Infosys Technologies Limited

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Session 1 by Subu Goparaju

Subu

I think the agenda sheet, which you have is saying Subramanyam G.V. That is me. I am called Subu and like every Subu my real name is Subramanyam. I am the head of SET Labs. SET Labs is Software Engineering and Technology Labs which is the corporate research group in Infosys. We were formed in year 2000 and the mandate for us is really to look at emerging technologies on a continuous basis and find ways of leveraging them for business benefits. Those business benefits may be for internal engineering effectiveness or how do we leverage those technologies for our client businesses. Can I have a slight change or do I use this. Okay. So like I said the aim really is to look at emerging technologies on a continuous basis and find ways of leveraging those for business benefits either for internal engineering or for our client business competitiveness. So what is the model we use for innovation at Infosys. We define that using these six stages. It really about continuously identifying technologies that are important and among those technology selecting the things that where you want to invest and exploit for business benefits and then free creation which is creating intellectual property or capability or solutions which you want to take to the market and once you create that you need to protect those intellectual property and solutions and finally the most important aspect is how do you exploit that either for again like I said internal engineering or for client competitiveness. I will talk about those things using some example, but coming to SET Labs what we do is really more of an applied R & D looking a technology and leveraging them and in that we are aided by a lot of inputs. We have several alliances we participate in several standards bodies. We do a lot of environment standing and we have a lot of internal knowledge because at any point of time there are thousands of projects that are running in Infosys and we have an excellent knowledge management infrastructure where lot of knowledge about those projects is actually going into that and we mine that continuously and finally our output really comes out like I said in those three dimensions. On one hand we look at improving our engineering effectiveness. It is really about brining the cost of delivering down, how do we build the same software faster, cheaper, better than anybody else, this is one dimension and the second dimension is how do we exploit those technologies for our clients competitiveness and the third dimension is and in the early stages of research how do we create the points of view that actually help our clients make decisions. So we come up with lot of thought leadership, lot of publications etc etc. So that is really the SET Labs model and every research group has a vision or has a theme that drives its research and we are not trying to put man on the moon, that is not what is driving our research.

So we define our research team or research vision as Agile IT. What is Agile IT? Yesterday you heard Nandan talk about the how organizations will have to go through a flat world transformation. How what is the being made is changing, how what is being made is changing, where it is being made is changing, where it is being serviced from is changing. So businesses will have to continuously go through these kinds of transformation and given that we are living in an IT based automation era, given that most of your business processes are really running on IT systems, if you want your business to be very flexible, very agile, your IT infrastructure need to be very agile. So our research team is how do you ensure, how do you help a client build an IT infrastructure and IT architecture that is very flexible very agile so that when they need to change their business, they are able to change their IT architecture in a very agile manner because there have been many number of examples where clients or businesses have failed to take advantage of opportunities because their IT systems were very inflexible. This everybody knows. It is very easy to say that your IT architecture is to be very flexible but how do you go about that. It is like saying see everybody needs to be fit physically but how do you do that I mean that is where prescriptions come in. What kind of exercises do you do, what kind of diet do you have and stuff like that.

So we believe that we have the prescription for that and we believe there are 5 levers that you can manage if you want your IT architecture to be very very agile and we define them as number one dynamic processors - your business processes need to be very flexible. How do you define those business processes, how do you manage those business processes, how do you measure those business processes, how do you govern them. So all those form the basis of research under the driver called 'making your business processors very dynamic'. Second dimension is like I already said your business process is really running on IT architecture. So how do you make sure that your IT architecture is very malleable given that there are lot of changes coming, there are lot of new technologies that you can exploit. How do you ensure that you are seamlessly bringing all those technologies into

your architecture and you are able to exploit them without having to change your previous architecture or without having to let go your previous investments. So that is what we call malleable architecture and the third dimension is given that everybody has IT networks in future IT ____ etc and computing infrastructure is pervasive today, everybody has mobile devices and over the years the numbers of points where computing is being embedded into is changing, is rapidly increasing. So how do you manage an all pervasive infrastructure is the third one and finally all these pervasive infrastructure, your dynamic processes, your IT architecture the purpose is really to give decision-making capability or personalized information to all the stake holders of the business. So how do you make sure that you are giving such a information to all the stake holders is the fourth one what we call personalized information management and the fifth which is actually is covering all these four is really about the IT governance which we call transformational IT management. So how do make sure that you are managing all these four dimensions in a seamless manner. The IT governance, the ROI analysis, all those kinds of things. So this is really the theme that drives our research and we believe that this finally helps if you have an IT architecture that is very flexible, then your business is very agile and it can respond to transformational needs. As you can see the agile IT is the 10,000 feet view. Now when you go deeper down into each of those dimensions, there are several research areas that we focus on like for instance in dynamic processes, Business Process Management, intelligent systems, enterprise collaboration and etc etc. So you can see the detailed focus areas in each of those things and helped by an underlying software engineering research. I will just leave it for a minute if you want to take a look at that.

