Improving the matching of supply and demand of climate services

Lessons from the EU-MACS project for tourism and urban planning

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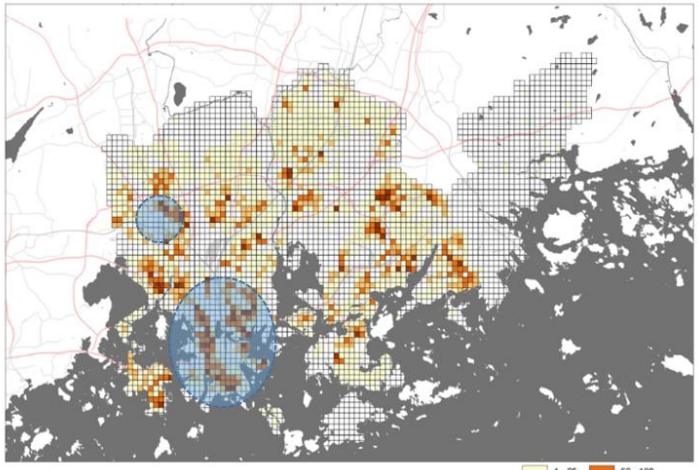
Promotion of climate services – why?

Angle of prospective (end)users of climate services:

- Adaptation to climate change may be seen as less urgent and/or firstly as task of other (public) organisations **(tourism)**
- Legal obligation to account for climate change in urban planning does **not automatically** lead to systematic use of adequate climate data
- *Scope* of seasonal products for preparedness to climate variability not very well known or lack of belief that much can be done **(tourism; urban planning)**
- Climate service portfolio is non-transparent for (end)users **(tourism; urban planning)**



75+ aged population by 250m grid cell:
Source: Pilli-Sihvola et al 2018

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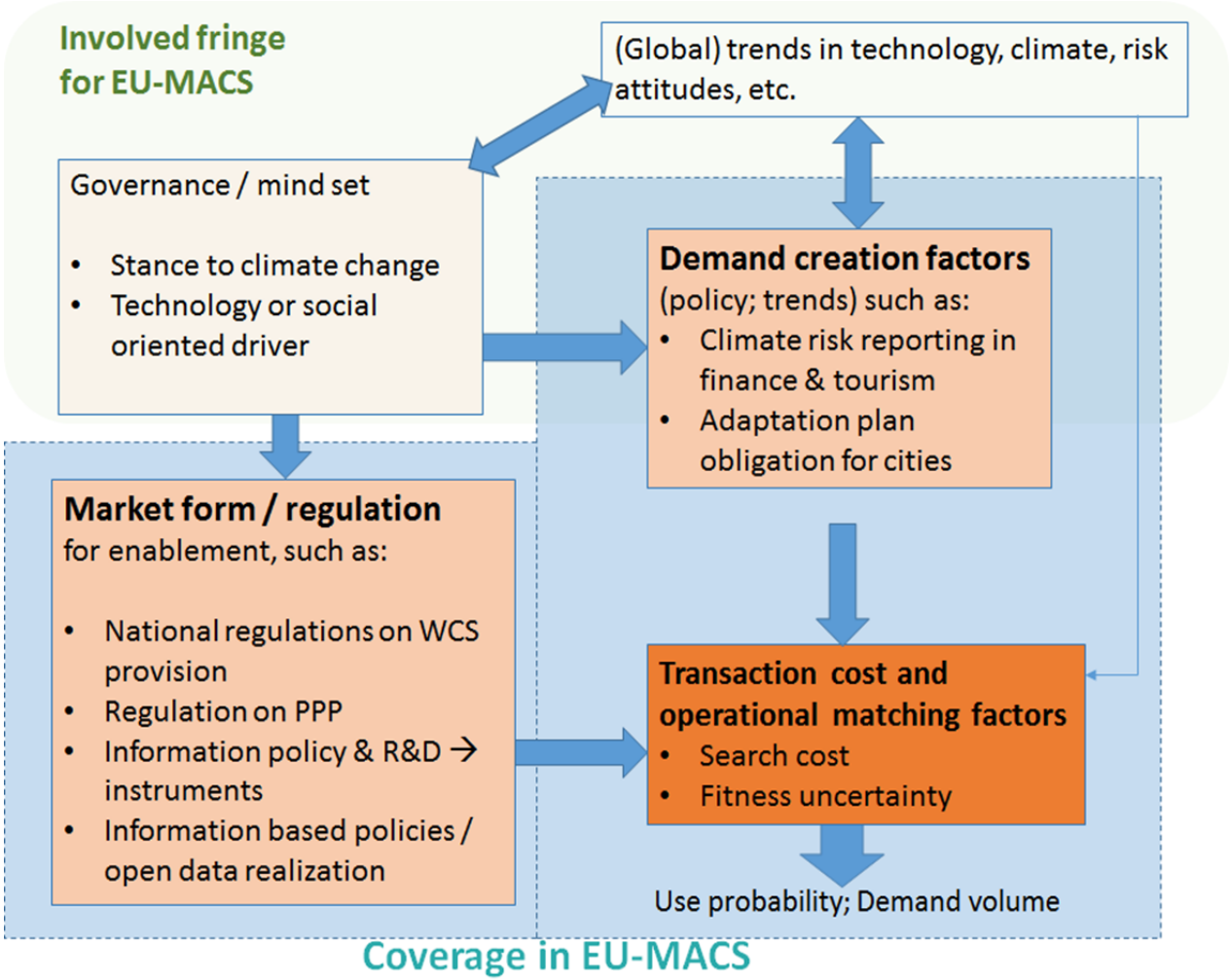
Three domains determining market shortfall for climate services as basis for guidance and policy recommendations



