller Machine (ATM), etc. The activities involved in processing (e.g. create, access, manipulate transmit and store) data (e.g. numbers, text, image and voice), and communicating information are clearly illustrated in table 1.

The two key activities performed in the IT-grid, as illustrated in table 1, are;

- ✓ Processing and
- ✓ Communication.

Processing activities: These are as explained below.

- Create: This reflects the initial building or collection of data (which could be in the form of numbers, or text, or image, or voice).
- Access: Data already held in the computer's memory can be retrieved for use.
- Manipulate: Data could be retrieved for the purpose of making changes (i.e. updating, deleting etc.).
- Transmit: The sole purpose of data processing is that of sending it across to another user (which can be a machine or person).
- Store: All processed data are normally kept either as a hard copy or soft copy for future reference.

Communication: This is an integral part of processing data, text, image, or voice. Without this, the above processing activities will not be of any use. The System software in conjunction with Application packages (Excel Spreadsheet, MS Word, etc), facilitates these activities, as illustrated in the IT-grid.

Our former President Obasanjo (2007) explained Empowerment as "... the ability to be self- employed and be an employer of labor", (FRCN news, 7.30am). Empowerment encourages people to gain the skills and knowledge that will allow them to overcome obstacles in life or work environment and ultimately, help them develop within themselves or the society. One empowerment strategy is to assist marginalized people to generate their own wealth through education. Education, as a basic human right, is the key to the development of human capabilities. Any country that refuses to educate its citizens, especially women cannot sustain growth and poverty reduction. Countries that have invested in education for women as part of their educational priorities, and integrated approach to societal development have always witnessed slower population growth, faster economic growth, and a higher level of social cohesion. It is time for all countries to put aside their doubts and fears about educating women, and give it the highest priority. The realization of this fact, especially on the part of women in developing countries; has attracted the attention of the international community. This is why development agencies such as the World Bank, United Nations Development Fund for Women-UNIFEM, and the United Nations Development Program-UNDP, observed that ICT symbolizes an exceptional enabling instrument when deployed and used properly. ICTs have given women new opportunities for expanding their projects and the possibility of a social, political and cultural change. For instance, women networks like WOUNET have shown that ICT usage improved the involved women's means of communication, with positive effect on their livelihood as well as their participation in public life (Konyeha Susan and Osubor Veronica, 2010).

Abbasi (2001), stated that ICT represents a unique "knowledge-based social Infrastructure" which can be of great help for women to evade marginalization. Women, therefore, should be empowered by enhancing their skills, knowledge and access to information technology. This will strengthen their ability to combat negative portrayals of women and to challenge instances of abuse and negligence.

Women have always been active in agriculture, trade, and other economic pursuits, but "most women across the globe rely on the informal work sector for an income (United Nations Research Institute for Social Development, 2010). Being guardians of their children's welfare and having the explicit responsibility to provide for them materially, the need of empowering them is mandatory. Empowering women through Information and Communications Technology has been considered as very critical to the attainment of the Millennium Development Goals in Nigeria (Dayo Oketola, 2012).

If women are empowered to do more and be more; especially through the application of IT, the possibility for economic growth becomes apparent. An empowered woman can impact a situation, as witnessed by a study that "shows that companies with more women board of directors, had significantly higher financial returns on equity, sales, invested capital (OECD, 2008). With skill acquisition, education and basic resources, women can become catalysts for change and build a better world for all.

IT is the technology that merges computing with high speed telecommunication links carrying data, sound, video, etc, while telecommunication consists of electromagnetic devices and systems for communicating over long distances. The process of transmitting data/information from one device to another via specific media e.g. cable, microwave, satellite, fiber optics etc, to an end-user or application is called **Information Communication Technology (ICT)**, (Ezeano et al 2006). Hence, ICT is a microcosm of IT. A major component of the Obasanjo administration's economic reform program is the restructuring of key sectors of the economy among which is telecommunication/ICT/IT identified as a critical social driver and enhancer (i.e. job creator). The quality and density of the sector network and intensity of the use of its services are major indicators of social and economic

development and empowerment (The Obasanjo's Reforms – telecommunication sector, 2005). Furthermore, the information in table 2 confirms more that there is growth in operators in the various service categories as shown. From the displays in Charts 1 and 2, it is evident that, there is an increase in the number of Internet service providers and VSAT Networks. This signifies an increase in patronage/number of people using ICT.

