Computing and Information Systems Research Centre

Faculty of Engineering, Universitas Negeri Makassar, Indonesia

Outline

1. Research Strength
2. Research Group
3. Research Area
4. Research Group Members
5. Research Group Partner
6. Current Research Project
7. Past Research Projects
8. Research Progress and Plan

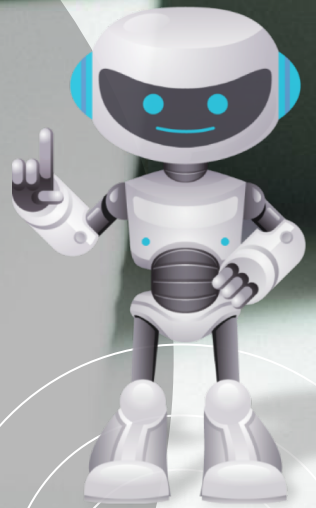
Research Strength

CIS RC

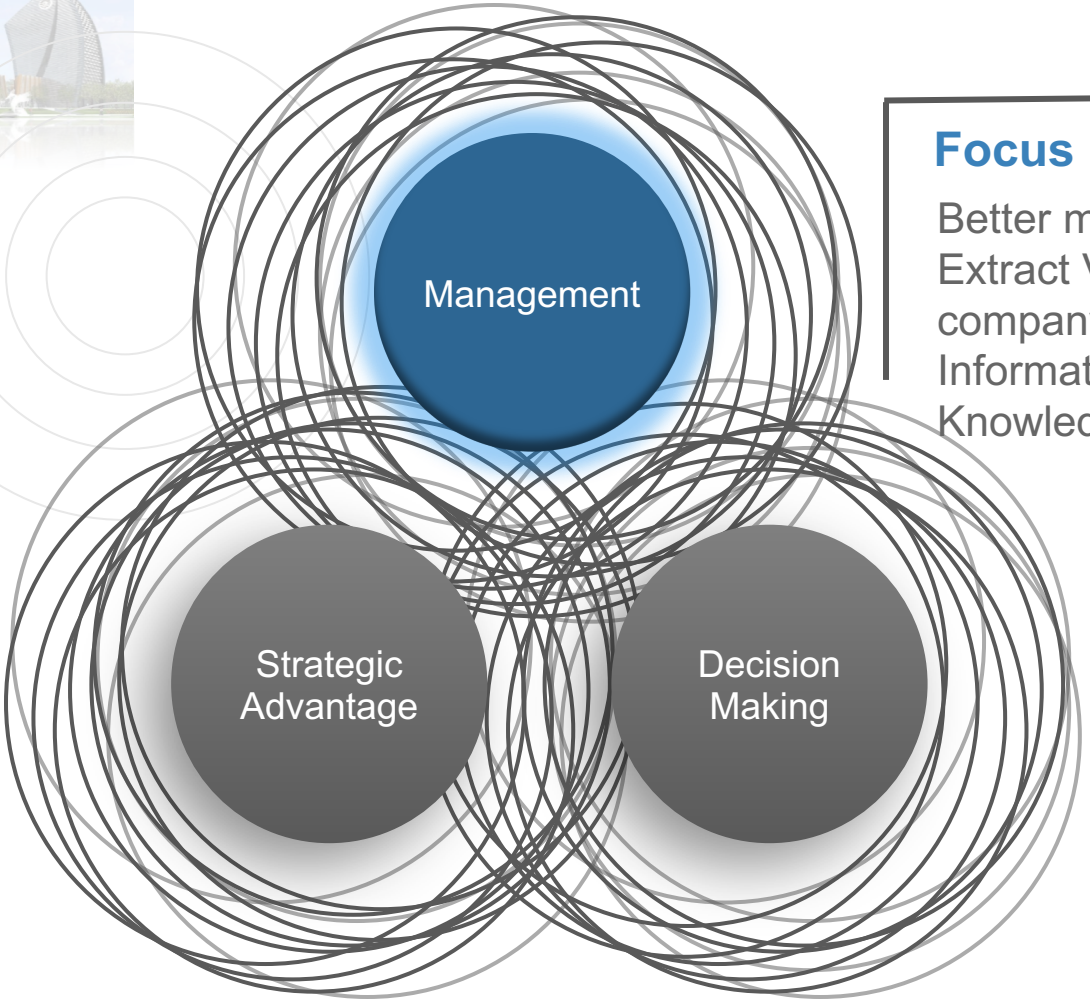
Management

Strategic Advantage

Decision Making



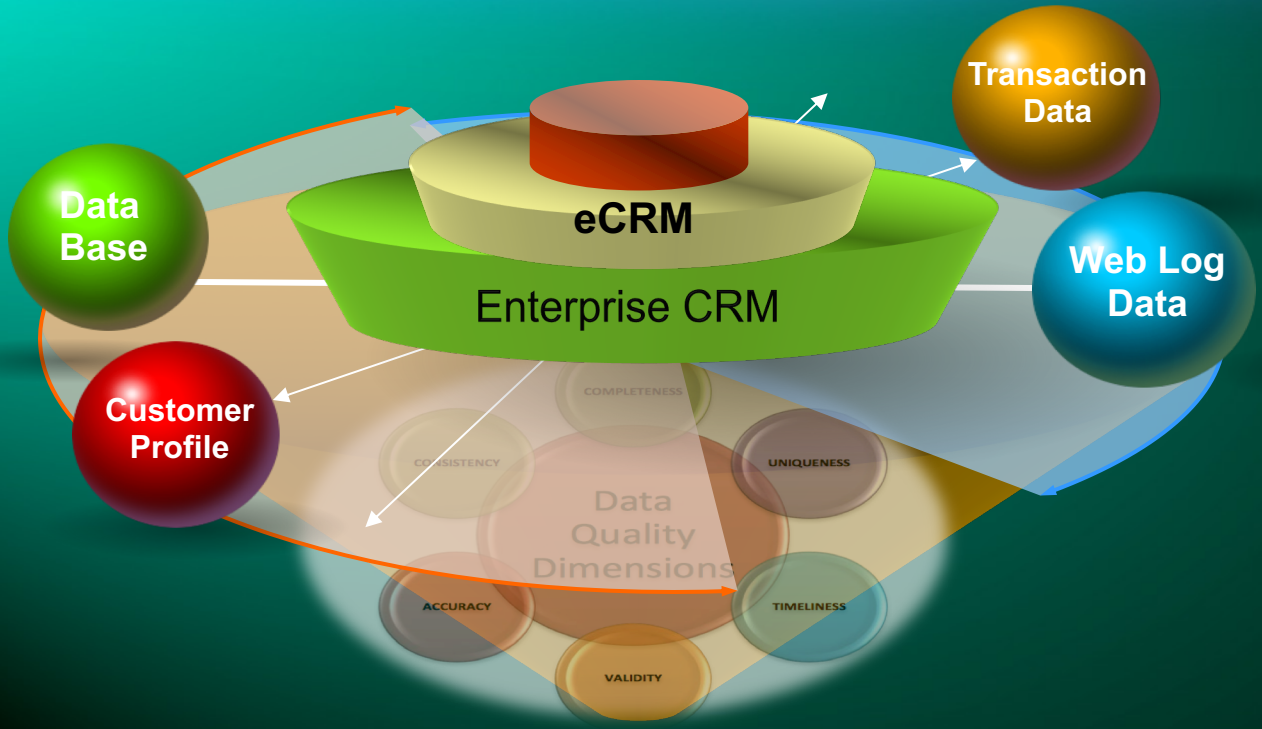
Research Strength



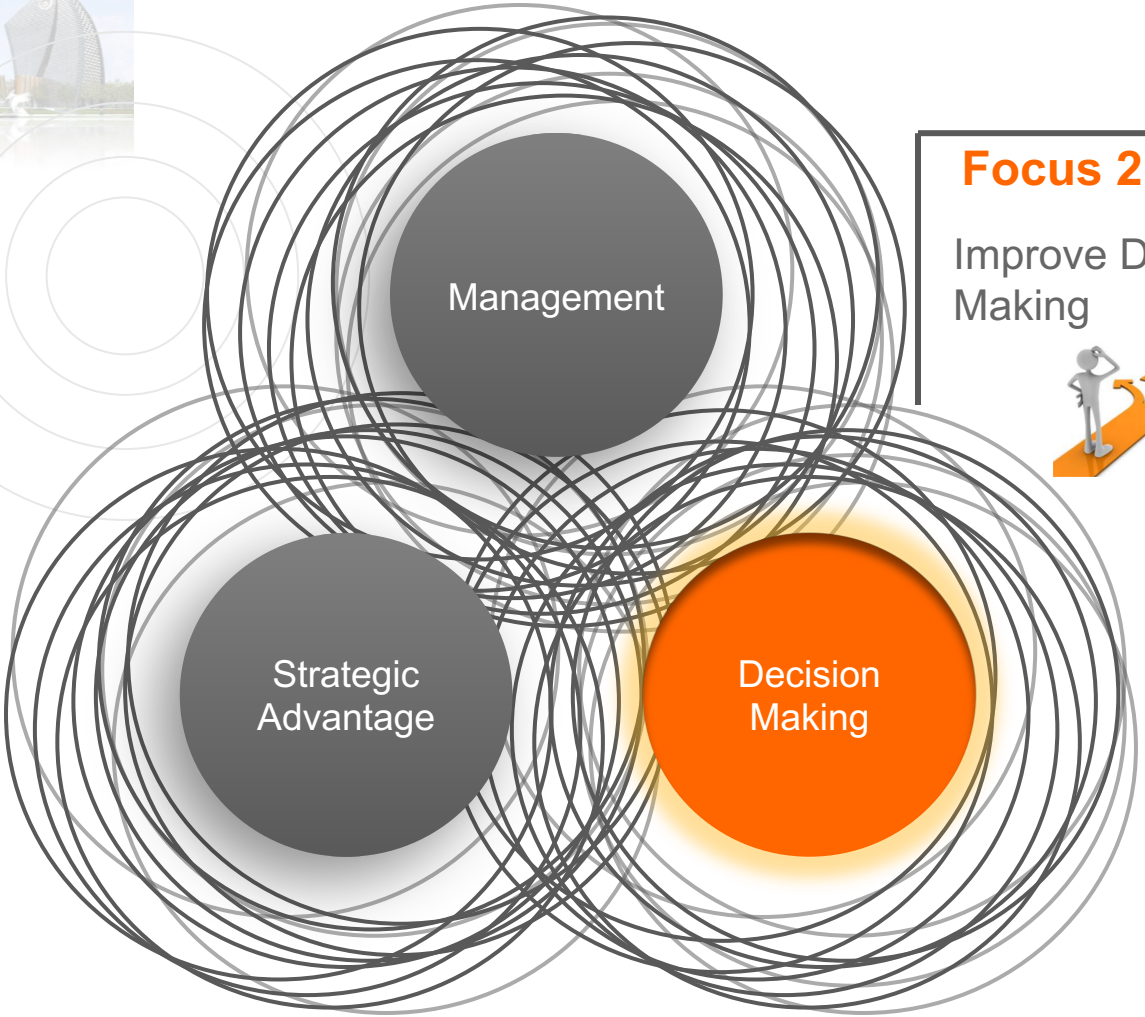
Focus 1

Better manage and Extract Value from company's Data, Information and Knowledge/Skills

