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Session 3 by Subbu Goparaju

Subbu

I am Subbu Goparaju, I Head the Software Engineering & Technology Labs, what we call the SET Labs, which is a corporate research and innovation group at Infosys. What is the mandate for SET labs? The mandate for us is really to look at emerging technologies and identify ways for leveraging those technologies for business benefits, whether it is for Infosys benefit, which is really about improving our engineering effectiveness, or leveraging them for our clients' businesses, which we help our business units in creating solutions for clients' competitiveness. So that is really the mandate. Now, what is the model we follow? We have a **6-page**innovation management process where we constantly identify technologies that we believe are important, and among those technologies based on our business strategy, technology strategy etc., we identify technologies that we must look at, we must invest in, build intellectual property, solution capabilities etc., and having selected then create the intellectual property and finally protect them and most importantly exploit them, that is you should ultimately make money on this. So some of these are very SET Labs intensive, for example, visioning, identification, selection etc., we do along with other business units. Creation, again which business units where business units actually sponsor a lot of projects that we work on, and we roughly try to maintain a healthy percentage of 50:50, that is 50% of the projects based on our own conceptualization visioning and things like that, and for least 40-50% projects will try to get business units sponsorship so that if the business unit believe that yes that particular intellectual property or solution is going to make sense to their clients then they will invest in that, and finally SET Labs is responsible for we have an IP set intellectual property cell that constantly looks at the all the intellectual assets of the company, whether they are generated in SET Labs or rest of the business units, we protect them through patents and things like that, and final exploitation is along with the business unit, but business units are the most important aspect there, because ultimately they are the ones who take these innovations to their clients. So given that innovation management model what is the focus of SET Labs. The center is really applied research in which we are actually aided by a lot of inputs like we have several strategic alliance partners for technology alliances, we participate in several standard bodies, we do lot of environment scanning, and then we also do a lot of mining of the knowledge that is created in our projects, we have an excellent knowledge management infrastructure in the company, and using all that our deliverables really come out in three dimensions; I have already talked about that. First we create the first focus is really about how do we make Infosys engineering lot more effective, which is how can we do our services faster, cheaper, better, which is really about bringing the cost of development down. The other dimension like I already talked about is how do we work with our business units in creating and in exploiting these emerging technologies for building business solutions that actually make our clients more competitive, which is really about how do we help business units improve revenue. The third dimensions is in the early stages of research we do lot of thought leadership work, we publish a lot of things which is really about improving the Infosys' technology brand, how do we create an improved perception with the client that we know how to leverage technology for their business. So again this is a mandate for SET Labs, and what is the theme or vision that drives our research. We believe that obviously every research unit has a theme or a vision that drives their research and that theme or vision that defines our research is defined as we call that agile IT. What is agile IT? We believe that yesterday you all heard Nandan talk about the flat world transformation that the businesses will be going through or businesses are going through where a lot of things are changing, what is being made is changing, where it is being made is changing, where it is being serviced from is changing etc., then there are lots of things like deregulation, globalization, technology change. So obviously every business wants to identify the opportunities and exploit those opportunities, and the key thing is we are living in a IT based automation era, so your business past is actually running on an IT system, now if you want your business to be very very agile, you want to make changes to your business in a very fast way to take advantage of those opportunities, we should be able to change your IT systems in a very fast manner and there has been any number of examples where businesses basically fail to take advantage of opportunities presented to them because their IT systems were not flexible enough. I will just gave you an example, several years ago we were working with a very small company, it was pay roll processing company, small one, and a bank wanted to actually have an alliance with them, all it wanted was the pay roll processing company's data, and if they were able to do that the bank was willing to pay for that data and it would have actually gone into their bottom line straight. The bank wanted that interface to be developed in 6 weeks and this company could not do even after 6 months, which had lost the businesses opportunity. Now we are talking

about a small company where the systems were not even 15 years old or so, now imagine people who have legacy systems that are 20 years, 30 years old. So there are many many examples where companies fail to take advantage of business opportunities because their systems, even though they have the intend to do that, their systems actually do not allow. So we believe that business need to be agile because you are living in an IT based automation era, their IT systems needs to be very agile, so everybody knows that, but how do you do that. So you obviously need to know the prescriptions for doing that and we believe that there are five levers that you can manage to make your IT infrastructure very agile.

