Universities in the Pacific at digital development time
Comparative survey
The fast development of uses of digital technology has introduced a drastic change in our societies. That change is a challenge for the University of New Caledonia (UNC) in the fulfillment of its missions. The digital strategy, passed in February 2011 by the board of directors, stresses the will of the university’s management to meet that challenge by providing an innovative and dynamic process for lecturing, research and running the establishment.

Thus, in the coming years, the university community should be experiencing a real digital transformation. Digital services concern the whole of the university’s activities, so as to modernize the life of the establishment in conjunction with the other actors of higher education and research.

The fulfillment of these goals is subject to a proactive policy in scale with its ambitions and users’ expectations. The success of this policy shall rely on an efficient management, structuring projects linked with local and national initiatives. Therefore, UNC has felt essential to have a comparative study of a few other universities of the Pacific area in their approaching the uses of digital technology. Thus the following document is one important element for our digital strategy to be defined.

Jean-Marc Boyer,
President of the University of New Caledonia

For 10 years, CDC has been accompanying local communities in the digital development of their territories by helping their infrastructure facilities projects, developing innovating services and appropriation of new uses. In metropolitan France, authorities have launched numerous initiatives concerning universities: access to autonomy and wider competences, constitution of research and higher education poles (PRES), operation Campus or also 2012 digital scheme. The University of New Caledonia is also following these dynamics boosted on a national level.

Digital technology is thus a new lever to meet some of the university’s goals: master the digital chain of knowledge, satisfy users, create a strong brand, seek operational excellence and develop performance in a more and more competitive environment.

It is in that scope of accompanying the University of New Caledonia that CDC has taken part in the funding of a comparative study of the part and place of digital technologies in the universities of the Pacific. That study aimed at enlightening the directions of the digital general outline scheme currently being elaborated, by offering directions in terms of modernizing the establishment, developing new digital services (on-line library, digital working spaces, multiservice card) useful to students, lecturers and searchers.

Fabien Ducasse,
Territorial manager New Caledonia CDC
Digital technologies provide many applications, services and uses: they are its reasons for existing. It is a source of added value and a strategic tool from which the country must benefit to support public policies.

Digital tools must allow accompanying the balancing (economic, geographical distribution of populations, etc.): it must reduce social inequalities by giving access to education or health services, it must take into account the country’s geographical reality, its positioning in the Pacific area and promote economic development.

Since education is an essential component of any public policy, digital education is also one. Digital technology opens possibilities that are a response to questions until then quite unsolvable for a country such as New Caledonia.

Through this benchmark conducted on behalf of the University of New Caledonia, new situations have become realities. A source of inspirations, that library of examples may advantageously arouse the reader’s imagination to make use of technologies in the world of education.

“The only limit is our imagination” Teacher in French at Plum high school.

The world of education has always been a forerunner in technological evolutions, and even more in the field of research. Internet has in fact been really developed in the academic world before getting more accessible to people.

The organization and the part of schooling are in perpetual evolution, like the image of the debate on education conducted in New Caledonia in April 2010. In this consistent readapting, digital technology brings new answers to shake up old schemes of thoughts (Ken Robinson², December 2010) and to stimulate imagination. (Michel Serres³, December 2007).

Caledonian institutional actors are well aware of these stakes and are, at this very moment, drawing the frameworks of some large projects relying on digital resources.

The University of New Caledonia itself is in line with that process.

The Digital Observatory of New Caledonia, an association ruled by a law of 1901 created in 2011 by numerous public and private partners, has set up as its goals to build up the elements of a shared diagnosis while creating a trend of exchanges between actors. In the field of its missions, the Observatory has suggested parties involved to edit and publish a comparative analysis of digital strategies of the universities in the Pacific area and to share it with the community of actors.

In a manner of fact, that publication is the first of a collection of practical guides which should make it possible to enrich reflections, stimulate ideas and exchanges.

1 - Internet site: http://www.monpaysmonecole.gouv.nc/portal/page/portal/debat/
2 - Video : http://www.ted.com/talks/ken_robinson_changing_education_paradigms.html
3 - Video : http://interstices.info/jcms/c_33030/les-nouvelles-technologies-revolution-culturelle-et-cognitive

Paola Logli,
President of the Digital Observatory New Caledonia
The university, an innovative melting pot

The worlds of higher education and research are historically part of the first users of the Internet. So Universities and research institutes are places where digital innovation has spread around, first for the needs of research (calculators, data sharing, information) and then stimulated by inventive and undertaking minds. At the beginning of the 21st century, younger generations born in the 80s and 90s (called digital natives) have already integrated the uses of digital technologies in their daily practices. The first stake of the educational world is now to train professionals of the information society. From then on, certainly new forms of pedagogy, administrative organization, services provided and produced by the educational community (pupils, lecturers, searchers).

Universities in the Pacific at digital development time?

The context

The University of New Caledonia, conscious of those stakes, has decided to conduct a comparative study of the digital policies of several Pacific universities in 2010. That analysis, conducted with the support of Caisse des Dépôts, has compared five universities:

1. University of Hilo in Hawaii
2. University of the Pacific spread over 12 member nations (head office in Fiji)
3. University of Auckland in New Zealand
4. Queensland University of Technology in Australia
5. University of New Caledonia

The aim of this study is to understand integration of digital technologies in the university fields of: education, research, administration, equipment, student life.

Method

In order to meet this goal, almost fifteen people were requested in each university and eight themes were approached with them:

1. Infrastructures and buildings;
2. Teaching;
3. Research;
4. Extended university;
5. Student life and university community;
6. Libraries;
7. Services and information systems;
8. Governing, management and administrative and financial supports.
Digital strategy

Principles
A digital strategy is built in several stages:
1. Definition of a development plan;
2. Strong political will to accompany the plan;
3. Support and appropriation by the university community associated in the decisions;
4. Organization of supporting teams and putting in contact with occupational teams;
5. Development of new occupations (information and ICT correspondents) and new approaches (cloud computing, intellectual rights on digital contents);
6. Conducting plan and associated projects in time (long term schemes);
7. Setting up monitoring and assessment indicators;
8. Management of legal matters (intellectual rights on digital contents);
9. Investment costs and social consequences assessment;
10. Integration of the digital scheme into long term plans.

Implementation
This table shows the various bricks of a digital strategy:
- the technical base and services administration from which all digital services operate.
- access and digital equipment of the university’s life spaces.
- Groups are led through time by performance indicators.

As an example, the University of New Caledonia wishes to reorganize the monitoring of the digital strategy so as to improve quality of services to users. The six strategic lines of the UNC are shown in the following scheme.  

Scheme adapted from CDCCPU, Methodological guide of the digital university, January 2009
Introduction

Created in 1989, the university is located right in the heart of Brisbane. A second campus has a shuttle service.

