Leveraging Domain and Technology Competence
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P. R. Ganapathy: The eternal problem for the post-lunch speaker is to keep his or her audience awake, but I think the next topic and the next two speakers will have no problems whatsoever doing that because they are going to address two very exciting issues, domain knowledge, its capture, its understanding, and its leverage, as well as technology knowledge, and how we capture it and utilize it.

In some sense the basic market that Infosys addresses is the market for business problems solved using technology, and fundamental really to solving those business problems is an understanding of the client's business, and that is the reason behind the setting up of the Domain Competency Group. Using technology to solve problems requires an investment in understanding these technologies and their application in the client's business so that you can offer them intelligent solutions based on their technology. The understanding of technologies and the trends in technology, understanding technologies that you are currently using was the reason behind the setting up of the software engineering and technology labs called SETLabs. Dr. P. Balasubramanian is the head of the Domain Competency Group, and Subu Goparaju is the head of SETLabs, and two of them will take you through how these two groups really add value to Infosys and Infosys' clients. Before I hand over, by a way of introduction, Dr. Balasubramanian is a Ph.D. in operation from Purdue University, importantly most recently he was voted best outstanding engineer by Purdue in recognition of his achievements and his contribution to the field. As head of our DCG, he has more than 24 years of experience working in different domains, such as manufacturing, supply chain management, and financial services, which includes banking, both commercial and retail, insurance, and securities. Subu completed his engineering from REC Suratkal. He has more than 13 years of IT experience. His project management capabilities as well as his fundamental technical capabilities were responsible for his being selected as really the head of this very key group within Infosys, which is the software engineering and technology labs or SETLabs. Without further ado, Dr. P. Balasubramanian and Subu Goparaju on leveraging domain and technological competence.

Dr. P. Balasubramanian: Good afternoon to everyone. Can we have some more food… for thought. Should an insurance firm view the Internet as an additional distribution channel or as a comprehensive sales enhancer? How would a retail chain of gas stations capture Point of Sale information to improve its product replenishment decision, can a utility effectively use handheld devices to read meters from a distance and do on-line bills – challenging issues to our customers, great opportunities to us at Infosys. Opportunities that can be converted into solutions by combining our execution excellence with high levels of competency in business and technology domains.

Over the next 30 minutes, along with my colleague, Subu, I will be highlighting how we have built and leveraged domain and technology competency at Infosys over the past two years to reach out to higher goals, goals relating to growth, and moving up the value chain. The genesis of these two specialty units can be traced to our reorganization of October 1999. Geographically focused practice units were created then, integrating the sales and delivery functions. It was also an opportune moment to create business and technology competency groups, which would serve all practice units cutting across these geographies. As of today, there are eight focus groups within DCG. In the financial services arena, we have insurance, banking, and securities. In the non-financial area, we have groups on utilities, transportation, healthcare, manufacturing, retail, and distribution.

Similarly, the technology experts have been teamed together into groups such as security, software methodologies, performance engineering, mobile computing technologies, web services, agent technologies, e-Business technologies and architecture. In line with Infosys growth, new groups are added from time to time.

Earlier, Ms. Priti Rao discussed about the chaotic times we live in. The 21st century enterprise faces many challenges, challenges such as changing business environments due to globalization, deregulation, and financial convergence. Changing technology landscape due to Internet and mobile computing revolution as well as technological convergence. Emergence of technology intensive business models, technology is no longer an adjunct to business. Rapidity with which these changes are taking place. If you sum it all up, the enterprise of today needs an array of skills and tools to survive and succeed in these turbulent times.

Why do we consider domain and technology expertise as the appropriate skills to match up to the scenario, the service ladder presented here shows increasing expectations from customers as one moves from providing programming services to provision of IT based solutions to business problems. Correspondingly, we can note the higher order skills needed to provide these services. Skills relating to business modeling, architecture, business process changes, domain expertise, et al. Acquisition and articulation of these skills enable us to execute high value assignments successfully.

