ELMO^S
PROJECT FINAL REPORT

Electromobility Solutions for Cities & Regions

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4.1 FINAL PUBLISHABLE SUMMARY REPORT

4.1.1 AN EXECUTIVE SUMMARY

By developing sustainable Electromobility Solutions (ELMO's) for cities and regions, the project aims to promote electromobility concepts and the implementation of more sustainable transport. Novel knowledge exchange concepts and cross-border joint actions are being designed to improve regional capacities, facilitate standardization and foster the implementation of new business models.

The first phase of ELMO's focused on the systematic mapping and analysis of regional electromobility landscapes, their knowledge architecture and integration in local economies.

Figure 1: ELMOs Work plan

Source: IAT

Six regions and 10 project partners form the ELMO consortium, which brings together a broad scope of expertise and e-mobility experience. In total, the partners represent 846 companies 28 research organizations, 27 public authorities and 31 other regional stakeholders from their regions or respective regional clusters.

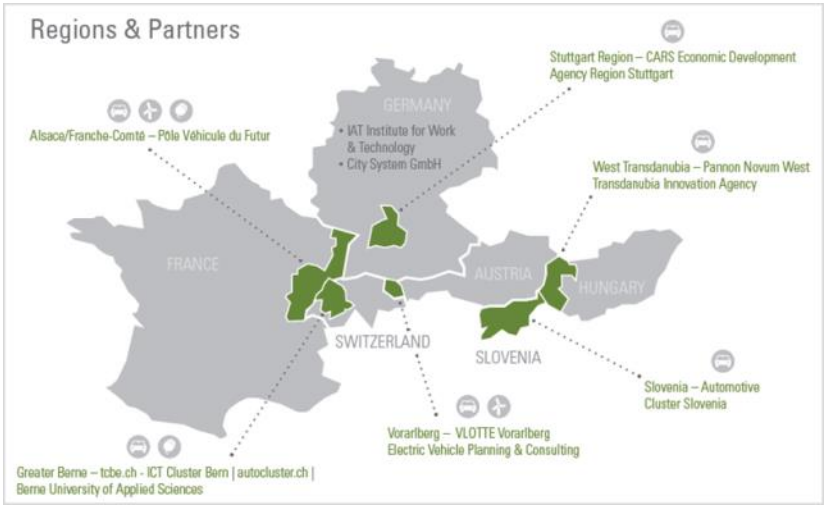

Figure 2 ELMOS' Regions and Partners

The regional analysis, which addressed local companies and institutions, unveiled various challenges regions are facing in their efforts to stimulate «Green Mobility Solutions» that drive quality of life, competitiveness and sustainable growth hindering a fast uptake of electromobility. A first step towards the achievement of a modal shift for sustainable growth has been taken by gathering and analysing available knowledge in the regions as well as at the level of research-driven clusters (RDCs) and on EU level, and the conducting of regional SWOT analyses.

Based on these findings potential fields of action were identified distinguishing between «Thematic Priorities» and «Strategic Priorities». While the former concern specific topics of future electromobility the latter are of strategic

importance to facilitate electromobility in general as well as smart and sustainable regional growth[1]. Taking into account the defined priorities joint actions and business plans were established as a next step. The aim was to define actions, which drive economic development through research and technological development activities in the automotive, renewable energy and ICT sector by means of research-driven clusters and transnational networks:

- Help local authorities to prepare local electromobility strategies and action plans
- Test seamless and interoperable e-charging and billing systems
- Implement an „e-commuters without borders" scenario
- Prepare joint research projects on wireless charging systems
- Implement a „photovoltaic-sharing" model for electric vehicles
- Create awareness-rising campaigns towards public and private large fleet owners and the general public
- Establish one-stop-shops for electromobility
- Create a practical Total Cost of Ownership calculation tool for the general public
- Develop cross-border models for mobility by defining and expanding new interchanges (i.e. project Electrification around Lake Konstanz)
- Support the emergence of mature open innovation professionals
- Deliver „Innovation Circle" workshops for electromobility-related SMEs
- Develop regional electromobility-related potentials in the framework of smart specialization

To support the implementation of the joint actions as well as to promote the project ELMOs further actions took place such as mentoring activities, the development of future concepts, the involvement of innovators and Investors, the improving regional capacities, the monitoring and impact assessment and several dissemination activities.

