SOFTWARE ENGINEERING ISSUES IN REAL-TIME SOFTWARE DEVELOPMENT: ANALYSIS ON SPECIFIC TO BID DATA

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Software Engineering Issues in Real-Time Software Development: Analysis on Specific to Bid Data

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Abstract – Structured and unstructured data in operational support tools have long been prevalent in software engineering. Similar data is now becoming widely available in other domains.

Software systems that utilize such operational data (OD) to help with software design and maintenance activities are increasingly being built despite the difficulties of drawing valid conclusions from disparate and low-quality data and the continuing evolution of operational support tools.

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1. INTRODUCTION

Operational data solution (ODS) can be thought of as precise and, when appropriately calibrated, more accurate measurement instruments that may address some of the longstanding questions of what software engineering techniques are effective and under what circumstances they should be used. Because of the nature of OD, particular care [8] needs to be taken to draw conclusions based on such data. Some of the confusion with the existing empirical approaches using OD may be traced to the failures to account for factors and relationships that are known to exist. For example, many analyses look at treatment (e.g., use of technology, tool, or practice) effects without adjusting for factors, such as size, that impact virtually any outcome of interest. If the adjustments for size are not made, the resulting differences between the control and treatment primarily recite distribution of size and other salient (but not adjusted-for) factors in the control and treatment samples. Such differences between the control and treatment should not be (but usually are) interpreted as being associated with the treatment. To study the effect of a treatment it is crucial to adjust for all factors that are known to an effect the outcome. For example, an investigation of the impact of organizational change [9] or work dependencies [10] were considered only after adjustments for numerous other factors that were found to be associated with defects in earlier studies.

2. REVIEW OF LITERATURES:

Big Data analytics provides organizations an opportunity for disruptive change and growth. In most cases, however, the data sets are too large, move too fast or are too complex for the traditional processing environment, which creates a significant challenge. The technologies are available; however, an investment of time, money and resources was being necessary to fully implement a Big Data solution. Is it worth it? The options are limited—invest in the platform, technologies and expertise to leverage war data, or continue along the path of the status quo. Enterprise content and data specialists, such as General Networks, can help us to define and quantify were Big Data goals and objectives [2].

Data are now woven into every sector and function in the global economy, and, like other essential factors of production such as hard assets and human capital, much of modern economic activity simply could not take place without them. The use of Big Data — large pools of data that can be brought together and analyzed to discern patterns and make better decisions — was become the basis of competition and growth for individual firms, enhancing productivity and creating significant value for the world economy by reducing waste and increasing the quality of products and services [3].

Until now, the torrent of data flooding our world has been a phenomenon that probably only excited a few data geeks. But we are now at an inflection point. According to research from the McKinsey Global Institute [MGI] and McKinsey & Company's Business Technology Office, the sheer volume of data generated, stored, and mined for insights has become economically relevant to businesses, government, and consumers.

The history of previous trends in IT investment and innovation and its impact on competitiveness and productivity strongly suggest that Big Data can have a similar power, namely the ability to transform our lives. The same preconditions that allowed previous waves of IT-enabled innovation to power productivity, i.e., technology innovations followed by the adoption of complementary management innovations, are in place for Big Data, and we expect suppliers of Big Data technology and advanced analytic capabilities to have at least as much ongoing impact on productivity as suppliers of other kinds of technology.

All companies need to take Big Data and its potential to create value seriously if they want to compete. For example, some retailers embracing big data see the potential to increase their operating margins by 60 per cent.

Big data: changing the way businesses compete and operate:

While there is no doubt that the big data revolution has created substantial benefits to businesses and consumers alike, there are commensurate risks that go along with using big data.

The need to secure sensitive data, to protect private information and to manage data quality, exists whether data sets are big or small. However, the specific properties of big data [volume, variety, velocity, veracity] create new types of risks that necessitate a comprehensive strategy to enable a company to utilize big data while avoiding the pitfalls [20].

We suggest that organizations need to consider the following questions for the seven key steps to success when assessing their readiness to truly start benefiting from big data:

Governance - Good governance encompasses consistent guidance, procedures and clear management decision-making. Organizations need to ensure standard and exhaustive data capture; they need not protect all the data, but they need to start sharing data with in-built protections with the right stages and functions of the organization.

- Given the ubiquitous nature of big data, does was data governance framework acknowledging the evolving definitions of data owners and consumers?

- Does were current governance address the risks related to the life cycle of big data?

Management – Integrating and moving data across the organization is traditionally constrained by data storage platforms such as relational databases or batch files with limited ability to process very large volumes of data, data with complex structure or without structure at all, or data generated or received at very high speeds.

- Do we have the right skills and internal capabilities to deal with the big data technologies and methods which are relatively new?

- Do we have sufficient control over the big data volumes, variety, velocity and veracity, which may impose additional risks?

Architecture – Data architecture should be prepared to break down internal silos, enabling the sharing of key data sets across the organization and to ensure that learning’s are being captured and relayed across to the right set of people in the organization in a timely and accurate manner.

- Does were IT infrastructure support were big data strategy?

- Can we flexibly scale processing and storage to meet the demands of big data processing?

Usage – The results of big data can beneficial to a wide range of stakeholders across the organization — executive management and boards, business operations and risk professionals, including legal, internal audit, finance and compliance; as well as customer-facing departments like sales and marketing. The challenge is having the ability to interpret the huge amount of data that can be collated from various sources.

- Do we have the right talent to be able to process, model and interpret big data results?