The first lever we call that dynamic processes, we believe that the business is basically a set of business processes. Now you want to make changes to your business you should be able to change those processes in a very fast and dynamic manner. How do you define business processes, how do you manage them, how do you measure them, how do you govern them etc. So that is all part of that theme there, there is a lot happening there. Now these business processes are actually running on a IT architecture and there are lot of technology changes that are happening and how do you bring those technology changes seamlessly into your architecture without either impacting your business or without having to let go your previous investments, so that is possible only if your IT architecture is very malleable, so that is the second dimension. Now all this is running on a what we call a pervasive IT infrastructure, where the computing is getting into more and more areas, where you have a mobility, you have RFID, you have ___ networks, so there are more and more points where computing is getting embedded, so how do you manage all that all pervasive computing infrastructure. The fourth dimension is all this your pervasive infrastructure, your dynamic processes, your malleable architecture, the purpose of that really is to give dynamic information to all the stakeholders in the organization so that they can do decision making in a fast and right manner. So that is a fourth dimension, how do you manage and how do you give personalized information to all the stakeholders. The fifth one is about how do you manage all those first four levers in a very dynamic manner, what we call transformational IT management, which is about IT governance and ROI analysis and things like that, so making the right kind of decisions about technology investments. So this is really a 10,000 feet view, this is a vision or a theme that defines the …, so in each of these things we have several technology focus areas where we are doing the work and the work we do in each of these areas actually comes out in one of these dimensions, either as methodologies to improve our effectiveness or solutions to improve our clients' competitiveness or thought leadership that basically is points of view on how to leverage technology.

So I will just leave it for a minute for you to take a look at then we will proceed; all this on a strong foundation of software engineering work that we do. So these are the detailed focus areas. So I talked about the innovation management model where we are constantly identifying, selecting, and creating intellectual property, then the key aspect is how do we exploit it, and the model for exploitation is after we research into that and develop methods, tools, and framework etc., when the other piece is deployment, where consulting forms actually a core mechanism of deploying the IP in business units or at client locations and taking advantage of, so we actually do lot of training and enabling of our business units because purely concept is not a scaleable model for us, because we are a smaller group compared to rest of Infosys and we cannot participate in every project and that is really the philosophy behind converting all our research works into methods and framework so that they can be used by anybody after certain level of enabling. And, we may produced using this model we have produced more than 50 various kind of IP assets, some of those things are used individually, some of those things are used together as part of various products and solutions, and we have our patenting activities started over the last year and a half or two; currently, we have about 38 patents that we have already filed, about 20-25 are being worked on. These numbers that you are looking at are only SET Labs numbers, if you look at Infosys there will be slightly higher which actually that number is available in our current annual report, because there is like I said in SET Labs IP cell is also responsible to identify the IP assets from the rest of organization and then protect them; so some of that activity happens in business units also.

From a thought leadership point of view, we have been constantly publishing in peer-reviewed journals mostly. We also do some online stuff. We have more than 200 technical research paper and various kinds of research notes and case studies of where the IP is used in actual client engagements and things like that.

So this is a list of the key offerings from SET Labs that we take to clients through our business units. I will talk about some of these things in a little more detail as examples, and the last stage in our innovation management process of identification, selection, creation, production, and exploitation, exploitation is most important thing, because otherwise rest of the things really do not matter if you are not making money. So this is a snap shot of which IP assets have been used in how many projects over the year, and in order to achieve this we actually do lot of training enablement, certification, etc., in our business unit, so this is a snap shot of how many such enabling and certification sessions we have done around key pieces of IP. Now from an exploitation point of view I talked it is at two levels; one is, internal evangelization so that we excite the business units to deploy them in projects and take them to clients. The other aspect is actually working with the clients either to deploy or implement the

intellectual properties that we have created or work with them in jointly creating the research agenda. So we have what we call this model the co-creation, co-creation is a concept that is developed by a Michigan Business School Professor, Prof. Venkataramaswamy, he is a collaborator, and we are actually doing two things around the co-creation concept. One is, we are taking to clients and running innovation work shops in actually helping them get on to the co-creation model, I will not go into details there, but the other aspect is how do we use the same concept to co-create the research agenda of Infosys along with our clients. So we have a model where we work with clients in defining the research agenda, the advantage is the client has a group of really 300 odd people that is actually working on a research agenda where he has interest. The advantage for us is we know that when we create this stuff there is a immediate implementation opportunity; we can actually do proof of concepts and we can test it out and finally probably even sell that intellectual property to the client, I mean solutions based on that IP, IP will be ours. So on a collaboration front our researchers actually collaborate with the IP architects of the client's organization and finally co-create IP, even though we call co-create it is really Infosys' intellectual property. Like I already mentioned, the key advantage is that you know you can work on this and there is an immediate implementation opportunity. So that is really the model for us as far as research and innovation is concerned, how we are constantly identifying emerging technologies of interest and creating intellectual property and solutions and finally taking advantages of those things.

