HR Transformation Milestones

– Enabled by Technology Platforms

Platform-as-a-Service (PaaS) - the enabling technology for HR transformation

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CONTENTS

Introduction ................................................................................................................................................. 3

The Role of Platform Infrastructure ........................................................................................................ 3

HR Business Transformation ......................................................................................................................... 3

Pre-Mainframe .............................................................................................................................................. 4

The Mainframe Computing Platform ....................................................................................................... 5

Personal Computing Platform .................................................................................................................... 6

Cloud Platform ........................................................................................................................................... 7

About Platform-as-a-Service ....................................................................................................................... 8

PaaS - Key Attributes & Characteristics & Force.com Capability ............................................................... 9

Status of PaaS Adoption ............................................................................................................................. 10

Industry Analyst Views ............................................................................................................................... 11

Companies Evaluating PaaS ....................................................................................................................... 11

PaaS Products being Evaluated ................................................................................................................. 12

Conclusion .................................................................................................................................................... 12

About the Author ........................................................................................................................................ 13
Introduction

In the last 50 years there have been great advances in technology and most have contributed to improving the way we do things in HR, but to achieve true HR transformation we expect to see outcomes that include fundamental change to the business practice. Individual technologies have not been able to transform the business, but when a computing platform, supported by infrastructure and an ecosystem, emerges then transformation happens. The first example was the introduction of the mainframe computing platform (1960s) and then the personal computing platform (1980s): Both transformed the way processes were performed, organisations were structured, and the changed the way organisations communicated. There have been plenty of technology advances along the way that have improved HR processes such as the internet, self-service, workflow, SaaS, mobile devices, social media, etc. but alone they have not transformed the business.

We are now seeing the emergence of a third milestone enabled by Cloud-based hosted infrastructure and the creation of a new computing platform. The Cloud platform delivered as a service (or Platform-as-a-Service (PaaS)) brings together all of the technology advances and presents them as an independent computing environment for business users. Platform-as-a-service (PaaS) is the next technology milestone to enable HR transformation. This White Paper outlines the technology behind the next platform milestone and describes the nature of change and expected business outcomes.

The Role of Platform Infrastructure

So far, with each technology milestone enabling HR business transformation it has been the underlying infrastructure (hardware, servers, network, and database storage) that has created a new environment and produced a new platform (application development, delivery, integration and communication) technology. The mainframe platform was usually deployed from infrastructure hosted on the company’s premises in their data centre. The personal computing platform had its own mini version of the infrastructure delivered on the desktop, but with limited computing capability. Now we have the Cloud platform with infrastructure hosted by a remote service provider and delivering all the power and capability of the mainframe, but with all of the independent computing features of the desktop environment.

HR Business Transformation

Platform-as-a-Service (PaaS) is expected to emerge as the next technology milestone in HR transformation. It will enable HR to transform the way they do business: They will still do the same things only with different resources, skills and with improved levels of efficiency. The following diagram identifies the major technology milestone and describes the business impact from an organization, records management, software, business process, communication and ability to produce workforce analytics perspective.

The diagram and following narrative also describes the competitive edge that companies could expect by adopting the technology and implementing the change opportunities.
In order to understand the impact of the first technology milestone it is helpful to get an overview of what the business was like before technology or pre-mainframe.

**Organisation**

*Labour intensive, clerical positions, and rigid org structures*: Before the first computers became part of the HR mainstream business practice, and supported HR business processes, companies usually employed large numbers of clerical staff to perform the duties that later became automated. Organisations were often structured along military lines and followed a strict hierarchy of reporting relationships.

**Records**

*Paper-based, record cards, personal files*: Information about employees was usually kept in trays of record cards with basic personal information and job history. More detailed information was kept in personal files, such as an application for employment form, any disciplinary action, leave forms, and so on.

**Software**

No software
Business Processes

**Calculator machines, typed reports:** Almost every process, including payroll, was supported by calculators and delivered with typed information. Workforce metrics were manually compiled from Staff Movement forms and most HR transactions involved multiple copies of forms. There was a form for almost every event in an employee’s employment cycle.

**Communication**

**Typed memos:** All forms of company/employee communication required a typed memo, with a copy for the employee and one for the personal file. Secretaries with short-hand skills were often used to take dictation and then type up the memo from their notes.

**Analytics**

**Manually complied statistics:** Information used for analysing company performance was compiled from manually constructed reports and was usually months behind the events. Real time information needed for strategic decision making did not exist.