This university welcomes 40,653 students of which 6,700 foreigners from over 90 countries. Adding to that, 1,800 searcher-lecturers, 4,065 employees on the campus.

University positioning

Conveyed by its motto "A university for the actual world", the Australian university sets itself three main goals:

1. Offer a high level apprenticeship adapted to the world of work,
2. Promote applied research programs,
3. Reinforce and extend partnerships with the professional world.

To meet these goals, the university has identified new technologies as a lever for action, so as to improve the quality of teaching and research but also to modernize the inner running of the establishment (administrations, support services, etc.).

Strategy and digital governing

The university has designed a digital plan operational over 5 years, integrated in a more general strategic document, called "Blueprint". To this, are added performance-indicators picked up every term and reviewed annually.

A committee dedicated to digital development, composed of a dozen people and directed by the vice-chancellor, meets about 6 times a year and examines 10 to 20 projects each time. It manages the global budget shared between the maintenance contracts and support to transverse projects. Various sub-committees bring their propositions according to their specialties: infrastructures, innovation, services, resources.

Digital competences

The "information technology division and support to apprenticeship" gathers 5 entities, real boosters of digital development in the establishment.

1. The library orders electronic documents and manages equipment and software;
2. The technologies and information department (ITS) manages information and telephony;
3. The department in charge of technological environment also provides the hotline;
4. The e-learning department supports digital initiatives: on-line courses, video conferences, use of "virtual apprenticeship environment" (called "Blackboard");
5. The printing department.

The computing department has about 450 people spread in 5 departments:

- the quality department, in charge of the digital strategy, procedures and usages;
- the infrastructure department;
- the departments including intranet and database management;
- the department of calculation center, dealt into several poles dedicated to research, infrastructures databases and visualization;
- a last department, entirely dedicated to security.

Introduction

Founded in 1883 in former court of justice and jailhouse premises with 95 students and 4 lecturers in arts and law, the University of Auckland achieved its autonomy in 1962. In 1967, the school of medicine was opened.

The University of Auckland is the largest public university in New Zealand and the most advanced in technological level. It also accommodates the largest research center in the Asia-Pacific area.

The student population is dealt in 5 campuses. One third of the students come from Asia.

University positioning

The strategic target of the university is to attract the best students that get involved in long cycles running up to research in scientific branches. The university also aims at increasing foreign students (11%) in a logic of fame and profitability. 90 international agreements allow 1000 New Zealand students to go abroad each year. The university has developed the Confucius institute in partnership with the Chinese government and the University of Fudan, in Shanghai. A New Zealand center has been opened at the university of Beijing.

Strategy and digital governing

The directorate of information technologies determines the digital strategy of the university over 4 years. A representative committee, (education and research, administration, library, data processing) has drafted the 2010-2013 document. About 200 people work at the directorate of information technologies, but 150 more are dispatched into the various faculties. About 50 people take care of maintenance, purchases, updates, training and equipment repairs.

The information systems strategic committee, led by the information Director and chaired by the Director of administration departments, meets once or twice a month. It relies on two sub-committees, one in charge of technological aspects of education, the other in charge of research. And so, vocational competences and information competences are well represented. It also calls on outside people and particularly former students.

A series of instrument panels allows a continuous monitoring of the various projects. Auckland University works closely with Australian universities (Monach in Melbourne, New south Wales in Sydney, Queensland) in order to cross their audit campaigns and their good practices.
Introduction

It was in 1950 that Hilo University was created, it then offered 4 year cycles in the fields of agriculture, arts and science.

In 1982, the library and the multimedia center were built. In the 90s, the setting up of a research center dedicated to astronomy marked the development of the campus with the concentration of fifteen telescopes on the Mana Kea mountain. In the beginning of the years 2000, the university gradually opened the department of Hawaiian languages (1998), marine science (2001) pharmacy and astronomy (2006) and of science and technologies (2010).

Although Hawaii University belongs to the American education system, that university is deeply marked by its Oceanian origin. 21% of students attending the university are of Hawaiian origin, 11% are Japanese, 7% are Filipino, 6% come from Pacific countries, 11% are half-cast and 28% of Caucasian origin. 69.2% live in Hawaii and 19.5% come from the United States.

University positioning

Hilo University had as a primary target to train the island’s youth after their HSC over a period of 2 to 4 years to prepare them for longer studies in Honolulu or on the American continent. From now on, the university is trying to retain students on their island by offering them more diversified and longer subjects leading to researcher careers. It also wants to show its capacity for innovation, as it knows new technologies will attract young students. Through its local specialties (astronomy, study of volcanoes, biodiversity), the university is attracting foreign students and has even reached its maximum quota (30%).

Strategy and digital governing

Since 2005, digital projects are coordinated by a committee led by the director for information systems, in close relation with representatives of consumers, of the Presidency and Administrative and Financial Management. It holds quarterly meetings. The lead is held by two working groups in charge of support departments and improving on-line services. Measuring performance is done by an annual consumer satisfaction enquiry and by a weekly request analysis.

Digital skills

The computing department has 14 university agents. It is made of three departments:

▶ An addition department, including a graphic service pole and a web development pole, of 4 students dedicated to graphic design;
▶ An “educational technology and services to consumers” department, including a helpdesk and an interactive television department employing over 50 part-time students.
▶ A “technology and support” department with 4 people and a student dedicated to supporting administrative departments.

The peculiarity of Hilo’s information department is the high involvement of students in services. Besides, the information department is not responsible for maintenance of supporting applications, which is developed and maintained by Hawaii’s university network. The originality of the running of the university is in the outsourcing and centralizing of support services in Hawaii.
The University of the South Pacific
Fiji and 12 countries

Introduction
Created in 1968 on a former air base, the University of the South Pacific gathers 14 campuses, three of which are located in Fiji and the rest spread in 12 island countries of the Pacific: Cook islands, Kiribati, Nauru, Samoa, Tokelau, Tuvalu, Marshall islands, Niue, Solomon islands, Tonga, Vanuatu.

The main resources of these countries are agriculture, fishing, forest and the sector of services.

The university has 19146 students, most of them coming from Fiji (62.4%), the Solomon islands (14.4%) and from Kiribati (6.4%). Plus 502 lecturer-researchers and 1502 administration staff.

University positioning
The university wishes to be an excellence practice place recognized throughout the Pacific area for the quality of its training, research and services provided. Its aim is also to provide an efficient education frame to meet the challenges of the countries, notably in terms of insularity, low economic diversity and climatic risks.

Partnership action is at the heart of its strategy, both with member countries but also with economic actors, to ease the development of competences in the younger generations.

For the 2010-2012 period, the university has set several targets: improvement of services and partnerships, organizational performance and training quality.

Strategy and digital governing
Passed at the leaders’ Forum in 2005, the priorities of digital strategy are: access, cost reduction, improvement of the bandwidth, investment and competence reinforcement.

