

The Internet with a cloudy future – a Divine (Word University) story of working in PNG

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InfoEco background

Who are we ?

- Information Ecosystems – organization
- A loosely grouped set of rugged individualists
- A team that could be assembled for a specific task
- Governance and audit
- ICT policies and procedures
- Application procurement and development
- Data retention and risk management
- Training and management of human resources.



Engagement





Why PNG ?


- A chance to experience a different environment
- Lessons to be passed on
- Lessons to be learnt
- An opportunity to contribute
- An opportunity to help
- And to visit PNG..

○ Wollongong, New South Wales 2500

○ Sydney Madang Korean BBQ, 371A Pitt St, Sydney NSW 2000


Opens at 11:30 am



Map data ©2018 Google

1 h 28 min (94.4 km) via M1

 **Directions**

Travel information

Make sure you do this..

- Get your visa (and appropriate supporting documentation needed for your visa - \$200 - \$400)
- A medical examination and certificate
- Travel insurance!
- Malaria pills and any vaccinations needed
- Your end to end travel being booked – and printed out
- Noise cancelling headset?
- Cash (currency)



Why InfoEco specifically?

Contacts and informal ways of finding the right people

- Dr Stephen Weller (DVC and COO, ACU)
Previously DVC, University Service Division, JCU
Contacted by Janette Baird ex AUQA, then at DWU
- Led to contact with Kent Adams (ex IT Director at JCU),
Chair, QRNO and QUESTnet and
AARNet Board Member
- InfoEco wrote a proposal for the VC @ DWU
- Led to InfoEco team heading off to PNG



What's in it for.. DW(U)?

Why did DWU want this review ?

- A new vice chancellor
- There's usually an agenda for review
- Governance and business relationship issues to be clarified
- Improvements in technology processes
- Identify strategic opportunities in relationships for IT
- Review of software solutions



High level planning

- **Terms of Reference**
- Processes
- **Cultural sensitivities**
- Governance
- Structure
- **Awareness of internal politics and keeping an open mind**
- A focus on new student management system platform



Our review itself

- ICT Governance Model - authorities, access controls and delegations
- Enterprise Architecture planning
- ICT policies and procedures
- ICT procurement and the role of AlphaNets
- Application procurement and development
- Data retention and risk management
- Training and management of human resources



Governance Observations

- You need to have a visible and accountable ICT governance model and transparency around decision making processes
- You need a documented and agreed ICT operational plan to meet your strategic vision
- The Director ICT requires clear vision of campus facilities building and maintenance projects that affect ICT
- You need to identify the separation of roles, responsibilities and funding for ICT within the business
- Understand your data retention and privacy requirements under PNG law
- ICT Policies, Framework and succession planning require review to ensure ongoing service delivery capability

