# Collaboration Change Management Service

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## 1. Introduction

Technology and globalization are changing the nature of work. More than ever, people work in extended business-to-business communities that include consultants, partners, suppliers, customers, and employees from all over the world [1]. Collaborative Business, companies who can collaborate effectively can bring products and services to market faster, can increase employee productivity by enabling rapid learning and reuse of knowledge, and can enhance demand from existing customers by sustaining long-term, many-to-many. Businesses need an infrastructure for collaboration that supports many-to-many communication, coordination, knowledge sharing, rapid learning, and organizational memory [2].

Collaboration technologies are changing the business landscape. Today's business realities force companies to radically change the way they operate on a global scale. Collaborative technologies are transforming the way people communicate, innovate, and work together. Companies are achieving a new competitive edge and financial performance from the ability to engage dispersed communities to work more closely together, anytime, anywhere, in a more natural and integrated way. New business value is being added every day through collaboration, from reduced costs and faster decision making to improved employee, partner, and customer relationships. There is increasing marketplace pressure for businesses to keep up with evolving customer demands while incorporating cost- effective solutions [3].

However, some companies might find that valuable collaboration tools and technologies are underutilized, or worse, unused. In order to fully realize the potential of collaborative technologies to achieve targeted business goals and desired Return on Investment (ROI), it is crucial for cultural, behavioral, and process changes to occur throughout the organization, from

IT through end users. These changes must be implemented quickly and precisely, and internal IT teams must acquire the necessary long-term skill sets to manage to ongoing change.

## 2. Collaborative Business Intelligence

Collaborative Business Intelligence (BI) [4] is a relatively new concept in which BI and collaboration technologies are beginning to merge in support of a new and improved decision-making environment. The idea of collaborative BI is to extend the decision-making process beyond the company boundaries thanks to cooperation and data sharing with other companies and organizations. Unfortunately, traditional BI applications are aimed at serving individual companies, and they cannot operate over networks of companies characterized by an organizational and semantic heterogeneity. In such distributed business scenarios, to maximize the effectiveness of monitoring and decision making processes there is a need for innovative approaches and architectures.

The success of organizations or business networks depends on fast and well-founded decisions taken by the relevant people in their specific area of responsibility. To enable timely and well-founded decisions, it is often necessary to perform analyses in a collaborative manner involving domain experts, line-of-business managers, key suppliers or customers. BI is to realize a highly scalable and flexible platform for collaborative, BI over large data sets. This will be achieved by developing methodologies, concepts and an infrastructure to enable an information self-service for business users and collaborative decision making over high-volume data sources within and across organizations.

Despite the benefits of collaborative BI, not all users need all of its capabilities, and it is important to determine which personnel require what features. For example, users who execute assigned tasks may simply require collaborative interaction, whereas business managers may require all three of the collaborative BI capabilities outlined above. Experience shows that attention to this aspect is a critical success factor. A collaborative BI environment that is designed for the wrong types of users will not be used and will not provide a good return on investment.

## 2.1. Big Data analysis

The rate of growth in the amount of information available nowadays within a corporate environment poses major difficulties as well as challenges in decision making [5]. Big Data analytics have become increasingly important in both the academic and the business communities over the past two decades. Industry studies have highlighted this significant development. The amount of heterogeneous data that is available to organizations nowadays has made information management a seriously complicated task, yet crucial since this data can be a valuable asset for business intelligence. For example, based on a survey of over 4,000 information technology (IT) professionals from 93 countries and 25 industries, the IBM Tech Trends Report (2011) identified business analytics as one of the four major technology trends in the 2010s. In a survey of the state of business analytics by Bloomberg Businessweek (2011), 97 percent of companies with revenues exceeding $100 million were found to use some form of business analytics. A report by the McKinsey Global Institute (Manyika et al. 2011) predicted that by 2018, the United States alone will face a shortage of 140,000 to 190,000 people with deep analytical skills, as well as a shortfall of 1.5 million data-savvy managers with the know-how to analyze big data to make effective decisions.

## 2.2. Collaborative and Ontologies

Ontologies can act as a semantically rich knowledge base in systems that specialize in information management. The present work investigates the potential of ontologies in supporting the information lifecycle within a corporate environment for business intelligence. BI consists of a collection of techniques and tools, aiming at providing businesses with the necessary support for decision making. Ontologies are a key enabling technology for information management (IM), as they offer information a common representation and semantics. They constitute “a shared and common understanding of a domain that can be communicated between people and application systems” (Davies, Fensel, & Harmelen, 2003). An ontology comprises a formal description of a certain domain, by defining the ontology objects (or entities) that characterize the domain, namely concepts (or classes), as well as their instances and relations.

