CLOUD COMPUTING AND ACCOUNTING

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ABSTRACT

Dematerialization and migration transformation of accounting standards, documents, operations to cloud-based electronic platforms have overcome the research phase, which offers cloud computing based accounting applications. The digitalization increasing oscillations of virtual authenticity, the transformation of traditional business towards cloud-based solutions are underlying drivers of change that shape the definite philosophy of the global market. Accounting is the vital component of the structure of the business that sustains any enterprise's activity. The hub of the article is the impact of the cloud computing paradigm in the accounting domain. The research findings will give more prominent for companies in developing transformation towards digitalization in accounting domain. The economic ambiguity and information technology transformation are factors of change in business that leads to accounting changes in concept on operations of accounting transformation to a cloud system.

KEYWORDS: *Cloud Computing, Cloud Accounting, Dematerialization, Global Market.*

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Introduction

Globalization transformation of technology has encouraged the need for economic innovation in order to achieve performance and progress. Market fluctuations, as well as the consequences of the economic recession, stipulate that the organizational environment, especially for the case of small and medium-sized companies, constantly changes the business approach, to an extent that can even engage changes in the Visions and Missions of the business scope of activity. This constant change requires adjusting the organization's strategy, according to the glob changes regarding science, technology, and business, with impact on the key performance indicators of the business. The growing complexity of the business environment with technological and knowledge-based, along with superior rivalry at an international level and the declines of the business cycles are prerequisites that would challenge the accounting professionals with the continuous need for global accounting standards and practices. In this context cloud computing through fashioned novel business models. The collision of cloud computing is currently undisputed and will provide the basis for the future transformation of the economic field in the business world.

The accounting professional career must

Firstly, restructuring the data mining.

Secondly, change in accounting system: standards, processes, and staff.

Thus, the impact of future change includes all accounting reformation and financial reporting standards with a change in operation style or process and well Information Technologies (IT) skilled professional staffs. The following perspective presents a qualitative approach, the implications of cloud computing in the accounting domain. The study introduces the concept of 'cloud accounting'. Indian cloud Revolution through the Conceptual structure for a cloud policy in India, developmental opportunities, and voyage to the cloud with this an investigative research describes the benefits and possible risks determined by the adoption of these services in the accounting area.

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Literature Review

- **Actual Trends in Cloud Accounting**

The cloud computing means contribution computer hardware and software application programmes as services through the Internet. It allows users to store data and use applications through different devices located in several locations. A company's accounting should not be apart from the business itself, but it should rather be an integrant component, with an essential role in the business's dynamics. In order to achieve this objective, the accounting model should be 'co-developed', thus adding value both for the financial aspects and for the business itself. Today's in an Internet world, accounting model implies ease of access, customized and alliance, the use of the cloud computing. The basic principles that drive cloud computing, mutually shared activities carried out by accounting software companies, have led to the emergence of *cloud accounting*. This concept, also referred to as 'online accounting', involves the same pasture functionalities as an accounting software installed on the client's computer, but which actually runs on the Cloud Service Providers (CSP's) servers. Basically, it provides accounting services by means of cloud computing solutions. The 6 accounting generations and in that 4 accounting software generations, divided them into periodically, as below:

- **Before 1495:** Traditional Accounting - Single Entry System and all paper accounting work.
- **After 1495**: Till 1980's – Double entry system started
- The 1980's: The subsequent rapid evolution from paper-based accounting reports to spreadsheets on "Lotus 123" was as revolutionary towards double entry accounting system.
- **The 90's**: "Windows" age, user-friendly applications used for accounting journals and related reports are under the strict control of the client.
- **The 00's**: Remote Host computers access or integration using data stored locally or on servers "Saas"–multi-tenant applications based on databases storage and securities and simultaneously accessed through the web.
- **2010**: Present – Web / E-commerce / mobile / Cloud accounting software era.

