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Big Data, Predictive Analytics, and Data Visualization in The Construction Engineering

Joseph Shrestha, Iowa State University



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Big Data, Predictive Analytics, and Data Visualization in The Construction Engineering K.P. (Joseph) Shrestha, M.S.E. (Civil) Dr. H.S. (David) Jeong, Advisor Data Analytics Laboratory for Project and Infrastructure Mana



Abstract

Construction projects are associated with the collection, processing, and exchange of large amount of data among the st Perdomo, & Thabet, 2002). Even small construction projects like a residential building can have Gigabytes of data for des construction. As the size of the project grows, so does the data associated with the project. To generate useful informati data", proper predictive analytics and data visualization tools are required. Big data analytics allows discovery of knowled (Wactlar, 2012).



References

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- Cūbus + Demand
- Reed Construction
- Oman Bid Tabs F
- **Risk managemer Oracle's Primeve**
- Asset managem

Cox, S., Perdomo, J., & Thabet, W. (2002). Construction field data inspection using pocket PC technology. International Council For Research and Innovation in Building

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agement (DALPIM)	
	Guideline for Using The Big Data
takeholders (Cox, sign, estimation, and ion from the "big edge through data	 Preparing Workforce Train current employees Hire new employees with knowled in the field
ons in Construction	Preparing Infrastructure
d View on Forecast	 Big data servers Hadoop, Cassandra, GFS, etc. Cloud storage and cloud computing
Professional	Collecting Data
nt component of era and smart cities	 Internal sources Crowdsourcing Third parties
ent	Processing and Analyzing Data
Social factors Haalth	 IBM InfoSphere Stream, Twitter Storms, Esper, R, Mallet, LDA
Social factors Health	Visualizing information
Land acquasition cost	 Pentaho Instaview Tableau
Risk factor (stochastic	Making Decision
approach)	 Based on the analysis and visualizations of the big data
isualization of sensitivity analysis	
Schedule prediction	Conclusions
Location of contractors	 Without proper tool data is used to be added as a constant of the predictions Big data analytics and visuality of the prediction of the pr

- tools have been used in other fields for generating knowledge from data, it can be applied to the construction industry as well.
- Need to identify the possible application areas in construction engineering.
- Privacy and security issues.



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