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Innovative Climate-Control System to Extend Range of Electric Vehicles and Improve Comfort (XERIC)

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Report:

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Report about 3rd Workshop

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Summary:

According to XERIC’s Grant agreement (Annex1, Part A), three public workshops were organized throughout the project’s lifetime (task 5.1) under the leadership of the European Membrane House (leader of WP5). Following the two first ones organized on November 24, 2016 in Bologna, Italy (see D.5.8) and on April 11-12, 2017 in Monaco (see D.5.11), the third workshop was organized on 23rd and 24th November 2017 in Genoa, Italy.

The present deliverable details the organization and implementation of this third workshop (program, communication campaign, budget items).

On 23rd November 2017 (end of afternoon), the workshop began at TICASS premises with a small group of selected industrials interested in the XERIC results. This first day organized in small committee, helped to build tight collaborations between XERIC partners and the selected industrials. On 24th November 2017, with regard to its scope, the Genoa Smart Week was chosen by XERIC’s partners as an ideal place to share their latest results and increase contacts with the academic and industrial world. 49 people attended the meeting, up to which 50% from the industrial sector. As for the first and second workshop, clustering activities with two other H2020 EV projects (JOSPEL and OPTEMUS) were organized.

Document history and validation

When	Who	Type	Comments
19/01/2018	EMH	Version 1	Some additions to consider
19/01/2018	GVS, UNIGE	Version 2	OK

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1. Context and Purpose of the workshop

1.1. A third workshop market-oriented

According to Annex 1, Part A of XERIC (task 5.1), the organization of the third XERIC workshop had to be organized in Brussels at the end of the project (M34 - March 2018) during the European Automobile Manufacturers Association. However, the organization of the third XERIC workshop within the ACEA in Brussels was declined by the ACEA organizers.

According to a decision taken by the XERIC Steering Committee during the 5th XERIC meeting in Monaco and thanks to the oral and written confirmation (sent on 1st June 2017) of the XERIC EC Senior Officer, David GUEDJ, the third XERIC workshop was organized on 23rd and 24th November 2017 in Genoa (Italy), following the 6th XERIC progress meeting and the 2nd SAB meeting.

Furthermore according to task 5.2, XERIC partners already started to work on the identification of potential markets and users for the key results of the project. Thus, **an exploitation workshop** had to be organized in order to bring innovative research to the market. The exploitation workshop had to be devoted to exploit the XERIC results. As no budget was scheduled for the exploitation workshop, it was **organized within the third workshop**.

On 23rd November evening, the exploitation workshop began in select committee at TICASS premises (see [section 4.2](#) hereafter). On 24th November, the third workshop “Breakthrough Technologies in Climate Control Systems” was organized **during the Genoa Smart Week** with a large audience (see [section 4.3](#) hereafter).

1.2. A selected framework: the Genoa Smart Week 2017

The Genoa Smart Week is an international event well-appropriate for project communication/dissemination and already linked to EU projects. This third edition “The power of innovation” presented patterns of development of the smart city, including green mobility (with a focus on electric mobility).



This week of events, conferences and meetings is sponsored and organized by Genoa Smart City Association and Genoa Municipality, with the scientific coordination of the Department of Economic Development and Smart City of Genoa and with the technical support of ClickutilityTeam. This event hosted **discussions at international level on the development of innovative and people-friendly cities**. It features **meetings and dialogues** between representatives of Genoa’s city, of local and regional institutions and companies, of citizens, of European and international guests, of domestic and European governmental institutions¹.

The third edition of Genoa Smart Week took place from 20th to 24th November 2017 and focused on several thematic areas linked to smart cities. Over 200 daily participants attend the meetings from local, national and international institutions. Moreover, the event hosted other partners of European projects involving the Municipality of Genoa, Regione Liguria and some local companies which are part of the 7th Framework Programme and H2020, such as for example: R2 Cities, Celsius Smart Cities, Unalab (Urban Nature Lab), Elviten (electrified L-category vehicles integrated into transport and electricity networks), Force (cities cooperating for circular economy), Enershift (social housing innovative financing tender for energy), Pure Cosmos (Public authorities role enhancing competitiveness of SMEs), Rise Wise (Rise Women with disabilities in social engagement), Life Weeen Models, Claircity (Citizen-Led air Pollution Reduction in Cities), Climaera.

¹ See <http://www.genovasmartweek.it/en/>

Building on these strengths, XERIC took the opportunity to organize its public workshop **“Breakthrough Technologies in Climate Control Systems”** on Friday 24 November as a **hosted event of the Genoa Smart Week**, in relation with the “Green Solutions for Urban Regeneration” thematic. It allowed reaching a broad audience and initiating contacts for new collaborations between research and industry (see [section 4.3](#) hereafter).



1.3. Still promoting clustering with JOSPEL and OPTEMUS

As already done during its two first workshops, XERIC promoted clustering activities and invited for its third public workshop the two other European projects [JOSPEL](#) and [OPTEMUS](#) also financed under the Green Vehicle call GV.2 – 2014 “Optimized energy management in electric vehicles”. JOSPEL and OPTEMUS are also focused on air conditioning and thermal management systems for electric vehicles. Once again, **the three EU projects reinforced the “clustering effect” around their common main challenge of improving the operating range of electric vehicles.**

1.4. XERIC workshop main purposes

The main purposes of the third and last XERIC workshop were:

- To promote XERIC results to potential partners from the industry and discuss common interests in the future development of the XERIC technologies (according to task 5.2: to bring innovative research to the market);
- To reinforce the clustering with JOSPEL and OPTEMUS;
- To disseminate and share the projects’ progresses and impacts to a large audience;
- To increase networking capacities within the context of an existing international event.

EMH kept the lead for supervising the event’s organization and ensuring joint communication actions to promote the event, in collaboration with TICASS and FRIGOMAR as local partners.

