

SOUTH AFRICA – SWEDEN UNIVERSITY FORUM

Planning meeting, Pretoria – October 2-3 2017

Position paper for the first research seminar in Pretoria, XXX 2018

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| *Topic/Challenge Headline*  Digital technologies, big data, and cybersecurity |
| *Description of challenge (The challenge should be relevant for both countries, approachable from an interdisciplinary perspective, relevant to industry, NGOs and/or surrounding society, linked to one or several of the 17 SDGs)*  The rapidly emerging and increasingly diffused digital technology - intended for heterogeneous user groups, organizations and institutions - bring data collection from users and use situations to new levels in society of today and the future. The breadth of data collected as well as depth and longitudinal aspects of this data collection quickly lead to very large data sets (commonly refered to as big data), in itself creating new opportunities as well as challenges for development and adoption of digital technologies. For instance, through analysis of big data, behavior patterns previously difficult to detect and understand are becoming visible.  The central challenge we face in this theme is to establish mutual and interdisciplinary opportunities for research and innovation. At the same time, reliance upon extensive data collection also brings attention to growing concerns such as cybersecurity and ethical aspects tied to collecting data that is increasingly personal and sensitive. Of particular concern to this theme is the lack of students emerging with skills to meet the needs of industry, society and research. With an increasingly global user base of many digital technologies, big data analysis also lends itself well to be included as part of research streams within e.g. behavioral science, globalization, and glocalization.  Approaching the large need for competency related to this theme is likely to be positively influenced by expanding the role of e-learning in higher education, as well as research on e-learning itself. Today, the notion of e-learning goes beyond dedicated learning platforms to include all forms of digital technologies that serve learning purposes (including within society and industry). While e-learning is relevant beyond the theme presented here, the opportunities for digital technologies and data collection from active use and experimentation to help personalize the knowledge creation process makes for an ideal fit. Through pedagogical forms such as flipped classroom and problem based learning, self-empowered learning promotes the type of exploratory but systematic approach to learning that fits well with both industry needs and academic needs within this theme.  (This theme links well with several of the other themes through the role of increasingly digitalized content and records, as well as the education and internationalization potential linked to e-learning through the e.g. development of MOOCs.) |
| *Key research questions*  (At this point, we did not feel comfortable listing specific key research questions without discussing further with our colleagues.) |
| *Research areas/keywords*  (We fully expect that further keywords would be added the draft is discussed with colleagues. For instance, if we receive interest in adding aspects of 'smartness' in digital technologies, we are fully expecting to include such suggestions.)   * ICTs for (social economic) development * Data-driven development of digital technologies * Use and user pattern identification * Prediction of future use * Accessibility of methods and models for large sets of data (applied use) * Advancements of methods and models for large sets of data (theoretical development) * Malware * Business processes supporting accountability for, and control of, data * E-learning technologies and pedagogies (within universities, but potentially also for lifelong learning within society and industry/NGOs) * Open education and resources * Distance learning including MOOCs * Capacity building in data science (from learners, to users, and champions for future development) |
| *Researchers in Academic Advisory Committee (AAC) (including Chair) (2 SE+ 2 SA)*  Highly preliminary list of candidates to involve are included below. All are subject to being formally approached and thus subject to change. Further candidates are also appreciated (from any participating university).   * UNISA (e-learning, open education and resources) * Malmö University or Umeå University (digital technologies) * UCT/UWC (big data; Prof. Russell Taylor [joint chair for UCT and UWC], or ask him to suggest a representative) * Rhodes University (cybersecurity; Basie von Somls or Barry Irwin) * Universities of Technology representative?   *1. (chair) name/university*  *2.*  *3.*  *4.*  *Dates for next meeting AAC:* |

**DAY 2**

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| *Description of possible surrounding activities across South Africa (for instance, innovation & industry seminar, outreach activities, guest lectures, capacity development of young researchers, academic workshops etc.)*  **Overall reflections:**  (1) Must make sure the focus is the future, and the emerging academics  - Emerging academics should be inclusive of post-grad students, as well as PhD candidates and post-docs, or equivalent  - This aligns with the emphasis this theme has on the tremendous need for a growing number of graduating students (noted above in the challenges)  (2) The language issue is critical, both to involve participants and to anchor the impact of the outcomes in society  - Digitalization of the results and stories from collaboration should be a key outcome of all  - Localization in terms of regional languages must be under the responsibility of the universities  - Visual storytelling should DEFINITELY be emphasized. Subtitling video could be used for instance, but text-based stories/results should not nesseccarily be vied as the expected form for communication  **General suggested activities** (possibly for all themes and all seminar weeks)**:**  (3) Match-making event (format unknown at this point)  (4) Science communication/advancement (in terms of impact on society)  - One-pager with focus on how the research influces society  - Possibly NST...<something, something> [I need help here on what the award is called] award-giving ceremony (note that this is an already existing award)  - General track (possibly single-track): Cross-theme research presentations (thus: this activity is intended as input to the 'conference' part and not surrounding activities)  (5) (Industry and NGO involvement likely interesting, but the group did not have time to talk about how this could be done.)  **Specific for next seminar week:**  (6) Advances and challenges in e-learning (posisbly topic for 'conference' part)  - This is intended as an opportunity for showcasing how e-learning is  (7) Workshop: Existing local community involvement in e-learning  - Keynote speaker (undecided at this point who and topic)  - Half-day or full-day (depending on the number of submissions) with group discussions that should lead to a plan for what the participants want to get out of the onsite visit the day after  - Onsite visit(s)/field study: To what extent does e-learning have an affect on local communities (might want to do whole-day, and if we need more than a whole day we would suggest that for next seminar week)  - Implied: Summary with future directions and outcomes of this workshop *and the visit* by the participants after the workshop |
| *Please describe any ideas for how the interactive platform can be utilized in the surrounding activities:*  (Included in the previous part, but ofc all presentations from the 'conference' part should be available on the IP also. Also note that while the group did not have the time to discuss this, platforms such as Research Gate may offer insight into ways of sharing and reaching out to colleagues with anything from questions to suggestions and requests for participation. As much as possible, it is likely advantageous to not build parallell solutions to platforms that already exist, *if these are working in the way we need.*) |