‘Big Data Platform for Enterprise project management digitization using Machine learning’ by S. Ruchi & P. Srinath

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SECTION B(MORNING)

Introduction

The following contributions are made in this paper to achieve digitizing Enterprise Project Management

- Design of EPM framework
- Proposed Architecture for EPM digitization using ML/BI.
- EPM parameters for project consideration
- Analysis of research gap for Big Data based framework adoption

MACHINE LEARNING FOR ENTERPRISE PROJECTS

- A decision making system can be made efficient, reliable and robust for enterprise projects only if it is able to detect certain trends related to enterprise planning, resource management and cost estimation by applying data analytics.

1. Industry Research Analytics
2. Enterprise Project Management
3. Enterprise Marketing Strategy
4. Enterprise Risk Management
5. Fraud Analysis

Ref. #	Year	Author	Method	Conclusion
[7]	2015	Tapan Kumar Das	Three mostly used algorithms such as Naïve Bayesian Classification, kNN and SVM for targeting a pool of customers for direct marketing.	Naïve Bayesian Classification having highest accuracy and specificity amongst others would help the marketing department to identify the respondents for specific campaigning activity
[6]	2017	Aji Mubalaike Mubarek, Eşref Adalı	This paper focuses on the implementation of classification algorithms i.e. Decision Trees, Naïve Bayes and ANN, which can reduce the existing disadvantages of the intrusion detection systems.	Experimental results on NSL-KDD dataset infer that our ANN-MLP method yields average better performance that helps us to calculate performance measures.
[4]	2016	Ammar and Alaa Alsaig, Mubarak Mohammad	Introduced context and formally model project context using FCA.	This approach can improve project management tools and minimize the effort spent by project managers
[10]	2014	K. Iwata, T. Nakashima, Y. Anan, and N.	SVM or ANN due to their high reliability in the training of non-linear regression and classification models are used.	This study suggests a technique for estimating intervals for embedded software development projects using SVM and ANN interval estimation.
[14]	2011	Cuauhtémoc López-Martín, Arturo Chavoya, and M.E. Meda-Campaña	As the number of data increases, a General Regression Neural Network (GRNN) learns quickly and converges to the ideal regression surface.	The GRNN outperformed the regression model in accuracy during the verification stage, but there was no statistically significant difference between the two.

Methodology

Phase 1:

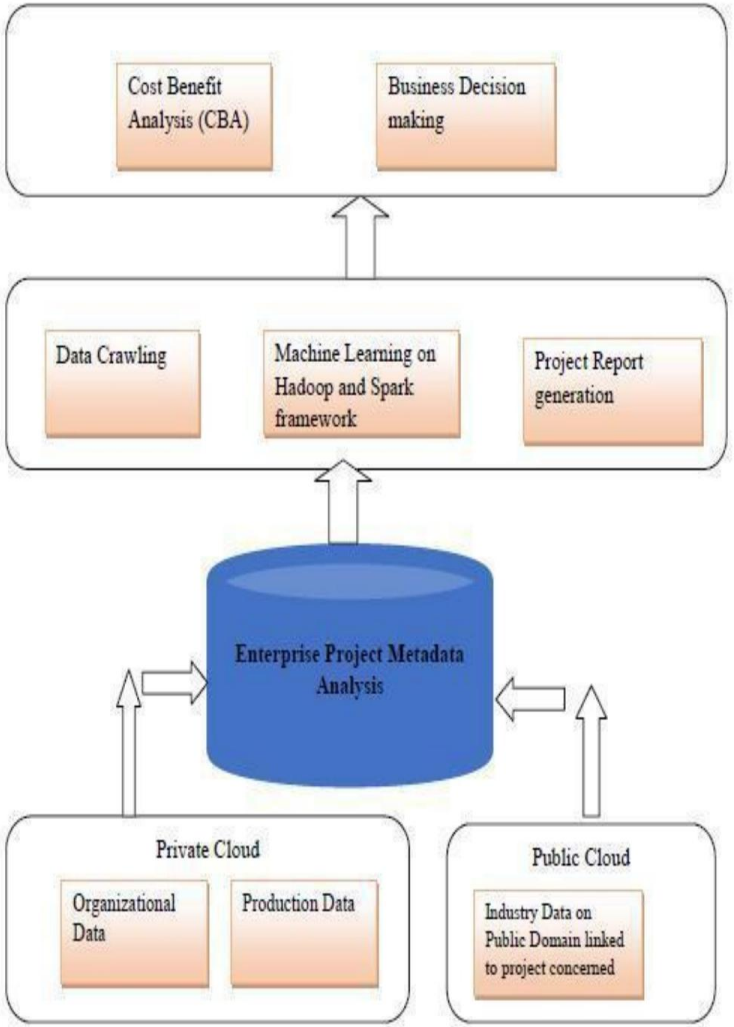
The project data sources considered would be production data, Organizational data extracted from transactional logs from within the enterprise. Project related data is scattered online that needs to be extracted for effective EPM. Hence, this project data available hosted on public cloud model from a pool of online resources would be handled by virtual machines (VM) across diverse data platforms.