2. Communication campaign

EMH, in charge of the workshop communication campaign (task 5.1), worked in tight collaboration with all XERIC partners to spread the information through various networks. More specifically:

- UNIGE and TICASS communicated the workshop information and invitation locally to researchers, teachers, students, Industrial Union of Genoa, Center for Environment (among others);
- FRIGOMAR to its contacts from the maritime domain;
- GVS among a number of selected customers and within the company to its international business locations.
- AIN to its extensive network (among others original equipment manufacturers and car manufacturers)
- EMH to its extensive network using XERIC’s mailing list and existing communication tools (website, newsletter, twitter account).

EMH also contracted with the ClickUtilityTeam to get technical support to the organizational activities of the public workshop on Friday 24th November 2017, within the event “Genoa Smart Week”. Their services included XERIC’s workshop promotion through their own communication campaign, using the Genoa Smart Week website and Newsletters.

2.1. Objectives and targets

The main objectives of the communication campaign were defined as follows:

- Invite potential users of the XERIC technology to create new partnerships;
- Attract a large audience of people interested by climate control technologies;
- Spread information about XERIC in general & its contributions to improve climate control systems with optimum energy efficiency;

According to the workshop’s purposes, the communication activities then focused on selecting and inviting potential users of the climate control system developed by XERIC, keeping in mind the idea to promote the project and its event to a large public.

The main targets identified were Original Equipment Manufacturers (OEM) and end users in all domains (e.g. cars, boats, or buildings) as well as scientists and companies working on related projects.

2.2. Teasers and event promotion

The two dedicated workshop banners (see below) were created by EMH to be used in the various communication tools, e.g. in XERIC’s newsletters, emails of invitation or tweets.



A [dedicated webpage on XERIC website](#) was created 4 months earlier (July 2017), to start promoting the event.

Following the first “Save the date” message included into the 4th XERIC Newsletter (published in May 2017 - see D5.9), a general invitation was sent mid-July to the XERIC

mailing list, encouraging people to spread the news and to join the workshop (see [Appendix 1](#)). A reminder was sent at the beginning of September, as [a dedicated newsletter](#).

TICASS also published [a dedicated news in Italian](#) on its website.

7 newsletters related to the Genoa Smart Week were sent by the ClickUtility Team from September to November 2017, in Italian and English language. The newsletters were sent to about 18.000 contacts from the organizer database with tag “smart city” and “smart mobility”. [The 5th Genoa Smart Week newsletter](#), which included the detailed program of the week, highlighted the 3rd XERIC Workshop (in Italian). Moreover, [a specific email focused on European meetings and workshops](#) organized during the Genoa Smart Week was also sent to the contact lists: a good occasion to promote our workshop “Breakthrough technologies in Climate Control Systems” (in English language).



Twitter has also been used to spread news about the workshop. Created in March 2017, **XERIC’s twitter account @XERICproject** registers up to 50 followers (among which : partners from XERIC and other European projects, suppliers of electric vehicles, associations, surveying companies or events promoting e-mobility and press bodies). 9 tweets about the workshop were sent from July to November 2017 by @XERICproject, with retweets. Among our followers, some are followed by a lot of people. Therefore, retweeted messages concerning the event **reached more than 77000 followers**.

2.3. Targeted invitations

For the exploitation workshop organized on 23rd November 2017 at TICASS premises, industrials were selected and invited by the XERIC partners:

- Kent Technique Avancées
- Alke
- Webasto
- Toshiba
- Mercedes Benz (Vitoria-Spain)
- Ford (Valencia-Spain)
- Karma Automotive
- Bolloré
- Renault
- Volkswagen
- Automobile Propre (as an intermediate with industrials specialized in Ev)

As potential “clients” for the future commercialization of the XERIC technologies, they were invited to participate in the exploitation workshop of Thursday 23rd evening in restricted committee and in the public workshop organized within the Genoa Smart Week on Friday 24th November 2017. See the content of the invitation in [Appendix 2](#).

The four first ones (Kent Technique Avancées, Alke, Webasto and Toshiba) answered positively to the invitation (see [section 4.1](#) hereafter). The others unfortunately declined the invitation or did not give any answer.

LITEN from CEA (French Alternative Energy and atomic Energy Commission), as a major European research institute and a driving force behind the development of the sustainable energy technologies of the future, was also invited through its scientific director (Ms. LEFEBVRE-JOUD, previously met by Mr. CHARPENTIER). Although she expressed her great interest in XERIC project, she was unfortunately not available to join the event.

2.4. Free registration to the public workshop

All the Genoa Smart Week participants were invited to sign up for free. They received a nominal badge by email to be printed, in order to have access to the event venues.

The ClickUtility Team was in charge of the registration management through the website of the Genoa Smart week.

As soon as the registration was open in October 2017, a new email was forwarded by all XERIC partners, inviting participants to register individually. [Click here to view the message in your browser](#). EMH took in charge the registration of the selected industrial representatives and the XERIC SAB members.

A dedicated link was created on XERIC website to reach the registration form.

2.5. Communication during and after the event

In order to financially optimize the communication activities, **a roll-up was created** from the XERIC A0 existing poster (cf. 2nd XERIC workshop – D5.11). As a vertical hanging banner, a roll-up is indeed more convenient to be displayed anywhere. With general information about the project, it could be easily re-used even after the final meeting.

A3 posters as well as invitation flyers were created and printed to be displayed by local partners some weeks before the Genoa Smart Week and during the event (at the reception desk). The visuals are presented in [Appendix 3](#).

Journalists hired by the ClickUtility team made short interviews of Nino Gaeta, XERIC coordinator (GVS) and Claudia Cattaneo, XERIC partner (TICASS). A video was published in Italian on the ClickUtility Youtube channel. You can watch it [here](#).



