Methodological toolbox and comparative analysis protocol

Deliverable 3.1

2018-03-31

Note: this is a draft of the protocol. The final version is to be agreed upon at the project meeting in April 2018

1. Introduction and aims

Within REINVENT we adopt a broadly socio-technical theory of change, which views stability and transformation as a result of the interaction between inertia and innovation. Our analysis has shown that the dynamic between inertia and innovation can be understood as shaped by conditions of political economy (the relations between the state and capital), as well as the structure of markets (density of actors, relationship between supply and demand etc.); and forms of infrastructure and investment deployed. Our approach seeks to take account of the ways in which shifts in one sector (e.g. plastics) may shape another (e.g. paper) and to identify the agents of change, dynamics of power, forms of materiality and geographies through which decarbonisation is realised and constrained.

In Work Package 3, we focus on in-depth case-studies of specific *initiatives* in order to provide insight into how these dynamics of inertia-innovation play out in practice. An initiative can be conceived as a specific intervention designed to implement a specific innovation (e.g. a new material in a production process, a novel technology, a certification scheme or behavioural change approach) in a particular context. The initiative consists not only off the innovation itself, but of the actors, institutions, context and conditions within which it was implemented and its consequences for decarbonisation as well as wider social, economic and environmental goals. The aim of WP3 is to explore the factors, processes, and mechanisms that contribute to initiatives' success and systemic integration, and establish their environmental, economic and social impacts.

The research design is based on a case-study approach (Section 3) with cases chosen from across the four sectors and at different stages of their value chains. For each case-study, we adopt a 'layered' approach in which we seek to gather evidence that enables us to understand:

a. Innovation dynamics: conditions for the emergence and acceleration of social/technical innovation
b. Governance initiatives: arrangements and forms of governance through which innovation is mobilised
c. Intervention capacities: social and material practices through which initiatives are/not realised
d. Uptake: the processes through which innovations are circulated, embedded and normalised

For example, if we were interested in the innovation of 'Meat Free Mondays', our case-study would need to include: (a) an overview of the 'innovation dynamics' (the conditions and dynamics of the emergence of this innovation in general, sourced from academic and relevant 'grey' literature); (b) a discussion of the particular class of governance initiatives with which the case-study was concerned (e.g. Meat Free Mondays in educational institutions in the UK) with a specific focus on the particular initiative in focus (e.g. MFM in schools in London); (c) an analysis of the capacities inherent in/generated by the intervention and the ways in which these were/not able to address the forms of inertia encountered; and (d) an examination of the ways in which the intervention had led to the (un)intended circulation and spread of (part of) the MFM innovation through other actors, institutions, networks and places.

The objective of this protocol is to provide guidance on:

➢ Research themes and questions (Section 2)
➢ Research design and criteria for selecting case studies (Section 3)
➢ Research methods (Section 4)
➢ The process of data analysis and sharing data (Section 5)
➢ Deliverables and milestones (Section 6)

2. Research themes and questions

The overarching research themes for the case-study research have been developed in the Analytical Framework (D1.3) and relate to the political economy, market structures and investment/infrastructure dynamics of decarbonisation on the one hand, and the importance of cross-sector interaction, agents of change, power dynamics, materialities and geographies in shaping these dynamics on the other. While the extent to which any one case-study will address these overarching themes, and the particular conceptual approach taken to do so, will be determined by each team, to ensure comparability across the case-studies a core set of research themes and related questions have been identified which each case-study will address.

The first column of Table 1 provides the core research themes, which form the basis for data collection and analysis for all case studies. The second column contains research questions associated with each core theme, which will be answered through case study research. Note that these are not questions to be used in interviews (per se) but should form the basis for inquiry in relation to the analysis of background materials, site visits, semi-structured interviews and so forth. Initial analysis of each case-study in accordance with these themes and questions will be provided in a series of internal project working papers (Section 5).