Data Warehousing/Integration



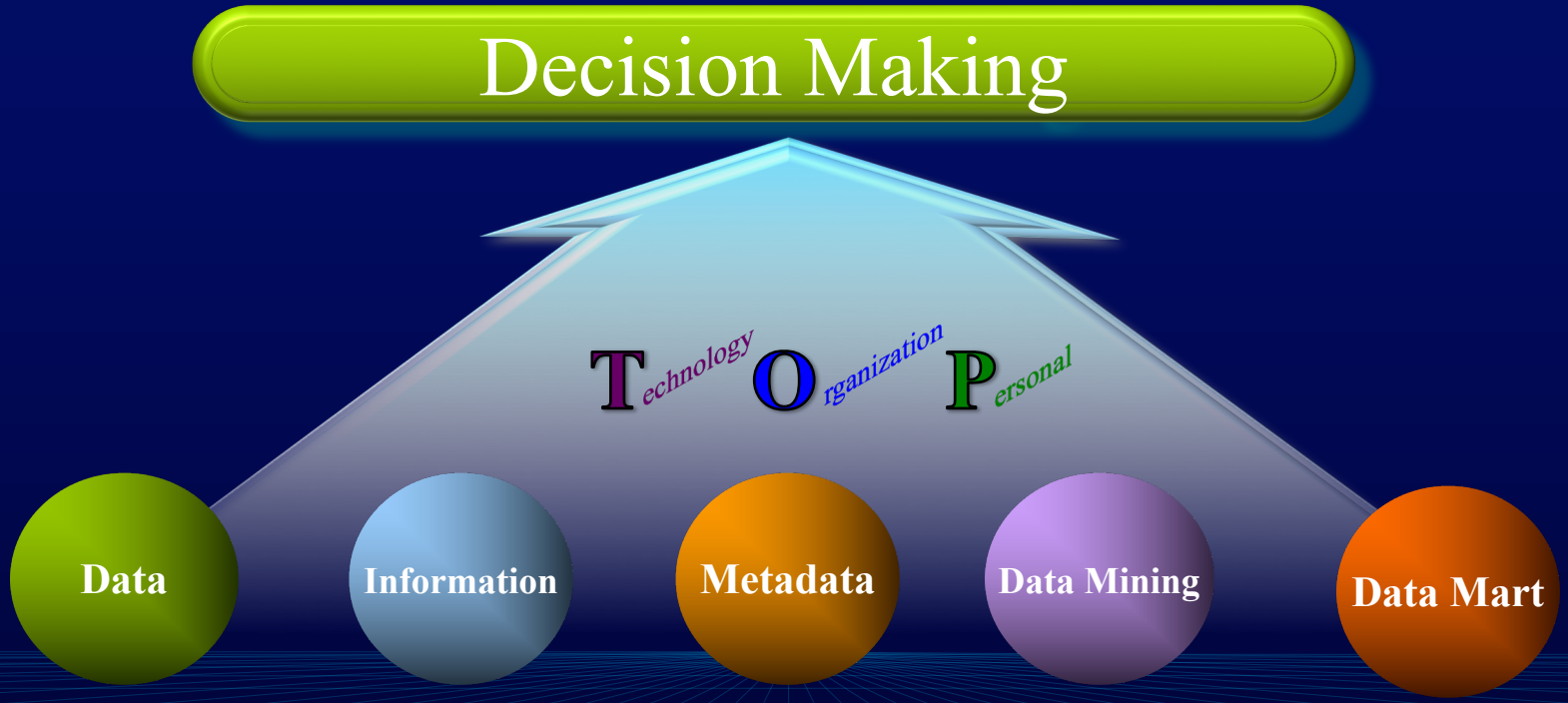
Research Strength



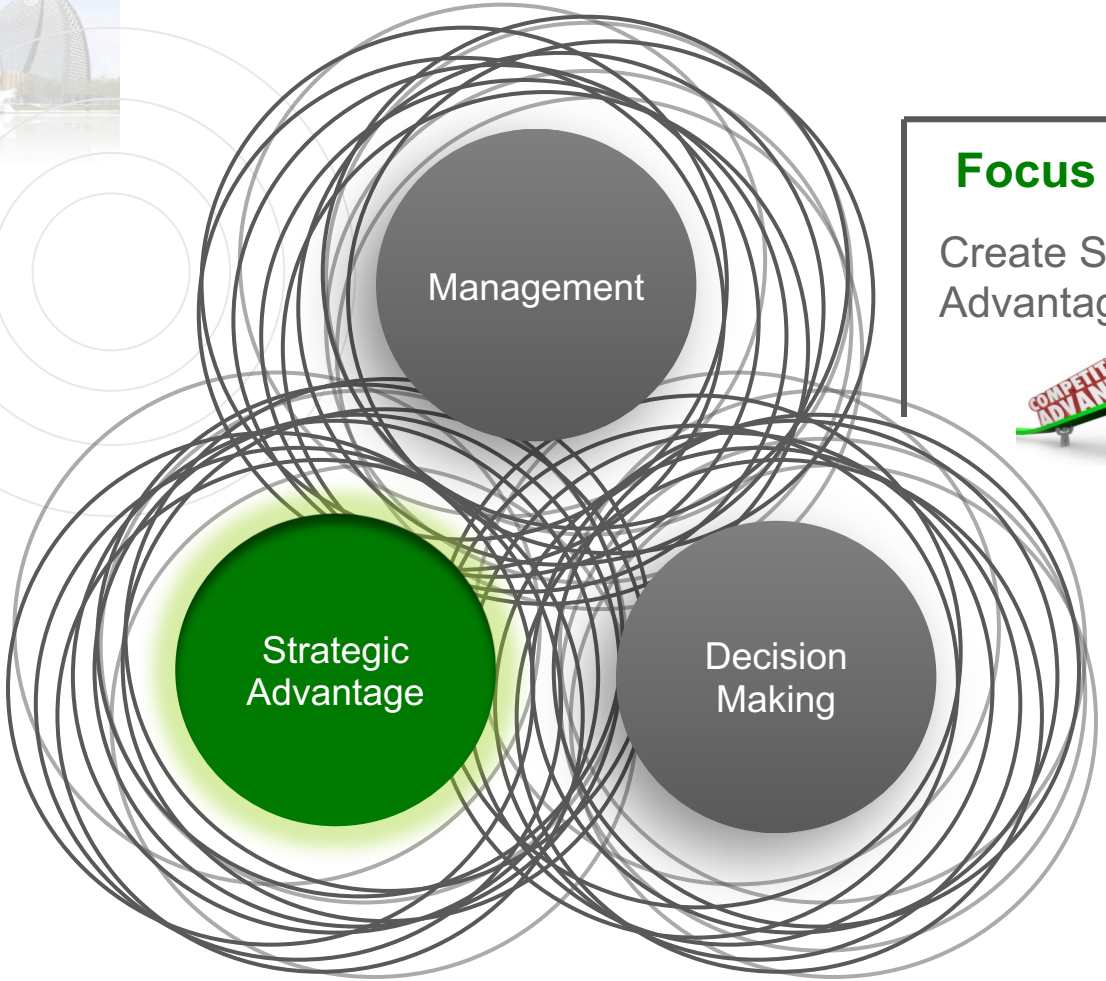
Focus 2

Improve Decision Making

Decision Support System



Research Strength



Focus 3

Create Strategic Advantage

Strategic Advantage

System Interlocking

Solution Development

KMS

Reference

CRM

GW

E-Mail

Document

EDMS

ERP

E-Planning

Management

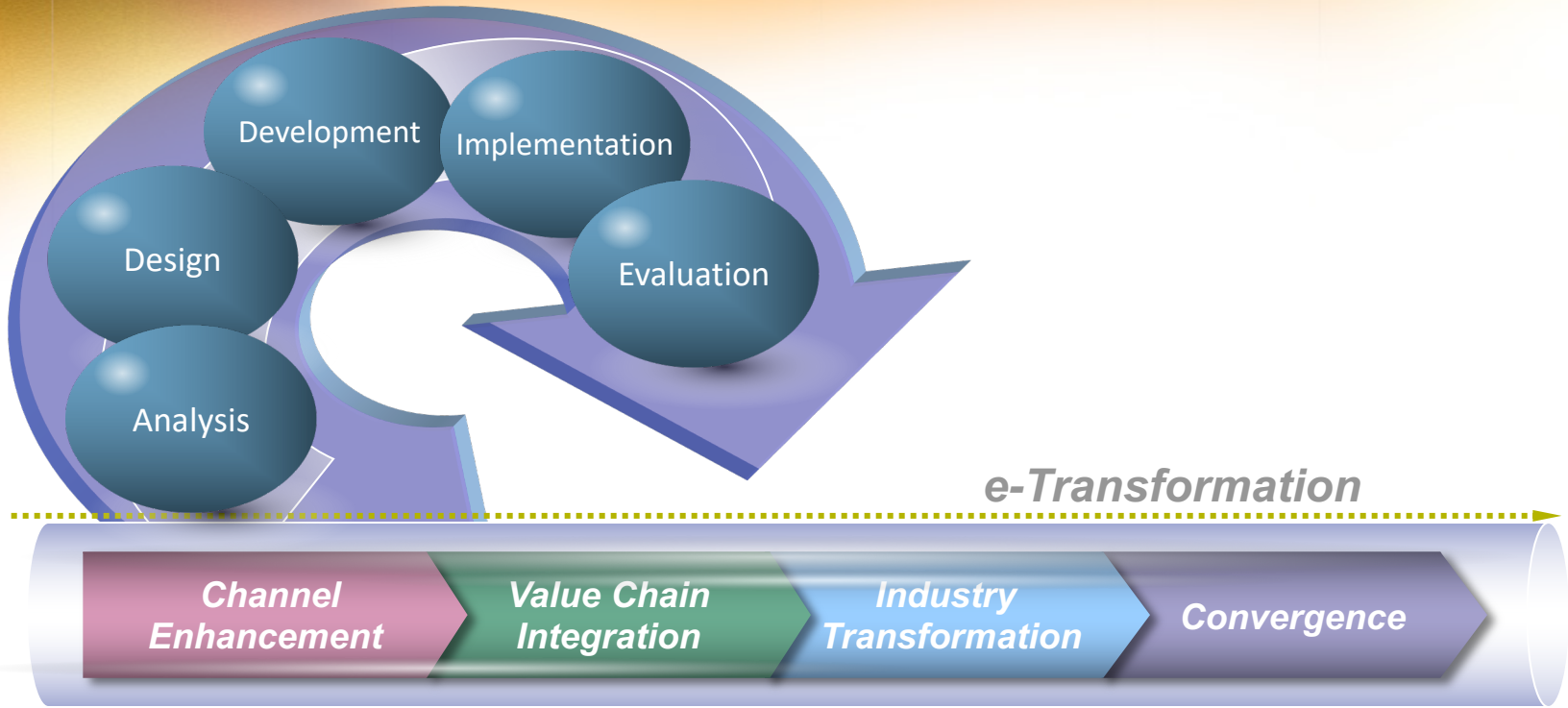
Decision

Knowledge

Strategic

Skills

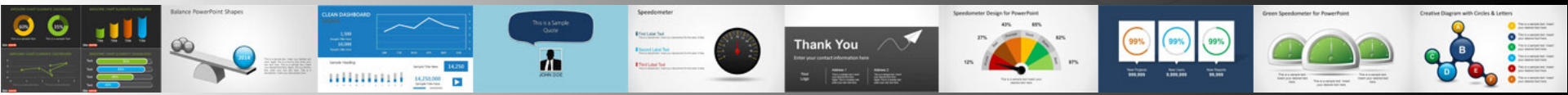
System Development Framework



Research Strength

Focused towards helping organizations to better manage and extract value from their data, information and knowledge/skills so as to mobilizing company resources to produce competitive advantages with a strong decision supporting system

CIS Research Centre



Research Group

Research Area

1 Cyber Security

- Cryptography
- Big Data Security
- Privacy Enhanced Technology
- Trusted Computing
- Internet of Things Security
- Network Security

Research Area

2

Mobile Collaboration Technology

- Content Management
- Artificial Intelligence
- Corporate Learning
- Digital Business Platform
- Mobile and IoT
- Unified Communication & Collaboration
- Mobile Collaborative Healthcare

Research Area

3 Smart City/Classroom

- Smart City-Concept Development
- IoT Application in Smart City/Campus
- System and Applications
- Public Policy Implications
- Interactive Teaching Support Systems
- Mobile (smart) Learning

Research Area

4

Vocational Education Development

- Adoption of ICT in an Educational Setting
- Pedagogical Design and Delivery with ICT
- Virtual Laboratory
- Enhancing Learning Management Systems
- Green ICT in the Higher Education
- Student Collaboration Settings

Research Area

5

Healthcare IS

- Impatient and outpatient IS
- Hospitalization Prediction
- Predictive analytics using EHR
- Medical Imaging

Research Area

6

Social Informatics

- Enhanced Social Media Presence and Use
- Social Media Impact
- Adoption and Implementation

