# Week 3-Big Data Analytics drives Organizational agility to bring Change

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Organizations (mid and large) across industry sectors are sensing the need to implement Big Data Analytics to bring agility in their business operations impacting organizational change. Enumerate and explain how Grid, Cluster, and Cloud Computing with Virtualization enable big data processing. Do you think convergence of 5 technologies provides business agility?

Before you begin this discussion, please refer to the recommended book “Creating Business Agility" and reference posted on the resources

**Post by Monday, a few Pages (2-3)in APA format explaining Grid, Cluster, Cloud Computing, and business agility concepts, readiness framework and big data significance to business productivity.**

**Grid Computing** - Grid computing is an evolution of distributed computing, defined as the combination of computer resources from multiple administrative domains applied towards a common task, usually a scientific, technical or business problem that requires a great number of computing cycles or needs to process large amounts of data.

**Cluster Computing** - A Cluster computing is a parallel and a distributed computing system defined as a group of interconnected stand-alone computers, with similar computing power and storage, working together closely and sharing the application load evenly, to improve performance and availability, appearing to form a single high-throughput and highly-available computing resource.

**Cloud Computing** - Cloud Computing is a Internet-based computing model, for enabling convenient, ubiquitous, on-demand access to a shared pool of configurable computing resources (e.g. computing, servers, storage, networks, services, and applications) which can be rapidly provisioned and released with minimal management effort or service provider interaction.

The availability of high-capacity networks, low-cost computers and storage devices as well as the widespread adoption of hardware virtualization, service-oriented architecture, and autonomic and utility computing led to a growth in cloud computing. The main enabling technology for cloud computing is virtualization. Virtualization software separates a physical computing device into one or more "virtual" devices, each of which can be easily used and managed to perform computing tasks. Virtualization provides the agility required to speed up IT operations, and reduces cost by increasing infrastructure utilization.

Autonomic computing automates the process through which the user can provision resources on-demand. Cloud computing provides all of its resources as services, and makes use of the well-established standards and best practices gained in the domain of SOA to allow global and easy access to cloud services in a standardized way. Cloud computing also leverages concepts from utility computing to provide metrics for the services used. Such metrics are at the core of the public cloud pay-per-use models. [1]

**Business Agility** - Business Agility is defined as innovation via collaboration in a business ecosystem to be able to anticipate challenges and opportunities, for generating sustainable competitive advantage.

Big data is becoming relevant in all business cases, the traditional business data warehouse, new customer interactions data and other business ecosystem data sources, if processed with Big Data tools for value generation, provides collective intelligence and predictability to a business today, and drive business agility for sustainable competitive advantage.

Knowledge Management Drives the Value Creation Process (i.e. Economic Profit):

1. Human Capital
2. Intellectual Capital Idea
3. Organization Capital
4. Intellectual Property
5. Customer Capital

**Readiness Framework**

Business Agility Readiness Roadmap in terms of people, processes, and technology that is integrated by data. Accordingly, a gap analysis methodology can be used to evaluate the Business Agility Readiness (BAR) needed to implement successfully an information management system of customer engagement for creating the business agility that produces the culture needed to enable a sustainable competitive advantage.

The business transformation that is being realized via digital business can be described in terms of management decision-making processes utilizing feedback to leverage real-time virtual enterprise information. Business Agility Readiness (BAR) can be measured by following a multi-dimensional scoring (MDS) for balanced scorecard initiatives.

**Virtual Enterprise**: The organizational structure that is formed by a set of digital businesses around a whole product value chain is called a virtual enterprise.

**Coevolution**: Moore describes the linking of synergistic core competencies in terms of four stages of strategic business coevolution. This process dynamically strengthens the ecosystem as a whole through an iterative cycle of collaboration and competition. Business ecosystems develop over four stages of strategic business coevolution:

1. Stage I: Pioneering an ecosystem.
2. Stage II: Expansion of an ecosystem.
3. Stage III: Authority in an established ecosystem.
4. Stage IV: Renewal or death.

**Business Ecosystem**: Coevolution of the collection of virtual enterprises collaborating to grow a rich business environment for their mutual benefit while competing to lead their market space is known as a business ecosystem.

**Ecosystemism**: Taking a systems approach to business ecosystems, referred to as “ecosystemism,” is governed by two laws/tenets:

* “*Synergy*” or commonly referred to as “the whole is greater than the sum of its parts.”
* “*Suboptimization*”, this concept may be understood by an analogy - “a chain is as strong as its weakest link.” It is best reflected by the business practice of innovation utilizing core competencies.

**Balanced Scorecard** - The balanced scorecard is a strategic planning and management system that is used extensively in business and industry, government, and nonprofit organizations worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals.

**Adaptive Strategic Planning** - This means making strategy a continual process. There are three drivers for including the balanced scorecard as a fundamental model for solving the digital business strategy management problem:

1. Linking strategy and budgeting
2. Closing the strategy loop
3. Testing, learning and adapting

**Force 5 Tornado**

The basis of business competition has evolved from product-centered financial assets to customer-centered information assets. Proliferation of Internet connected devices in the hands of geographically dispersed people, has created a perfect storm in the new digital business ecosystem, and the convergence of 5 technology elements “cloud”, “social”, “mobile”, “video”, and “big data” is acting like a “Force 5 Tornado” disrupting the business environment.

The convergence of cloud, social, mobile, and video technologies with predictive big data analytics can produce sustainable business value. Enterprises that are forward-looking can harness this disruptive power to their advantage via big data with predictive analytics in order to:

* Produce early warnings to strengthen infrastructure via the cloud.
* Collaborate for real-time problem solving in their communities via social networks.
* Communicate vital decision-making information to the right people, places, and times via mobility solutions.
* Provide interactive messages for alerts and instructional information via videos.

The key for building next-generation digital businesses is integrating the business ecosystem with customer engagement solutions. Approach suggested in the book[2] was created by utilizing the two fundamental elements of enterprise information systems engineering:

* *Ecosystem Hub Architecture* - incorporate the 5 elements (“cloud”, “social”, “mobile”, “video”, and “big data”) of the “Force 5 Tornado”.
* *Ecosystem Hub Implementation* - implementation road map that is an extensible, robust, scalable model for digital business transformation into an Agile Business, addressing the BAR gap analysis.

Enterprises may employ a business agility strategic planning methodology to build an Ecosystem Hub Implementation roadmap, and measure Business Agility Readiness (BAR) by following a multi-dimensional scoring (MDS) for balanced scorecard initiatives. The strategic planning steps can include:

* Step 1: Visioning via the Strategic Framework
* Step 2: Business Agility Readiness Assessment
* Step 3: Business Agility Gap Analysis
* Step 4: Strategic System of Engagement Architecture
* Step 5: Ecosystem Hub Implementation via System of Engagement Value Chain Analysis

## References

* Wikipedia (2017, Feb 2). Cloud Computing, https://en.wikipedia.org/wiki/Cloud\_computing
* Rodney Heisterberg, Alakh Verma (2014). Creating business agility : how convergence of cloud, social, mobile, video, and big data enables competitive advantage, John Wiley & Sons, Inc.
* Balanced Scorecard Institute (2017). Balanced Scorecard Basics, https://www.balancedscorecard.org/Resources/About-the-Balanced-Scorecard