ICT Advancement to better the lives of People

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Who am I?

Nelson Mandela Metropolitan University

- Professor at NMMU in Port Elizabeth – Institute for ICT Advancement
  - PhD Computer Science MA HDE FDE MICSIT PMCSSA
- Area of Expertise
  - User Experience and Usability evaluation (Human Computer Interaction)
  - User Interface design – web, GUI, mobile
  - Living Labs – ICT4D
- Professional Bodies
  - Vice President of several IT bodies in South Africa
  - Member of International IT Advisory Boards
  - National eSkills Advisory Board
  - Living Labs of Southern Africa Advisory Board
  - ICT in Health Advisory Board (HIV/Aids, Provincial Government)
  - National M-health co-ordinating committee
  - International UX panels – collaboration with Nokia and Finnish organisations
- International Collaboration
  - SAP Research (Pretoria, Waldorff, Karlsruhe, Darmstadt)
  - Frauenhofer FOKUS (Prof Karl Jonas) and Frauenhofer Portugal (Dirk Elias)
  - Prof Jose Encarnacao (Technische University Darmstadt) – Emerging Economy & BRICS
  - Several Finnish Universities
  - Several African Universities (Namibia, Botswana, Uganda, Zambia, Kenya, Mozambique)

Our Focus Areas & Strengths

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Socio-Technical Mobile Innovation to support Disease Treatment, Education and Management

and

Information and Cyber Security

Background

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- This research integrates, coordinates, supplements and enhances the existing research activities in the areas of health informatics, usability and user experience, and enterprise knowledge engineering.

- It promotes the research of the rational and cost-effective use of health care resources with specific emphasis on the management of medicines and diseases including diabetes, tuberculosis and HIV/Aids.

- The research strives to prevent diseases transmission and to mitigate the health and socio-economic impact on the community.

- The primary aim of producing research about the effective use of technology to impact healthcare and disease treatment and management.

Healthcare

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- Aligns to at least 3 National Priorities
- Aligns to 2 primary Government Performance and delivery outcomes
- Provide a route to impact on healthcare in South Africa
  - Local, provincial and national
  - International
- Contribute to Human Capital Development
- In institutional, inter-department, inter-faculty and inter-disciplinary research
  - Local community participation (internal and external stakeholders)

Objectives

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- to explore and describe the health-related disease information needs of home-based care workers and healthcare practitioners;
- to establish how information can be made accessible to the home-based care workers and healthcare practitioners using mobile technologies and interactive multimedia systems with both text and speech-based interfaces in region appropriate official languages, to allow access to users with a wide range of capabilities and literacy;
- to develop and evaluate mobile and interactive multimedia applications to assist disease treatment, education and management in a Living Lab environment;
- to determine the impact indicators of the technology intervention on home based care in terms of the effectiveness of healthcare workers, disease treatment, recognition of potential health threatening factors, service delivery, etc.

Expected outputs

- Human capital development (postgraduate students);
- generation of new knowledge;
- mobile applications to support disease management;
- mobile applications to enhance service delivery;
- mobile application to serve as tools towards improving the educational levels of the communities on the issues of diseases;
- interactive multimedia applications to support disease management and education;
- knowledge integration, representation & dissemination to support decision making combining emerging theories and frameworks;
- appropriate user interfaces for people with a wide range of capabilities (including the disabled);
- improved understanding of the health care delivery system to support;
- improved service delivery;
- improved disease treatment and management;
- publications (conference papers, journal articles).

Expected outcomes

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- The use of the project to enhance healthcare service delivery through the design of appropriately integrated systems aimed at improved performance and informed decisions;
- Knowledge workers enabled with the know-how to integrate data, systems, processes or services;
- Improved service delivery;
- Improved quality of life.

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Potential Impact

Situation

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- The silo-based nature of the systems in the health care delivery domain leading to:
  - No integration of data, systems, processes or services;
  - Poor service delivery;
  - Reduced quality of life;
  - Failure in the practical implementation of public health care solutions;
  - No integrated approach followed by governmental health care providers (same applies to private health care, but the focus is on public health care).

Impact

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- High levels of service delivery in the health care delivery system;
- A health care system that is aligned with strategic directions, integrated, contains reusable components, efficient, flexible, and interoperable;
- reduced time-to-market for health care delivery systems;
- a healthier national workforce leading to a stronger economy for South Africa;
- improved health care initiatives at all levels of government.

Stakeholders

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- Nurses, care workers and doctors who use mobile phones and information kiosks provided by the project for accessing health information;
- community members seeking healthcare information and support;
- researchers, software developers.

Advantages

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- Collaboration between different stakeholders
- Part of DST National initiative
- Inter-departmental, inter-faculty directed research
- Community participation –
  - Living Labs
- Opportunity to make real impact with applied/directed research – combination of IT and Healthcare focused on diseases such as TB, diabetes and HIV/Aids.
- Relevant not only to South Africa, but African continent as well as European countries.

Opportunity

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- NMMU skills
  - User interface design
  - User acceptance
  - User experience
  - Health Informatics
  - Impact assessment
  - Change management
  - Living Lab
  - Content creation

  Using ICT and mobile as a socio economic enabler focusing on service delivery to the people
- Partners sought
  - Technology development (e.g. mobile)
  - Infrastructure support (wireless, broadband, etc)

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THANK YOU FOR YOUR ATTENTION.

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