# Minutes from the Advisory Board's second meeting

## Deliverable 8.7

**2018-11-30**

# The format

The second Advisory Board meeting of REINVENT took place 9 October 2018, around the half-time of the project. This was used as an opportunity to reflect on our work, together with the advisory board, and have this reflection inform the upcoming work in the project. At the same time, we decided to hold this meeting in a workshop format rather than the standard 'project presents – advisory board comments' format, with the core aim being to make this a mutually enriching event, where both REINVENT and Advisory Board address the issues they find to be of critical importance. The event was designed to stimulate a dialogical engagement of REINVENT and the Advisory Board, and for opening a broader picture for all the participants.

The workshop consisted of three parts: 1) mid-term reflection by REINVENT on 8 October 2018, 2) impulse talks by members of the Advisory Board and invited guest, followed by discussion and 3) open-space discussion in groups, informed by 1) and 2).

# Mid-term reflection of REINVENT

On the first day of REINVENT's biannual meeting, a mid-term reflection session took place. It was intentionally open, so that researchers could bring up any themes in connection to the project and their involvement in it that they found important. The discussion was held in small groups, followed by a general discussion.

The discussion can be split into the following key themes:

**REINVENT's research:**

- Industry was much more conservative very recently, but has started to change
- Change can sometimes happen very fast. Oatly – one of the case studies currently undertaken in REINVENT – is one vivid example.
- The multidisciplinary character of REINVENT means that the researchers involved in it are part of a number of very different research communities, and this helps to bring decarbonisation, as well as multidisciplinary insights on it, there.
- Going to empirics is important and insightful. Some actors are reluctant to speak though, especially where innovations are still developing or have been less successful. Looking at established innovations might overcome these challenges. There is good access to the steel sector.
- In meat&dairy and plastics sectors we see different coalitions of actors.
- There are some data problems for the modellers, see how to address them in future workshops

**Broader issues:**

- Social acceptance of changes towards decarbonisation is a key issue. However, issues like climate change can also create a split in society – between those seeing it as crucial and those highlighting other problems as focal – which may result in a shift towards right-wing politics
- Male domination of both industrial and academic fields

**Communication issues:**

- Communicating REINVENT's work can take place via both objects and narratives. It is not just about the new decarbonised objects being invented, but the reshaping social experiences with them (e.g. how would a family mean change in a decarbonised word?).
- Finding a way to communicate with scholars speaking other disciplinary languages – e.g. finance.
- REINVENT's own communication is smooth, but more can be done together, beyond the very focussed biannual meetings (e.g. a joint field trip)

# Impulse talks

For the impulse talks the speakers were asked to present the issues they find most important in relation to decarbonisation in their fields. They were to do this within 10-15 minutes, leaving time for discussion with REINVENT. Three Advisory Board members presented, as well as one invited guest:

Advisory board members:

- Stefan Nyström (Swedish Environmental Council)
- Michael Theben (Ministry of Economy, Innovation, Digitisation and Energy, North Rhine-Westphalia)
- Nils Hannerz (IKEM and CEFIC)

Invited guest:

- Eva Blixt (Swedish Steel Industry)

**Stefan Nyström on industrial climate politics**

- The new climate law and zero emissions goal supported by 87% of the Parliament in Sweden. The New Climate Act (1 January 2018) requires each government to submit a plan every 4 years.
- Sweden's climate target is to achieve net zero emissions by 2045. Progress is to be reported annually, with follow ups in the Parliament. Independent climate policy council monitors climate politics
- With these aims, the biggest question is: <u>how the transition can be done fast, with various complexities surrounding even new innovative technologies?</u>
- These are some of the questions to address. Iron and steel industries have biggest emissions, but how to make them zero-carbon? Renewable energy is needed for electricity, and transmission lines are needed to transport it, and they can take 10-12 years to plan, permit and build.

<u>Discussion:</u>

*Driving change*

- How to drive change not only fast, but also involving the different groups?

Stefan: This is a very difficult question as nobody wants it in their backyard, so takes long to give permits to wind energy producers.

- Who are the new agents of change? For example, will construction industry go towards electrification? They won't (path dependency, other infrastructures invested in). Maybe these could instead be washing machine producers or phone network providers?
- How funds can be transformed to innovation frameworks?

*Demand and availability of materials*

- Is demand part of the discussion? A constraint on demand is needed for 1.5 degrees. How can this be addressed and measured? How do we ensure we have the materials available for switching to new practices?
  Eva: There is already small production of steel in Sweden in comparison to other places (like Germany).
- Maybe NDCs (nationally determined contributions) could also go into industry policy.

*The role of research*

- What can be done by research?
  Stefan: Environmental ministry has limited tools, and the various other factors and players affect environmental issues. There is a need for sound science that can be transformed into policy-making.

**Michael Theben on regional industrial and climate strategies**

- North Rhine Westphalia – a key industrial area of Germany – is the case in focus
- It has 30% of Germany's production and 30% of emissions. 70% of the region's greenhouse gas emissions is due to energy and industry sectors.
- 'Evolutionary' approach has reached its limits when it comes to decarbonisation. Thus, the key challenge is to <u>how to foster leapfrog innovations are needed, while keeping the industry active</u>.
- Reducing emissions can, in fact, be a way to stay competitive.
- IN4Climate.NRW (www.in4climate.nrw.de) is a project that brings together local industry, state and policy-makers, supported by the state. More projects with state support are needed.

<u>Discussion:</u>

*Seeing the big picture*

- Substantial changes in attitudes and perceptions are needed, e.g. seeing decarbonisation as the future of steel-making
- There are winners and losers in climate change, not only in regions, but also in industry. So some big changes might need to happen to address climate change, including industries closing or regions shifting their economic focus.