Mitigating project risks, technology risks, and IT investment risks is yet another critical need of many a customers. Business domain and technology expertise at Infosys enables us to build up the confidence level of the customers resulting in bidding for large value assignments successfully. These are the twin aspects; the risk mitigation aspect brought in by these expertise helps us to bid successfully for large value assignments. The translation of these expertise into in-house project teams, etc., enables us to execute those projects successfully.

DCG and SETLabs are entrusted with the responsibility of harnessing specialist knowledge and leveraging on their expertise to enhance internal productivity and ensure delivery excellence across all projects. We are also envisioned to play the role of thought leaders to face up to the challenges of tomorrow. We will cover these aspects later in the presentation.

How do we operationalize these concepts? We team up with the practice units and form a multidisciplinary group, very seamlessly. The project team consists of members from the practice units, DCG, and SETLabs, with the practice units taking the lead responsibility for execution. A business engineering team scopes out the assignment and evolves the high level architecture and the solution. The implementation team executes the project. There are members of both teams, and participate extensively in many life cycle activities.

There are tangible deliverables arising out of our research efforts. Business domain and technology trends are tracked and impact analysis of the technology trend on different lines of business are performed, business models are evolved, and reusable templates are prepared. We are well on our way to get our research outputs published in reputed journals and presented in high impact seminars and conferences. We deliver these knowledge assets internally to the project teams as well as the sales and marketing teams located worldwide. Some of these are shared with our customers too. The knowledge management infrastructure established within Infosys serves as an excellent delivery channel for us to accomplish the above. The synergy created by the integration of these two specialist units with the practice groups and the creativity unleashed by the interaction among members of the teams marks the difference between us and our competitors. I will now dwell upon the role and contribution of DCG; this will be followed by a similar presentation on SETLabs.

As I mentioned earlier, there are eight groups within DCG focused on securities, banking and cash management, supply chain and manufacturing, retail and distribution, transportation, healthcare, utilities, and insurance. The beauty of having all these expert teams under one roof is that, should a business solution demand multidisciplinary expertise, we are able to bring experts in, lets say banking and cash management to work with the supply chain expert, and together they can address and evolve high end and cost effective solutions to the kind of business problems we talked about at the beginning.

There are three essential roles performed by us in DCG – prospect support, project support, and knowledge assets creation through competency building. We are involved in an initial interaction with the prospects to identify the value proposition and in articulating the same, in structuring an effective response to their RFP and in scoping the assignment. During the software development stage we are a member of the project team in preparing specifications, in reviewing various outputs, in reviewing the test plans and test data, and we conduct domain training to all project team members.

Our efforts in creating knowledge assets have already been highlighted. Since inception in October 1999, we have been involved in nearly 180 prospecting assignments and about 50 projects. I would like to present two case studies to illustrate the nature and depth of our involvement and contribution. We sought an opportunity with a large supermarket chain in US to demonstrate our knowledge in retail supply chain arena. The interaction with the firm led to their invest probing of our understanding of the consumable packing goods and perishables, the firm felt comfortable enough to give us the pilot project on business-to-business vendor connect. This was a golden opportunity for our retail experts to highlight how well we understood the buyer behavior and the vendor response. The successful completion of this pilot convinced the customer to open up the bidding to Infosys for a very large end-to-end assignment. Finally, we won this assignment to build a forecasting, perpetual inventory management and replenishment system against a very well known international competitor.

The second case study relates to a major custodian bank in US. The interaction started with a briefing of our organization level capabilities. We were able to demonstrate through a videoconference from here, our understanding of the global custody business and threats. Infosys itself is a good example here being listed in Indian bourses as well as in NASDAQ with limited two-way fungibility. The customer chose to award a pilot project at this stage, it called for identifying and integrating all sources of corporate action events – events such as dividend payments, splits, bonus, etc. The customer feedback on completion of this project was excellent followed by a demand to showcase all our expertise in understanding the trends in this space. We are currently at a stage were many related assignments are being funneled towards us.

We discussed about DCG's role in current projects so far. I will now highlight how our efforts in thought leadership are fructifying.

