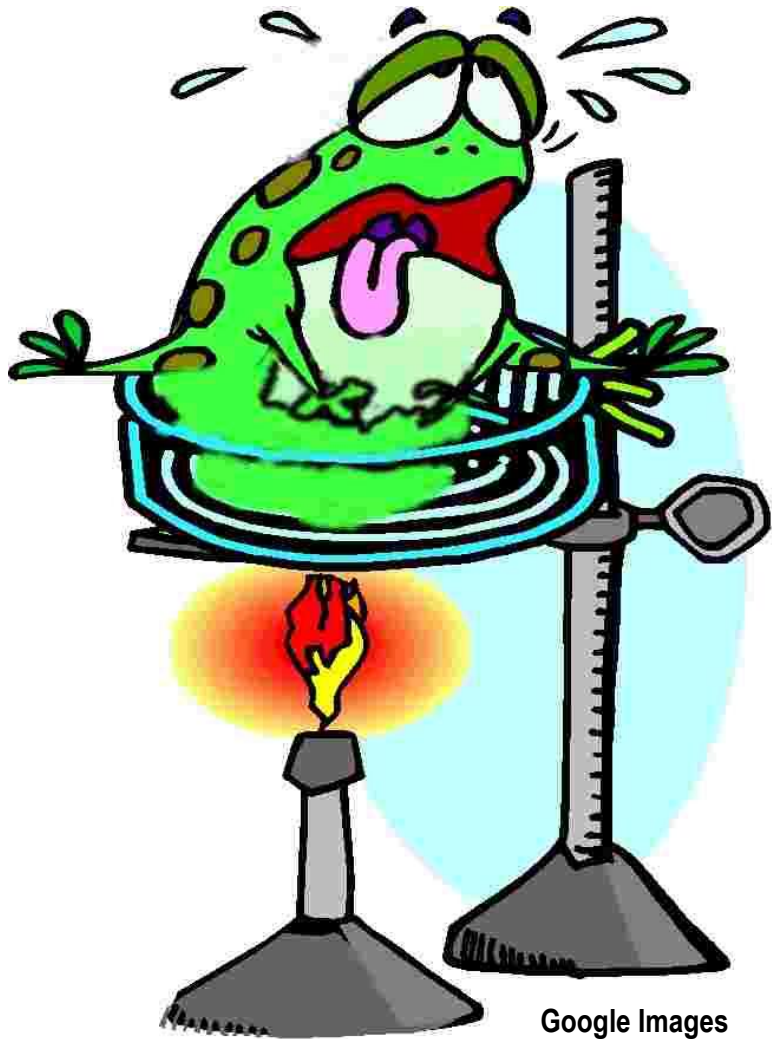


Growing Forest-based Innovations (8.2)

Eric Hansen
Oregon State University
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2016



Google Images

2026



Objectives of the session

- Key aspects of innovation as a driving force and its potential for advancing the forest-based bioeconomy.
- Challenges and immediate opportunities for innovations to advance the forest-based bioeconomy, including partnerships to enhance learning opportunities and skills.

Objectives of the next 14 minutes

- Gain a common understanding of innovation
- Capture the context of innovation in the forest sector
- Position you well to have a brilliant discussion 😊

Types of Innovation

- “the propensity of firms to create and/or adopt new **products**, **manufacturing processes**, and **business systems**.”

