

WP T3

D.T3.2.2

Transnational pilot - Work plan / Roadmap.
Energy and environment

Version 1
06.2020





Project information	
Project Index Number:	CE1519
Project Acronym:	CHAIN REACTIONS
Project Title:	Driving smart industrial growth through value chain innovation
Website:	https://www.interreg-central.eu/Content.Node/CHAIN-REACTIONS.html
Start Date of the Project:	01.04.2019
Duration:	36 Months
Document Control page	
Deliverable Title:	D.T3.2.2 Transnational pilot – Work plan / Roadmap. Energy and environment
Lead Contractor of the Deliverable:	PP2 – Styrian Technology Park (STP) PP10 – R-Tech GmbH (R-Tech)
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Contractual Delivery Date:	30.06.2020
Actual Delivery Date:	30.06.2020



Table of content

1	Introduction	1
2	Transnational pilot work plan - Styrian Technology Park	2
2.1	Scope	2
2.2	Objectives	3
2.3	Partners involved.....	3
2.4	Activities, milestones, timeline and responsibilities	3
2.5	Indicators.....	4
2.6	Risk assessment.....	4
3	Transnational pilot work plan - R-Tech GmbH.....	5
3.1	Scope	5
3.1.1	Link to regional S3	6
3.1.2	Reference of pilot work plan to COVID-19	7
3.2	Objectives	7
3.3	Partners involved.....	8
3.4	Activities, milestones, timeline and responsibilities	8
3.5	Indicators.....	9
3.6	Risk assessment.....	9



1 INTRODUCTION

Transnational pilot on energy and environment integrates two work plans elaborated by responsible duo partners, namely Styrian Technology Park and R-Tech. This synthesis composed of two work plans constitutes one of the pilot activities that will be implemented within CHAIN REACTIONS.

The main aim of this pilot work plan is to define collective actions to implement the potentials for value chain innovation processes identified during the value chain analysis of energy and environment carried out within the project. The actions proposed within this transnational pilot shall durably increase the maturity level of each relevant regional support ecosystem and its capacity to generate value chain innovation processes by using the toolbox developed within CHAIN REACTIONS.

Pilots will enable the project partners and their key regional stakeholders to deepen their knowledge of value chain innovation processes in general and a deep understanding on how they apply specifically in regional businesses and value chains. By using the models and instruments developed they will reach autonomy in the use of models and instruments for supporting and monitoring innovation in their home region and will be able to contribute to transnational innovation processes.

The pilot implementation of value chain innovation tools and models builds on the following project activities:

- Definition of a value chain innovation model and an innovation toolbox.
- Implementation of regional stakeholder groups – Innovation and Growth Alliances (IGAs) in the regions of Styria (Slovenia) and Regensburg (Germany) – willing to test the models and instruments developed in CHAIN REACTIONS.
- Value chain analysis of energy and environment with a specific focus on integration of e-mobility.

The elaboration of particular work plans was preceded by the organization of pilot definition workshops, where individual project partners in cooperation with WP leader and BWCON defined and prioritized relevant collective actions within selected sectors and discussed potential ideas to be implemented within their pilot work plans.

Each of the two work plans within this transnational pilot on energy and environment will be implemented separately by responsible duo partner. However, cross-cutting synergies will be achieved through the mutual involvement of duo partners in selected activities, as well as in the evaluation process. In this way, transnational character of the pilot will be ensured as well. It will be strengthened also through the involvement of other project partners in particular activities within each work plan. A dedicated section was developed in the pilot template to define the specific role of other partners in the implementation of each work plan. In addition to this, BWCON will be involved in all pilots to provide innovation tools support. On the consortium level, all project partners will be involved in exchanging on the pilots.

The results of the pilots will be monitored and evaluated with respect to both the value chain innovation approach as a triple-helix process for improving regional innovation ecosystems and the models and instruments. Feedback shall be used to improve the models and instruments integrated within WP T1.