**Competitive Edge**

**Staff efficiency:** Companies that practiced a culture of efficiency and accuracy were able to perform work faster and with fewer people. The result was measurable through less labour costs and greater output.

**Retention of key staff:** The learning curve associated with semi-manual tasks was greater because complex tasks took longer to learn. Retention of staff, once fully trained, was critical. Replacement of staff through newspaper advertising and reference checking usually took a long time. Low labour turnover figures indicated a competitive advantage.

**Staff organisation & scheduling:** Companies who were able to better manage their staff through optimum scheduling of resources were able to avoid surplus staff or under-utilisation.

**Process efficiency:** Techniques were often used to measure time and motion associated with processes and steps were identified as being able to be performed more efficiently or eliminated altogether. Business process management gave a definite competitive advantage.

The Mainframe Computing Platform

With the introduction of computerization the HR business was transformed in almost every area of operation. The new era of automation impacted the composition of the workforce, the type of skilled needed and changed forever the way administrative tasks were performed.

**Organisation**

**Skilled programmers & computer operators, large payroll teams:** With mainframe technology there became a whole new category of employees with new skill sets. Organisations were suddenly confronted with new organisation models that introduced hosted services, including payroll.

**Records**

**Centralised computerised record cards, personal files:** Computer systems initially did not eliminate record cards or personal files but transferred the information into an electronic format for aggregated reporting.
**Software**

*IT managed monolithic systems*: The nature of software was large monolithic systems that created silos of information and was totally owned by Information technology (IT) units. Systems were programmed in such a way that any alteration was a major event.

**Business Processes**

*Data entry transcripts, automated timekeeping*: Although introducing a new level of efficiency early mainframe systems, with transcript input from data entry operators, required a large commitment to collect, input and check employee information.

**Communication**

*Typed memos*: Secretaries continued to take short-hand notes and type menus.

**Analytics**

*IT produced reports*: A new level of efficiency was achieved in extracting information from the mainframe database. End user reporting was enabled through specially designed reporting tools and made available to business units because they knew the data best and could verify output and ensure accuracy and correct record selection.

**Competitive Edge**

*Automated payroll*: Companies using mainframe computers to process payroll could achieve a better outcome must faster than their competitors and could justify the technology investment.

*Technical skills*: Companies who were able to attract and retain the most skilled programmers and business analysts could expect to have the best and most efficient systems.

*Computing capacity*: In the early years when computer capacity was doubling at a rapid rate the companies with hardware that could process information faster had an advantage over companies that took longer to produce information or found the volume of data beyond the capability of their installed computers.

*Less staff*: Companies that could leverage their investment in technology to reduce the number of staff needed could expect a competitive advantage through lower costs.

**Personal Computing Platform**

The era of desktop computing, and the second transformation milestone, produced the first Independent Computing Platform (ICP 1.0)

**Organisation**

*Smaller workforce, less dependent on back office support*: The Microsoft Office tools meant greater independence for employees and managers to produce their own documentation and perform their own data analysis. Whole categories of the workforce disappeared, along with traditional skill sets. Large groups of similar skilled employees were organised into service centres.

**Records**

*Centralised & distributed records, personal files*: Employee information could now be recorded on mainframe or PCs and accessed remotely or on a person’s desktop computer with a more user friendly environment. The need for personal files was downgraded and many companies went paperless and stored images of important documents.
Software

Internet access, HRMS, standalone desktop apps: Browser access to information and the new desktop environment enabled a whole new generation of computer software, and utility products designed for end user computing.

Business Processes

Word processing & spreadsheets: New levels of productivity were achieved through the use of products like Excel and Microsoft Word. Self-service emerged for direct entry to HRMS, along with workflow to expedite processes and eliminate steps.

Communication

Emails: Typed memos were replaced by emails and documented communication moved into a new level of efficiency.

Analytics

Spreadsheet analysis of data: The ability to transfer data between systems meant that large amounts of workforce data could be accessed through spreadsheets and improved presentation formats allowed greater flexibility to display data and enabled easier recognition for strategic decision making and interpretation of trends.

Competitive Edge

Major staff reductions: Greater computing autonomy meant clerical support was no longer necessary for middle management and the ability to do more with less became a competitive advantage and the basis for a business case for technology investment.

Automated HR processes: Companies that could automate processes were able to demonstrate a cost saving.

Knowledge workers: The workforce composition of many companies shifted to focus on knowledge workers to do things better and leverage technology.

Productivity improvement: The ability to use the desktop features to improve productivity resulted in a measurable competitive advantage. Large groups of clerical workers were replaced by simple spreadsheet functions that could perform the same task in a fraction of the time it took before.

