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From generating to using climate services – How the EU-MACS and MARCO projects help to unlock the market potential

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1. Introduction

In the past 10–15 years climate services have rapidly evolved into a complex information service product group, with an influx of many new providers and types of service. Several sections within the current portfolio have existed already for decades, but with the emergence of climate change adaptation (CCA) planning in Europe and elsewhere, a much richer product portfolio and more alternative supply chains are being developed. In the slipstream of the rising awareness for climate change and adaptation the quality of data and modelling has increased (and continues to do so), thereby enabling the development of ever more seasonal climate services as well.

Europe has jointly stepped up its investments in the upstream part of the climate service delivery system, advanced observation systems and ambitious joint modelling activities in the context of Copernicus Climate Change Service (C3S). Through obligations regarding national CCA strategies of Member States it has also laid the foundations for a significant market. The actual uptake and use of the vast and expanding information and analysis potential is hitherto still largely limited to highly qualified professional users with significant prior knowledge of climate change and climate policies. Even though there are signs of expansion within existing user segments and towards new user segments and even though there is significant benefit potential contained in climate services (Anderson et al., 2015), the overall uptake of climate services is not as vigorous as is for example aspired by the European Commission, when it launched the European Research and Innovation Roadmap for Climate Services in March 2015.

The market of climate services currently remains in its infancy: current strategies face knowledge and visibility gaps, while the associated economic benefits to users are either unknown or uncertain. The Horizon 2020 projects MARCO[3] and EU-MACS[4] are particularly meant for analysing the current state of affairs regarding the uptake of climate services, assess the development prospects, and propose remedies so as to promote a significant larger utilization of the development and use potential of climate services. The MARCO project focuses on evaluation of current and future market size, as well as on the requirements and benefits of a so-called market observatory on climate services. On the other hand the EU-MACS project focuses on obstacles, drivers, and opportunities affecting the uptake of climate services as well as the development and supply of climate services. The projects are still in full swing and therefore the discussion below does not represent our final words.

We will focus on findings, while sketching the project structures only briefly. At this stage we refrain from recommendations.

2. The projects in a nutshell

2.1. EU-MACS

The project consists of three phases. First the current state of provision and use is assessed, in terms of experienced shortcomings for users and providers, based on the PESTEL criteria (Cortekar et al 2017). For specific issues such as resourcing and quality assurance (Larosa and Perrels 2017), data infrastructure (Hamaker et al 2017), and innovation processes (Stegmaier and Visscher, 2017) in-depth research was conducted applying surveys, interviews, workshops, and literature review. Subsequently, for three focus sectors (finance, tourism, urban planning) more in-depth explorations on encountered obstacles and drivers were carried out, of which the greater part through interactive formats with stakeholders (Damm et al 2018; Giordano, 2017). This has led to an extended and more refined list of obstacles and drivers, and includes also indications of inter-relations between these, and of their relative importance for different sub-groups of users. We also distinguish between supply side, demand side and matching factors (Fig. 1). These focus sector explorations also led to some tools and recommendations for prospective users, available on the website. In the third and final phase, which is still ongoing at the issue date of this publication, the

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[3] MARCO: **MA**rket **R**esearch for a **C**limate Services **O**bservatory (http://marco-h2020.eu/)
[4] EU-MACS: **EU**ropean **MA**rket for **C**limate **S**ervices (http://eu-macs.eu/#)

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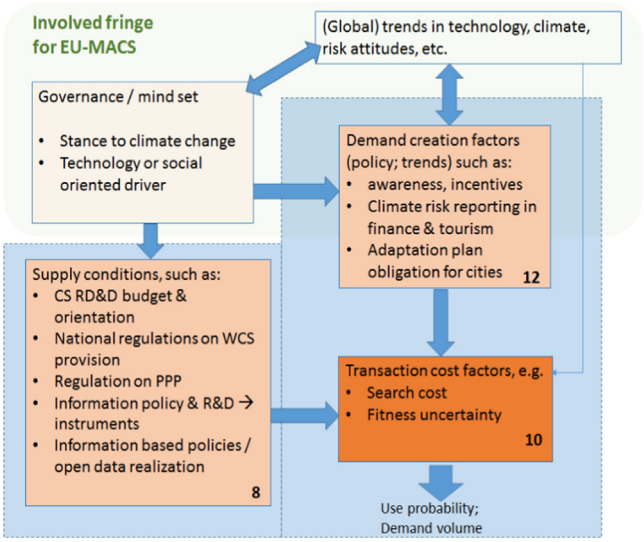

Fig. 1. EU-MACS approach.

findings from all previous stages are jointly analysed in order to come up with more comprehensive explanations of various mechanisms, recommendations for generic and specific policies and measures, and overarching synthesis with the twin project MARCO.

