ASSISTIVE TECHNOLOGIES
INDUSTRY MAPPING AND OPPORTUNITIES
PROJECT

Information Session – 3 April 2014
National Wine Centre, The University of Adelaide

Funded by the Australian Government Suburban Jobs Program
Assistive Technologies for the aged and disabled

Today’s information session:

- Australian and global demand in the coming decades
- The supply side: what capabilities do local companies need to be competitive producers and suppliers of this technology?
  - Characteristics of ‘new manufacturing’
  - How we make the transition
- ‘Market shaping’: what end-users and purchasers look for
  - Can we bring purchasers, users, manufacturers and researchers closer?
- Existing support programs and possible new initiatives
- Assistive Technologies Mapping and Opportunities Project – seeking your input

- Discussion paper: Assisting Transition: Assistive Technologies Opportunities in an Industrial Transformation in South Australia
Why are we here?

- Urgent need to diversify our manufacturing
  - Otherwise key knowledge intensive capabilities and activities lost forever
  - Time is tight

- Assistive Technology is growing as an economic driver (increasing demand, increasing diversity and sophistication of products)

- Population ageing in much of the advanced world
  - 65-85’s to double in Australia; 85 + to quadruple
  - By 2050, cost of health care will have doubled

- Disability rates rise with ageing

- Australian policies reflect this growth
  - Living Longer, Living Better; Consumer Directed Care
  - Disability care Australia, and National Disability Support Scheme

- Medical Technology market is over US $300 billion annually (proxy guide)

- Focus for industry policy in many EU countries, Japan and US
  - Much less so in Australia – this needs to change
What we want from today’s session

- Provide information on possible areas of interest and opportunity
- Arouse your interest in the area
- Get an idea of your company’s possible interest and intent
- Through this, start identifying potential opportunities and possible company leads
- Get your commitment to participating in subsequent stages of the project

“The purposes of this workshop are to arouse industry interest by informing, identifying company intent, and commencing opportunity identification. By starting to identify possible proximate opportunities, as well as company leads, the workshop will commence the development of the Demand/Supply/Capability matrix and follow up industry development leads.”

This initiative – a collaboration of DMITRE, WISeR, the Stretton Centre and Fraunhofer.
What are assistive technologies?

- Devices, software and intelligent systems that enable individuals to perform tasks they would not otherwise be unable to, because of age or disability, or technologies that increase the ease and safety with which tasks can be performed.

- Range from simple, to medium complexity to high complexity.

<table>
<thead>
<tr>
<th>Simple AT</th>
<th>Complex AT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trolleys, walking frames, beds, hoists, hygiene items, electric wheelchairs and scooters, and home modifications</td>
<td>Electronic magnifying devices, prosthetics, cognitive software, AT for visual impairment, augmented and alternative communication, domestic robots and personal emergency response systems</td>
</tr>
</tbody>
</table>
Discussion Paper: *Assisting Transition: Assistive Technologies Opportunities and Industrial Transformation in South Australia*

- Where are the demand trends and technology taking Assistive Technologies?
- Are Assistive Technologies a good diversification opportunity for SA manufacturers?
- What are the capabilities we need to build on?
- What does the transition to these product/market segments look like to an SME?
- What do care providers and users of AT look for?
  - How do they decide what to buy and from whom?
  - Can we shape the market by bringing them together with manufacturers and researchers?
  - How can we leverage public procurement, like the UK?
- What is the Assistive Technologies Mapping and Opportunities Project?
- Demand/Supply/Capability matrix
Assistive Technologies - A Good Fit for SA?