I talked about the kind of outputs that come out by doing applied research in each of these things whether they will be tools or methodologies, or frameworks in each of these things are client-focus solutions. So you have seen the innovation management model where we continuously identifying technologies that make sense for us and selecting the right kind of technologies that match with our business strategy and technology strategy and creating intellectual property. So these are the nut shell using that model we have created over 50 IP assets which take the form of methodologies, tools, solutions etc. Most of our patenting activities started in the last couple of years and we have filed over 38 patents, around 20 are being considered. Of course the numbers that you are seeing here are only SET Labs numbers but across the organization, we have a few more. This will constitute probably about 50-60% of Infosys activities but business units and other groups, the overall number will slightly change from what you will probably see in the Annual Report. We have more than 200 technical research papers and 82 research notes etc. So this is the thought leadership dimensions that I was talking about. And the continuum really is we research into these things, we produce framework, methods, tools etc and finally they are taken into business units and finally to the clients and we use consulting as a key enabler of such a deployment. It is ultimately whatever we produce needs to be used by business units in order to take them to their client and we do several things. We do a lot of evangelization, we do a lot of training to business units and finally we also do a lot of consulting and that is an expectation from SET Labs. Consulting really is a way of deploying intellectual property that we create.

So this is a list of, I am not going to each of those things in detail. I will probably be talking about some of these towards the end but these are various offerings from SET Labs. Like I said these are frameworks, methodologies, tools, solutions etc which we use either for internal engineering or for deployment at client side. We manage all these things like products. I do not mean that we sell them like products but we internally build them and govern them like products because we need that kind of a discipline to make sure that these things are continuously improved.

So this is a snap shot of last year over the years various pieces of IT how they have been used in different projects. Some are more mature, some are in the beginning stages some are in the proof of concept stage etc and in most of these things we actually have a sponsor from an IBU. So in the earlier stages of development, a business unit comes in and we actually show them the concept and we discuss about opportunities in their business unit etc and the business unit sponsors it. Then we built that. So in some of those numbers where you see smaller numbers are in the early stages and once the concept is proven, once we have bigger opportunity, once go for wider deployment and that is when we take it to all the business units. And I already mentioned that given that SET Labs to a small group, it is not possible for the SET Labs folks to be there in every project and that is not a scalable model. So we actually do a lot of training, certification etc and we work along with our Quality department to basically make all these things standard tools and methodologies as part of our process. Then we also work with our Education and Research to basically train the IBUs around the intellectual property and methodologies we create. So this is a snap shot of number of sessions or number of people we have enabled around the IP that we have created.

Now so the consulting and training is really about deployment or evangelization within the company. The intellectual property that we create, how do we enable business units around the IP and use them in project? The other important dimension is how do we take this it our clients. We have created a process called co-create. Co-

creation is a concept that is created by Professor Ventakramswami of Michigan Business School. We are actually working with him.

So this is really about how do we make our clients partners in defining the research agenda, how do we create collaborative themes between our researchers and the client IP architects and finally co-create our intellectual property. Though we say it is co-create, it is really about co-creating the agenda and road map. The intellectual property clearly belongs to us. Now the advantage for the client is, he is able to influence the research agenda here so that the stuff we produce that will definitely be an opportunity to exploit in a client organization. We started actually doing these innovation workups at client locations in the month of May. We have done about 14 innovation workups. These are all CIO and one tier below kind of people and this has been pretty good success where in almost every place that we did this workups, it actually generated lot of interest around the intellectually property that we have created and every thing actually created opportunities for either doing proofs of concept or actually deployment opportunities for the more mature IP that we already have. So that is really the model of how do we identify the technologies of importance for us, how do we select where we want to invest and how do we create intellectual property and finally protect and exploit it. So that is really the model. Now I will take a few examples and talk about what is that this intellectual property created for Infosys, how did it help Infosys, how did it help our clients? The first example I will talk about is a solution called Catalytic IT. Catalytic IT is a really a manifestation of the Agile IT theme that I talked about on Microsoft platform. As you know, Microsoft is strategic partner for Infosys and the acceptance or deployment of Microsoft increasing in enterprise space at least in some specific industries etc and we created the Agile IT theme over Microsoft platform and we built it over for about a year or so and last year we actively started taking to market and it has been a pretty good success. We are doing many projects. Currently some eight to nine engagements are going and the dollar figure you see is the revenue that is already realized but the actual value of those things is more than that and we have a strong pipeline as far as Catalytic IT solutions is concerned and the model that works is solution is created in SET Labs and there is a governing model where all our business units are part of a steering committee of how this should evolve and there is one of the business unit, the Systems Integration practice is responsible for taking it to market. So that is the business unit that is taking to market and this is doing very well.

