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# Scenarios for information and communication technology in sub-Saharan African academic libraries: a research proposal

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## ABSTRACT

In this research-in-progress paper, the proposal for a research project is presented for discussion. The purpose of the project is to develop a set of scenarios that describes a range of possible future environments pertaining to information and communications technology (ICT) in academic libraries in sub-Saharan Africa over the next 6 years. The value of the study is that this set of scenarios can be used and adapted by libraries to inform strategic planning, decision-making and/or policy-making by various stakeholders when it comes to investing limited resources into ICT infrastructure and capacity building to support academic institutions' teaching and research. The proposed research design comprises a Delphi study followed by scenario development.

## Keywords

Research proposal, information and communication technology (ICT), ICT4D, academic libraries, sub-Saharan Africa, Delphi method, scenario planning.

## BACKGROUND AND PROBLEM STATEMENT

Much has been written on the potential for information and communications technology (ICT) to revolutionize development in sub-Saharan Africa (SSA). It is no different when it comes to libraries, specifically academic libraries, that are considered to be at the forefront of ICT adoption in libraries. ICT can improve access to information resources to better meet user needs and expectations, and increase operational efficiency. For example, an online public access catalog (OPAC) allows users to search a library's collection remotely via the internet. An integrated library system (ILS) expands on the OPAC and serves as an enterprise resource system for a library with modules such as acquisitions, cataloging, circulation, and serials management that automate many library staff tasks. The ILS is increasingly being replaced by the next generation library service platform (LSP), which expands on ILS functionality, is designed to incorporate digital materials and services, and can also improve integration with ICT across campus, for example with a learning management system (LMS). Other ICTs used in academic libraries include institutional repositories (IR), which allow libraries to make accessible electronic theses and dissertations (ETD) as well as other digitized materials from their special collections. Academic libraries are now facing a vast and fast changing landscape with regard to teaching, research and ICT: digital native students with different information seeking and use behaviors and expectations, growing demands for open educational resources (OER) and open access, changes in scholarly communication including alternative metrics, managing research data, and potentially creating smart libraries that incorporate artificial intelligence (AI) and Internet of Things (IoT), to name a few. The question arises: how might these developments and changes affect academic libraries in SSA with regard to ICTs? Answering this question is more urgent given that libraries have limited funds and are expected to meet the needs of users, whether their preference is traditional or digital (Knox, 2011, p. xvi).

The literature is replete with descriptive institutional-level and consortium-focused case studies that report on successes and reflect upon challenges and even failures of ICT implementations in academic libraries in SSA. These studies are important to document the historical development of ICT diffusion and adoption, and prepared research to go beyond a historically-focused, descriptive approach to a forward-looking, multi-country, technology foresight approach that can provide input to strategic planning, decision-making, and policy-making relating to the future of ICTs in academic libraries in SSA. Such input is particularly useful in times of great change and uncertainty, which arguably describe the situation pertaining to rapid change in higher education and a proliferation of ICTs on the one hand and, on the other hand, indecision regarding which emerging technologies to pursue with constrained resources in ever-changing socio-economic and political contexts. While a

few such forward-looking studies have been done, there are some limitations in terms of applicability to Africa. In the *Futures Thinking for Academic Librarians: Higher Education in 2025* study by the ACRL that uses a scenario approach (Staley and Malenfant, 2010, p. 29) only 1 of 414 respondents was from Africa. In the annual *Horizon Report Library Edition* that explores the future of ICTs in public, academic and other libraries globally using a Delphi study, developed countries are heavily overrepresented in the listed panel of experts' countries of origin with less than 1% of panel experts listed as being from only two developing countries, both of which are in Asia (Adams Becker et al, 2017).