- Less reliance on low costs and long production runs
- High levels of customisation, short production runs and exhibiting high variability and high value
  - ‘New manufacturing’
- Use of new materials that are both light and strong, such as titanium, where the state can build competitive advantage
- Broadly aligns with SA’s existing strengths, many inherited from the auto industry, including:
  - Process engineering skills
  - Materials science and technology expertise
  - Automation and control technology
  - Electronics and miniaturization
  - Digital content, sensing and simulation
  - High tooling skills, injection moulding, etc.
- High service content and customisation, favouring local provision.
Assistive Technologies Mapping and Opportunities Project

- Technology foresighting
- Demand mapping
- Capability assessment

Identify capability gaps

Demand/supply/capability matrix

High value achievable opportunities

OUTCOMES
- 5 year strategy
- Facilitation policy
- AT innovation centre
- Industry collaboration

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Project Partners

- Australian Workplace Innovation and Social Research Centre (WISeR)/Stretton Centre
- Department of Manufacturing, Innovation, Trade, Resources and Energy (DMITRE)
- Fraunhofer Gesellschaft

Seeking support from

- Manufacturers
- Care providers
- Researchers
Project Stages

- Stage 1:
  - Commence demand mapping and technology foresighting
  - Dialogue with manufacturers, industry associations and importers
    - Test ideas and hypotheses
  - This information session

- Stage 2:
  - Refine demand mapping down to product level – preliminary product/market opportunities
  - Analyse characteristics and competitiveness of local companies
  - Intermediate results to later industry workshop

- Stage 3:
  - Demand/Supply/Capability matrix gives firm robust targets
  - Policy/strategy advice and framework

- Completion:
  - September-October 2014.
Demand-side drivers and characteristics for AT

_Funded by the Australian Government Suburban Jobs Program_
Demand side

Assessing and understanding demand is the first critical step in mapping the opportunities and building the strategy.

Also, where is the technology taking us?

Professor Frank Wagner, head, Competence Centre R&D Management,
Fraunhofer Institute for Industrial Engineering
Assistive Technology Opportunities

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Adj. Prof. (QUT) Dr.-Ing.

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Fraunhofer Institute for Industrial Engineering
University of Stuttgart - Institute for Human Factors and Technology Management
Fraunhofer in Germany

- 66 Institutes for Applied Research
- More than 22,000 employees
- Budget: 2 Bill. Euro

- Institutes work as “profit centers” and are linked to local universities
- min 1/3 of the budget from industrial projects
- Spinoffs by Fraunhofer researchers are encouraged

www.fraunhofer.de
INFORMATION SESSION

- Demand-side drivers
  - Demand mapping
  - Technology forecasting

- Supply-side capabilities
  - Strategic AT relationships
  - AT Competencies
**Demand-side drivers**

- Key statements related to **demand mapping**
  - There is an increase of elderly people in need of care.
  - Home care increases.
  - More and more elderly people live in single-person households.

- Relevant areas for **technology forecasting**
  - Health(care)
  - Safety
  - Household and supply
  - Social inclusion
Home care costs and benefits
Market development

Age distribution and population development Germany – increase of elderly people by ~ 10% until 2050

<table>
<thead>
<tr>
<th>Year</th>
<th>in mio</th>
<th>in %</th>
<th>under 20</th>
<th>20-65</th>
<th>65 and older</th>
<th>in total</th>
<th>80 and older</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>20,9</td>
<td>60,9</td>
<td>19,0</td>
<td>4,4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>18,3</td>
<td>61,1</td>
<td>20,5</td>
<td>5,2</td>
<td></td>
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<td>2030</td>
<td>16,6</td>
<td>55,5</td>
<td>27,9</td>
<td>7,9</td>
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<tr>
<td>2050</td>
<td>15,4</td>
<td>52,8</td>
<td>31,7</td>
<td>13,7</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: FAZIT Studie – Georgieff (left), statistisches Bundesamt (right)
Home care costs and benefits
Market development

Facts in Germany:

- 2030 ~3.4 Mio people will be care-dependent in Germany (2009 ~ 2,8 Mio)
- Today ~70% of all care-dependent persons live at home
- Number of single-person households is increasing

Age distribution of single-person households 1985 – 2009

Source: statistisches Bundesamt
## Demand-side drivers

**Technology forecasting: Application areas for AT**

### 1. Health(care)
Prevention, treatment, rehabilitation and nursing such as
Stationary and ambulant medical information systems, telemonitoring, telemedicine and home care, domestic emergency call and activity check, personalised health systems and services from various medical areas, eHealth, information networks and electronic patient files.

### 2. Safety
Alarm, locking and monitoring systems such as
Cross-linked smoke and gas detectors, cross-linked burglar alarm, simulation of presence and absence with central control of shutter and light, heating, hot water and ventilation, central locking system for apartment/house, video based intercom system, control over house via Internet-based webcam.