Screenshot of the video published on the ClickUtility Youtube channel on 24Nov.2017

3. Budget items

What	Cost
ClickUtility Team technical support to the organizational activities of the public workshop within the Genoa Smart Week, which includes registration management, room rental and equipment, lunch for 25 guests on Friday	5000 €
Friday morning coffee break (ClickUtility Team service)	550 €
Communication and promotional material: Roll-up, XERIC brochures and invitation flyers printed and sent to be displayed locally	513 €
Invitation of the 3 industrial representatives (Hotel)	242 €
Networking dinner on 23 Nov. 2017 at Eataty in the frame of the Genoa Smart Week (ClickUtility Team service)	840 €
Total	7145 €

4. Workshop outcomes

As a market-oriented workshop and still with the objective to share the project progresses and impacts to a targeted audience (to maximize the potential of commercialization of the XERIC technology) and to a large audience (to broadly advertise the XERIC results and find potential future clients for the technology), the third XERIC workshop was organized in two main parts.

First, a meeting with selected industrials was held at TICASS premises on Thursday 23rd November evening, to share XERIC's results with selected industrials. Then, the public workshop "Breakthrough Technologies in Climate Control Systems" took place in Palazzo Tobia Pallavicino, as a hosted event of the Genoa Smart Week.

The detailed agenda is presented in [Appendix 4](#).

4.1. Four participating industrial representatives

As introduced in [section 2.3](#) above, targeted industrials were invited through XERIC partners' networks. The following four selected industrials accepted the XERIC invitation:

- **Kent Techniques Avancées – KTA** (Saint Herblain, France) : www.kent-tech.fr/
With the attendance of Mr. Nicolas LE DORZE, Product Manager.



KENT TECHNIQUES AVANCEES is a contact from FRIGOMAR. Their expertise is about pumps (all fluids), electricity (production, batteries, conversion, supply), lighting, comfort (heater, refrigeration, air-conditioning), sanitation systems.

The KENT Group owns two companies. Since 1974, Kent Marine Equipment distributes equipments for boatbuilders and professional installers (leisure and professional boats). Its customers are Beneteau, Jeanneau, Dufour yachts, Fontaine pajot, Bavaria catamarans, STX, CNB, Piriou, CMN, Catana Group, etc.

Since 2001, Kent Techniques Avancées distributes equipments for mobile market (fire trucks, utilities, caravanning, ambulances, military...) and off-grid sites. Their customers are Renault Trucks, Man, Manitou, Kuhn, TLD, Rapido, Pilote, Gifa, Les Dauphins, Durisotti, BSE, Sides, Sanicar, SD Services, Gruau, SDVI, etc.

- **ALKE** (Padova, Italy): www.alke.com/
With the attendance of Mr. Lamberto SALVAN, Export & Business development manager.



The company ALKE is also partner in the JOSPEL project. ALKE is specialized in professional electric vehicles (vans, trucks, etc) used for transportation, logistics, multifunctional operations, etc. Their vehicles are sold in more than 40 countries worldwide.

- **WEBASTO** (Molinella, Italy): www.webasto.com/fr/
With the attendance of Mr. Piero BOSIO, Head of Sales & Marketing in Italy.



Webasto is a global innovative systems partner to automotive manufacturers. Webasto develops and produces roof and convertible roof systems, heating and cooling systems as well as charging solutions and battery systems for electromobility. Webasto is among the top 100 suppliers in the automotive field.

- **TOSHIBA** (Bologna, Italy): www.toshiba.it/

TOSHIBA

M. Federico RACO from TOSHIBA could not join the XERIC workshop due to a last minute problem. He is nonetheless still in contact with TICASS.

4.2. Introduction of the public workshop in selected committee

On Thursday 23rd evening, the 3rd XERIC exploitation/3rd workshop began in a select committee to promote the XERIC results and discuss common interests in the future development of the XERIC technologies. The committee comprised 16 people: the 3 industrial representatives, 12 XERIC partners and one member of the Strategic Advisory Board (see the group photo below). The attendance sheet is attached in [Appendix 5](#).

The context of the project was first reminded, as an introduction to the results obtained up to now and their potential applications in various fields. Then, many questions were raised by the selected industrials during the open discussion.



Group photo taken at the end of the select committee, in TICASS premises

The geographical areas targeted by the project and best outdoor climatic conditions for maximum performance were discussed. According to XERIC partners, the new climate control system will better work in humid and hot conditions than dry and cold ones.

Although it has been created to address more efficiently Europe southern countries, it could be adapted to fulfill the requirements of other countries.

The working prototype is ready to be modulated according to the market needs (i.e. capacity, size). The consortium partners are therefore exploring industrial partnership opportunities and particularly with OEM to tailor the XERIC system. The transcript of main points discussed is reported in [Appendix 6](#).

The participants of the select committee were then invited to join the networking dinner organized with the Genoa Smart Week participants at the Eataly restaurant.

4.3. “Breakthrough Technologies in Climate Control Systems”

On 24th October, the public event “Breakthrough Technologies in Climate Control Systems” was organized during the Genoa Smart Week with a large audience. Among the 66 registrations received, **49 people attended the meeting, 65% of which were not XERIC workers. More than half of participants were representatives from the industrial sector**, which includes the selected industrials invited the day before by the XERIC consortium, the OPTEMUS partner from Denso, the AIMPLAS partner from JOSPEL, the XERIC partners from Frigomar and GVS, but also other representatives from Italian and international societies. The registration and attendance list is attached in [Appendix 7](#).



The plenary session, chaired by Gustavo Capanelli (TICASS, Italy) and Oleg Iliev (Fraunhofer ITWM, Germany), was introduced by Dr. Castiglieri from the Municipality of Genoa and Nino Gaeta, XERIC coordinator (GVS, Italy). See *illustration opposite*.

A short presentation reminded the Horizon 2020 context. Then partners of the 3 projects (XERIC, JOSPEL and OPTEMUS) presented new climate control systems and their

applications in various fields. Click on titles below to download the complete presentations. A prototype of the 3 Fluids Combined Membrane Contactor (3F-CMC) was displayed during the entire meeting.

