

## **Big Data strategies of the world countries**

Makrufa S. Hajirahimova

Institute of Information Technology of ANAS

Baku, Azerbaijan

[makrufa@science.az](mailto:makrufa@science.az)

Aybeniz S. Aliyeva

Institute of Information Technology of ANAS

Baku, Azerbaijan

[aybeniz63@rambler.ru](mailto:aybeniz63@rambler.ru)

***Abstract:** Recently, Big Data theme which reflected a new era in information processing has been widely discussed in business environment, the mass media, scientific literature. This technology becoming both the center of attention of countries in addition to the big data, science, production areas. The article is devoted to the study of big data strategies. Big data policy of such countries as USA, Australia, China, Korea and others has been interpreted in the article.*

**Introduction.** Since the beginning of the 21st century digital data rise with geometric series (exponential) each year [1]. Web, social networks, mobile devices, transactions made through credit cards led to an increase of digital data flow, appear abundance of information, world is literally filled with information. Analysts predict that digital data increase 40% every year and will reach 44 zetabyte in 2020 [2].

Big data is understood to mean as great information massive that traditional database tools cannot manage these or unable to do well. It is required enough storage capacity and computing power for processing of this data. It is known that, supercomputers have the ability to perform a lot of arithmetic operations per second and they are more effective in over-exhaustion science modeling.

This technology can be revolutionary changes in management, health, science, business and commercial, manufacturing and other activities. Big Data's great potential for development has been noted by the United Nations. So, "Global Pulse" initiative that proposed by the United Nations in 2009 is a conception aimed to the development of countries, overcoming of poverty, crisis situations, improving people's living (life) standards [3].

In addition the United Nations several international organizations investigate BD possibility for the developing world. In 2012 the World Economic Forum (WEF) in Davos BD was appreciated as currency or gold such as new economic assets, was prepared White paper that discussed opportunities of big data [4].

The Organisation for Economic Co-operation and Development (OECD) adopted agenda as "evaluation of the economic benefits of big data" for 15th Working Party on Indicators for the Information Society (WPIIS) to increase business efficiency consider big data [5].

The European Commission accepted next Horizon 2020 program in the field of scientific research and innovation. 120 million euro investment has been allocated application and research of Big Data production. This program has identified research and innovation strategy for successful implementing of big data economy including high skill, the management of industry and social problems [6].

World bank, WB extensively studied opportunities of big data, plans use of BD in many issues such as improving the efficiency of aid and coordination, increasing of transparency and social responsibility [7].

In November, 2013 the report of The International Telecommunications Union (ITU) named “Big data - big today, normal tomorrow” was published. The application of big data in healthcare, scientific research and transportation fields and safety issues related to the application of big data were included in this report [8].

The European Union (EU) implements determined (related to uncertainty) works during the iKnow (Interconnect Knowledge) project that provided opportunities for researches across to earthquakes, tsunamis, terrorism, and the global crisis [9]

Big data as a strategic resource attracted attention of many advanced countries such as international organizations. Thus, BD is already considered strategic resource such as oil by scientific community, business associations, government bodies in the USA and a number of Western states and given great support to solve the problems in this field by the government. In other word, the research and application of big data has become a necessity to increase the rivalry ability of any country [10]. Because of the great significance and value of big data, many countries have launched their plans or initiatives on big data re-lated research and applications. Let's review to some countries' strategies related to the research and application of big data.

***US Big Data Research and Development Initiative. Big data policy of the USA.*** BD is already considered as a strategic resource such as oil by the scientific community, business associations, government bodies in the USA and a number of Western countries, are given great importance to the problems of this field. Even, had been got across from research and improve level to production and application phase of the efficient technology. So that, in March 2012, the Obama Administration officially launched the Big Data Research and Development Initiative with an investment of more than US\$ 200 million [11]. The initiative involves six federal government agencies, namely, the Department of Defense (DoD), Defense Advanced Research Projects Agency (DARPA), Department of Energy (DoE), National Institutes of Health (NIH), National Science Foundation (NSF), and US Geological Survey (USGS). The initiative aims to study new infrastructures and methodologies for big data research in order to greatly facilitate the tools and techniques for acquiring knowledge and insights from big data, while improving the ability to use big data for scientific discovery. It specifically is intended to develop core technologies to collect, store, manage, analyze and share large-scale data, and use these technologies to accelerate the pace of discovery in science and engineering [11].