Table 1: Research Themes & Questions

Research Theme	Research Questions
1. Innovation history & dynamics	1a. How, where and by whom was the innovation first developed? In what ways does the innovation build on earlier innovations (if any)? 1b. To what extent has the innovation circulated & been taken up in different institutional/organisational and geographical contexts? To what extent is it a 'proven' technology? Is the innovation/initiative viable only under specific conditions? 1c. What are the primary institutional/political/economic/geographic/material barriers and challenges that have been encountered? 1d. What have been the (un)intended consequences of this innovation for the organisations and actors involved, other stages of the value chain, other economic sectors, sustainable development challenges, and issues of social equity?
2. Governance arrangements & agents of change	2a. What are the governance arrangements through which this innovation is being implemented in this instance? Who are the critical actors and organisations involved? 2b. What are the drivers (e.g. market, material, geographical, institutional, regulatory) that enabled this form of innovation to become part of these critical actors' vision/identity/practice? 2c. To what extent does the specific initiative being examined conform to the predominant governance model of the innovation and in what ways does it differ, with what consequences? 2d. How has the initiative been financed and implemented? What new forms of knowledge, resources, rules, techniques, training, evaluation etc. were required to put it into place? 2e. To what extent has the initiative led to cultural, organisational, socio-technical or material change for the actors, institutions, processes and materials involved?
3. Transformative capacities	3a. To what extent was the initiative capable of generating the skills, knowledge & resources required for implementation and addressing forms of inertia? 3b. How did the intervention seek to make the potential for decarbonisation legible? How were visions, imaginaries, norms used and to what extent were these contested? 3c. In which ways did the actors involved seek to generate authority and legitimacy for the initiative, and to what degree was this successful? 3d. How, and with what consequence, were the 'low carbon' qualities of the initiative made distinct and given value?
4. Assessment and evaluation	4a. How, by whom and with what consequences has the impact of the initiative been assessed? Are quantifiable measures of its carbon impact available? Which metrics have been used and to what extent are they generalizable? Is there evidence of a reduction in energy demand? 4b. How has the initiative been evaluated by those involved in its design & implementation,

	and by external actors/organisations? 4c. How might metrics of impact be designed, implemented & monitored in the future in order to gauge the contribution to meeting low carbon goals? 4d. How are/could metrics of impact be incorporated within existing/new governance arrangements?
5.Uptake and consequences	5a. To what extent is there evidence that the initiative has led to the 'scaling up' of the innovation, through new forms of circulation, its embedding in particular economies/practices, or through the normalisation of being low carbon? 5b. Has the initiative remained visible as a low carbon initiative or has it been integrated into business as usual narratives? 5b. What have been the (un)intended consequences for issues of societal cohesion and equity, including gender, as a result of the initiative? 5c. What have been the (un)intended consequences for economic development as a result of the initiative? (e.g. on the economic prospects of the organisation or region involved, the creation of new forms of economy) 5d. What have been the (un)intended consequences for other key environmental goals (e.g. SDGs) as a result of the initiative? (e.g. have there been direct or indirect effects on biodiversity, water, air pollution, has the initiative led to new corporate strategies or initiatives related to other sustainability goals)

3. Research design

A total of between 15-20 case-studies will be conducted in WP3, with 3-4 in each sector focusing on the production and consumption/waste parts of the value chain and a further 4 case-studies examining the finance stage of the value chain. It is expected that the case-studies will be selected from the database compiled in WP2 (unless there are exceptional reasons to include another case, e.g. due to its particular timeliness or significance).

3.1 Process for selecting case studies
The final selection of case-studies will be based on the following criteria:

a) That the selection contributes to a spread of cases across the sectors and stages of the value chain
b) That the selection contributes to the analysis of a mix of social and technical innovations
c) That decarbonisation is the intention behind the initiative, and not an unintended consequence
d) That the case-study has 'carbon significance' i.e. potential to contribute significantly to decarbonisation
e) That the case-study lends itself to being represented in scenarios/modelling of decarbonisation
f) That the case-study is feasible and can be undertaken within the time/resource budget available

The nomination of cases within the sectors will be carried out by the person(s) in charge in close contact with all team members and WP3 leaders. WI (Daniel & Katja) will upload a list on LU Box and all participants are invited to suggest ideas for their cases (as agreed at the Wuppertal meeting).

Suggestions for pilot cases need to be made by 2 February. After that, a conference call will be organised by WI to define the following working processes with all colleagues involved in WP3 and colleagues working on innovation biographies (D2.7). Suggestions for further case studies will need to be made at a later date (to be confirmed).

The first set of case studies will be conducted from February – April 2018 (M15-17). We will evaluate the initial case studies as well as this methodological toolbox at the REINVENT meeting in Durham (April 2018),

and adapt the toolbox and/or the research design as required. All participants are expected to have completed three case studies by October 2018, with one further case (per team), and a comparative analysis to be conducted prior to the synthesis workshop in May 2019.

4.   Research methods

We expect to carry out 8-12 interviews, two field visits and two workshops plus desk research/documentary analysis in a typical case study. It is important that each research team recognises that the amount of primary research that can be undertaken in any one case-study may be more limited than their experience in other projects, which often deal with a smaller number of case-studies. The strength of REINVENT comes from the combined effort undertaken *across* the case-studies, and hence it is adhering to a common protocol and the timely production of data/analysis is critical to its success rather than extensive research on any one case-study.

