A Research Perspective on Application of Cloud based Enterprise Resource Planning for Building Futuristic Organisation and Deliverance of Return on Investment

Abhijit Ganguly *[Ph.D.]
Director, Organisational Consulting at Quanttrain Consulting (UK) Ltd.,
London, UK & Toronto, Canada

Abstract
The remit of this article is to explore how technology acts as a catalyst and an enabling tool for organisational growth, sustainability and deliverance of Return on Investment (ROI) in a hyper competitive and volatile business environment. Application of right technology at right time and right cost is the building block of a future ready globally integrated organisation. Therefore, author endeavours to present a research perspective on the impact of cloud based information technology solution to an organisation’s business process architecture and management to make the organisation future ready by making it more flexible to scale up and integrated. Author also presented a perspective as to how adoption of two tier approach of Enterprise Resource Planning (ERP) in cloud based technology platform can help organisation to be future ready by being more competitive and growth oriented. The success of tomorrow’s organisation lies in architecting the processes and systems which will make it highly flexible to adapt and innovate better and faster than the competitors and ensure deliverance of ROI. Therefore, it is critical to apply latest technology driven business processes in an integrated manner so as to enhance the scope of value delivery to customers and other stakeholders. This article will help the reader to develop a perspective and make a business case on application of cloud based ERP for making the organisation futuristic.

Keywords: Business Process Architecture, Cloud Based Platform, Enterprise Resource Planning, Future Ready, Return on Investment, Seamless Integration

1. Introduction
Increasing complexity of future technology is continuously challenging organizations to anticipate change and adapt faster. In this fast shifting digital economy companies are striving to gain sustainability in the industry. Technological advancement and transformation provide improved agility and velocity, increase reliability and support, and enhance cost efficiency which is the greatest concern for reducing complexity and increase business value.

*Author for correspondence*
huge investments in ERP sometimes results in ineffective operations. Global economic meltdown and increasing competition influences organizations for upgrading and maintaining existing On-Premise ERP and make them more customized to address the needs to adapt to a evolving environment and in the process adds investment burden. Small & Medium Enterprises find it harder to sustain these relentless pressure to reduce the increasing costs and meet the business challenges of being more agile than the competitors. Therefore, Two-Tier approach can be a compelling business strategy and an agile solution. The inherent problem with On-Premise ERP is that it cannot be upgraded in short time span and therefore suffers from lack of agility which is the key reason for organization running On-Premise ERP Systems might migrate to adapt Two-Tier ERP for the functional units.

2. Conceptual Framework and Research

2.1 Enterprise Resource Planning (ERP)

Enterprise Resource Planning (ERP) is a comprehensive, packaged solution seeks to integrate the complete range of a business’s processes and functions in order to present a holistic view of the business from a single information and IT architecture. In terms of solutions, a visible distinction can be made within the traditional ERP as On-Premise and Hosted ERP. On-Premise Solutions are loaded onto servers and in-house computers. These solutions are acquired via license model where as Hosted ERP Solutions provide services to an individual or organization by hosting the physical servers and running the service somewhere else. Hosted services are offered through a direct network connection that may or may not run via internet.

2.2 Cloud-Based ERP

Cloud-Based ERP Solutions are delivered via the Software as a Service model. It is important to note that some ERP solutions that are marketed as 'cloud based' are in fact hosted ERP solutions. True Cloud-Based ERP Systems are implemented with the characteristics of clouds. A common browser can easily access these systems via an Internet connection and have less dependency on client configuration. Therefore, Cloud ERP is an cost effective approach to enterprise resource planning (ERP) that makes use of cloud computing platforms and services to provide an organisation with more flexible business process transformation.

2.3 Common Similarities and Differences in On-Premise ERP and Cloud-Based ERP

2.3.1 Cloud-Based ERP

In this approach clients are responsible for internal business processes whereas Information Technology and Support for business processes are Software Solution Provider’s responsibility. In these software solutions, the applications are run on the server of solution providers and with the common code line and data definitions which can be delivered to many following a One-to-Many approach. Also these software solutions are provided on registration and subscription base model (Gartner, 2006).

2.3.2 On-Premise

Clients are responsible for the business process as well as Information Technology and Application Support in this approach. In these software solutions applications depends on the facilities provided by the clients for support and they are delivered unique codes to run them. Registration, subscription, or pay-as-you-go model cannot be utilized (with some exceptions) in this approach as these contracts are formulated on longer contracts and licenses (Gartner, 2006).