4.1.2 A SUMMARY DESCRIPTION OF PROJECT CONTEXT AND OBJECTIVES

The project addresses among other the EU Horizon 2020 strategy in terms of the environmental issues (i.e. renewable energy, infrastructure markets and consumers), as regards in its main objectives greenhouse gas reduction and energy efficiency and the aims to ensure a reliable support for a sustainable EU region.
Moreover the project is in line with the idea of innovation union and aims to improve condition and access for most to finance and research for fostering of the European innovation. Doing so, innovative ideas such as open innovation tool for SMEs (i.e. cluster-crowd.com), cooperation in terms of cross-border activities electrification (i.e. project Electrification of lake Constance) can turn in services growth and jobs and beside into products (i.e. TCO- Calculator).

The objectives of the project ELMOs are the following:

Objective 1 | Analyse and Assess Knowledge in Electromobility for Urban Environments

ELMOs gathered and analysed available knowledge in the regions, the RDCs as well as on EU level and, subsequently, conducted SWOT analyses with the aim to enable the definition of joint research and business strategies. The activities included the development of analysis guidelines, the constitution of Regional Steering Committees to involve regional stakeholders and gather available knowledge on technology as well as electric vehicles embedded in urban mobility within the regions.

[1] Terstriep, J. (2013): From Mapping to Joint Actions. «Challenges & Thematic Priorities». Electromobility Solutions for Cities and Regions, Project Deliverable D3.1 and D3.3

Objective 2 | Joint Strategies for Future Roadmaps, Agendas & Business Plan in Electromobility

The overall objective of the Joint Action Plan (JAP) and its related Business Plan is to develop an efficient and commonly accepted framework for future joint transnational action related to research-driven economic development, clusters' competitiveness, more effective measures for RTD and cluster policies and the integration of research agendas. The aim is to define actions, which drive economic development through research and technological development activities in the automotive, renewable energy and ICT sector by means of research-driven clusters and transnational networks.

Objective 3 | Advancing Research Profiles and Capacities in Mentored Electromobile Regions

Key is the mentoring of the two less advanced regions West Transdanubia and Slovenia by analysing their specific thematic priorities and development of mentoring schemes including their involvement in all project phases and activities from the start in order to boost their innovation capacities.

Objective 4 | Identifying & Testing New Models of Smart Specialisation in Electromobility

With the development of future concepts the project ELMOs tries to boost a fast uptake of electromobility in Europe by providing new business models and concepts for cross-border testing. The aim is to change the behaviour in mobility and provides different mobility solutions. International networking to tighten contacts with transport/city managers is essential to create acceptance all over and exchange ideas.

Objective 5 | Joining the New: Involving Innovators & Investors

With the project ELMOs sectors were brought together which have previously had very little common: the automobile and the energy industries, and, not least, the information and communications technology sector. This being the case, it is important to bring innovators from the different sectors as well as innovators and investors together to identify opportunities for joint RTD and respective sources of funding including private investment such as venture capital.

Objective 6 | Improved Capacities for Regional Decision Makers

In summary, this objective aims to strengthen the capabilities of regions to build on their own competitive advantage. Activities are focused on enhancing knowledge on innovative electromobility solutions for cities and regions and joint training in order to cooperate improvably with the transport-related economy, to empower regional decision makers to take careful public investment in electromobility, and therewith, lay the ground for the future implementation of joint actions and research-driven cluster development.