4.1 Desk Research

In this project, desk research will involve two elements.

First, a review of the academic and 'grey' literature concerning the broad type of innovation (e.g. Meat Free Mondays, Green Bonds, Bioplastic) which will enable the specific initiative under examination to be situated within its broader context. This material should be systematically reviewed and written up to provide a short contextual background to the case-study report (see Section 6).

Second, a review of 'grey' literature and secondary data concerning the specific initiative under investigation (e.g. company reports, blogs, policy documents, websites. This material should be interrogated according to the research themes and questions (Section 2) and systematically recorded.

4.2 Interviews

To access specialist and in-depth expertise from key actors and organizations involved in innovation for decarbonisation, semi-structured key informant interviews (recommended 8-12 per initiative) will be conducted.

In each case-study, it is recommended that the majority of interviews focus on the actors involved directly in the development, financing and implementation of the initiative, some interviews should be conducted with 'interested parties' that are have a critical distance from the specific initiative, e.g. companies or organisations who have not implemented this form of innovation, observer organisations/NGOs/Think Tanks, government departments or agencies, consumer organisations and so on who will have an 'expert' view of the drivers and consequences of the initiative.

The conduct of interviews will be guided by requirements for the ethical conduct of research agreed in the project. Explicit consent for the participation in and recording of interviews is required. An information sheet and consent form are provided in Appendices A and B. We recommend that all interviews are digitally recorded. In addition, taking in-depth field notes and keeping a field research diary is an important part of collecting interview data and we encourage all research teams to do so.

4.3 Site visits: field research, participant observation and mobile labs

In addition to desk research and key informant interviews, each case-study should ideally involve two site visits. These site visits can take multiple forms. At a minimum, a site visit uses the techniques of field research (observation and 'mapping') to situate the case-study in its social, economic and environmental context, recording information about the social and material conditions that may create inertia/lock-in as well as those that may support innovation in different contexts.

A site visit could also involve elements of participant observation, for example participating in an event or organised activity related to the case-study either in its primary location or at a site that is integral to its vision, organisation, implementation or practice (e.g. an industry conference, a Parliamentary hearing, a site where the initiative is working in practice). Participant observation relies on field research techniques (as above) but also on the reflective voice of the researcher recording their own experiences and interpretations of the event/site of which they were a part.

Researchers within the REINVENT consortium have also experimented with what they term the 'mobile lab' method, a collective form of field research/ethnography undertaken by a small group of interdisciplinary researchers who seek to engage with the workings of a particular initiative in situ over a period of 1-3 days through a programme of organised meetings and encounters. This method is very effective in generating insight into the socio-material conditions within which initiatives are being undertaken, though it is resource and time intensive in terms of organisation and logistics and may be more suitable for some cases than others.

4.4 Workshops

The project proposal includes provision for two workshops to inform the development of the case-studies and their analysis. An ***interim workshop*** (M24, December 2018) in which the initial results from the case-studies conducted in any one sector will be discussed with a roundtable of industry experts (3-5 per sector). One possibility will be to hold such workshops at the COP24 (Poland, Katowice near Krakow). A ***synthesis workshop*** (M29, May 2019) is intended to bring together the initial 'innovation biographies' of the initiatives and comparative findings to a stakeholder forum (involving 3-5 experts, per sector).

These workshops may be digitally recorded, or alternatively a team of note takers with clear responsibilities for different parts of the event should systematically record the main points.

The organisation of the event will require co-ordination between the teams, as there are different institutions involved in the conduct of cases in any one sector. The WP3 Convenors will assign responsibility for organising these workshops to one participant, who will then co-ordinate this effort.

5. Data analysis and storage

5.1 Data storage and access

All primary data (interview/workshop recordings, interview transcripts) **must** be securely stored on University servers that are password protected and backed up on a daily basis (**NB such data should not be kept on personal computers or only on cloud servers**). It is also recommended that, for data security reasons, secondary data (e.g. notes and analysis produced from desk research and site visits) are also kept on University servers.

To comply with the requirement of H2020 funding for open data, primary data should be made available for the research community at the end of the project. We will investigate the appropriate data holding site through which to make this data available, but it is imperative that the data collection, storage and analysis process is undertaken with this in mind.