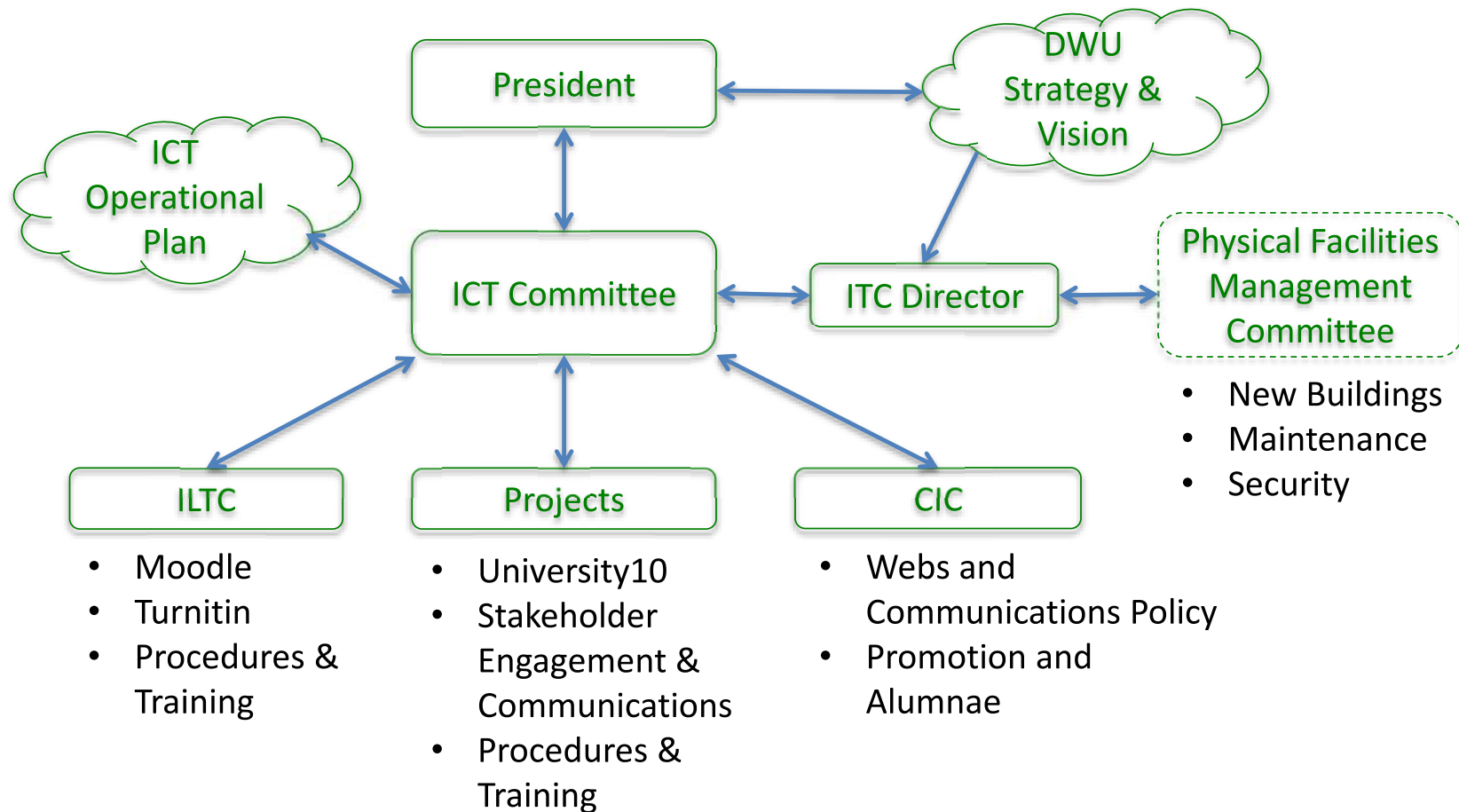


Governance Recommendations

- Implement an ICT Governance structure shown in diagram
- Implement ICT Committee (ICTC) Terms of Reference with responsibility for ICT governance, projects and funding
- ICT operations, project and strategy development remain the responsibility of the Director ICT who reports to ICTC
- The Director ICT is a member of Facilities Committee to facilitate vision of campus building and ICT requirements
- Align 3-5 Year ICT Operational Plan with University Vision
- Clear separation of commercial and university ICT activities both physically and organizationally
- ICT Policies, Framework and Succession Planning review for currency and consistency – security, social media (underway)



ICT Governance Model





Infrastructure observations

Infrastructure Audit

- Campus network architecture, including wireless access
- Physical server infrastructure operations, lifecycle, disaster recovery and environmental controls
- Asset management system of DWU hardware devices
- Security, firewall, anti-virus protection, backup and data recovery capabilities
- Operating systems for servers, databases, network equipment, including performance, scalability, availability and degree of integration
- Infrastructure management process including change management, patching, access and authorities



More infrastructure observations

- The 60MBit Wide Area Network (WAN) internet connection costs a lot! It is inadequate for requirements
- The Local Area Network (LAN) requires urgent upgrade and the technical assessment and pricing has been completed
- The Wireless Network (WLAN) requires urgent upgrade and the technical assessment and pricing has been completed
- The infrastructure operations, lifecycle, backup, disaster recovery and environmental controls are best practice
- The laptop program is to be commended. It appears to be extremely successful
- Current information security tools are inadequate to deal with the increased threats to the corporate information



Infrastructure Recommendations

- To adequately service DWU, the WAN Upgrade Project needs to be at least 500MBit – negotiate cost with PNG Telikom
- The LAN Upgrade Project should be approved once the DWU Implementation Case has been provided by the ICT Director
- The WLAN Upgrade Project should be approved once the DWU Implementation Case has been provided by the ICT Director
- For this to be successful the infrastructure and operations at satellite campuses eg Rabual and Wewak need to be reviewed
- The use of cloud for backup overnight should be considered to ameliorate risk of information assets on Madang campus
- The security tools to protect the network need to be reviewed and an implementation plan developed



DWU ICT Assets – Appraisal of Current Equipment

- approximately 1700 student laptops – Dell
- approximately 500 staff laptops – Dell
- a number of staff and lab desktops (estimate of 200)
- over 100 printers – Dell
- IP PBX (NEC) 200 handsets (analogue, digital, IP and security)
- Cisco and Dell network switches (80+)
- wireless access points (various vendors) (100+)
- edge routers (3) – Cisco
- network ports around campus - 1600+ fixed wired ports
- Data Centre – 100+ Terabytes of storage delivered on Dell Equallogic plus VMWare servers (Dell); virtualisation of servers is industry best practice and highly commended.