Research Area

7

Data & Information Quality

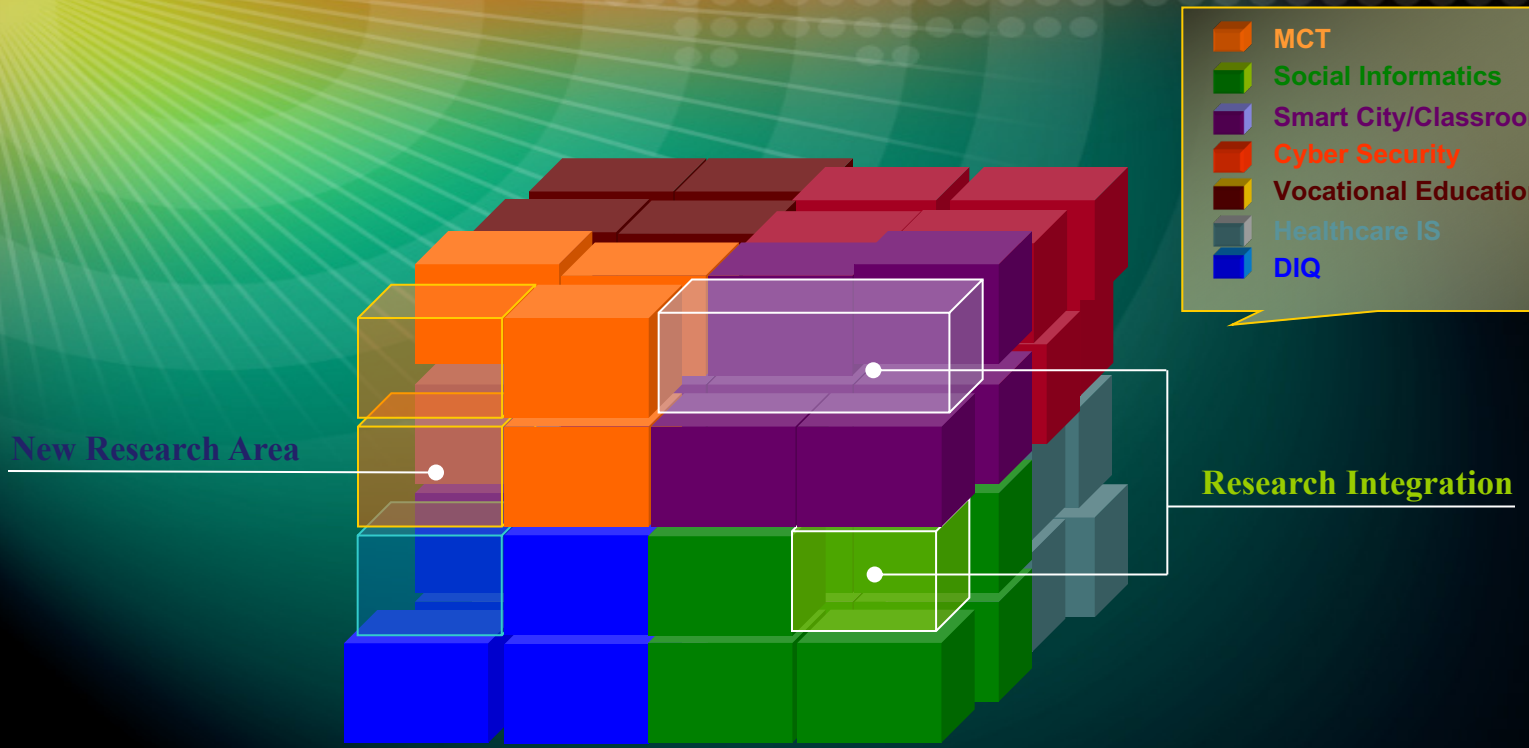
- Decision Making
- Medical Imaging
- Signal and Image Processing
- Synthetic aperture radar imagery
- Video analytics

Research Support

Supporting Lab./Studio

- Computer Lab.
- Telecommunication Lab.
- ICT Lab.
- Digital Lab.
- IT Forensic Studio
- Multimedia Studio

Research Area Expansion



Meet Our Team

Faisal Syafar

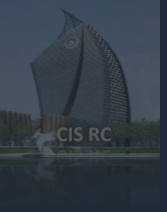
Director

Misita Anwar

Overseas Manager

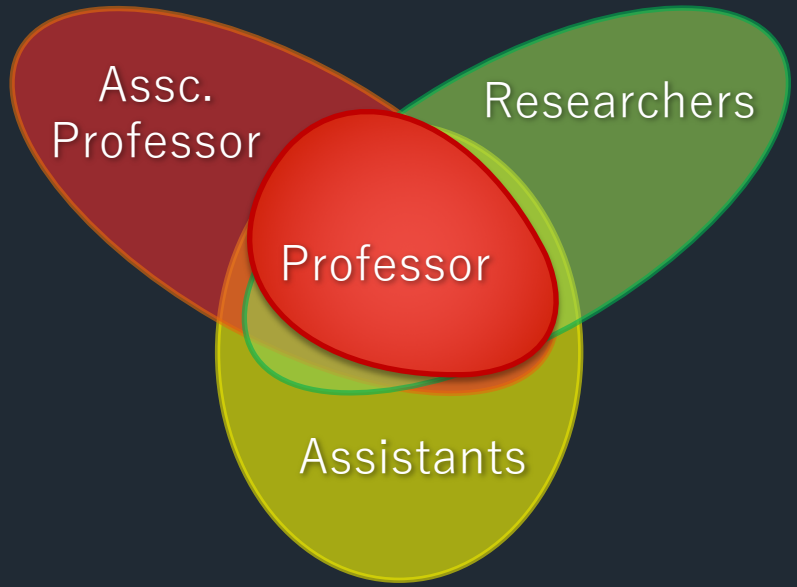
Yasser Abd. Djawad

Publication manager



CIS Member

The CIS team's research expertise resides with four professors, ten associate professors, accompanied by 10 researchers and over ten research assistants.



Researchers (Leader)

Researchers (Leader/Members)

Cyber Security

Prof. Drs. Ir. Faisal Syafar, M.Si., M.InfTech., Ph.D., IPU.

- Dr. Ir. H. Muhammad Ma'ruf, ST., MT., IPM.
- Prof. Yasser Abdul Djawad, S.T., M.Sc., Ph.D.
- Dr. Ridwansyah, S.T., M.T.
- Saharuddin, S.T., M.Pd.

Researchers (Leader/Members)

Mobile Collaboration Technology

Prof. Drs. Ir. Faisal Syafar, M.Si., M.InfTech., Ph.D., IPU.

- Dr. H. Muhammad Ma'ruf, S.T., M.T., M.M.
- Dr. Ridwansyah, S.T., M.T.
- Ganggang Canggi A, S.Pd., M.Pd.

Researchers (Leader/Members)

Smart City/ Classroom

Prof. Dr. Hendra Jaya, S.Pd., M.T.

- Prof. Yasser Abdul Djawad, S.T., M.Sc., Ph.D.
- Dr. Edy Sabara, M.Pd.
- Dr. Darlan Sidik, M.Pd.
- Prof. Dr. Hasanah Nur, M.Pd.
- Prof. Drs. Ir. Faisal Syafar, M.Si., M.InfTech., Ph.D., IPU.

Researchers (Leader/Members)

Vocational Education Development

Prof. Dr. H. Sapto Haryoko, M.Pd.

- Prof. Dr. Darlan Sidik, M.Pd.
- Prof. Dr. Hasanah Nur., M.Pd.
- Prof. Dr. Lu'mu Taris., M.Pd.
- Prof. Dr. Purnamawati, M.Pd.
- Dr. Mahmud Mustafa, M.Pd.
- Dr. Ummiati Rahmah, M.T.

Researchers (Leader/Members)

Healthcare IS

Prof. Yasser Abd. Djawad, S.T., M.Sc., Ph.D.

- Prof. Drs. Ir. Faisal Syafar, M.Si., M.InfTech., Ph.D., IPU.
- Dr. Supriadi, M.T
- Dr. Edy Sabara, M.Pd.
- Dr. H. Muhammad Ma'ruf, S.T., M.T., M.M.
- Sutarsih Suhaeb, S.T., M.Pd.

