# Mastering Data-Intensive Collaboration and Decision Making through a Cloud Infrastructure: the Dicode EU project



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Collaboration and decision-making settings are often associated with huge, ever-increasing amounts of multiple types of data, obtained from diverse sources, which have a low signal-to-noise ratio for addressing the problem at hand. In many cases, the raw information is so overwhelming that stakeholders are often at a loss to know even where to begin to make sense of it. In addition, these data may vary in terms of subjectivity and importance, ranging from individual opinions and estimations to broadly accepted practices and indisputable measurements and scientific results.

Nowadays, big volumes of data can be effortlessly added to a database. The problems start when we want to consider and exploit the accumulated data, which may have been collected over a few weeks or months, and meaningfully analyse them towards making a decision. Admittedly, when things get complex, we need to identify, understand and exploit data patterns; we need to aggregate large volumes of data from multiple sources, and then mine it for insights that would never emerge from manual inspection or from analysis of any single data source.

Taking the above issues into account, the recently funded Dicode project aims to facilitate and augment collaboration and decision making in data-intensive and cognitively-complex settings. To do so, it will exploit and build on the most prominent high-performance computing paradigms and large-data-processing technologies (such as cloud computing, MapReduce, Apache Hadoop, Apache Mahout and column databases) to meaningfully search, analyse and aggregate data existing in diverse, extremely large and rapidly evolving sources. Services to be developed and integrated in the context of the Dicode project will be released under an open source licence.

Building on current advancements, the solution foreseen in the Dicode project will bring together the reasoning capabilities of both the machine and humans. It can be viewed as an innovative "workbench", incorporating and orchestrating a set of interoperable services that reduce to a manageable level the data-intensiveness and complexity overload at critical decision points, thus permitting stakeholders to be more productive, and to concentrate on creative and innovative activities.

The achievement of the Dicode project's goal will be validated through three use cases. These were chosen to test the transferability of Dicode solutions in different collaboration and decision-making settings, associated with diverse types of data and data sources, thus covering the full range of the foreseen solution's features and functionalities.

The Dicode project is funded by the European Union under FP7. It started on September 1st, 2010 and its duration is 36 months. The partners of the Dicode consortium are: Research Academic Computer Technology Institute, Greece (project coordinator); University of Leeds, UK; Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., Germany; Universidad Politécnica de Madrid, Spain; neofonie Gmbh, Germany; Image Analysis Ltd, UK; Biomedical Research Foundation, Academy of Athens, Greece; and Publicis Frankfurt GmbH, Germany.

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**Competing interest statement**
None declared