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BIG DATA SYSTEMS, BUSINESS INTELLIGENCE AND PUBLIC RELATIONS

Akan YANIK*
Aylin GÖZTAŞ**

Abstract

Needs and behaviors which, in the past, seemed unrelated with one another can nowadays be collected in advanced data warehouse systems, allowing complex interrelationships to be identified. This system, which is conceptualized under the name of "Big Data," is not solely about data and intelligence activities; it is also about effectively giving meaning to innumerable dependent and independent variables through special algorithms, and ultimately about resolving the "DNA" of decision-making processes. In this process, it is possible to conceive that Big Data will gradually acquire a more "omniscient" nature as the amount of data and the number of variables it encompasses increases. Big Data is firstly a data strategy, and the whole system should be reorganized according to new standards in order to realize this strategy. If the systems do not undergo certain transformations and the new standards are not totally accepted, the greatest problem to occur will be the "not invented here" syndrome. Public relations may propound the power of the profession more clearly and provide significant contributions using the success of the Big Data system. With the right strategy within the Big Data system, the institution can be changed thoroughly. Cross-functional cooperation with public relations analyses and studies may be maximized, and the system can be made more integrated. To achieve this, the Big Data culture must be incorporated in the institution and all work processes must be harmonized with the Big Data system. Any Big Data investments to be made without understanding the necessary transformations and making the institution ready for this transformation will cause to a noisy data burst instead of order.

Keywords: Big Data, Omniscient Systems, Business Intelligence, Public Relations.

INTRODUCTION

Big Data has transformed the concept of big-fish-eat-small-fish into the new concept of fast-fish-eat-slow-fish, thereby illustrating a process of evolutionary change of organizations. The profession of public relations has achieved for entities the functions of developing or selecting the receptors which would perceive the environmental change, coding the perceived changes, constructing real time channels for the transfer of these codes and controlling the organizational change in this evolutionary change process. In order to understand the vital connection between public relations as a management function and Big Data, a definition of the profession must be carefully examined (Harlow, 1976). Public relations is defined as the distinctive management function which helps establish and maintain mutual lines of communication, understanding, acceptance and cooperation between an organization and its publics; involves the management of problems or issues; helps management to keep informed on and responsive to public opinion; defines and emphasizes the responsibility of management to serve the public interest; helps management keep abreast of and effectively utilize change, serving as an early warning system to help anticipate trends; and uses research and sound and ethical communication as its principal tools.

This substantially long definition has imposed considerably critical burdens on public relations specialists for years and given rise to some paradoxes which are hardly resolved in professional sense. Public relations thought leaders imagined a system like Big Data for years as something to help it realize the functions underlying its professional definition. This is because all factors on a model must be addressed with all aspects in order to construction a relationship or interaction properly (Foster et al., 2008). These conditions required for a proper interaction may be easily ensured (Boyd and Crawford 2012: 663) and controlled using Big Data.

The first and most beneficial step to be taken by public relations related with Big Data transformation is to clarify the definitions and limits with respect to Big Data. As is seen in the literature review (McAfee and Brynjolfsson, 2012), Big Data has been stuck between the concepts such as petabyte and

* Dr. Adnan Menderes University, akanyanik@hotmail.com
** Prof. Dr. Ege University, aylingoztas@hotmail.com

hadoop, and just the volume and velocity elements of 5V which are the key elements of Big Data (Chen, Chiang and Storey, 2012) have been brought into the forefront. In the field of management sciences and marketing, Big Data is considered Aladdin's Magic Lamp. Therefore, we must put forth definitions and limits related to Big Data.

WHAT IS AND WHAT IS NOT BIG DATA?

The organizations have been able to control customers, distribution centers, supplier and production under a single platform by means of ERP systems until 1980s. Then the organizations created the CRM systems by asking the question, "Who is the right customer for us?" after the global success of ERP systems. However, a great data burst occurred with the arrival of web 2.0 and new media developments (Davenport et al., 2012), and some data with a volume which exceeds the capacity of CRM systems started to come into being. Not only data volume but reproduction and flow speed, variety of data and nonstructural data types moved beyond the algorithm and analysis capabilities of CRM.

