

Chapter 7

Cloud Computing and Its Implications for Construction IT

ABSTRACT

By nature, a construction company needs to have data and information readily available at any stage and at any location. Given the often unstructured and fluid nature of construction activities, construction personnel face the challenge of collecting as well as collating data while on the move and at work under field conditions. With the advent of cloud computing and the rapidly increasing reach of the internet through wireless and mobile network carriers, construction companies are increasingly beginning to explore the power of information technology through cloud and IoT platforms. While at one stage, the cost of maintaining IT infrastructure was expensive for construction companies and engineering firms of all sizes, the rise of cloud computing has enabled to rationalize costs and investments while retaining high levels of productivity and service. This chapter discusses the various options that construction companies now have to choose from to streamline operations and increase productivity.

A survey of operations of any construction company is bound to reveal an important facet. That is the distributed nature of workings and revenue generating centers that are distributed and generally located far from the nerve center itself. It is often argued, and perhaps quite cogently, that a

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construction company survives by numbers. Number of projects that it has, the number of billing cycles that are produced per construction site, the number of employees involved, the number of suppliers involved, etc. The construction sector is purely a numbers game. Beginning with engineering, accounting and right through to human relations management, supply chain management and customer relationship management, an organization in construction sector relies on the numbers involved. It is, therefore, evident that collaboration and integration of data, information and resources are extremely important for a construction company to survive and in the final analysis stay ahead of the competition. It is essential that all departments must collaborate in order to improve efficiency, increase productivity and create an environment where resources are utilized to the maximum possible extent so that construction projects can be successfully executed and stated objectives achieved in a timely fashion. These stated objectives involve metrics such as completion of project schedules within the stipulated time and budgetary allocation of costs, and ensuring quality and safety at all times throughout design, construction, implementation and handing-off phases. For the past few decades, the construction sector in India has witnessed increasing efforts to implement new techniques, and introduce cutting edge technologies and tools to assist in production efficiency and to bring down costs and lower duration required to execute projects successfully. During all this while, the construction sector has been cognizant of the fact that at no stage should production quality, efficiency and safety suffer in the quest for increased productivity and lowering of costs and time. The dynamics of construction industry demand that the construction supply chain itself should yield consistently high value for money in addition to quality of workmanship and optimized construction cycles. All of these must be aided and supported by data and information that is up to date at all times.

The nature of a construction company mandates that mobility and availability of information be held paramount. This is all the more important given the unstructured and utterly fluid nature of construction activities that take place. Workplace difficulties and challenges combined with hazards that construction personnel face daily has, therefore, been a fertile ground for adoption of cloud computing technology (Purohit, Jaiswal, Pandey, 2012). Cloud computing is an utterly novel form of dealing with data and information using computers and mobile handheld computing devices. Cloud computing is an amalgam of modern information technologies such as

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