### 3. Household and supply
Building automation, cleaning and delivery services such as
Automated distant reading and billing, robotics (vacuum cleaner, etc.), programmable switches, cross-linked entertainment electronics, tele-diagnosis of housing technology, Smart Metering – control of energy consumption and display on terminal / PC /TV.

### 4. Social inclusion
Communication networks, recreational activities and mobility such as
Enabling “triple-play” in apartments by connections for TV, radio, telephone and Internet, use of Internet service platforms as neighbourhood bulletin boards, supply of services via service centres or concierge.

Sources: based on VDE
Demand-side drivers
Technology forecasting: Care-O-bot® (Fraunhofer)

- Mobile robot assistant that actively supports humans in domestic environments
- Individual, application specific product design and programming or rental
- Application scenarios
  - Transportation of desired objects; orders are placed via smart phone or the robot’s touch screen
  - Video telephony, game board, reminder function
  - Automatic setup of communication with an emergency center (emergency support)

Video: www.youtube.com/watch?feature=player_embedded&v=ABpOtvlzh2U

Demand-side drivers
Technology forecasting: Care-O-bot® (Fraunhofer)

Sensor Head
- Stereo camera
- 3D sensor
- 1 DOF to flip sensors back and forth

Manipulator
- 7 DOF, redundant
- TCP and joint control
- Hollow shaft for cables

Gripper
- 7 DOF, 3 fingers
- In-finger tactile sensors

Basis
- 4 DOF kinematic for body expressivity
- Stereo speakers
- 3 control PCs

Omnidirectional Platform
- 4 wheeled omni-directional drive system
- 3 laser scanners
- Li-ion or lead-acid battery

Tray
- 1 DOF
- Touch screen

Demand-side drivers
Technology forecasting: Safe@Home (Fraunhofer)

- Single seniors often lie on the floor several hours after a fall, before their accident is discovered. They cannot always trigger a domestic emergency device – because they are not wearing the device, are unconscious, or injured.

- A current research project Fraunhofer is involved in aims at developing a optical and acoustic sensor system that detects and reacts to emergency situations

- Sensors boxes installed on the ceiling register when a person needs assistance and notify the alarm unit in the home, which immediately calls for help – by telephone, cell phone, or internet.
Demand-side drivers
Technology forecasting: Soprano (Fraunhofer)

User interfaces for AAL environments (TV, touchscreen, Avatar, audio interface)
Interfaces are necessary that are modular and adaptable (temporarily) depending on the current situation (e.g. progress of disease, health situation, …)

- Information (contact, calendar)
- Reminder (medication, nutrition esp. drinking)
- Building and appliance surveillance (status of house)
Demand-side drivers
Technology forecasting: Fraunhofer inHaus 2

Intelligent environments for elderly people - inBath

1. Interactive Mirror
2. Adjustable in height
3. Medicine suspensor
4. Touchless water tab
5. Soap dispenser
6. Toilet with shower functionality
7. Toothbrush

Source: Fraunhofer IMS
Essential supply-side capabilities

*Funded by the Australian Government Suburban Jobs Program*
Essential supply-side capabilities

What are the core characteristics and capabilities of successful Assistive Technologies companies?

- Stephen Myatt, Dir., Australian Industry Group, SA Branch
- Frank Wagner, Fraunhofer
- Paul Sandercock, PPS Global
Assistive Technology Opportunities

Frank Wagner
Adj. Prof. (QUT) Dr.-Ing.

Frank.Wagner@iao.fraunhofer.de

Fraunhofer Institute for Industrial Engineering
University of Stuttgart - Institute for Human Factors and Technology Management
Supply-side capabilities - Strategic AT relationships
Fraunhofer AAL Allianz

- Alliance of 13 Fraunhofer institutes, including IAO, collaborating on Ambient Assisted Living (AAL) solutions and Personal Health systems

- Aims of the alliance
  - Design of a common system concept that provides the basis for the seamless integration of different components and (partial) solutions
  - Further development of relevant technologies, such as sensors, assistive systems and health care

Source: aal.fraunhofer.de
Supply-side capabilities - Strategic AT relationships

Care 2020

- Pflege 2020 is a long-term research initiative coordinated by Fraunhofer IAO that includes various stakeholders related to the future of care, e.g. care and assistive technologies providers but also industrial companies that want to support their employees in handling care situations.

