Unlocking the potential of big data in the cloud

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Cloud computing and Big Data are the two top innovation hubs in ICT. Together they have the potential to become pivotal enhancers of social transformation and economic development for many years to come.

Two ICT initiatives are filling technology headlines these days, promising to revolutionize computing, business practice, education and most areas of knowledge one can think of. On the one hand, Big Data is an emerging paradigm for large scale distributed data management that aims at being able to process large amounts of data beyond the possibilities of traditional database technologies. On the other hand, [cloud computing](#) is born as a paradigm for distributed computing systems whose goal is to offer software as a service over the Internet. Cloud computing offers an agile delivery model and a highly scalable infrastructure to support the demands for storage and computation of big data technologies. Both technologies are thus converging to offer an immeasurable assortment of information to mine and derive meaningful analytics from, and a growing range of services and resources with applications in any field with a stake in ICT development and innovation.

Both cloud computing and Big Data are quickly maturing and becoming widespread, but a determined effort is needed to create a holistic environment in which both can thrive and develop their full potential. The ambitious scientific goal of the Cloud4BigData project - recently launched by the Madrid-based research institute IMDEA Networks, the Polytechnic University of Madrid and the University Rey Juan Carlos -

is to ease the convergence of big data technologies with their underlying cloud infrastructure, attaining high levels of efficiency, flexibility, scalability, high availability, quality of service (QoS), ease of use, security and privacy.

Cloud4BigData will tackle head-on the current drawbacks and shortcomings of big data and of cloud computing as well as leveraging their strengths. From secure data management to efficient data processing, the project aims to combine and integrate distinct and specialized technologies in a single unified platform. The project will also demonstrate its competence in emerging application areas with highly demanding requirements requiring cloud and Big Data technologies such as machine-to-machine, Internet of Things and smart*(smart grid, smart cities, smart transport, etc.) and other more traditional areas such as online applications, multimedia applications, or distributed games demanding Big Data support to go beyond their current functionalities.

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