

From processes to products – how to monetise internal innovation

Internally developed technology not only helps companies to work better, but can form the basis of revenue-generating products and services. Tata Technologies offers a masterclass in how service-based companies can transform themselves into innovation powerhouses

By **Anubhav Kapoor** and **Geeta Daswani**

Manufacturing has changed dramatically since Henry Ford launched mass production in 1908. Competitive pressures are forcing manufacturers to increase product variety and reduce delivery times. High volumes and increasing product variety make building to demand a complex proposition. However, with modern technological advances, the trend is for mass customisation, even for products as varied as cars, aircraft and mobile phones. This poses many complex problems because of the large number of units being manufactured and the increasing number of rules and constraints.

Innovative in-house software products that emerge from internal processes and know-how offer pre-written, time-tested tools which can provide powerful solutions for complex problems in rapidly changing environments. These software products often originate as unitary algorithmic solutions to generally applied software solutions, but can end up solving complex problems in diverse industries. They can combine industry best practices and intuitive visual interfaces with powerful data analysis engines in order to yield high-quality solutions for problems that traditionally would require other players to invest and spend their valuable resources

on R&D, software development and iterative consultative problem solving.

In a world where companies tend to hoard intellectual property even when they make no use of it themselves, the productisation of internal solutions offers an interesting avenue for companies to open and monetise intellectual property that would otherwise gather dust. Leveraging IP assets as product solutions can generate new revenue streams, strengthen strategic control over profits and reduce risk. It seems a win for the company, a win for other industry players and certainly a win for society. It can also encourage companies to think about alternative innovation and invention models, such as crowdsourcing, collaborative research and open innovation, or alternative monetisation models such as securitisation, leasing and other interesting licensing and exchange arrangements.

Innovation is the mantra for all organisations that want to rise to the top of today's competitive business culture. Innovation allows each new feature introduced to make yesterday's product obsolete and adds value to existing services – it is something that should be embraced by all, from manufacturing companies and service providers to delivery centres.

Wealth no longer refers to cash inflows arising from sales and the provision of services, but is shifting to intellectual capital that can be leveraged to enhance one's offerings, thereby enriching the consumer experience.

This article aims to show how an organisation's intellectual capital can be integrated into its offerings – not just as a means of improving its existing suite of products, but also to be offered as products in

themselves. This mindset can help service-based organisations to transform themselves into product-based organisations.

How service-based companies can play the innovation game

With customer satisfaction and better consumer experience coveted objectives, service-based companies are gradually learning how to play the innovation game. Better processes that reduce cycle time, tools that enhance productivity and systems that achieve more accuracy all count as innovations that ultimately impact on an organisation's earnings. Therefore, a company must never ignore its internal process improvements. They not only increase efficiency, but – with a little luck – may also turn out to be breakthrough technology.

The most recent example from Tata Technologies is a plug-in tool that aids the mass uploading and downloading of data relating to plant assemblies and sub-assemblies. Manual efforts to enter all of the individual attributes can now be achieved with the click of a 'run' button – to the relief of engineers, who can now invest their time in more complex activities. However, the invention's main advantage is that it is platform neutral and can therefore be used in with any product lifecycle management (PLM) software. Thus, it can be marketed to other companies providing PLM services.

Was this an innovation? Yes. Did it entail any investment? Again, yes – it has involved a financial investment, mainly because Tata decided to secure patent protection for its invention in India and certain other territories. However, given that the tool will enhance the company's efficiency and its potential for commercialisation, this financial contribution counts more as an investment than an expense.

This does not mean that every innovative idea must be patented. It is important that organisations – particularly service-based organisations – align their ideas to consumers' requirements and expectations. This requires a robust filtration mechanism. Ideas that are commercially viable must be shortlisted and worked upon, whether in terms of R&D, experimentation or IP protection. It is only then that innovation will be perceived as an investment rather than an expense.

Evolving from a service-based company into a product-based company

Tata Technologies is an IT-based company providing engineering and design solutions



iGET IT was originally developed by Tata Technologies as an e-learning platform for the internal training of Tata employees. It has since been successfully commercialised by the company

to the manufacturing industry – in other words, it is essentially a service provider. So while there may be no scope for the product innovation that might take place in a manufacturing organisation, there is definitely scope for internally developed software tools being offered as products. In fact, this should be the aspiration of most service providers which partner with diverse business segments – to develop generic tools that can be used by manufacturer customers to enhance their efficiency. Improvements can then be carried out to ensure that products evolve to keep up with constantly increasing demands and customer requirements.