Objective 7 | Raise Awareness among Experts and the General Public

To gain visibility and to spread knowledge to other experts and interested parties a big variety of dissemination activities were planned on the basis of a dissemination and communication plan: A project-logo was created and a website launched, several international conferences and regional promotional tours to present the project results were organized, a virtual interactive platform to mainstream results and to enlarge the electromobility community was offering, etc.

Objective 8 | Sustainability beyond the Life Time of the ELMOs Project

Sustainable valorisation of the ELMOs results is envisaged at the two reciprocally linked levels, the region and the firm. The former is to be achieved by making the knowledge, experience, concepts and training schemes available for cities and regions across Europe through a «European Electromobility Academy» for which a business plan shall be elaborated during the project term.

4.1.3 A DESCRIPTION OF THE MAIN S&T RESULTS/FOREGROUNDS

As the project was not a science and technology project there is no description. However, some indicators toward this direction are found in the smart specialization strategy described in the following chapter.

4.1.4 THE POTENTIAL IMPACT

The impact of the project ELMOs will be described by using the logic of the impact levels, which were lined out in the project application.

Impact by knowledge transfer

The ELMOs project aimed at the movement of barriers on regional level by knowledge transfer. By e.g. the usage of an inventory on electromobility, which is available online (http://www.future-mobility.eu/regions/map.htm) possible actors interested in the topic, can gather information on regional eletromobility activities in terms of RTDI infrastructure. The inventory is accessible via the project's web portal. Another important pillar contributing to the impact on knowledge transfer was the setting up of regional steering committees. The steering committees were participated by regional stakeholders were used as exchange platforms and anchor point for creating discussions and ideas on e-mobility solutions with the potential to transform them regionally. Furthermore, the mentoring activities within the project were developed to transfer good practice from the well-developed regions to the two mentees regions (Slovenia and West Transdanubia). For this, also a platform was created, which provides useful information and concepts how to foster e-mobility in the regions. The concept of open innovation was not only delivered by a detailed open innovation user guide to the project partners, but was also presented as part of a workshop. Herewith, specific procedures of open innovation in SMEs and further companies and platforms were presented. The open innovation user guide is also available at the ELMOs web portal. Moreover, under ELMOs a funding directory was developed, to give the partner regions an overview of possible financing sources to continue the work and development of e-mobility. This guide is also available online.

Impact by dissemination and exploitation

To exploit the projects results the management set up a communication plan, which was used to achieve the dissemination goals. The dissemination strategy focused disseminations for awareness, disseminations for understanding and disseminations for action. Each type of these disseminations had another function such as e.g. informing, including of interested groups and providing groups with information. The deliverables were divided into two main parts (1) official project deliverables and (2) further tools to reach several actor groups. Under official deliverables project reports and similar were understood. By further tools the project addressed presentations at scientific and topic related conferences (see e.g. EVS27 conference in Barcelona) or at regional conferences organized by all project partners in their regions. Furthermore, the so-called promotion tours were organized to present specific electromobility related topics to a broader non-scientific audience and to the project partners. Newsletters and the webpage kept interested groups in touch with the project and informed on the milestones and the results. Interim and end reports on topics such as open innovation, comparative analysis completed the dissemination activities. At the end of the project it is planned to disseminate some scientific papers based on the e.g. ELMOs survey on the demand of engineers in the e-mobility sector.

The end conference held in Strasburg as part of the annual MOBILIS brought together EU and international e-mobility experts by creating workshops of exchange and information sharing.

Impact on IPR, FDI and Jobs

The project itself had an economic value. In line with the joint action and business plan, a guidance document was delivered to be used when considering how to finance the before defined joint action projects. The joint action plan goes beyond a simple list of funding programs. Above all, it gives insights on joint strategies to improve chances of funding and success, such as the analysis of key stakeholders or cross-national partnerships. In this context the developed joint actions could contribute among others to:

- Lead Markets by supporting green transport systems by boosting the competitiveness of the transport-related economy therewith, facilitating sustainable economic development
- Enhancing transnational co-operations and networks
- Enhancing synergies between automotive, energy and ICT clusters
- Stimulations of growth
- Creation of high quality jobs
- Increase sustainable transportation
- Increasing the innovation union through integration of several regions
- Sharing mutual learning