The vice-chancellor himself is conducting the digital strategy. A committee meets twice a year and gathers various representatives of the university. All sorts of questions concerning digital technologies are presented to it and decisions are determined. The university executives committee arbitrates budget options.

In 2006, the university has requested a complete survey of operational and functional management of the information department. A complete reorganization has been carried out targeting on improving services to the users: maintenance, information, supports, project management.

Digital skills
At the University of the South Pacific, in Fiji, the computing department has 59 persons. It holds 4 departments: 1) customers service, including a helpdesk 2) system and network department, including telephony, satellite and physical infrastructure 3) system management department, including support and ERP management software development and associated services 4) project and regional development department.

In 1970, a center for remote education (CFDL) has been created. In 2004, almost 150 lectures on line are offered. Lectures are designed in complementary modes: face-to-face, on-line, printed, audio and video.

The new information computing center, (ICT Center) inaugurated in 2010, wants to become a pole of excellence for new technologies in the Pacific area. It guests the information department, the PAcCert (Pacific regional response team) and the PITA association (Pacific Islands Telecommunications Association).
Introduction

The university, which became autonomous in 1999, is dealt into 2 campuses and has 4 training departments, 1 doctoral school, 1 internal teaching masters training school, 3,000 students, 100 lecturers and searcher-lecturers, 100 administration staff, 5 research teams and a university library.

University positioning

The influence and development in the South Pacific are organized around four priorities:
1. A scientific cooperation and education policy carried out with foreign universities and research organizations (Australia, New Zealand, Fiji, Hawaii, Europe...);
2. An involvement in public regional cooperation policies of the State and of New Caledonia in the fields of training and research;
3. An encouragement to in and out mobility for lecturer-searchers and students;
4. A promotion of the teaching of French language and French speaking countries “francophony”.

Being part of the ten first French universities to have formalized their digital strategy, the university enforces its involvement by relying on digital resources.

Strategy and digital governing

The Caledonian university has been involving itself over several years in the field of digital development. The 2008-2011 four-year contract already set evolution works to facilitate uses, access to resources and development of communication tools. That involvement is expressed through six strategic lines available under 14 programs numbering about 50 technical and organizational projects:
1. Lead the UNC performance (targets and vocational performance indicators in conjunction with extended responsibility and competence of the universities);
2. Consolidate the information system integration, particularly the management system;
3. Facilitate the production and diffusion of digital resources for education and research;
4. Develop and simplify access to digital services, notably by setting up a On-line Collaborative and Working Space;
5. Lead and organize the information system (adapting project leadership methods and managing changes);
6. Adapt infrastructures to future needs (WAN, LAN and systems).

Implementation of all these programs would mean a total cost of 406M XPF (3.4M €).

Digital skills

The department of information systems (DSI) manages the digital policy of the establishment, determines and implements the information system (SI) designed for the strategy, leadership and management of the UNC’s missions: research and education.
The DSI is also in charge of setting up and managing the technical means needed for the information and communication system and planning their evolution within a master plan. And so, it ensures:
- digital support and provision of means in common for research teams;
- means management (software and hardware) of the information educational platforms intended for education and training as well as management of information rooms in free access to students;
- study, setting up and running of all management applications
- management and negotiation of establishment licenses for shared software;
- setting up, user assistance and micro-computing and office automation maintenance.
Points of comparison between universities

Geography
From a geographic point of view, universities are often spread in several locations. If the universities of Queensland, Auckland or New Caledonia have several campuses in the same town, concerning the University of the South Pacific, it is dealt between 12 countries in the area. That of Hilo is part of Hawaii universities network, which itself is within the American education system. Distance between campuses requires efficient communication networks.

Number of students
Structurally, they vary from one university to another. • The University of New Caledonia is the one whose numbers are the lowest. The number of students per lecturer is rather high. • The universities in Australia and New Zealand have almost 40000 students. • Hilo University (4000) is part of Hawaii establishment network that have over 52000 students. • The medium size University of the South Pacific gathers almost 19000 students of which 6315 on the main campus and 4148 in remote study.

Conducting changes
Information and communication technologies form a new field of activity for universities. Their deployment and their good uses rely firstly on the awareness and initiative of responsible leaders and then on the mobilization of the whole of the university teams.
With those new tools, universities are compelled to ask themselves essential questions again:
- strategic positioning;
- influence and reputation strategy regarding education and research;
- improvement of inner governing strategy (new roles and trades);
- inner and outer cooperation and sharing university strategy.
So conducting changes is part of the great targets of the universities.

Figures on 5 campuses in the Pacific area

<table>
<thead>
<tr>
<th></th>
<th>UHH, Hawai’i</th>
<th>USP, Fiji</th>
<th>UOA, New Zealand</th>
<th>QUT Queensland Australia</th>
<th>UNC New Caledonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>3 980</td>
<td>19 146</td>
<td>41 000</td>
<td>40 653</td>
<td>3 000</td>
</tr>
<tr>
<td>Lecturer searchers</td>
<td>297</td>
<td>562</td>
<td>3 500</td>
<td>1 800</td>
<td>100</td>
</tr>
<tr>
<td>Student / Lecturers</td>
<td>13</td>
<td>18,6</td>
<td>12</td>
<td>22,6</td>
<td>30</td>
</tr>
<tr>
<td>Personnel employed</td>
<td>428</td>
<td>1 502</td>
<td>6 500</td>
<td>4 065</td>
<td>100</td>
</tr>
</tbody>
</table>

The University of Auckland considers managing changes as a subject of its own that deserves being processed by a group that is not only made of technicians.
• At the Queensland University of technology, the person in charge of conducting the changes is under the information processing department.
• As for Hilo University, it is in hardship concerning changes management. In spite of trainings and individual coaching, results obtained are not convincing so far for the moment.
• The University of New Caledonia is in a dynamics of conducting changes lead by the general management, the Center for information processing resources (CRI) in collaboration with the education and administration community.
Strategic directions

All universities have a formal digital strategy and use digital technology as an action lever in various fields.

<table>
<thead>
<tr>
<th>Number of years of digital policy before 2011</th>
<th>UHH</th>
<th>USP</th>
<th>UOA</th>
<th>QUT</th>
<th>UNC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

Global funding and budgets dedicated to digital development

Depending on the size and funding of the universities, budgets are quite different.

Brought to the number of students, the budget of Hilo University is the highest; that of the University of the South Pacific is the lowest.

Budgets per head in Auckland University and the Queensland University of technology are alike. The University of Queensland is more dependent on public funding and, together with Fiji University, the one least soliciting students, (18% and 15.4%). The University of New Caledonia is also very dependent on public funding.

The universities of Hawaii and New Zealand have a comparable funding system, with 40% of revenues coming from public participation and 30% from student fees. Foreign students generally pay more: it is, for example, four times more expensive for foreign students at the University of the South Pacific.