The other one I will talk about is Influx. Influx is a really business IT alignment metrology. I am sure you have all heard how a lot of projects fail because either the requirements were not done well, requirements were not translated well or the IT solution that finally came out did not match the requirements that client originally had in mind. So we believe that large scale transformation projects actually should not be jumping into IT solution blueprinting without really doing a business process modeling well. So we have a methodology that helps clients do business process modeling first where it is not the IT people who actually do the requirements. It is really the business folks who define the systems that they need and we automatically create an architecture model for that and finally the IT solution blueprinting. Influx has been around for sometime. So we continuously use it in many many projects that started early life cycle stages. Last year alone we have used in over 100 projects and now actually last couple of years we have started licensing the methodology. So we have already signed for enterprise-wide deployment with our client 16 end user license agreements and we are currently discussing with more and this is another thing that and we have both Catalytic IT and Influx, we have actually lot of intellectually property has been patented. It is one thing that is doing well.

Other one I will talk about is Radien. Radien is a J2EE application development framework. This is really about rapidly boot strapping, java development and one of the things that people face, one of the issue that people face is when you build something, how do you make sure that you are doing it right first time and of course that is a concept that drives all our research but how do ensure that what you are building is will work right first time. There are have been any number of examples where people have spent one year trying to build something and one and half years trying to make it work. Right, but whereas if your development is over frameworks and tools etc., then a lot of that problems goes away and people can actually focus on real business functionality. So Radien is such a framework where people can leave out all the technical infrastructure issues as far as Java development is concerned and really focus on the business functionality and this has been a very good success. Last year alone we have used it in our 300 projects. Here again we are licensing the framework to our clients for enterprise-wide deployment and it is doing pretty well. Here again the key intellectual property we have patented and protected.

IPSP that stands for Intelligent Production Support Platform that is one of the solutions but the underlying thing is really knowledge engineering. I will talk about that briefly. Given that in knowledge industry most of the things that we do are very knowledge intensive and knowledge in most cases is very people dependent. So when you are trying to solve issues, if a person is an expert in that system or has very good knowledge, he or she will take lot less time than somebody who is not very familiar with such a system. So the key thing is, is it possible to really codify knowledge and build it into a system and help people do things faster? So that has aspect is called knowledge engineering and it uses technologies like _____ etc. Just to clarify this is not knowledge management,

this is really about codifying knowledge and then having a system help you solve problems. So one of the first applications that we created around knowledge engineering is a production support platform and how this helps is, it actually for example it has helped us for the same expert, those experts are actually solving problems in lesser time. Not only that we are able to now in at least in 50-60% of the time, we are able to have a less experienced person aided by the system solve the problem than having to require an expert there. Plus it also helped us reduce the training time. This again this is one of the huge hit usually whenever we talk to clients because maintenance and production support are of especially mission critical applications is a major issue with our clients and IPSP is huge hit with them. Like I said production support is one of the applications where we have exploited the concept of knowledge engineering but the application of that is in many many areas. So we have a base platform for codifying knowledge and then having the system aid you in solving problem and that concept the same platform now we are using in multiple applications. So for the next couple of years, we will be actually using it for other applications as well.

And the last one I will talk about is mConnect. This is an infrastructure to help clients take there intra matter enterprise applications to the mobile device. This again, as a concept, is not new. People have been talking about it for sometime. But the key thing is lot of business tried this and failed and at least in many clients where we have seen, the thinking is yes we tried that, the technology is not ready, so we no longer interested. Now what we are going to clients with this, we clearly talk to them, these are probably the issues that you have faced in your first attempt. Now the technology has matured and we have created lot of tools and infrastructure to take away those problems that you have faced during your first attempts and this again has been a huge success, we are currently doing. Most of these things actually came from the road shows we have done and the road shows that I talked about, the co-creation road shows. Invariably, M connect was one of the things that almost everybody showed interest for and right now we are doing 12 proof of concepts and we are hoping that a lot of those things will actually translate into actual projects. So that is a last example I wanted to talk about. That takes me to the end of the presentation. Do we take questions now or if there are any questions then we can or if you want me to go back to any particular slide I can do that.

