

## Policy brief

Issue No. 3 – April 2017

# SWITCH-ON – Making Open Innovation a reality

**SWITCH-ON** explores and exploits the substantial and untapped potential of Open Data to improve water management by providing new products and services. One of the project's premises is that new water-related information and knowledge can lead to more efficient use of natural resources and facilitate environmental protection. This policy brief illustrates how the SWITCH-ON project has provided proof-of-concept of how product development based on Open Innovation and Open Data can foster environmental and economic benefits in the European Union. This was achieved by transforming Open Data-based hydrological science outputs into useful products and services for water managers, researchers, businesses and authorities at multiple levels.

Open Innovation is an approach to innovation that leverages user-centered design techniques, co-creation, collaboration and an open transfer of knowledge. Its focus on the end-user and its commitment to dynamic, networked ecosystems of innovation is seen by the EU as key for translating its scientific expertise into competitive edge (European Commission 2016).

In the last decades, the EU has taken several steps towards making Open Innovation operational. For instance:

- Developing policy, legislation and infrastructure that harmonizes spatial data in the region and increases the accessibility of public data (e.g. the Public Sector Information Directive, 2003; INSPIRE Directive, 2007; the Open Data Strategy, 2011; and the EU Open Data Portal, 2012);
- Supporting research and innovation activities with new provisions for market outreach and exploitation of results (e.g. through FP7 and Horizon 2020 research programs);
- Promoting the mobilization of private investment funds (e.g. the European Fund for Strategic Investments).

More practical examples that outline the use of Open Innovation to bridge the gap between the conception of innovative product ideas and the market uptake of functional products and services are necessary. SWITCH-ON has delivered such practical examples, and shows how Open Data stimulates innovative SMEs in Europe by developing marketable solutions with direct benefits for paying customers in the water sector.

## SWITCH-ON's Open Innovation Approach

The European research project SWITCH-ON has drawn on the principles of Open Innovation to translate hydrological science outputs into useful products and services for a wide range of target groups, including water managers, researchers, businesses, and authorities at multiple levels. Incorporating the **agile product development** approach, **multidisciplinary collaboration** and **knowledge brokering** principles has allowed SWITCH-ON to ensure a user-centric focus in its activities. The result, **fourteen innovative products and services for environmental management and awareness have been created**. Each of these products and services are based on environmental Open Data, five of them already have paying customers, and negotiations are underway with further potential clients even before the project has come to an end.



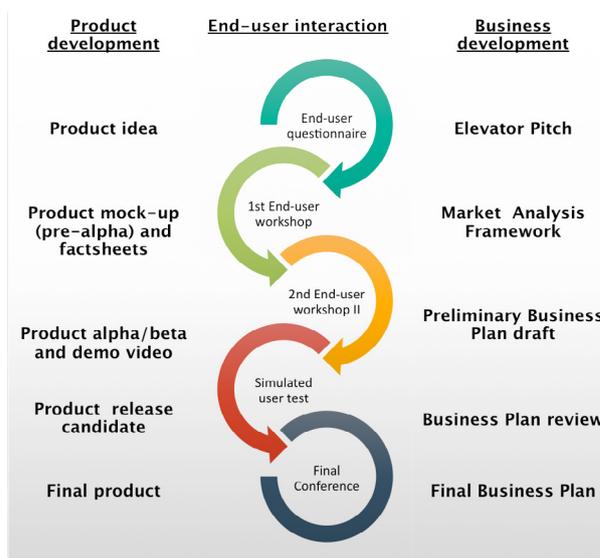
# SWITCH-ON's contribution: An Open Innovation process in practice

SWITCH-ON has made Open Innovation operational by:

## 1. Incorporating an agile approach into its management and development process

Conventional project planning and product development is characterized by a linear series of steps from definition to deployment. SWITCH-ON went beyond this and used an agile development approach based on multiple feedback loops. This enabled a more flexible and incremental style of development with reduced planning and response time.

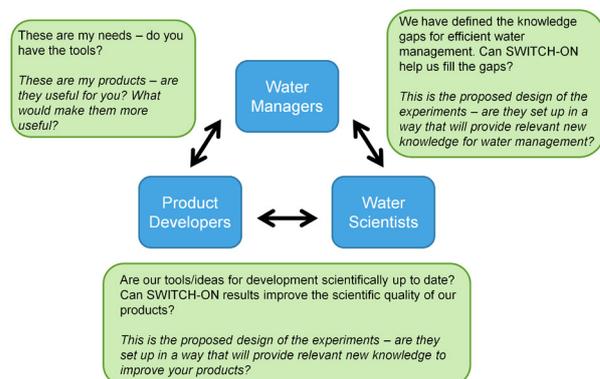
This means that the SWITCH-ON products and services are the combination of numerous small and 'minimal' iterations, significant enough to be "marketable", and open for feedback and adaptations.



## 2. Exploiting the potential of multidisciplinary collaboration and knowledge brokering

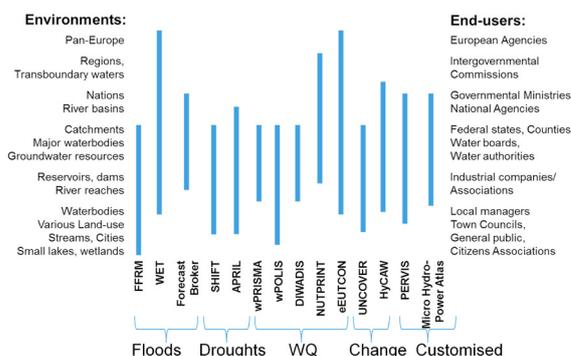
SWITCH-ON adopted a multidisciplinary approach – drawing from Hydrology, Engineering, Information and Communications Technology (ICT), Business Administration and Knowledge Brokering – that was enabled by tools and infrastructure developed within the project (e.g. the **Virtual Water Science Lab**, the **End-user Evaluation Tool** and the **Market Analysis Framework**).

