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Best Practices... No, Good Enough Practices, for Building an eResearch enabled Institution - The NWU eResearch Story

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What is eResearch? Depending on the point of view, eResearch may be defined as heavily reliant on cyber infrastructure and data science skills or as research data management, repositories, and open science policies, or actually anything in between. Institutions embarking on the eResearch journey should not underestimate the value (both in terms of time and money) that can be gained by first defining what the term means in their own context, before diving in to establish an institutional eResearch programme.

“eResearch”, “eScience”, and “cyber infrastructure” are terms that have become popular in recent years mostly due to the change in research that is caused by technology advancement: faster internet penetrating more communities; cheaper data storage, memory and processing power; higher resolution microscopes and cameras; high-throughput research equipment, and more. Various national initiatives attempt to address eResearch needs, including the Centre for High Performance Computing (CHPC), the Data Intensive Research Initiative of South Africa (DIRISA), and the South African Research Infrastructure Roadmap (SARIR) with its various interdisciplinary projects to name a few. These national projects complements resources and programmes available at institutional level. For a researcher as well as research support staff to be successful, it is critical to be aware of changing research practices and funder requirements as well as resources and opportunities available at the various levels - institutional, regional, national, and international. eResearch initiatives have started to take off at a number of academic institutions across South Africa in the past few years.

At North-West University (NWU) the eResearch Initiative officially commenced in July 2015 and was driven from the IT director’s office with support from the DVC Research, Technology and Innovation. Stakeholders like the Research Support Office, the Libraries, all faculties and research entities were invited to collaborate from the outset and have played a critical role in the success of the initiative thus far. The NWU eResearch Initiative is characterised by (i) broad participation across both support and academic environments, (ii) involvement from all career stages - from undergraduates to National Research Foundation (NRF)-rated researchers, (iii) integration with and leveraging of regional, national, and international communities and initiatives, and (iv) a collaborative culture.

A visual aid (included in the abstract and published under an open license) was developed to help communicate the focus and aims of the NWU eResearch Initiative to various stakeholders. The focus areas are:

- research data management;
- computational and digital research;
- open science;
- reproducible research;
- and funding (alternative sources).

Five key activities are associated with each of these focus areas. They include creating awareness, running training events, community development, integration with related initiatives, and coming up with ways to make the various activities sustainable.

One of the most successful initiatives on which eResearch was built at NWU, is the Carpentries workshops and train-the-trainer events. These workshops have provided an opportunity to simultaneously address at least four out of the five focus areas as well as four of the five key activities per event. Not only have we been able to develop computational capacity through running Carpentry workshops, but more than 25 researchers and students were also trained as instructors who can propagate the information and training they have received.

In this presentation we will share lessons learned about building an eResearch enabled institution. The presentation will include recommendations for institutions that are embarking on eResearch initiatives of their own. These recommendations will take into consideration the diminishing amounts of funding that are available at research and higher education institutions to tackle new challenges.

HPC content

This presentation will share lessons learned over the past 30 months in terms of developing an eResearch initiative at a South African higher education and research institution. Feedback will be given about both successful and unsuccessful activities that were carried out during this period. The hope is that these lessons learned will be useful to other organisations embarking on an eResearch journey. Many of the activities carried out are transferrable across institutions and do not have significant cost implications.

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