Cloud Platform

The Cloud Platform (or Platform-as-a-Service) is the third transformation milestone and next generation of the Independent Computing Platform (ICP 2.0)

Organisation

High performing globally connected workforce, technology independent: The next generation of computing platforms will enabled workforce teams to be connected socially through products like LinkedIn, Chatter (Salesforce.com), Yammer and Facebook. Formal reporting structures will not be as critical as open communication platforms.

Records

Corporate data & locally maintained: Information about employees will come from many different sources (including social and corporate) and in many different formats. Data ownership will become a more an important issue. The majority of data relating to employees’ performance and achievements will be more locally relevant, rather than a corporate data item.
Software

**SaaS HR applications, custom built extensions:** Software will be delivered through hosted sources and platform technology will enable end user custom development to extend the capability of the traditional HRMS products.

**Business Processes**

**Mobile access, custom built databases:** The majority of HR information will be available through mobile devices and accessible 24 X 7. Processes will not stall because someone in the approval chain was not available. Custom built databases that capture additional data needed to support new and innovative processes will be possible.

**Communication**

**Social network:** Organisations will be better connected and information can be exchanged throughout the organisation in a more targeted and real time mode and a less structured way than ever before.

**Analytics**

**Access to integrated data & HR metrics:** Custom built databases will be able to integrate data from multiple sources and include operational data needed to evaluate performance.

**Competitive Edge**

**Improved employee engagement & performance measurement:** Companies that apply social networking applications can expect employees to be more engaged in work activities and make a greater contribution to organisational goals.

**Ability to monitor business outcomes real time:** New HR metrics data and tools will enable line managers to progressively monitor ongoing performance and achievement of goals.

**About Platform-as-a-Service**

Platform-as-a-Service (PaaS) offers business transformation opportunities but so far the PaaS market is progressing slowly: Industry experts are saying we are not seeing venture capitalists rush to PaaS start-ups yet, Gartner’s Hype Cycle for Cloud Computing published in 2011 showed PaaS as 2 to 5 years off mainstream and Softletter’s ([www.softletter.com](http://www.softletter.com)) 2012 SaaS Report has only 17% of companies surveyed committing to PaaS with another 3% evaluating the option. The survey statistics show that 30% of the companies (that did evaluate PaaS) evaluated the Force.com platform (same % as Microsoft Azure) and that was three times more than the companies that evaluated SAP’s On Demand Platform (10%) and six times more than Oracle’s PaaS platform (5%).

Platform-as-a-Service products have the necessary infrastructure layer to deliver to the HR system user community, and line managers, the right technology foundation to overcome the problems that were unresolved from preceding technology eras: In particular integration and middleware. From an HR perspective PaaS provides:

- An application development platform to build and deploy SaaS and custom built applications.
- An integrated database platform for consolidated workforce information.
- An application integration platform unrestricted by middleware barriers.
PaaS - Key Attributes & Characteristics & Force.com Capability

From an HR perspective the main computing platforms that are expected to influence HR in the next decade are Force.com (from Salesforce.com), SAP On Demand Platform, Oracle Platform and Microsoft Azure. The following SIIA diagram describes the attributes and characteristics of PaaS. The comments in brackets [##] indicate how the SIIA attributes translate into Force.com platform features and capability relevant to the HR environment.


Multi-Tenant Architecture: common technical resources and code instance for multiple client companies. [Force.com enables developers to deploy their applications based on a multi-tenant model]

Customizable/Programmable User Interface: support the creation of high-flexible user interfaces without the need to write complex code. [Force.com customization features allows developers to drag and drop fields from a selection box on to the user interface native Salesforce.com screens]

Unlimited Database Customizations: provide ability to easily modify/extend the data model (i.e. construct objects, define relationships, specify validation rules/permissions) via a “point-and-click” declarative environment. [Force.com allows developers to build add on custom objects to the database and create new fields and join objects, where necessary, through a field type]
Robust Workflow Capabilities: Engender process automation by providing “point and click” tools to easily define workflow processes and specify business rules. [Force.com custom development contains a native workflow facility that may be included in the application]

Granular Permissions Model: multi-level control over security/sharing within/across applications and platform components. [Force.com has a security facility based on roles and hierarchy which can be enhanced with Apex code]

Integrated Content Library: common elements that extend the core application feature set, improve info-sharing and speed up go to market time

Flexible Services-enabled Integration Model: Enable seamless integration of “cloud” application data and functionality via a flexible web services enabled integration model. [Force.com has inbuilt integration capabilities through object joins as well as streaming APIs. Field level APIs are published for custom objects]

Analytics Layer: enhanced ability to leverage aggregated data across companies and applications for analytics. [Force.com enables custom object fields to be included as placeholders for incoming data from any source via their custom object import or Data Loader features. The report writer and dashboard facility provides a presentation mechanism for analytics, a report format and an export to Excel facility]

Status of PaaS Adoption

According to the Gartner Hype Cycle for Cloud Computing, published in 2011, PaaS is expected to reach mainstream adoption within 2 to 5 years. That could mean mainstream by 2013.