- **The Indian Cloud Revolution**

The India Vision 2020 deed by the Planning Commission of India mandates that our vision of India's future opportunities should be both broad and harmonious; it envisages that: "By 2020, the people of India will be more abundant, better knowledgeable, healthier and more prosperous than any time in our extensive history" A prevailing set of catalytic forces is progress more quickly of social change throughout the world. Enabled by IT and riding on the back of telecommunications network, the Cloud can herald a myriad of solutions ranging from enabling telemedicine, setting up remote-classrooms, creating national citizens health and skills, knowledge-based education, databases and creating new Cloud-based services to industry for generating employment. The Cloud-based services can be leveraged by the Government to start new e-Governance initiatives faster and trying to avoid or costless overheads. A common Cloud platform will also facilitate local Governments and other public agencies to adopt e-Governance for better national services, without requiring the additional set up of significant IT infrastructure. The Cloud also presents an opportunity for India's IT Enabled Services (ITES) sector by opening up a new path of providing Cloud-based services to international organizations ranging from Software as a Service (SaaS) based application services, providing remote testing and prototyping services in addition to remote application hosting services such as Infrastructure as a Service (IaaS) and Platform as a Service (PaaS). However, on one hand, where Cloud promises to change the way Indian businesses and Government leverage technology to their benefit, on the other hand, it also presents significant challenges relating to security and privacy of information. The National Telecom Policy 2012 (NTP-2012) also acknowledges this and aims to "take new policy initiatives to ensure quick growth & diversification of new services and technologies at globally competitive prices by addressing the concerns of Cloud users and other stakeholders including detailed steps that need to be taken for lowering the cost of service delivery.*"*

Enterprise to Cloud to End User

In this product development, an enterprise is using the cloud to transformative data and services to the end user. When the end user interacts with the enterprise, the enterprise accesses the cloud to retrieve data and/or man oeuvre it, sending the results to the end user. The end user can be someone within the enterprise or an external client.

The Communication Models between the Accounting Company and the Client

The application is accessed through the web browser, over the Internet. The customer's data is securely stored and processed on the provider's servers - 'in the cloud'. Therefore, the ownership of the

intellectual property belongs to the CSP, while the client is only able to use the application and cannot take possession of it. All that is required is an Internet connection and companies can access their financial data from any device from anywhere in the world.

- **Service Models:** Cloud computing providers offer their services according to three fundamental models:
    - **Software as a Service (SaaS):** The consumer uses an application, but does not control the operating system, hardware or network infrastructure on which it's running.
    - **Platform as a Service (PaaS):** The consumer uses a hosting environment for their applications. The consumer controls the applications that run in the environment but does not control the software, hardware or network infrastructure on which they are running.
    - **Infrastructure as a Service (IaaS):** The consumer uses "fundamental computing resources" such as processing power, storage, networking components or middleware. The consumer can control the operating system, storage, deployed applications and possibly networking components such as firewalls and load balancers, but not the cloud infrastructure beneath them.
- **Software Delivery Models**
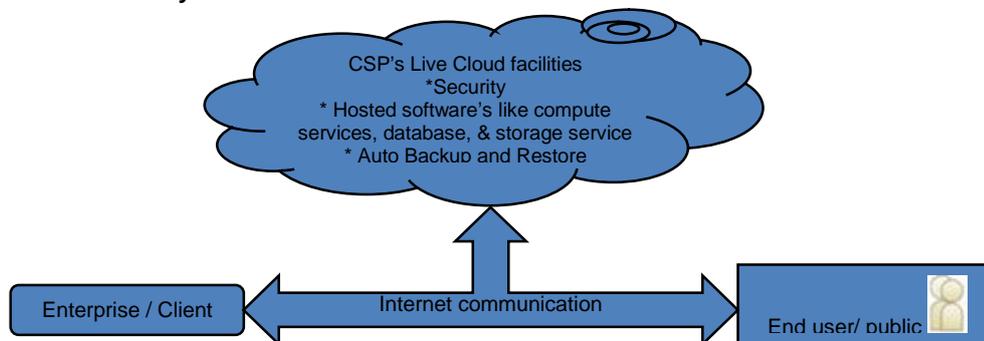
- **On-premises Direct Handling:** The Company purchases or produce in-house a certain software product, which is installed and run using the company's Servers. Those companies, that organizes of the necessary IT infrastructure, capital investments, and considerable knowledgeable skilled experience in support and maintenance of such software applications.
    - **Hosted Solutions or Remote Controlled Data Centers:** The software is physically placed in a remote data center, and run by a third party hosting service provider or Company IT department.
    - **Cloud Computing:** Also known as Software as a Service (Saas), is a new type of business applications specially-built for the Internet age. The supplier of the application develops a combined, scalable system, which is accessed by its users through the internet, without any prior acquisition or installation of hardware resources. Updates are performed on a habitual basis by the cloud vendor.