Researchers (Leader/Members)

Social Informatics

Misita Anwar, B.Eng., M.InfSc., Ph.D.

- Prof. Dr. Darlan Sidik, M.Pd.
- Prof. Yasser Abdul Djawad, S.T., M.Sc., Ph.D.
- Prof. Dr. Purnamawati, M.Pd.
- Dr. Ummiati Rahmah, M.T.
- Sutarsih Suhaeb, S.T., M.Pd.
- Dr. Mantasiah, S.Pd., M.T.

Researchers (Leader/Members)

Data & Information Quality

Dr. Edy Sabara, M.Si.

- Prof. Drs. Ir. Faisal Syafar, M.Si., M.InfTech., Ph.D., IPU.
- Dr. Supriadi, M.T.
- Prof. Dr. Darlan Sidik, M.Pd.
- Dr. H. Muhammad Ma'ruf, S.T., M.T., M.M.

Research Centre Partners

The group has established partnerships and collaborations with International and numerous national and local organizations/institutions/industries, schools and professional accrediting associations

Current Research Projects (selected)

Data & Information Quality

Mobile Learning Adoption

Multimedia Learning System

Virtual Laboratory

E-Health Modeling: Expert System Based

Industrial-Vocational Education

Leveraging Data and Information Quality of Higher Education

Employing Virtual Laboratory to Generate Quality Teaching and Learning

Faisal Syafar

Proposed Solution:
Identify key factors impacted DIQ

Hendra Jaya

Proposed Solution:
Dual System Laboratory Readiness

Mobile Learning Adoption by Indonesian University Students

E-Health Modeling Development: Expert System Based

Darlan Sidik

Proposed Solution:
Explores Key Factors for Implementation

Yasser M. Djawad

Proposed Solution:
Augmenting Health Control/Referral Syst.

Multimedia Package for Learning Support

Vocational High School-Industrial Partnership: Core Strategic Based

Mahmud Mustafa

Proposed Solution:
Cultivate Modern Learning Process

Purnamawati

Proposed Solution:
Boosting Students' Competence

Digital Learning Content & Platform during and Post COVID-19 Pandemic in Higher Education

Developing Mobile Learning and Augmented Reality

Faisal Syafar

Proposed Solution:
Green IT & Software enhanced by Mobile Technologies

Misita Anwar

Proposed Solution:
Contextualized STEM Learning

Past Research Projects

- Augmented reality for educational process
- Multimedia development
- Health information systems
- Framework development for implementation of mobile collaborative maintenance in large industry
- Medical electronics record
- Image processing
- Web based learning
- Real-time communication on uninhabited air borne vehicle
- Microwave and optical remote sensing of coastal vegetation
- Mobile telemedicine development
- Design of internet mobile network based wireless LAN cellular system
- Involving SMK students with disability in class mainstream

Enhancing teachers professional development program in Indonesia through mobile learning system applications.

Saharuddin, Misita Anwar

Background

- Many teachers – particularly those who work in rural areas - are struggling to access these professional development programs.
- programs are designed as face-to-face course located in a distant town or city.
- Distance learning modes are available but these are not feasible for those areas not covered by the internet infrastructure.

Proposed solution

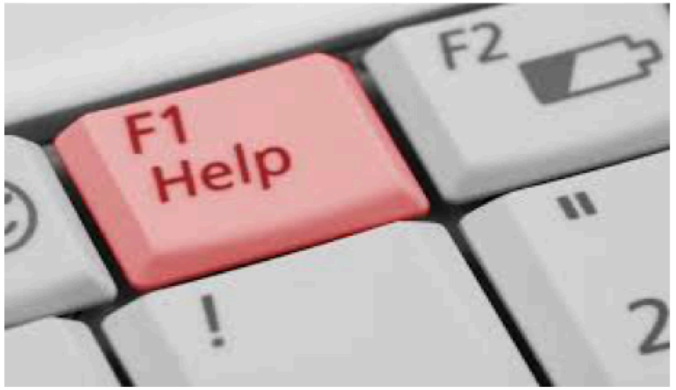
Mobile phones can offer a way around these problems but needs to be designed in the context of rural education.

This project aims at enhancing teacher professional development program through the use of mobile learning system.

Using mobile learning system, teachers can access high quality, cost effective interactive e-learning and assessment resources featuring scenarios, images and activities.

Towards developing ICT Technical support competency standard for high schools to enhance ICT integration in education

The government through the National Agency for Professional Certification (BNSP) encourages the higher education institution, professionals, professional organizations or industry places work to formulate National Work Competency Standards (SKKNI).



This research is aimed at to formulating ICT Technical support competency standard for high schools Indonesian Objectives to complement the standard.

ICT ADOPTION AND USE BY MICRO AND SMALL ENTERPRISE: A COMPARATIVE STUDY

Misita Anwar, Yasser Djawad

Access to ICT in some areas in Indonesia may be readily available, but due to lack of skills and insufficient knowledge, many people do not understand the advantages of using ICT for their business activities.

BUSINESS & ICT

The LIAISE framework provides a structured format that could be applied to categorising the ICT needs of small business (Burgess, 2010).

Objectives

- To investigate ICT adoption and use by small business in Indonesia
- To propose an evolved LIAISE framework suitable for small business in developing context
- To identify best practices that can be applied by small business to assist them in the adoption decision and ICT use

Key Data and Information Quality Requirements for Asset Management in Higher Education

Faisal Syafar, Edy Sabara, Supriadi

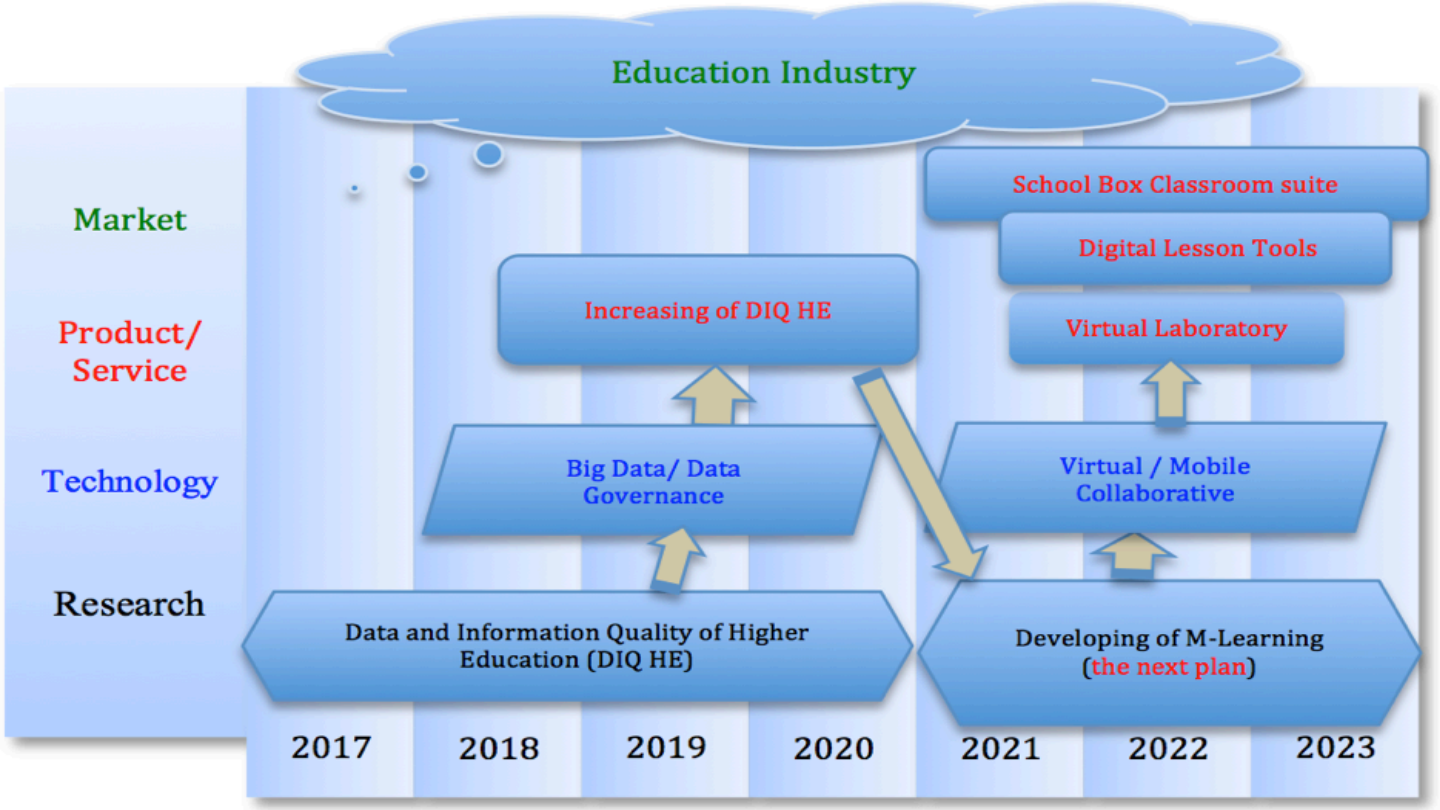
Universities have millions of digital assets, thousands of users, hundreds of policies, many departments and stakeholders.