5.2 Data analysis

The project will primarily adopt a *thematic* approach to data analysis, in which the research themes (and sub-questions) are used to systematically analyse the data collected. In addition, where they wish to do so, research teams may adopt 'grounded theory' approaches, in which additional themes and questions are generated from the data collected through a close analysis of the material. The guidance provided here relates only to the common thematic analysis that all teams will undertake, though all teams are of course free to undertake additional analysis as it suits their own conceptual requirements and resources.

For *secondary data* and *primary data which is not digitally recorded*, we recommend the following steps are followed:

a. Documents and website materials are systematically organised according to their provenance/author (e.g. blogs or website pages should be saved as PDFs, all documents should be systematically labelled and filed so that they can be readily identified and retrieved).

b. For each set of evidence (e.g. documentary analysis, a workshop, a site visit) a File is created for each Research Theme (Table 1) with sections for each Research Question (e.g. this could be a Word Document with sub-sections, a Table in a Word Document, or different pages/Tables within an Excel Workbook).

c. Relevant documents/notes are read for evidence of material that contributes to addressing the Research Theme/Question and notes/short direct quotes **in English** for illustration entered into the relevant File/Section with reference (document, page).

d. Once completed, the data Files should be stored on LU Box in the relevant Folder (to be created and maintained by the WP3 convenors).

For *primary data* (interviews, workshops) that have been digitally recorded we recommend the following steps are followed:

a. It may be desirable to have the most important/useful interviews fully transcribed (e.g. 6-8 per case-study), although research teams may find it more efficient (and cost effective) to partially transcribe the material during the analysis process.

b. A File should be created for the case-study where the most relevant data from the interviews can be recorded in a tabular format. This table will have Rows which relate to the Themes/Questions, with each column being used for an interview. An example of this Table presented in Excel is provided in Appendix D (though of course it is also possible to create such a Table in a Word document if preferred). **This document will be the mechanism by which the interview data is made publicly accessible at the end of the project and hence it is compulsory for each team to complete it.**

c. Transcripts or sound recordings should be closely examined (e.g. through repeated reading or listening) to ensure familiarity with the material gathered. Parts of the interview/workshop relevant to the various research themes/questions should be identified and 'coded' accordingly. Where research teams wish to do so, commercial software can be used to undertake this task (e.g. Nvivo

can be used to code transcripts or sound recordings). Alternatively, transcripts can be marked up to signify the relevance of different passages of text to the key themes/questions.

d. A representative sample of the coded data should be entered into the Analytical Table (created in (b) above) *in English*. This could be in the form of a short direct quote (e.g. between 1-3 sentences) and/or a short note of explanation as to the evidence provided in the interview relevant to the particular research question.

e. Once completed, the data Files should be stored on LU Box in the relevant Folder (to be created and maintained by the WP3 convenors).

Mechanisms to support and promote data sharing between WP3 and WP4 will be discussed at the REINVENT meeting in April 2018.

Deliverables and milestones

In order to facilitate the reports and papers required from this WP (D3.2, 3.3 and 3.4) teams are asked to produce a report for each case-study undertaken. A template for this report will be drafted for discussion and agreement at the April 2018 Consortium meeting. Each report will consist of an initial review of the innovation domain (see Section 4.1) and analysis structured according to the Research Themes/Questions. We suggest that these reports will be between 20-30 pages in length.

These reports will also provide the basis for case-study specific 'innovation biographies', which will chart the history of the initiatives, the key factors that explain their development, implementation, success and limitations, and their consequences for decarbonisation as well as wider social, economic and environmental goals. These biographies are intended to be accessible documents (e.g. 6-8 pages) and will provide the basis for the synthesis workshop to be held in May 2019 (Milestone 3.2) and the publication of findings in industry related or policy relevant press (Milestone 3.3).

Appendices

APPENDIX A: REINVENT INFORMATION SHEET FOR PARTICIPANTS

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information.

About the Project

REINVENT is a research project funded by the European Union. Work on the project will be carried out by a team of international researchers from 2017 – 2020.

The project **analyses decarbonisation initiatives in four industrial sectors: plastic, steel, paper, and meat and dairy. For Europe to achieve its long-term climate objectives it is important these carbon-intensive industries reduce their emissions. The aim of the project is** to study the entire value-chains of these industries to gain a broader understanding of the possibilities of transition. We will review existing knowledge about decarbonisation initiatives in these sectors, as well as investigating new innovations that are taking place amongst governments, businesses and society to enable decarbonisation. This includes a focus non-technological factors such as supply chains, financing, trade, and social and economic impacts.

Why have I been asked to take part?