Digital technology budget is an ever increasing part of the establishments’ funding plan.

Here, data are to be taken with great care as they often only represent direct investments dedicated to digital projects and not indirect or transverse budgets. For example, the University of Queensland finances a great part of new investments in infrastructures through specific funds included in the construction of new buildings budget.

Global annual funding of universities

<table>
<thead>
<tr>
<th></th>
<th>UHH, Hawai'i</th>
<th>USP, Fiji (2006)</th>
<th>UOA, New Zealand</th>
<th>QUT Queensland Australia</th>
<th>UNC New Caledonia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total budget</strong></td>
<td>75 M €</td>
<td>52 M €</td>
<td>570 M €</td>
<td>529 M €</td>
<td>31.6 M €</td>
</tr>
<tr>
<td></td>
<td>9 000 M Cfp</td>
<td>6240 M Cfp</td>
<td>68 400 M Cfp</td>
<td>63 480 M Cfp</td>
<td>3 792 M Cfp</td>
</tr>
<tr>
<td><strong>Budget per student</strong></td>
<td>18 845 €</td>
<td>5 017 €</td>
<td>13 900 €</td>
<td>13 016 €</td>
<td>10 432 €</td>
</tr>
<tr>
<td></td>
<td>2 261 400 Cfp</td>
<td>602 040 Cfp</td>
<td>1 668 000 Cfp</td>
<td>1 561 920 Cfp</td>
<td>1 251 840 Cfp</td>
</tr>
<tr>
<td><strong>Public contribution</strong></td>
<td>40%</td>
<td>37%</td>
<td>40%</td>
<td>60%</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Student fees</strong></td>
<td>30%</td>
<td>15.4%</td>
<td>30%</td>
<td>18%</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Partnerships

Partnerships are in the core of the strategy of influence and often also of the funding plan of universities. The best example is certainly the University of Queensland which takes part in the networking of the Asia-Pacific universities. Amongst those networks, one may quote:

- The CAUDIT (Australian council of university directors of information technologies) which gathers the South Pacific countries and Commonwealth research organizations. With 58 members, the CAUDIT is able to make itself heard by governments and the industry. It can also negotiate collective agreements and contributes to sharing ideas and experiences.
- The ACODE (Australian Council on Open remote and e-learning) for education.
- The CAUL (Council of Australian University Librarians) for the library.

The University of the South Pacific has numerous financial partnerships with Australia (financial 3 year agreement) and New Zealand (financial agreement and welcoming students). On July 6th 2010, the new building dedicated to new technologies was inaugurated by Fiji’s President and Japan’s ambassador. The aim of this center is to reduce the digital gap in the Pacific area. The university is also a member of some forums promoting open source. It plays a part in the Australian university quality agency, whilst being also a member of the CAUDIT.

Universities’ yearly digital development budget

<table>
<thead>
<tr>
<th></th>
<th>UHH, Hawai’i</th>
<th>USP, Fiji (2006)</th>
<th>UOA, New Zealand</th>
<th>QUT Queensland Australia</th>
<th>UNC New Caledonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total investment budget in IT</td>
<td>4 M € 480 M Cfp</td>
<td>265 353 € 31,8 M Cfp</td>
<td>4,55 à 8.5 M € 546 à 1 020 M Cfp</td>
<td>10 M € 1200 M Cfp</td>
<td>202 451 € 25,3 M Cfp</td>
</tr>
<tr>
<td>Total IT functioning budget</td>
<td>N/A</td>
<td>2,42 M € 290,4 M Cfp</td>
<td>17 M € 2 040 M Cfp</td>
<td>26,25 M € 3 150 M Cfp</td>
<td>212 000 € 25,4 M Cfp (1) + 98 320 € 11,8 M Cfp (2) soit 310 320 € 37,2 M Cfp (3)</td>
</tr>
<tr>
<td>Total IT budget/Global budget</td>
<td>N/A</td>
<td>4,6 %</td>
<td>5,5 % (4)</td>
<td>6,85 %</td>
<td>3,2 %</td>
</tr>
<tr>
<td>Number of staff attached to the IT</td>
<td>14</td>
<td>67</td>
<td>350</td>
<td>450</td>
<td>13</td>
</tr>
<tr>
<td>including helpdesk</td>
<td>3</td>
<td>20</td>
<td>50</td>
<td>N/A</td>
<td>3</td>
</tr>
</tbody>
</table>

(1) Is for total “functioning” of the extract of situation “edition -10.102010 -9h25m.pdf”
(2) Is for approximate salaries of 3 technicians, two taken on the general budget and one on IUFM (funded by the Southern Province) or 3x3 900 000 CFP
(3) Here, the functioning budget does not appear to be taking into account the whole of the salaries of the staff attached to the CRI
(4) The total digital budget announced is of 3 780 M Cfp (or 31.5 M)
The university of Hilo belongs to a network of establishments sharing their digital resources and mutualizing its support services. Eight people belong to this common base.

The University of New Caledonia’s ambition is to develop scientific cooperation projects on the long term around an issue of major interest for New Caledonia: mining, erosion, biodiversity, water management, purification, waste management, town and country planning, cultural and language diversity. The partnerships become cooperation framework agreements through France-Europe-Australia-New Zealand relations including lecturer-researchers and students mobility and research.

The university takes part in France and New Caledonia’s cooperation actions toward the University of the South Pacific (Summer universities with New Zealand and Australia), of Vanuatu (via DAEU access to university diploma) and by welcoming, each year, fifty or so students from that country on the Nouville campus. Finally, the university manages the IUFM antenna for Wallis and Futuna and welcomes a large number of students from that territory.

In a regional background featured by insularity, the speedy development of the use of digital tools is an essential element in the success of cooperation actions, notably in research.
The Queensland University

This university has an internet site and an intranet. The university is currently entirely reviewing its internet site, the management of which has passed onto the marketing department.

The Internet site of the university offers 8 main subjects:

1. **A propos:** profile and different campuses (Youtube video), training, the establishment’s policy, (on-line behaviour), administrative organization, (governing, units, quality, finance), services offered (transportation, accommodation, handicap)

2. **News:** an information portal for all communities

3. **New students:** all necessary information for new students

4. **Employment:** a search engine for part or full-time jobs in the establishment or by outside companies

5. **Teaching and learning:** a topic meant for lecturer-searchers that offers information on the quality of teaching, training for lecturers, a newsletter and following of careers

6. **Research:** introducing the teams and research work

7. **Student networks (alumni):** that promotes student projects, tutorial system

8. **International:** practical information for welcoming foreign students.

