

# Broadband and the Impact on Education

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July 12, 2012

VISIONARY / PASSIONATE / DYNAMIC  
[CONNECT: UOW](#)



## Overview

- The challenge for education in a broadband world
- Global Experiences – what can the other countries teach us?
- Future Directions – How will NBN impact course delivery, content delivery, learning environments and teaching challenges?
  - > Five Case Studies



# The University of Wollongong



UOW  
Locations  
around the  
globe



## UOW Overview

**Established** 1951  
**Total graduates** 108,000

- **Campuses**
  - Wollongong
  - Sydney Business School
  - Innovation Campus (iC)
  - UOW Batemans Bay, UOW Bega, UOW Southern Sydney, and UOW Southern Highlands
- **Offshore teaching operations:**
  - Overseas campus (UOWD) in Dubai, United Arab Emirates
  - Singapore: SIM
  - Hong Kong
  - Malaysia: INTI Laureate Group
  - People's Republic of China



## Student Experience Central at UOW

- Teaching in UOW's DNA
- Student Centric Learning core
- Excellence in Teaching & Learning
- Best Careers Service in Australia



## Digital Campus: The Challenge

- How to maintain the **quality** of **student engagement** - in a digitally connected world?
- University is much more than just the course work, how do you cultivate **innovation** online ?



Digital Campus is Content, Collaboration, Contact,  
Friendships, Ideas, Study Groups, Clubs,  
Engagement

# Global Experience



## Digital connectivity and Learning

- International Studies show online learning coupled with high-speed broadband:
  - substantially **reduces the time** required to learn a subject – by 50%<sup>1</sup>
  - greatly **increasing course completion** rates (99% compared to 41% for more traditional method )<sup>1</sup>
  - **increase standardised assessment** average scores<sup>2</sup>
  - **improves classroom results** in national tests<sup>3</sup>



**Source:** 1. Carnegie Mellon Open University, Carter, 2009 , 2. Federal Communications Commission, *National Broadband plan: Connecting America*, March 2010, 3. European Commission, *The ICT Impact Report A review of studies of ICT impact on schools in Europe*, December 2006

## Digital connectivity and Learning (cont.)

- UK research showed students online attained a **two-grade increase** in General Certificate of Secondary Education <sup>1</sup>
- Some of the best results obtained with children and parents previously unengaged in education<sup>1</sup>
- European Union study found **broadband access in classrooms** results in significant improvements in pupils' performance in national tests taken at age 16<sup>2</sup>



Source: 1. GSCE, Williams, Feb 2011, 2. European Commission, *The ICT Impact Report A review of studies of ICT impact on schools in Europe*, December 2006

## Digital connectivity and Teaching

- eLearning in Australian workplaces and schools is integral to teaching – ‘**how**’ not ‘**if**’<sup>1</sup>
- Chronic shortage of specialised teachers in Australia, especially in Maths, Science, English and LOTE <sup>2</sup>
- Chronic difficulty of regional and rural schools to attract staff <sup>2</sup>
- Shortages of staff force schools to use teachers to teach outside their field of expertise or to reduce curriculum <sup>2</sup>



Source: 1. Dept. of Education, October 2010, 2. Dept. of Education, November 2011,

## Digital connectivity and the 'Fair Go'

- First national assessment of digital literacy revealed strong associated with socio-economic factors; **indigenous students and pupils from remote locations have lower levels of digital literacy.** <sup>1</sup>
- **Internet** access directly **correlates to better performance** in core subjects.<sup>1</sup>
- Of Aust children that have at least 1 chronic health condition, **41%** are unable to physically attend school from 1 time to another each year. <sup>1</sup>
- **Only 56.3%** students in rural/remote areas yrs 7-12 will complete their education at NSW Govt schools, vs. **84%** in urban areas. <sup>2</sup>
- 15yo in rural schools are **1.5 years behind** peers in metro schools. <sup>2</sup>
- **85%** of children at home use the internet for educational purposes. <sup>3</sup>

Source: 1. The Smith Family, 2008, 'Digital Literacy: Connecting Communities through Technology', 2. PISA, 2009, 3. ABS 2009, HH use of internet