As part of the research process, we are inviting people to participate in interviews and discussions. We hope that your involvement allow us to provide a better assessment of the potentials and constraints of decarbonisation innovations, and to identify the most promising innovations that are taking place.

What are the benefits and risks of taking part?

Participants are recruited on a voluntary basis. No monetary benefits are offered, although any costs (travel, sustenance) may be reimbursed subject to prior agreement. The final results of the study will help to evaluate the different kinds of initiatives that are being adopted, the types of innovations that are successful, and some of the challenges that they face.

All data from our project activities involved will be kept securely and only accessible by project staff. The collected data will be used to inform further data collection and for analysis, which might be published in academic journals, books, public communications, policy briefs and other professional outlets.

All the stored research data and materials will be deleted five years after the project completion date. The research fulfils all legal requirements of data protection and freedom of information.

For any enquiries regarding this research, please contact:

<researcher /team lead contact details>

APPENDIX B – REINVENT CONSENT FORM FOR INTERVIEWS

Thank you for agreeing to participate in the above research project. This consent form is necessary to ensure that you have been given information about this research project (see Information Sheet) and understand the purpose of your involvement. It is to confirm that you are happy to take part in the project. Please check the boxes you agree with below and *delete as appropriate* where * is indicated:

☐   I *wish/do not wish** to have my **anonymity** protected.

☐   I confirm that the interview/meeting/discussion can be recorded, and *an anonymous/ non-anonymous** record can be securely kept for future reference.

☐   I *would like/ would not like** to take part in this research project.

By signing this form I agree that;

1. I understand what the REINVENT project is about.
2. I am voluntarily taking part in this project. I understand that I do not have to answer all the questions that I am asked, and I can stop the interview at any time. I can also request keeping certain material confidential.
3. I understand the terms under which information is recorded and any additional information I provide will be stored.
4. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

Please sign below to confirm the information given above is correct:

	Research Participant(s)	**Researcher(s)**
Name(s):		
Signature(s):		
Date(s):		

For any further enquiries regarding this research, please contact:
<Researcher/team lead contact details>

APPENDIX C - REINVENT CONSENT FORM FOR EVENTS AND SITE VISITS

Thank you for agreeing to participate in the above research project. This consent form is necessary to ensure that you have been given information about this research project (see Information Sheet) and understand the purpose of your involvement. It is to confirm that you are happy to take part in the project. Please check the boxes you agree with below and *delete as appropriate* where * is indicated:

☐ I *wish/do not wish** to have the **anonymity** of the event/site protected

☐ I confirm that audio and visual data *can/cannot** be recorded, and *an anonymous/non-anonymous** record can be securely kept for future reference.

☐ I *do/do not** offer general consent to the site/event's involvement in this research project.

By signing this form I agree that;

1. I understand what the REINVENT project is about.
2. I am voluntarily offering consent to my site/event's involvement in this project. I understand the processes involved and the role of participants in it.
3. I understand the terms under which information is recorded and stored. I can also request keeping certain material confidential.
4. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

Please sign below to confirm the information given above is correct:

	Event organiser/site manager	Researcher(s)
Name(s):		
Signature(s):		
Date(s):		

For any further enquiries regarding this research, please contact:
<Researcher/team lead contact details>

APPENDIX D – TEMPLATE FOR SHARING INTERVIEW DATA[1]

	Interview 1	Interview 2	Interview 3	Interview 4	Etc
Theme 1: Innovation history & dynamics					
Question 1a: How, where and by whom was the innovation first developed? In what ways does the innovation build on earlier innovations (if any)?	*Enter representative quote / explanation here*				
Question 1b: To what extent has the innovation circulated & been taken up in different institutional/organisational and geographical contexts? To what extent is it a 'proven' technology? Is the innovation/initiative viable only under specific conditions?					
Question 1c: What are the primary institutional/political/economic/geographic/material barriers and challenges that have been encountered?					
Question 1d: What have been the (un)intended consequences of this innovation for the organisations and actors involved, other stages of the value chain, other economic sectors, sustainable development challenges, and issues of social equity?					
Theme 2: Governance and agents of change					
Question 2a: What are the governance arrangements through which this innovation is being implemented in this instance? Who are the critical actors and organisations involved?					
Question 2b: What are the drivers (e.g. market, material, geographical, institutional, regulatory) that enabled this form of innovation to become part of these critical actors' vision/identity/practice?					
Question 2c: To what extent does the specific initiative being examined conform to the predominant governance model of the innovation and in what ways does it differ, with what consequences?					
Question 2d: How has the initiative been financed and implemented? What new forms of knowledge, resources, rules, techniques, training, evaluation etc. were required to put it					