EU-MACS assesses the obstacles to climate services uptake and related mechanisms for users from *Finance, Tourism, and Urban Planning.*

EU-MACS provides ***guidance*** to users and providers of climate services, as well as recommendations for policy makers.

Demand creation, Market form & regulation, and operational issues *together drive the effective uptake of climate services*

next page

Towards a portfolio of interaction formats

Angle of providers of climate services:

- Prospective users have quite *different awareness and skill levels* regarding risks of climate change and climate variability, and hence regarding climate information services
- … hence, one needs *different approaches* (analytic, pragmatic, exploratory) to get the user itself to identify needs for specific climate services, i.e. **diverse interaction formats**
- Special attention deserve also questions such as:
  - Is it better to serve a single user or a cluster of users (in region or sector)
  - What means 'fit-for-purpose' and 'quality' for the user
  - What kind of non-climate information will be linked to climate information
- Get enough affinity with the decision contexts of the users and dare to decide what user segments best fit your business model

→ **The next sheets discuss various interaction formats and a few other tools**
→ **You can use the menu page (next) to jump directly to your topic of choice**

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Support tools & Interaction formats - menu

Next to literature review and statistics EU-MACS uses web-surveys, interviews, workshops, and combinations of these to elicit information.

For the user segment 'urban planning' **Living Labs** are used as an elicitation framework.

Climate service providers need to understand how a user segment (e.g. winter tourism) is organized and how existing and possible climate service products serve the various needs here is an example of such **market scanning for winter tourism in Austria** …….

To market scan example

Climate service providers should think better about how they organize, position, present, and resource their service products, i.e. they need **business models;** after having scanned the market of a user segment, the **business canvas** assists in business model development.

To business canvas example

Both in tourism and urban planning there may be multiple users served via *a commonly agreed* climate service. In that case service (co)design, tailoring and delivery is greatly helped by **stakeholder network analysis** (SNA) to arrive at the most suitable package.