## Science Exchange

- Revolutionising the *practice* of research collaboration





# Innovation & Economic Development

- Australia Fastest Growing Industries in the Coming Decade

| Industry                         | 2011 Rev (\$M) | 2020 Rev (Est) | Growth % | Use Broadband |
|----------------------------------|----------------|----------------|----------|---------------|
| Video Games                      | 3732           | 7988           | 114      | ✓             |
| Security Vehicles                | 13189          | 28205          | 113.8    |               |
| Stock Exchange Registry Services | 11369          | 23486          | 106.6    | ✓             |
| Internet Service Providers       | 6100           | 11944          | 95.8     | ✓             |
| <b>Online Education</b>          | 4155           | 7967           | 91.8     | ✓             |
| Investment Banking               | 9183           | 16282          | 77.3     | ✓             |
| Uranium Mining                   | 1128           | 2000           | 77.3     |               |
| Online Shopping                  | 21344          | 36903          | 72.9     | ✓             |

Source: Smart Investor May 2011 – IBIS World

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## Future Directions

### Five Case Studies from UOW

- **e-Supervision** for School of Psychology
- **Medical School** – teaching bedside manners over broadband
- **Maths ALIVE** – addressing the shortage of Maths Teachers in rural and remote Australia
- **Convergent Journalism** – putting the tools of news making in the hands of the community
- **iAccelerate** – accelerating innovation in the Illawarra



**UOW to deepen its social inclusion and participation initiatives in a region under stress**



## Case One: e-Supervision

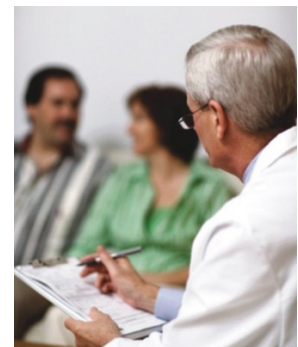
- ***e-Supervision***: An innovation to improve access to and enhance outcomes for professional psychology training in Australia



School of Psychology

## e-Supervision Background:

- Psychologists: 3<sup>rd</sup> largest health profession (N=29000)
- **Supervised field practice crucial** component in psychology training - access to supervisors major problem
- **Rural and remote Australia** have need for services and placement opportunities whereas clinical expertise **congregate in urban areas**
- UOW initiative connects trainees in rural areas to supervisors
- The National Broadband Network is the enabling technology for this initiative



School of Psychology



## e-Supervision Program:

- Support individual and group supervision of psychologists
- Expert supervisor guidance anywhere in Australia
  - Individuals in multiple rural/remote locations can be supervised and learn from each other simultaneously
- Payoff includes better dissemination of experience, access to expertise and reduced costs
- Consistent with the goals of the National Digital Economy Strategy, in particular:
  - Improved health and aged care
  - Greater digital engagement in rural Australia
- Consistent with priority to increase clinical practicum opportunities for psychology (HWA)



School of Psychology



HWA – Health Workforce Australia

## Case Two: Telehealth

### Telehealth skills training and implementation

#### The Project

- Development and deployment of a modular Telehealth consulting *skills* package, for specialists, GPs and GSM medical students for Telehealth consulting utilising the NBN
- Development of an *implementation and support* package for PC-based desk-top Telehealth consultations utilising the NBN



UOW to deepen its social inclusion and participation initiatives in a region under stress



# Telehealth skills training and implementation:

## Background

- UOW's GSM aims to produce practitioners capable and motivated to **practice in rural, remote and regional Australia**
- In keeping with major Government policies and initiatives to **reduce health inequalities**
- Both a cause and effect of an inadequate rural medical workforce is **lack of timely access to specialist advice**
- Real-time video-conferencing of consultations between rural GPs, patients and specialists shows promise in assisting, but is hampered by **bandwidth** constraints and **implementation** barriers



# Telehealth skills training and implementation:

## The project

- Feasibility study followed by a 12 month deployment trial in NBN early roll-out sites in the Illawarra
- Training for Phase 3 medical students, GP practices (up to six) and Specialists involved in the trial
- Focus on aged care, mental health, dermatology and office ultrasound related consultations



