

Changing face of enterprise applications – opportunities and challenges

The first generation of enterprise applications such as payroll processing or inventory control, focussed on **efficiency** and **scale** – ability to process payroll of thousands to tens of thousands of employees with zero error, month after month on the “pay day”, or, tracking inventory levels of thousands to millions of items on a daily basis, day after day, for years.

The second generation of enterprise applications focus on **effectiveness** and **scope**, ERP / SCM / CRM, for example, that captures “data” and “processes”, so that the computerization is end-to-end; managing the full life cycle of order, stock, production, packing, delivery, support and billing, by way of integrated processes. With the scope enlarging beyond simple **function** - finance, materials or logistics) to the **full enterprise**, enterprise systems in the last two decades have “transformed” businesses. With the arrival of the Internet, digitization and global connectivity on a 24x7 basis, industries like travel (e-ticket), trading (online trading), retail (e-commerce) and banking (Net banking) have been fundamentally changed industries.

The mobile revolution of the last decade, combined with the digital revolution of the past three decades, have to led **smart devices (mobile phones and Tablets)** that are fundamentally changing the very process of information production and consumption – travelling sales folks can generate leads, take orders, check status, redress customer grievance on a 24x7 basis, using interfaces that are intuitive, personalized and easy-to-use using next generation user interfaces (beyond GUI) involving touch, gesture and voice.

1. Naturally, enterprise information systems are witnessing **consumerization**. Today’s end users expect enterprise applications to be as intuitive, personal and friendly as Facebook on iPhone / Android phone!
2. With the maturity of cloud computing, 24x7 availability of mobile devices and the multiplicity of devices (at home, office, customer site or video-conferencing room), today’s end users expect all enterprise applications and data to be available on the cloud - the way they interact with Gmail or Google Apps or Apple iTunes, leading to **cloudification** of enterprise applications, at a scale unprecedented in human history.
3. With the economy of scale unleashed by microprocessor revolution (and nano-scale semiconductor industry today), extra-ordinary improvements in price-performance are available to end users (typical Moore’s Law) that the users themselves decide the information consumption, rather than the IT departments. Naturally, today’s information processing tools are witnessing unprecedented **commoditization** too!

The **3 C’s** - trio of **consumerization**, **cloudification** and **commoditization** pose unusual challenges for software industry; end user expectations are sky-high; the budgets are shrinking in IT departments but bulging elsewhere; users need

super-fast development times; third party Apps developers are able to create micro enterprise applications that are enormously useful. The recent statistic of nearly 50% of online banking in India originating from App-based banking on smart phones, rather than from Internet-connected PC's is one data point, to validate this changing trend.

Such a trend poses

1. **People challenge**, in terms of skill-set mismatch between the training they receive in Universities Vs the skills demanded by Apps development
2. **Process challenge**, by way of delivering applications thru an App Store rather than from the in-house corporate server delivering data and applications to end-user client PC's in client-server mode
3. **Business challenge** of client engagement (short term) and client servicing (changing billing cycles and business models)

Of course, such challenges do open up new opportunities – the 4-million strong **Indian IT services industry** can get into **product** space through the **App** route, with much faster turn-around time and with much smaller investments. Government, social sector and NGO's too can benefit from IT revolution, thanks to dramatically low demands on initial investments in hardware, software and networking gear.

Already **Flipkart, RedBus, ClearTrip, MuSigma** and **Fractal Analytics** are emerging as IT majors. The impact of the **3 C's** will surely be disruptive in nature for both the key players –

1. **Employees** (students graduating from Institutes), and,
2. **Employers** (the companies that recruit from campuses)

It will be interesting to see as to how the hugely successful Indian IT industry would adapt to this paradigm shift.

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