Current Scenarios Mapping Example for Digital Materials Passports

In this example, workshop participants explored how organisations can support the introduction of digital materials passports in materials intensive industries and wider supply chains. Digital materials passports provide information about the material composition of products, their recycling rates and environmental impacts and, thus, are an important way forward towards a circular economy. The workshop followed a responsible and inclusive digital innovation agenda to consider what new technologies are required for a digital materials passport and how jobs, work processes and business models might be designed to support materials intensive industries, and their supply chains, through this digital transition.

The outcomes of this current scenario mapping session provide the organisation with a shared understanding of the starting point for digital innovation. Having this foundation is crucial for developing future scenarios and action plans for a successful introduction of digital materials passports.

Scenario Component	Current Scenario Description
Scope	Monitoring and sharing information about materials across different processes within businesses and the supply chain
Characterisation	- Fixed and siloed processes - Limited data flow - Minimal communication
Goals	- Key goals: cost saving & productivity, with some focus on quality / reliability - Growing drivers for environmental impact - Each organisation focuses on their own goals, rather than shared goals across organisations
Structure	- Separate organisations within a supply chain (often many miles apart) - Separate internal processes that aren't well integrated
Processes	- Fixed and discrete processes - Minimal communication across processes - Siloed and limited data & information - Reactive mode/Lack of traceability
Technology	- Several different types of technology but minimal capability to communicate or integrate information across processes - Manual process to collect relevant datasets and identify, analyse and address problems if something goes wrong
Stakeholders	Employees - have specialist roles and skills and knowledge, with not much understanding about other surrounding processes - siloed mentality due to specialist roles and skills - subject matter experts: mainly 'T shaped' - only responsible for one thing and gaining broad knowledge happens only at the highest levels. - Unfamiliarity/Resistance to digital technologies End users/customers demand more sustainable products
Culture	- Institutional/isolation: employees are not motivated to expand their skills due to fixed and separate organisational processes - Specialisation: employees are less open minded and tend to stick to a single job as they are the expert in the particular area - Low trust in relation to sharing data - fears about losing intellectual property and others exploiting the data for their own benefit - Defensiveness: who has responsibility for materials
Benefits/ Opportunities	Employees are skilled towards the current approach & culture - Feel secure, comfortable and competent to do their job as it's within their knowledge - Feel a sense of control as they make decisions rather than the technology making the decision - Trust/familiarity: well established system - predictable way of achieving outcomes aligned with current standards and regulations - This system can achieve short term benefits
Costs/Risks	- Not proactive - too slow to respond when there is a problem - Industry and employees risk falling behind in digitalisation - Limited opportunities for employees to expand their skill sets due to the fixed and discrete organisational process. risk of losing good employees - Does not adequately address the growing environmental and sustainability concerns