To make the most of this opportunity, the White House Office of Science and Technology Policy (OSTP) created the Big Data Research and Development Initiative to [13]:

- to develop core technologies to collect, store, manage, analyze and share large-scale data ;
- use these technologies to accelerate the pace of discovery in science and engineering, strengthen national security, completely change the education and learning mode;
- and vigorously cultivate new talents for developing and using big data technologies. It also prepares the next generation of data scientists and engineers and particularly in the ability of analysts to extract information from texts in any language.

In particular, it focuses on the following application areas: health and well-being, environment and sustainability, emergency response and disaster resiliency, manufacturing, robotics and smart systems, secure cyberspace, transportation and energy, education, and workforce development. [10,11]

The initiative engages the government, industry, academia and non-profit organizations together to take full advantage of the opportunities created by big data, exploits its tremendous potential.

Besides the United States, Britain, France, Australia, and Japan have also introduced their big data initiatives. [10].

**Australian Public Service Big Data strategy.** In August 2013, the Australian federal government announced the Australian Public Service Big Data strategy. It intends to promote the service reformation of public sectors by making use of big data analysis, developing better public policies and protecting citizen privacy in order to make Australia among the world's most advanced in the big data field. [10,13,14]

This vision aims to support enhanced services, new services and business partnership opportunities, improved policy development, and the protection of personal information privacy, and leveraging the Government's investments in ICT technologies [39].

The development of the Strategy was initially identified in the Australian Public Service Information Communication Technology Strategy 2012-2015. The aims of the Strategy are broadly identified as [13]:

- Delivering better services through building capability and improving services;
- Improving the efficiency of government operations by investing optimally and encouraging innovation;
- Engaging openly through creating knowledge and collaborating effectively.

Moreover, the Strategy proposes two ongoing projects: 1) developing an information asset register; 2) monitoring technical advances in big data analytics [13].

Finally, the Strategy was supplemented by the Better Practice Guide for Big Data in April 2014. This guide gives guidance on establishing a business requirement for a big data capability, implementation, information management and big data project management [15].

**UK Data Service.** The UK Data Service itself is focused on making data available in order to generate positive externalities in terms of research, economics and policy. Specifically, they are focused on the re-use of existing data sets to inform policy, generate new insights and influence debates. Open data policy in the UK has passed its startup phase and attention widens to include data quality. The UK Data Service is funded by the Economic and Social Research Council (ESRC) of the UK, a major research funding body financed by the UK government [16, 17].

The UK is one of the forerunners concerning the development of a policy on big data, including the adaptation of legal frameworks to enable the development of big data applications. Policy initiatives and debate is ongoing on all areas concerning big data. In January 2013, the British government announced a big-data plan of £189 million. On one hand, the plan aims to push new opportunities for using big data in commercial enterprises and re-search institutions. It further supports with capital and policies the development of big data in medical, agricultural, commercial, academic research and other areas. [10].

The UK is utilizing big data through establishment and management of the Foresight Horizon Scanning Centre, which serves as a countermeasure to various health and social problems such as obesity, potential risk management (coastal erosion, climate change), and epidemics [18].

**Big Data policy of the French.** In the context of an intergovernmental seminar on the digital economy which was held on 28 February 2013, the French Prime Minister presented the government's roadmap for this industry [19]. The roadmap is organized around three pillars:

- Make the digital economy an opportunity for the young generation;
- Reinforce the competitiveness of French enterprises thanks to the digital economy;
- Promote our values in the digital society and economy.

France government recently announced Big Data is Imminent launch and allotted €11.5 million for 7 big data processing projects proposal through Programme of Investments for the Future [10, 20].

France has only recently developed a policy for Big Data. In 2013, the “New Industrial France” report placed Big data as one of the 34 main items in France’s industrial renovation [17]. As part of the New Industrial France-strategy a Big Data plan was adopted on July 2014. This contains 3 lines of action[17, 19]:

- The development of a Big Data-ecosystem in France.
- Sectorial initiatives on Big Data. This includes both projects in the public and private sector.
- Evaluation of regulation. This includes privacy regulations.

Big data attracts the interest of large French companies such as Cap Gemini or Airbus. Several companies also invest in infrastructures for Big Data and cloud computing. Eventually, some companies such as Apicube or Critéo offer specialized services such as targeted marketing.

**Data policy of the Yaponiya.** Big data is a major economic topic for the Japanese government. The 2013 White paper on information and communication states that developing Big data in Japan could create large benefits. Japan has also developed strong industries in the Web 2.0 sector [17].