Asset management in Indonesian HE institution is not considered as a core business activity therefore they depend on the traditional organizational information sources to manage engineering assets.

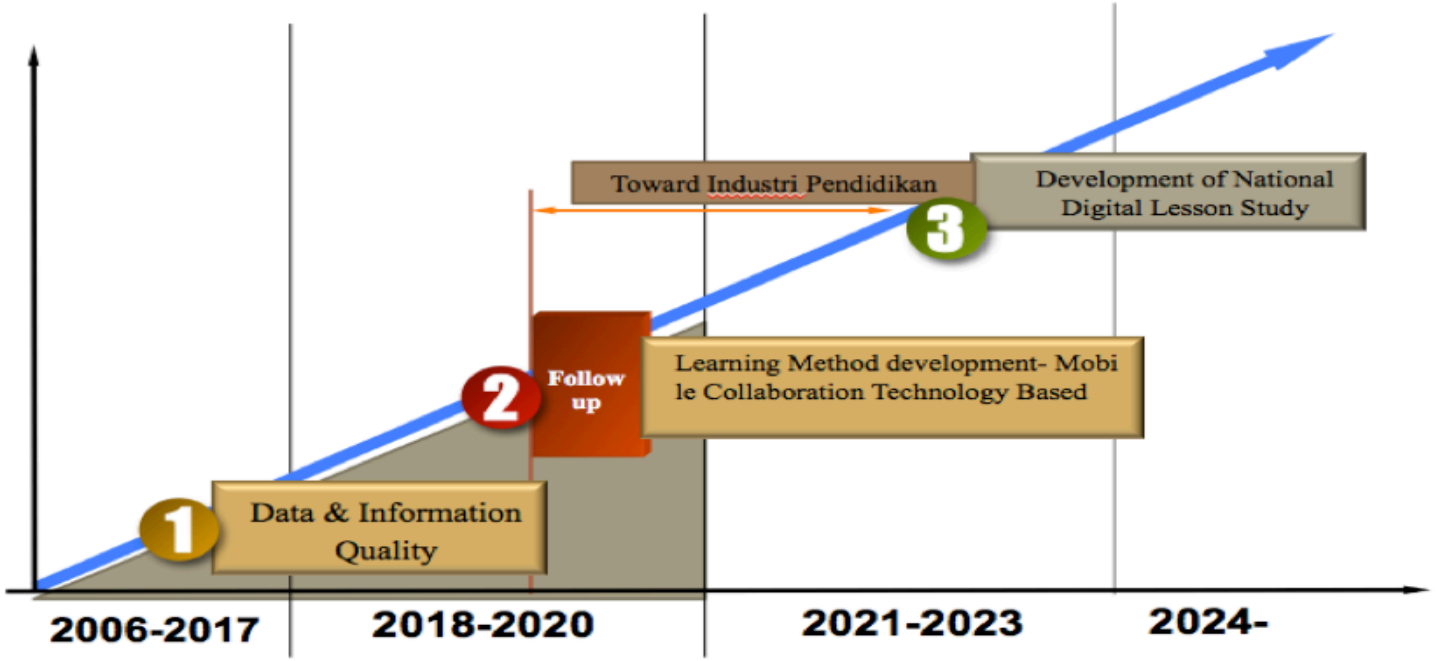
In such an environment, knowledge on how to manage the quality of the information asset has become very crucial.

This research explores DIQ problems with existing HE's asset management system, and identifies key factors that impact on DIQ.

Road Map


Education Industry
Market
Product/ Service
Technology
Research
School Box Classroom suite
Digital Lesson Tools
Virtual Laboratory
Increasing of DIQ HE
Big Data/ Data Governance
Virtual / Mobile Collaborative
Data and Information Quality of Higher Education (DIQ HE)
Developing of M-Learning (the next plan)
2017
2018
2019
2020
2021
2022
2023

Long Term Research Plan



Research Plan

2020

2029

Research in Progress (National Fund, selected)

2024 Sustainable Campus using Internet of Things Technologies

2024 IoT Irrigation Monitoring & Controller System

2023 Secure Personal Health Records in Public Platforms

2023 Early Detection of Money Laundering and Counter Terrorism Financing

2022 Design of Mobile Collaborative Data and Information Services for Modern Outpatient

Research in Progress (Global Collaboration and Funding)

- Systematic Sharing of Tacit Knowledge from Recordkeeping Perspective in Informal Setting: A Cross-Country Study on the Fisherfolk Community (Year 2 of 3) AU$ 82,000 per year for Indonesia
- Cyber Security Capacity Building in ASIA-PACIFIC (Year 1 of 3) US$ 180,000 per year for Indonesia
- Building a Scalable AI Supported Knowledge Management System and Smart Farming in West Papua (Year 1 of 3) AU$ 124,000
- Monitoring and Assessment of acute respiratory infection, tuberculosis, and diarrhea (ATD) in Indonesian Remote Areas (Proposed) AU$ 350,000 for 24 months


MONASH University
UNM
ASIIN
Accredited Degree Programme
2023-2025
SYSTEMATIC SHARING OF TACIT KNOWLEDGE FROM RECORDKEEPING PERSPECTIVE IN INFORMAL SETTING: A CROSS-COUNTRY (BANGLADESH AND INDONESIA) STUDY ON THE FISHERFOLK COMMUNITY
RESEARCH DISSEMINATION
MAKASSAR, DECEMBER 20, 2023

Design of Mobile Collaborative Data and Information Services for Indonesia Modern Outpatient

Drs. Faisal Syafar, M.Si., M.InfTech., Ph.D.
Dr. dr. H. Leo Prawirodihardjo, Sp.OG (K), M.Kes.
Misita Anwar, B.Eng., M.InfSc., Ph.D.
Yasser Abd. Djawad, S.T., M.Sc., Ph.D.

Key Facts

Indonesian Hospitals delivers almost 5 million outpatient appointments every year. Patients attend outpatient

appointments for one of three broad reasons:

- an initial referral to acute care to get more specialist opinion and diagnosis;
- for treatment, which may be a series of treatments over time; or
- or follow-up to check on outcomes and/or continuing symptoms.

Key Facts

During 2015-16 there were a total of 4,500,280 outpatient attendances, of which 1,486,522 were new and 3,013,728 were return appointments.

Return appointments accounted for 67% of all acute outpatient activity

Key Facts

The dramatic increase in referrals to secondary care in a number of specialties is driven by increased disease prevalence, increased patient expectation and an increased range of treatments. A large number of referrals, however, do not result in any diagnosis being made (up to 30% in some specialties).

Not all referrals are made for diagnostic purposes, and not all referrals result in changes to care and treatment as a whole.

Offered Solution

We need to do more to support clinicians to manage risk appropriately and confidently, especially in the face of multi-morbidity. ‘Realistic Medicine’ can deliver change by reducing population ‘health anxiety’ and by fostering a culture which supports clinicians to have more informed conversation and decision making with patients.