# Telehealth skills training and implementation:

## Outcomes

- Deployable Telehealth skills package that can be rolled-out across all GSM sites synchronously with the NBN roll-out
- Improved access to specialist advice for rural GPs and patients



## Case Three: Maths ALIVE

Maths **ALIVE**: **A**ccess  
**L**ive  
**I**nteractive  
**V**irtual  
**E**nvironments



## Why Mathematics?

- Essential for an IT economy
  - Shortage of Maths teachers especially in rural and regional Australia
- “Teaching the teachers”
  - Improve the education of our children
- The plan is to offer
  - Two subjects for primary educators—to improve skills and confidence
  - Also for a **general audience** such as parents
  - Two subjects for secondary maths educators



## Case Four: Media Hub

NBN-enabled UOW Comm**UNITY** Media Hub



- **NBN-Enabled**
- Unimpeded
- Multi-platform
- Multi-directional
- Community Connection
- Teaching & Learning

## **NBN-enabled UOW CommUNITY**

### **Media Hub:**

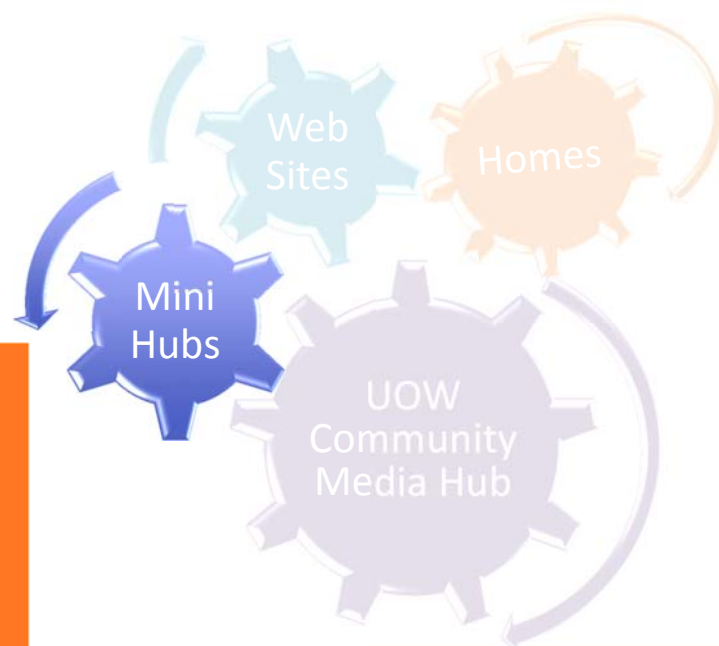


#### **the INFRASTRUCTURE**

- CMH Central
- NBN-enabled teaching & learning space
- Convergent newsroom
- Video production studio
- Audio production studios
- Video/audio edit suites