- Is workforce ready to shift to the new paradigm of data-driven decisions?

Quality – The quality of data sets and the inference drawn from such data sets are increasingly becoming more critical. Organizations need to build quality and monitoring functions and parameters for big data. Correcting a data error can be much more costly than getting the data right the first time — and getting the data wrong can be catastrophic and much more costly to the organization if not corrected.

- Are existing methods sufficient to deal with the unstructured data?

- What stage of data quality is required to meet were big data goal?

Security – Companies need to start establishing security policies which are self-configurable: these policies must leverage existing trust relationships, and promote data and resource sharing within the organizations, while ensuring that data analytics are optimized and not limited because of such policies.

- Is security infrastructure robust enough to deal with the increasing demands of protecting a growing stockpile of data, while flexible enough to not become bottlenecked by the innovation?

Privacy – The increased use of big data challenges the traditional frameworks for protecting the privacy of personal information, forcing companies to audit the implementation of their privacy policies to ensure that privacy is being properly maintained [20].

1. "Big data" challenges for software engineering evolution:

In software engineering the "big data" catchphrase refers to in-homogeneous large-scale data that can stem from all software development cycles. Such data can be: source code, software bugs and errors, system logs, commits, issues from backtracking systems, discussion threads from consulting sites (e.g. stackoverflow.com), emails from mailing-lists, as well as developers' demographic data and characteristics and user requirements and reviews. Software engineering can benefit from the aforementioned data in many ways, but there are several challenges regarding the handling of such data.

In a nutshell, both researchers and practitioners can monitor software engineering processes and systems in order to collect data (e.g. logs, bugs, reports, and reviews) and get feedback from developers and users. Then, they can provide developers with better software tools and methods, and, consequently, developers can write more stable applications for advanced user experience. In the following paragraphs, we present the challenges of obtaining and handling software data, as well as we make a discussion about cutting-edge data management tools and techniques.

Big Data for software quality assurance and diagnosis: Software analytics, i.e., the use of automated analysis of software are facts, has been explored for some time. Now, with the significant increase of data volumes as well as analytics capabilities for large volumes of structured and unstructured data, software analytics faces new opportunities in the Big Data area. As an example, monitoring logs of complex systems may easily reach sizes of gigabytes and terabytes in small periods of time. Failure patterns and deviations thus may require Big Data analytics to handle such massive amounts of log data. As an example, deep learning techniques may be applied for performing root cause analysis of software failures.

Software architectures and languages for Big Data: NoSQL and MapReduce are predominant when it comes to efficient storage, representation and query of Big Data. However, apart from large, long-standing batch jobs, many Big Data queries involve small, short and increasingly interactive jobs. To support such kinds of jobs may require new architectures and languages that, for instance, combine classical RDBMS techniques for storage and querying on top of NoSQL and MapReduce paradigms. In addition, as we get more big data stores, we also get more CPUs. So, analytics solutions that were computationally impossible 10 years ago are now becoming possible. Ultimately, this may lead to a new generation of software architectures and languages that optimize Big Data querying and retrieval.

CONCLUSION:

After data cleaning, filtering, and organization, researchers seek patterns to use in predictions and to provide recommendations for possible improvements for systems, applications, and software development itself. For this, there are several approaches, including machine learning, heuristics and pattern matching.

REFERENCES:

1. Imelda Llanos de Luna, Important trends in Analytics and Big Data in developing countries and big data security. Available at: http://www.kdnuggets.com/2015/02/most-important-trends-analytics-big-data-2015.html

2. Laboratories de recherché xbrainlab, Le Processing at cloud: Reeled revolution our simple evolution, Livre blanc, 2011.

3. S.O. Kuyoro, F. Ibikunle, and O. Awodele,"Processing at cloud Security Issues and Challenges," International Journal of Computer Networks, vol. 3,issue 5, pp. 247-255,2011.

4. R. Maheshwari and S. Pathak, "A Proposed Secure Framework for Safe Data Transmission, in Private Cloud," International Journal of Recent Technology and Engineering, vol.1, issue 1, pp.78-82, April 2012.

5. N. Padia and M. Parekh, "Processing at cloud Security Issues, in Enterprise Architecture and Its Solutions," International Journal of Computer Application, vol.2, issue 1, pp. 149-155,December 2011.

6. A.Parakh and S. Kak, "Online data storage using implicit security," Information Sciences, vol.179, pp.3323-3331, 24 May2009.

7. K. Karkouda, N. Harbi, J. Darmont, and G. Gavin, Confidentialité et the disponibiltédes donnéesentreposéesdans les nuages," in

Proc. 9ème atelier Fouille de données complexes [FDC 12], pp. 1-14, 2012.

8. Audris Mockus. Software support tools and experimental work. In V Basili and et al, editors, Empirical Software Engineering Issues: Critical Assessments and Future Directions, volume LNCS 4336, pages 91{99. Springer, 2007.

9. Audris Mockus. Organizational volatility and its effects on software defects. In ACM SIGSOFT / FSE, pages 117{126, Santa Fe, New Mexico, November 7{112010.

10. Marcelo Cataldo, Audris Mockus, Jerey A. Roberts, and James D. Herbsleb. Software dependencies, the structure of work dependencies and their impact on failures. IEEE Transactions on Software Engineering, 2009.

Web links:

11. http://xrds.acm.org/blog/2015/12/big-data-challenges-for-software-engineering-evolution/

12. https://sse.uni-due.de/bigdse15/