This Internet site has many interactive audio and video tools (search engines, newsletters), pdf downloadable documents. Some services on Iphone are promoted on the Internet site. It offers information mainly for the student community and searchers. The Queensland University also uses social media (web 2.0) such as Youtube, its Itune channel, Twitter or Flick. A recent initiative has let eight students produce a university blog in exchange for an Ipad.
Mainly targeted on students, the Internet site of the University of Hawaii offers 6 main topics

1. **New students**: a map of the campus, financial aids
2. **Current students**: access to the on-line library with an identifier
3. **Athletes**: sport is in the core of the promotion of the university
4. **Student networks**, friends and donations
5. **Life on the campus**
6. **The university and its management**

A network of webcams gives a view on the premises and the inside the buildings. Social networks (Facebook, Twitter, LinkedIn) and Youtube videos are available from the Internet site. Even if certain information can be accessed, the site ergonomics and appearance are not the best, let us say a little old. The services portal (MyUH) offers information concerning the establishment, and the possibility to open a personal mailbox (username@hawaii.sed and to register on line.

The University of the South Pacific

The University of the South Pacific has an Internet site in which each department may make additions and alterations on authorized pages. The main topics describe the university, its campuses, subjects and programs for students. Welcoming students is a strong axis of the Internet site. Other topics are meant for lecturers, searchers and also explain the role of the support services (of which the computer department).

One will notice that no link to social networks is posted on the homepage. A single RSS-feed is offered to receive the university’s live information.
The Auckland University

The Internet site of Auckland University proposes three entries:

1. through the internaut’s profile (student, parents, administration, companies);
2. through university services: introducing the establishment, programs, admission conditions, education and research, etc.);
3. various campus units: Arts Faculty, Business school, Education or Law Faculty, Library, etc.

A large place is given to information (news). The library on-line catalog is accessible on the site. Mobile applications give access to digital resources directly by telephone. The RSS leads also make it possible to access the library’s latest buys.

The University of New Caledonia

The internet portal of the University of New Caledonia has several sections answering student needs:

1. A propos de l’UNC: introduction, governing and lead, components, research, campus, digital development, library, links to companies.
2. Training: offers and catalogs, getting around, registering, types (doctoral, for masters, continuing and distance education)
3. Admissions: future students, current students, international students
4. Student space: trainings, studies, digital services, student life
5. Research: politics, science, laboratory, administration, team, doctoral school, expertise and valorization, research pole, partnerships and programs
6. International: position and strategy, international agreements, francophony, mobility

Digital development is a well-represented theme, since one finds information on wifi access and CRI support, on-line services such as virtual offices and campuses, or again documentary and scientific portals. Besides, the RSS leads, a Facebook access are possible from the homepage.
Administration information systems

administration and financial management

For their financial management, universities use different commercial solutions or open source: PeopleSoft (Auckland), Oracle (Queensland), Banner from Sungard (University of the South Pacific), Sakai Open Source software (Hawaii), the Open source suite software of the "cocktail" university consortium (New Caledonia).

property holdings monitoring

To monitor their property holdings, universities must hold annual inventories and manage classroom bookings through specialized applications.

human resources monitoring

Human resources monitoring also necessitates occupational software to automatize the on-line process of candidacy and recruiting (Talent 2 software used at Queensland). At the Fiji University, staff may access their pay-slip on-line, request leaves, update their personal information, etc., thanks to Banner software.

solution interoperability

- Auckland University has set up an information system communicating for management, pedagogy and research.
- The University of the South Pacific has chosen an information system gathering student management, administrative and financial management and that of human resources. It has developed web applications allowing to pick from the central data base to produce reports, for example.
- Hilo University has also designed its information system on the Laulima collaborative platform, developed partly on the Internet through open source Sakai software. It uses network management applications of the universities of Hawaii network.

security

In all the universities, security is ensured through antivirus solutions and firewalls. They have determined policies of usernames management and passwords. Safeguards are operated regularly and when possible externally.

In the field of information system security, the University of New Caledonia is submitted to the RENATER* charter. Like all universities, it obeys regulatory dispositions. However, with the multiplication of uses of digital technology and the will to have reliable, sometime nominative, information (student monitoring, for example) the University of New Caledonia will include a higher vigilance on its information system security and the issue of the "ICT correspondent" to its digital technology governing mode.

* RENATER: telecommunication network for technology, education and research deployed in the 90s. www.renater.fr
Accessibility to telecommunication networks is a sine qua non condition for the development of the uses of digital development in universities. However, they don’t all have the same level or the same access to infrastructures quality.

- Covering 12 island countries, the University of the South Pacific is bound by the USPnet satellite network limitations. Each day, 6 to 12 hours of conferences and videos are organized with a consistent care for stability and time zones.

- The four Queensland campuses are connected to the AARNet optical network (Australian academic and Research Network). For the time being, only 30% of its capacities are used.

- The Hawaii university has had the opportunity to set up a system of 80,000 underground cables in all the university with thousands of optical fibers. That investment enables the university to guarantee the uses of its network for the next ten years.

- The University of New Caledonia is connected to the French research telecommunications network (Renater) that also covers the IRD, the IUFM the vice-rectorate.
### Environmental buildings

New technologies are high energy consumers, but can also make it possible to save some, thanks to monitoring and survey sensors.

- Hilo University integrates energy optimization for lighting and air conditioning in all new buildings. 100 wifi modems cover the buildings.
- Auckland University optimizes insulation and its consumption thanks to sensors placed in the buildings.
- Queensland University, as for her, seeks to reduce energy expenses on its servers. It also bears particular attention on equipment purchase (green-IT) in order to select the one offering the highest energetic efficiency.
- The ICT center in University of the South Pacific has a rainwater salvage system for toilets.

### Fixed and mobile equipment

The rapid growth of portable equipment in student populations compels universities to adapt their infrastructures and offers new online services. Indeed, more power points and wifi terminals are needed.

- The Queensland University has taken the opportunity of increasing student portable uses to revisit its premises layout and facilitate the use of portables. Numerous students are now using their computers and even their mobiles on the campus.
- At Auckland University, 20% of students use their portable computers on the campus, in spite of a good wifi coverage and a sufficient number of power points. They prefer using computer sets and laboratories. So the university is trying to better organize access to public computers and their time of use.
- At Hawaii, power points are numerous, but few students use their portable.
- For students with limited financial means, the universities (like that of Fiji) keep improving the number of computers per student. The 20 wireless terminals of Laucala campus cover all administration buildings and lecture rooms, but university residence halls are not served. Outside, several life areas are covered by wireless accesses.
- At the University of New Caledonia, all students, teacher-searchers and administrative staff have access to wireless networks from the following sites:
  - **Nouville Banian**: hall, lecture halls, library, council room, F building, fare & vicinities, S building and vicinities (patio), PCEM, university and international residence halls (only common areas)
  - **Nouville workshops**: Hall and adjacent rooms (A5 & A6 notably), vicinity of LGPMC
  - **Magenta**: Hall and adjacent rooms (of which the 109), patio, library, cafeteria, accommodation rooms.

