Regional Development through collaboration between government, industry and academia in the defence sector

Professor Deborah Hodgson, Pro Vice Chancellor Research and Innovation, University of Newcastle (Australia)
Australian Government investment in R&D, 2015-16

Australian Government research activities

- CSIRO
- DST Group
- Australian Government
- Total: $1.8 billion

Business sector

- R&D tax measures
- Other
- Total: $3.2 billion

Higher education sector

- ARC
- University block research funding
- Cooperative
- Rural R&D
- Other
- Total: $2.8 billion

Multi-sector

- NHMRC
- Energy & Environment R&D
- Other Health
- Other
- Total: $1.9 billion

Total: $9.7 billion
We have the lowest collaboration rate between firms and researchers

- OECD Average
- Australia

- Large firms: 3% (OECD), 3% (Australia)
- SMEs: 14% (OECD), 2% (Australia)
National Response

• National Innovation and Science Agenda
• Innovation and Science Australia
• Medical Research Futures Fund
• Industry Growth Centres
• Global Engagement Platform
• Impact and Engagement Measures
UON Response

**Strategy 1:** Drive Global and Regional Impact

**Strategy 2:** Support Innovation through Connecting Business with Innovation

**Objective:** Be a key contributor to the local region’s development through appropriate partnerships

**Measures of success:** Increased industry partnerships and funding from multinationals to SMEs

**Case in point:** defence
Driving Regional Economy

“Defence linked to economic prosperity”

Value proposition: Investing in Defence

Investing in science, technology and innovation drives regional economy through creation of jobs, building regional capability in defence and delivering impact through commercialisation of innovation.

From Deloitte Access Economics – the leverage of research on business productivity is approximately 60:1 across the sector

For UON, that represents a minimum regional impact of $6 Billion annually
The paradox

- As innovation has globalized, the role of regions as the critical nexus for innovation-based economic growth has increased.

- National and state policies create a platform for innovation

- The locus of innovation activities is at the regional level, where workers, companies, universities, research institutions, and government interface most directly
NSW Defence

Defence NSW Interactions

DEFENCE NSW

INDUSTRY
INSTITUTIONS
AGENCIES
NSW GOVERNMENT
OTHER STATES
COMMONWEALTH

VIC 13%
ACT 19%
QLD 22%
NSW 26%
WA 5%
NT 6%
SA 7%
O/S 1%
TAS 0%


*The contribution of Defence to the NSW economy: An analysis for the NSW Department of Industry, August 2016.
Percentage of regional employment

- Capital Region: 2.5%
- Hunter Valley incl Newcastle: 4.2%
- Riverina: 8.0%
- Southern Highlands and Shoalhaven: 9.1%
- Sydney: 1.8%
- Undefined/No fixed address: 1.4%
- Rest of NSW: 0.2%

Legend:
- Blue: Defence sector
- Orange: Defence industries
- Grey: Other industries
The Hunter is vital to Defence - Defence is vital to the Hunter

- Hunter Defence Presence
  - Lone Pine Barracks (Singleton) & Singleton Field Training Area
  - RAAF Base Williamtown (Williamtown)
  - Salt Ash Air Weapons Range (Salt Ash)

- Hunter Industry Presence
  - Includes BAE, Boeing, Thales, Lockheed Martin, TAE, Civmec/Forgacs, Northrop Grumman, Varley, Raytheon, Bohemia
  - 200 plus Hunter entities - key contributors to the Hunter defence industry

- Hunter Expenditure
  - Annual Defence spend - $1.3 Billion
How can institutions, business, industry and NGOs collaborate on a global scale
Key enablers of regional development

- Industry facing multidisciplinary framework
  - Global Impact Clusters
- Innovation ecosystem
  - Integrated Innovation Network (I2N)
  - Business and Industry Connect
- Engaged PhD
- Doctoral Engagement Nodes
- Precincts (Defence)
1. Industry facing multidisciplinary framework

Global Impact Clusters

- to address global challenges built on the base of our research concentrations and working across disciplines

- ensure excellence and discovery, drive innovation, business development, commercialisation and impact.
For the Academic

Opportunities

Research Bid Development & Support

Strategic Projects & Planning

Strategic Development

External Industry/Government Engagement

International Engagement

Industry Programs

Research Strategy & Engagement
Industry Facing

Commercial Operations

- Contract Review & Risk Minimisation
- Contract Negotiation
- Facilitate Legal Review
- Coordinate Contract Execution and Admin
- IP Coordination with Newcastle Innovation
- Interface with Legal Office, Research Services and Finance
- Commercial Relationship Management
2. Support Innovation

I2N Building a **COMMUNITY** of **INNOVATORS**

- Startups, scale ups
- Innovation in SME’s and large multinationals
NSW GOVERNMENT
BBI FUNDING
Integrated innovation network: I2N
## I2N Innovation model

I2N provides is a program of events and activities that build community.