2.4 Return on Investment Deliverance through Cloud-Based ERP Solution

A company which desires a Return on Investment (ROI) from an ERP investment firstly requires a strong position

<table>
<thead>
<tr>
<th>Table 1. Similarities and Differences between the Responsibilities of On-Premise and Cloud-Based ERP Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processes</td>
</tr>
<tr>
<td>Inputs</td>
</tr>
<tr>
<td>Processes</td>
</tr>
<tr>
<td>Outputs</td>
</tr>
<tr>
<td>Technology / Support</td>
</tr>
<tr>
<td>Location of Technology</td>
</tr>
<tr>
<td>Multiple Customer Support</td>
</tr>
<tr>
<td>Registration / Subscription Model</td>
</tr>
</tbody>
</table>

Source: Jim Holincheck
in the industry, however, the direct relationship in investment in ERP and ROI is rather complex. For example managerial judgment plays a significant role in decision for ERP investments but their beliefs for potential benefits vary from operational and tactical to strategic. It is hence imperative to understand the purpose of investment in ERP and managerial perception while making ERP investment decision.

Measuring the success of ERP optimum utilization efforts on regular basis is critical. Companies therefore categorize and institute performance measurement practices. Focus is gradually shifting from investments in either On-Premise ERP or Cloud-Based ERP Solutions to the ROI it provides. For any ERP initiative, communication from senior management pertaining to vision, strategy and opportunities for business transformation, and tangible and intangible ROI are critically analyzed. Even Cloud-Based ERP implementation requires extensive involvement of executives and strategy formulators. Organizations often give less importance to process re-engineering while taking a decision for Cloud-Based ERP. ERP implementation is an on-going process that practically doesn’t ends. During the implementation of ERP System various changes and activities transpire in the organization which makes it impossible to isolate solely the benefits derived from the system. Implementing an On-Premise ERP System can take up to five years and usually do not show many positive figures on that scale; therefore many organizations choose not to measure ROI. In financial terms ROI is not certain even after completing the implementing process.

Cloud-Based ERP on the other hand serves as a facilitator as taking shorter implementing time period. But it is suggested to carry out ROI assessment to have a clearer view of the whole project as investors of ERP prefer to have an estimate ROI before pursuing the investment for ERP. The simplest calculation of ROI is to “Divide the value of Net benefits associated with the ERP Project by the implementing cost of it”. Also another simpler way of calculating ROI is “The Expected Savings in the Inventory and other costs compared with the Total Implementation Cost of ERP Project”.

2.5 ERP Transformation Process

Transformation is a key to success in this evolving digital economy. Transformation of technical ERP Platform along with the business processes can create a more agile and cost-efficient ERP Environment that could support a high velocity business. Transformation in ERP can be achieved by developing an idea of end state of ERP System. A vision of horizontal and distributed systems where components can be reused across business processes can be developed. Components such as tax-calculator and other company evaluations can be standalone but other business processes such as order-taking and procurement can be shared and utilized in different ways and in different order. A transformed ERP System features components that can be used by multiple business processes and a consistent base of master data that supports business intelligence applications (Figure 1).

2.6 Two-Tier ERP

Implementation of ERP is not necessarily be either least complex or with lowest total cost. Best ERP Model is the one that fits an organization’s specific structure and critical industry challenges. A three dimensional ERP approach thus can be considered that integrates and provides a single platform for people and processes in order to meet

![Figure 1. Transformation of ERP system. Source: IT@Intel White Paper, (2012)](image-url)
companies objectives in almost every industry (Figure 2). An ERP Solution leveraged by Cloud-Based Application that enables organizations to deliver functions and services required by employees and business partners is called Two-Tier ERP.

Two-tier ERP approach helps organizations swiftly deploy and integrate new processing capabilities at subsidiaries or smaller business units that can be seamlessly integrated into the core on-premise ERP backbone. This approach significantly reduces the time and cost required to implement, support and maintain ERP capabilities. Two-tier ERP does not replace on-premise ERP but instead complements it with more agile, flexible and lower cost Cloud-Based ERP. On-premise ERP still provides the standardization and consistency for back-office systems of record for processes such as make-to-deliver and record-to-report that are vital for efficient operations, regulatory and legal compliance, and consistent quality (Figure 3).

Main purpose of implementing ERP should be bringing an improvement in alignment between IT infrastructure and business conducts rather forcing the business operations to into the ERP portfolio applications. Flexible and innovative systems therefore need to be implemented to support and automate new processing capabilities. These systems can facilitate global visibility, process efficiency, and standardization in the digital economy.

Cloud-Based ERP besides maintaining and supporting On-Premise Application also can also provide an organization penetrate new market segments and geographies while retaining business agility, flexibility, and achieve low cost ownership and standard business processes. Through Cloud-Based ERP links to new acquired businesses can be established. Core businesses of a business can be focused more by keeping them On-Premise while other processes can Cloud-Based enabled.

