Foundation Industry Forum – Day 3

Networking and Horizon Scanning

This session explored four predicted scenarios for the Foundation Industries, the challenges that we know we need to address, and sought insights on how to solve these future challenges. This session combined expertise from scenario planners, Transfire researchers and Innovate UK with industry knowledge and insights in order to help create a future innovation and research funding agenda.

Workshop 2 consisted of short talks, pre-recorded videos and interactive sessions on:
● Future scenarios for Foundation Industries
● TransFIRe industry update: insights from the research and hub activity
● How we solve these challenges and ensure our survival as an industry / how we move forward on this
● Prioritisation of the future challenges

Exhibition hall (mural): bit.ly/FIFWorkshop3

Future Scenarios for Foundation Industries (Click for presentation)
Presentation by Ian Bamford, University of Cambridge exploring future scenarios for the Foundation Industries and why change is urgently needed in the context of the wider changes happening around us.

Comments regarding presentation:

"Competitive activity in a price elastic market also drives innovation, as well as the mitigation strategies (what if's). Investment cycles can be short term, meaning that the DCF analysis does not stack up. Hence the need to look at the medium term, rather than short term. Example being Boeing / 747development / Pan Am anchor customer. On energy, I was wondering if a decentralised energy network on a project finance basis might work, with the FI providing the purchase contracts to underpin the finance?"

"I believe they used this to evaluate the R&I Hubs and thus why TransFIRe was funded."

"…(I'm) not sure I understood 'material security' correctly in Scenario 2, does this imply greater (full?) self-suficiency in FI materials? Surely this ambition would require huge

innovation in circularity, productivity and financing, which would serve to make UK FI more globally competitive? So not such a bad thing?"

"On the point of regulation (review and change) and implementation – the announcement of 96,000 civil servant job cut is a concern for capacity going ahead. It begins with freezing recruitment - i.e new talent."

"I agree it's such an issue. It's in the course of cutting red tape I suppose, but often the lack of regulation and capacity to implement also poses barriers."

TransFIRe industry update: insights from the research and hub activity (Click for presentation)
Our research team led by Dr Anne Velenturf (University of Leeds) shared the challenges that we have identified must be addressed over the next 10 years for the future survival of Foundation Industries

Interactive Session:
How do we solve these challenges and ensure our survival as an industry? Each group spent five minutes on each of the questions to generate at least three "How we might" ideas to get us moving forward.

PINK GROUP 1
1. **Reduce demand and go beyond recycling?**
   We could try...

   - Design for circular economy guidelines.
   - Funding for change OR legislation for change.
   - Standards and technical issues will drive recycling.

2. **Develop innovative business models?**
   What about if...

   - Work with major customers to innovate business models e.g. servitization.
   - Tailored approach for diverse industries and materials.
   - Change mindsets within companies within commercial teams.
   - Map resource and "waste" streams to optimise use across FIs.

3. **Encourage more public engagement?**
   How about...

   - Funded engagement with schools/colleges/universities.
   - There is already a lot of recycling going on!
   - Targeted work with legislators to help them understand the issues and what needs to change.

LIME GROUP 2

1. **Create energy reduction, efficiency and alternatives?**
   We could try...

   - Incentivising reuse.
   - Incentivising retrofitting.
   - Focus on near-market technologies to prove at scale to encourage deployment.
   - Heat recovery - possible to external users.

2. **Respond to high costs, foreign competition, low investment?**
   What about if...

   - Energy efficiency.
   - UK as a cost-competitive manufacturing location.
   - Greater investment in renewable energy.

3. **Create a culture of equality, diversity and inclusion?**
   How about...

   - Increase board-level diversity.
   - Communication.
   - Cultural change.
   - More permissive visa regulation.

BLUE GROUP 3

1. **Implement benchmarking across all FI?**
   We could try...

   - Establish a programme of cross industry secondments of technical experts eg. process control, heat expertise.

2. **Develop digital solutions?**
   What about if...

   - Actively recruit from the gaming industry.
   - Create opportunities that offer closer links with SE and FE.

3. **Develop governance for sustainability?**
   How about...

   - Coherent regulation within 2050 net zero budgets
   - Give more power to local authorities/councils and devolved administrations

YELLOW GROUP 4

1. **Develop landfill mining?**
   We could try…

   - Incentivise extraction of materials, e.g. landfill tax.
   - Financing and policy environment to encourage landfill mining.
   - Changing the attitude of Environment Agency.

2. **Regenerate the UK economy?**
   What about if…

   - World leadership in recovered materials technologies.

3. **Create a culture of high innovativeness?**
   How about…

   - Share responsibility / roles in innovation cross all elements of industry.
   - Overcome barriers, e.g. fear, by showcasing examples.

LILAC GROUP 5

1. **Influence Regulation/implementation of policy?**
   We could try…

   - Produce evidence: getting coherent and consistant evidence in front of the right people.
   - Evidence to make the narrative case for change.
   - Embed people from industry and academia in policy processes.
   - Funding for change.
   - Policy pilots and modelling to see what works; learning from past policy.

2. **Develop our collaborative capacity?**
   What about if…

   - New business models - how can people making less stuff still make money?
   - Bring people from across and along supply chains, esp 'not the usual suspects'
   - Testbeds for latest research: check viability and scale-up.
   - Increase awareness of the opportunity: what's in it for me?
   - SME's don't have the spare capacity for innovation - gain capacity through collaboration.
   - Need funded programmes, tax incentives to help SME engage in innovation.

3. **Increase jobs and training for a skilled workforce?**

How about...

- Plan for the future
- Invest in upskilling current workforces for new tech.
- Develop skills and capability 'road-maps' to describe future needs and opportunities.
- Make FI attractive to a diverse workforce.