To SNA example

Prospective users vary strongly in levels of prior knowledge about climate services and in resources available for specification, acquisition and use of climate services. So there is a need for **interaction formats** for the exploration of climate services needs, the eventual selection, and (if necessary) the (co)design of climate services:

- If climate service portfolios can be expected to be rather focused, while the prospective user prefers to start by comparing concrete product offers or outlines, a **product matrix** based exploration can be a way forward (as in some tourism cases)

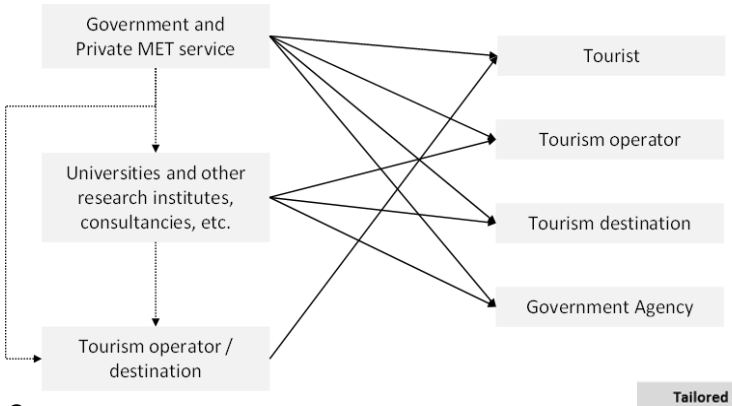
To product matrix example

- Conversely, if the climate service portfolio can get diverse, while linkage to other information and decision support systems is important, a more thorough approach such as information chain analysis may be called for (as for larger cities and financial organisations.

To information chain analysis

To start slide

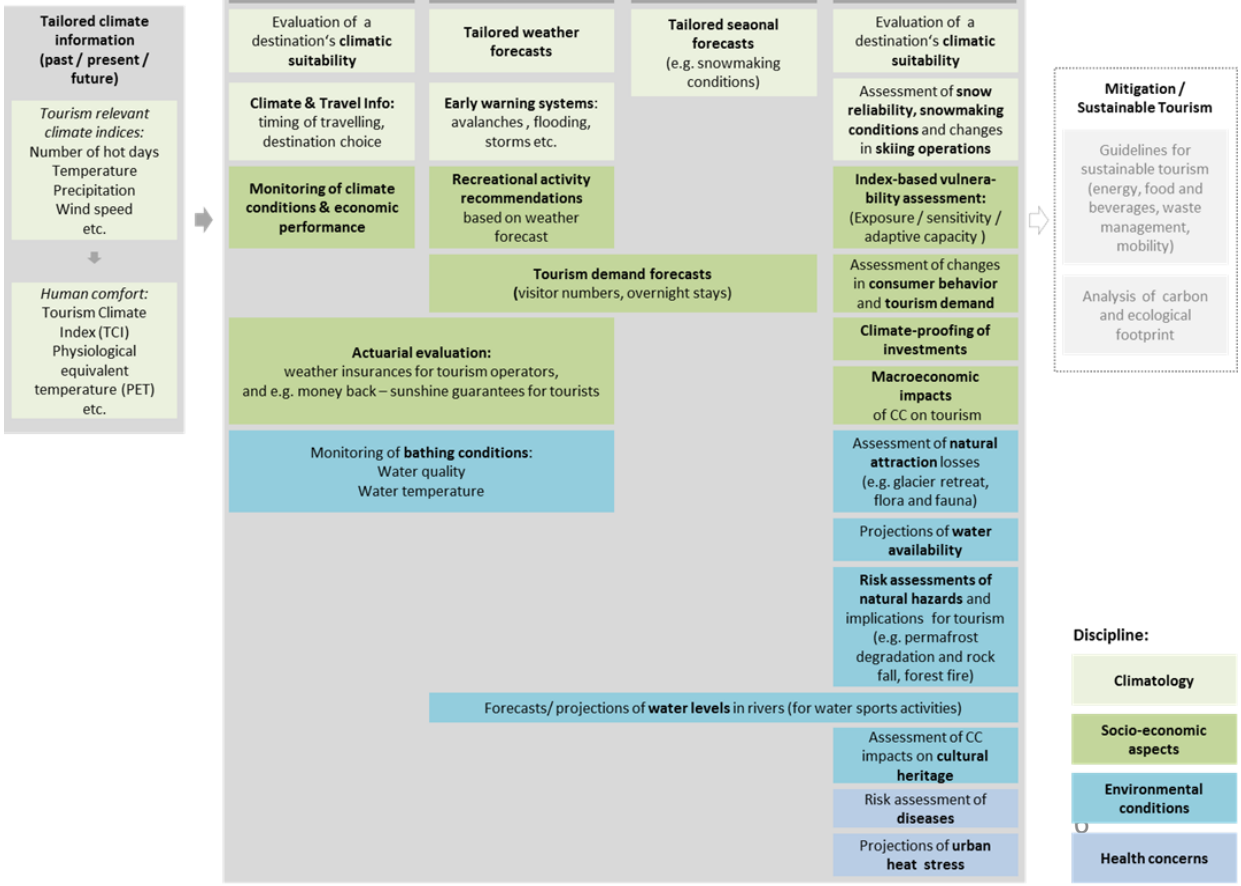
Market scan for winter tourism in Austria



