

Strategy Matrix For Digital Divide: A Generic Approach.

Nkosinathi Mpfu, Ronald Chikati.

Abstract: The magnitude of the impact Digital divide to the education system and the community at large can't be described further than the works of [1], [2],[3]. After assessing the level of digital divide impact and the level of participation in ICT projects one may choose either to take mitigatory measures or to accept consequences of the unchecked digital divide. This paper however does not consider accepting the impact as one of its strategic choices, as such, proposes a strategy matrix which presents best possible strategic options one can pursue to curb the ever growing digital divide gap depending on the nature of digital divide exposure.

Key words: Digital divide, ICTs, strategy matrix, digital participation

Introduction

The phenomenon of digital divide is as old as the ICT revolution. Since ICT inception, the digital divide began to widen determined by the factors like access, cost, ability, race, age, gender [4] among others. Digital divide has brought another level of classifying humans. Today, humans in the digital world can either be referred to as digitally "included" or "excluded" [3], whereas those born during the digital era are named "digital natives" while those born before are referred to as the "digital immigrants" [5] adding to the dimensions of classifying humans. In a world where most of the services are increasingly being offered online, an unchecked and unattended digital divide will leave some of the world's inhabitants with minimal access to services. Digital divide erodes the benefits of 24/7 global presence, flexibility of working from anywhere, fast and efficient tool for communication which is cost effective and environmentally friendly with the shortest possible response time.

Digital divide

Digital has always been and is still a persistent internet related social concern since it was coined in 1995 [6] and popularized in the late 1990s to describe the social division among people in terms of their involvement of using ICTs [7]. OECD [8] refer to the digital divide as "to the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard to both their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities". To better understand the phenomenon of digital divide, Jianbib & Angus [9] identified inequality types, levels of analysis and ICT types as the key components when conceptualising digital divide, as highlighted in Figure 1 below.

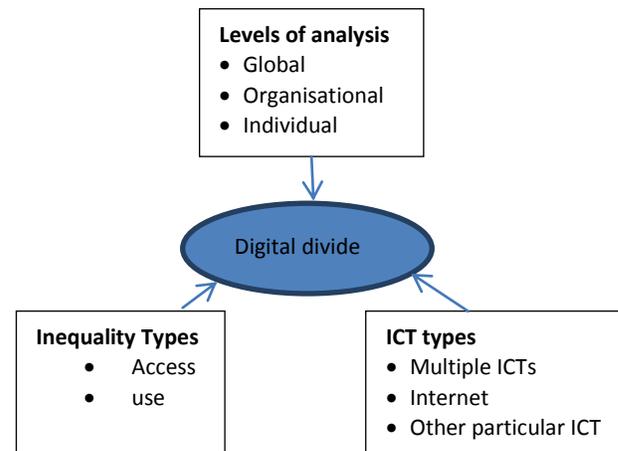


Figure 1: The Key components in the conceptualization of Digital Divide. (Jianbin et al [9])

As seen in Figure 1 above, Jianbin et.al [9] argue that when conceptualising digital divide, analysis can be done at global, organisation or down to individual level bearing in mind the differences in ICTs. They further bring inequality as the major component where access to, ability to use ICTs as the major differentiating issues in agreement with [10]. Wei, Chan & Bernard [10] have described the digital divide by identifying three levels of divide which are *digital access divide*, *digital ability divide* and *the digital outcome divide* whose names have been derived from the digital needs facing communities and individuals as shown in Figure 2 below:

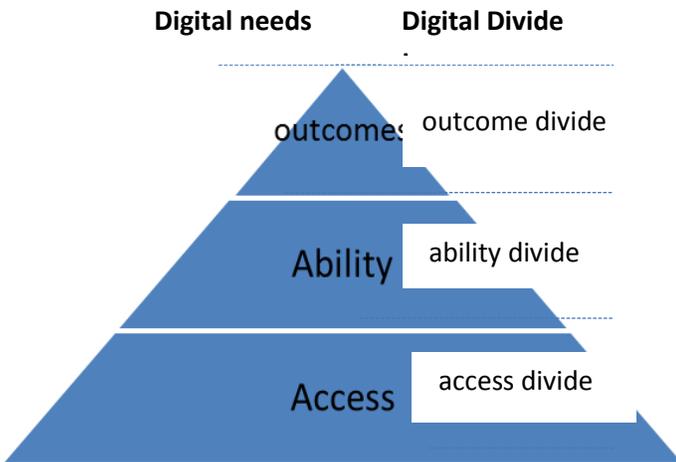


Figure 2 Showing digital needs.(Emphasis by author)

The levels of digital needs can be arranged in the form of a hierarchy as in Figure 2 above and Abraham Maslow's hierarchy of needs may be used to explain it. At the very bottom is the access divide which can be likened to the physiological needs in Maslow's model. Access to ICTs is the basic digital need which when met will trigger the next level of digital needs, namely the ability to use different ICTs devices and programs. Once we are able to use various ICT components the next thing we will worry about is the outcome and how we use it to our advantage hence the third layer of digital needs referred to as the digital outcome. The differences in the digital needs at each level is referred to as the digital divide and the type of divide is named against each level hence the access divide, ability divide and the outcomes divide. According to Wei, Chan & Bernard [10], *digital access divide* is the inequality of access to information technology (IT) in homes and schools whereas the *digital ability divide* is inequality of the ability to exploit IT arising from the first-level divide and other contextual factors like socioeconomic status and education.. *Digital outcome divide* on the other hand is the inequality of outcomes, based on exploiting IT arising from the second-level divide and other contextual factors like motivation and meaningful usage. Inequality is the prime factor in describing the digital divide.