## **NBN-enabled UOW CommUNITY**

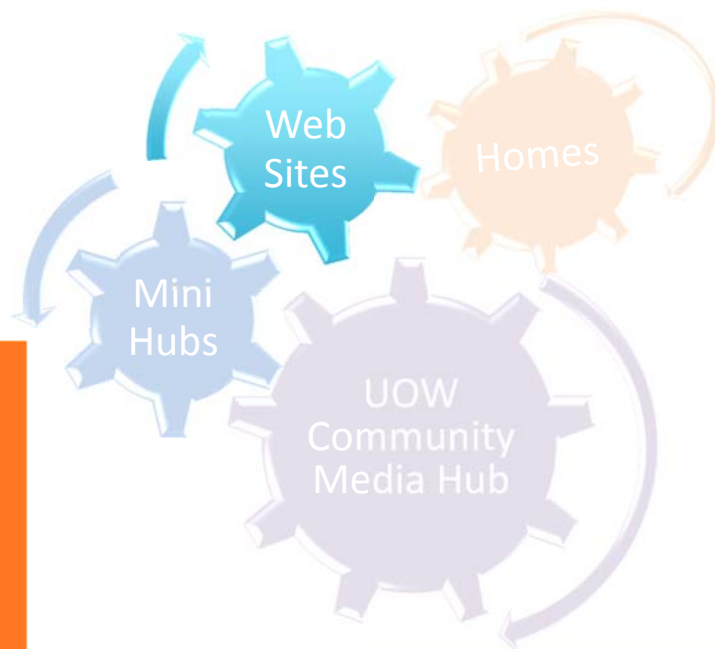
### **Media Hub:**



#### **the INFRASTRUCTURE**

- Kiama Municipal Council & Library
- Kiama High School
- UOW iAccelerate (iC Campus)
- Mini video & audio studios
- Audience capacity
- Teaching & learning space

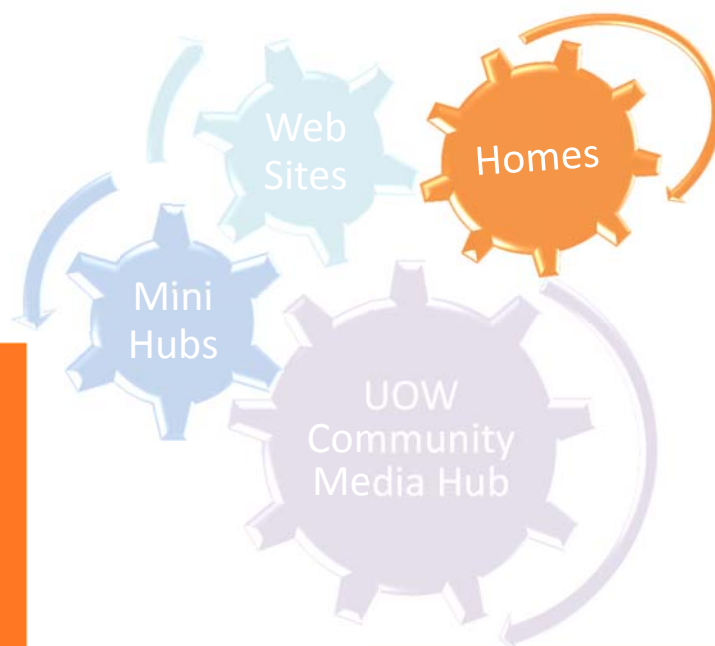
## **NBN-enabled UOW CommUNITY** **Media Hub:**



### **the VIRTUAL**

- UOW CommUNITY Media Hub
- iReport
- iConnect
- iLearn

## **NBN-enabled UOW CommUNITY** **Media Hub:**



### **the VIRTUAL - iReport**

- UOW Journalism content
- Illawarra Institute of TAFE content
- School-based media makers
- Citizen journalists
- iTeach – reporting/oral history



illawarra

invention

ict

insight

innovation

identity



# iAccelerate

instigate

inspiration

independence

involvement

iC

investment

it&t

UNIVERSITY OF  
WOLLONGONG



## iAccelerate

**iAccelerate Mission** is to accelerate the delivery of a sustainable Innovation Ecosystem of high-growth technology-leveraged businesses.

**Its Critical foundations are:**

- UOW IT and research strengths
- First World Class Uni connected to NBN
- Strong Partnerships with local community and international leaders in IT Ecosystems



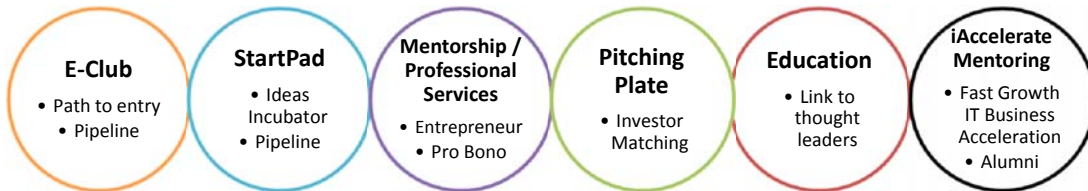
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# iAccelerate Series of Initiatives