Benefits and Prospective Risks of Cloud Accounting

The world of accounting software is quickly shifting towards cloud computing. A lot of accounting software vendors, as well as providers, have already moved their products to the cloud and facilitate different forms of cloud accounting solutions. Large accounting companies like KPMG, PricewaterhouseCoopers, Ernst & Young, Deloitte, Sage or SAP have each presented their own cloud offer and also published White Papers that present the benefits and functionalities provided through different types of services. A list of cloud accounting solutions would also include Financial Force.com, Net Suite, Microsoft Office 365, Fresh Books, Liquid, QuickBooks Online, MYOB, Xero, Aqilla, Mint.com or Wave accounting, every one ensuring specific or custom-made functionalities with changes required by users. The cloud accounting market is a foundation to rise by delivering solutions that are seriously worth taking into account.

- **Benefits of Cloud Accounting:** Accounting software is taken into a whole new dimension through cloud computing. Doing accounting in the cloud generally implies that everyone in the client company can access the same financial data, at the same time, from different locations,

with a certain set of applications that are provided through an Internet connection. The advantages assured during the use of cloud accounting cover the following areas:

- Reduced costs, no need for upfront capital expenditure for in-house IT equipment or software licenses. Software applications and storage space can be rented and the service is paid for through a monthly fee.
- Geographically unlimited access through remote network access – a form of 'ubiquitous computing'.
- Increased performance through enhanced business agility and flexibility
- Unlimited data storage, processing capacity & automatic backup for the customer's data.
- There are no upgrade fees and User-friendly
- Real-time data accessibility from any part of the world.

- **Institutional Challenges**

"The decision to embrace Cloud computing technology is a risk-based decision, not a technology-based decision". In addition to the data security and privacy risks inherent in Cloud technology, its characteristics and features also elicit a number of institutional challenges and considerations that must be taken into account:

- **Data Subject and Jurisdiction:** The question of sovereignty and jurisdiction over data in the Cloud has been a source of frequent and persistent tension between providers and regulators throughout the world. The location of the data center does not always necessarily determine the applicable laws; there could be additional factors such as the principal place of business.
- **Location, Licensing, and Registration:** Despite the obvious jurisdictional benefits created by a Cloud provider's decision to process and store data within the country it operates, India hosts a far smaller number of data centers than its size and technological human capital might suggest. One industry website lists 36 privately-owned data centers available in India, which puts it on par with Italy (33) and Switzerland (36) but far behind other developed countries such as the U.K. (144), Germany (127), France (96) and the US is the clear industry leader with well over 1,000 servers listed. The United States, Canada, and Germany scored highest, while both India and China scored poorly despite their size, natural resources, and economic strength. In the context of Cloud-related FDI, this concern naturally relates to a hesitation about the transfer of technology and other side-effects of transnational investment, providing a further barrier to growth. With regards to licensing for operations in the country, companies are likely to be sensitive to the interplay between compliance requirements within India and their other obligations to customers and regulatory authorities in their own jurisdictions. The decision of how to classify and define liability for CSPs (e.g. as intermediaries under the IT Act) also has an impact, and will likely depend on the type of service being offered.
- **Effect of Corporate Business Strategy:** Corporations' decisions in terms of acceptable levels of risk, the relative importance of transparency, cost efficiency, and security are all interdependent determinants in transition to the Cloud. In addition, Cloud computing will affect an entity's manner of conducting its business. Use of the Cloud will mean an entirely new way of doing business resulting in new back to back contracts with CSPs, clients etc; new supply chain arrangements which have been discussed later and new guarantees to ensure control over their operations on the Cloud. Some estimates suggest that Cloud computing will create 100,000 jobs in India as against 10,000 as of now.
- **Financial Intermediaries' Interplay:** Banks, credit card companies, and other financial intermediaries represent an area of relatively slow growth in Cloud computing, primarily because the security risks of Cloud-based transactions are particularly unacceptable to such institutions. Cloud providers' Service Level Agreements (SLAs) often provide inadequate protection in terms of liability, and even if they did, banks-not service providers-would be ultimately liable for the loss suffered by their customers. The Payment Card Industry's (PCI) Data Security Standard-used by the five largest credit card companies as the basis for their security policies-requires that secure transactions take place on logically separated computing infrastructure.
- **Loss of Governance:** Whereas companies with in-house infrastructure could previously control each aspect of the IT stack, from physical security of the server or hard disk to the access and authentication controls on individual devices on the network, outsourcing services to CSPs necessarily involves a loss of some of this direct oversight. The governance-related risks

continue to play a large role in the decision to migrate to the Cloud, particularly where sensitive data is concerned.

