

**SELECT ASPECTS OF
ORGANIZATIONAL EFFECTIVENESS OF DATA CENTERS -
A DIAGNOSTIC ANALYSIS**

By

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CERTIFICATE

The thesis entitled “Select Aspects of Organizational Effectiveness of Data Centers - A Diagnostic Analysis”, being submitted by Ajay Ahuja to the Indian Institute of Technology Delhi, for award of the degree of Doctor of Philosophy, is a record of bona fide research carried out by him. He has worked under my guidance and supervision and has fulfilled all the requirements for the submission of the thesis, which has attained the standard required for a Ph.D. degree of the Institute. The results presented in the thesis have not been submitted to the best of my belief, elsewhere for the award of any degree or diploma.

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ABSTRACT

Effectiveness is essential for any organization. All organizations aim to be effective in achieving their purpose. Organizational Effectiveness is a complex, situational, real, non-standard and multifaceted construct, which cannot be ignored by any organization. Data Center, which are the backbone of IT enabled services are also organizations in themselves. Data Centers are integral part of any IT infrastructure. All IT services are served by a backend infrastructure, which is generally hosted in Data Centers. This is true for any segment and any industry, including the Government, telecommunication, banking, finance or education and research organizations. Concepts of Organizational Effectiveness are equally applicable to these Data Center organizations.

It is important to make these Data Centers more efficient, easy to implement, easy to manage and cost effective with optimal utilization of resources. It is also important to optimize the use of power, cooling and space infrastructure, further leading to energy efficient green Data Centers. Organizational design and organizational practices need to be evaluated and upgraded for the high potential Data Center space.

There have been many studies on Organizational Effectiveness in general, but there is very limited information on Organizational Effectiveness of Data Centers in particular. There are gaps, which needs to be plugged-in. There is a need to study this universe of Data Centers and arrive at the measures and factors of Organizational Effectiveness. Looking at the importance and requirement of Data Centers in today's IT world, a model for Data Centers' Organizational Effectiveness is need of the hour. These measures and factors may also be integrated into the existing operational excellence models, to arrive at a holistic view.

This research study is an attempt to explore select measures and factors of Organizational Effectiveness of Data Centers. A base model was arrived at, by doing in-depth participative and exploratory case studies at two prominent Data Centers in India. This included a Government and a Corporate Data Center. The base model was further validated and tested by using various research techniques. Data was collected via seminars, panel discussions, brainstorming sessions, personal interviews and questionnaire survey methods. In all, sixty-three Data Center organizations spread across India were covered. Interactions were done with multiple stakeholders from each of these organizations.

These results were used to arrive at a model on “Organizational Effectiveness of Data Centers”. The model related Data Centers’ Organizational Effectiveness to “Customer focused approach”, “Adaptability”, “Employee Satisfaction”, “Efficiency (including IT and facilities efficiency and use of green technology) and “lower TCO”. Factors corresponding to each of these measures were also arrived at.

A comparative study was also carried out to analyze the inputs from Government and Corporate Data Center organizations. Both Government and Corporate Data Center organizations related all the measures, as defined in our model, to Data Center effectiveness. The importance or relevance of these measures however slightly differed across the two type of organizations.

A set of recommendations for implementing effective Data Centers was also derived. These recommendations provide a broad effectiveness framework for both Corporate and Government Data Centers, and may be adopted by various Data Centers within or outside the country. They may also be used by the existing as well as upcoming Data Centers under Government of India’s e-Governance plan.

The model and corresponding framework of recommendations may also be used for assessment of Organizational Effectiveness or action research in Data Center organizations. The policy makers can also use these results, to provide policy recommendations in this area. This can be particularly useful to the Department of Information Technology, Ministry of Information and Communication Technology and the decision makers of Government of India's National e-Governance Plan.

The study is possibly first of its kind in the Data Center domain and opens up avenues for further research in this absolutely important and significant area of e-enabled services.

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