The Big Data system may be described as a "large sea" where the digital data rivers come together. Consider this metaphor: previously we could just catch fish (information), meet our water needs (database), and ensure transportation (connection) through these rivers. On the other hand, the sea was too large (volume and variety – scale of data), too "salty-pricey" (cost of data), and full of tidal waves (velocity) which were hard to control. The instruments we previously used were suitable for rivers but remained primitive for a sea like Big Data. For this reason, we have been able to develop some instruments by which we can just walk around the coast of this sea (e.g. ERP, CRM, SAP, RDBMS, OLAP etc.) and benefited from this "large sea" to a limited extent (only structural data). In time, we started to construct dams (data warehouse) on the rivers with the courage provided by the technical progress. Moreover, we started to control the flow (stream of data) by developing new storage and analysis systems (e.g. Hadoop, JAQL, HBASE, NOSQL etc.). As a consequence, we could make comparisons and perform analyses (verification) in an endless (volume) sea where many different kinds (variety) of living things live and giant and fast tides occur (velocity), just like Big Data.

In these days we have opened a new gate for a new approach to understand the world and generate proper decisions, Big Data appears as a term which includes a number of topics, such as storage, flow, and analysis of data with such a volume and variety that processing them with traditional database tools and algorithms is difficult. Data variety will increase considerably more with technological developments, such as wearable technologies, sensors, RTLS, and IPS, particularly in the next five years, and they will simultaneously force the other elements of Big Data to improve. This variety was classified as wild data until the recent past. However, this data, which are nonstructural, hardly quantified, and exceed our capability of analysis, started being considered wealth with the arrival of Big Data, and it was possible to extract value from this data. If we consider that we will have to work with data with a volume of zettabyte and even yottabyte in very near future (Lohr, 2012), entities must urgently figure out how they will cope with such a large size of data volume. This data quantity and analysis requires a data space with a substantially greater size, processor structure, software knowledge, mathematical formulas, and communication system than may even be imagined by most marketing specialists.

When we deal with the literature related with Big Data, the characteristics of volume and velocity components are intensely emphasized, which makes Big Data appear as though it is a yield of data accumulation. However, data has grown not only because of its accumulation but also because of increases in its variety, repetition, velocity, and protocol criteria. Numerical increase in data (numerical volume) does not make data grow but only expand. Big Data is not a giant Amazon forest which expands by the expansion of volume; instead it's a satellite system which lifts us to heights we could not reach before and provides us with bird's eye views to gain clearer vision.

Another detail to be emphasized is the value related the Big Data. Being one of 5V elements of Big Data, value does not only constitute a single component but the core of the data fusion realized by all the components. Since a value realized with the success of other components is in question, we consider value something more than just an element or component in this study. The limit about the possible extent of this value is actually restricted by our imagination and analysis capabilities. However, we must emphasize the following paradox related with value. The outputs created by the fusion occurring in Big Data systems present such a great possibility for entities in time that entities may fall into a situation in which they cannot build their own creative emergent strategies within this data pandemonium .

WELCOME TO SOLOMON KINGDOM: BIG DATA AND PUBLIC RELATIONS

The acronym of SoLoMoN was actually derived from SoLoMo (Techtarget, 2012) namely the abbreviation of "be social, be local, be mobile" manifesto. The SoLoMo manifesto reminds us how one should behave in the digital world for marketing to proceed with the dominant flow of technology.

However, the manifesto's advice lacks a significant chain. This significant key chain part is the "near" which is also highlighted by the concept of Big Data. Social, local, and mobile systems must always be near to or converge with each other to display efficiency over the 5V elements (Chen et al., 2012) on which the Big Data is based.

