CCES 2025
Textiles & Apparel Track Session Summary

Key Enablers to Circular Innovation Within Traditional Supply Chains

Session Description:
Davey Textile Solutions identified the need to mitigate supply chain risks while reaping the environmental benefits of sourcing alternative fibres. Based in Alberta, surrounded by abundant hemp resources, the company set out to leverage this material to establish a circular supply chain. This session will explore the transformative potential of Next Gen materials like hemp and others, highlighting their environmental advantages, strategies for securing future fibre supply, and practical approaches to integrating these materials into traditional supply chains.

Speakers:

- **Joshua Katcher**, Canopy
- **Dan King**, Zylotex
- **Lauren Degenstein**, Davey Textile Solutions Inc.
- **Stephanie Lipp**, MycoFutures

April 15, 2025, Montreal, Canada

Summary

This panel, "Key Enablers to Circular Innovation Within Traditional Supply Chains," featuring Joshua Katcher (Canopy), Stephanie Lipp (MycoFutures), Lauren Degenstein (Davey Textiles), and Dan King (Zylotex), delves into the innovative approaches to sustainable materials and the complex challenges of scaling circularity within the fashion and textile industries.

Joshua Katcher from Canopy, a forest protection NGO, initiates the discussion by highlighting the critical importance of preserving ancient and endangered forests, emphasizing their role as vital carbon sinks and biodiverse ecosystems. Canopy actively promotes next-gen materials—alternative fibers and design systems that reduce reliance on virgin forest products, offering significant environmental benefits like reduced land use, lower CO2 emissions, and less biodiversity impact. These materials also promise supply chain resilience and new economic opportunities in rural areas. Katcher specifically points to the vast, underutilized economic opportunity in agricultural waste (residues like wheat straw and sugarcane bagasse) in North America, representing over $2 billion annually.

Stephanie Lipp, co-founder of MycoFutures, presents their innovative, animal-free, plastic-free, and non-toxic biomaterial derived from mushroom roots (mycelium). MycoFutures aims to disrupt traditional leather production, which is plagued by unsustainable practices. Their circular process uses agricultural and forestry side streams as feedstock and returns spent mycelium-rich compost and biochar to farms, enriching soil and reducing synthetic fertilizer use. Lipp champions fungi's regenerative nature and versatility, expressing a strong belief in its future role in sustainable materials. MycoFutures is currently producing material for a travel pouch to demonstrate market demand, inviting customers to "vote with their dollars" to support women-led companies and prove viability to investors.

Lauren Degenstein of Davey Textiles,, a manufacturer of high-visibility and flame-resistant protective workwear, discusses their integration of Lean Six Sigma principles to reduce waste and enhance efficiency. A key focus is de-risking their

supply chain by seeking domestic, traceable fiber sources. Davey Textiles is exploring fiber-to-fiber recycling for their trims, acknowledging the challenge of adapting traditional machinery to new or recycled materials. She highlights the potential of industrial uniform programs, which offer high volumes of consistent textiles and existing infrastructure for collection and processing, as a model for circularity in consumer textiles.

Dan King, co-founder of Zylotex and VP at Davey Textile Solutions, introduces their project to produce biodegradable lyocell fibers from Canadian hemp. He emphasizes the "northern advantage" of Alberta hemp, which grows rapidly and sequesters significant carbon. Zylotex aims to offset cotton's high water usage, and challenge environmentally damaging viscose processes, noting that lyocell solvents are highly recoverable and the end product is biodegradable. King underscores the importance of "value add" for new materials to compete, as customers will only pay for perceived additional benefits. He also highlights the challenge of overcoming hemp's historical association with psychoactive properties to gain industry acceptance.

The panel delves into the paradox of scaling innovation: brands hesitate to commit without proven supply, producers without guaranteed commitments, and innovators struggle to scale without financial and policy support. Katcher points out the "double standard" where next-gen materials are expected to flawlessly match legacy materials from day one, and the lack of incentives for early adopters. He advocates for a collaborative, "zigzagging and messy but worthwhile journey" approach among all stakeholders.

The discussion touches upon what Lipp calls “the Valley of Death" for innovators—the gap between pilot projects and commercialization. King describes Zylotex's strategy to bypass extensive pilot phases and accelerate to commercialization due to capital challenges. Lipp stresses the crucial role of letters of intent and purchase orders from brands as "traction" for attracting investors.

Regarding the government's role, King advocates for reclassifying hemp under agricultural rather than cannabis legislation to ease progress. Degenstein suggests the government mandate sustainable material procurement in public tenders, leveraging their purchasing power to incentivize Canadian innovation and create a "pull" for sustainable textiles. She cites an example of a recycled aramid product that outperforms its virgin counterpart but lacks uptake, underscoring the need to understand marketplace resistance. Lipp emphasizes the need for the government to help shoulder early-stage risk for innovators and proposes policies

that limit the sheer volume of products companies make, which would reduce overall environmental impact and make it easier for nascent material producers to meet minimum order quantities.

In a Q&A session, Lipp confirms MycoFutures' commitment to only using bio-based, petroleum-free finishes and dyes to maintain biodegradability. Degenstein and King reveal that international customer interest in sustainability has been a primary driver for many of Davey Textiles' initiatives, and they are leveraging this to proactively prepare for potential Canadian policies. The panel concludes by encouraging audience members to connect with them on LinkedIn and explore their respective websites to learn more about their work and support their efforts in driving circular innovation.