- It is financed through member fees (30,500 EUR for two-years membership).

- The focus is both on supporting care personnel in their daily work and new technologies that foster the autonomy of elderly people.

- Each research phase runs for 24 month (the current one started in April this year).

Source: pflege2020.de
Supply-side capabilities - Strategic AT relationships
Care 2020

- Exemplary results of the alliance’s joint activities:
  - Large-scale interviews and surveys with current and future customers
  - Customer profiles (e.g. lifestyle, see images on the right)
  - Future scenarios
  - Show case Pflege 2020 (see InHaus)
  - Care Service Engineering in Second Life
  - InnoCheck
  - Publication

Source: Spath et al.: Pflege 2020. Lebensstilgerechte Versorgung in der Altenhife (study published by the alliance)
Supply-side capabilities – Strategic AT relationships
Care 2020

- Benefits:
  - More certainty about the future
  - Practical relevance
  - Scientific expertise
  - Cross-sector interdisciplinarity
  - Image as innovation leaders

Source: pflege2020.de
Supply-side capabilities – University of applied Science
AT competencies

- Bachelor’s degree “Assistive Technologies” offered at a German university (Jade Hochschule Wilhelmshaven Oldenburg Elsfleth)

- Interdisciplinary approach:
  - Medicine
  - Gerontology
  - Social sciences
  - Architecture
  - Engineering
  - …

Source: http://tgm.jade-hs.de/web/file/Studiengang_Assistive_Technologien.php
Strategic AT relationships
Fraunhofer contacts

Fraunhofer AAL
Allianz

Pflege 2020

AT research networks & initiatives

AT providers
Biedermann
Ottobock

AT providers
Bauernfeind

Care providers
Alloheim

Regional AT clusters
MedicalMountains

Other stakeholders
Associations

Trade unions
Health insurance companies

Tellur
“When the Wind of Change blows, some People build Walls, others build Windmills.”

(Chinese Proverb)
Assistive technologies mapping and opportunities project

‘Lessons from local industry (study)’
Contents

1. Introduction to study
2. Overview of simple, medium and complex assistive technologies (AT)
3. What it looks like
4. Challenges
5. Transition strategies
Introduction to study

• **Overview:** The study set out to identify the readiness of the automotive supplier community to support future assistive technology industries

• **Sample:** Five current South Australian automotive suppliers of varying size, scale, locations, specialisations and ownerships were selected

• **Objective:** The specific intent was to highlight strengths, weaknesses and capability gaps and to understand what gaps need to be closed to enable active participation within a future assistive technologies industry

• **Methodology:** Face-to-face interviews were conducted with CEO’s / senior management of each company which also included factory and facility tours
Simple AT

Definition: Low ‘value add’ opportunity, low margin, labour content and company operating overhead costs erode margin if manufactured locally.

Examples: Trolleys, walking frames, beds, hygiene items, and home modifications.
Medium AT

Definition: Value adding opportunity with additional feature content. Good margins. Good opportunity for automation. Sound materials knowledge and may require access to or generate IP. Labour content and company overheads at full cost don’t impact good margin potential. Requires multiple manufacturing disciplines to succeed.

Examples: Indicators with visual signals, glasses with absorption filters and orthoses.
Complex AT

Definition: Leading edge technology encompassing advanced design, materials, software and hardware with high regulatory and specification requirements. Superior skill in digital and simulation technology. Medical devices and other implantable product requiring a cleanroom environment and in touch with new ground breaking developments. Opportunity for service based businesses.

