

## Analysing the importance and impact of cloud computing on organization's performance management during economic crises

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### ABSTRACT

Organization performance management have difficulties in providing the required funding for instructional, research and development activities given the present financial crisis and the increasing requirements. The purpose of this article is for colleges to identify options to the usage of IT to make them more agile and save. A careful examination of the current Cloud Computing studies as an alternative to IT, security management were the conceptual framework. In addition to the authors of IT and higher education, it takes into account best practices for cloud computing used in organization management. The paper starts with a brief overview to cloud computing at organization performance management, which refers to the main outcomes that have been achieved. At addition, the proposal for an adoption plan provides a beginning point for cloud computing in organization management. The approach consists of five steps, focusing on information assessment and processes/functions/applications from many major academic organization managements on a range of essential criteria, while at the same time building a match between any of these features and the cloud market concepts. The results achieved encourage and encourage the use of cloud solutions in organization performance management by enhancing knowledge in this sector and offering a gentle introduction suitable for the organization of the university. The suggested model takes into consideration the architectural and criteria of the university, such as mission, availability, applications significance, and mission, sensitivity, secrecy, integrity and accessibility, in order to be practically usable.

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### 1. Introduction

In times, higher education was recognized as a cornerstone of the growth of society. Students and researchers have demonstrated their contribution to the development of community and to the entire world economy through partnerships between university, government and business. In recent years, the tendency in higher education has been to move from organization performance man-

agement to academic organization performance management, and to constantly upgrade IT infrastructure (Information Technology) as the basis for instruction and scientific purposes. The number of services that transition from conventional to online form is increasing as technology advances. In the online context, an appropriate form for delivering such particular services must be established, utilizing the appropriate technology, ensuring that a wide range of users have access to quick and safe payment services. As a result, organization performance management are currently faced with significant increases in higher education expenses, more than interest rates and a decline in university funding, which adds to the need to find other ways to achieve their goals - research

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and education. In addition to be service-oriented to maximize the efficiency and efficacy of all domestic activities and of all contacts with major players, colleges must make adjustments in order to respond to these demands. It is possible to apply a service orientation to persons (including roles, talents and features), organization performance management, as well as technologies, (in terms of positioning, structure and culture and procedures). At the organizational level, cloud computing may be regarded as the expansion of SOA and an alternative to the use of IT in educational environments, especially under the world economic crisis. The latter might be regarded as a further development. In this regard, data, processes and services that are the appropriate candidates for cloud residency are crucial to be identified. Lacking SOA, it makes no economic sense to go to the cloud (see Fig. 1).

2. Literature review

2.1. Definition of Cloud computing

It is quite hard to give a standardized precise description for the vast adoption of cloud computing. Indeed, at best the concept of cloud computing may be regarded as inaccurate and fluid as the borders of the circus clouds in the sky. In addition, its elements have no defined description of their responsibilities. Cloud Computing can utilize the Internet, which is hosted by a third-party source, for access of lies, data, programmes and services through a web browser and only pays for the computing services and resources you utilize. As the approach that enables user-friendly like, comfortable, on-demand access to a shared pool of customization computing resources (e.g. networks, processors, space, apps and services), Cloud Computing may be provided quickly with minimum effort in management or contact between service providers. It can be ascribed either to its provenance from many various network architectures, or by the large services it delivers, to the difficulties in arriving at a clear cloud identity. Cloud Computing takes its principles from peer-to-peer design, autonomous computation, virtualization, and service-focused design into account. The origin of Cloud Computing as a new high performance computing concept is an expansion for cluster computing as a subset of grid computing technology. The server design that was launched in the 1980s was an outgrowth of Cloud Computing. Ironically, the virtualization of cloud computing varies from the client – servers.

2.2. Cloud computing principles

The five basic concepts of cloud computing are:

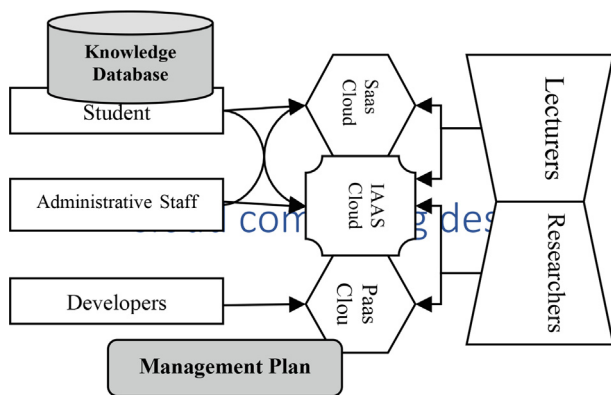


Fig. 1. Cloud adoption method.