Source: Source Gartner Hype Cycle for Cloud Computing 2011
Industry Analyst Views

**Quote from James Holincheck** - Managing VP - Applications: ERP - Finance, HCM, and Procurement at Gartner: “I do not think PaaS is really prevalent at all in the HR world, not even with Oracle or SAP. There are some apps built on Force.com (Fairsail, Jobscience, Vana, etc.). I will be a believer in PaaS when startups that use PaaS are the only ones getting funded. That is what happened with SaaS. I think we will see increased usage of Infrastructure as a Service in the short-term, but I am still doubtful about PaaS (more hopeful longer term)”.

**Quote from John Macy** – Founder and MD Competitive Edge Technology: “There have only been two other technology platforms in the last 50 years that can claim to be transformation enabling: The corporate computing platform (mainframe – 1960s) and the independent computing platform (desktop and personal computers – mid-1980s). There have been plenty of technology advances in the last 25 years that have improved HR processes such as the internet, self-service, workflow, SaaS, mobile devices, social media, etc. but alone they have not transformed the business. Platform-as-a-Service brings together all of the technology advances and presents them as an independent computing environment for business users with hosted infrastructure”.

Companies Evaluating PaaS

The Gartner research (Hype Cycle for Cloud Computing 2011) appears to be supported by statistics published by Softletter. Their research indicates that 17% of their surveyed companies were committed to PaaS and a further 3% were evaluating.

*Source: Key Highlights from Softletter’s 2012 SaaS Report*
PaaS Products being Evaluated

According to Softletter research the Salesforce.com Force.com platform, along with Microsoft Azure, are the most popular product being evaluated, recording 30%. SAP On Demand Platform recorded 10% of those surveyed and the Oracle PaaS Platform 5%.

Source: Key Highlights from Softletter’s 2012 SaaS Report

Conclusion

There have been plenty of technology advances in the last 50 years that have improved HR processes but alone they have not transformed the business. Only when the infrastructure that delivers a computing platform changes can all of the technologies come together to make a difference. Cloud computing and Platform-as-a-Service provide the necessary infrastructure services to enable the creation of a new hosted computing platform.

Platform-as-a-Service brings together all of the technology advances and presents them as an independent computing environment for business users. Research and industry discussions appear to confirm that PaaS is the emerging technology, and the Force.com platform will become the most popular platform in the short term. The result is we can expect to see growth in the market and applications emerge that are designed specifically for the platform ecosystem.

The future of HR software will not be about building large SaaS solutions but by providing an integration platform for developers to build smaller plug-in applications and delivered on the hosted platform.

In a nutshell – the company with the best platform for the largest market (the ultimate end user, including line managers) will lead the race to the next technology milestone, but it will not happen until platform technology (PaaS) becomes mainstream.
About the Author

John Macy is the founder and managing director of Competitive Edge Technology (www.cet-hr.com), a consulting company formed in 1994 specializing in Human Capital Management software.

He has over 35 years experience as a senior HR manager with an international airline and consultant in effective HR technology usage. His particular areas of expertise include business requirements definition, business process design and optimization, business modelling and scenario planning, software selection, and systems implementation and management. His strength is working closely with clients to help improve HR business processes through better use of technology. He has worked throughout United States, Australia, and Asia, with a strong focus on Malaysia, Singapore, Thailand, and China. Some of his clients include Hyatt Corporation, Qantas Airways, Seagate Technologies, United Nations, AAMI, Lend Lease, Citibank, State Street, Bankers Trust, Curtin University, and Thiess Contractors.

Macy is an advocate of Services Oriented Architecture (SOA), Web services, component-based applications and business driven standards to achieve greater flexibility and integration. In 2002 he published the HR component software application standard and set up the first component software brokerage. In 2006 he introduced the first commercial component registry for HR products. Macy has written several books and published numerous articles on HR technology. He can be reached at john.macy@cet-hr.com.