2 TRANSNATIONAL PILOT WORK PLAN – STYRIAN TECHNOLOGY PARK

2.1 Scope

Climate change and taking care of the environment become in last decades one of the most important facts, on which it has to be taken a serious attention in the future.

Looking from a cross-sectoral industry side, environmental technology plays a key role in developing business and society in a way that will be sustainable in the long term. Environmental technology provides the basis for an economy that protects resources as productivity rises.

Slovenia has a set national target of 2020 to achieve at least 25% share of renewable energy sources (RES) in final gross energy use by 2020. In accordance with the National Action Plan, the sectoral target shares of RES in gross final energy consumption are also set for 2020: heating and cooling = 30.8%; electricity = 39.3%; turnover = 10.5%. In order to meet the umbrella objective, it will be necessary to halt the growth of final energy consumption, to make energy efficiency a priority for economic development, and to intensively promote the increase of RES consumption by 2030 and beyond.

Sustainable mobility in Slovenia is based on two pillars, public transport and non-motor forms of mobility, or active mobility. The potential of electric mobility in Slovenia is supposed to be greater than in many other countries.

Other main aspect correlated with above mentioned **Sustainable mobility (e-Mobility)** is the transformation of the traditional economy to the high-end **Circular Economy**, e.g. Environmentally friendly Innovation economy, with special emphasis on fostering Industrial Symbiosis through the development of a novel and innovative business models, industrial processes optimisation, innovative training approaches etc.

Due to the above mentioned Energy and Environment fields, STP wants to upgrade existing long-term experiences and knowledge, within the CHAIN REACTIONS pilot project, to get to a much higher level / offering CS services and support via

-> **Chain Reactions e-Mobility and Circular Economy Innovation HUB ("Hotspot") of Slovenia (Styria).**

Not only in the pilot region of Styria (Podravje region) but all across Slovenia we want to qualitatively represent all developed and useful CHAIN REACTIONS project – Value Chain Innovation tools and methods, that are needed for the related sectoral companies (start-ups, SMEs) and other industry related players in wider pilot region.

On that way, as one of the primarily tasks of the **CHAIN REACTIONS Styria pilot**, we will be able to test and later on represent the CHAIN REACTIONS developed tools via mix of energy and environment sector in wider Styria region (combination of the e-Mobility and Circular Economy (with approaching higher level of Industrial Symbiosis), supported by the Digitalization/ICT sector (examine, show and propose optimisations of whole business and industrial processing -> from 1.supply, 2.production, 3.delivery (export)).

All above mentioned facts represent STP's upgrade potential, as STP is already now very closely connected with the companies of all ranges and other R&D&I quadruple helix institutions, pursuing constantly his main two pillars: 1.) Nationally certified business incubator and accelerator) and 2.) Regional



centre for technological development. Besides that, correlated with the pilot topic, STP is also certified Digital Innovation Hub of EU, Smart City Maribor (2nd largest of Slovenia) founding and strategic board member and also regularly working (strategically and operative) on the e-Mobility and Circular topic.

2.2 Objectives

Styrian pilot objectives to be reached within the project timeframe:

- Overall Value chain innovation support and potential implementation within the interested SMEs;
- Pilot and transnational impact and support within the Slovenia, Croatia and Poland;
- Strengthening the transnational collaboration and Dissemination within the innovative SMEs and other related R&D&I institutions (Quadrhelix coverage).

2.3 Partners involved

Within CHAIN REACTIONS Styrian (Slovenian) pilot on the topic Energy and Environment following two *transnational partners* will participate:

- PP4 - Chamber of Commerce Croatia (CCE-ZCC)
 - Role: explore opportunities on business innovation models
- PP7 - Wroclaw Technology Park (WTP)
 - Role: explore opportunities on new technological approaches and ICT

Evaluation partner:

- PP10 - R-Tech (duo partner of Energy and Environment)

Innovation tools support partner:

- PP6 - BWCON

IGAs are supposed to actively support pilot and its related actions / activities. They will participate in the dissemination / promotion activities as well participating in / on online platform, webinars and other cross-linked activities.