Application observations

Application and Clients Services Audit

- Catalogue of current applications used by DWU
- Use and functionality of Intranet and local drives
- Location of applications - local servers or Cloud hosting
- User services, including Help Desk support services



Serving society through it's quality of teaching, learning, research and community engagement in a Christian environment

Faculty of Arts & Social Sciences

- Department of Communication Arts
- Department of PNG Studies and International Relations
- Department of Social and Religious Studies
- Department of Governance and Leadership

Faculty of Business & Informatics

- Department of Business Studies
- Department of Mathematics and Computing Science
- Department of Tourism and Hospitality Management
- Department of Finance and Management
- Department of Information Systems

Faculty of Education

- Primary Teacher Education St Benedict's Campus
- Department of Education Curriculum and Leadership

Faculty of Health Sciences

- Department of Environment Health
- Department of Health Extension
- Department of Health Management
- Department of Physiotherapy
- Department of Eye Care
- Department of Public Health Leadership and Training

■ Doctor of Philosophy (Ph D)

For more information, please contact:

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Fax: (+675) 422 2034



Sic currite ut comprehendatis

Dear Alumnae

Life is full of opportunities for those who have courage to do things that last. Your dreams are the driving energy, your vision conquers all and DWU core values give you the right direction. Never stay still, develop yourself and contribute to the enhancement of humanity. A DWU graduate never gives up, as you have the capability within you to overcome every limitation and do better than you did yesterday.

This park is dedicated to you, DWU Community will inscribe on the Alumnae Immortality Wall contributions you will make to this world you live in.

Build success that lasts and build a life that matters.

Er Jan Czuba
DWU President

More application observations

- There are 3 core University systems: - University10, Moodle and Attache although Turnitin is a growing requirement
- University10 is currently in phase 1 with more attention required to ensure the deliverables, warranty and timeline are met
- Moodle is becoming a core application for delivery of course content to students and for flexible learning
- Flexible learning students require reliable access both for lectures and after hours at on campus accommodation
- The staff require access to external content to build multimedia course content in line with eUniversity concept
- Attache is the core Financial system for the University and all data remains as the single point of truth.
- Improving ICT staff morale to service campus needs.

PCG *Academia*

Technology. Analytics.
Excellence.

PCG Academia oferuje efektywne rozwiązania technologiczne i doradcze wspomagające uczelnie w doskonaleniu procesu zarządzania.