Development of The Modern Outpatient model, which avoids the need for routine planned care by predicting risk, enabling self-management, providing support and intervention only when necessary, while maximizing the role of all clinicians across the healthcare system.

Research Objectives

First

Designed to inspire a new model which reduces the need for routine face-to-face appointments by predicting risk, providing support only when intervention is necessary, whilst maximising the role of all clinicians across the healthcare system and delivering care in the community or in the patient's home whenever safe and practical to do so.

Second

The Programme will support clinicians and other health and social care staff to develop robust approaches to deliver improvements in outpatient services to achieve the aims of the Programme. Working towards the transformational changes that are required will necessitate local clinical leadership and ownership. A number of healthcare systems worldwide have developed approaches that will be shared in order to support the Programme across Indonesia.

Road Map

Key Transformation Areas	Current State	Transformational Activities	Future State
Prevent unwarranted attendance/ admission/ referral	New outpatient consultant referral as default for assessment, diagnosis and treatment	Digital patient management/ clinical decision support applications which supports the extended MDTs to manage patients in the community Access to digital imaging software/virtual mediums/ diagnostics which enhance referral quality and primary care/secondary care dialogue E-advice feedback and advice only referrals which provides more timely access to treatment for the patient	Primary care/Community service led care for non complex care
Optimise what should be done inside hospital only	Consultation-led, hospital-based services which are predominantly face-to-face consultation and generate routine return appointments	E-consultation video call web-based management software which enables consultation in the patient's own home Patient self-scheduling tools/ software and patient iTriage assessment which allows the patient to access care when required Planned return lists which ensures patients are seen at the right clinical interval by the right clinician	Virtual consultation and patient initiated review Standardisation of return demand variation generated in secondary care Extended scope practitioners/ Advanced nurse practitioners Specialist nurse complex care management
Prevent delay and create community capacity	Under-utilisation of extended multidisciplinary team skills, independent practitioners and community-based assets	Digital health technologies/ wearable devices which enable remote monitoring and supports the patient to self-management Condition specific pathways which triages patient to the right clinician first time and reduces unnecessary delays Training and e-learning which enables the wider MDT to support patients more holistically	Maximisation of the roles of the extended MDTs Pharmacy/Optometry/AHPs and other independent practitioners

Collaborative Workflow Plan

Outpatients

- Patient appointment inquiry
- Pre-appointment patient reminder
- Current treatment schedule notification
- Missed appointment notification
- Past due patient payment notification service
- Pre-physical check-up and precaution procedure notification
- Inpatient wards waiting notification
- Pre-surgical operation notification
- Medication safety notification
- Pregnant women routine check-up notification
- Hospital adult check-up service notification
- Pap smear notification
- Pediatric disease vaccine service notification
- Abnormal test result from check-up/return to hospital for treatment service notification
- Lectures notification
- Hospital community activities notification
- Physician and patient relationship management
- Birthday greeting notification

Collaborative Workflow Plan

Physicians

- Notification of patient's abnormal lab result as well as other information to physicians
- Notification of drug safety issues regarding individual patients
- Group physicians notifications from Emergency room Physician's lateness and help notification

Administrators

The management of physicians and clinics

Topics Plan 2024-2029

- Cyber Security Capacity Building
- Traffic Management
- Smart Farming
- City Transport
- Noise, Air Quality control and Monitoring
- Inclusion of Student with disability in mainstream classroom
- Emergency Services
- Security and Safety
- Infrastructure Management
- Elderly-Care

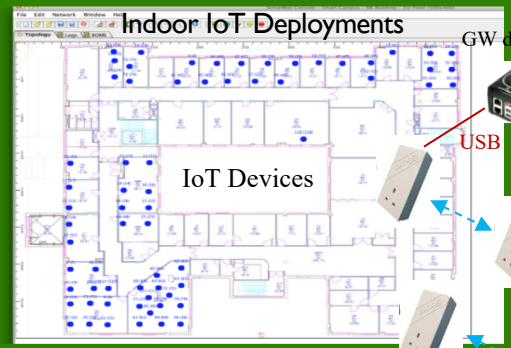
IoT Applications in Smart City/Classroom/Campus

Application Requirements in IoT

- Smart Grid
  - Lower power consumption, location tracking, reliability and long maintenance cycles
- eHealth
  - Service reliability, mobility, lower power consumption, lower delays
- Automotive
  - Mobility, location tracking
- Smart cities
  - Reliability, fault tolerance, delay tolerance

Smart-Campus Infrastructure

Sustainable Campus using Internet of Things Technologies based LPWAN



GW devices

USB

802.15.4

Ethernet

GW devices

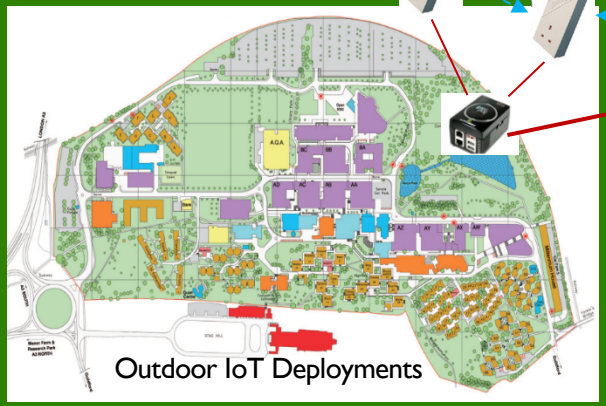
Ethernet

Core Network by
FI Platform

Display
Infrastructure

Wifi, Ethernet

Smart Campus
Service Platform

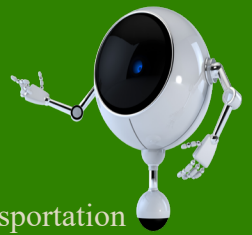


Bluetooth

Wifi, Ethernet

Bluetooth

User Devices



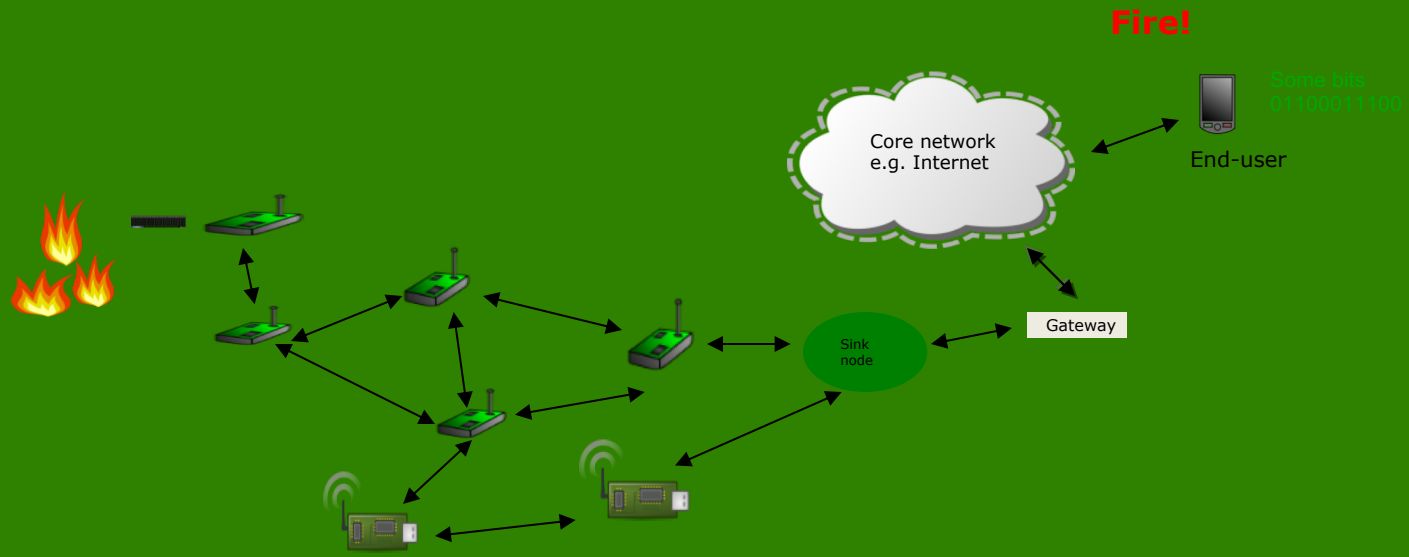
- Smart Transportation
- Smart Waste Management
- Environmental Monitoring