2.4 Activities, milestones, timeline and responsibilities

Styrian pilot “Chain Reactions e-Mobility and Circular Economy Innovation HUB” (“Hotspot”) will involve following actions / activities to implement potentials for value chain innovation processes identified in A.T3.1:

1. CHAIN REACTIONS Virtual Demonstration / Business model innovation lab for circular economy and e-mobility approaches (within the sector related newly established platform):
 - a. Via Hotspot Platform – rough plan of the topics involved: CHAIN REACTIONS project presentation; Sector energy and environment (main findings and potentials); CHAIN REACTIONS Toolbox / tools to be used to improve value chain innovation processes;



Virtual Demonstration (cases - min. 1 from circular economy + 1 e-Mobility); Online training education (materials and webinars); Others (1st working version M22, update M26).

2. Training campaign and training path for online/offline trainings.
3. Online training materials established and available (Pilot Hub online e-learning) (till M26).
4. Online/Offline Workshop(s) with IGAs, topic related innovation SMEs (to deepen knowledge and implementation in regional business) / min. 2 (between M26 to M34).
5. Information / Dissemination CHAIN REACTIONS campaign via Hotspot Platform (showing best case example(s) of innovation drivers / SME and public cases for specific field) and other related news (whole duration of the pilot).

2.5 Indicators

- Hotspot pilot platform established and functional – 1x (ENG, SI)
- Training path – 1x (ENG, SI)
- Training campaign – 1x (ENG, SI)
- Online e-learning – 1x
- Online/Offline workshops with IGAs, SMEs – 2x (1 transnational)
- Information / Dissemination CHAIN REACTIONS campaign involving min. 20 news and/or cases.

2.6 Risk assessment

In Styrian pilot there is low risk assessment, due to the expertise and knowledge of the pilot responsible partner. Pilot implementation tasks are considered to be successfully implemented, based on the strict and reasonable planning, effective management and being strategic partner with a wide regional, national and transnational institutional partner network.

There is potential threat only concerning of the gaining sufficient innovative SMEs onboard to perform all the pilot tasks. But, with appropriate and on-time reaction on potential threat, the successful implementation of the pilot should be assured taking into consideration regular internal STP monitoring system, which:

- Identify preliminary hazards and risk factors that have the potential to cause problems or delays;
- Analyze and evaluate the risk associated with that hazard;
- On-time determination of appropriate ways to eliminate the hazard / risk.



3 TRANSNATIONAL PILOT WORK PLAN – R-TECH GMBH

3.1 Scope

The ongoing transition of energy systems entails major challenges for the energy supply networks. This transformation is highly encouraged by policymakers due to the negative effects of common fossil fuels for the climate. The combustion of these fuels does not only generate energy, the greenhouse gas carbon dioxide, which has a highly polluting effect on the environment is released in large quantities. The prevention of this major contributor to global warming is a main objective of policymakers to protect the climate and the environment. Thereby, the previously mentioned electrification of the transport industry is an important branch to achieve this goal, as this sector is one of the main emitter. Electromobility is the key to climate-friendly mobility. The operation of electric vehicles generates significantly less CO₂, especially in conjunction with electricity generated from renewable sources. In addition, electric vehicles with their energy storage systems can compensate for fluctuations in wind and solar power in the future and thus support the expansion and market integration of these unsteady energy sources. Therefore it is necessary to explore the implementation of new technologies for cross-industry cooperation of energy systems and electromobility. This transnational pilot will boost cooperation by transferring knowledge from the different sectors between CHAIN REACTIONS partners.