Phase 2:

This phase consists of three components: Data crawling for aggregating scattered data relevant for current project being implemented. The output of data crawling module would be input for Machine learning on Hadoop and Spark platform. Finally, last component would be the project report generation applying business visualization techniques.

Phase 3:

There are two components in this phase : Cost Benefit Analysis(CBA).Here, the EPM parameters discussed in Section II would be analyzed for result calculation .The second component is Business Decision Making implemented using MCDA(Multi criteria Decision Analysis) in Fuzzy approach and neural network



Gap Analysis

Following research gaps that have been identified in this subdomain:

1. Effective standardization of project management principles across enterprises as specified by PMI and SEI(Software Engineering Institute).

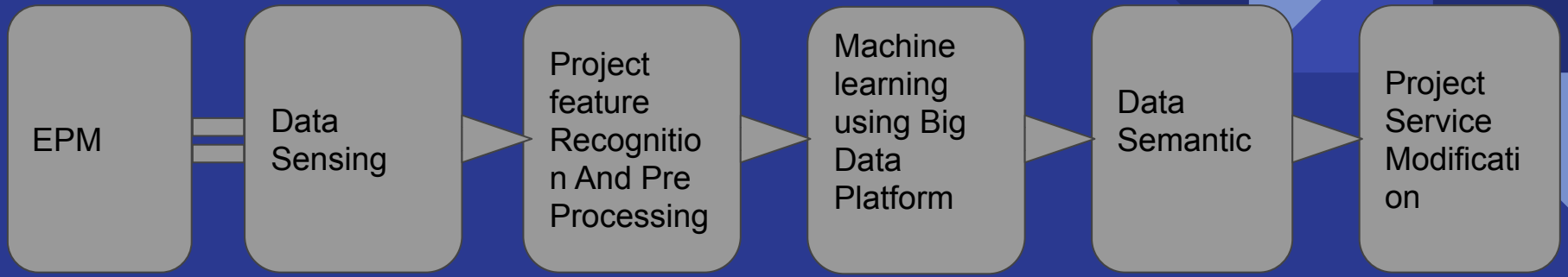
2. Lack of integration of ML/DM techniques with existing project management framework.

3. Computational Complexity of certain ML algorithms like CNN (Convolutional Neural Network) making it difficult to be applied to EPM.

4. Domain dependence exists for available techniques applied to enterprise projects making EPM platform complex to implement.

5. Effective training for employees to implement integrated framework.

6. Resistance of adoption of integrated platform for project management.



ENTERPRISE PROJECT MANAGEMENT FROM MACHINE LEARNING PERSPECTIVE

Conclusion

In this paper, we have proposed an EPM platform using Big Data and machine learning concepts. The advantage of this architecture is the effective digitization of project related information and transaction logs in various formats available both within and outside the firm concerned. Standard project management tools are standalone softwares focusing on few of project management parameters .We have also formulated six EPM parameters for project evaluation using Big Data platform. Also, this paper identifies and addresses research gaps of EPM in detail. This platform would mitigate he gap between the different stakeholders involved in development of the project.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