Examples: Electronic magnifying devices, cognitive software, domestic robots and sensory equipment.
Assistive Technologies (AT) – Summary of ‘what it looks like’

Simple AT                      Medium AT
                             Complex AT

Barriers to entry
Level of transition change
Product value
Product margin
Level of skill/knowledge required i.e. engineering design capability
Level of competitive advantage (and ability to sustain it)
Challenges

- Compliance standards and quality certifications i.e. TGA, EC, ISO 13485
- Current capability level of most companies is aligned to the simple AT end
- Accelerated transitions will require acquisition of capabilities through joint ventures, technical partnerships, or mergers and acquisitions
- There are skill gaps i.e. software design capability
- Access to new customers i.e. sales, marketing and distribution capability in AT market
- Investment in prototyping, manufacturing infrastructure and distribution will be required
### Transition Strategy

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Simple AT</th>
<th>Medium AT</th>
<th>Complex AT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategy</strong></td>
<td>Local project management, design using local skill and manufacture in low cost country.</td>
<td>Design locally through partnerships and manufacture locally with local JV technical partnerships. Broader industry engagements required i.e. medical device and electronics partnerships.</td>
<td>New company creation and new investment activity. Design locally and internationally. High-level, formal, technical research partnerships, JV’s with local and international partners.</td>
</tr>
<tr>
<td><strong>Timing</strong></td>
<td>Short term</td>
<td>Short to medium term</td>
<td>Medium to long term</td>
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Contact

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ASSISTIVE TECHNOLOGIES
INDUSTRY MAPPING AND OPPORTUNITIES
PROJECT

Company perspectives

Funded by the Australian Government Suburban Jobs Program
Company perspectives on the transition

*New manufacturing is an opportunity ... But what are the challenges? How are companies handling them?*

- Grant Tinney, CEO of Tech Commercialisation JV Co. Ellex Precise
- Mark Szolda, former CEO, Austofix
The journey from Automotive Supplier to Assistive Technology Manufacturer
Brief overview of the journey and the challenges we faced as a business

Where we are right now including Assistive Technology

Where to from here
Injection Moulds for plastic
1971 - 1994

90% Automotive Focus

www.precise-amg.com.au
Moulds and Dies for plastic, cast metal and sheet metal

1994 - 2004

90% Automotive Focus
Full mould and Die Service
Export to Asia and USA

www.precise-amg.com.au
Moulds and Dies plus automation and precision machining

2004 - 2008

Automotive reduced to 36%
Full Advanced Manufacturing Service
Export to Asia and USA

PRECISE
ADVANCED MANUFACTURING GROUP

www.precise-amg.com.au
2008-2010 - GFC

- Loss of 40 - 50% business volume across most industry sectors
- We thought that we had engineered a resilient business.
- There was a need to adjust the strategy
Full Manufacturing Capability plus Design, Prototyping, 2010 - 2013 Commercialisation, Own Product

Balanced industry sector clients
Full Advanced Manufacturing Service
Full Commercialisation Service

www.precise-amg.com.au
2013 - 2016 Strategy

1. Continue focus on core business of mould, die and machining where clients require service
2. Assist clients to commercialise their IP
3. Develop own IP
4. Grow ability to handle large, niche tooling programs particularly Hot Stamp dies and Injection Moulds with focus on USA
Tooling
High complexity niche tooling

1. Hot Stamp tooling for Ultra High Hard steel components. (USA)
Examples Commercialisation of others
IP: Sternal Retractor
Commercialise Customer IP:
- Endoscope Camera Unit
Commercialise Customer IP: Water based positive expiratory pressure (PEP) device.
Commercialise Customer IP:
- Mylight Lightboxes
Commercialise Customer IP:
- Emergency Tracheostomy Device
Commercialise Customer IP:
- Game controller for children with a disability
Own products: Solar Tracking
Own products : Micro Wind
Examples Own products : VPG Clamps
Own products: Medical Trolleys
Own products: Medical Litters
Establish a Commercialisation Engine.
Commercialisation Assets under one roof.
Design, engineering, proto, clean room
Where to from here - Commercialisation

Contract and business models
Project financing models (can't rely on own funds)
VC, crowd Fund, Own Fund, Angel Invest etc
Line to market expertise
Where to from here = PAMG

Ambitious Goals
Global Mindset – Global Niche
Very Close relationships with customers, research providers, suppliers
Continuous focus on R&D and Innovation
End user perspectives

*Funded by the Australian Government Suburban Jobs Program*
Building connections

• Can better connections between care providers and local manufacturers help stimulate local innovation?