*CLIMATE INFORMATION AND SERVICE PROVIDERS AND USERS IN TOURISM (SCOTT ET AL 2011, MODIFIED)**

For prospective users the needs for certain climate services may not be self-evident. Hence, first a phase of awareness raising and related consultancy can be necessary.

*THEMATIC MAPPING OF EXISTING AND POTENTIAL CLIMATE SERVICES FOR THE TOURIST SECTOR**



***) source**: Damm et al, 2018, *Report on the explorations of the CS market development options for the tourist sector*, EU-MACS Deliverable 3.1 (forthcoming)

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Business canvas example

Customer Jobs	Products & Services
• To attract tourists (high occupancy rate) • Awareness-raising / Training/ Coaching • Service value chain	• Weather-based packing list for tourists • Dynamic pricing (weather-dependent) • Guest monitoring (what are guests doing during bad weather conditions?)
Gains	**Gain Creators**
• Peak demand management • Regional development – Further development of products and creation of new products, e.g. snow shoe competitions • Strategy process • Co-working…Digitalization	• Weather-based activity recommendations tool – Requires improved weather forecasts – Who should pay for the services? Which services are listed in the recommendations? Only those who pay for the service? -> conflict, because of compulsory membership in tourism association. • Digitalization – funding options (e.g. LEADER project)
Pain	**Pain relievers**
• Lack of time, lack of financial resources • Responsibility for both ○ stakeholders / tourism service providers ○ tourists • Low product/service quality of some members (for many tourism entrepreneurs – secondary occupation) • Responsibility for quality assurance but without regulatory power • High seasonal fluctuation in occupancy; low occupation rates in shoulder seasons	• Regular exchange between tourism associations (also of different provinces) • Bundling of resources (joint acquisition and post-processing) • Customer feedback (quality assurance) • CS – tourism associations share of turnover (e.g. 10 %), but tourism association is a non-profit organization, i.e. brokerage • Holistic planning process (including also climate issues), prioritization of tasks, budget planning,

Source: Damm et al, 2018, *Report on the explorations of the CS market development options for the tourist sector*, EU-MACS Deliverable 3.1 (forthcoming)

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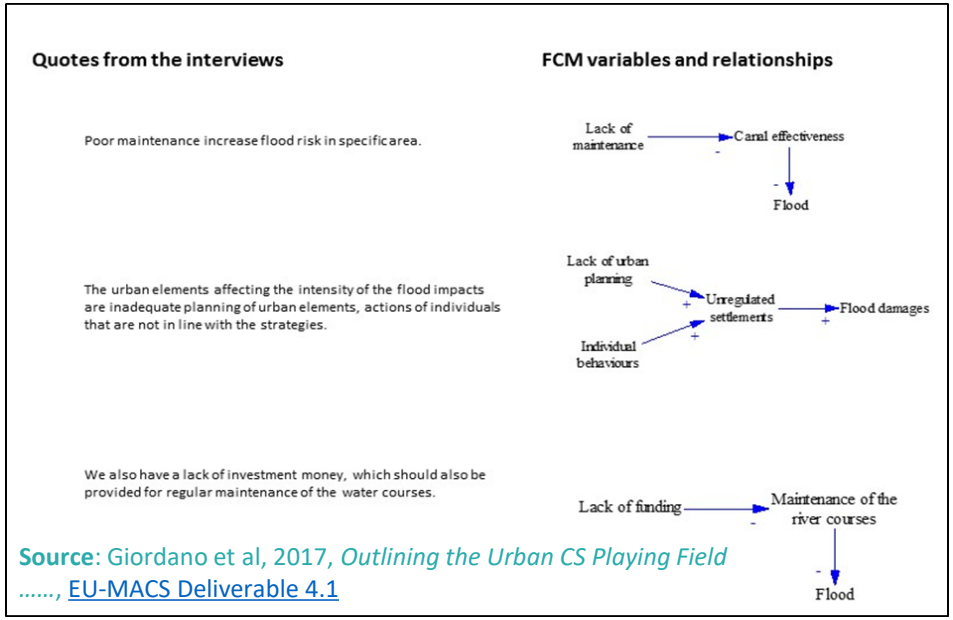
Stakeholder network analysis (SNA)