Furthermore, through the accomplished study under ELMOs on the demand of engineers in the automotive sector an impact to future job possibilities in the sector was made. The study could for example show, which kinds of engineers are demanded by companies, in which fields of activities etc. The survey also gave findings to the ways of recruitment of high engineers in the electromobility-related sectors. In addition to that the project partners made plans for an academy focused on training possibilities and knowledge transfer in the field of e-mobility. The academy was not regarded in the sense of an institution, but rather than a mobile teaching tool, which works on demand.

The in ELMOs written open innovation user guide made a big contribution to the economy. Especially for SMEs, which do not have many resources to invest in own R&D centers the open innovation concept, regarding innovation is a shared manner between multiple players is newness. Open innovation as such, also played a role in the innovation circles initiated by the cluster AUTO.

Increasing RTD Projects and Regional RTD Investments

The comparative report of ELMOs showed that several regions are lacking a well-established research landscape and that there is a need to develop these also in terms of e-mobility. This was realized by the creation of RTD project ideas which will be reached in under specific national and EU projects addressing the e-mobility topic. When it comes to already visible RTD projects, the “one stop shop” in the region Vorarlberg should be mentioned and in that line the “total cost owner ship calculator” developed in cross-border co-operation by the region Vorarlberg and Espace Mittelland.

Moreover, a monitoring and impact assessment methodology was established and proofed within the two partner regions Vorarlberg and Alsace/Franche-Comté. The aim of this methodology was to steer and improve the regional project proceeding.

Expected Outcomes

The ELMOs project was about the rising of e-mobility awareness. Moreover it aimed at the development of diverse tailor made actions for the regions and business plans how to realize and implement the actions. This was part of the joint action and business plan and in addition of the comparative report. In this line, the regions were analysed due to their potential in terms of e-mobility and a status quo was made by means of collecting data.

At the end of the project, on the basis of the previous work, for each region a smart specialisation strategy was developed.

Traditionally Vorarlberg was a touristic region. In addition, textile counted as one of Vorarlberg's former key competences. Although the region has never been a typical location of the automotive sector, some important automotive suppliers allocated there. Rather, Vorarlberg is known for its competencies in renewable energy. It builds a fundamental pillar of the regional economy. In the former years, the region constantly increased its competencies, skills and knowledge in the field of green energy. Renewable energies and energy efficiency are today significant business areas in the region and can be seen as unique characteristics. Illwerke vkw, the largest electricity provider in the region, generates electricity exclusively from hydroelectric and other renewable energy sources. With the regional commitment to VLOTTE, Vorarlberg stepped into the topic of electromobility by establishing a fully-fledged infrastructure for electric vehicles. This development included the provision of electric vehicles as a first step, followed by charging stations, new business and mobility models and so on. Today, Vorarlberg disposes of a well-established e-mobility infrastructure, consultancy competencies, in combination with unique selling proposition in green energy. In addition, Vorarlberg has acquired in-depth knowledge of the users. Taken together these competences and infrastructures can build a starting point for the formulation of the region's S3 strategy. As regards the involvement of regional partners, Vorarlberg lacks a critical number of research entities. The region's geographic proximity to Lake Constance and the borders of Germany and Switzerland provide favorable conditions to overcome the research gap by making use of complementary research infrastructures through cross-sectorial connections with the AUTO in Zürich and cooperation with outward research entities from Stuttgart Region. Further potential is seen in the expansion of electromobility around the Lake of Constance and therewith, increase the accessibility of electromobility in peripheral sub-regions. Espace Mittelland poses long-term competencies in the field of ICT, represented by TCBE. ICT is one of the electromobility constituent sectors and functions as architecture inside and outside electric vehicles. In parallel it opens new business opportunities with regard to different modes of communication. The meta-themes in the field of ICT in terms of electromobility arise at the intersection of automotive and energy sector and play a crucial role in a variety of areas. On the other hand, AUTO represents strong competencies in the Swiss automotive supplier industry. Its know-how and technology are featured in almost any vehicle produced for the global market. Combining ICT and automotive competencies, the region Espace Mittelland can claim strong cross-sectorial collaboration as the unique selling point. A related S3 strategy could center on cross-sectorial innovation in the field of «smart cars». Especially, regarding the expertise of the automotive suppliers which base on a broad spectrum of parts and components, automatic systems, steering systems and electronic, the regional ICT competencies could help to broaden the value chain by expanding the competencies and giving access to product development in early stages. This in turn, would offer new market niches. Doing so, would also help to dissolve established boundaries between regional automotive and ICT sector as well as between manufacturers and suppliers. In relation to the integration of regional partners into such long-term strategy, similar to Vorarlberg, Espace Mittelland challenges the involvement of research entities and a strong R&D infrastructure in such a plan. In comparison to Vorarlberg and Espace Mittelland, Alsace/Franche-Comté and Stuttgart Region are traditional automotive regions. Both regions are European hubs for the automotive industry and still home of large companies such as PSA Peugeot-Citroën, Daimler AG and Porsche AG, plus international and regional suppliers. Alsace/Franche-Comté is well experienced in design and production of vehicles with a focus on drive systems. And although, Stuttgart Regions has similar capabilities, more recently they have expanded their competence base towards the creation of an overall ecosystem of applied and interactive innovation for integrated sustainable mobility. Following the regions tradition, Alsace/Franche-Comté will focus its future activities on the development of smart cars including innovative car components. Cross-sectorial collaboration of automotive, ICT and energy sector will be utilized for the further development of charging infrastructures.