The main output of the project consists of:

- Assessment reports of main drivers, obstacles and innovations and their underlying mechanisms
- Survey on climate service providers and users regarding encountered technical, economic, regulatory, ethical, and political factors obstructing the uptake of climate services
- Guidelines and tools for selection and using alternative interaction formats when searching and selecting or offering / tailoring climate services
- Synthesizing analysis of combined effects of obstacles and of related policy measures
- Suggestions for innovations in business models, resourcing, open data policies, and quality assurance

2.2. MARCO

The 'MArket Research for a Climate services Observatory' (MARCO) gathers market research firms, climate scientists, climate services practitioners, and innovation actors, to provide a detailed insight into the market for climate services in Europe. The project's key objectives are to: 1) assess the EU market of climate services; 2) validate and enrich the market assessment with case studies; 3) forecast future user needs and assess market growth until 2030; 4) unveil opportunities and promote market growth with a proposed establishment of a suitable market observatory.

To achieve this, MARCO builds on a phased approach, consisting in defining the framework for market characterisation and integrating market research tasks which include climate vulnerability analysis deriving into potential market estimation, actual transactional market quantification (Howard, 2018), qualitative surveys, and nine case studies on specific sectors and regions. To foster the market of climate services, it is then mandatory to identify the gaps between information provided and the needs of prospective users (Brasseur and Gallardo, 2016). This is necessary to reveal untapped market opportunities and constraints. MARCO is performing a gap analysis building on the outcomes of the supply and demand analyses, validated by the case studies related to key sectors, where climate services can make an important impact in the decision making process. The gap analysis thereby highlights business opportunities by identifying especially those market areas, where, according to articulated users' needs, a high demand is existing but either no service, only limited numbers or the inadequate services are offered (Fig. 2).

The main outcomes of the MARCO project are:

- Benchmark of service providers and their business models
- Updated picture of the current market demand for climate services, with a transaction-based