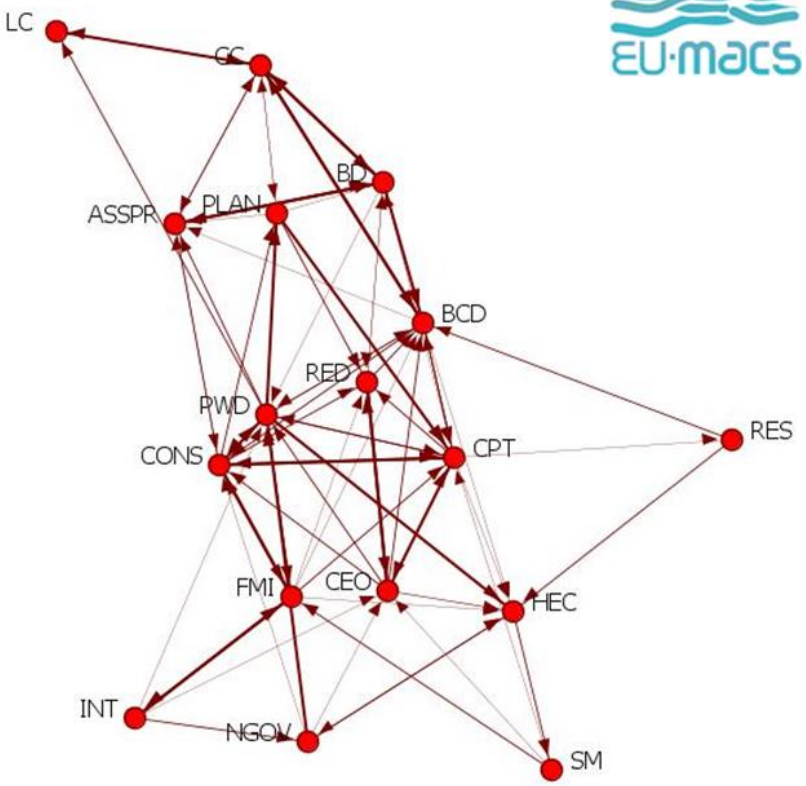
Both the climate services provider and user need a good and shared understanding of the climate challenges considered, of their internal stakeholders, and the information needs, the network of information flows, etc. A social network analysis (SNA) realizes this and was applied to urban planning cases in EU-MACS

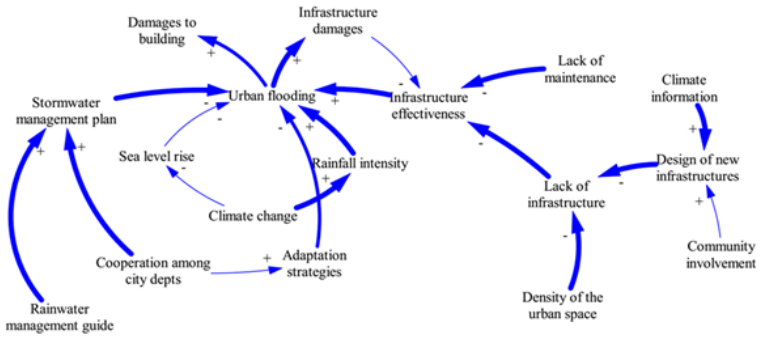
The main impediments for city planning departments of Helsinki and Bologna were analyzed regarding the way and extent of use of Climate Services (CS). Specifically, two kinds of barriers were analyzed, being (1) the ambiguity in problem understanding and (2) the vulnerability in the network of interactions taking place during a collective decision-making process.