**KEY TO SUCCESS:** Co-locating of Programs to accelerate growth trajectory



**iAccelerate Programs:** designed to drive fast growth IT businesses and skills into the Illawarra Economy

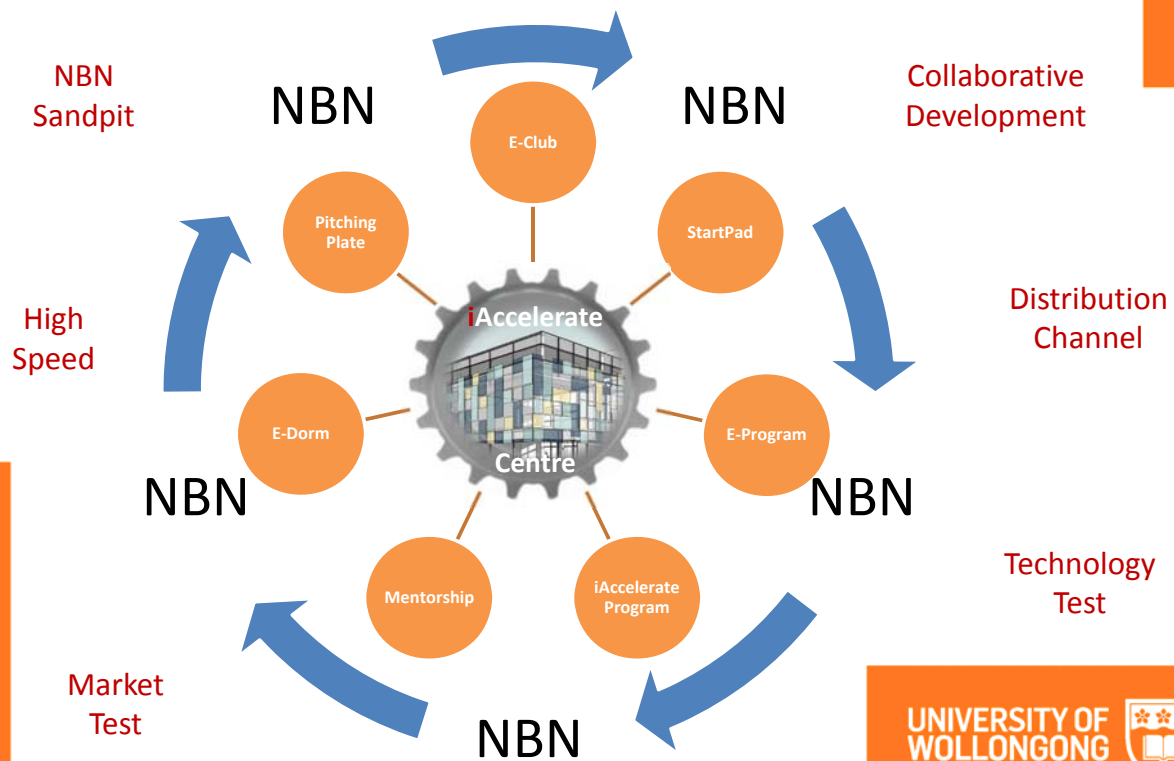
## iAccelerate

### Purpose Built Centre – High growth, High tech

- 3500m<sup>2</sup> – High tech plug and go office space
- Business Accelerator for 25 businesses
- Open-plan creative/networking environment
- Peer to Peer engagement
- In-depth Mentoring - Alumni + Entrepreneur
- Houses to UOW Entrepreneurship Program + Club
- Home of “Pitching Plate”
- Beacon for local business engagement
- NBN Enabled
- Centrally located on Innovation Campus
  - Surrounded by ITT businesses
  - Neighbouring E-Dorm
  - Opposite Sydney Business School



# iAccelerate Ecosystem



## Outreach:

Deliver a competitive and world 1st advantage to iAccelerate

### How:

- **Role Model – Gender balance in:**
  - Governance
  - Speakers
  - Teachers
  - Panels
- **Communication:**
  - Stated in mission statement
  - Images
  - Role models
- **Linking Support:**
  - Heads Over Heels
  - Springboard
- **Opportunity:**
  - Mentoring
  - Scholarship to Waterloo
- **Research:**
  - Conferences
  - Grants





Thank You



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