This meant that cooperation, coaching, networking and knowledge-sharing – both in person (e.g. workshops, focus groups) and online (e.g. webinars, online demos) – endowed product developers with the necessary insight to shape their products to match actual user requirements.



## 3. Generating economic and social value with a user-centric approach

Early in the development phase, SWITCH-ON product developers were supported to identify their target groups (e.g. water managers, authorities, researchers), as well as their needs and geographical distribution. Central questions were: *who is willing to pay for what?*, and *how can products be adapted to match real needs and priorities?* (see profiles of successful SWITCH-ON products and services below).



## SWITCH-ON products and services: selected profiles

The SWITCH-ON project exemplifies how Open Data and Open Science can stimulate and motivate organisations to bring water science to the market, thereby translating knowledge into societal use and economic value. The potential of collaborating closely with target customers to transform knowledge into useful products was demonstrated, and business models were developed to find paying customers in new markets. The SWITCH-ON approach has directly resulted in fourteen water information products, including the five featured below, which already have paying customers:

SWITCH-ON Product or Service	General details
<p><b>Forecast Broker:</b></p> <p>enables long term storage of hydrological observation and forecast data in a structured way with easy, open access. Forecast Broker supports national and regional water authorities to operate their own forecasting systems and can potentially support the WISE-WFD database.</p>	<p><b>Developer:</b> Deltares</p> <p><b>Business model:</b> Premium product/service  <b>Main target group:</b> National and regional authorities  <b>Policy Links:</b> Water Framework Directive  <b>Paying Customers:</b> National and regional water authorities, hydro power companies</p>
<p><b>Flash Flood Risk Map:</b></p> <p>allows users to assess the risk of flash flood prone areas using open government data sources, supporting municipal planning and zoning efforts to avoid future social and economic damage from floods.</p>	<p><b>Developer:</b> HUMER</p> <p><b>Business model:</b> Premium/freemium product/service  <b>Main target group:</b> National and regional authorities  <b>Policy Links:</b> Water Framework Directive, INSPIRE, EU Adaptation Strategy, Floods Directive  <b>Paying Customers:</b> Municipalities</p>
<p><b>RiverInfo.eu:</b></p> <p>allows users to explore present water flow conditions and forecasts in European rivers and streams based on Open Data from the HYPE Data Delivery Service. Visualization supports intelligent water sampling, cost-effective monitoring, safe recreation activities, and informed infrastructure planning.</p>	<p><b>Developer:</b> SMHI</p> <p><b>Business model:</b> Freemium product/service  <b>Main target group:</b> Water managers  <b>Policy Links:</b> Water Framework Directive  <b>Paying Customers:</b> National government agencies, hydro power companies, consultants</p>
<p><b>Uncover:</b></p> <p>combines multiple data sources and models, implementing specified goals and management strategies to test their robustness and compare whole catchment performance and costs. UNCOVER supports efficient and customized strategies for risk management, especially relating to climate change.</p>	<p><b>Developer:</b> JBA</p> <p><b>Business model:</b> Free as branded advertising  <b>Main target group:</b> Water managers  <b>Policy Links:</b> Water Framework Directive, Marine Strategy Framework Directive, EU Adaptation Strategy  <b>Paying Customers:</b> National government agencies, consultants</p>
<p><b>April:</b></p> <p>an efficient, easily accessible and user-friendly product for seasonal run-off forecasting that is able to predict available river discharge one to three months in advance to help ensure sustainable management of water supply in agriculture, industry and other areas of society. APRIL services are tailored to user needs and available data.</p>	<p><b>Developer:</b> Gecosistema</p> <p><b>Business model:</b> Premium product/service  <b>Main target group:</b> Water suppliers  <b>Policy Links:</b> Water Framework Directive  <b>Paying Customers:</b> Country boards</p>

Information on all other SWITCH-ON products and services can be found at:

<http://water-switch-on.eu/products.html>



## SWITCH-ON: Open Innovation outcomes

SWITCH-ON's application of the Open Innovation approach has prepared the ground for the development of further innovations based on Open Data and the extension of Open Innovation to other realms. The positive economic, social, and environmental impact of the existing products and services suggests international market expansion opportunities, aligning the SWITCH-ON project with the EU Commission's goal of becoming "Open to the World" (European Commission, 2016).

By acting as an Open Innovation hub, SWITCH-ON has brought together scientists, entrepreneurs and end-users in order to

- Turn scientific research results into marketable products with positive socioeconomic and environmental impacts
- Raise awareness on Open Data and its usefulness and application in products and services.

The SWITCH-ON experience has shown the potential of products and services based on Open Data. If a supportive policy framework is in place, the re-use of Open Data by entrepreneurs pays off, especially for SMEs and start-ups. We recommend that governmental Open Data always be produced and published in anticipation of potential business re-use.

## Further information

This policy brief also draws on the following reports:

Anzaldúa, G.; Wenzel, M.; Szendrenyi, A. B.; Ridgway, M.; Stein, U., Lukat, E.; Andersson, L., Neset, T., Wilk, J., Mysiak, J. (2015): Report on analysis of SWITCH-ON products potential for new markets (D5.2)

European Commission (2016) Open innovation, open science, open to the world. Available: <https://ec.europa.eu/research/openvision/index.cfm>

SWITCH-ON (n.d.) Agile management principles applied to a collaborative EU-project. Available: <http://water-switch-on.eu/docs/factsheets/SWITCH-ON%20Agile%20principles.pdf>

## Acknowledgment & disclaimer

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## SWITCH-ON Project Partners