The SoLoMoN acronym fictionalized for this study created the opportunity for making a story of omniscient structure of Big Data. The third King of the Israel Kingdom, Prophet Solomon, has the "Great Temple" constructed in order to be close to the God, administer his kingdom with justice, and create an administration center, and we use this story to analogize Big Data. Having been constructed with the God's order, "You will do this by participation of all your people and with togetherness," the Great Temple is not only a prayer place but also a meeting center in which the tribe representatives who constitute the kingdom attend. The Great Temple, which gives Prophet Solomon his deep vision has come into existence by Big Data systems today giving hopes to fantastic managerial challenges.

We are lack of some powers and virtues which would literally actualize Big Data in the years when this study is being prepared. Even though some intensive efforts are taken to obtain this power and virtues, it is not possible to create and benefit from Big Data in real terms without ensuring certain transformations. Big Data is firstly a data strategy (Lohr, 2012) and the whole system should be reorganized according to new standards in order to realize this strategy. If the systems do not undergo certain transformations and the new standards are not totally accepted, the greatest problem to occur will be the "not invented here" syndrome (Kathoefer and Leker, 2012). Alex "Sandy" Pentland, Professor of Media Arts and Sciences at MIT, gave the name of the new standards to the "New Deal" (Berinato, 2014). The New Deal offers a decleration about ownership, operation and autonomy of data on Big Data. In the light of the New Deal, We can address the transformations experienced with Big Data and the role of public relations in these transformations under the following titles.

WLIP-Life: The Privacy Enigma

As in the case of documentary film WLIP (We live in public) directed by the famous director Ondi Timoner and telling the life of John Harris, all systems and lives will become public in some way in the post Big Data. The protocols which are changing with Big Data will thoroughly change the ways of producing, spreading and distributing information (Bhatt and Grover, 2014). With the new media and Big Data protocols, "users is not only a content producer also the users' life will become a content". Alex "Sandy" Pentland, Professor of Media Arts and Sciences at MIT, suggests that companies don't own the data, and that without rules defining who does, consumers will revolt, regulators will swoop down, and the Big Data systems will fail to reach its potential. The data being recorded about you will form a fairly complete picture of our life along with the Big Data. We need somewhere to store and manage it, because it's very valuable when it's together in one place. The problem is, "Who's going to hold the complete picture?" According to Pentland, we should focus the new deal on Big Data to solve this problem. The New Deal on Big Data is a rebalancing of the ownership of data in favor of the individual whose data is collected. The New Deal would give people the ability to see what's being collected and opt out or opt in (Berinato, 2014). Then people wouldn't get so flipped out, because they'd know what was going on and why it was going on, and they could control it.

Corporate can establish a safe haven for Big Data with public relations. Public relations can solve misunderstandings on the autonomy of data through social campaigns and can provide to be more sensitive on the data. For example, in Trento, Italy, software called OpenPDS has been released in collobration with Telefonica and Telecon Italia. Citizens get notification and control of data generated about them. It's securely shared in an auditable way. Following the communication and publicity campaign support for the system has increased dramatically. People share a lot more than people who don't live under New Deal rules, because they trust the system and recognize the value in sharing (Berinato, 2014).

A lot of companies are afraid that "The New Deal" regulations will kill their business models, and in some cases they may be right. But we have to consider the worst case scenario. Eventually, we don't mean just the simple theft of credit cards information. We mean that people selling data out the back, and criminals using it for some enterprise that affects critical systems, and people may even die as a result. If that kind of disaster happened, there would be an overreaction: Shut it down (Berinato, 2014). We'd see very strong regulation passed overnight, and a lot of companies would be in deep trouble.

Distributed Organizations and Competitive Transformation

The greatest illusion related with Big Data is to consider the system as a magic box and think that the success would also be purchased once the Big Data service is purchased. First of all, the Big Data system is a "data exchange" system (Zikopoulos and Eaton, 2011) and the relevant entity should also upload data into the Big Data in order to ensure that analysis outputs are beneficial for the entity. Otherwise, the Big Data system would fail in creating recipes and outputs appropriate for the entity. The relevant entity should

transfer its specific work structure and all actions regularly in the system in order to ensure that the analyses held in the Big Data system are entity-specific (Kelly, 2014). However, the main problem here is the share of million dollar data which was ensured with large investments and ensured competition superiority in the past with the Big Data systems. Actually, the transfer of data and information which are intellectual capital into the Big Data is the simple starting stage of the integration with Big Data. In near future, entities will have to extract all their processes, all their records and transactions including the accounting by reason of "open company structure" "just for fast movement in the market". The "privacy enigma" experienced by individual users which started with Web 2.0, became severe with social networking and will peak with web 3.0 is currently applying to entities with Big Data.