The phenomenal growth of the ICT/IT industry in recent years is reflected in the fact that Nigeria is today reckoned as one of the fastest growing IT/ICT markets in the world. Consequently, “thousands of new jobs are directly/indirectly created” (Ibid) and by reasonable projection more women/females empowered. In this regard, NCS in concert with WITED [Women in Technical Education and Employment ... a project conceptualized by the commonwealth association of Polytechnics in Africa (CAPA)] in reaction to the observed exceeding low participation of women in technical education (IT) in its member institutions, instituted WITED. This body, established in Nigeria in 1994, among other charges, is aimed at identifying the factors which impede women participation in technical education such as (IT), training and employment. The long term objective of the project is to enhance the participation of women in technical education (IT) *at all levels*.

Obayelu, A., & Ogunlade, I. (2006) elaborated that “a study in Nigeria revealed that women considered the word “technology” to have male connotations, even though “information” seemed more feminine. Some even believed that working with ICTs would drive women mad. These examples indicate a high level of discomfort with new information technologies”. With this development, it is necessary to deliberately increase gender equity in ICT utilization through the following practical steps:

- Provision of many different computer packages and applications that addresses critical challenges and aspirations of women.
- Giving sufficient opportunities for women and girls in accessing computers, as well as increasing teacher consciousness of gender issues in relation to ICT.
- Paying particular attention to the career prospects of women and girls who achieve at school and in ICT
- Avoiding a situation in which working with computers will be identified with abstract technical knowledge.
- Creating role models through 'peer learning' for women and girls.
- Increasing the number of female teachers/lecturers using computers as role-models for women and girls.
- Embedding ICT teaching in the normal curricula subjects for both male and female students.

According to Economic Action Plan (2012), government is committed to supporting job creation by small businesses and opportunities for under-represented groups (women) in the workforce. With ICT, many women can perform better; as they will be enabled to share information or idea with others across the globe. If afforded this opportunity, women can “participate effectively in policy-making and governance (OnlineNigeria, ***2013).

3. Challenges/problems of low women empowerment using IT

“Most women all over the world face a variety of legal, economic and social constraints. Some are still being treated as minors, while some are even expected to obtain their husbands consent before opening a bank account.” (Harison, 1983). This makes it often more difficult for women to gain access to IT, resources and credit.

Again, the rearing practices of girls and boys in Africa have been hindrances to female choice of an excellence in some skills, one of which is information technology (IT). The segregate-treatment in intentions and method of handling between boys and girls by the society has led to some deficiencies in girls, educationally, which are artificial (Mivanyi, 1997). The girl can do what the boy does if the society allows her. Traditionally by the age of 9 years or even 8, the girl child is warned not to manipulate objects like a boy, she must be in the kitchen. The girls are finding it difficult to leave those technical skills because of these cultural practices and inhibitions. For instance in the department of education technical of Kaduna Polytechnic, out of 799 students, 772 are males while the remaining 27 are females. The same unbalanced ratio applies in courses like Engineering and Computer Science in Akanu Ibiam Federal Polytechnic, Unwana. Just as the girl is asked to stay in the kitchen and learn/admire the mother display her talent in cooking, mothers should learn the arts of using IT/ICT; as well the manipulation of television, sound sets, fixing of plugs, etc. Other problems include, but not limited to:-

- Poor background of girls in Mathematics and other science subjects.
- General lack of confidence and interest in females.
- Lack of effective career guidance and counseling.
- Some cultural and attitudinal beliefs and gender stereo-typing by parents and society.
- Failure by employers to recognize or accept female suitability for IT jobs.
- Lack of specific government policies/legislation or affirmative action.
- Lack of supportive facilities by employers, and tertiary institutions that are gender-biased.
- Limited career prospects and salaries and unfavorable conditions at work places.
- Peer bias against IT.