The Japanese government announced their national big data strategies, “The Integrated ICT Strategy for 2020” and “Declaration to be the World’s Most Advanced IT Nation” [21], in 2012 and 2013, respectively. They plan to develop Japan’s new national IT strategy with open public data and big data as its core during 2013–2020. Finally promote Japan as a country with the world’s highest standards in the extensive use of big data in the information technology industry [10].

The Open Government Data Strategy has been adopted in 2012 by Japan as a means to foster transparency. The purposes of the strategy are to immediately undertake measures for encouraging the use of public data and to implement them broadly in order to raise the standard of living and invigorate business activities, contributing to the development of Japan’s society and economy as a whole [22].

**Data policy of the China.** The largest Big Data conferences took place or are going to take place in China, including the Big Data Technology Conference, Big Data & Analytics Innovation Summit, China Legal Big Data Symposium, Big Data Asia Showcase, and Big Data World Forum. It related to Big Data in China is firmly centered on its business potential or the technological advances in the field [23]. So that, China has the world’s largest mobile phone market, with over 1.2 billion mobile subscriptions. With over 600 million Internet users, it also has the biggest Internet user population in the world. Moreover, China has the world’s most active environment for social media. The estimates of government that over 250 million people use social media, including blogs, social-networking sites, microblogs or other online communities. In fact, estimates of non-governmental entities are often higher, putting the number over 590 million.[23].

The massive numbers of real-time information streams and people who use mobile phones, Internet, and social media in China creates a favorable environment where the Big Data approach could be effective in providing insights on emerging concerns that are highly relevant to China’s development. There are signs that the government has also started to examine the

potential of Big Data in the public sector. June 2014, the Chinese People's Political Consultative Conference (CPPCC) held a consultation forum in Beijing on how to use Big Data technology to enhance governance capability. In this initiative specific issues related to the use of the data is intended in the following areas:

- improve productivity of the public sector;
- refine urban transport planning;
- strengthening understanding of socioeconomic trends;
- assess poverty situations;
- promote sustainable e-waste disposal practices;
- identify pollution hotspots in cities, amongst others.

In order to create such an environment, development agencies should work with the public and private sectors to address many of the challenges, including data, analytical, operational/systemic challenges [23]

It should be noted that in November 2013 China's National Bureau of Statistics (NBS) signed a series of agreements with 11 major Chinese enterprises, aiming maximize the effect of Big Data application including Baidu, Alibaba, China Unicom, and etc. [24]

**Data policy of the Korea.** Big Data has an important role to play in development, and Korea, with its dual experience in development and technology is harnessing these opportunities. Korea is also a great example of how to leverage technology and connectivity for economic growth, innovation, and competitive advantage. Keeping with this trend, Korea is leading the way in harnessing Big Data for development.

In 2011, the President's Council on National ICT Strategies, launched a big data task-force under the Big Data Initiative. This initiative aimed to establish [25]:

- a pan-governmental big data network & analysis systems;
- data convergence between government and private sector;
- a diagnosis system for public big data;
- big data management & analytical technologies.

The initiative also included several public and private collaboration with Big Data Strategy Center, a national institute of Korea under National Information Society Agency (NIA), and Big Data Institute, an academic institute of Seoul National University. The Korean Bio-Information Center (KOBIC), along with the initiative, also planned to operate the National DNA Management System which can provide customized diagnosis and medical treatment for patients by integrating big data on various types of medical patient information.

In November 2012, the National Science and Technology Commission of Korea developed the Big Data Master Plan. Korean government planning Big Data Master Plan for the Implementation of a Smart Nation. As part of smart nation government established Pilot Project for Using Big Data in Official Statistics[26:.

In July 2013, the Korean government announced the 'Gov 3.0 Master Plan', providing a new paradigm for government operation aimed to achieve a citizen-oriented, transparent and capable government that communicates with the citizens. Also by redefining the government as one that provides services as platform, information sharing, information disclosure, and collaboration (between ministries and citizens) have emerged as key tasks of Gov 3.0. [27].

National government is also planning to use Big Data as part of their upcoming Census, with an estimated savings of USD 140M. This is a many pronged framework to use Big Data for

policymaking, service delivery in the public sector, growth and competitiveness of SMEs, developing data science skills, and laying foundations of the infrastructure for future.

### ***Conclusions***

The depth analysis of large volumes of data can play a crucial role in making the best decision. It is important to use this technology by government for serving the citizens, solution of national problems ( healthcare, terrorism, job creation, natural disasters and etc.) and to identify dangers in advance. Big data has great potential to help healthcare and social security issues as prevention of infectious diseases, terrorism, disaster and global risks. Seen as research in the policy of world's countries were approached various aspects of big data strategies across leading directions.

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