Starting a PHD? 
Some of the Opportunities and Research Challenges

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Looking into the Future: Societal Challenges and Knowledge Society

Societal Challenges
- Food Security
- Quality Health Care
- Renewable Energy
- Climatic Change
- ............

Knowledge Society
- Sustainable Development
- Big Data to Action
- Harnessing Social Intelligence
- Reengineering Business and Livelihood Processes
Social Computing
Duality, knowledge – conversation

Ref: (adaptation yin/yang diagram (Pór 2000))
From Big Data to Actions

Digital Ecosystem Evolution

- Information Need
- Prior Knowledge
- Disaggregation
- Context Specific Actionable Information
- User Context
- User Act on the Information
- Dynamic Content
- Aggregation
- Context Filter

Diagram flow:
1. Information Need to Prior Knowledge
2. Prior Knowledge to Disaggregation
3. Disaggregation to Context Specific Actionable Information
4. Context Specific Actionable Information to User Context
5. User Context to Context Filter
6. Context Filter to User Act on the Information
7. User Act on the Information to Dynamic Content
8. Dynamic Content to Aggregation

Diagram arrows indicate the flow of information and processes.
Research Approach

Design Science Research Methodology
Troubled farmers erect tomato Pandol for Poson
*Source: Ada Derana*
*Wednesday 15th June 2011*

N’Eliya carrot farmers in the dumps:
*Bumper harvest, but prices low*
*Source: The Sunday Times, April 22, 2012*
Overall Information and Empowerment Flow model

Intrapersonal component
- Competence
- Sense of control
- Motivation
- Self-Efficacy
- Goals

Behavioral component
- Identify Choices
- Decision making
- Autonomy to choose
- Engagement
- Communication

Interactional component
Understanding users have about environment

MBIS
- Knowledge-base
  - Ontological
  - Situational
- Context Filter
- User Query
- Actionable Information
- Action Taking
- Context Addition
- Aggregation

Published Knowledge → Reorganising
1. Capturing the image
2. Adding Additional Data
3. Data Entry Interface
4. Information on Control Methods
Conceptual Solution

Reorganised Knowledge

Personalised Protocol

Context Specific Actionable Information

Aggregated Knowledge

Main symptoms of Diabetes
- Excessive thirst
- Blurred vision
- Nausea
- Vomiting
- Diaphoresis
- Decreased urine

Aggregated Knowledge

Reorganised Knowledge

Personalised Protocol

Context Specific Actionable Information

Aggregated Knowledge

Main symptoms of Diabetes
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Aggregated Knowledge
Electronic Child Health Development Records
Access to Information and

Word of mouth
- Very limited in access
- Information is enriched and customised
- No Storage of Information

Print Medium
- Much wider access
- Information was passive
- Information stored as Atoms

Internet and Digital Access
- Global access
- Information can be enriched and customised
- Information Stored as Bits
Social and Economic Transformation

- 1750: Agricultural Society
- 1850: Industrial Society
- 1970: Information Society
- 2000: Knowledge Society

Agricultural Society
Land base Economy

Industrial Society
Recourse based Economy

Information Society
Knowledge Economy
International Collaborative Research Team

Information Aggregation Unit by the American research group

Mobile User Interface by the Italian research group

Agriculture Ontology and localisation of application for SLN by the Sri Lankan research group

Empowerment Model by Macquarie University
KM and Query Engine by UWS