▪ **Supply Chain Guarantees:** Virtualized IT processes can interact such that multiple intermediary companies provide Cloud-based services to each other-whether infrastructure, platforms or software as a service-as well as the end-user. Depending on the placement of the service purchased by the end user in the stack, their provider may be more or less dependent on a contractor's underlying infrastructure.

Are the Premises Prospects towards Cloud Accounting Paradigm?
Table 1: Traditional Accounting vs. Cloud Accounting Software

	Server Based Software's (Traditional Accounting)	Cloud Computing Based Accounting
Setup Cost	Very High for Capital Infrastructure	Monthly / yearly fee for maintenance
Accounting software licence	The company is the owner Software: Produced in-house by IT Team Software: Purchased	The company is the tenant
Number of users	License limited for users to use	Limitless–any number of users can use
Customization	Time and resources consuming	Easily customizable
Upgrade	Yearly (in general)	Frequently (monthly, in general)
System location	Process location or Chosen by the company	Cloud
Hardware	Provided by the company	Included
Windows & SQL Server	Provided by the company	Included
Maintenance costs	Separated	Included
IT resources	Provided by the company or outsourced	Not necessary
Technical support	Operations remain under the responsibility of the IT Department and additional challenges	Provided by vendor
Accountability	Complex, split between the hosting vendor & the software developer. Operations remain under the responsibility of the IT Department	Accountability is concentrated towards the service provider

• **Migration to the Cloud**

This sentiment has been echoed in multiple guidelines for the adoption of Cloud computing, all of which call for a careful assessment of the risks and benefits of Cloud computing before making the shift. IT security industry leaders recommend virtualizing the agencies' internal operations before moving to a private Cloud and ultimately considering a hybrid or public Cloud deployment options for some services. The best practices models provided by ITIL and the ISO 27000 series also provides a useful, more general framework for structuring the transition. The challenges facing governance in India are well-suited in many respects to solutions offered by Cloud-based services. This is particularly true with regard to e-governance initiatives aimed at engaging the public-both receiving input and administering regulations-and the delivery of social welfare programs. One of the strategies of NTP 2012 is *"To promote synergies between roll-out of broadband and various Government programs viz e-governance, e-panchayat, MNREGA, NKN, AADHAR, AAKASH tablet etc."* It further emphasizes that "Cloud computing will significantly speed up design and roll out of services, enable social networking and participative governance and e-Commerce on a scale which was not possible with traditional technology solutions. The India Vision 2020 document states that "India's economic and technological transition will be accompanied by a multifaceted political transformation that will have the profound impact on the functioning of Government. This transformation will foster decentralization and devolution of power to local bodies, including financial devolution and financial responsibility; increasing direct participation of people in setting grass root priorities for distribution of resources, and building and managing local projects; and greater efficiency, transparency, and accountability in Government agencies at all levels. E-governance has the potential if fully harnessed and rightly utilized, to radically improve the speed, convenience, quality and transparency of public administrative services, while enhancing the ability of individual citizens to express and exercise their democratic rights.*"* The NTP-2012 also supports the above by stating, *"Strengthen the institutional, legal, and regulatory framework and re-engineer processes to bring in more efficiency, timely decision making and transparency."*

Real-World Examples of Migration to Cloud

There are many resources available in India including Indian Cloud service providers and industry bodies to enable organizations to migrate to the Cloud.

