

# SOFWIRED

Southampton Fraunhofer Web Science, Internet Research & Development

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*A joint venture to shape  
the future of the Web*



Web Observatory



Internet Services



Crowd-Sourced Open Data



Dynamic Media Objects

## OPENING NEW PROSPECTS FOR SMART INTERNET SERVICES

### Overview

*The project goal is to develop a comprehensive, interoperable platform for data and knowledge-driven processing of Open Data and to investigate aspects of collective intelligence.*

*The insight generated in the project will thus form the basis for supporting companies in the collective intelligence transition by consulting, organisational development and software solutions.*

The information age as we know it has its roots in several enabling technologies – most of all the World Wide Web – for the provision of truly global connectivity. The emergence of a Web of Big Data in terms of the publication and analysis of Open Data provides new insights about the impact of the Web in our society.

The second most important technology in this regard has been the emergence of streaming processes based on new and innovative compression methods such as MP3 so that audio and video content becomes accessible to everyone on the Web.

SoFWiReD brings together leading expertise both in Web and Data Science to develop new technologies and services for future Web applications. The project is lead by the University of Southampton where Sir Tim Berners-Lee, the inventor of the World Wide Web holds a chair in Computer Science, and the Fraunhofer-Gesellschaft, Europe’s largest organization for applied research.

### SoFWiReD aims to find answers to research questions such as:

- What are the socio-economic reasons as to why individuals participate in a collective endeavour?
- What legal frameworks govern (or should govern) the resources that are created?
- What is the psychology of identification with an online collective community?
- What role is there for policy-makers to engage in and facilitate collaborative endeavour?
- How can collective intelligence emerge, given the different languages used by different genders, races, classes, and communities?

### Consortium

*The project is headed by Professor Dame Wendy Hall and Professor Nigel Shadbolt from the University of Southampton, UK, and the Fraunhofer Institutes for Intelligent Analysis and Information Systems IAIS & for Open Communication Systems FOKUS, Germany.*

The SoFWiReD team is developing comprehensive, interoperable platforms for data and knowledge driven processing of Open Data and will investigate aspects of collective intelligence. Insights generated in the project will form the basis for supporting companies through consulting, organisational development, and software solutions so that they can master the collective intelligence transition.

### WEB OBSERVATORY

Understanding the dynamics of collective human attention has been called a key challenge for the information age. Regarding the Social Web, the challenge is to understand to what kind of topics or services do people pay attention to? In particular, we ask: Can we predict future interest in services, topics, or marketing messages?

To address these challenges, we develop a Web Observatory that allows us to track the development of Web content over time. A key component consists of a bundle of advanced statistical data analysis techniques for detecting and predicting Web trends. Regarding services, products, and campaigns we develop approaches that allow companies to recognize whether they need to adjust their strategies in order to remain competitive in today’s Web environment. Using collective Web intelligence in aggregated data from blogs, forums, or query logs, our algorithms enable an assessment of the future success or adoption of services, products, or marketing messages.

### INTERNET SERVICES

The recent enormous progress of Internet technologies and the availability of vast amounts of data on the Web have led to an era in which Internet services are becoming vital components of our professional and social lives. Using the latest technological advancements, the SoFWiReD project aims to build and maintain reliable and scalable Internet services and to provide users with personalised and privacy-preserving solutions.

Towards this goal, we analyse behavioral user data and develop seamless, personalised recommender systems that suggest information of interest to their users. Leveraging the potential of Open Data, we are building planning tools that assist organisations in steering their marketing decisions and in social media communication.

### CROWD-SOURCED OPEN DATA

The goal of this research topic is to leverage the value of Open Data for e-business, e-government, or entertainment and to deploy mechanisms for public engagement by collecting and harnessing Open Data. Using Open Data in these contexts facilitates many innovative applications.

As a practical example, we develop a Web application to simplify the tiresome work of tagging large quantities of pictorial, audio, and video material by leveraging contributions from crowds of people and especially from online communities. We thus aim to combine the efforts of numerous volunteers where each contributor adds a small portion to the greater result. To enable this level of cooperation, we develop a general purpose platform including client tools for tagging and connecting existing media objects using semantic Web technologies.

### DYNAMIC MEDIA OBJECTS

Big Data usually refers to data sets of sizes that exceed the capabilities of commonly used hard- and software tools to manage, process, and interpret the data. Nowadays everybody who is digitally networked produces and consumes significant amounts of data and therefore contributes to the ever expanding global data volume. Moreover, data such as audio, video or Voice over IP, and the associated telepresence applications such as Skype are dynamic media objects. They are reposted, commented upon, modified, and re-contextualized and therefore add another dimension to the Big Data challenge.

Our research on dynamic media objects aims at understanding the nature and behaviour of dynamic data and at tracking their life cycle in a large data environment such as the Web. Last but not least we address legal issues such as privacy and trust of dynamic media objects.