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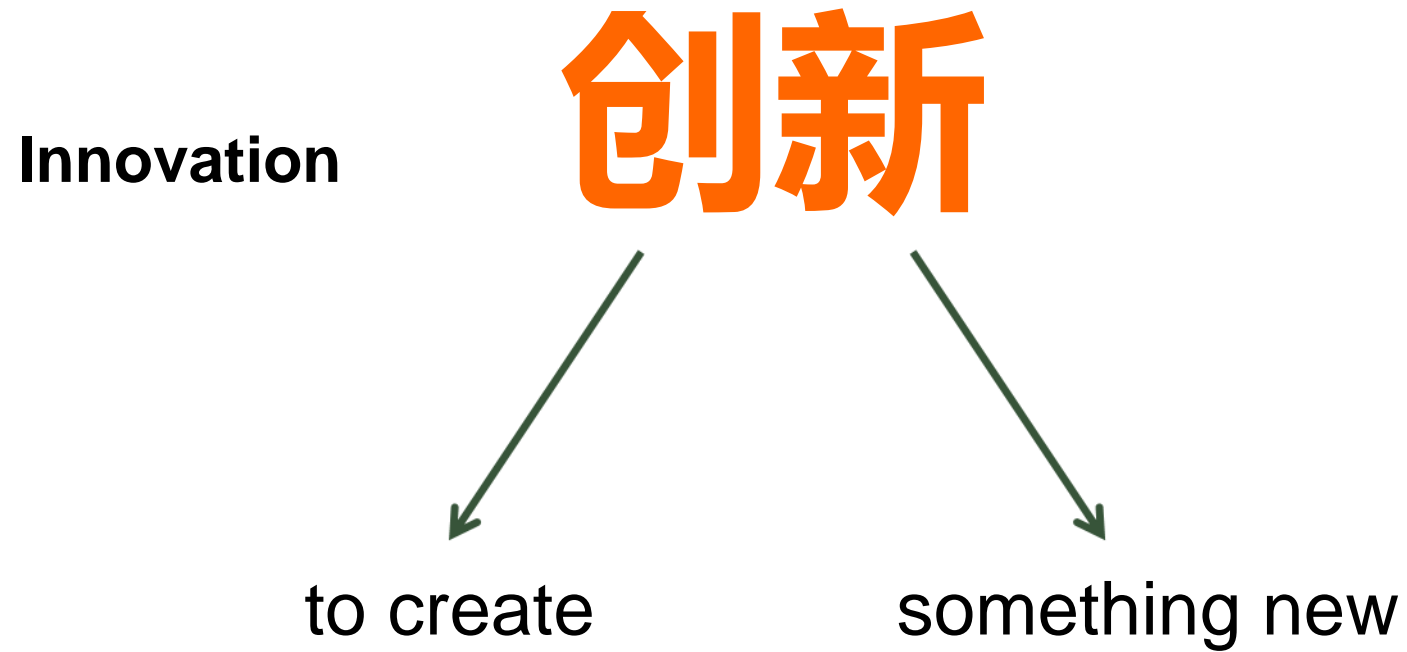


State of the World's Forests, 2024

Innovation

- “doing something new and different – whether solving an old problem in a new way, addressing a new problem with a proven solution, or bringing a new solution to a new problem”

Innovation vs. Innovativeness



Innovation vs. Innovativeness

Innovativeness

创新性

to create

something new

characteristics

“the propensity of firms to create and/or adopt new **products**, **manufacturing processes**, and **business systems**.”

Innovation Barriers

- Sector culture
- Risk
- Unsupportive policy/regulation
- Resource constraints
 - human, natural, physical, financial and social (Roshetko et al. 2022)

Context of the sector

**“We’re working with wood, so
what is there?”**

– American Manager

Resistance to change

- “...this culture is incredibly conservative in this industry, so very resistant to change.” – **North America**
- “I think this whole innovation thing or being innovative or not is something that people consider a bit apart from their everyday work or everyday duties and this is, of course, not the idea.” – **Europe**

International Paper & R&D

- 1998 – 250 R&D personnel
- Acquisitions
 - Champion International
 - Union Camp
 - Representing about 120 R&D personnel
- Soon back to 250
- 2005 – 100 R&D personnel
- Late 2010s – fewer than one dozen R&D personnel

The News-Review



PODCASTS NEWS OPINION CRIME SPORTS OBITS CLASSIFIEDS LOCAL EVENTS LEGAL NOTICES PUZZLES



Xospata Clinical Insights

Access efficacy and safety details for Xospata in AML treatment. Webhealth Network

See More >

Roseburg Forest Products streamlines operations

DREW WINKELMAIER The News-Review Dec 5, 2024 | Updated Sep 25, 2025



Innovation Manager

Operational Innovation Mgr

Technical Innovation Mgr



1 of 2



Read the *Umpqua Shopper* here!