Catalogue of services offered by Indian Cloud Service Providers (CSPs)

Service	Remarks
Cloud Enablement	Cloud related services such as: • Migration • Deployment • Planning • Consulting
IaaS	On-Demand Virtual Servers • 99.995 percent uptime • Tier 4 data centers
PaaS	Providing a cloud-based development platform for building business applications and deploying them on public or a private cloud
SaaS	A wide range of software delivered as a service via Cloud ranging from Email, Productivity applications, Business applications, Collaboration applications, ERP, CRM, Core banking etc. These CSPs cater to a wide variety of customers ranging from SMEs to large enterprises.
Private Cloud	Catering to Indian enterprise sector with a dedicated pool of computing resources.
Cloud Telephony PaaS	India-based telephony platform in the cloud. It is the simplest and easiest way to build telecom applications, IVRs, office PBX and outbound campaigns and deploy them on the Cloud.
ITaaS–Cloud-based IT as a Service	Covers the entire spectrum of business processes for SMBs. Domains included are: • Manufacturing • Wellness • Retail • Education

Thus, we see that the Cloud presents a unique opportunity to India to be able to leapfrog the IT enablement revolution by directly adopting Cloud-based services, similar to the telecom revolution in India wherein we skipped the wire line network growth and leapfrogged directly to the large-scale adoption of the mobile phone based network.

- **Conceptual Framework for a Cloud Policy in India**

Governments in Asia are looking at Cloud services to bring in efficiencies in their ICT (Information and Communications Technology) usage. They are looking to enhance their own ICT infrastructure and reduce ICT spending while doing so. The NTP recognizes the need to "To promote Research and Development, Design in cutting-edge ICTE technologies, products and services for meeting the infrastructure needs of domestic and global markets with a focus on security and green technologies."

Service Pre-requisites

The Government needs to specify minimum baselines for acceptable standards with respect to security and governance for Cloud services offered by CSP's. The policy framework under which the Cloud will operate has to be defined in terms of the ownership and control of the data that would flow or reside in the system, or data sovereignty, the network, and availability of infrastructure to facilitate the establishment of physical data centers in India.

Data and Network Sovereignty

- **Ownership and Control of Data:** Provisions related to ownership and control of data will depend on the form of the Cloud, i.e., whether the Cloud is a private Cloud or a public Cloud, and whether the Cloud has been established in India, and the type of data being stored or transferred to the Cloud.
- **Ownership and Control of Network:** The network will be the pooled resources used in the creation of the Cloud and includes the virtual machinery. While large parts of the network such as telecom services and internet services will be governed by their respective licenses and industry standards, the Cloud policy should facilitate the classification of certain key networks and systems.

- **Privacy and Security of the Data:** While data ownership lies in the hand of the owner or provider of the data, data security and privacy is the responsibility of the CSP. The policy should allow room for the development of a negotiated protocol between the end user and the CSP which would be appropriate for the use of the Cloud.

Conclusions

Through conceptual approach presents a new notion the "cloud accounting" concept by including information from both accounting and advanced IT fields. This miracle is still in a development of transformation of digitalization and many of them have not even heard about this solution. Due to high argue on a deliberate execution of cloud computing among SMEs, it is crucial to choose the accounting practitioners awareness, as they are the fashionable resource of external recommendation and support for companies with the regards to accounting know-how. The article recommences the evidence available on this subject and brings forward a broad point of view regarding the meaning, benefits and prospective risks involved. For this study, the possible restrictions, that it should state the fact that the "cloud accounting" concept is still in an embryonic for India. In the meanwhile, for tiny companies, this is an actual tool used to leverage their business strategy and create real benefits. This is why we emphasize the importance of this "resource" and promote an extended research on this theme.

This paper does not recommend unfolding a comprehensive study and then have analyzed the subject from my personal work experience point of view as much as possible and from secondary data. I have the interest to do future studies on cloud accounting, not just theoretical, but also empirical, in order to find out the real value of this solution. When referring to the accounting domain, we could say that, for a very long period of time, innovation has been going with a little step forward. However, in the last few years, the advancement of certain ideas has once again resolute a change in the customary accounting paradigm. Yet, the most outstanding concept, that has a transformation of providing accounting tools, is cloud computing. The world of bookkeeping is changing towards online bookkeeping or auditing practices. The frequent benefits of the cloud services have proven that a technological revolution is undoubtedly necessary for companies' accounting department. The pioneering way of designing, managing and providing financial and accounting packages execute in the "cloud computing era". The paybacks of a cloud accounting clarification are significant and enterprises should do the uninterrupted transformation of progression in every field.

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