In October 2000, we spotted the T+1 opportunity. The securities industry in US is moving towards a settlement cycle of 1 day after trade instead of the current 3 days. A prerequisite here is the capability for straight through processing. It calls for automating manual processes, converting batch transactions to on-line and eliminating the data reconciliation need across broker dealers, banks, stock exchanges, and custodial service providers. During the past 10 months, we have build sufficient domain knowledge in these areas to build reference models.

HIPAA stands for Health Insurance Portability and Accountability Act, and its impact on every firm in the healthcare industry in US. These firms were being asked to move towards common standards to facility easy exchange of patient records electronically. They are also required to safeguard patient privacy and confidentiality needs adequately. HIPAA can be a very big service opportunity to us over the next 5 years. We are building our capability first on all aspects of HIPAA to launch this service.

We talked about the perishable goods arena earlier, impending an eminent legislation on food safety in many countries. Shrink management, forecasting replenishment and pricing challenges facing this industry are enormous. Existing ERP and CRM solutions fall far short of meeting these requirements. Our retail and distribution team is rapidly accumulating in-depth knowledge and also notched up a few wins.

There are to be followed by identification of similar opportunities on an on-going basis. Performing due diligence and then building competency on selected areas ahead of our competitors. In other words, the journey continues. With our endeavor to facilitate moving up the value chain.

I will now request Subu to highlight how we leverage SETLabs expertise.

Mr. Subu: Thank you Dr. Bala. Good afternoon. In the next 15 minutes, I will share with you how we are leveraging technology research at SETLabs for adding value to our customers as well as increasing our own productivity. Research is at the core of what we do in SETLabs, and the input for our research comes from several dimensions.

First is standards bodies. We are a member on several standards bodies like OMG, the Object Management Group, the group, which define the core CORBA certification. We are a member on BPMI, the Business Process Management Initiative, the group, which is trying to define the standards for business process management, in fact business process management is becoming an emerging trend. Access to standards organizations basically allows us to understand what are the emerging technologies, who is backing which standards, and what are the underlying considerations for technology direction.

The next one is technology alliances. We have partnerships with several technology companies, each at a different level, but one thing common to all the relationships is our ability to access to their new technologies, new platforms, and products, so that we will be able to build competencies in advance. We are running a .NET Center of Excellence with Microsoft. We are running e-Business solutions lab with Intel. We are a member of IBM's partner world program, and we are doing a similar thing with BEA. So, again, all these help us in having access to their technologies in advance and build competency.

Third is we do a lot of environment scanning in the form of, we have access to analyst reports like Gartner, Giga, Jupiter, Meta, and others, and we have access to academic communities like IEEE, Computer Society, Communication Society, and others, and we regularly attend industry conferences. Again, all these are an important input into what are the technology trends, and finally and more importantly, we have our own project experience. At any point of time, several hundreds of projects going on in Infosys and the experience and learning from our projects are enormous.

We take all this and our research output comes out in three dimensions, one is technology watch and thought leadership. We identify the emerging technologies, the solutions our customers and prospects are more likely to need. This insight gives us the competencies we need to build internally, the frameworks we need to develop, and the solutions and services to go after. We also do a lot of green field research, that gets published in leading journals and magazines. I will talk about that at a later stage.

The second dimension is methods and frameworks. Our methods and frameworks are built to execute our projects right. Our projects are becoming bigger and more complex, and to execute these projects right, that is, right first time, we need these frameworks. Again, I will talk about some of the examples later. Here I want to highlight the difference between having a process and having a framework. Having a process helps us in knowing what to do, and having a framework helps us in knowing how to do, taking environment specific complexities into account.

The third dimension is technology consulting. We do a lot of technology consulting for our projects, and we use that as a very effective way of disseminating our frameworks and methods, and we also anchor specialist skills like enterprise architecture and security consulting.

We do our research in areas of current need like software engineering, performance engineering, enterprise architecture, as well as a new technologies and emerging paradigms like broad bands, mobile computing, and web services.

With this introduction, I will now about a few examples of our work, and initially talk about publications, which are both technology research papers as well as business IT thought papers. I will give two examples of our frameworks one is Influx, which is our framework for technology driven business transformation, and Legacom, which is our framework for legacy asset componentization and modernization, and finally I will talk about two examples of how we are leveraging our technology alliances to create prescriptive architectures on new and emerging platforms.