A S3 strategy in Stuttgart Region, in contrast, could include a stronger specialization on service innovation. Already at present Stuttgart Region has implemented concepts such as e-bikes, multifunctional smart cards, car sharing, charging points and EV fleets. The expansion of such user-oriented services necessitates a stronger involvement of end users into regional projects in order to ensure a fast adaption of e-mobility solutions by the public. Involvement of strategic partners into S3 strategies, should for neither region pose a great challenge, as their electromobility-related RTDI infrastructures are well developed. Moreover, stakeholders in Stuttgart Region enjoy considerable confidence in cooperation and an open-minded exchange of knowledge and ideas. Integrating regional projects to national action plans enables Stuttgart Region to widen the scope of decision-making. Likewise, regional stakeholders' commitment to cooperation and specialization is high in Alsace/Franche-Comté. However, due to the high centralization of the French government, compared to Stuttgart Region Alsace/Franche-Comté is less flexible in implementing new ideas.

In practical terms, when it comes to outcomes, the project developed e.g. a kind of "total cost of ownership calculator" for users who are interested in procuring an electro vehicle. This calculator should not only be regarded as a project innovation, but also presents a strong partner and cross-border co-operation of the regions Vorarlberg and the region Espace Mittelland. In that line, diverse projects around the Lake Constance are not only planed but already in the preparation which handle e-mobility solutions in the surroundings. These take place between the regions Stuttgart and Vorarlberg (electrification Lake Constance). A strong co-operation among the partners was also given in terms of pushing the idea of e-mobility related academy. This academy is planned to work on demand. This means in terms of being mobile and train people cross-border when needed. This project is especially focused by the region Stuttgart and Alsace/Franche-Comté. As Alsace/Franche-Comté seeks highly skilled workers, the academy is not only planned in terms of schooling personal but also in terms of attracting workforce to the region and to raise cross-border workers mobility. The accomplished survey under ELMOs on the regional demands of engineers in the regions Alsace/Franche-Comté and Stuttgart emphasizes workers mobility as a future topic for strategic cross-borders co-operations.

4.1.5 THE PROJECT PUBLIC WEBSITE AND CONTACT DETAILS

Website	www.future-mobility.eu