The analysis of the individual problem understanding enabled us to uncover the differences in information needs. Moreover, the explorations carried out in Helsinki demonstrated the usability of the ambiguity analysis as a means to inform and enable the debate among the decision-makers – that is, the users of the climate-related information.



Source: Giordano et al, 2017, *Outlining the Urban CS Playing Field ……*, EU-MACS Deliverable 4.1





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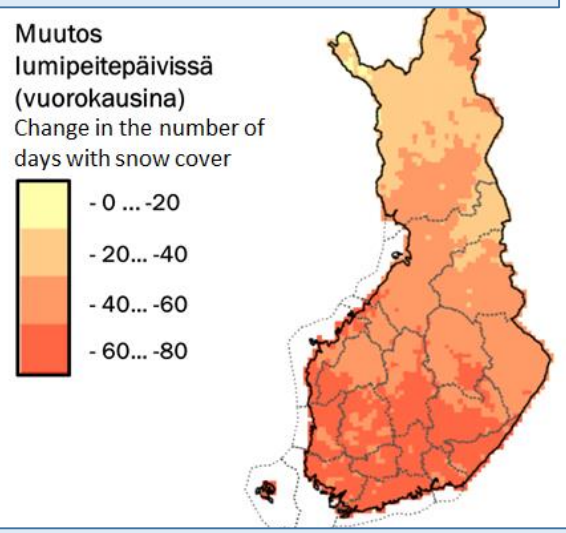
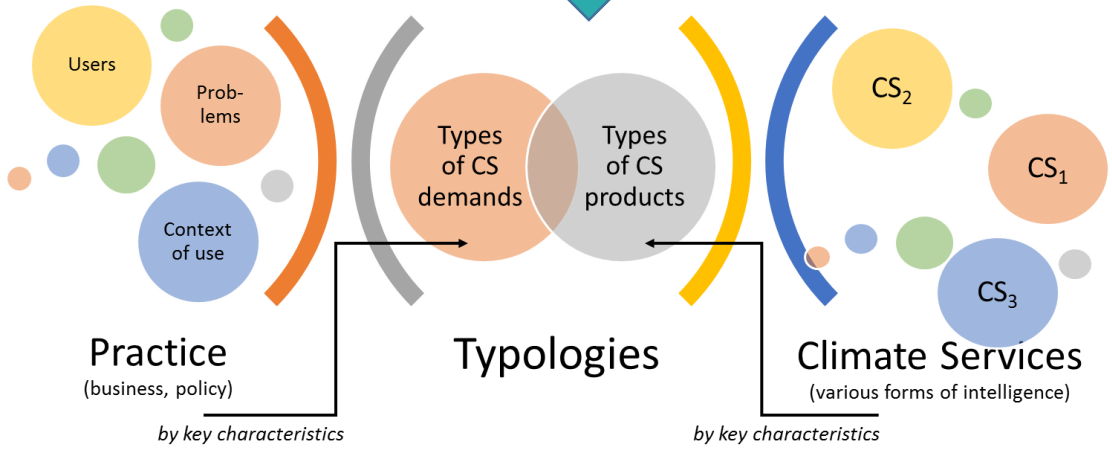
Product matrix and example exploration

	Generic	*Customized*
Focused	**Maps & Apps:** - Generic Climate Services - Freely or cheaply available… - … to all users	**Expert Analysis:** - Scientific, professional, commercial, monodisciplinary climate services - Tailored to specific decisions and decision-makers
Integrated	**Sharing Practices:** - Mutual services on… - … adapting and mitigation climate change in specific environments - Available to all users	**Climate-inclusive Consulting:** - Professional, commercial and… - Transdisciplinary climate services - Tailored to specific decisions and decision-makers

Changes in snow cover days by 2050



What type, for what purpose suits best?



1. How significant is this information?
2. What actions would this information cause?
3. What actions do you expect from others?
4. What additional information would you need?
5. Other thoughts?