### Maintenance

Most often, universities externalize the maintenance of their machines which generally have a lifetime between three and five years. 

### Key figures

<table>
<thead>
<tr>
<th></th>
<th>UHH, Hawai’i</th>
<th>USP, Fiji</th>
<th>UOA, New Zealand</th>
<th>QUT Queensland Australia</th>
<th>UNC New Caledonia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer stock</td>
<td>N/A</td>
<td>2,300</td>
<td>17,000 (8000 free access)</td>
<td>12,114</td>
<td>400</td>
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<td>Number of servers</td>
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<td>20</td>
<td>N/A</td>
<td>425 (+1017 virtual)</td>
<td>N/A</td>
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<td>1 / 5</td>
<td>1 / 5</td>
<td>1 / 5.8</td>
<td>1 / 15</td>
</tr>
<tr>
<td>Number of public access terminals</td>
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<td>20*</td>
<td>N/A</td>
<td>600</td>
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<td>0.003</td>
<td>N/A</td>
<td>0.015</td>
<td>N/A</td>
</tr>
</tbody>
</table>

* Laucala campus only.
Support to apprenticeship and education

All universities have a digital apprenticeship environment.

- Hilo University uses Laulima, developed in open-source (Sakai)
- The Universities of the South Pacific and Auckland use Moodle solution with applications such as discussion forums, the document management system, work returning, TurnIt In tool which checks plagiarism.
- Queensland University uses Blackboard. Most used functions are on-line work returning, quizzes and messaging.
- The virtual office of the University of New Caledonia makes it possible for persons and working groups to get organized, communicate and collaborate. It is formed with several tools (messaging, documents, address book, agenda, etc.). Each student promises to respect (signature at registration) terms stipulated in the good use of digital resources Charter. Students are warned that in case of violation of that charter, they risk disciplinary sanctions that can lead to cancellation of their personal account.

Digital dimensions of student apprenticeship environment

Informal spaces
- Houses, laboratories, libraries, cafeteria

Formal spaces
- Classrooms lecture theatres

Library
- On-line services, data base

Lecture sites
- On-line and classroom training
- Lecture equipment
- Quiz
- Assessment
- Search engines

Cooperation spaces
- Discussion forums
- File sharing
- Agenda sharing
- Warning mechanisms
- Wiki

Personal spaces
- Academic file
- File archives
- Single calendar
- Web space
- E-portfolio
- RSS lead

Personal communication tools
- Discussion forums
- File sharing
- Shared agendas
- Warning mechanisms
- Wiki
- Mailbox
- Chat (msn, skype)
- Facebook page, Twitter, Linkedin
On-line courses
Digital technology is a genuine growth relay for Hawaii's Hilo University, which sees in it a way to offer trainings to isolate or remote populations. With almost 80 on-line courses offered (cooking, arts, sports), the university commercializes these contents with an estimated return of 390 M Cfp (3 M). The remote lecture development has in fact led to an increase in registrations recorded by the university in the last few years.

The University of the South Pacific is currently developing that offer. For the time being, 30 to 40 courses in Law are available on line. However, instead of developing its entire content, the USP seeks to acquire it. Thus, a mission to India was organized in October 2010 to assess the possibility of purchasing pedagogic contents. Science courses would seem to better comply than other subjects.

In New Caledonia, the virtual campus, (based on the Dokéos solution), is a digital education platform for students to consult resources set on line by the lecturers.

On-line examination
Universities are reluctant to organize on-line examinations, as it is difficult to identify persons remotely and avoid cheating.
- The University of the South Pacific has tried doing it once, but a network cut occasioned loss of data. The experiment was never renewed.
- The universities of Auckland and Queensland do not organize formal on-line examinations.
- As for Hilo University, it proposes on-line examinations, either in lecture rooms or at home. The system used for creating on-line examinations is quite easy. A time limit for answering the examination may also be set to avoid eventual student consultation or extended searches.
- At the University of New Caledonia, the theoretical part of C2i (Digital technology and Internet implemented at Licence and Master 2 levels) is done on line.

Creating contents
Most lecturers use Powerpoint presentations during their lectures.
- The University of Hawaii has trained lecturers in digital technology tools, thus allowing 15% of them already to create diversified on-line contents (slide shows, podcast, videos, etc.)
- At Auckland University, 20% of lecturers develop on-line contents.
- At the University of the South Pacific, lecturers consider it is not part of their activities, since a team is available for them to create on-line courses.
- At the Queensland University, professors may get helped by the e-learning department to develop their on-line contents.
- At the University of New Caledonia, almost all classrooms are equipped with fixed video projectors, so allowing professors to show their presentations (ppt, pictures, videos).

Training lecturers
All universities offer their lecturers trainings to develop contents on line and use the apprenticeship digital environments. However, all teachers are not inclined to appropriate new technologies. Besides the age of the professor, the original discipline also encourages adoption or not of technology in the teacher’s pedagogy.
Digital technology in Research

Digital strategy for research

The digital tools are new resources for research activities.

- The University of Auckland allocates human and financial resources needed for the processing and stowing of scientific data. The stakes are to set up for a rational purchase policy and to mutualize stowing capacities. The university is in relation with several other universities to hold a watch in that domain. For that reason, a proposition for the creation of an e-research center in Auckland is currently being considered. 3,000 theses are digitized.
- The University of Queensland makes digital technology both a subject and a tool for research. Access to data bases, calculation center and visualization and handling scientific data are in the core of the process. Searchers use a virtual research environment. Scientific books and works digitization has also an important part.
- The strategic plan of the computer department of the University of the Pacific mentions the will to "enrich the research environment by offering an access to modern and innovating technologies and an unlimited access to academic research information".
- The University of Hilo relies on digital tools for access to data bases and sharing search results.
- At the University of New Caledonia, amongst 6 strategic lines stands the aim to "promote the production and broadcast of digital resources for education and research". In September 2009, 254 of the 1,700 searchers of the University of Queensland answered a poll to know their use of technologies in researching.

Survey on the digital uses of the researchers at the Queensland University - 2009

The responders say they are competent in the practice of mail, calendar and navigation on web. The knowledge of video, voice on IP, instant messaging, wikies or video conference is rather good, but already requires a certain level of practice. Collaborative tools (blogs, social networks) are less used by responders who say they are untrained and uninformed.

Training

The University of Hilo and that of the South Pacific stretch that researchers are often in trouble questioning themselves and training on digital technology. Still, the University of Auckland offers these students a compulsory training. Thus, the new generations use digital tools but older ones don’t forcibly wish to make their practices change.

At the university of the South Pacific, computer science training has recently become an integral part of the school course. Exceptional trainings are also offered.

The Universities of Hawaii and Auckland have developed a same strategy to improve the rate of use of digital technologies by lecturers: they now only recruit researchers and lecturers with a minimum experience.