Michael: technically overcoming climate change might mean closing the industry. This is not what you want for your region. But it can happen.

- Are there any joint areas where different industries can collaborate?
- Michael: Yes, in carbon to chemicals area. Three companies from different areas are collaborating already on this front.

*Markets*

- Connection to global markets is important and not losing the competitive advantage.
- By going towards decarbonisation, industries can create and enter markets for green materials
- How do you discuss investment decisions – e.g. to invest or not, in Europe or not?
  Michael: In IN4C ground is prepared, but decisions are not taken. The aim of it is to make the industries work together to help and accelerate the process, with science helping. Feeling of a start-up rather than simply a discussion process.

*Measuring progress*

- How will you evaluate your progress?

Michael: After two years, there are 21 partners: 11 industry + 10 associations. So there is interest and a sense of importance of the project.

- It might be good to discuss what measures/metrics are suitable to evaluate this joint process.
- We need new methods of assessment and evaluation, as meeting 2030 targets does not mean we are on track to full decarbonisation.

**Nils Hannerz on plastics and politics**

- Focus: Swedish plastics industry
- <u>Closing the circle of production-consumption-recycling</u> is a big challenge for the plastics industry
- Various scenarios for plastics are discussed (see this report: 'Low carbon energy and feedstock for the European chemical industry'). Today the production relies on oil and gas resources. In the future it could $CO_2$, renewables, waste.
- One idea: build carbon chains and sell them with a profit on the market. Fossil free chemistry: $CO_2$ + $H_2$ = produce methanol, which is what is required for plastics production. However, the question is how to move carbon dioxide from all over Sweden to the plastic industry (mostly located in the south of Sweden)? Would this be by pipelines or transport?
- When it comes to renewable energy, there is space for wind power in Sweden due to low density of the population. However, a lot of space will be required to ensure the current levels of plastics production with renewables. New players entering the plastics value chain, like Vattenfall in Sweden

<u>Discussion:</u>

*New players and processes*

- Is it unthinkable to have smaller scale production closer to feedstock?

Nils: it's a possibility.

- In what way is Vattenfall expecting to be in plastic value chain?

Nils: For them it's building grids and selling electricity or hydrogen, but they are talking to many industries – steel, plastics, cement.

- Plastics from renewable energy sounds difficult. How to go about that?

Nils: Turning plastic waste into virgin plastic. The technology is there, but there is no facility so far.

*Driving change*

- Who should be driving it and switching to non-fossil sources of energy?

Nils: E.g. partnership of Neste and IKEA around the idea of using waste plastic as a raw material for fuels and plastics.

- Is it a problem that the industry addressed one problem and the public/government is pushing for the other one? Is it possible to address both at the same time?
- Is it important that industry has a broader vision for sustainability? As with the scenarios presented, it seems decreased used of plastics might be needed.

Nils: Yes. Even if we sell less plastic, we can still earn the same money.

*Role of research*

- Would you use insights coming from academic models?
  Nils: That's what IKEM has used in the report – a combination of academic and industrial analyses. It would be helpful to get such insights from REINVENT's modelling

**Eva Blixt on decarbonisation of steel**

- When it comes to sustainability, changing the image of the steel industry as unsustainable has become of crucial importance. Today, sustainable production of steel is a key issue for the Swedish steel industry.
- Good that there is research someone that addresses decarbonisation of the industry.
- Commitments of the steel industry: technology development, attracting creative individuals, making products with societal value (which $CO_2$ is not).
- At some point the industry got funding and started outlining future scenarios, to figure out what can be done to fulfil their commitments.
- HYBRIT is an innovative project that helps the industry to move towards sustainability. It is a collaboration between private and public companies.
- June 2018 – agenda 2030 compass launch. Important to focus not only on climate, but also see how other goals are affected, as these are reciprocal. Thus, the steel industry went through different Sustainable Development Goals to see how they relate to the industry, and established that all of them do, directly or indirectly. So now the industry builds its activities in view of these.

Discussion:

*Driving change*

- Who in the steel industry is working with sustainability and how to make sure the plan for sustainable steal production is actually implemented?

Eva: not everyone in the industry is working with it, but the CEOs are, as this is something needed for the future.

- What are the other drivers for change in the industry? What is moving the steel industry?

Eva: We are tired of being the elephant in the room, the 'bad guys'.

# Open space discussion in groups

The impulse talks were followed by an open space workshop. Three themes were chosen to be discussed: 1) How to measure/alternative measures, 2) cross-sectoral collaboration and 3) policies for decarbonisation.

**How to measure / alternative measures**

- What types of measures and indicators can be used to monitor progress towards decarbonisation
- Can they be developed in relation to pathways and scenarios
- Assessing key technologies and TRL (technology readiness levels), pilots, demonstrations, niche markets and market shares is one option.
- Infrastructures and systems coevolution is also important.

**Policies for decarbonisation**

- When implementing policies for decarbonisation, it is important to keep an eye on the total cost pressure for companies.
- Industry does not want any policies introduced to compromise free trade. However, long-distance trade is a big contributor to carbon emissions. Even if these decarbonisation in REINVENT's sectors is achieved, the will to transport materials far and white still contributes to carbon emissions.
- Can policies be framed so that certain products/materials are prioritised while others are not? E.g. non-disposable vs disposable plastics (which is partially done by the policies on plastics)

**Cross-sectoral collaboration**

- How to transport the decarbonised materials and what infrastructure is needed? Need for network to coordinate those processes
- Is it possible to move production facilities and different steps of the value chain closer to each other? Localisation of production might be a way for building a decarbonised system.