



Carbon to Products Seminar:  
Pathway to a Sustainable Future  
Stephen Parkinson, *General Manager Biomanufacturing*

# Workforce Innovation Training Fund- BioPathways Partnership Project.

*Creating Climate for Investment:*



Energy Security



Right Site and  
Characteristics



Right Skills  
Set



Raw Materials  
Feedstock



Government  
Policy



## Australia 2030: Prosperity through Innovation Report:

A plan for Australia to thrive in the global innovation race

Innovation enriches our lives!

The strategy makes 30 recommendations which are framed in the context of five strategic imperatives:

1. **Education:** Respond to the changing nature of work by equipping all Australians with skills relevant to 2030
2. **Industry:** Ensure Australia 's ongoing prosperity by stimulating high-growth firms and raising productivity
3. **Government:** Become a catalyst for innovation and be recognised as a global leader in innovative service delivery
4. **Research & Development:** Improve R&D effectiveness by increasing translation and commercialisation of research
5. **Culture & Ambition:** Enhance the national culture of innovation by launching ambitious National Missions.

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Well established enterprise

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Significant industry sector

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Highly technical and specialized

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The Paper Industry: *Evolving*, **not dying!**

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Packaging 3% growth; 2015-2016

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Tissue 5% growth; 2015-2016

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**A Mature Industry:  
Pulp & Paper**

# Pulp & Paper: *Growth Sectors*



# World Biomanufacturing Markets (Europe)

CEPI The Age of Fibre

## The CEPI 2050 Roadmap

In November 2011 CEPI launched the Forest Fibre Industry 2050 Roadmap for a low-carbon economy. The Roadmap represents the vision for the sector over the next 35 years. It investigates how to achieve an 80% CO<sub>2</sub> emission reduction and at the same time create 50% more value.



### FEEDSTOCK

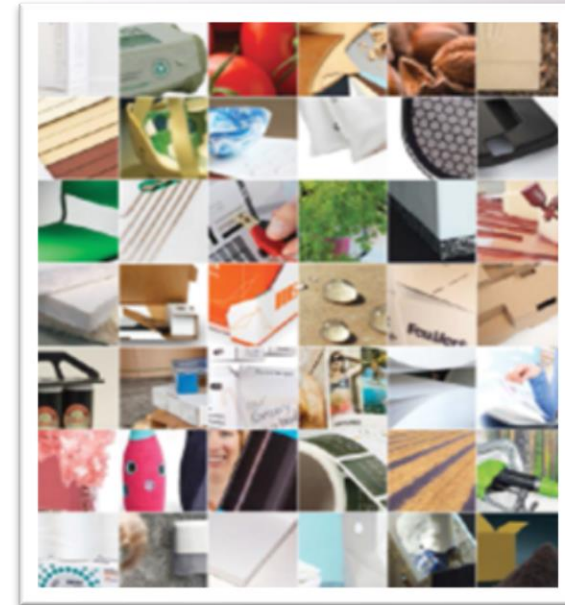
Foster a sustainable biomass supply with increased productivity and building new supply chains

### BIOREFINERIES

Optimise efficient processing through R&D and demonstrate their efficiency and economic viability at large-scale biorefineries

### MARKETS, PRODUCTS & POLICIES

Develop markets for bio-based products and optimise policy frameworks



### Key Facts:

- Invest Euro 3.7Bn over six years.
- EU GDP growth rate 1.5% for 40 years
- Market is Euro 75 Bn in 2011
- Employs 1.9 Million people