4. Constraints of Women Empowerment

It has even been argued that for any sustainable and meaningful development to take place, the question of women in Information technology and nation must be addressed (Ayoade, Nwabuzo Sambo and Omoruyi, 1992). Apparently, the Nigerian women work more in IT as receptionists, computer operators, cleaners/office assistants than as managers and decision-makers. This is further evidenced by large number of them in business centers and umbrella-based GSM call centers etc. This implies that women are not positioned to influence decisions in this regard. As a result, the British Prime minister, Margaret Thatcher, was prompted to bemoan that it was high time there were more women in politics (*Information Technology*) so that she and her few colleagues would not be conspicuous (Nigeria Vanguard, 2 October, 1990). Regrettably, B. Blutto of Philippines, Indira Ghandi of India and Bandaranaike of Sri Lanka, all rose to fame because of the demise of their famous male relatives in form of husbands/fathers; including our Governor Virgy Etiaba of Anambra State who clinched the post due to series of impeachment-saga in that state. This is not the type of empowerment, per se, that is being advocated (i.e. one done in sympathy and unsavory conditions). The economic commission of Africa (1989) observed further that “at the decision-making level and political participation that the factors that affect women’s participation in IT/politics include: resources, time, skill, experience, patronage, contacts and information. Women are at a disadvantage with regard to all these factors that promote success in politics (IT). Participation of women requires both human, financial resources as well as attitudinal change on the part of society towards women participation in political and administrative positions that require decision-making (UN, ECA Report 1989). Again women face difficulties in being as resourcefully active in IT as men, because of their position in the family, absence of relevant occupations and gender socialization (Norris and Lovendaskei, 1995). Furthermore, even those few women who have managed to get through to the top by “cracking the glass ceiling” notably in politics, industry, finance/banking, academics, find it difficult to be fully accepted on the high-ground level (News letter, 2000). Interestingly, Holtzman and Williams (1987) confirmed that women candidates are frequently held to higher standards than their male counterparts. The media and other institutions scrutinize a female candidate much more closely than a man. The effect is that it requires a great deal more courage for women to opt for high-level IT careers than their male counterparts. To add more credence to this, Hon. Senator Buckonor Akerele, the then Deputy Governor of Lagos State, stated in Sunday Vanguard of 16 June, 2002 that “... all sorts of things have been done against me basically because of my gender but more importantly because of certain degree of complex combined with greed in some men to make them want to reduce my status, my contribution to the socio-economic development of Lagos state and render my office redundant. In politics, they have erected walls which are impossible for many women to scale” (Akerele 2002). In effect even when women transcend the barriers and successfully capture IT power position, they are expected to carry the traditional image along with them into the new functions, unfortunately. Arguing further (Akerele 2002) added that “... to ensure that women are effectively kept out of political power, they (men) organize critical caucus meeting for unholy hours of the night when no self respecting and respectable women can afford to be out of her home.” It is at this ungodly hour that they take all crucial decisions, share all-important positions and leave only token posts for women. As a panacea, government should give top priority to the actualization of the ideals of the National policy on women, by directing cabinet members to implement them without further delay. Again, there should be equal sharing of household chores between boys and girls so that the girls would also be afforded equal opportunities for necessary traits in IT-acquisition. The federal character clause should also be introduced into the constitution of the Federal Republic of Nigeria for gender balancing and equality through IT education, training and management.

5. Job Creation/Opportunities

The areas of IT applications can be broken into two;

- ✓ **Commercial:** This covers the use of computer for clerical, administrative and business purposes in private and public organization.
- ✓ **Scientific/Engineering/Research application:** This covers the use of computers for complex calculations, design, analysis and control of physical systems including teaching and research. The qualified women computer professionals can take up employment in industries, government establishments, and financial institutions like banks, oil companies, teaching and research or establish their own computer bureau outfits/business.

5.1 Roles/Functions of Some Selected IT Professionals.

With globalization and increasing demand for a highly skilled workforce, women cannot afford to remain at a crossroad. Women and girls must not be left behind in the digital revolution, they must take advantage of the capabilities of ICTs in education to achieve their full potentials and contribute meaningfully to national development. A skilled woman in ICT can become any of the following;