• How do care organisations decide what to buy and from whom?
  • Cost/price
  • Quality/durability
  • Through life support and maintenance

• How do we better leverage public procurement?
Who is the end user?

- Aged and disabled persons using AT
- Care organisations may be AT buyers or AT brokers for their customers
- These groups will think about AT and purchase in different ways
Market opportunities

- Home modification – widening doorways, eliminating steps, integrating AT products into living space, creating home AT systems
- Aesthetics, new design – users don’t want to ‘hospitalise’ their homes – market for aesthetically pleasing AT products that fit into the home environment
- New materials, new design – new materials enable new AT product characteristics/performance – light weight/high strength using titanium
- Efficient design, low cost – some AT products are over-engineered and ‘over-medicalised’. Can they be designed better and made for lower cost?
Market opportunities (2)

- Bundling products and services – maintenance and modification for a complex wheelchair, monitoring, alert, response service for medical monitoring systems
- After sales service for AT products and systems including repairs and upgrades
- Supporting high levels of customisation
- IT product integrating medical sensing, easy-to-use interfaces, telehealth, teleconferencing applications
AT production in SA – how to get there?

- Collaboration between end users, care organisations and designers in defining gaps in current product offerings and new product concepts – ‘co-design’
- Collaboration between user groups, designers and manufacturers – to determine what can be made, at what cost
- Care organisations – help define product designs not current in the marketplace then commit to purchase levels from local manufacturers
- Working with leading researchers, for example, Institute for Photonics and Advanced Sensing (IPAS) and Dr Dusan Losic, leading researcher in applications from advanced materials, in particular, Titanium.
Assistive technologies opportunities 
information session, 2014 
DMITRE & University of Adelaide

An End-user perspective 
Helping Hand
Aged Care Services – scale, characteristics and business profile

• 1200 providers (NFP little over 60%)
• Residential Care: 200,000 residents
• Packaged Care at home: 64,000 people
• HACC (Home & Community Care): 610,000
• Respite
• Transition
• Seen as a solution to escalating hospital demand
Age Care Workforce

Estimated:

• 98,400 people employed in community care services

• 197,000 people employed in residential care – 150,000 are direct care employees

Current structure: RNs/ENs/Care Workers and Allied Health
Aged Care Growth

• By 2050, 3.5 million Australians are expected to use aged care services
• Government expenditure on aged care is expected to increase from 0.8 to 1.8 per cent of GDP by 2050
• Aged Care workforce to quadruple by 2050 - when the overall employment-to-population ratio will be declining
Workforce scale and growth characteristics

• **Exponential growth** – home care and residential (institutional) care

• **Consumer choice** (“Consumer Directed Care” - CDC)

• **Wellness/preventative** approach – compression of morbidity (and interest in health)

• **Hospital avoidance** – partnering with wider health system

• **Geography**
Service provider (business) Systems

• Business systems software (i.e. Financial/HR/Asset Mgmt/Client data management) & data into information
• Mobile data input devices (i.e. hand-held) in residential (“bedside”) and home care
• Locational safety equipment for field staff
Client Service Systems

- Home monitoring (i.e. tracking movement in the home – algorithmic analysis of behavioural variations etc)
- Client-Provider communication in the home (potentially tablet-based – for arranging appointments, medication prompts, etc)
- Emergency call systems
- Smart Homes technologies, entertainment
**Implications/Opportunities**

- New roles?
  - Effective consumer clinical assessment – who best to do it?
  - Redefine RN/EN roles
  - Nurse Practitioners?
  - CDC Consultants?
  - Wellness advocates/consultants
  - Therapy support
  - **Technology support** – for providers *and* consumers
Goal create comfortable and enabling environments
All single rooms
Thank you

https://vimeo.com/57501071
Thankyou

Susan Emerson
Director, Care Environments & Service Strategy
Helping Hand Aged Care
www.helpinghand.org.au
Existing research and extension programs

Funded by the Australian Government Suburban Jobs Program
Manufacturing Works

Applied R&D Programs
Manufacturing Works Strategy

• Strategy for operating in a high cost environment

• Compete on value for money, not solely on cost.

• Outlines programs and initiatives to support innovation in an increasingly competitive global environment.