Level of participation

The communication consumer panel [11] define digital participation as “ *increasing the reach, breadth and depth of digital technology use across all sectors of society, to maximize digital participation and the economic and social benefits it brings*”. The definition describes people's ability to gain access to digital technology and an understanding on how to use it creatively. Increased digital participation can improve people's quality of life, boost economic growth and allow more effective delivery of public services. Digital participation is inevitable as more and more services are now provided online, as such most governments have responded with numerous initiatives to increase the level of participation. Level of digital participation refers to the percentage of the targeted population which is actively participating in the national or community ICT initiative. In general terms, the main vision of digital participation is to

increase the level of digital literacy and to allow everyone who wants to be online to get online, do more online and benefit from the advantages of being online. Digital participation recognizes that people need the motivation and opportunity to get involved, as well as the support to develop the skills and confidence to participate fully. The international association for public participation [12] has identified five factors which may boost the level of participation for any public initiative, and these are;

- i. Inform – Target population need to be made aware of the national or community initiative and where possible will need to be informed on the positives an initiative will bring both in the short and longer term.
- ii. Consult – gives the public an opportunity to provide an input to any initiative. Consultations seek public opinion which can be used as input in decision making.
- iii. Involve - the public is invited into the process, usually from the beginning, and is provided multiple if not on-going opportunities for input as decision-making progresses.
- iv. Collaborate – allows the engagement with the community in decision making process. Collaboration leads to partnering
- v. Empower – provide the public with an opportunity to make decisions by themselves.

Strategy Matrix for digital divide

A strategy framework for digital divide brings forth generic strategies which may be pursued depending on the variables of the nature of digital divide as well as the level of participation as seen in figure 3.

digital divide type	Ability	Rollout	Build
	Access	Roll out	Invest
		Low	High
		Level of participation	

Figure3. Strategy Matrix for Digital Divide

The strategy matrix uses the digital divide and the level of participation as the variables for selecting the best fit strategy. The framework takes *access* to, and the *ability* to utilize ICTs to one's advantage as the digital divide parameters. Level of participation can either be low or high, though it's possible for it to be zero or average. Participation level is the percentage of the targeted

population which has embraced the ICT initiatives. A community need to carry out a position analysis which will inform them on their level of digital divide exposure, which will in turn be used as input to the strategic choice process. The choices according to the strategy matrix include **Rollout**, **Build** and **Invest** and is dependent on the outcome of the position analysis exercise. The strategic choices are discussed in the sections which follow.

Rollout

Is a strategy which may be pursued if the level of participation is very low and the divide is either access to ICTs or ability to utilize ICTs. This phase is common in under-developed communities where ICT is just being introduced or is still viewed as a luxury amongst many. Access is mainly by the elite, nomads and those who have travelled, as such there is no community wide ICT policy. The probable rollout strategies may be:

- Roll out ICT programs to improve digital literacy and competences of groups at risk of exclusion, notably the unemployed, people with low education levels, people with disabilities, and elderly, as well as marginalised groups
- Develop an all-encompassing ICT policy which will enhance ICT reach to the majority of the community members.
- Carry out a community education campaign to conscientise the community on the importance of ICTs and how it can make their lives better.
- Establish satellite ICT points to increase the number of participants to ICT utilization.

Build

Build strategies are used when the level of participation is pleasing but the major problem being the ability to utilize digital tools. Access is no longer an issue and participant are there, as such the only effort required is to ensure that participants are able to use the available ICTs. Possible avenues to boost ability levels may include one or a mixture of the following:

- Train own ICT personnel who will be able to transfer their ICT ability skills to the community population.
- Build partnerships with suppliers of ICT equipment and programs to tailor make ICT solutions with the needs of the locals in mind.
- Establish co-operation with nations with mature ICT services for skills and knowledge transfer.
- Incorporate ICT in school curriculum so the *ability divide* can be curbed from a tender age.
- Encourage mobility to and from advanced nations as this will increase exposure to advanced ICT services or product.
- Integrate with industry to scale up industry learning which is focused and relevant. Setup standards committee or authority to evaluate any incoming digital tools or products on the extent of influence they may have to the digital ability gap before they are adopted.

Invest

Invest strategies are targeted at reducing or eliminating the digital access divide. The greater population is ready to

participate but access is still an issue. Some of the invest strategies may include

- Invest in ICT infrastructure which will be able to support the burgeoning digital interest from the community members.
- Make ownership digital devices less expensive by use of subsidies, relaxing import duties, and introducing tax holidays to suppliers and manufactures of digital devices.
- Invest in educating young population to countries whose ICT is mature. They will bring back home their exposure and experiences in advanced ICT services.
- Liberalise the ICT sectors to attract more ICT players who will increase access to digital services

The strategies put forward by this paper are generic and may not apply to extremely advanced nations where ICTs is part of life and the divide has gone beyond the issues of **access** and **ability**. Authorities should ensure the gap is always contained right from policy level and complemented by other targeted initiatives. The governments need to be kept informed about the reality on the ground, as such; a government "eye" has to continually scan the environment for any possible drivers of digital divide.

Conclusion

Digital divide can't be completely eliminated because of evolutionary nature of the digital world, but can be managed with carefully selected strategies. Understanding the level of digital divide exposure requires diverse expertise with at least a technical, social and financial background. Different expertise complements each other and if experts are not locally available, they may have to be sourced from where they are abundant. This is so because the choice of strategy is wholly dependent on the results of the digital environmental analysis. If the results are flawed, then the chosen strategy will target a problem which is different from the reality on the ground.

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