# World Biomanufacturing Markets (Canada)



**FPINNOVATIONS STRATEGIC ACTION PLAN** **2015**  
**2020**

**STRATEGIC CONTEXT**

**VISION2020**

- 60,000** JOBS
- \$20B** ECONOMIC GROWTH
- 35%** SUSTAINABILITY GAIN

**CURRENT SECTOR**

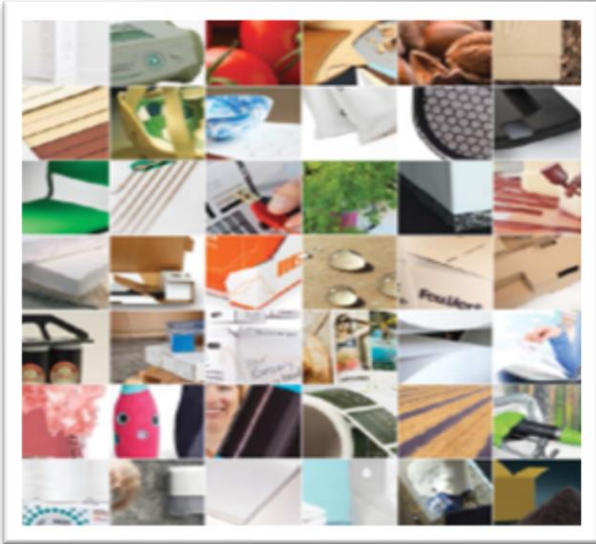
- Increasing timber supply costs
- Healthy solid wood market
- Advanced lumber products
- Pulp market transitioning
- Incremental environmental gains

**FUTURE SECTOR**

- Low cost, high recovery fibre supply
- Advanced building systems
- Hygiene products & packaging
- Bio-based chemical market
- Leveraging green credentials

**FACILITATIVE LEADER** Shape future direction of the sector  
Deliver the right solutions

**EFFICIENT INNOVATOR**



## Key Facts by 2020:

- Invest \$220Million
- \$20.2bn (1.23% GDP)
- Renew the workforce with
- at least 60,000 new recruits
- 35% sustainability gain.

(Strategic Action Plan 2015-2020)

# World Biomanufacturing Markets (Queensland)



## Queensland Biofutures 10-Year Roadmap and Action Plan

<b>Vision</b>	A \$1 billion sustainable and export-oriented industrial biotechnology and bioproducts sector attracting significant international investment, and creating regional, high-value and knowledge-intensive jobs.						
<b>Strengths</b>	Subtropical and tropical climate with year-round growing season	Plethora of natural resources	Productive and energy-dense biomass feedstock	A mature and modern agricultural industry	Connection to markets through reliable and efficient infrastructure	Gateway to the Asia-Pacific	World class expertise in research and development
<b>Challenges</b>	Access to government programs and funding		Development approval processes		Linkages between industry, government and researchers		Economic access to feedstock supply chains

Strategy 1 Provide direct support for specific industry development initiatives	Strategy 2 Identify and promote the opportunities available for investment in Queensland	Strategy 3 Provide strong government leadership to create and maintain an attractive environment for investment
<p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Establish a Biofutures Industry Development Fund, a competitive funding pool to assist companies with reaching bankable feasibility.</li> <li>Plan for new targeted research commercialisation or international grants for SMEs and start-ups through Advance Queensland to increase commercialisation of biofutures projects.</li> <li>Design and support an Advance Queensland Innovation Challenge to enhance Queensland's industrial biotechnology capacity and raise awareness of the state's potential.</li> <li>Proactively chase strategic catalytic investment opportunities and attract a signature company or companies.</li> <li>Provide industrial biotechnology-focused industry development project facilitation support.</li> <li>Jointly fund a Research Chair for Advanced Biofutures with a Queensland university to enhance Queensland's research capacity and reputation as a developer of advanced biofutures and novel bioengineering technologies.</li> <li>Establish a Biofutures Acceleration Program to drive the attraction of a number of advanced biofutures developers to Queensland.</li> </ul>	<p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Develop a marketing and communication campaign to raise awareness and promote opportunities for the sector.</li> <li>Appoint a high-profile person as Queensland's first Biofutures Industry Envoy to actively promote and to be the profile of Queensland as an investment destination, nationally and internationally.</li> <li>Identify suitable zoned land to help create industrial biotechnology precincts to increase Queensland's attractiveness as an investment destination.</li> <li>Develop a marketing and communication campaign to raise awareness and promote opportunities for the sector.</li> <li>Promote agricultural biomass supply chain opportunities and identify supply chain gaps in order to complement and enhance the work of the Australian Biomass for Bioenergy Assessment.</li> <li>Accelerate delivery of the Australia's Biomass for Bioenergy Assessment data sets.</li> </ul>	<p><b>Actions</b></p> <ul style="list-style-type: none"> <li>Maintain a strong government sector focus through the Biofutures Cabinet, Green Bio and Biofutures Interdepartmental Committees.</li> <li>Establish Biofutures Queensland within the Department of State Development, to work across government, industry and research to increase commercialisation of research and investment ready projects.</li> <li>Undertake a review of issues in Queensland that may be suitable for development from disposable high order and more sustainable uses.</li> <li>Invest in policy and market development opportunities to encourage reuse of waste currently going to landfill.</li> <li>Investigate a Queensland Government bioproduct procurement policy to increase local consumption and improve the market for new investors.</li> <li>Work with the Australian Government on low quality standards as well as explore and facilitate treatment of advanced biofutures including bio-based aviation and marine fuels.</li> </ul>