Więcej o nas >



SYSTEMY I ROZWIĄZANIA DLA UCZELNI

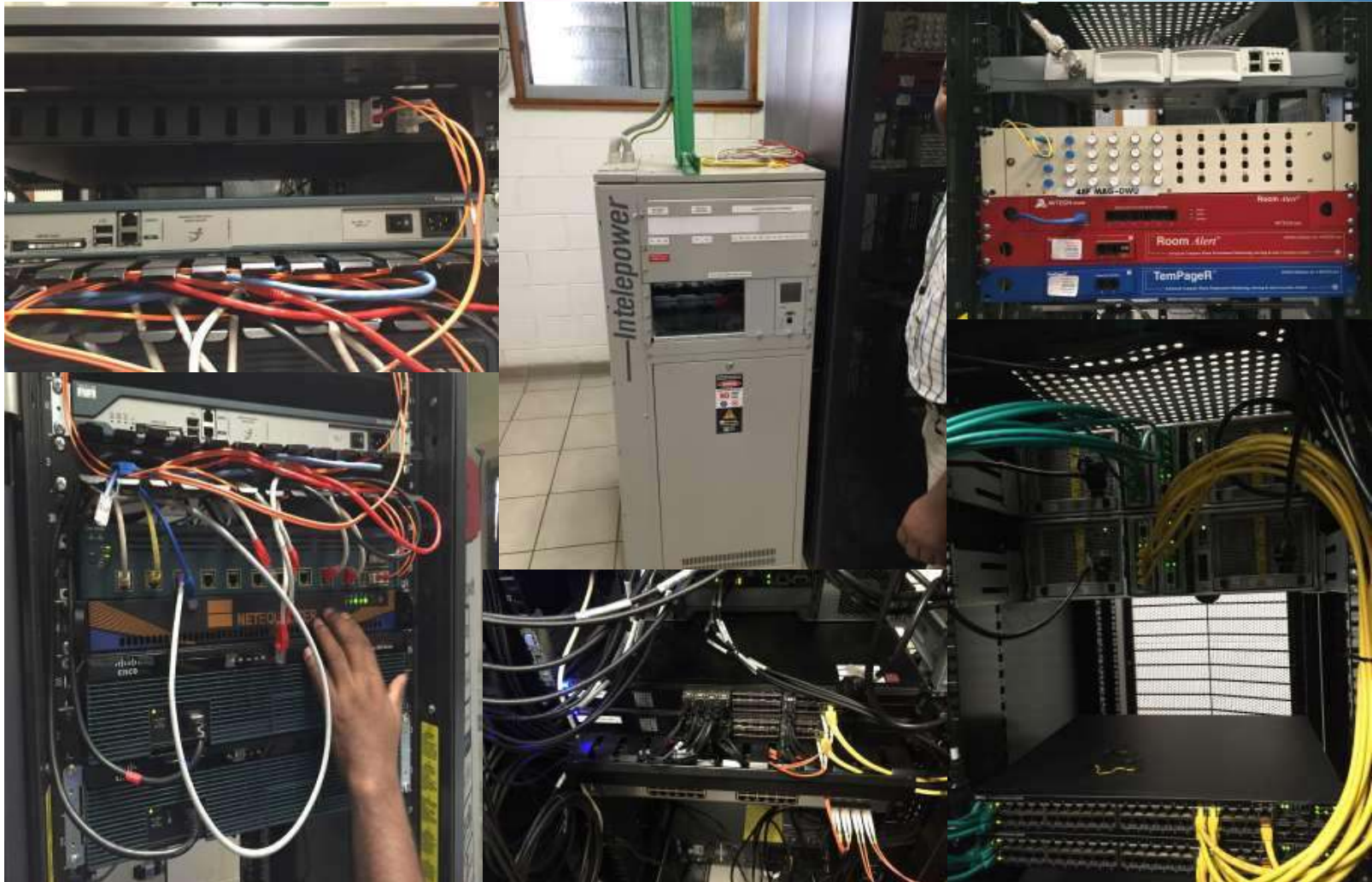
Application Recommendations

- The application architecture needs to be examined in detail to articulate technical relationships between systems
- University10 Phase 1 final deliverables should be identified, documented and communicated as they are ill defined
- The project requirements & outcomes for phases 2 & 3 should be identified, negotiated with PIP and approved by ICTC
- Software and database support arrangements for University10 need to be clarified and negotiated as they are ill defined
- The Moodle environment requires improvement in internal network capability, caching and reliable adequate internet access
- The data security model and processes for changes to HR, Student and financial data would benefit from an audit.
- Requirements for Human Resources system need to be identified.
- Develop a training and engagement plan for ICT staff



Networking observations

- Internet access – core to the future of teaching and research for this university
- There isn't a PNG AARNet – something we take for granted here in Australia!
- How do you engage with and talk to vendors in PNG?
- It's a lot smaller – the team was able to meet directly with the PNG minister for education and the minister for regional development
- Recommend government liaison role to engage/pressure carriers?
- The network is vital when the world is heading towards the cloud and you don't have much of a choice unless you want to be left behind and/or threatened from external institutions



Other campus observations

- The campus network and the Internet are a key resource for ensuring physical security
- Wireless LANs allow the university community to work securely from their accommodation noting campus security concerns
- Reliable power doesn't exist at a grid level
- This affects your infrastructure assets and the way your business operates
- We really do take this for granted in Australia
- Everyone has a laptop
 - This makes a huge difference in the network and infrastructure model
 - Innovative and smart
 - No labs – except specialist ones
 - A mobile culture (which mirrors the 3G/4G model)



In closing..

- A university being innovative in a challenging environment
- Opportunities for engagement with Australian universities
- Some lessons we could learn from them!
- Governance and consultation is incredibly important for trust in decision making
- The cloud is changing business models whether you're ready for it or not; simultaneously opening up both opportunities and threats
- The opportunities provided by improved access and cloud technologies can morph into threats if your vision and actions do not seize the advantage
- If you can't seize the advantage in a timely manner, it can open up external threats affecting enrolments, research profile, administration, management and funding!



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Prof. Cecilia Nembou
President