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[1] A full version of this spreadsheet can be found in Box.

into place?					
Question 2e: To what extent has the initiative led to cultural, organisational, socio-technical or material change for the actors, institutions, processes and materials involved?					
Theme 3: Transformative capacities					
Question 3a: To what extent was the initiative capable of generating the skills, knowledge & resources required for implementation and addressing forms of inertia?					
Question 3b: How did the intervention seek to make the potential for decarbonisation legible? How were visions, imaginaries, norms used and to what extent were these contested?					
Question 3c: In which ways did the actors involved seek to generate authority and legitimacy for the initiative, and to what degree was this successful?					
Question 3d: How, and with what consequence, were the 'low carbon' qualities of the initiative made distinct and given value?					
Theme 4: Assessment and evaluation					
Question 4a: How, by whom and with what consequences has the impact of the initiative been assessed? Are quantifiable measures of its carbon impact available? Which metrics have been used and to what extent are they generalizable? Is there evidence of a reduction in energy demand?					
Question 4b: How has the initiative been evaluated by those involved in its design & implementation, and by external actors/organisations?					
Question 4c: How might metrics of impact be designed, implemented & monitored in the future in order to gauge the contribution to meeting low carbon goals?					
Question 4d: How are/could metrics of impact be incorporated within existing/new governance arrangements?					
Theme 5: Uptake and consequences					
Question 5a: To what extent is there evidence that the initiative has led to the 'scaling up' of the innovation, through new forms of circulation, its embedding in particular economies/practices, or through the normalisation of being low carbon?					

Question 5b: What have been the (un)intended consequences for issues of societal cohesion and equity, including gender, as a result of the initiative?					
Question 5c: What have been the (un)intended consequences for economic development as a result of the initiative? (e.g. on the economic prospects of the organisation or region involved, the creation of new forms of economy)					
Question 5d: What have been the (un)intended consequences for other key environmental goals (e.g. SDGs) as a result of the initiative? (e.g. have there been direct or indirect effects on biodiversity, water, air pollution, has the initiative led to new corporate strategies or initiatives related to other sustainability goals)					

APPENDIX E: CASE STUDY TEMPLATE

Case Study Working Paper <name case study>

Authors, Institution
Date

insert university/institutional logo here>

Contents

1. Introduction

This section should provide the context in which the case-study research has been undertaken and an overview of the key findings (4-6 pages/max. 3000 words; 2-3 images/figures for illustration).

1.1 State of the Art

Please provide a short review of the current state of the art understanding of the innovation under investigation and its application in this domain. This should be drawn from the existing academic and grey literature and identify the challenges of decarbonising this domain (sector/value chain stage), how and why innovations of this kind (technical, social or financial) have been developed, their salient features and generic potential and challenges that have been identified in other studies.

1.2 Innovation History & Dynamics

Please provide an overview of the history of the specific innovation under investigation (e.g. technological process, financial instrument, consumer innovation) and its dynamics (circulation, uptake, scaling up, level of maturity). Please use the research questions included in Table 1, Deliverable 3.1 to structure this discussion. Include evidence and information about important features of the innovation and critical junctures in its development. This should draw on existing academic/grey literature as well as material gathered in the case-study (especially related to Research Theme 1).

1.3 [Name of Initiative]

Please complete the Table of the essential characteristics of the initiative and provide a description of its emergence, intentions, key actors, governance arrangements, attributes and impacts. Summarise the key outcomes, challenges and consequences of the initiative for decarbonisation and its wider impacts for sustainable development.

Table 1: Initiative Characteristics

	Initiative
Sector	
Value Chain Stage	
Date & Duration	(insert start and end date)
Location	Domain (e.g. industrial, commercial, domestic, urban), Place, Country
Funding	(insert the name of the funding source/body, the investment vehicle, and amount in EUR)
Initiating actors	List the actors involved in initiating this specific initiative
Actor constellation	(list all actors involved in the initiative and their roles – e.g. regulator, implementation, intermediary)
Aims and objectives	(list the aims and objectives of the initiative)
Specific physical measures	(briefly summarise what kind of physical measures have been/are planned to be implemented)
Specific social measures	Briefly summaries which kind of social measures have been/are planned to be implemented (e.g. institutional, policy, market, social innovations)
Monitoring	Indicate which (if any) forms of performance monitoring are being used to track the progress and impact of the initiative
Impact	Include any assessments of the impact of the initiative in terms of decarbonisation and in terms of meeting wider (economic, environmental, social) sustainability goals

