

## Impact and Challenges of Implementing Big Data with IOT

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### **Abstract**

In today's world the data is complex as it is collected from heterogeneous sources. With the advancement in technology it is quite easy to gather the data for an organization from different levels and from many external sources. The data which is accumulated is quiet huge and is diverse with structured, unstructured components or data generated by Internet-of-Things (IOT). So the businesses are in urgency to analyze these sets of data to give a better value to the organizations. Now a day's business analytics is becoming an essential central part to all the business strategies. This paper presents an evaluation of the challenges which the organizations have to take while dealing with the complex data residing in the data stores. It is not only that the organizations have to deal with the volumes and complexity of data, IOT brings new challenges regarding the security to the Big Data systems as a whole and data in particular which is an asset for an organization. This paper also covers some reviews regarding the study of attributes which have contributed the growth of Bigdata technologies to provide business analytics by ensuring security to the data.

Keywords: Big data, IOT, Data stores, Business Analytics, Security.

### **Introduction**

Many organizations simply cannot keep up with the pace of cyber threats as there's little time to build up defenses against one before another appears. As a result, they're increasingly turning to advancing analytics tools to overcome this problem. Big data and machine learning could pair together to bolster cyber security and better protect company assets.

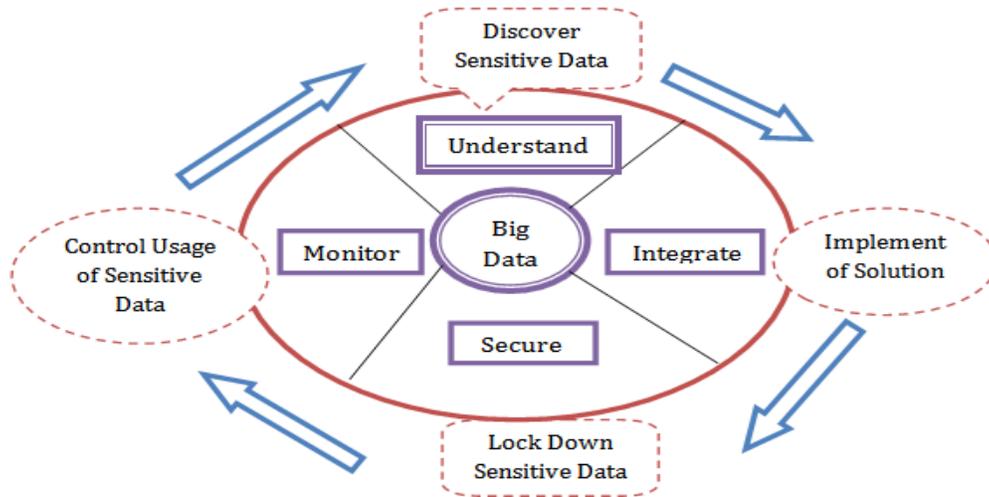
Big data has developed a new role in preventing adversaries from taking advantage of the massive amounts of military intelligence, trade secrets, and personal and financial data available through systems

at all risk levels. Organizations are being encouraged to transition to intelligence-driven security for a broader view of risk and vulnerabilities. This requires analyzing external threat intelligence feeds, cloud-based calendars and documents, social network activity logs, website-generated information feeds and other non-traditional sources of security information.

Big data's advantages lie in the ability to analyze massive numbers of potential security events and make connections between them to create a prioritized list of threats. With big data, seemingly disparate pieces of data connect to form a clear picture, enabling cyber security professionals to stay ahead of possible threats and help prevent attacks from happening.

The study delivers insights into the level of awareness and current approaches in information security and fraud detection in organizations around the world. It measures the importance, current state and future plans of big data security analytics initiatives across different sectors, as well as presenting an overview of the various opportunities, benefits and challenges relating to those initiatives. It also outlines the range of technologies currently available to address those challenges.

Big data and Cyber security:



Process of Automating Security for Big Data

Above figure shows process of automating Security for big data leading organizations have benefitted from the automation of Big Data Analysis. Depending on the technology applied, it can take only a few weeks to process, analyze, and understand any amount of Big Data. In all these regards, automation has

added benefits like reducing the operational costs, improving operational efficiency, enhanced self-service modules, and increased the scalability of Big Data technologies. For instance, it can function as a numerical identifier thriving across the data tables in e-commerce business. Also, it looks for categorical data to generate the set of features having interrelated values.

### **What Role Automation Can Play?**

At the Institute of Electrical and Electronics Engineers (IEEE) International Conference on Data Science and Advanced Analytics, this model focused on making observations through time-varying data. These observations were anticipated to be used for futuristic predictions. Broadly speaking, the role to be played by automation heavily relies on the following four things:

#### **1. Analysis of Time-Varying Big Data**

The automated Analytics should ideally focus on a basic framework for analyzing any volume of data over a period of time. The categorization of Analytics into different segments reflects a pragmatic approach. These segments are labeling of data, its division according to the relevant time periods, and identification of data features to be addressed.

#### **2. Role in Data Preparation**

This automation should reduce the time taken for Predictive Analytics. It is a complex challenge faced by the Data Scientists working on such projects. Hence, it requires a robust language that simplifies the identification of prediction problems and streamlines the analysis process. Also, it entails a tailored framework that can automatically work with varied specifications for analogous acts of categorization and labeling of the data.

#### **3. Detecting the Prediction Features and Representing Them**

The representation of data in a measurable format is the key role to be played by automation. It can work as a big leap towards enablement of analysts in identifying the main prediction problems in a standardized format. This will facilitate its sharing and analysis. As a result, collaborations between Data Analysts and domain experts will increase. The experts will be enabled to learn and use the language used for automated predictive analysis for specification of their problems. It will bring more precision in the process.

#### **4. Proliferation of Self-Service Model**

It is directly related to the accessibility of automated Analytics for every business owner. The growing influence of Cloud Computing offers deeper insights of data in real-time. It reduces the costs by facilitating the access of traditional Business Intelligence and Cognitive Computing Analytics. The architecture support in the form of Data Lakes and data preparation platforms also support the self-service movement. However, any access to automated data should be granted only through the secure platforms. Reinforcing policies by using Semantic data processing can also facilitate governance at the time of syncing data with business-critical information. The security should be granular and layered to cover the aspects of authentication, control, audit, and architecture.

Self-service analytics is the natural and necessary solution to two mounting problems, namely the ongoing deluge of data that organizations are experiencing, and the subsequent shortage of data scientists to capture, manage, and analyze it all. In an effort to bridge the analytical literacy gap—and to take business analytics beyond what decades old tools such as spreadsheets, desktop databases, and reporting tools could do—many organizations have sought out self-service tools to enable the data workers they have to extract more value from ever-mounting data volumes.

#### **Conclusion**

The automation of Big Data Analytics is a huge step in the direction of improving Data Science and cyber security. The self-service model has facilitated the business owners in leveraging its various factors without digging deeper into its complexities. The Big Data has become more accessible and cost-effective. Moreover, it allows the Data Scientists to concentrate on their core competencies instead of indulging in time-consuming acts of data analysis.

#### **References**

1. Big Data Now Publication: O'Reilly Media Author: O'Reilly Radar
2. [www.qubole.com/blog/self-service-analytics/](http://www.qubole.com/blog/self-service-analytics/)
3. <http://data-informed.com/automation-new-reality-for-big-data-initiatives/>
4. <http://whatis.techtarget.com/definition/cybersecurity>