iKnow Publishable Summary

iKnow

Interconnecting knowledge for the early identification of issues, events and developments (e.g. wildcards and associated weak signals) shaping and shaking the future of STI in the ERA

Project Co-ordinator: Dr Rafael POPPER

                               Manchester Institute of Innovation Research, UK

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iKnow is one of six Blue Sky foresight research projects funded by the European Commission's Seventh Framework Programme for Research and Technology Development (FP7) under the Socio-economic Sciences and Humanities (SSH) theme. The project is aimed at interconnecting Knowledge on issues and developments potentially shaking or shaping the future of science, technology and innovation (STI) in Europe and the world.

There is a general consensus that the kinds of issues addressed by iKnow have often remained out of the "policy radar" and so far have received little attention in forward-looking activities: the identification and analysis of Wild Cards and Weak Signals (WI-WE) and their effects on European and national science, technology and innovation (STI) policy. Wild Cards are the kind of issues that can potentially shake our future; Weak Signals relate to issues that are currently shaping it.

Wild Cards are high impact and low perceived probability events (e.g. unexpected systems failures or sudden transformations resulting from breakthrough or incremental innovations). Wild Cards are often presented as negative events, such as the 2001 terrorist attacks in the United States or the 2011 Fukushima nuclear disaster. However, they can also be positive such as the discovery of penicillin by Fleming.

Weak Signals are ambiguous events, often referred to as "seeds of change", providing advance intelligence or "hints" about potentially important futures, including Wild Cards, challenges and opportunities. Weak Signals lie in the eye of the beholder and are generally influenced by the mental frameworks and subjective interpretations of individuals with limited information about emerging trends, developments or issues in a particular time and context. Their "weakness" is directly proportional to levels of uncertainty about their interpretations, importance and implications in the short-medium-to-long-term. Thus, Weak Signals are unclear observables warning us about the possibility of future "game changing" events.

Overall, iKnow has two interconnected objectives: (1) To develop and pilot conceptual and methodological frameworks to identify and analyse Wild Cards and Weak Signals (WI-WE); and (2) To assess the implications and impact of selected WI-WE on, science, technology and innovation (STI) and key dimensions of the European Research Area (ERA). To do so, iKnow has used Foresight and Horizon Scanning (FHS) approaches to support the research and technology development (RTD) agenda associated with each objective.

Foresight is a systematic, participatory, prospective and policy-oriented process which, with the support of environmental and horizon scanning approaches, is aimed to actively engage key stakeholders into a wide range of activities "anticipating, recommending and transforming" (ART) "technological, economic, environmental, political, social and ethical" (TEEPSE) futures.

Horizon Scanning (HS) is a structured and continuous activity aimed to "monitor, analyse and position" (MAP) "frontier issues" that are relevant for policy, research and strategic agendas. The types of issues mapped by HS include new/emerging: trends, policies, practices, stakeholders, services, products, technologies, behaviours, attitudes, "surprises" (Wild Cards) and "seeds of change" (Weak Signals).

All in all, iKnow provides a unique application of wild cards and weak signals approaches to the study of grand challenges and thematic research priorities of the European Union. The project addresses 21 grand challenges in terms of their European relevance; their research foresight and Wild approach; and their potential research outcomes and benefits. A selection of Wild Cards and Weak signals are also outlined in relation to each Grand Challenge. iKnow also offers an overview of 11 thematic research areas, emerging themes and "Policy Alerts" with 44 research recommendations on key issues potentially shaping European science and innovation. Another important S&T result is the iKnow ERA Toolkit. The iKnow ERA Toolkit on "Applications of wild cards and weak signals to the grand challenges and thematic priorities of the European Research Area" aims to be a source of reference and inspiration, for all those involved with the European Research Area.