- (i) **Programmer:** As a programmer, the women/girl child has any of the available job activities to perform:-
- Drawing of flowcharts, decision tables, and pseudo-codes, required to develop the codes into acceptable computer language e.g. Visual BASIC, JAVA, FORTRAN HTML etc.
 - Coding of programs and their preparation for computer operations.
 - Designing and testing of program logics.
 - Thoroughly testing of the operations of completed programs.
 - Designs of quality web-sites etc.
- (ii) **Analyst:** The following tasks await the choice of being an analyst:-
- Authors and analyses information for development and modifying data processing systems.
 - Designs and specifies systems and methods of installing them and supervises same.
 - Documents fact-finding and system study results.
 - Makes formal presentation of findings with recommendations etc.
- (iii) **Controller/Director of IT:** As controller of IT, the following activities await her:-
- Designs, maintains and controls the organizations database/Intranet/Internet.
 - Establishes and enforces standards for use of the database/cyber-café.
 - Analyses information-requirements of new or modified systems and develops database specification.
 - Establishes and enforces control to ensure database integrity and security.
 - Develops specification for database/internet set-up and maintenance.
 - Reconstruction of database to cater for emerging, information requirements to reflect current needs of the users and state-of-the-arts.
 - Ensures that only the best, for the organization/users are in the database/Internet etc.
- (iv) **Web Master /Designer:** As a web Master designer, the following activities exist.
- Designs and maintains web servers and database servers.
 - Develops, tests, and documents new web-based services for web-sites.
 - Works with internal and external customers to create higher quality content pages for web-sites.
- (v) **Word Processing Secretary:** As word processing Secretary, she will be responsible to the controller of IT for all word processing jobs using Ms-Word, Excel, etc. for the production of articles, memoranda, and letters (both hard and soft copies) to meet the organizational goals and objectives etc.
- (vi) **Computer Engineer:** As a computer engineer, she:-
- Maintains the computers and peripherals in good-working conditions.
 - Monitors the computer room environment and specifies ideal working condition.
 - Repairs or replaces defective component parts.
 - Installs new computers e.g. stand-alone networks or full Internet connectivity.
 - Maintains system logs and performs procedures required for systems backups, etc.

6. Some Career women in Africa women: who is who.

No nation is ever able to rise above the need to benefit from the empowered female roles. Of note here are the legacies of such internationally acclaimed women achievers as Prof. Dora Akunyelu, former Director General of NAFDAC, Dr. Oby. Ezekwesiri (former Minister of Education), Hajai Sara Jibril of Women Affairs Ministry and above all former , Governor Virgy Etiaba of Anambra State , President Banda of Malawi to mention but a few. These are some of the acclaimed women IT-Compliant experts who have assailed the disturbing hurdles rarely overcome by men. One good turn deserves another; so let more women be empowered for more technological breakthroughs.

7. Professional Bodies in the field of IT

Any interested female graduate of the Computer Science, Computer Engineering, Information Technology, System Science etc can register and be admitted into the Nigerian Computer Society (NCS) at different levels of membership. This entitles the beneficiary to numerous rights and privileges within and outside the country. Also there are different required educational qualifications as prerequisites for admission available from the body on request.

8. Conclusion

In many societies of the world, women never belong wholly to themselves; they are the property of others throughout their lives. Their physical well-being – health, security and bodily integrity – is often beyond their control (http://www.care.org/newsroom/publications/whitepapers/woman_and_empowerment.pdf). Women bear

almost all responsibility for meeting basic needs of the family, yet are systematically denied the resources, information and freedom of action they need to fulfill this responsibility. The empowerment of individuals (women) or society; largely depends on their access to information and knowledge (which is the key to performance and survival).

Timitokpe Olorunfemi and Onaolopo, (2008) opined that ICTs are indispensable tools used by all to deal with the limitations of time, cost, and distance problems"; thus creating new opportunities. With these, "Women who "are suffering from various problems" (Arpita Sharma, 2012), can easily avail themselves of large resources that will assist them, over the Net. The empowering use of ICT is closely connected to socio-economic development, especially in this time and age.

Despite all the social, political, and cultural obstacles; women generally and more especially career women, often put in their best in any assigned task. This explains the reason why they keep pace even with their male counterparts and continue to move into different professions, including those traditionally seen as male jobs (e.g. engineering, architecture, medicine, etc). Due to their determination to succeed, in spite of all odds, they are found at different levels in many organizations. The female/women contributions to society's progress (IT) are probably best demonstrated in their ability to uplift the human spirits particularly at the points of despair, as it seems in Nigeria now. When all hope seems lost the encouraging words of the concerned female, women could make the differences between eventual failure or success. Some analysts have grouped our time as a transition from "industrial age" to the "information age". For an effective, efficient and sustainable transition to be realized, the full participation of the female gender is needed. At present most people in developed and developing nations work on blue collar jobs in factories. By the end of this century, majority of workers in Nigeria/Africa are projected to be information workers, not manual workers. Government should ensure through appropriate legislation, provision of infrastructures and creation of awareness nationwide, as to the criticality of women empowerment. The women/females must be our catalysts from the present gloom to the expected boom in this Information super-high-way age.