I will now talk about a few of those offerings. The first one is catalytic IT, which is really a **MacSoft** specific implementation of the agile IT theme that I talked about. We are seeing that in specific sectors and geographies there is a growing acceptance and implementation of **MacSoft** platform, #1. Two, **MacSoft** is a strategic partner of Infosys, and three we have basically seen that if we implement the agile IT theme on **MacSoft** platform we have found that it is actually helping **MacSoft** platform from a cost effectiveness point of view and Infosys solutions, again from a services cost effectiveness point of view is actually creating a very compelling value proposition, and we have built the solution for about a year and over the last one year we have been actively selling it. So we are currently actively doing about nine engagements and the value that you see there is realized revenue, but the overall value of all those engagement is bigger because this is large-scale technology transformation, that we are talking about, which actually takes time, anywhere from 18 months to 36 months kind of thing. So all these projects are going on and we are actively pursuing other opportunities. So this is a pretty good success as far as converting IP into solutions is concerned.

The second example I will talk about is Influx. Influx is a business IT alignment tool. I am sure all of you are aware of the issues in large-scale transformation or large-scale development projects where lot of projects fail because the requirements are not translated well into IT systems. So our methodology Influx basically helps in creating business process requirement; first of all it is the business users who actually create requirements and they create requirements using the language they know, which is at the business process level, then we can actually define them, measure them, and give feedback on how it needs to be improved etc., etc., and the then we automatically create using those process models, the architecture models, and the IT Solutions blueprint and things like that. So what is the advantage of that? There first of all it helps in making sure that the functionality is defined right upfront and there are models in Influx which are actually more about quality of service factors, where we consider things like performance, response, scalability, etc., etc. So upfront you are defining all those and it actually makes sure that functionality is defined upfront and you get it and quality of service is defined upfront and you get it. So there has been a lot of interest from clients on this. Of course, Influx has been around for sometime. We have been building several versions of that and last year alone we have used in more than 100 projects and there has been a lot of interest from clients to actually deploy that enterprise wide and over the last year and half or so we actually started the process of licensing for enterprise by deployment. We have already done 16 of those and actively pursuing another 10 of those.

The other one I want to talk about is Radian, which is a J2E development framework. The key advantage here is it basically helps any J2E development project to forget about the infrastructure architecture issues and be able to bootstrap from a solid platform that is already available so that any development project will be able to focus only on the business functionality rather than worrying about "I am going to get my performance, I am going to get my scalability," etc. etc., and this is very key because there are many examples of projects where people have spent a year trying to build something and year and half trying to make it work. So if you don't do something right first time, you are actually beyond schedule, beyond budgets, and ultimately what you get may not be what you wanted in the first. So that is the reason why this is generating a lot of interest with our clients because you can see that I mean the number of projects last year alone, it is deployed in, is a proof of the acceptance, and most importantly here again people want to deploy it enterprise wide and so they are actually signing licensing agreements and things like that.

Fourth one is a specific solution called IPSP, which is Intelligent Production Support Platform. The underlying technology for this solution is really what is called knowledge engineering, and underlying technologies are

knowledge engineering and ontology bases systems where the core idea is given that we are in a knowledge-based industry and most of the knowledge work is very person dependent. An expert will be able to solve a problem lot faster and better than somebody who is not very well knowledgeable about that particular system. He may be equally competent technically but he may not be knowing about that system well. So the question is, is it possible to codify the knowledge, build into a system, and make the system help that either the same user or slightly inexperienced person to solve problems more effectively, and that is really the solution here. Like I said, we have used the knowledge engineering technologies and built a platform, which actually helps in codifying knowledge and play it back, and one of the first applications we have used that platform is for production support and that is really doing wonderfully well, because we have shown this to a lot our clients, specifically in the maintenance service, because production support a lot of times goes along with maintenance, and almost everybody wants to use it and it is really helping us in many ways. First of all using the system, the same user is able to solve problems faster, two, we are actually able to replace an expert engineer with somebody who is not so experienced in at least some 40-60% of the cases, and most importantly it actually is reducing the training time that is required. So you can see last year alone we have deployed it in 40 odd projects and we have big goals and targets here.