- [Financing electro-mobility thanks to H2020](#) - Lucie VAAMONDE, EMH, on behalf of David GUEDJ, EU Commission - INEA
- [XERIC: Energy Efficiency for Climate Control System](#) – Stefano LAZZARI, UNIGE (Italy)
- [On-board climate control system for boats based on the XERIC technology](#) – Bernardo CERRAI, FRIGOMAR (Italy)
- [Application of XERIC technology to other potential fields](#) – Carlo ISETTI, TICASS (Italy)
- [JOSPEL – Low power consumption heating systems for EV](#) – Vanessa GUTIERREZ, AIMPLAS (Spain)
- [OPTEMUS – Smart preconditioning for EVs with a compact heat pump system](#) – Andrés CALDEVILLA, DENSO (Germany)

At the end of the morning, an open discussion was organized between the industrials selected by the XERIC consortium (WEBASTO, ALKE, KTA) and the audience (see *illustration opposite*). M. Charpentier, member of the XERIC Strategic Advisory Board, was the moderator of the discussion. The selected industrials introduced their companies before sharing their opinions on the breakthrough technologies presented.



Photo of the public workshop audience. Picture taken and shared by the ClickUtility Team

See more illustrations of the event on [Appendix 8](#).

Everybody agreed: energy efficiency in transport is a really important topic in the current worldwide context, for economic, environmental and social reasons. The XERIC climate control system will increase the driving range of electric vehicles by optimizing the energy consumption and this was one the main objective to achieve. The XERIC technology is crucial nowadays in the sense that it tackles the energy efficiency issue taking into account the passenger comfort. The flexibility of the solutions presented has been particularly highlighted. They can be adapted and installed in various vehicles. Moreover the XERIC Climate Control System can be applied to various applications and the participation of FRIGOMAR illustrates the applicability of the system on other domains such as the maritime one. Industrial representatives who participated in the XERIC exploitation and the public workshop were really interested in the XERIC breakthrough technology.

As a conclusion of the open discussion, it has been highlighted that the feeling and way of thinking “transport” by users and public authorities is nowadays becoming different and more conscious than before. Efforts to mitigate the impact of global warming, air pollution and noise are the main issues to be tackled nowadays and in the forthcoming years. The XERIC project is contributing to tackle this challenge. The transcript of main questions and discussions is reported in [Appendix 9](#).

Appendix 1: General invitation sent in mid-July to the XERIC mailing list

Feel free to circulate this invitation to your networks

Breakthrough Technologies in CLIMATE CONTROL SYSTEMS

24 November 2017 - Genoa, Italy



Join the 3rd workshop of "XERIC",
a project supported by the European Commission under the H2020
Research and Innovation Programme.
**You will learn about the latest developments related to climate
control systems applied in various fields and be part of a
dynamic collaboration between research and industry!**

The workshop is hosted by the Genoa Smart Week
and will take place in Genoa on November 24th from 09:00 to 13:00.

**Please find detailed information and registration instructions
on XERIC website:**

<http://xeric.eu/xeric-workshop-presentation/>

We look forward to welcoming you next November in Genoa!
The XERIC Organization team

Appendix 2: Email of invitation sent to selected industrials

The following content has been used to send individual invitations to selected industrials.

Transport is a natural target for decarbonisation initiatives since it accounts for a third of total greenhouse gas emissions to the atmosphere. As efforts to mitigate the impact of global warming, air pollution and noise, governments, scientists and car manufacturers are working closely against the clock to accelerate the electrification of transportation. And this is the reason why we are sending you this email.

We are working in the framework of an European Research and Innovation Project entitled "**XERIC : Innovative climate-control system to extend range of electric vehicles and improve comfort**" financed by the European Commission under the Horizon 2020 Programme.

Differently from existing climate-control systems using the limited storage capacity of electric batteries, the XERIC project aims to develop an energy-friendly climate-control system capable of reducing at least 50% of the energy used for passenger comfort in electric vehicles all over the year, in all weather conditions and to extend the range capability of electric vehicles.

As we are entering in the last part of the project lifetime, we would like to inform you about the technologies we are developing and the common interests we share in those breakthrough technologies which will be commercialized in a near future.

We would like **to invite you in the framework of our 3rd workshop organized in Genoa (Italy) on Thursday 23rd November and Friday 24th November:**

- **THURSDAY 23 NOVEMBER 2017 at 6 pm**

In a "select committee" with the partners of the XERIC project at TICASS – Via Domenico Fiasella 3/16, Genoa, Italy (This meeting will be followed by a dinner offered by the XERIC project for a representative of your company)

AND

- **FRIDAY 24 NOVEMBER 2017 from 9 am to 1 pm**

At the workshop dedicated to "Breakthrough Technologies in Climate Control Systems" organized during the "Genoa Smart Week"

Please find detailed information on XERIC Website: <http://xeric.eu/xeric-workshop-presentation/>

Many scientists and industrials will be present. At the end of the morning, you will have the opportunity to present your company and to share your experience during an open discussion between the academic and industrial world. The workshop will be followed by a lunch offered by the project. One hotel night (for one person of your company) will be offered by the XERIC project ».



The banner features the title "Breakthrough Technologies in CLIMATE CONTROL SYSTEMS" in green and black text. To the right, it specifies "24 November 2017 - Genoa, Italy" in a green box. Below the title are logos for XERIC and the European Union. The central image shows a car's rear lights, a charging cable, and a modern cityscape with a sailboat. At the bottom, it says "Innovative Research & Industry Perspectives" and "hosted by The power of innovation 2017 Genoa Smart Week - 10 edition November".

Appendix 3: Visual of the A3 posters and invitation flyers

- A3 poster printed to promote the event, visible signage on-site:

European Research and Innovation Project



JOIN US!