<table>
<thead>
<tr>
<th>Program type</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic business skills</td>
<td>Business skills (HR, Finance etc.)</td>
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<tr>
<td></td>
<td>Social marketing skills</td>
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<tr>
<td></td>
<td>Lean startup workshops</td>
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<tr>
<td>Learning from experienced entrepreneurs</td>
<td>Fireside chat events (experienced entrepreneur shares their journey)</td>
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<tr>
<td>Mentoring</td>
<td>Experienced entrepreneurs and business people mentoring startups</td>
</tr>
<tr>
<td>Incubation &amp; Acceleration</td>
<td>Structured programs that develop startups in preparation for investment</td>
</tr>
<tr>
<td>Celebration &amp; Connecting</td>
<td>Hosting events to celebrate innovation and entrepreneurship, engaging the local innovation ecosystem in networking</td>
</tr>
<tr>
<td>Pipeline building programs</td>
<td>Further activity to build the pipeline. This could include programs for youth</td>
</tr>
</tbody>
</table>
THREE76 HUB
A COMMUNITY OF INNOVATORS

• Co-working space
• Capability building events and workshops
• 20 desks + 10 hotdesks
• Currently 16 members – mix of local startups, students (undergrad and postgrad), researchers, corporates
• VR, robotics, health, security, engineering and IT
UPPER HUNTER HUB

Energy technologies, environmental remediation, land use management, soil productivity, water management and precision agriculture
DSA-18 HUB
WILLIAMTOWN

• UON-run innovation hub
• Opening November 2017
• DSA = Defence, Security and Aerospace
• Co-location of researchers, companies and startups working in these fields
• Defence Innovation Advisory Group of key industry partners
DSA-18 HUB
WILLIAMTOWN
Supporting Innovation in Defence

• Offering innovative co-location opportunity for students, researchers, industry and defence staff.
• Professional development opportunities for industry and defence
• Delivering defence and defence industry workforce
• Strengthening relationships with industry
• Fostering Innovation, commercialisation and partnerships
• Regional development through defence capability jobs and innovation
Program of Works

• Focus on NSW Defence priorities, ensuring that the significant opportunities for building a strong defence industry in the Hunter region are realised.

• Key large Defence contracts with Primes (such as BAE’s Southern Pacific leadership role in F-35 sustainment)

• Large/growing proportion of skilled Defence and defence industry workforce based in the region

• Array of SMEs with experience in land, air and sea projects.
Defence Advisory Group

• Joint strategic focus encompassing cooperative relationships and integrated planning with industry, business and government
• Enhance understanding of Defence and Defence Industry needs and goals
• Initiate the research and development discussion with regional and national Defence and Defence Industry
• Increase collaboration with Defence and Defence Industry organisations.
• Representation from Defence (DSTG), RAAF, military, industry, University and Business.
Precincts – Regional connectivity

- Multi scale industry and business
- Industry scale research and testing
- Innovation space and co-location
- Field research with industry and business
- International connectivity
- Market channels
- Workforce pipeline - HDRs
The ‘connected’ region – strong partnerships based on shared understanding of the challenges and how to overcome them

PUBLIC SECTOR
Developing coherent policies that link territorial development to innovation and higher education

HIGHER EDUCATION SECTOR
Generating intellectual and human capital assets for the region

PRIVATE SECTOR
Investing in people and ideas that will create growth

Evidence based policies that support ‘smart’ innovation and growth

Analysis of evidence and intelligence for planning

Building the infrastructure for growth

Skills development, commercialisation of research
The disconnected region

PUBLIC SECTOR
- Lack of coherence between national and regional/local policies
- Lack of political leadership
- Lack of a shared understanding about challenges
- Entrepreneurs ‘locked out’

PRIVATE SECTOR
- No coordination or representative voice
- Motivated by narrow self interest and short term goals
- Dominated by firms with low demand or capacity for innovation

HIGHER EDUCATION SECTOR
- Seen as ‘in’ the region but not ‘of’ the region
- Policies and practices discourage engagement
- Focus on rewards for academic research and teaching
- No boundary spanners
- Focus on supply side, transactional interventions
- Ineffective or non existent partnership
- Lack of a shared understanding about challenges
- Entrepreneurs ‘locked out’
Capacities needed for regions to move from ‘disconnected’ to ‘connected’

- **Generative Capacity**
  - Research labs
  - Talent attraction
  - Universities

- **Absorptive Capacity**
  - Private sector investment
  - Clusters
  - Critical mass

- **Collaborative Capacity**
  - Networks and associations
  - Joint projects and shared facilities

- **Leadership Capacity**
  - Boundary spanners
  - Ability to create a shared vision for the future

Needs investment in human capital and infrastructure for research

Needs consistent policies and strong institutions
Thanks for listening

Strengthening University-Industry Research Collaboration