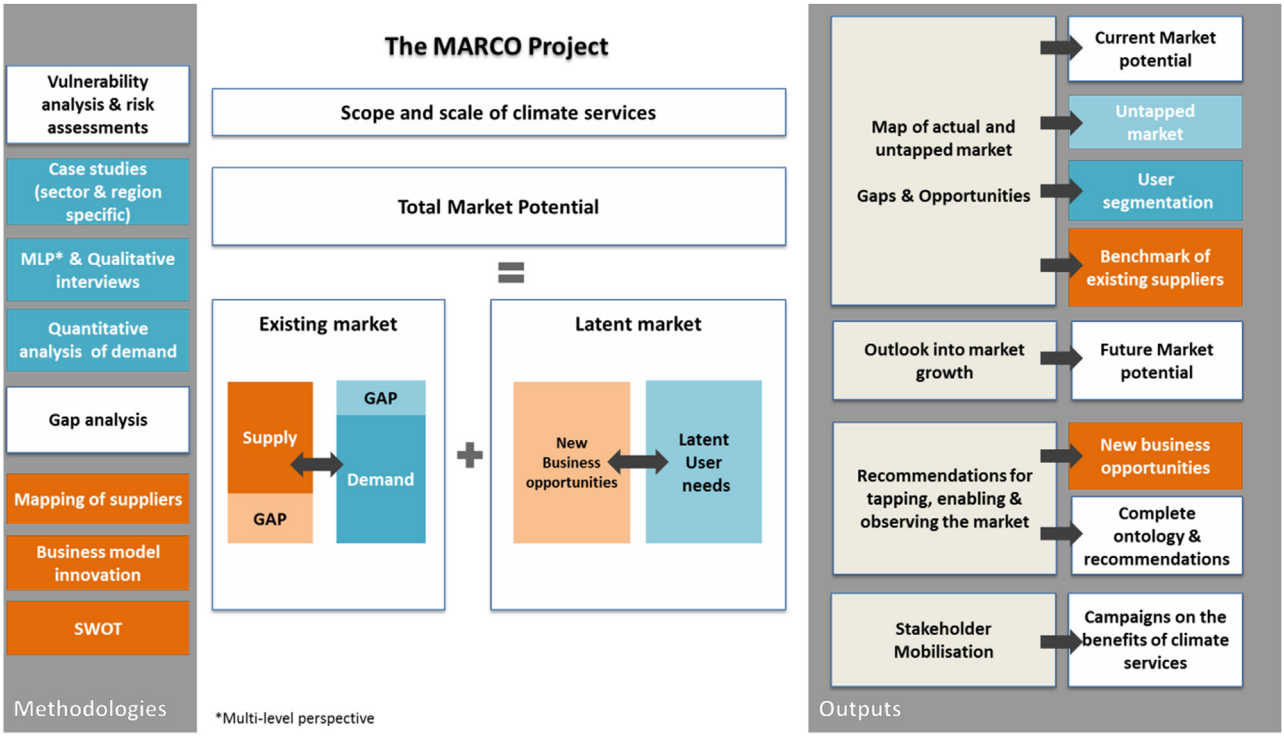

Fig. 2. MARCO framework for market characterization.

quantification complemented by a qualitative analysis of users' needs
- Current and future potential market for CS through vulnerability analysis, risk assessment,
  market analysis; Market potential growth forecast till 2030
- Untapped market and business opportunities through gap analysis and in-depth interviews
- Recommendations to economic actors for tapping the market
- Recommendations to policy-makers for future market observation and facilitation, including

a business model for a market observatory and/or an online marketplace;

3. Early key findings

Key findings in EU-MACS concern: (1) the rather wide spread lack of thoroughly founded business models among public providers of climate services, often in conjunction with insufficient consideration of the entire value chain of climate services generation and the most fitting role(s) of the public provider, (2) significant gaps in how users and providers define quality of climate services and the challenges in operationalizing fitting quality indicators, (3) the hitherto large share of climate services provision in non-market frameworks (e.g. public service obligations and R&D grants), and (4) the significant role of (self)regulation as necessary precondition for the uptake of climate services in a sector.

In MARCO, 488 climate services providers have been identified (Cortekar, 2018). These providers are to a larger extend located in western and central European countries; only a small number of providers could be identified in eastern and south eastern European countries. According to this assessment, the market is still dominated by public climate services providers (i.e. national meteorological services, research performing organisations in the broadest sense and public authorities). However, the number of identified private sector providers considerably increased compared to previous mappings. An important remaining question is how these to market arenas could, to the benefit of all, be better integrated to create synergies for market development.

Each MARCO sectoral case study issues recommendations that focus on increasing climate action and the relevance of climate services, reflecting sector- and region- specific norms, vulnerabilities, and legal arrangements. There are, nevertheless, at least two recurring challenges that the project highlights: 1) climate services are poorly understood by 'end users' and are scarcely visible, and 2) users are unsure how they would set about procuring climate services that are pertinent to their needs

3.1. Prospects within and beyond the projects

In addition to their own outputs, the projects will also produce a common synthesis report, with special attention for (1) the interplay between the sets of conclusions & recommendations and the potential for additional conclusions & recommendations, (2) linking the market volume projections (MARCO) with the analysis of obstacles and policies (EU-MACS), and (3) alternative options for engagement (interaction formats), related forms of promotion of climate services, and the options for some kind of 'observatory'.

For the purpose of dissemination, feedback and endorsement the projects will participate in several events in Autumn 2018, such as the 2nd General Assembly of Copernicus Climate Change Services, the 2nd Festival on climate services by Climateurope, and COP24 in Katowice. The projects will be concluded by the end of 2018.

In that context, we look forward to spur discussions and follow-up actions – nationally and at EU level – with respect to sector-level (self) regulation requiring preparedness for climate change, standardization and quality assurance in the entire climate services value chain, approaches in market regulation, potential development needs of alternative observation channel, and related data sharing systems (microsatellites, drones, citizen observation).

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Further reading

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