3rd  **WORKSHOP**

Friday 24 November - 8:45am to 1pm

Breakthrough technologies in CLIMATE CONTROL SYSTEMS

At the Palazzo Tobia Palavicchino, Via Garibaldi 4, Genoa

Hosted by **The power of innovation** Genoa 20-24 November
Genoa Smart Week - III edition



**Be part of a dynamic collaboration
between research and industry!**

Plenary presentations of the technologies and their applications

1 hour of open discussion introduced by industrial testimonies

Details & free registration : www.xeric.eu

Follow us @XERICproject



- Invitation flyers (15x21cm) displayed by local partners

Invitation to the 3rd Workshop

Join us on **Friday 24 November, 8:45 am - 1pm**
& keep up with energy-friendly climate control systems

Breakthrough technologies in CLIMATE CONTROL SYSTEMS

hosted by **The power of innovation** 2017 Genoa Smart Week - III edition 20-24 November

at the **Palazzo Tobia Pallavicino, Via Garibaldi 4, Genoa**



Program & free registration : www.xeric.eu
Follow us @XERICproject

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Appendix 4: Detailed Agenda from the evening of 23Nov. to lunchtime on 24Nov.



Breakthrough technologies in CLIMATE CONTROL SYSTEMS

Thursday 23rd November

XERIC Roundtable

At TICASS, Via D. Fiasella 3/16, Genoa

17:30 - Welcome

18:00 - Roundtable with XERIC consortium, Strategic Advisory Board members and invited industrial representatives

18:00 **Presentation of participants**

18:05 **Presentation of the XERIC project : objectives and results up to now** - David GUEDJ (tbc - Senior Project Manager, European Commission, INEA), Nino GAETA (coordinator of the XERIC project) and Stefano LAZZARI (deputy coordinator of the XERIC project)

18:20 **Potential extension of the XERIC results to other fields: buildings, boats, industrial applications** - Stefano LAZZARI, Bernardo CERRAI, Carlo ISETTI, Enrico NANNEI

18:30
to 19:30 **Open discussion**

20:30 - Dinner offered by the XERIC consortium

Friday 24th November

3rd XERIC Workshop

hosted by the **Genoa Smart Week** - www.genovasmartweek.it/en/
at the Palazzo Tobia Pallavicino, Via Garibaldi 4, Genoa - Bergamasco room

Detailed agenda presented on the following page



Breakthrough Technologies in CLIMATE CONTROL SYSTEMS

24 November 2017 - Genoa, Italy



Agenda of the 3rd XERIC Workshop

hosted by the Genoa Smart Week - www.genovasmartweek.it/en/
at the Palazzo Tobia Pallavicino, Via Garibaldi 4, Genoa - Bergamasco room

8:45 - Welcome Coffee

9:00 - Plenary Sessions (1)

Chairs: Gustavo CAPANNELLI (TICASS, Italy) and Oleg ILIEV (Fraunhofer ITWM, Germany)

- 9:00 **Opening of the plenary sessions** - Nino GAETA (Coordinator of the XERIC project) and Dr. CASTIGLIERI from the Municipality of Genoa
- 9:15 **PS1: Electro-Mobility Projects within Horizon 2020** - David GUEDJ (tbc - European Commission, Innovation and Networks Executive Agency - Horizon 2020 - Transport Unit)
- 9:45 **PS2: XERIC: Energy Efficiency for Climate Control System** - Stefano LAZZARI (University of Genoa, Italy)
- 10:15 **PS3: On-board climate control system for boats based on the XERIC technology** Bernardo CERRAI (FRIGOMAR, Marine Refrigeration and Air Conditioning Systems, Italy)

10:30 - Coffee Break

10:50 - Plenary Sessions (2)

- 10:50 **PS4: Application of XERIC technology to other potential fields** - Carlo ISETTI (Innovative Technologies for Environmental Control and Sustainable Development, Italy)
- 11:10 **PS5: Presentation of JOSPEL and OPTEMUS Projects**
- Low Power Consumption heating Systems for EV - Vanessa GUTIERREZ ARAGONES / Begoña GALINDO GALIANA (AIMPLAS, Spain) – JOSPEL
 - Smart preconditioning for EVs with a compact heat pump system – Andrés CALDEVILLA (DENSO, Germany) - OPTEMUS

11:40 - Open discussion

Industrial testimonies with invited representatives and discussion with audience

12:40 – Conclusion



Innovative Research & Industry Perspectives

hosted by **The power of innovation** 2017 Genoa Smart Week - III edition 20-24 November

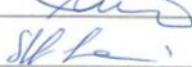
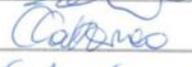
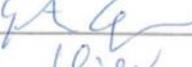
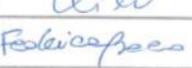
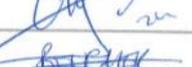
Appendix 5: Attendance Sheet 23 Nov. 2017 (select Committee)



"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 653605"

Innovative Climate-Control System to Extend Range of Electric Vehicles and Improve Comfort (XERIC)
 H2020 - GV - 2014 / GV - 2 - 2014 (RIA)
 RIA n° 653605
 Start Date: 1st June 2015 - Duration: 36 months
 Coordinator: Soccorso Nino Gaeta, GVS SPA - Italy
 Tel: +39 051 6 176 321
 Email: snj@gvs.com

Attendance Sheet XERIC Exploitation/3rd Workshop 23 November 2017 Genoa - Italy

First Name	Surname	Organisation	Signature
CARLO	ISETTI	TICASS	
FALSTO	LEXTIMI	GVS	
IRENE	ESCAPI	AIN	
STEFANO	LAZZARI	UNIGE	
LAMBERTO	SALVAN	ALKE	
PIERO	BOSIO	WEBSTO	
Vicente	LE DORZE	RTA	
BERNARD	CEZAR	FRUCOM	
CLAUDIA	CATTANEO	TICASS	
Gustavo	Gonelli	Ticass	
Oleg	Iliev	Fraunhofer IPA	
FEDERICA	BOERO	TICASS	

First Name	Surname	Organisation	Signature
JEAN-CLAUDE	CHARPENTIER	CNRS/UNIVERSITY OF-LODRANNE-FRANCE	
Mathilde	BOUCHER	EMH	
Lucie	VAATONDE	EMH	
Nino	GAETA	GVS.	