Most Popular

- 1 The Parrott House goes up for sale yet again as restaurant closes
- 2 NMFS denies Oregon, California coastal Chinook salmon status under Endangered Species Act
- 3 RFP awarded \$150k in lawsuit
- 4 Judge allows ODFW to order WWCD to fix Winchester Dam fish ladder by 2028
- 5 Death Notices for December 26, 2025

UPM Biocomedicals develops and supplies wood-based biomedical products for wound care, cell therapy and 3D bioprinting. The main ingredient of our high-quality products is nanocellulose, extracted from birch.



Ocean Tunicell strengthens its position as UPM Biomedicals exits the market

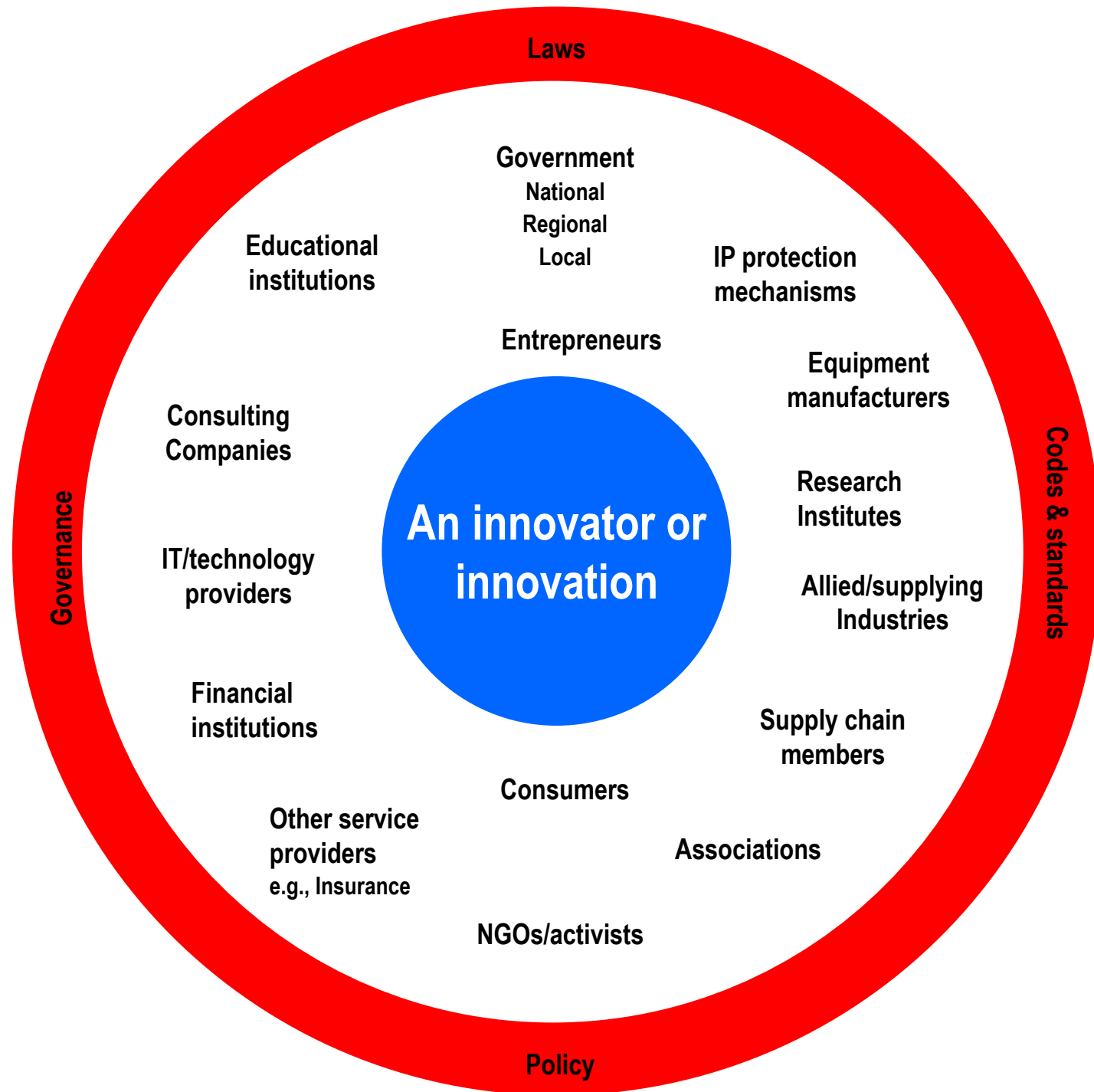
On April 29th, UPM announced that it will discontinue its Biomedicals business, with webshop sales ending May 5th and full closure by September 2025.