ORANGE GROUP 6

1. **Change the political-economic model?**

We could try...

- Serious recognition of the industries at higher political level.
- Cross governmental approach from all departments of government.
- Promote investement across multi -national companies.

2. **Develop systems for Recycling and Industrial symbiosis for materials, water and heat**

What about if...

- Designing developments rather than trying to retrofit.
- Put effort, time and funding behind ideas!

3. **Improve levels of productivity?**

How about...

- Improve skill base.

PURPLE GROUP 7

1. **Reduce demand and go beyond recycling?**

We could try...

- Servitsation e.g. sand for casting then recondition.
- Lifetime of goods valued by users.
- Design to deconstruct / repair / reuse.
- Buy & renting decisions based on more social & eco factors.
- 3D printed cement & buildings combined with the need for clustering and carbon capture.

2. **Create a culture of equity, diversity and inclusion?**

How about...

- Education in schools and collages for breaking down cultural norms and barriers.

TEAL GROUP 9

1. Influence Regulation/implementation of policy?

We could try...

- Develop a convincing social and economic business case
- get access to regulatory bodies.
- Gaining public support to pressure government change

2. Increase jobs and training for a skilled workforce?

What about if...

- Develop regional solutions.
- Training institutions (Universities) learning what the industry needs wrt training and skills.
- Government support for industrial engagement for young people.
- Raising awareness of KTP's to industrial companies (benefits, existence, financials etc).

3. Develop governance for sustainability?

How about...

- Develop a regional approach to governance.
- Economic and legislative incentives for sustainability.

RED GROUP 10

1. Develop landfill mining?

We could try...

- It is already being looked at more widely- we should talk to others already doing this.
- Does this also include urban mining of municipal wastes WEEE etc.?
- Broaden out from landfill to be more inclusive of opportunities like this.
- Developing landfill mining does not seem a revolutionary concept. Driven by economics it is already being explored and pursued where it is economically viable and technically feasible.

2. Create a culture of high innovativeness?

What about if...

- Support high-risk ventures
- Ideas are not the problem - its finding convincing business cases for economic take-up.
- Innovative ideas have never been the problem - developing ideas into commercial reality that is economically viable / fruitful is historically not a UK strength.

3. Improve levels of productivity

How about...

- What can we learn from other countries with higher productivity in the FIs.
- Understand more about the underlying issues - WHY?
- UK unwillingness to invest in renewing capability - keep up with state of the art / tradition of sweating the assets.
- What can we learn from other industries and other countries?
- Short-termism is a fundamental problem (failure to invest for the future).

How do we move forward from these challenges?

Ben Walsh (Innovate UK) and Anne Velenturf reflected on the solutions/challenges raised and identified existing or future planned work that may help us to make progress.

Comments from the conversation regarding this panel session can be found here: https://app.mural.co/t/cff8717/m/cff8717/1649839041298/6a5d6acbc3b64deda8ce45db5c02c c58f43c2280?wid=0-1652456324350

Prioritisation of the future challenges

Following the discussion and review, the attendees went on to prioritise and vote upon those solutions/challenges that they thought best offer the key to unlocking the transformation of Foundation Industries.

The summary of this prioritisation can be found here (point 21)

The voting results were as follows:

9 votes
- Green Taxonomy - placing new requirements to internalise externalities on business investors (unique voters 8)

8 votes
- What can we learn from other countries with higher productivity in the FIs (unique voters 7)

7 votes
- Cross-sector engagement (unique voters 7)
- Education in schools and collages for breaking down cultural norms and barriers (unique voters 7)
- Demonstrate that new technology and processes are viable and can replace existing processes without compromising the industry/market (unique voters 6)

6 votes

- Cultural change: Increase board-level diversity/ communication (unique voters 6)
- Benchmarking waste materials reuse (unique voters 6)
- Create incentives to recover components and materials (unique voters 6)
- Map the FI to understand industry needs (unique voters 6)
- Focus on near-market technologies to prove at scale to encourage deployment (unique voters 6)

5 votes

- Training and education of workforce/future workforce - from schools - need significant investment (unique voters 5)
- Serious recognition of the industries at higher political level (unique voters 5)
- Demonstrating regional expertise and strengths in a field (e.g. sustainable energy) to attract companies and investment Linked to regional needs (unique voters 4)
- Really help people understand what the challenges are -PR campaign? (unique voters 4)

4 votes

- Design to deconstruct / repair / reuse (unique voters 4)

3 votes

- FI mapping (needs, technologes) (unique voters 3)
- Embed people from industry and academia in policy processes (unique voters 3)
- UK unwillingness to invest in renewing capability - keep up with state of the art / tradition of sweating the assets (unique voters 3)
- Fuel switching (unique voters 3)
- Energy efficiency (unique voters 2)

2 votes

- Board of directors need to take ownership/adapt to changing circumstances (unique voters 2)
- Develop skills and capability 'road-maps' to describe future needs and opportunities (unique voters 2)
- Put effort, time and funding behind ideas! (unique voters 2)
- Monitoring and sharing of information across the supply chain (unique voters 2)
- Collaboration between FI and product designers of companies using FI materials (unique voters 2)
- Need funded programmes, tax incentives to help SME engage in innovation (unique voters 2)

- Net zero targets will drive demand for scrap steel/recovered materials (unique voters 2)
- Real financial support to innovative SME (unique voters 2)

1 vote

- Broaden out from landfill to be more inclusive of opportunities like this (unique voters 1)
- Develop a through solution to skills (schools to first role) (unique voters 1)

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06/07/2022

UK Research and Innovation