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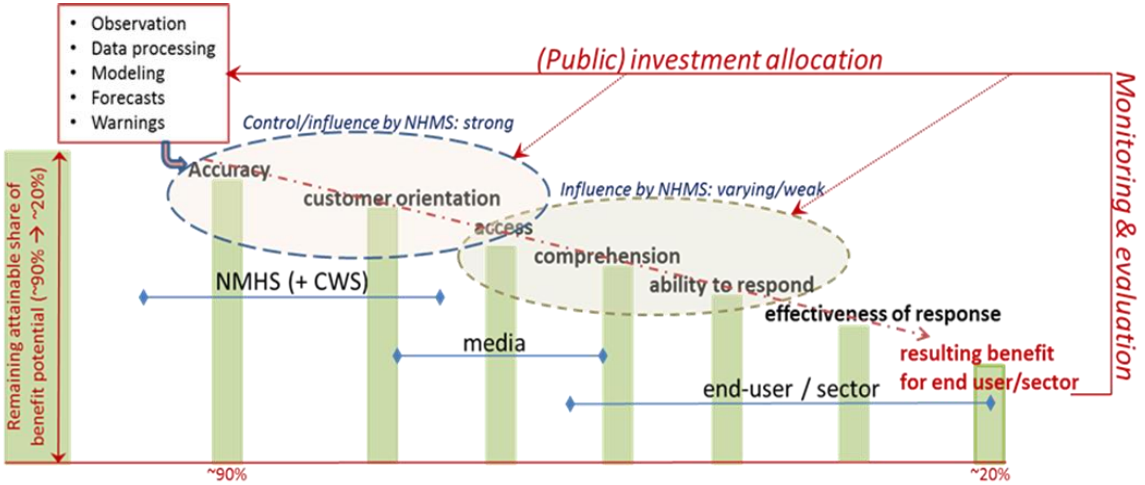
Information chain analysis



Source: Perrels et al, 2013, *Socio-economic benefits of weather and climate services in Europe*

1. Risk awareness	2. Risk handling framework is fit for CS	3. accuracy of CS selection and specification	4. product fitness and performance risk	5. post-processing & interpretation skills	6a. Response effectiveness - advance signals; side-benfits	7 immediate market effects e.g. disclosure effects
					6b. Response effectiveness - observed???	8. macro-economic effects
						9. regulatory changes; innovation

no → First general CC education / training

yes → Check risk man_syst → - check $E(u_s)$ of CS; - (co)develop risk man_syst

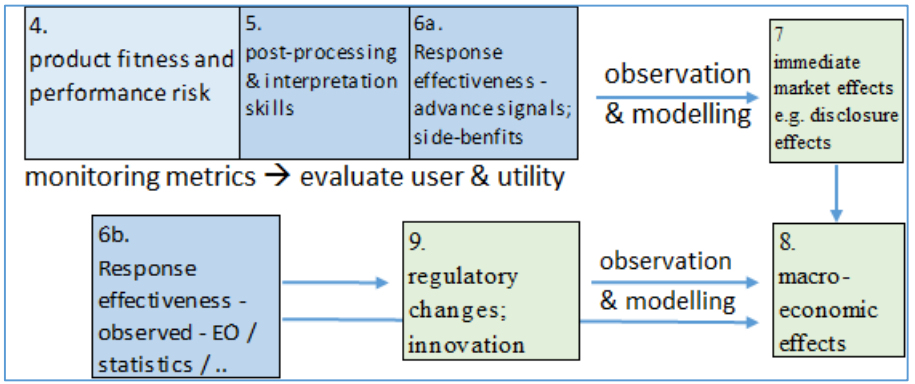
Yes → - identify risk & response options
- assess consequent CS needs
- [evaluate $E(u_s)$ -> select candidate CS]

Value added does not occur automatically, but depends on transfer efficiency of information through the chain

For CS this can be very complex.

The chain analysis offers a frame work with which a relevant climate service package can be established.

Respective steps can be skipped if the prospective user has already achieved the required levels for that step. Actual net benefit estimates require economic modeling.



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