With UPM discontinuing their GrowDex offering, Ocean TuniCell stands ready to meet the growing demand for high-quality nanocellulose.

“Our commitment to delivering the world’s best marine-derived nanocellulose remains stronger than ever,” says [Christofer Troedsson](#), CEO of Ocean TuniCell.

Ocean TuniCell invites customers looking for a trusted, scalable alternative to get in touch.

A Forest Sector Innovation Ecosystem



How does innovation happen?

- Incremental improvements
- Radical breakthroughs
 - New products/services
 - New concepts/approaches
- Adoption from outside

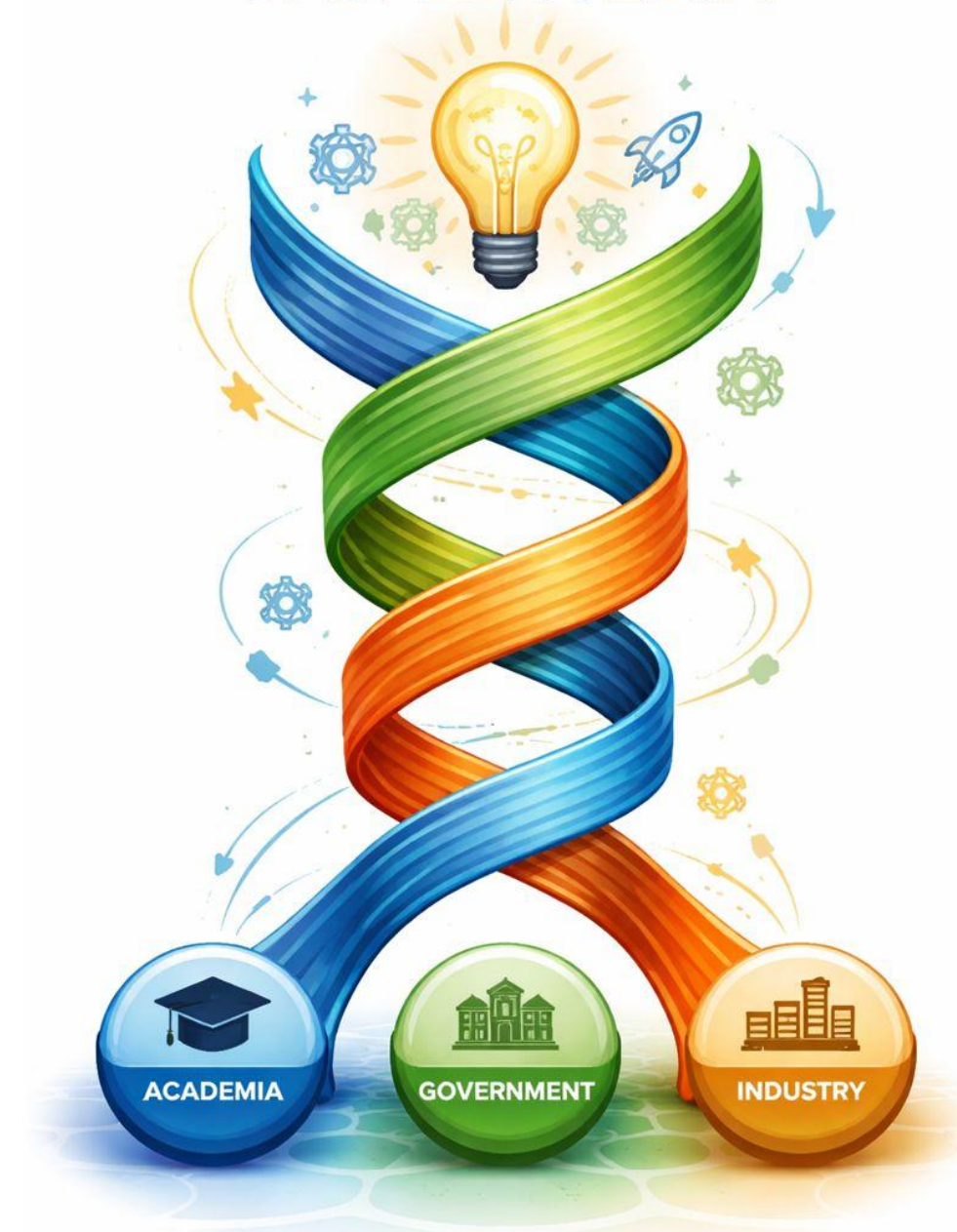
Policy Coherence

- “Guaranteed”, consistent access to supply
- TIMOs/REITs in the US
 - Timberland investment management organizations
 - Real estate investment trusts

Collaboration

- Wood K Plus (Austria)
- LUKE (Finland)
- Australia
 - Australia Forest and Wood Innovations
 - Forest & Wood Products Australia
 - 11 regional forestry hubs
- Oregon Wood Innovation Center

TRIPLE HELIX





Water resistant MDF



Repurposed LVL offcuts



Decorative panels
from reclaimed
materials



Fire Retardant-Treated OSB

Opportunities

- Enhance forest-based innovation ecosystems
 - Expand access to finance
 - Consistent, coherent policies
 - Ensure inclusive participation
 - Increase innovation-specific workforce training
- Cross-sector collaboration
- Wood-based housing
 - Relatively low complexity
 - Can fit various contexts well
 - Requires a suite of innovations in non-traditional places

*Enhanced
Innovation Culture*

Social Innovation

Key Points from Session 8.1 (Andreja Kutnar)

- Forest-based value chains are not only forest-to-product
 - Municipal waste
 - Old buildings
- Partnerships/trust needed around assurance of supply