First about publications, as I mentioned earlier, we regularly publish in areas such as mobile computing, architecture, business modeling, security, performance engineering in leading journals and magazines. Each of these papers are produced after several person-months of research efforts, and they get published in magazines like Dr. Dobbs and IEEE and ATM journals, which accept only new and unique research papers. To my knowledge, we are unique in this, if we consider the kind of publications, where we get our publications done, as well as the volumes, we are unique.

Coming to frameworks, I will first talk about Influx. Influx is our framework for technology driven business transformation. We see a business cycle – life cycle consisting of four stages. The strategizing stage, where technology ideas are identified and new strategies and initiatives are identified, and in the definition stage, we create elaborate business process models based on the initiatives, and also define an IT solution. Then, in the next two stage, implement and operate, the solution is implemented and operationalized. While it is easy for anyone to draw this circle, execution is an entirely different matter. In fact, the execution can get into problems as complexity of new initiatives and business problems increases. At the core of Influx is a set of models and a set of tools which we use. We use the models to describe various models like business process models, architecture models, performance models, and quality of service models. They are used to define the business problem, and we use tools for creating these models, analyzing them and creating an IT solution. Influx is used in more than 40 client projects, almost all of them very complex, and many customers have actually standardized on our Influx methodology.

The next one I will talk about is Legacom. Legacom is our framework for legacy componentization and modernization. While legacy re-engineering work has been going on for sometime, the idea of componentization is slightly different. Normally, when somebody is trying to leverage the legacy assets, one of two things is done, either the legacy system is continued as a back end system and new front end channels are created, in which case the growth is still limited by the legacy platform. The other option is to move the entire system into a new and open platform, which is expensive. That is where componentization comes in. Using componentization you can identify the legacy assets that can be reused in an automated way and put them on a new platform that is more maintainable and flexible. This way, you are reusing the legacy assets as well as the system becomes more flexible because it is on a new and open platform. Legacom is built over again, Influx principles and hence contains models and tools for tackling the problem. This slide goes into a few details of Legacom, however, I think in the current context probably all of them are not important. However, I would like to add that Legacom is again built on solid principles of Influx framework.

Next I will talk about how we are leveraging our alliances with leading technology companies to create prescriptive architectures. First, I will talk about the Intel e-Business solutions labs and then the .NET Center of Excellence we are operating.

This is the first lab that Intel has started with a partner anywhere, and we were actually privileged to have Mr. Craig Barrett, President and CEO of Intel, come here on Friday and inaugurate our lab. In fact, he inaugurated our Legacom service also. This lab is focusing on solution performance optimization on Intel architecture, and we are also customizing our Legacom framework for Intel architecture, and this lab has been functioning for the past six months.

Next, the .NET Center of Excellence, we started as COE, the .NET Center of Excellence in March with Microsoft to build .NET competencies in the organization, proactively, as well as build prescriptive architectures. Now what is a prescriptive architecture? A prescriptive architecture is one, which is engineered for quality of service parameters for a given type of application. It is ready to use and detailed so that it can be applied very easily in a similar situation or for a similar kind of application so that it helps our productivity. We have more than 20 people working on the .NET Center of Excellence building concept applications, but currently working on some concept applications in the area of STP and T+1, Dr. Bala has already talked about the concept of T+1. We are working on a concept application about the application of mobile computing technology in the perishable retailing arena, and another application in the enterprise information portals area.

We have in fact showcased our STP application during Hailstorm's launch in India. Hailstorm is the web services platform over which .NET is built, and our solution, our concept application was voted the best among the ones that were showcased.

All this helps us in developing solutions for our customers using cutting-edge technology and specialists from SETLabs also participate in enterprise IT consulting kind of projects as Dr. Bala has already talked about in the beginning, and we also do best practices workshops and technology trends workshops for our customers. This brings me to the end of my presentation on SETLabs.