Appendix 6 –Transcript of discussions during the exploitation workshop

With the industrial selected committee (Kent Techniques Avancées, ALKE and WEBASTO).

➤ Reminder of XERIC’s context and objectives

The limited capacity of electric batteries combined with the substantial amount of energy needed to run auxiliary equipment dramatically affects range capability of EVs. Among the different auxiliary equipment, the most significant amount of energy is required to run the climate control system. The aim of the project is to develop an energy friendly climate control system to extend the range capability of EVs in all weather conditions. The XERIC system will:

- reduce more than 50% the energy used all over the year for heating, cooling and dehumidifying air compared to existing systems;
- reduce more than 30% the energy used for air cooling/dehumidifying in extreme summer conditions (i.e., external air at T=30° C and RH=60%) to guarantee comfort in the passenger cabin (i.e., T=25° C and RH=50%);
- guarantee the after-project easy industrial scale-up and the customization of system;
- guarantee an adequate working life;
- withstand the different external air temperature ranges across Europe;
- profitably use the components currently installed in Evs;
- guarantee a reasonable cost (to OEM), which depends on car size, when produced at industrial level.

➤ Presentation of XERIC results

See the presentation made by Stefano LAZZARI (TICASS/UNIGE) also during the public workshop, downloadable [here](#).

➤ Open Discussion, with questions asked by industrial representatives

- In which geographical areas and in which conditions (in terms of temperatures) the system performs best?

The consortium partners indicated that the XERIC system performs best in Southern Europe. In fact, in Northern countries, the system will use the heating power and will consequently use more energy (as the system mainly relies on heat pump basis). **The new climate control system will better work with humidity and hot temperatures than dry and cold temperatures.**

The XERIC system will reduce at least 30% of the energy used for air cooling/dehumidifying in extreme summer conditions (i.e., external air at T=30°C). It will increase the driving range of battery electric vehicles.

An industrial representative highlights the fact that in some countries where temperatures are very high (eg. 40°-50°C in Dubai), the cooling systems have to be tested at 50°C in order to be produced. Consequently, “normal” cooling systems produced in Europe cannot be produced in those hot countries.

The XERIC consortium indicated that the system is not a cooling system but a climate control system which specifically uses humidity. The XERIC climate control system was created to address more efficiently Europe southern countries. However, a complete modelling of the system is being created within the project, thus the possibility is given to change some components of the system and adapt the complete system to those types of countries (outside Europe) to fulfill the requirements of those countries.

- Industrial representatives asked whether the economic analysis of the system was done: is the system created with “common”/“cheap” or rather expensive materials? What is the price cost?

The consortium members answered that the aim is not to increase the price of the system by using expensive materials as the device has to enter into the market in a competitive manner. Since the beginning the project, partners made efforts in order to select materials fitting the performances of the system at a reasonable price.

The cost of the system is equivalent to “normal” existing systems in the market. The product can be sold on the market at a competitive cost in comparison to normal systems.

- What about the size of the system?

The consortium is now working on the prototype. Thus, the size is not the definitive one.

The industrial indicated that a normal car possesses an AC unit which weighs more or less 5 kilos. If the XERIC system saves 30%, it means that this unit can save 1.5 kw.

The consortium partners indicated that the full scale system will be capable to treat about 300 M3/h of external air. Statistically, the state of art showed that traditional cars work with 300 M3/h. Our XERIC system treats 300M3/h out of which 200 (=30%). If the figure if 300M3/h is not true or has to be changed, the coordinator indicated that it is the right moment. In fact, the coordinator stressed the fact that it is up to the industrials to indicate how they want to tailor the XERIC system according to the market / figures corresponding to their cars. The XERIC system will be adapted/modulated according to the market.

This is the perfect moment for a possible partnership between the XERIC consortium and industrials to go to the market. In fact, the consortium partners are exploring market opportunities and will tailor the system according to it. Besides, the coordinator highlighted the fact that the system will mainly be sold to OEM and not to car manufacturers. Thus, OEM know the market tendencies and will indicate how to tailor the system.

Within the consortium, there is no specific partner building/producing the system. Thus, XERIC partners can supply know-how, modelling, consultancy, contactors, etc. Each part of the system is completely protected by patents. The consortium is waiting for strong industrial partnership.

- What about the maintenance of the system? Does it perform during 10 years and then customers have to change the whole unit or can customers change/replace component(s)?

The consortium partners answered that the maintenance is done on a modular basis; there is the possibility to remove and replace each component. It was also emphasized that the material used is stable and of good quality and will be used as a guarantee for the customers. If the maintenance has to be realized each year (for business reasons - as for the Iphone model), partners will work in this sense.

The consortium has to lead the system to the market thanks to the experience of industrials.

Besides, it was highlighted that the system can be applied to other domains such as transport (e.g.: caravans, tramways, buses, etc), building, industry, boats, etc.

The consortium partners stressed the fact that negotiations with industrials are opened.

Appendix 7: Registration and attendance list of the public workshop

People who registered to the 3rd XERIC workshop are here listed by the type of their organization; i.e. industry, scientific community, media/events/support organization, local authorities, customers, investors, general public and other.