The last one I want to talk about is M-connect, which is really a platform to mobile enable businesses enterprise applications. Again this is not something new. This possibility was known even earlier and several businesses probably have tried, but many of them failed and they have basically reached a conclusion that we have tried, the technology is not ready, or there are several other factors, we do not want to do that. We have basically looked at the top reasons why some of those things have failed, things like having to work with too many devices, having to automatically recognize form factors and things like that, and there are of course things like speed etc. etc. which are not in our control. So we solved a lot of those things. We actually built a platform that people can directly use and try and mobile enable their enterprise application. This platform is already integrated into our Finacle product, which they are actually taking actively to various banks etc., and this has generated a lot of interest. Just a couple of slide ago I talked about the road shows we have conducted around the co-creation with clients. We actually did 14 work shops and that generated a lot of interest and invariably M-connect has been one of the common things that everybody wanted to try, and we are currently working on 12 POCs, proofs of concepts, for various clients, a lot of those things came from the road shows that we have conducted. So this is one thing, which has a lot of promise.

So that is the last example I wanted to talk about and that is the end of my presentation. If there are questions I can take. Can you please speak into mike.

Male Participant

Can you share some of the patents that you have filed? What are the kinds of patents that you have filed?

Subbu

Okay they are around mostly around the areas we are working in. They are in the area of performance engineering, that is how do you build systems upfront, defining quality of service aspects of that, that is when you are doing requirements for a system how do you effectively do gather quality of service requirements and translate them into how do you translate them into the solutions, is an area. Then we have patents in the area of business process managing, that is Influx, embedded some of those patents, which are methods to define requirements. Then we have several things. M-connect has several patents built in, in how do you automatically identify form factors, how do you automatically identify devices and things like that, I mean after identifying what do you do with that, that is really the key thing. We have patents in the grid computing area, then we have IPSP, which actually uses knowledge engineering ontology technologies, we have patents in that, how do you methods to codify knowledge and store it. So most of the offerings that I talked about there is lot of IP which we actually protected _____.

Male Participant

Yeah I just wanted to understand how is the adoption of the group being within Infosys, I mean what units has it worked with, which are the units you know how is it progressed briefly, and what is pending there? And two, how is the group measured in terms of results at the end of the year?

Subbu

I think the acceptance of the group is very high. There was a time when most of what we did was very push oriented, that is we conceptualize stuff, we built stuff, and it was very evangelization heavy. So we went to the business units and then said this makes sense and what do you think etc. etc., but over the years we have changed the mix, ideally we want to go to a 50-50% mix, we either already are there but even if there is a gap it is a very small gap. What I mean by the 50-50% is say from a push model to a push and pull model, so that the stuff that we conceptualize we push into the IBUs and not only that the business units when they actually want to go after specific solutions and if that solution either takes large effort or large time they actually come to SET Labs and that is the sponsorship model that I was talking about. So a business unit is saying I see opportunity in my business so you build this. So that sponsorship happens almost on all projects, because we do not go too deep into anything without basically getting a sponsorship. Once if something is developed up to a certain stage, we make sure that there are at least couple of IBUs or other units that take them to market, and measurement is really this model, how many publications we are coming out with, which actually impact the perception of Infosys in the community whether it is with our collaborators, like professors etc. etc., or most importantly our client because that is the community we are interested in, and how many methodologies, frameworks, tools that we are coming up with and what is the productivity improvement they are causing, and three, how many solutions we are working with our IBUs, so that is really the ….

Male Participant

I guess you know the structured as a cost center, and typically your annual budget is it measured as a percentage of overall revenue for the company?

Subbu

No, we do not define it like that. We would say it is basically based on the goals we take up and in order to achieve those goals what is the budget we require, and obviously goals are always we try to have aggressive goals, so we do not blindly say X percentage is going into that and figure out what you want to do with that kind of thing. It has been that model. We always come up with the goals that make sense for us to have, usually aggressive goals, and then company allocates the budget required for that.

Male Participant

And typically what percentage of revenue would it amount to?

Subbu

I do not have the percentage, but those numbers are available in our annual report.

Okay, thank you very much.