Participant

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Subu

Okay in SET Labs, we have about 350 people and there are different rolls. First of all, there are researchers whose main focus is in building concepts and building ideas for new solutions etc. Then we have product development teams who are basically translating those things into tools and methodologies etc. Then we have consultants who really take them in to business units and finally to the clients. Over the last couple of years, in actual 2000, we started with a team of probable 8 or 10 and we have been constantly growing and right now we are about 350 and 375. And where do we get them. We go to all the premier engineering institutes plus we also do a few things different from what we do for regular Infosys recruitment. For example, we will go to all the IITs and some of the identified colleges and we recruit some of the very good computer science students directly as junior researchers but that is a very tough selection process. We hardly get about 5 or 6 people in a year and sometimes we do not get those also. Plus we also get the fresh graduates from the regular Infosys pool based on a different kind of selection criteria and we basically train them and enable them using a different methods. We take people who are more research oriented, more product development oriented and we enable them different.

Participant

The other thing is when IBM was down here, they spoke a lot about innovations and automation and basically development delivery of services. To what extent do you think some of these initiatives can help in bringing down the cost of production itself in terms of services and are there some service lines where more of this can be used than compared to some of the others?

Subu

Yeah absolutely. You have seen among the research areas one of the key things that we do is software engineering and the three themes that drive the software engineering research is one is definitely about automation - how do we make more and more stages of software engineering automated, the second theme is collaboration given that we have globally distributed themes, how do we make sure that a task can be very well defined and can go from anywhere to anywhere and the third theme that drives software engineering research is what we call the assembly model. So instead of writing and instead of coding everything, how do you put together

pieces and really create and software the program. So productivity is really what drives most of our software engineering research and for that the themes that we drive are automation, collaboration, and assembly model.

Participant

How is the performance of this unit and employees measured?

Subu

Okay the performance measures perhaps are, let me go back to this. It is really around these dimensions. How many methodologies, tools, etc. we built and that helped us in our engineering productivity that is really reducing the cost of delivery of our software. How do we help it, build faster, cheaper, better, but it is not really the number of methodologies, which really the impact that it has created. So we actually measure, initially in a closed manner, what is the productivity improvement there and on the solution front, how many solutions have been sponsored by IBU, how many solutions have been taken to market by IBUs and what is the revenue it is generating. We don't take revenue targets but that is looked at to see the impact of that. And finally on the thought leadership side how many patents we produce, how many papers we produce. And finally what is the impact it is creating in terms of helping the Infosys brand or perception about Infosys technology capability. So that is how it is measured.

Participant

Are you charging a premium pricing for such services with the clients and how well it is received?

Subu

Yeah absolutely. Our model really is first of all using the intellectually property. It first of all helps us differentiate, it helps us get premium pricing for our regular services. Not only that, when we actually go to train our clients around any of this IP, we actually charge premium rates for SET Labs services.

Participant

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Subu

No intellectual property is the benefit because that helps them do things right first time most importantly and it helps them do the stuff faster. So that is really the benefit. Because you need to remember one thing. In most IT projects, the issues is it does not get done right first time and they actually end up making changes for over a long period and compared that our record has been pretty good in competing things either on schedule or within budget.

Participant

You briefly spoke about the change in architecture initially. If you are doing so say you are coming to a service oriented architecture, are you applying to the existing projects also or would you translate it to the new projects that are coming up.

Subu

Okay, can you repeat the question I did not understand, sorry.

Participant

You spoke about the change in architecture you work on. What are the various changes coming say in services, service oriented architecture, how are you translating legacy systems. Are you trying to apply the new architecture systems in the existing projects or would you service it to the new projects only?

Subu

It is basically both. First of all, our prescription clearly is to go the SOA way. So any new initiative or any new project clients does, our prescription clearly is to go the SOA way. We also help clients in migrating to SOA. So obviously we need to do the right kind of ROI analysis and things like that but clearly our migration projects are all

about how do we help clients move from a non PPM kind of a model to a PPM way of looking at, a non SOA architecture to an SOA architecture. So we are doing both. We by default, like to consider SOA model for new projects. We are also giving people a migration path to move to _____.

Subu

I will take on last question because we need to start the next presentation.

Participant

Is it where your premium charges are also migrating from an existing architecture or in an existing system to a new one?

Subu

Yeah, wherever we use our intellectual property, it basically differentiates us and helps our premium positioning as well as premium rates with us.

Subu

Yeah this is the last one because _____.

Participant

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Subu

Okay, now here the theme is very stable because first of all this is a small group to start with and unlike in the normal model, we actually select most of those people and they select the group. So they are actually coming into this because of an interest in the research stream and technical architecture stream etc. So given that this is a very stable thing compared to rest of the Infosys attrition. There is some differentiation, but we do the normal thing because this is a kind of different a thing, we do the normal kind of differentiation.

Subu

Yeah last one.

Participant

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Subu

Yeah. Is it a cost center? Yes it is a call center. I will not be able to give you specific numbers on what it translates to. The translation is really like I said in differentiating, in helping us win projects and helping us get our premium rates. That is really the benefits of companies looking for and we have been pretty successful in that. Thank you all.