2. Methods

Please briefly describe the methods for collecting your data – for example documentary analysis, interviews, meetings, site visits, workshops. Include details of the dates and locations involved in any fieldwork (e.g. 'data was collected in X during February & March 2018). Provide 2-3 images or figures to illustrate the methods used (e.g. photographs from site visits, a figure from a policy document reviewed, a table listing the type of participants interviewed (though not their organisational details). **1-2 pages/1000 words max.**
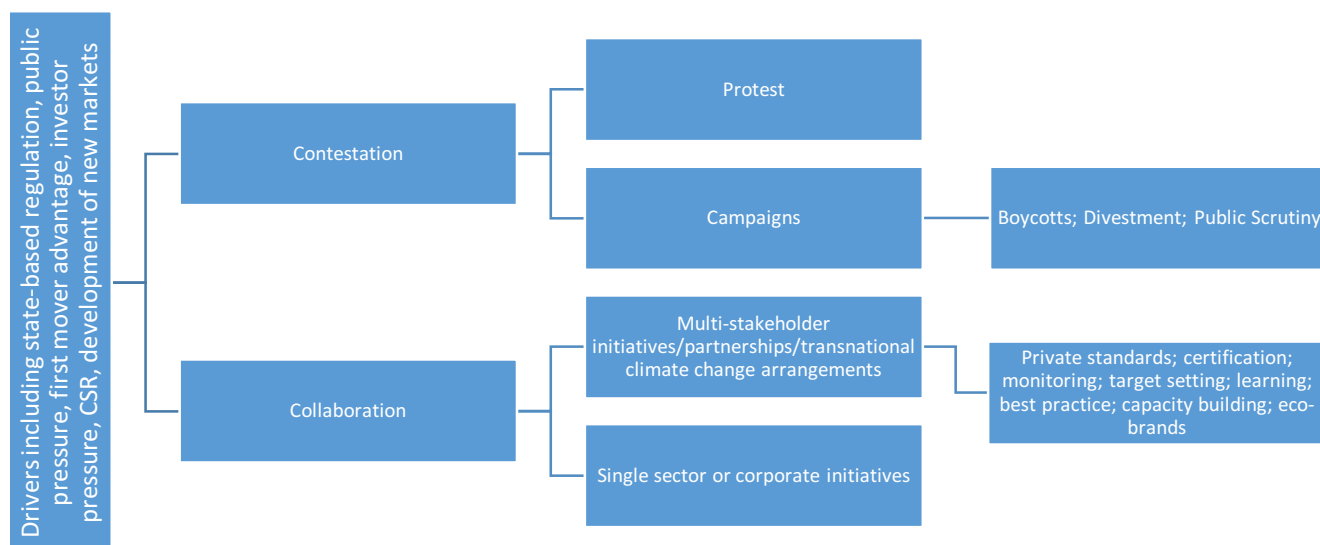
3. Case study analysis

*Please provide a detailed description and analysis of the evidence gathered through the case-study in relation to the key research themes identified in the Case-Study Protocol (D3.1). This material can be presented systematically in relation to each of the research questions (Table 1 in D3.1) (as bullet points or paragraphs of text) or as an integrated text, provided that the material relevant to each research question can be clearly identified. **Please indicate clearly which questions are / are not answered.***

*Please include 2-3 primary sources of evidence (e.g. an extract from an interview or policy document, a note from a field research diary, a photograph, an image from a policy document etc.) for each research question (where feasible, or state explicitly that no evidence was found related to this theme). **Max 16-20 pages (8-10000 words).***