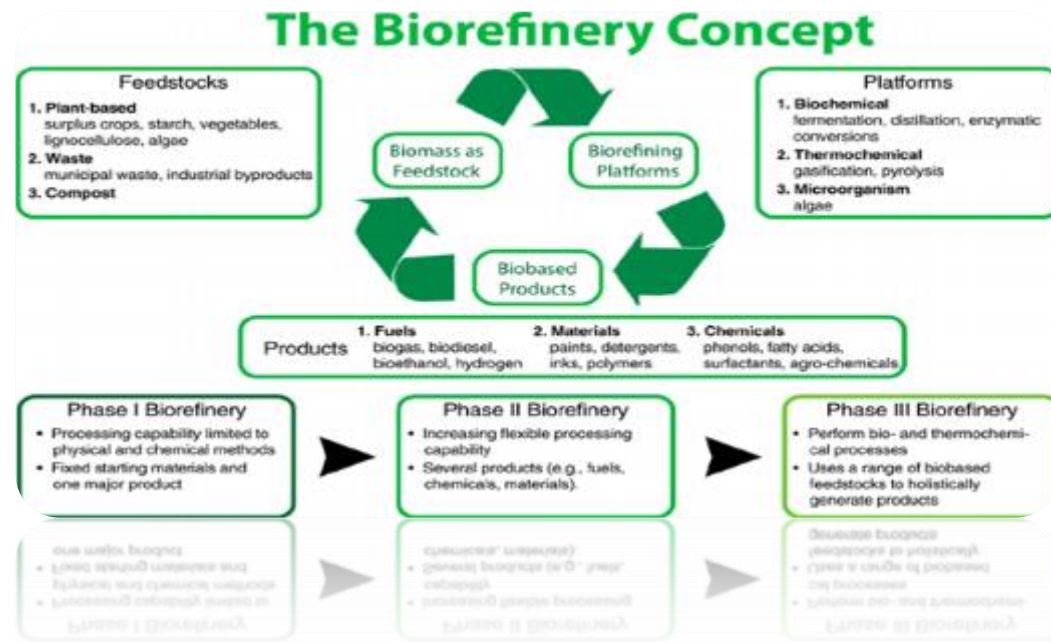


# BioPathways Partnership





# BioPathways Workforce Needs



**Sylvain Lhôte, Director General of CEPI stated:**

*“Future skills and jobs lie at the heart of industry transformation and the bioeconomy transition in Europe. Our industry has a strong innovation and investment agenda ahead to make transformation to happen here in Europe. We need to equip our workforces with the skills to accompany this transformation.”*

**The European Bioeconomy Council recommended:**

*“... new training programmes and funding-support measures, particularly interdisciplinary research programmes (...) which help to motivate students from the programmes to have self-belief in daring to cross interdisciplinary boundaries and, in doing so, to move with assurance both in the academic world and in the private business sector.”*

# BioPathways Workforce Opportunities



1. To build a *'New Industry'* workforce skills-base
2. To transition to a *'New Bioeconomy.'*
3. To develop an industrial *'Circular Economy.'*
4. To bring in the *'Best Available Resources.'*
5. To create *'Future Jobs and Employment.'*



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