Ontologies provide to IM systems a semantically rich knowledge base for interpretation of unstructured content. Based on the semantics encoded within ontologies, information can be

extracted from natural language texts and, on a further level of processing, knowledge can be discovered that will assist BI. Nevertheless, the ways ontologies are usually managed within IM systems is unsophisticated and disregard important factors. Ontology layering or integration is rarely used and the dynamic aspect of ontologies, which requires appropriate evolution mechanisms, is often neglected. Overall, the potential of ontologies in IM and BI has yet to be fully realized and put to practical use.

## 3. Mapping the Road to the Digital Enterprise

In a digital business, digital technology must be at the heart of what the business is doing and how it generates revenue, seizes competitive advantage and produces value. A true digital business will have a profound impact on the way individuals work and the way companies do business in the future. Some businesses may think, 'Haven't we been a digital enterprise for over a decade?' Well, no, probably not. Back then, companies with an e-commerce website would label themselves as a 'digital' company. However, as analysts Gartner put it, 'A digital business is not the decade-old concept of e-business in a new wrapper. It is a radically different and more disruptive change.'

"A digital enterprise," according to one widely accepted definition, "is an organization that uses technology as a competitive advantage in its internal and external operations." Admittedly that is a broad definition. Ben Rossi asserts, "Digital enterprise is a concept that is about changing the way organizations' use and thinks about technology — moving it from a supporting player to a leading player in the business. However, it has become apparent that organizations' are still not clear on a definition of digital enterprise, let alone a road map to become one." Mapping the road to the digital enterprise is important.

## 4. Collaboration Grid and Cloud Convergence

The scope of distributed applications has recently increased dramatically due to the need of collaboration and globalization. Distributed systems have many unique characteristics, among them variable configuration and partial failure. Traditionally distributed computing has been defined as systems with a fixed number of nodes; these are called static distributed systems. With the advent of peer-to-peer computing and grid computing systems, the number of nodes in

distributed systems is constantly changing, and such systems are thus known as dynamic distributed systems .

It is worth noticing that, the state of the art in Grid computing was and still tends towards the adoption of a service-oriented paradigm which called Service-Oriented Grid (SOG) [6]. However, most Grid projects create domain-specific, rather exclusive solutions, which are hard to migrate and reuse in other fields, this means that Grid Computing still doesn't fulfill the business collaboration needs. Although, the Grid infrastructure faces big challenges in interoperability, the Open Grid Services Architecture (OGSA) [7] [8] has been developed for the Grid applications.

The cloud is emerging as a vehicle to reap the benefits of collaboration tools in the form of a service. Cloud computing invites companies to re-evaluate their core business – what they do best – and how they can embrace new ways to conduct business. The introduction of cloud computing, or more specifically the rise of the Software-as-a-Service (SaaS) delivery model, means that when it comes to internal processes –everything from accounting, email, and resourcing through to social media monitoring – businesses now have a vast choice over which applications they deploy. The flexibility of SaaS means that organizations can make application decisions on a monthly basis, changing to a new system with ease. For CIOs and the IT department this presents a significant problem. Increasing the complexity of the IT estate means more time and resource is spent in simply maintaining the system. While the application layer may work as patchwork, running the underlying infrastructure in this way is inefficient, dangerous and leaves the organization at risk of outages.

The advent of the Cloud computing has covered the way to envision of a hybrid computational infrastructures based on powerful Grid resources combined with dynamic and elastic on-demand virtual infrastructures on top of Cloud deployments. However, the combination of Grid and Cloud resources relies on the need of collaboration among involved partners. The mapping of Grid-Cloud convergences relies on the sharing of the software services based on Software-as-a-Service (SaaS) model, which helps clients to be more confident when accessing services.

Clouds, Grids, and SOA are key technologies that will be fundamental to successful CNO transformations, and have strong interlink that can take advantage of resource virtualization by integrating it at different levels of the environment. The abstraction levels of the cloud can be viewed as a layered architecture where services of a higher layer can be composed from services of the underlying layer. Cloud applications can be built as compositions of other services from the same/different providers or provided as in-house service.

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**Biography**:

Dr. Marcos Massoud Yassa received his Master degree in Computer Science from Faculty of Computers and Information, Cairo University in 2008 and his Ph.D. in Computer Science from the same faculty in 2014. He has served as an invited member of the technical program committee of several international conferences. He has been on the technical program committee of different IEEE conferences. He acts as a reviewer for the international conferences and journals. His research has been published in various international journals and conferences. He has published numerous scientific articles in an Arabic language magazine,"Al-Ahram". He has conducted tutorial sessions in prominent conferences such as IEEE BIBM 2014 - UK, IEEE COMPSAC 2014 - Sweden, IEEE Healcare2013 - Portugal, and IEEE "JEC-ECC 2013 – Cairo, KKIO 2015 – Poland, ICHI 2015 – USA. Dr. Morcous main research interests lie with the knowledge modeling, sharing and reuse, intelligent information retrieval, Software Engineering, Software requirements engineering, Service Oriented Architecture (SOA), Virtual Organizations, Grid & Cloud Computing and Green Computing.