For example, Tata Technologies has developed a knowledge-based kernel, a pool of resources that enables the development of applications that are in turn marketed to third parties. The latest application sets out design rules for springs, in compliance with global industry standards. In return for an annual maintenance fee, Tata Technologies has granted a licence to use this application to an original equipment manufacturer (OEM) that manufactures and supplies springs to Tata Motors, one of the largest automobile manufacturers in India. Thus,

what started out as an in-house knowledge base to help engineers avoid iterations has now become a revenue-generating application development platform.

Another illustration of an internally developed competency being commercialised is an e-training package, a server-based repository that serves as a virtual classroom with training modules pertaining to different software platforms. With easy access through a log-in identification and password, an organisation's employees can avail themselves of e-training, audiovisuals and assessments on the use and operation of software such as CATIA, DELMIA and TEAMCENTER. This enables employees to familiarise themselves with the software independently of time-poor mentors or supervisors. This package is now being licensed to other fast-moving consumer goods companies, such as Procter & Gamble, for their internal use. Once again, what started out as an intrinsic aid to develop internal competencies has evolved into an extrinsic commercialisation opportunity.

Some of Tata Technologies' other internally developed tools focus on three-dimensional (3D) animation. The company is working towards the creation of virtual showrooms and plant layouts – in fact, our PLM vertical is extremely excited about developing a tool that helps map two-dimensional (2D) plant layouts onto 3D virtual plant layouts to deliver accurate dimensions, object location and floor space. Migrating a huge amount of data from 2D to 3D is a cumbersome procedure, involving manual effort which takes time and increases the likelihood of human error. With the development of a plug-in tool that serves as an add-on to FactoryCAD, Tata

has not only increased the efficiency of its in-house engineers, but also developed a product that can be used by many other design as well as manufacturing houses for better construction and management of their plants and assemblies. What opportunities might this open up for the company? Apart from the prestige, patenting the technology is definitely a possibility. Given the praise that this tool is already attracting, the company hopes to start out-licensing the technology to manufacturing plants before too long.

While many illustrations of internally developed processes with external commercialisation potential revolve around tools and software programs, database development is another fruitful area which should be examined. Data can be collected, compiled and formatted, and sold to other organisations for benchmarking exercises and strategic planning. Generic data relating to a particular industry remains the sole property of the offering organisation and can be leveraged to cash in on commercial opportunities.

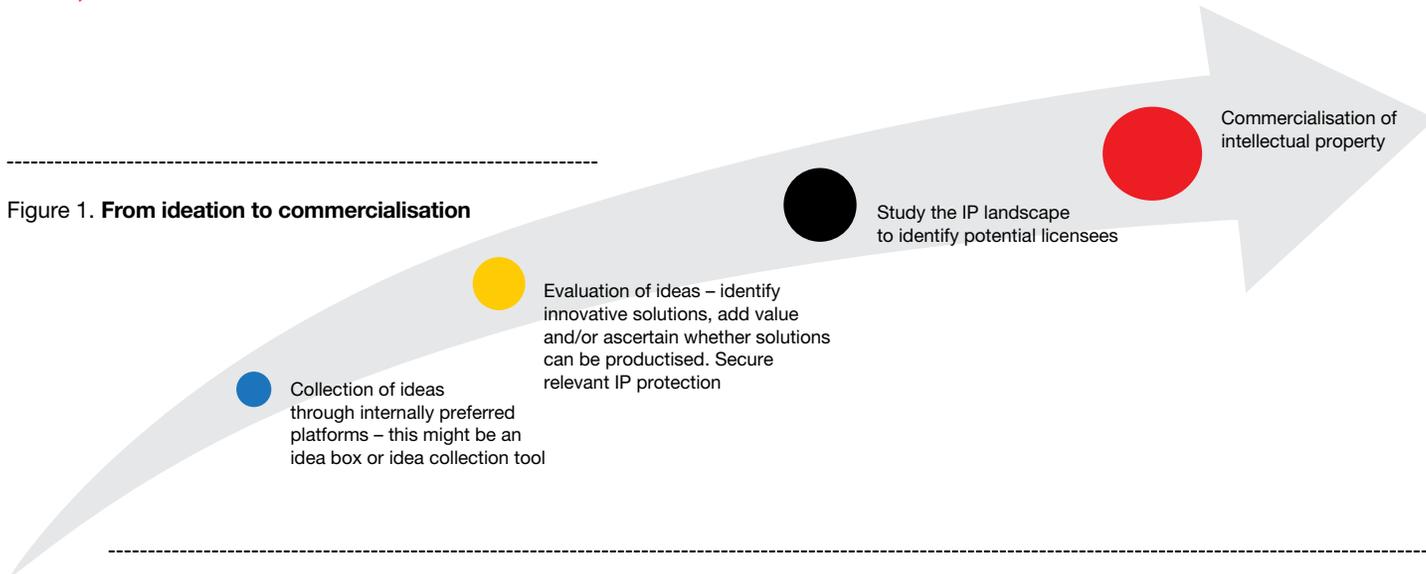
Therefore, while there is little prestige attached to simple things such as tools developed to enhance internal efficiency or collected data, they can play a vital role in helping an organisation to grow.