In the last 25 or 30 minutes or so Dr. Bala and I have talked about what our individual groups, the Domain Competency Group and the Software Engineering and Technology labs are doing. I would now like to summarize our role for both the competence groups. First, establishing Infosys in the new economy. The specialist knowledge in business and technology, this helps us in going after large projects, which require end-to-end solutions. Therefore, it helps us get higher price points. The effective knowledge management of our specialist skills as well as the knowledge assets which we create help our customers in getting an effective and a complete solution in a reduced timeframe, and finally the technology and business trend watches that we do, helps our customers in getting a solution that is de-risked from business and technology changes as well as it helps us in opening new opportunities. Thank you.

P R Ganapathy: We have 10 minutes for questions and answers, and we also have other directors on the board, who can also answer your questions.

Participant: My question is how big an opportunity to you think is a need for real time information, do you think you can build up a competency there, and if you think so what are your approaches there and also what do you think is the hottest vertical and hottest technology to bet on.

S Gopalakrishnan: I will answer the second question first. If you look at the major verticals we are working in, that is, financial services, retail, manufacturing, and the high technology including telecommunication, these continue to actually invest much ahead of the technology curve, that means they are some of the first industries to invest mainly in technology, etc. They have always leveraged technology very well for business advantage, and so sectors we work in, I feel confident in saying can provide us the growth we need. We are also expanding in other sectors like transportation, utilities, healthcare, etc. So, it is really a wide portfolio today.

Coming to the need for real time information, I think that has been always the goal of IT, but it has to be then balanced with what technology is able to provide, because you have to balance the cost of providing the real time information, do you have the processing capabilities to provide the real time information, etc. So, as the processor speed is increased, access time to the peripheral device is increased, etc., you will see as it becomes affordable more and more companies will go after real time information. If you look at batch windows of 14 hours down to one hour, global operation, etc., I think always the endeavor has been to become as real time as possible, which is affordable also.

P R Ganapathy: Okay, if we don't have any other questions…

Participant: Can you give us some idea about what is the number of people employed by both SETLabs as well as Domain Competency Group.

Dr. P Balasubramanian: We have 34 people in DCG at present.

Subu Goparaju: We are 75 in SETLabs now.

Participant: I want to understand a little more about what you mean by Legacom – is it COM, DCOM or something else?

Subu Goparaju: No, it is not only COM and DCOm, you can use any component framework like DCOM or J2EE or anything, the ideas is to take the business knowledge and logic that is there in the legacy systems and then taking that out as a component, now the interface to that can be using standards.

N R Narayana Murthy: I want to make a comment here, I don't know how many of you know this company has had a strong orientation in what is called system software right from even before the company was founded in 1981. Mr. Gopalakrishnan, Mr. Shibulal and myself have been very much focused towards system software. In fact, Mr. Gopalakrishnan and I, we designed and implemented the country's first distributed process control system.

It works on a real time basis collecting data to control a steam furnace. The first of its kind in Asia, and there are people in this group, I mean, today in addition to the 75 people that work with Subu, there are many, many more people who understand writing compilers, who understand writing operating systems, who have written one, who can ask fundamental question in these areas, so think that is the background I wanted to give you.

Participant: Sir, you mentioned in addition to HIPAA and STP, Bolero.net and Basel-2, can you just elaborate further.

Dr. P Balasubramanian: I mentioned that the role of DCG is to keep continuously looking ahead and see what appears in our radar. Bolero.net is an initiative started by Swift and others to exchange all international trade documents electronically. We have spotted it, but we are yet to perform our due diligence. As we do that, we will understand dimensions of this opportunity, how to get it, it is small or big, what kind of skills do we need to build, etc., same thing is true for Basel-2. Basel-2 represents the opportunity arising in the banking world, banks have gone global, and in the process, the risk management framework, existing frameworks have not been found to be adequate to meet or control the operations of banks. So there are new guidelines being evolved. These are very, very nascent, too early, and that is why I didn't even talk about that during my presentation.

P R Ganapathy: Thank you Dr. Bala and Subu. We will move on and in concluding this session on clients and delivery, quality, productivity, domain competency, we have a short clip for you on Toshiba, which is a well-known multinational corporation and a large, important client of Infosys.