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Table 1: IT grid activities.

Processing/ communication	Create	Access	Manipulate	Transmit	Store
Data	x	x	Excel Spreadsheet	x	x
Text	x	x	x	x	x
Image	x	x	x	x	x
Voice	x	x	x	x	x

Table 2: Service category.

Year	1999	2000	2001	2002	2003	2004
VSAT Networks	25	32	38	45	51	52
Internet Service providers	18	30	30	35	35	36

Chart 1: Comparison of different values, representing various categories of IT/ICT, over time.

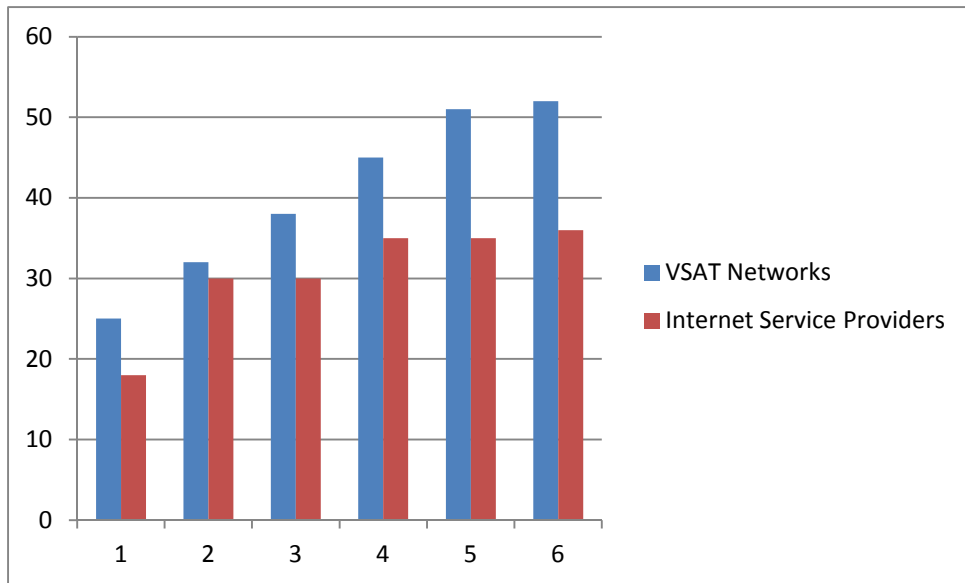
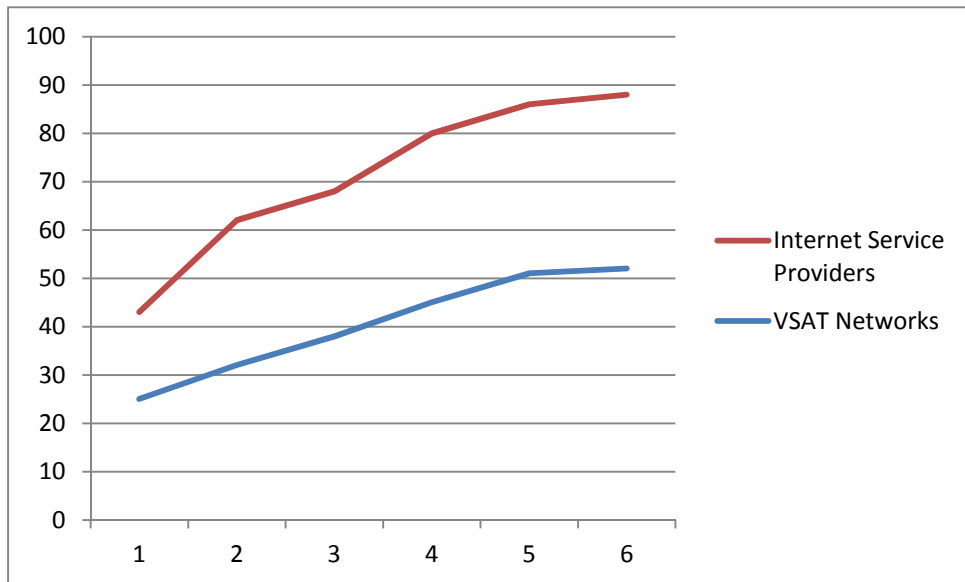


Chart 2: Line-graph representation of the trend (of ICT user over time in their categories)



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