Making the intellectual capital of institutions public and increasing removal of their corporate privacy borders is a process resulted from the transforming technology and new protocols. Transformation of the technological platform on which we perform all our work processes from centralized structure to distributed structure with Big Data will also lead the work structure and organization structures of the organizations in this platform to turn into distributed structures.

Consequently, transition to Big Data without presenting that Big Data is not a preference but a necessity for the companies with all details, establishing the corporate identity that supports Big Data and redesigning the business structures according to this system will result in fatal fiascos. The tasks of ensuring that the management will not remain insensitive to this development, establishing this into the corporate culture and ensuring the integration of business structures are included in the areas of expertise of the public relations profession.

Flexible Workforce and Corp-culture Transformation

Just as the invention of microscope made invisible things visible and measurable radically changed all information especially related with biology approximately 400 years ago, the Big Data system is also paving the way for the latent system previously invisible, implicit relationships and new requirements. Just as the emergence of new branches and new areas of specialization especially in field of medicine after the invention of microscope, some new, flexible and specialist departments will come into existence in all organization structures after the Big Data. These new, flexible and specialist departments will not only rapidly transform the work structures of some existing departments but also thoroughly change some departments (Foster et al., 2008). This transformation process is presumed to be much faster than the transformation process of the internet (Agarwal et al., 2011).

Public relations may create special protocols in order to ensure the organization which has become multi-division in a distributed way to make integrated decisions and ensure these protocols to turn into acceptable and permanent values just like the corporate culture. The famous futurist Alphan Manas states that organizations must be transformed in order to benefit from changes to the maximum extent but additionally they must create the protocols which would transform the transformation. This is because making transformations by accepting every progress unconditionally is not only costly but also result in a corporate exhaustion. For this reason, responding to transformation within the protocols of institution, avoiding from affecting this and transforming the transformation ensure to produce cost effective solutions and minimize the corporate exhaustion, and maximize the know-how capabilities of the institution. For this reason, a management functions which would determine corporate protocols which would transform the transformation and turn these protocols into a corporate culture is required. This management function and transformer corporate culture may just be procured by public relations and some measures can be taken against disadvantages of the Big Data.

CONCLUSION

The existence of Big Data was always known but human being had considered Big Data as a nonstructural, wild and costly data stack at the point that they remained powerless and incapable of turning them into formulas. However, developments brought by the software such as Hadoop in the technical methods and our algorithm capabilities developed with the power of our mathematical virtues instilled us the power and imagination which ensured us to reach Big Data. This power and imagination actually led us to question our superstitions about data and comprehend the reality that no data is unnecessary. It was realized that nonstructural data is actually data which could not be structured and turned into a logic, algorithm or equation by human intelligence. Actually some changes occurred in our data philosophy with the Big Data and the concept of “Unable Structuralize Data” started to be formed instead of “Unstructure Data”. This data philosophy give rise to power and desire for more developed technologies, software and mathematical formulas and eventually this power and desire are paving the way for a fantastic world.

We discuss the Big Data in a world in which quantity of digital data formed in a year is greater than the data having been formed in the last 50 years and still increasing. If we consider that we will have to work

with data with a volume of zettabyte and even yottabyte in very near future, entities must figure out how they will cope with such a large size of data volume urgently. Having prospective predictions and obtaining the requested bird's eye view in Big Data system requires an extraordinarily dynamic and open work structure. Therefore, all obstacles against Big Data system should be determined before investing in this system. As demonstrated in this study, public relations could provide significant contributions in the success of Big Data system against these obstacles.

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