The transnational pilot will set up a **series of three virtual online transnational technology transfer workshops** (Oktober 20/Februar 21/June 21) with experts from the CHAIN REACTIONS Consortia. The technology transfer workshops are organized by the R-Tech GmbH and two partners with relevant contribution of the two other project partners. The workshops will be organized virtually by online cloud tools. The transfer focuses on cross sectoral topics, the sector electromobility and the sector energy systems. Each partner will take care to organize one expert for each of these three workshops. By this methodology external knowledge can be spread most efficiently. The workshops are organized virtually, and are open to all members of the CHAIN REACTIONS partners and to its local Innovation Grow Alliances.

A typical workshop will be structured in a presentation held by a local expert, a Question & Answers session and a concluding idea generation session. The participants will have the opportunity to analyse the major points of the presentation using online design thinking tools followed by an ideation step using a value proposition canvas as compiled in WTP1. The tool will be presented to the audience by either PP6 BWCON or by a local expert. We expect the output to include potential business ideas, value propositions and a portfolio of new technologies with potential. Ideally, the business models will extend to hydrogen technologies, automated driving and the expansion of municipal fleets of electric vehicles. To foster the generation of practical ideas, we schedule a follow-up with members of the IGA and SME after the second workshop in April 2021. The content of the first two transnational workshops will be analyzed using the value proposition canvas tool. This will allow the participants to reflect on regional trends, challenges and opportunities that have been presented so far. The outcome of the ideation process will be presented to the stakeholders in the final workshop in June 2021.

To raise awareness for the upcoming workshop series, we have invited the local IGA and SME to attend to a preceding online workshop in Regensburg on June 16th, 2020, with the title „Development of new



technologies based on hydrogen and fuel cells for the mobility of tomorrow". The event is scheduled for two hours and will include a keynote from the Ostbayerische Technische Hochschule Regensburg, a workshop demonstrating the tools used to conduct the value chain analysis, and an extended discussion roundtable. The aim is to jointly develop a technological focus for the interactions with the CHAIN REACTIONS project and to develop possible approaches for R&D collaborative projects that can be scaled transnationally in the future. The IGA and SME will therefore be engaged and feel committed to actively participate in the transnational workshop series.

The pilot actions are fundamental to test the developed methods, to improve them with experiences from the pilot actions and make the applications transferable. The implementing partners cooperate closely in the working groups on the tool box development, in which the feedback from the pilot actions and vice versa will be a key issue. We will capitalise on results drawn from the value chain analysis and sensitize the audience for e-mobility and its future development. The results from the Adapted Pestel analysis suggest that future electric vehicles will be connected by a fast data connection to a cloud or to a service platform and this will enable a host of new functions. These functions may include apps that allow motorists to book parking space and charging stations, for instance, or to have special offers displayed based on the driver's position. Furthermore, it will be possible to perform much more detailed and intensive remote maintenance, diagnosis and software updates for vehicles. An overarching platform is to collect, evaluate and process the data from the vehicles along with route planning. In this way, individual proposals can be provided to motorists in order to optimise travel time (including proposals for using charging stations). We will work on new business model canvases that include these findings in order to support the users of the models to become competitive in future markets. Our results from the Porter's Five Forces analysis suggest that the market appears to be attractive for new entrants. However, the rivalry among existing competitors in the automotive industry can be considered as very high. This is shown in the extremely competitive sector of e-mobility. Based on the fast pace of new developments regarding e-mobility, the rivalry among existing competitors is even higher compared to the common automotive industry. Electric mobility is an attractive growth market for firms, and therefore more and more companies are participating in the integration of e-mobility.