Key figures

<table>
<thead>
<tr>
<th></th>
<th>UHH</th>
<th>USP</th>
<th>UOA</th>
<th>QUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of accessible data bases</td>
<td>N/A</td>
<td>83</td>
<td>N/A</td>
<td>700</td>
</tr>
<tr>
<td>Number of theses –dissertations on line</td>
<td>N/A</td>
<td>212</td>
<td>3,000</td>
<td>2,833</td>
</tr>
</tbody>
</table>
Modernizing work spaces

- At Queensland University, lecture rooms have a modern look with windows instead of walls and colored furniture.
- At the University of the South Pacific, the video conference room plays a major part in setting up an inter-universities network. That room is also rented to private organizations.
- At Hilo, lecture rooms are fitted with computers, screens, an intelligent blackboard on which documents can be annotated live, an interphone to call the technical department. On each table, there are power points and Internet. At the back of the lecture rooms, a mini recording studio makes it possible to film the lectures. The interactive television idea was born on the campus of Mānoa with an objective to broadcast lectures simultaneously on all the campuses in Hawaii. All the shooting work, sound mixing is done by part-time students. Altogether, 50 students work for interactive television under the supervision of a person in charge.

Registration

In all universities, registration may be performed on-line.

- At Queensland, and in most Australian universities, the registration process is managed by an independent organization. It makes a selection depending on the students’ choice and recruiting criteria. All that process is performed completely on line. Any new student automatically has a personal account and may choose his lectures on line.
- Also, registrations are performed by the internet at the University of the South Pacific. Students may print their invoice and settle it in a partner bank.
- At Hilo, registrations are also performed entirely on line.
- The on-line registration system at Auckland University isn’t appreciated by students. Consequently, a new application should be initiated.

Multiservice card

Multiservice cards are first identification cards that give access to university services (library, laboratory rooms, reprography) and give advantages (reductions). Cards are given free to students. The university must invest in setting up the system, maintaining it and quality service.

- South Pacific and Auckland universities offer cards giving access to the library and photocopiers. Auckland University wishes to use that card to manage access to the rooms in self-service and university rooms. That project is not yet a priority.
- In Queensland University, a smart card offers the same services, with the particularity of giving access to some lecture rooms. The university has considered collaborating with the government so the card could be used by students on public transportation. But the government’s demands were too high and the university didn’t carry out the project.
- At Hilo, the card gives the right, not only to the services of the library and photocopiers, but also allows paying some services. It is the library staff who is in charge of giving students cards.
- The “multi-service card” project of the University of New Caledonia should be designed to promote access to services generally.

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<th>USP,</th>
<th>UOA,</th>
<th>QUT</th>
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</thead>
<tbody>
<tr>
<td>Cost of the multiservice card</td>
<td>6 €</td>
<td>10 €</td>
<td>N/A</td>
<td>1,75 €</td>
</tr>
<tr>
<td></td>
<td>720 Cfp</td>
<td>1200 Cfp</td>
<td></td>
<td>210 Cfp</td>
</tr>
</tbody>
</table>
Access to digital technology and incentive to equipment acquisition

All universities are thinking about making available a free computer equipment and rely on price cuts from providers to students. None of the four universities surveyed has set up any incentive measure for equipment.

In New Caledonia, “Student Portable Microcomputer” operation gives Caledonian apprentices and students the opportunity to get equipped at lower cost with quality portable micro-computers. Several partners have joined in this object: retailers propose attractive prices, banks offer profitable financing conditions, the government makes the purchase totally tax-free. Free accesses to the internet and Wi-fi are also offered by establishments with the help of the Telecommunication and Post Office. On its April 2011 session, the “MIPE for everybody” commission gave 3 helps of 50000 F to students with a scholarship to buy a portable computer.

Former students

Hilo, Auckland and Queensland students have a space dedicated to the Internet site of the university where they may record their personal information, search for former students and come into contact with them. They can publish and consult employment offers. They can also download magazines, subscribe to a newsletter and make donations. Special offers and reductions are given to former students.

The University of the South Pacific is currently deploying a space dedicated to former students, called “Alumni”

Professional integration

Relationships with professional worlds are privileged by universities in order to promote practical training and career perspectives for their students.

- Queensland University offers the “carrier up” service. Companies can deposit online job offers, and registered students can consult them. That service also gives access to much information about employment, selection criteria, cover letters, etc. There are also letter and CV models available online adapted to each section. Recently, the university has also been offering a portfolio online service which allows students to post works and send them to persons giving them access. Portfolios are accessible to students for a period of time after obtaining their diploma.
- The University of the South Pacific also has a portfolio service online. However, it has no professional integration department. Job advertisements are accessible from the local newspaper.
- Auckland University doesn’t wish to advertise jobs on its Internet site, not to come in competition with recruiting firms.
- The University of New Caledonia operates, through its professional integration help bureau (BAIP), tools and actions to help student integration: vocational training charter, “Trade campus”, graduates observatory…
Modernizing libraries

Queensland University has refurbished its library. Furniture has been chosen to be easily moved around by students and facilitate group work. Computing equipment is available to students: flat screens, rooms, etc. Library attendance has risen greatly since.

On-line library

- Auckland University has chosen to publish as many documents as possible online. It has paying copyright agreements for books as well as audio and video recordings. It manages the purchase of digital books and newspapers. All thesis documents are digitalized.
- Queensland University is on the same line. It gives access to on-line books and magazines, students’ thesis and searchers works. The university is resolutely engaged on the way to free information access.
- As for the University of the South Pacific, it gives its students choice to publish their works (or not) in an electronic version when they deposit their dissertations at the library. Student thesis are the only documents currently published on line on account of the law on copyright prevailing in the country.
- Hilo University has set up a time credit and equipment provision system for lecturers setting on line the contents they have created. Software comes to help all stages of the process, lecture recording and indexation, stowing and archiving. Digital resources are distributed to library members only. The library subscribes electronic publications.
- The University of New Caledonia gives access to digital and documentary resources to any student and staff, through authentication and creation of a personal account. That authentication gives access to the virtual office, virtual campus and equipment allowing resources search on line. Storage magazine is an on-line archiving system of academic publications dedicated to arts, science, language and literature.
Share

- **Auckland University** shares its contents with national associations (Digital NZ and Kiwi Research Information Service, notably), which allows, in return, to benefit from data from the other universities.
- **Queensland University** is part of a consortium of 45 institutions associated to benefit from a high purchase power. However, institutions don’t share their resources. It also takes part in another consortium in charge of indicating document availability in a wide library network.
- **The University of the South Pacific** is a member of the GreenStone User Group, based in Auckland. That group provides a platform for resources digitalizing.
- **Hilo University** mainly shares its resources with Manoa University, in the frame of Hawaii’s universities network.
- **The University of New Caledonia** is testing access to the Couperin Cyberlibris library, a reference for over 30 universities in France, used by several thousand subscribers (librarians, professors, students, searchers…). That offer, distributed in the frame of the Couperin consortium is dealt in 3 collections: economics and management, human and social science, and science.