In green, people working for the XERIC project
In red, the invited industrial representatives

Type of organization	Organization	Name	Surname	Attendances	Email
Industry	ALKE' SRL	SALVAN	Lamberto	x	lamberto.salvan@alke.com
Industry	Boero Bartolomeo SpA - production & distribution of varnishes for the Housebuilding, Yachting and Naval sectors.	COZZA	Erika		erikasimona.cozza@boero.it
Industry	Boero Bartolomeo SpA - production & distribution of varnishes for the Housebuilding, Yachting and Naval sectors.	VACCAREZZA	Ilaria		ilaria.vaccarezza@boero.it
Industry	COFORNI			x	coforni@coforni-europe.it sales@coforni-europe.it
Industry	DENSO AUTOMOTIVE Deutschland GmbH OPTEMUS project	CALDEVILLA	Andres	x	a.caldevilla@denso-auto.de
Industry	e-distribuzione Spa	COTEA	Roberto	x	roberto.cotea@e-distribuzione.com
Industry	Frigomar	Cerrai	Bernardo	x	b.cerrai@frigomar.com
Industry	Frigomar	Nari	Sergio	x	s.nari@frigomar.com
Industry	GVS SPA	Gaeta	Soccorso	x	sng@gvs.com
Industry	GVS SPA	Lentini	Fausto	x	Fausto.LENTINI@gvs.it
Industry	Kent Techniques Avancées	LE DORZE	Nicolas	x	n.ledorze@kent-tech.fr
Industry	MICOCCA Design svls	CERMINARA	Gino	x	info@micocca.com
Industry	NOKA	PELLEGRO	Ezio	x	e.pellegro@nokagroup.com
Industry	SIRUS International - building energy solutions, providing service to the HVAC, Electrical and Controls industry since 1989	GALLAGHER (Dr.)	Shirley	x	shirley.gallagher@sirus.ie
Industry	Tecnoservizi SRL - transport & treatment of harvest refusals	Zecchi	Armando		direttoregenerale@tecnoservizi.es
Industry	Webasto Thermo & Comfort Italy S.r.l.	BOSIO	Piero	x	piero.bosio@webasto.com
Scientific community & Industry	TICASS S.c.r.l.	Bergamino	Roberto		roberto.bergamino@ticass.it
Scientific community & Industry	TICASS S.c.r.l.	Boero	Federica	x	federica.boero@ticass.it
Scientific community & Industry	TICASS S.c.r.l.	Capannelli	Gustavo	x	gustavo.capannelli@ticass.it
Scientific community & Industry	TICASS S.c.r.l.	Cattaneo	Claudia	x	c.cattaneo@ticass.it
Scientific community & Industry	TICASS S.c.r.l.	Cepolina	Sara	x	sara.cepolina@ticass.it
Scientific community & Industry	TICASS S.c.r.l.	Conio	Oswaldo		osvaldo.conio@ticass.it
Scientific community & Industry	TICASS S.c.r.l.	Isetti	Carlo	x	isetti@leonardo.arch.unige.it
Scientific community & Industry	TICASS S.c.r.l.	Nannei	Enrico	x	e.nannei@gmail.com
Scientific community	AIMPLAS - JOSPEL project	Gutierrez Aragones	Vanessa	x	vgutierrez@aimplas.es
Scientific community	consiglio nazionale delle ricerche	liberati	diego		diego.liberati@gmail.com
Scientific community	Department of Chemistry and Industrial Chemistry - Genoa University	Borzzone	Gabriella		gabriella.borzzone@unige.it
Scientific community	Dipartimento di Chimica e Chimica Industriale - Università degli Studi di Genova	Comite	Antonio	x	acomite@chimica.unige.it
Scientific community	Eurac	Isetti	Giulia	x	giulia.isetti@eurac.edu
Scientific community	ITWM	Iliev	Oleg	x	oleg.iliev@itwm.fraunhofer.de
Scientific community	KAUST - King Abdullah University of Science and Technology	PEINEMANN	Klaus-Viktor		mathilde.boucher@umontpellier.fr
Scientific community	Laboratoire Réactions et Génie des Procédés, CNRS/ENSIC/Université de Lorraine	CHARPENTIER	Jean-Claude	x	jean-claude.charpentier@univ-lorraine.fr
Scientific community	Università degli Studi di Genova	Fortunato	Federica	x	f.fortunato@hotmail.it
Scientific community	Università degli studi di Genova	Carniglia	Giorgia	x	giorgia.carniglia@hotmail.com
Scientific community	Università degli studi di Genova	Firpo	Raffaella	x	raffaella.firpo@unige.it
Scientific community	Università degli Studi di Genova	Lazzari	Stefano	x	stefano.lazzari@unige.it
Scientific community	Università degli Studi di Genova	Nelli	Ilaria		ilaria.nelli@edu.unige.it
Scientific community	Università degli studi di Genova	Pagliero	Marcello	x	marcello_pagliero@yahoo.com
Scientific community	Università degli Studi di Genova	Rattazzi	Diego		diego.rattazzi@edu.unige.it
Scientific community	VITO	Verheyde	Bert	x	bert.verheyde@vito.be

Type of organization	Organization	Name	Surname	Attendances	Email
Media/events/support	ASOCIACION DE LA INDUSTRIA NAVARRA (AIN)	ESLAVA	IRENE	x	ieslava@ain.es
Media/events/support	EMH - European Membrane House	BOUCHER	Mathilde	x	mathilde.boucher@umontpellier.fr
Media/events/support	EMH - European Membrane House	RIOS	Gilbert Marcel		Gilbert.Rios@euromemhouse.com
Media/events/support	EMH - European Membrane House	VAAMONDE	Lucie	x	lucie.vaamonde@umontpellier.fr
Media/events/support	GISIG - Geographical Information Systems International Group	MARCHESE	Alessandra	x	a.marchese@gisig.it
Media/events/support	MBI Srl	ROSESTOISTO	Hassiro	x	hrosestoisto@mbigroup.it
Media/events/support	MICOCCA Design svls	Raimondo	Michail	x	info@micocca.com
Media/events/support	Promoest	Beneventi	Marcello	x	m.beneventi@promoest.com
Media/events/support	Stam srl - http://www.stamtech.com/it/services	Eranio	Giorgia	x	g.eranio@stamtech.com
Local authorities	comune	pastorino	luigi		luigi2cv@yahoo.it
Local authorities	Comune GE	Angela	Stefin	x	
Local authorities	Comune GE	PIROLI	Stefano	x	spiroli@comune.genova.it
Local authorities	Regione Liguria	Bertorello	Lorenzo	x	lorenzo.bertorello@regione.liguria.it
Customers	Amt Genova SpA - Genoa's Transport society	Fabfri	Giampiero		giampiero.fabfri@amt.genova.it
Customers	Amt Genova SpA - Genoa's Transport society	Gregorio	Fabio		Fabio.gregorio@amt.genova.it
Investors	Samandel SPA - society of energetic services financing efficient technologies to implement. http://samandel.it/	Beltrami	Andrea		andrea.beltrami@samandel.it
General Public		Barbieri	Elisa	x	
General Public		Bocca	Eletina	x	
General Public		Donati	Zaira	x	
General Public		Pedemonte	Lorenza		lorenzapedemonte@gmail.com
General Public		RICA	Giulia	x	giu.ricca95@gmail.com
General Public		Rossi	Annamaria		annamaria.rossi@alice.it
Other	AC.COM Srl	Diagofini	Paolo	x	
Other	PRIVATO	Amiens	Andrea	x	
Other	Privato	De felice	Maria Grazia	x	mgdefelice@libero.it
Other	Sistema	Scaramuccia	Fabrizio	x	f.skara@tiscali.it