3.1 Governance arrangements and agents of change

Please use the research questions included in Table 1 D3.1 to structure this section and ensure that, where possible, the discussion covers each question and is supported by appropriate evidence. *Please indicate clearly which questions are / are not answered.* *In addition please locate your case study in relation to the Figure below (extracted from D1.3 Analytical Framework).* ***Max 4-5 pages/2-2500 words.***
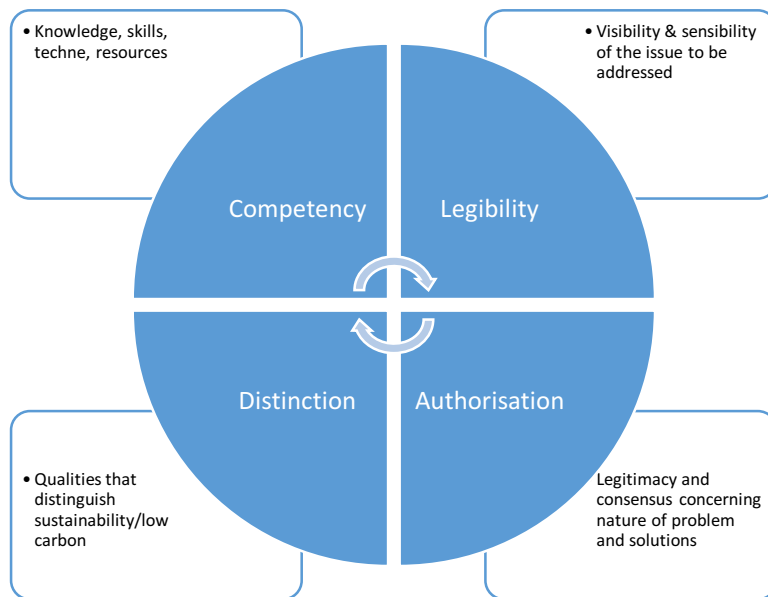
Figure 1: Schematic of Modes & Forms of Governance Initiatives for Low Carbon Transitions

3.2 Transformative capacities

Please use the research questions included in Table 1 D3.1 to structure this section and ensure that, where possible, the discussion covers each question and is supported by appropriate evidence. *Please indicate clearly which questions are / are not answered.* *In addition please identify which of the capacities in the Figure below (extracted from D1.3 Analytical Framework) have been most significant in the development of the initiative.* ***Max 4-5 pages/2-2500 words.***

Figure 2: Capacities Required to Realise the Potential of Interventions for Low Carbon Transition

3.3 Assessment and evaluation

*Please use the research questions included in Table 1 D3.1 to structure this section and ensure that, where possible, the discussion covers each question and is supported by appropriate evidence. Please indicate clearly which questions are / are not answered. In addition please identify any quantitative evaluation of the case-study that has been undertaken or consider how the impact of the initiative might be quantified for input into our modelling work. **Max 4-5 pages/2-2500 words.***

3.4 Uptake and consequences

*Please use the research questions included in Table 1 D3.1 to structure this section and ensure that, where possible, the discussion covers each question and is supported by appropriate evidence. Please indicate clearly which questions are / are not answered. In addition please identify any quantitative evaluation of the case-study that has been undertaken or consider how the impact of the initiative might be quantified for input into our modelling work. **Max 4-5 pages/2-2500 words.***

4. Impacts and Implications

Please use this section to reflect on how the case-study contributes to (a) decarbonisation; (b) wider sustainability goals (in economic, social and environmental terms). In addition, consider the implications of the case-study for the Reinvent 'theory of change' and what it tells us about the dynamics between inertia/innovation and our core analytical concerns. **Max 2-3 pages/1-1500 words.**

4.1 Impacts for decarbonisation and sustainability

Provide an analysis of the potential impact of the initiative in terms of meeting long-term decarbonisation goals for the organisations involved, the sector (including upstream and downstream consequences), and the governance arena in which it is situated. Consider the consequences of the initiative for wider sustainability goals – what have been the implications for the wider economy, for societal dimensions of sustainability (e.g. gender, equality, justice) and other environmental agendas (e.g. pollution, waste, biodiversity).

4.2 Implications for the analysis of decarbonisation in the energy-intensive sectors

Our analysis has shown that the dynamic between inertia and innovation is largely understood as shaped by conditions of political economy (the relations between the state and capital), as well as the structure of markets (density of actors, relationship between supply and demand etc.); and forms of infrastructure and investment deployed. Consider the extent to which the case-study reinforces or challenges these initial assumptions and provide bullet points related to each topic:

- ➢ *Political economy*
- ➢ *Market structure*
- ➢ *Infrastructure & investment*

Reinvent seeks to develop new insights concerning five dynamics related to decarbonisation. Consider the extent to which this case-study provides material that can address one or more of these themes and provide bullet points of the key highlights related to each theme:

- ➢ *Systematic effect of the initiative across sectors of the economy*
- ➢ *The role of new agents of change*
- ➢ *New conceptualisations of power*
- ➢ *Understanding how materialities matter*
- ➢ *Geographies of deep decarbonisation*

5. Conclusions

*Please provide a brief synopsis of the case-study, identifying its key characteristics, most important drivers, opportunities and challenges encountered. Provide a summary of its impacts and implications and how it contributes to the overall aims of the project. Identify gaps and shortcomings and potential issues to follow up in further work. **Max 1 page/100 words.***

6.   References

Please use the Harvard referencing style for formatting your references.