Collecting, digitalizing, indexing, archiving

**Auckland University** is very dynamic as for collecting, digitalizing and archiving digital resources. It has a department in charge of scanning, indexing, stowing and classifying contents. Videos from the digital cameras located in the university rooms are examined prior to distribution. Those works demand important manpower and so limits the volume of resources to be distributed.

At **Hilo**, the library is in the heart of the digital strategy. Lauilma software assists the staff at all stages of resource digitalizing: recording lectures, indexing, stowing, archiving. Audio and video means are available to lecturers who use multimedia rooms fitted with digital cameras, lighting and professional sound-mixing tables. It is the students who do the recording and editing work. As for the digital technology department, it assists lecturers in all the production stages of new supports. Not like in Auckland, no department controls the contents developed by lecturers, who are thus responsible for what they distribute.

**Queensland’s** library is part of the information technologies department. It has 700 data bases, 100 000 e-Book and 88 000 electronic magazines. It is also in charge of setting on line the resources produced by the university’s lecturers, which means almost 25,000 documents, 13,000 texts, 500,000 articles. There is also a documentary base (6,281 items) dedicated to setting up lectures, quite useful for lecturers.

At the **University of the South Pacific**, the digital library project is in its early stages. A limited number of documents is downloadable on line, on account of the yet unsolved matter of copyright.

The documentary portal accessible from the Internet site of the **University of New Caledonia** already offers magazines in human and social science (revues.org), electronic books that are automatically returned after two weeks, 3,000 international, regional and local press resources.
Resources distribution

The distribution of contents (catalog, books, papers and magazines) of the University of Auckland is accessible to all members of the library (over 50,000 persons).

The same goes for Hilo University where document distribution is limited to library members who promise, at their registration, not to spread the information outside, so as to respect copyrights.

Intellectual property

The law on intellectual property protection in Fiji and Australia is very constraining. Queensland University pays an annual duty (840 Million Cfp, or 7M€) to the organization in charge of re-distribution to authors.

In Fiji, a limited number of documents may be published on line.

In Auckland, the purpose is to keep the intellectual property on all documents produced by the university. For instance, the university has the rights on all digital lecture supports. To do so, it monitors all stages of production defining a specific page setting, monitoring the contents of lecture supports and ensuring distribution. That means a teacher leaving the university must request permission for the use of his support in another establishment. In any case, he will have to work on the form and content so the document isn’t identical. That policy is quite particular to Auckland University.

Hawaii University is the most liberal concerning copyrights: digital contents creators are both free and responsible for their publications. The university exerts no control on the contents and traffic, which frees it from any liability. Even if the university has never been sued, it has happened that it had to withdraw some contents from its Internet site for copyright reasons.

Benefits

The universities of Auckland and Queensland have underlined the fact that digital technology made possible saving notable shelf space in the library. Besides, at Queensland, easy access to pedagogic spaces and academic works helps promote the university.

Key figures

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<thead>
<tr>
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<th>UHH</th>
<th>USP</th>
<th>UOA</th>
<th>QUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of documents available on line</td>
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<td>440 000</td>
<td>226 000</td>
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<tr>
<td>Number of staff of the digital library</td>
<td>6</td>
<td>1</td>
<td>220</td>
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</tr>
</tbody>
</table>
Conclusion

The comparative survey well shows new technologies are considered as essential tools to sustain the establishments’ strategic positioning and generally integrate the processes of leading the changes.

**Conditions for success go through mobilizing actors at all levels.**

Leading teams are well aware of the part played by technologies, and thus create strategic pilot committees associating information technology departments and the whole of the educational and administration team.

**So the master plans are proofs of the universities’ involvement.** Those documents are in fact downloadable on the Internet site of several universities (Queensland, New Caledonia, for instance). Action projects must then be planned in space and time, but most of all in a spirit of cooperation. Budgets dedicated to information system urbanization are brought to take a major place in multi-annual funding plans.

**Sensitizing and training actors to new digital practices is in the heart of the process.** Digital technology is a new tool that forces to re-consider organizational models, ways to communicate and to learn. Difficulties are stronger for professionals used to traditional tools. Opposite, younger generations are smarter at manipulating computers and the Internet.

It has thus become important to integrate digital technology in pedagogy and educational practices. And so, younger generations will be better prepared for their future professional life.

**Designing physical spaces, telecommunication networks of access conditions, as well as equipment (computer, phone) contribute to the universities’ modern image.** The influence and image of the universities are now visible through the prism of new technologies. The universities’ Internet sites are becoming one of the main entrance gates for the new local or foreign student; or for actors in professional life.

**Support services** (management, hot line, security, ICT correspondent) are taking a new place in the establishments’ inner organization. These new trades are to be absolutely reckoned with for the good operation and appropriation of digital tools by lecturers, notably.

Finally, **digital development is opening new perspectives** for lecturers, searchers and libraries. It also allows offering students new ways of learning, exchanging and inventing.

The setting of digital projects (ex: university TV) leaded by students, is part of this innovative and constructive dynamic.

**For another survey, it would be interesting to follow in time the new digital dynamics, notably about:**

- production of on-line contents and services (quantity, quality);
- development of services and applications in mobile situation;
- help to development of innovating digital projects: multi-media productions, for instance (university TV, blog, University Channel...);
- development of digital and multimedia abilities of the different communities, and most of all, those of the lecturers and pupils.
Thanks

Sincere thanks go to the persons and their teams who welcomed consultants.

Miles Fordyce, director of the computing department (DSI), Auckland University.

Bill Chen, director of the computing department and remote training, University of Hawaii.

Robert Chi, in charge of education technologies and users service, University of Hawaii.

Bibhya Nand Sharma, Professor and associate Dean, University of Science, Technology and Environment, University of Fiji.

Wendy Jones, manager of the project portfolio management bureau, Queensland University.

Tom Cochrane, Vice-Chancellor, Queensland University.

Editing committee

This publication has been made by the Digital Observatory of New Caledonia

Chief publisher: Paola Logli, President of the Digital Observatory of New Caledonia

Edition: Charlotte Ullmann, director of the Digital Observatory of New Caledonia

Second-reading and graphic coordination: Léna Hoffmann, Consultant

Graphic design: Agence Eudalia

Survey sponsor, contributors, second-readers:

- Jean Marc Boyer, President of the University of New Caledonia
- Touraivane, Digital strategy representative of the University of New Caledonia
- Fabien Ducasse, territorial director of the Caisse des Dépôts Investment organization.

Ifingo consultants having worked on the Benchmark:

- Alain Etchegaray for Hilo and Auckland Universities,
- Véronique Chamberland for Fiji and Brisbane Universities,
- Xavier Sevin as documents second reader and general project leader.