Appendix 8: Pictures of the public Workshop (Genoa Smart Week)



Signage of the Genoa Smart Week on Via Garibaldi (above) and welcome desk of the 3rd XERIC Workshop (opposite)
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Prototype of the 3 Fluids Combined Membrane Contactor (3F-CMC) displayed during the entire meeting.

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Above: Opening of the plenary sessions with, from left to right, Dr Castiglieri (Genoa's municipality), Nino Gaeta (XERIC coordinator - GVS) and the two chaimen: Gustavo Capanelli (TICASS) and Oleg Iliev (Fraunhofer ITWM)

Below: Speakers of the plenary sessions, i.e. (left to right, top to bottom) Lucie Vaamonde (EMH), Stefano Lazzari (UNIGE), Bernardo Cerrai (FRIGOMAR), Carlo Isetti (TICASS), Vanessa Gutierrez Aragones (AIMPLAS) and Andrés Caldevilla (DENSO)



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Above: Open discussion between the invited industrial representatives and the audience with, from left to right, Lamberto SALVAN (ALKE), Piero Bosio (WEBASTO), Bernardo Cerrai (FRIGOMAR, on behalf of ALKE) and M. Charpentier (member of the XERIC SAB and moderator of the discussion)

Below: Pictures of the workshop audience ©ClickUtility



Appendix 9: Transcript of discussions during the public workshop

- **“According to you, what are the advantages and drawbacks of the XERIC Climate Control System?”**

The optimization of the energy consumption in electric vehicles is very important nowadays. Thus the XERIC climate control system will increase the driving range of electric vehicles in extreme climate conditions. The performance of the technology is very good and will act in extreme environments (very hot and very cold climates). Moreover, the Climate Control System can apply to various applications and the participation of FRIGOMAR within the project confirms that the system is flexible/adaptable to other applications and will be applied to other domains such as: the maritime domain, buildings, etc.

An important effort from the consortium partners will be done regarding the rapid commercialization of the technology in the near future. As for the JOSPEL project, the XERIC technology aims to improve the passenger comfort.

M. BOSIO indicated that WEBASTO supplies comfort solutions for customers. The main idea is to catch the need of customers. The XERIC approach is also aiming to catch the need of customers. But it is true that in the electric vehicle domain, it is difficult to know how to manage the energy consumption, the passenger comfort and the kilometers issues. The XERIC technology is crucial nowadays in the sense that it tackles the energy efficiency issue taking into account the passenger comfort.

On the other hand, passengers have to change their way of thinking regarding « transport ».

KENT TECHNIQUES AVANCEES is very interested to promote the XERIC breakthrough technology as the most important advantage of XERIC is to save energy – which is the most important issue of our century (no matter the price of it: up to 20% in comparison with the existing devices).

- **“According to you, what are the differences with the current existing systems?”**

The improvement of existing climate control systems is the most important innovation of the XERIC project. The miniaturization of the technology is an important step to be realized. In fact, the volume and weight of the climate control system are important elements to be evaluated.

Moreover, the safety of the fluid inside the unit is very important in comparison to classical air conditioning systems.

A partner from the OPTEMUS project (M. CAPDEVILLA) asked the price for air conditioning systems for catamarans. FRIGOMAR answered that prices in the boat market are much more expensive as the cooling effect is realized by sea water (not by air).

- **“What is your opinion/perspective regarding electric mobility within the next years?”**

ALKE, as manufacturer in the electric vehicle domain, indicated that nowadays we are answering to the market requirements (which is a different situation in comparison with previous years), also because the feeling of the users is different as the way of thinking “transport” is changing. Energy efficiency is a more common and integrated way of thinking for public authorities and for end-users as we are becoming more and more conscious of global warming. Efforts to mitigate the impact of global warming, air pollution and noise are



the main issues to be tackled nowadays and in the forthcoming years. Technologies are evolving and adapting to a more energy efficient world and transport electrification has to be accelerated. Hybrid vehicles have to be more and more integrated in our daily lives. Prices are becoming lower. Many exhibition fairs are organized with hybrid vehicles which will become the main way of transport of the forthcoming years.

WEBASTO agreed with ALKE and highlighted the fact that nowadays, bus manufacturers are really competitive in terms of electric vehicles. WEBASTO also stressed that the charging infrastructures are not adapted yet to the market and represent a critical barrier. Infrastructures to ensure reliable service to homes and other charging locations need to be developed. Consequently, the “complete cycle” of transport electrification has to be studied and developed.

- **“In the frame of the XERIC project, you are right now showing us the prototype but how/when do you plan to reach the market?”**

The XERIC coordinator indicated that the XERIC technology is currently introduced to OEM in order to establish partnerships. We are going to start the business development with OEM which are our main client targets.