Popularized by Shell in the 1970s, scenario planning has been used for several decades in government, by businesses, non-governmental and not-for-profit organizations, including academic libraries, to inform their strategic planning. Writing about libraries, O'Connor and Sidorko (2010) is of the opinion that strategic planning without scenario planning often perpetuates the past (p. xii). They continue their advocacy for scenario planning in libraries by stating that the continuous [re]alignment of the strategic direction with the demands of the environment is vital, particularly when the speed of change is rapid and the scope extensive (p. 26). Scenarios are "plausible stories about alternative futures" (Hannabuss 2001, p. 168) that are "constructed with informed views and knowledge ... allowing and cultivating new possibilities" (O'Connor & Sidorko, 2010, p. 2). Scenarios can be either situational (a "snapshot" with descriptions of future situations) or developmental (a "film" of the train of events leading to a particular future). It is important to note that scenario planning is not forecasting but rather foresight, that is, an attempt to map projections of recent and current developments into the future and to explore their potential implications. Implications of each scenario must therefore be considered as well as indicators that can serve as early warnings that a shift from one scenario to another is occurring. The result of scenario planning thus enables decision-makers to be reasonably confident about their actions in environments with high degrees of uncertainty and, when changes do occur, their organization is prepared for a host of future possibilities rather than focusing on a single projected reality.

## PURPOSE AND VALUE

The purpose of this study is to develop a set of scenarios that describes a range of possible future environments pertaining to ICT in academic libraries in the SSA context over the next 6 years, that is until 2025. The value of the study is that this set of scenarios can be used and adapted by libraries, including non-participating academic libraries in the region, to inform strategic planning and decision-making. Apart from informing strategic planning, scenarios can be used to influence public attitudes by provoking discussion and to provide input to policy (Ringland, 1998, p. 131) when it comes to ICT investment in infrastructure and capacity building to support academic institutions' contribution to development. Library and information science (LIS) schools can use results for insight into possible future curriculum needs in terms of their ICT curricula. The results can also be used by researchers to shape their future research agendas.

## METHODOLOGY

The research design will comprise two consecutive methods of data collection based on the steps of scenario development outlined in King (1998) and Cairns & Wright (2017). First, an electronically moderated Delphi method will be used to gather trends and driving forces relevant to academic libraries in SSA, and to reach consensus about the impact and uncertainty associated with each trend/driving force. Second, scenarios will be developed through online focus group meetings with available panelists based on the results of the Delphi study.

The Delphi method entails multiple iterations or rounds of questionnaires administered online to a purposively selected panel of experts that are anonymous to each other. Responses are consolidated by the researcher, who acts as facilitator/moderator, between rounds and results are used as input in the next round. The first round usually comprises open-ended questions, followed by more structured rounds where results from the first round are rated, ranked and/or commented upon. Experts for this study are defined as those academic librarians with at least a Master's degree and extensive experience in an academic library and/or as a faculty member in an LIS school in sub-Saharan Africa. Purposive sampling combined with snowball sampling will be used to select and identify prospective panelists.

Having identified and ranked the driving forces according to impact and the uncertainty associated with the impact in the Delphi study, scenarios can be developed using these as axes to create a 2x2 matrix resulting in four scenarios (see Figure 1). Narrative sequences of events, rooted in the present but moving beyond it are developed for each scenario together with implications and indicators.

Limitations of this research design are that participants need to have access to the internet to complete the online questionnaires for the Delphi study and sufficient bandwidth to participate in the online focus groups for scenario development. The Delphi method relies on deliberative judgment and informed opinion of experts. Neither a Delphi study nor scenario planning intend to be statistically generalizable; rather, the results can be assessed for transferability and applicability within a particular context.

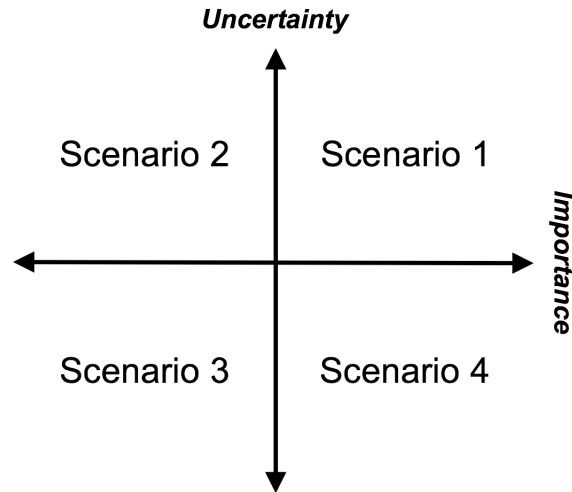


Figure 1. Scenarios resulting from impact and uncertainty regarding impact

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