Cloud-Based ERP when integrate with On-Premise ERP provide provides all the required capabilities a

<table>
<thead>
<tr>
<th>INPUT</th>
<th>WORK STEPS</th>
<th>OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current &amp; Future Business Strategy</td>
<td>1. Set Business priorities / goals, and high level Requirements</td>
<td>High level requirement set</td>
</tr>
<tr>
<td>Existing ERP Landscape</td>
<td>2. Determine Scope</td>
<td>Two-Tier VS On-Premise Platform</td>
</tr>
<tr>
<td>Existing Subsidiaries, ERP, and other Applications</td>
<td>3. Confirm Assumption</td>
<td>High Level Evaluation process and criteria for Cloud-Based ERP Selection</td>
</tr>
<tr>
<td>Interview Key Stakeholders</td>
<td>4. Identity Two-Tier ERP options and baseline Costs</td>
<td>Approach / Recommendation and roadmap</td>
</tr>
<tr>
<td>Executive Leadership Expectation</td>
<td>5. Develop a high level business case</td>
<td></td>
</tr>
<tr>
<td>Access Cloud ERP Vendor Landscape</td>
<td>6. finalize recommendation of Two-Tier ERP architecture, as well as high-level development and change management plan</td>
<td></td>
</tr>
</tbody>
</table>

Figure 2. Two-Tier ERP – A Representative Approach. 
Source: Manish Gupta®
business desires that is considerably less expensive, easier and faster to deploy than On-Premise alone. This collaboration facilitates rapid piloting of ideas, easily scalable solutions, and faster and cost effective expansion into the new markets. It also provides customer service via digital channels and makes it easy and less expensive to support local language, tax code, currency or regulatory requirements.

2.7 Two-Tier ERP – A Future-Ready Organization Tool

Any SME or MNC can be Future-Ready in the upcoming IT advancement and business challenges by initiating to implement a Two-Tier ERP Strategy. Following are the main IT challenges that can be faced through a Two-Tier ERP Strategic tool:

2.7.1 Modern Applications
Enterprises considering an application modernization strategy can use two-tier ERP to continue operating efficiently while adapting to rapidly changing business needs.

2.7.2 Rationalized Application
Organizations can deploy on-premise ERP to support core corporate functions while deploying cloud ERP for market-facing functionalities.

2.7.3 New Application Requirements
Cloud ERP can complement on-premise ERP with next-generation disruptive technologies, such as Web services and process integration libraries, to enable applications that operate anytime, anywhere.

2.7.4 Cost Reduction
Cloud ERP shifts responsibility from the customer to the vendor for upgrades, patches and other functions. Cloud ERP also reduces total cost of ownership by eliminating the need to purchase servers, storage and network capability for on-premise systems.

3. Conclusion

Cloud based ERP and a flexible application of Two-Tier ERP is gaining increasing prominence as organizations seek greater value and flexibility from the core systems of their businesses. Organizations with multiple subsidiaries stand to gain comprehensive, cost effective and highly customized business solutions, agile, and innovative through Two-Tier ERP Strategy that is not possible to achieve by adopting a standardized On-Premise ERP. Succession lies in the selection of right ERP Solution that furnishes comprehensive functionality, high adaptability and flexibility, robust, configurative, maintainable, and reduces TCO (Total Cost of Ownership). Two-Tier ERP Strategy promises to deliver the right solution. Cloud based ERP helps an organisation specially SMEs to address the investment issues and to play to strengths. Thus, empowering organisation to help unlock the business potential by offering a flexible and cost-effective option for small and medium-sized businesses and offers extensive benefits for growth and expansion such as:
A Research Perspective on Application of Cloud based Enterprise Resource Planning for Building Futuristic Organisation and Deliverance of Return on Investment

• Option to scale up and grow which reduces businesses’ total costs and improves Return on Investment
• Relief from IT constraints as it high-level security and privacy, easy accessibility and integration
• Flexibility and mobility as data remain in the cloud
• Innovation Scope brings new features and functions

4. Recommendations

Two-Tier ERP Systems are the best in both the worlds of On-Premise as well as Cloud-Based ERP Solutions. Continuous growth in large organizations results in growing new subsidiaries, acquiring new markets and geographies. In order to run the new entities efficiently and to get a real-time visibility in operational performance, main concern is “How to integrate the new business operations with the existing?” that requires years long implementations, configurations, and involve huge investments.

Two-Tier ERP Business Model allows organizations to preserve their On-Premise investments while integrating the global subsidiaries with a more flexible and agile Cloud-Based ERP. By adopting Two-Tier ERP Approach, headquarters get the visibility required to measure global operational performance at an affordable price. Two-Tier ERP Applications are recommended as:

• Twice as Fast: Embedded Cloud-Based ERP provides twice as fast as standalone On-Premise ERP System that is easy to use, speed the growth, and customize the subsidiaries.
• Half the Cost: Various studies have estimated TCO for Cloud-Based ERP as half the cost of On-Premise ERP.
• Double the Visibility: Cloud-Based deployment increases the oversight of subsidiaries by providing anytime and anywhere accessibility. It also provide an in-house control over the global subsidiaries through consolidated visibility.

5. References