- Resource sharing (including applications, processors, storage and databases).
- on request (users retrieve and use cloud information resources from the cloud).
- Flexible, elastic and scalable (clouds are receptive to user needs).
- Access networked (wide accessibility).
- Use of measurement (involve payments and storage efficiency).

Definitions encompass a variety of views and are presented at different levels of depth. Gartner’s cloud definition refers to scalability, elasticity and service delivery. The definition for Forester refers to abstraction, scalability, hosting, and charging. In IDC, cloud computing has been associated with new IT models and discusses real time web provision. ACM communications distinguishes between private and public clouds and believes that clouds are software and hardware that are centralized in data. NIST provides a thorough explanation of distinct types of computing resources, cloud computing features and accompanying modes of service and deployment. NIST: On-demand network access is a paradigm to allow easy access to a shared pool of customizable computing resources (e.g. networks, servers, storage, apps and services) that may be delivered quickly and with a minimum administrative effort or contact with cloud providers.

3. Cloud computing benefits

(see Table 1).

4. The difficulties associated with cloud computing

The new problems presented by cloud computing are significant. However, it also presents people with the same old difficulties as conventional networks. In reality, inherited technologies such as grid computing, client/server and semantic web represent the bulk of such difficulties. Some of the cloud inconveniences have negative effects on KM projects like as security, legal difficulties, excess of data and culture differences. Certain of these may be prevented by using KM concepts like as inter - organisational exchange of knowledge, coordination of police, content management, trusts and profiles of experts.

5. Information protection

The compromise seen between openness of the Cloud and the necessity for data protection has given rise to several paradoxes and serious issues, including information security, confidentiality and privacy. The most significant competitive commodity is

Table 1  
There are Some benefits of cloud computing which are listed below.

<b>Increased Storage</b>	Storage and maintenance of enormous amounts of data is now a reality thanks to the massive infrastructure provided by cloud providers. Because the cloud can scale dynamically, sudden workload surges are also managed effectively and efficiently.
<b>Reduced Cost</b>	There are several explanations why Cloud technology is associated with cheaper prices. The payment approach is based on consumption; the infrastructure is not purchased, which reduces administration. The initial and recurrent costs are significantly lower than with traditional computing.
<b>Flexibility</b>	This is a highly significant trait. With companies needing to respond to changing business conditions even faster, delivery speed is crucial. Cloud computing places a premium on test the functionality to market as fast as possible by utilizing the most appropriate construction pieces for distribution.

knowledge, which allows a large number of security and K.M. practitioners to have sensitive data in the third-party development and access from all places. Due to its open and multi-tenancy common design, the cloud safety problem is a compounded so if an agent breaks into a cloud server or applications, it could possibly disclose all sensitive information of the client. The ERP, CRM and other company apps are still mission important, so presumably only the private cloud will remain on-site or relocate. Nevertheless, if the public cloud computing security measures are increased to the level of conventional networks, the tolerable risk level for their critical information may be better controlled by the businesses. This reasoning follows a method that extends from the private cloud architecture to evaluate, standardize, and implement high-security public cloud networks (see Table 2).

## 6. Overload of information

In the information continuum (data, information and knowledge), where large data and information pieces exist, namely, large data with true knowledge, there is worry. There is the correct combination of several technologies is important for addressing a learning organization's knowledge sources, yet leads to overwhelming information. Cloud computing enables production and storage of information easy and rapid. The overloading of data is generally achieved if the judgement is affected negatively, as the quantity of accessible data in a relatively short of time exceeds that of the decision-maker. The excessive quantity of knowledge impacts the quality of choice through confusion, ambiguity and extending the judgement horizon.

## 7. Differences in culture

The use of cloud computing is barrier-stricken since a data center may cover regional and national borders and civilizations. Cloud computing alone generates a cultural imperialism that encompasses all other current cultural organizations. As latter organizations are created, they also collision with cultural obstacles that might occur during the exercise of information. While organizations with their own fundamental peculiarity may actually be sui generis, cultural changes occurs when the new systems are launched. Cloud Computing may therefore develop its own fundamentally distinct culture, which disturbs daily operations and also a new set of questions linked to openness. It also interferes with

**Table 2**

The following table outlines the major advantages and constraints in higher education in cloud computing.

Benefits	Limitations
Enhancing functional capacities	Internet speed/availability might have an impact on work practices.
Help with teaching and learning	Observance of standards
Access to apps from any location	Solution maturity
Access to infrastructure and content is available 24 h a day, seven days a week.	Intellectual property, dissemination politics
Offline use with additional synchronization options	Sensitive data security and protection
Advanced research and exposure to the corporate environment	Organizational assistance
Increased student receptivity to new technology	Lack of self-assurance
Free software with a pay-per-use model	Risks associated with data security and protection, as well as managed services
Environmental protection through the use of green technology	Not all apps are operated on the cloud.

the physical manifestation and philosophy of traditional management techniques.