• Currently has four commercially focused applied R&D programs which support or could provide inputs into the development of medical and assistive devices.

  • Medical Technologies Program
  • Innovation Voucher Program
  • Photonics Catalyst Program
  • NanoConnect
Medical Technologies Program (MTP)

• Supports the development of medical and assistive devices

• Delivered through the MDPP

• MTP participants will receive:
  • up to 250 hours of research assistance from a range of research areas
  • commercial viability assistance
Examples of MTP supported projects

Ex Crow, now orthopaedic surgeon, Dr Matthew Liptak’s Post-Operative Rehabilitation Device

• Commercializing a device that shows the progress of rehabilitation exercises by measuring a patient’s range of movement

ITEK Ventures’ Hand Held Magnetometer Probe

• Ultrasensitive magnetic probe which detects small amounts of clinically introduced magnetic material in lymph nodes.
• The probe accurately identifies the physical location of the sentinel lymph node and is used to determine the extent of cancer in the body.
Innovation Voucher Program

• Encourages collaboration between SMEs and public and private R&D organisations

• Vouchers are awarded to R&D providers to help SMEs, solve technical problems and to encourage greater innovation within the manufacturing sector.

• Vouchers of up to $50,000 are awarded on a competitive basis
SMR, the R&D provider, will develop and manufacture an electronic infusion pump to administer intravenous medications and treatments for CPIE Pharmacy Services.

CPIE is a South Australian owned and operated company that produces intravenous medications.
Photonics Catalyst Program & NanoConnect

- Programs to help SA manufacturers explore new manufacturing technologies

- These programs are designed to:
  - raise awareness and understanding of new manufacturing technologies
  - provide opportunities for SA manufacturers to experiment with new technology
  - encourage scale and application
Photonics Catalyst Program

• Supports the development of innovative photonic products such as sensors, lasers and optical fibres

• Delivered through IPAS

• Participants in the PCP will receive:
  • a commercial and technical project feasibility assessment
  • up to $45,000 worth of research and development services
NanoConnect

Supports opportunities to experiment with advanced nanotechnologies

Facilitates engagement with key South Australian technology researchers in the area of nanotechnologies

Delivered through the Centre for Nanoscale Science and Technology

NanoConnect participants receive a technical feasibility assessment of their project and a two month laboratory based 'proof of concept' project.
Nanotechnology Example - Sensors

**Challenge:** Highly accurate sensors are required in all areas of medicine from breath testing to insulin level monitoring.

**Nano Solution:** To use nanoparticles as highly reactive sensors. For example implantable glucose sensors for diabetics, could also be used to monitor signs of dehydration in athletes and troops.
Coatings

**Challenge:** Bacterial Biofilms form on virtually any surface, such biofilms are highly resistant to antibiotics, which can lead to major infections when working with in vivo devices.

**Nano Solution:** To design anti-bacterial coatings to prevent bio-fouling and in turn reduce infection rates.
Thank You

Dermot Cussen
Manager, Manufacturing
DMITRE
Phone: 8303 2126
Email: dermot.cussen@sa.gov.au
Panel and plenary

Funded by the Australian Government Suburban Jobs Program
What we wanted from today (reprise)

- Provide information on possible areas of interest and opportunity
- Arouse your interest in the area
- Get an idea of your company’s possible interest and intent
- Through this, start identifying potential opportunities and possible company leads
- Get your commitment to participating in subsequent stages of the project

- **Question for participants: Does the overall approach outlined today make sense to you?**
ASSISTIVE TECHNOLOGIES
INDUSTRY MAPPING AND OPPORTUNITIES
PROJECT

Next steps

Funded by the Australian Government Suburban Jobs Program
Next Steps and Close

- Web page to be established
- Will post all documents
- Record of today’s proceedings
- Question sheet – we will only contact you if you agree
- Please leave your business cards with Josie
- Commence demand mapping and technology fore sighting
- Later, refine this down to product level – preliminary product/market opportunities
  - Analyse this against capabilities of local companies
  - Present to later industry workshop
- Prepare
  - Demand/Supply/Capability matrix
  - Policy/strategy advice and framework
- Completion:
  - September-October 2014.