IoT Service in Smart Campus Infrastructure (plan)

Conventional Network

IoT Service in Smart Campus Infrastructure (plan)

Wireless Sensor Network-LPWAN



Milestones

Reviewers

- Organizing
- Attending

International Conferences worldwide

32 Course Handbooks

Start
2016

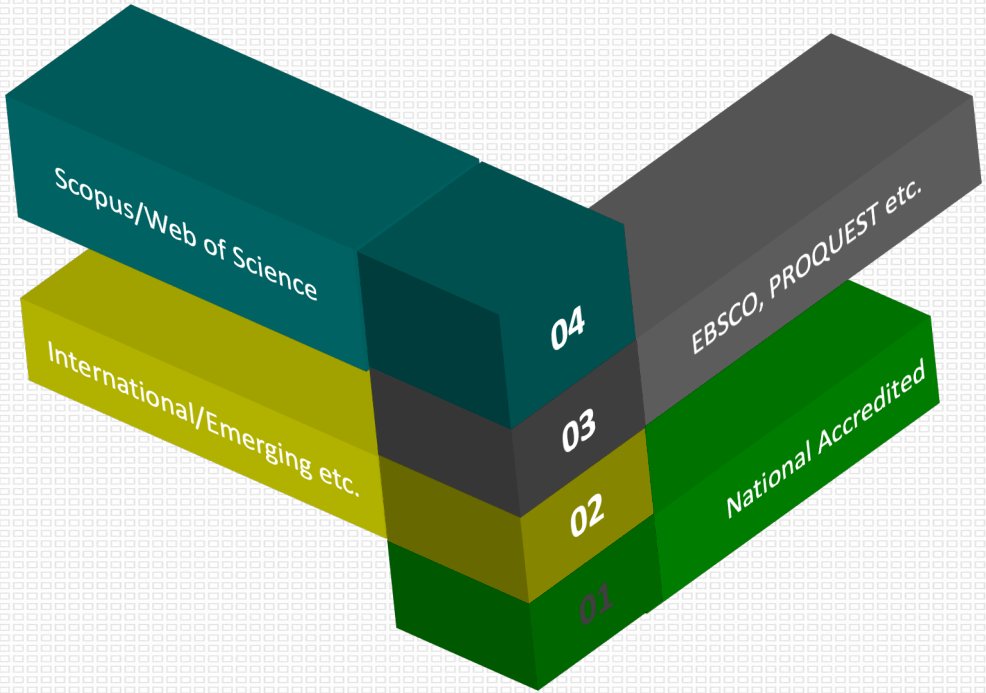
Present
2022

13 Book Chapters

24 Intellectual Property Right

Dozen Journal/Conference Papers

Journals/Proceedings paper (published)



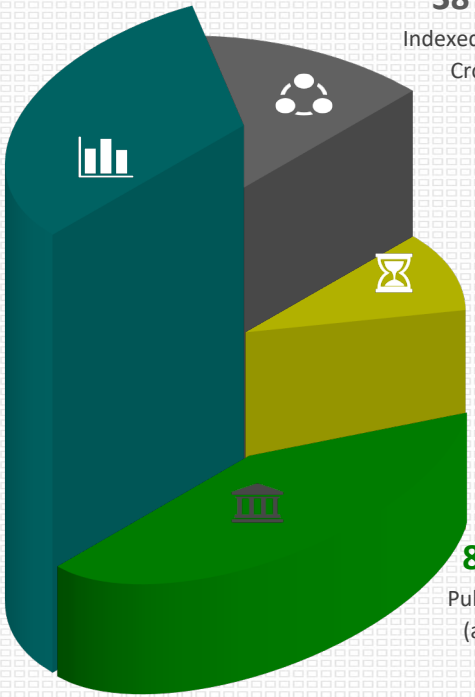
Journals/Proceedings paper (published)

38 papers

Indexed in EBSCO, ProQuest, Crossref Databases etc..

41 papers

Indexed in Scopus and Web of Science Databases.



21 Papers

Published in a non indexed databases

8 Papers

Published in National Journal (accredited by RISTEKDIKTI-Indonesia)

Contact Us

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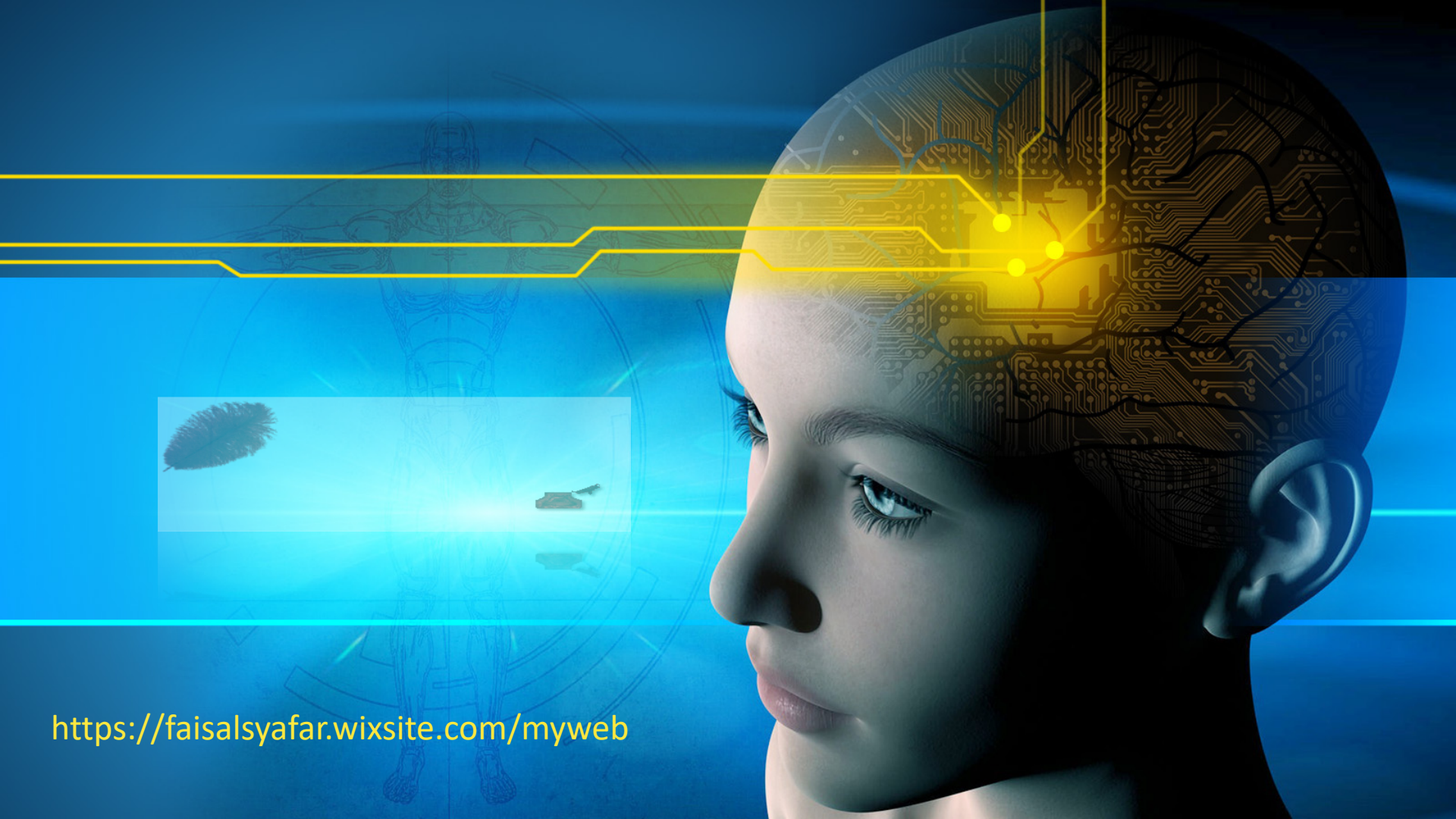
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