- Traditional knowledge (craftsmanship) is to be preserved, while interdisciplinarity should be brought to forest-based value chains
- Growing importance of considering the human element (Industry 5.0)



Happy World Café...ing



Oregon State University
College of Forestry

Literature

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- Han, X. 2010. Internal Presentation to Wood Science and Engineering Faculty. Corvallis, OR.
- Kellison, R. 2014. A new model for forest sector research and development in the United States. US Endowment for Forestry and Communities. 14 pp.
- Hansen, E., Juslin, H., & Knowles, C. 2007. Innovativeness in the global forest products industry: exploring new insights. Canadian journal of forest research, 37(8), 1324-1335.
- Roshetko, J M, Pingault, N, Quang Tan, N, Meybeck, A, Matta, R and Gitz, V. 2022. Asia-Pacific roadmap for innovative technologies in the forest sector. Food and Agriculture Organization of the United Nations (FAO), Rome. Center for International Forestry Research (CIFOR), Bogor, Indonesia. CGIAR Research Program on Forests, Trees and Agroforestry (FTA).

Guiding questions

- Which recent innovations have successfully advanced sustainable forest-based bioeconomy approaches? e.g. technological, social, policy, institutional, or financial.
- Which factors currently prevent the large-scale implementation of innovative practices in the forest sector? e.g. such as policy constraints, institutional challenges, or financial gaps.
- What are the most promising short-term innovation opportunities in the forest sector that can be rapidly scaled up to enhance the forest-based bioeconomy?
- Which collaborative efforts between stakeholders are needed most to create the conditions that support the expansion of forest-based innovations and accelerate this transition? (e.g. government, industry, finance, and research)