3.1.1 Link to regional S3

Based on the main objectives of S3, namely to support European value chains in the agri-food, energy and industrial modernisation sectors, this transnational pilot project can make a valuable contribution. The regional Bavarian S3 strategy aims to superficially strengthen the areas of life science, innovative technology-based services, clean technologies, new and intelligent materials, efficient production technologies and ICT solutions. Through the exchange of knowledge in the field of integration of electro mobility, several of these areas are specifically addressed. Due to the extensive resources and assets that Bavaria possesses in the field of automotive technology, this project does not build up on a new sector but tries to use the existing potential of the region and prepare it for new challenges. Through the exchange with partners who have less car-driven but electric and network-focused expertise, an active contribution can be made to enable and accelerate the transformation of mobility towards a higher proportion of electric vehicles. This covers an active contribution in the sense of S3 in the area of clean technologies, ICT and innovation services.



3.1.2 Reference of pilot work plan to COVID-19

The global spread of the Corona virus has paralyzed the automotive industry. The production of modern industrial goods is usually spread across many countries. Global value chains have been established in particular, which means that the different production stages take place in different countries. The share of foreign value added in the overall automotive value chain in Germany is around 25 percent (as of 2015). This is slightly above the share in France (23 percent) or Great Britain (22 percent) and significantly above the USA with only 12 percent. The individual economic sectors show great differences here. While the share of foreign added value in agriculture or mining is high because raw materials and food have to be imported from abroad, other sectors such as energy and environment have significantly lower shares. However, the value chains in the automotive industry are very complex. Not only every car manufacturer has various suppliers, but they also have their own suppliers. This results in a complex, difficult to understand network of supply relationships. The global value chains in the automotive industry are particularly susceptible to disruptions in Chinese production, since Chinese components are contained in practically every car. Thus, the Corona crisis will intensify trends towards deglobalization and facilitate the formation of more effective regional and close transnational value chains.

3.2 Objectives

Strategic objectives

- Support and stimulate the flow and exchange of knowledge between start-ups, SME and established enterprises across Poland, the Czech Republic and Germany.
- The promotion and establishment of transnational cooperation in the field of emobility based on the exchange of expert knowledge in various fields.

In order to evaluate and promote the planned workshops in a sufficient way, several expected key objectives/ outcomes are defined:

Based on the exchange of knowledge between companies and experts in the field of energy and mobility created by the events, the aim is to develop new business innovations and strategies or to further develop existing ones. By bringing together two key topics, energy and mobility, the planned workshops will provide companies that focus on one of these topics with expertise and practical experience and expand their range of services in both areas. Consequently, the first expected output of the workshops is that participants will turn to a bilateral approach for the integration of electromobility under consideration of energy aspects and that at least some new project ideas will be generated by this new approach.

Furthermore, through the support and stimulation of the knowledge flow between start-ups, SME and established enterprises across Poland, the Czech Republic and Germany, there should also be an exchange between the various European companies. The aim of this exchange is to enable new, transnational networks to be formed in the field of emobility. With the help of the experts and existing tools, the bringing together of companies from the energy and mobility sectors will be promoted and facilitated significantly. For this reason, the second goal of the workshop series is to establish networks and cooperation projects between the participating companies.



The workshops should actively show the companies the possibilities and give them the tools not only to generate new ideas in the field of integration of e-mobility, but also to evaluate them and assess their potential with the help of the explained tools. The expertise gained in the assessment of risks and opportunities will make it easier for the companies to assess and realise the previously described possibilities of new topics and interfirm projects. Furthermore, this point also offers considerable advantages for the general implementation of new business ideas and for this reason should be established by the companies in the long term. Therefore, the third main goal of the workshops is to introduce these approaches and tools to the companies and to introduce them into their business process.

3.3 Partners involved

- *PP10 - R-Tech GmbH* as responsible partner (Germany): Integration of electromobility in existing energy networks.
- *PP5- RDA Pilsen* as collaboration partner (Czech Republic): exploring opportunities for electrical vehicles for public transportation and operation of smart grids.
- *PP11 – GAPR* as collaboration partner (Poland): Analyzing the transition from a coal based energy system to a clean energy supply and the development of microgrids.
- *PP2 – STP* (Slovenia): Evaluation partner.
- *PP6 BWCON* (Germany): partner for innovation tool support.