## 8. Applying cloud computing in business management

Many colleges such as the University of California, the Faculty of Electrical Engineering and Computer Science (Washington State University), UK, Africa, United States and others have been acknowledging the potential and effectiveness of cloud computing in higher education. Organization performance management may concentrate mostly on research and teaching than complicated IT setup and software systems by rapidly implementing IT in cloud computing. With cloud computing, complexity may be minimized. Cloud solutions may be utilized in addition, employing computer techniques to enhance collaborative learning and socially oriented learning theories. The provision of infrastructure, platform and training services via cloud providers directly and via virtualization, centralized data storage and detaches monitoring services provides numerous advantages for e-learning systems. Organization performance management employ measurement systems tailored to assess the effectiveness of cloud-based e-learning options to assure success in e-learning. There are now several cloud computing methods and examples. In the Commonwealth, for example, several schools and organization management worked on the development of the virtual computing laboratory in Virginia. This allowed organization performance management both to save IT expenditures and to retain their own Data Centers (by eliminating the requirements for licensing or software upgrading) as well as to increase research and student IT resources. The North Carolina State University's cloud services have significantly decreased its software license costs while reducing IT workers on campus from 15 to 3 with full measures indicated. A cooperative initiative designed to provide business continuity management services and also exemplifies the organization of higher education organization management to deliver cloud services.

The usage of cloud computing is a requirement and not an alternative for many colleges in the current economic situation. This is due to a number of variables, such as expenses, financial pressure, student achievement, institutional development and performance competitiveness. However, a recent research in higher education on cloud computing reveals that organization performance management may still be found in the early adoption phase with other industries such as government and business.

## 9. An organizational management cloud adoption method

Migrating to the cloud necessitates a well-defined plan that takes use of Cloud Computing features. Migration must be linked with the organization's IT strategy, as it is a key component of it. The viability of strategy execution is dependent on the presence of a service-oriented architecture at the institutional level that provides the required foundation for cloud deployment. Migrating to the cloud without SOA and BPM (Business Process Management) makes no financial sense because it incurs substantial expenses due to the re-engineering of existing systems. In addition, for the cloud strategy to be successful, it must be linked with the university plan. Based on current studies on the move to Cloud Computing and university experience with it, we propose a cloud migration plan comprised of the following stages:

- creating a knowledge base regarding Cloud Computing;
- assessing the university's current stage in terms of IT needs, structure, and usage; and
- experimentation with Cloud Computing solutions.
- deciding on a Cloud Computing solution;

e) Cloud Computing solution installation and administration

## 10. Cloud computing designs

There are three main types of service models. First, Software as a Service (SaaS), and then Platform as a Service (PaaS), offer colleges with tools and an environment in which to create, test, install, and adopt their own software and web-based applications in the cloud. Third, Infrastructure as a Service (IaaS), also known as Hardware as a Service (HaaS), delivers storage and compute services on a large number of servers on an as-needed and pay-per-use basis. Data Center, Bandwidth, Private Line Access, Servers and Server Room, Firewall, and Storage space are among the various storage devices. These cloud computing approaches assist organization management in doing activities more easily and with less effort. As a result, the performance is great.

## 11. Conclusion

Despite its detractors and downsides, Cloud Computing appears to be here to stay. The current economic scenario will compel an increasing number of companies to consider implementing a cloud solution. Organization performance management have begun to support this endeavor, and there are evidences that show considerable cost savings as a result of the deployment of cloud solutions. The goal of our research was to discover the unique characteristics of employing Cloud Computing in higher education. We primarily examined the dangers and advantages of cloud architecture and presented a cloud adoption plan appropriate for colleges. The study of data and the major activities that exist inside a university served as the beginning point for selecting a cloud model that should take into consideration the specific security needs of higher education as well as the available cloud solutions. A research of the level of acceptability and the implementation impacts of Cloud Computing will be conducted in the future. Both scholars proposed a solution to achieve performance excellence in higher education organization management. The proposed proposal characterization is based on a series of recommendations that address the impact of cloud computing on achieving performance greatness in higher education organization management. Performance excellence necessitates the use of unique and distinguishing conditions, as well as the knowledge of adopting innovative solutions to complex tasks, which is the primary goal of cloud computing.

## CRedit authorship contribution statement

**Worakamol Wisetsri:** Investigation, Writing – original draft. **S. Franklin John:** Conceptualization, Writing – review & editing, Supervision. **Arun B. Prasad:** Formal analysis, Data curation. **Shai-fali Garg:** Conceptualization. **Md. Khaja Mohiddin:** Writing – review & editing. **Bandi Bhaskar:** Writing – review & editing, Supervision.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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