The IGAs will be attending the transnational workshop acting as counterparts for the corresponding local SME. This will facilitate further discussions to shape potential future collaborations and knowledge exchange.

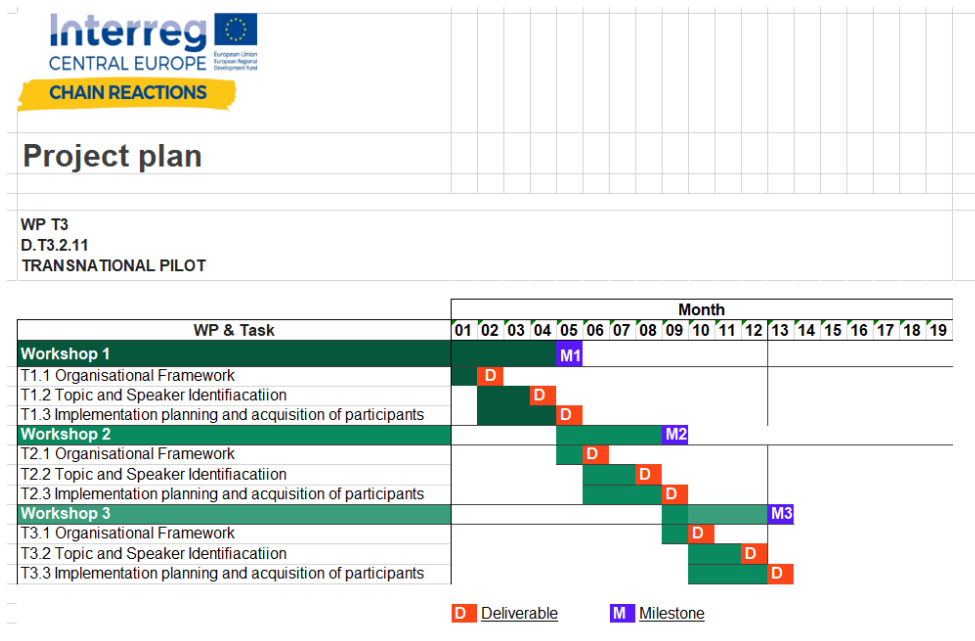
R-Tech will involve SME from existing networks (IntelliZell and SeDiPeT), members from the E-Mobility Cluster Regensburg and the IGAs as participants in discussions and workshops to foster future transnational collaborations. Specifically, we will plan, organize and conduct technology transfer workshops within the scope of the transnational pilot. The preparation of the events envisioned will require the participation of five to six staff members at a time. We will ensure the quality of the workshops using state-of-the-art software tools (e.g. zoom, GoToMeeting). We will also compile Q&A that will be provided during the meetings to better address and understand the most important needs of SME and corporates. In addition, we will assist in starting joint activities whenever they emerge. Once collaborations have been established, we will serve as moderators for the project partners involved.

3.4 Activities, milestones, timeline and responsibilities

R-Tech will organize three virtual transnational technology transfer workshops covering cross sectoral topics from E-mobility and Energy/Microgrids. The workshops are scheduled for October 20, February 21 and June 21. The responsible partner and the collaborative partners will nominate one local expert each to reach maximum dissemination of knowledge.



Timeline:



3.5 Indicators

- Joint activities implemented aiming to strengthen urban-rural linkages
- Participations in joint actions across borders
- Pilot actions developed jointly and implemented in projects
- Jointly developed solutions

3.6 Risk assessment

For the purposes of this pilot, capitalisation within a transnational context means taking advantage of achieved results in order to facilitate future activities and identify opportunities to benefit the region. The pilot also focuses on taking advantage of knowledge accumulated as a result of project cooperation in order to facilitate the planning and implementation of future activities. In case that the overlap of interests is small we will intensify our effort using 1:1 virtual meetings between stakeholders.