How can a company make that transition?

The key ingredients required for a service-based company to develop a product portfolio are innovation and intellectual property. This is easier said than done, and organisations must make a conscious effort to achieve the ideal interface between innovation and intellectual property. While innovative ideas cannot be bound by terms and conditions,

Tata Technologies Design Centre Campus in Pune, India





organisations must be careful not to lose out on valuable intellectual property. Therefore, there has to be a strategic platform for collecting ideas, evaluating them and finally branding them as IP eligible.

Factors to be taken into consideration when deciding whether to invest in a patent include the idea’s novelty in the industry and the impact it would have on the organisation’s business – whether it would be a one-time impact or a source of recurring revenue. Once commercially viable projects have been identified, they can be secured as relevant intellectual property, after which commercial opportunities can be tapped. This is a time-consuming but necessary process and may well involve multiple departments, including the technical department, legal department (preferably the in-house IP counsel), sales department and senior management.

While most organisations are quick to secure patent protection for their inventions, they often appear to overlook the significance of trademarks. A product will never realise its full value and potential unless it is marketed – and trademarks are an extremely important marketing tool which help to identify products and services, build goodwill in the market and eventually enable the manufacturer or service provider to enjoy consumer loyalty. Therefore, organisations must be proactive in assigning marks to their internally developed tools, programs, technology and services as soon as they come into existence, so that when technology transfer is being negotiated, a trademark licence can also be included. This will be particularly advantageous if a company’s internally developed tool has become popular in the industry and already has goodwill attached.

IP awareness – the first step

Companies will succeed in being innovation driven and IP conscious only when they create a culture in which individuals do not have to be nagged to innovate,

but themselves realise the benefits of devising innovative solutions and securing intellectual property on behalf of the company. This was one of the initial challenges that Tata Technologies encountered – the engineers and technical teams were unaware of the concept of intellectual property and were thus unconcerned that the solutions they were devising were being usurped by customers. No one bothered reporting the development of new tools or more efficient processes – it was assumed that these developments were part of ongoing projects and were therefore merely part of their usual assignments. It soon became obvious that this lack of awareness was a serious obstacle to the company capitalising on its intellectual output. In order to overcome this, the IP management team, headed by the general counsel, was entrusted with the task of introducing the concept of intellectual property to the technical teams. Even today, seminars are held monthly with the objective of familiarising employees with the concept of intellectual property, the different types of intellectual property, its benefits and the procedures followed by the company to secure IP protection. Electronic communications and in-house articles relating to relevant IP issues are also circulated within the company. The effect of this constant awareness drive has been a steady flow of ideas for IP evaluation – in other words, idea collection has become easier. This has enabled the IP management team to identify potential projects that could qualify for patent or other IP protection. In-house engineers now know that an improved process or methodology that helps to reduce cycle time or save costs has the potential to be protected and then marketed to third parties.

Awareness does not stop there. The sales team and legal teams are also taking measures to ensure that Tata’s intellectual property is not lost recklessly. The legal team has been thoroughly reviewing IP,

Action plan



- Have a robust and dedicated awareness initiative within the company to explain the significance of innovation to employees and how it can be secured as the company's intellectual property.
- Develop a forum or channel that aids the collection of ideas.
- Appoint an IP and innovation management team to which these ideas can be routed for further action – identifying patentable concepts and opportunities for securing trademark protection.
- Establish a formal IP review committee, comprising members from diverse backgrounds such as technical experts, business experts, IP experts and legal consultants. The committee will determine which innovative concepts the company will invest in, in terms of IP protection and marketing.
- Collaborate with external IP agents who can help to conduct market landscape studies to identify opportunities for commercialising intellectual property.
- Involve sales teams in commercialising the company's technology/ internally developed solutions.
- Coin distinctive trademarks for internally developed tools to make marketing and brand building easier.

confidentiality and non-compete clauses to ensure that all business transactions are in the company's best interests. It has also formulated a formal IP policy, setting out guidelines to be followed by the company as regards its own intellectual property and confidential information.

Commercialising intellectual property Conventional methods

Once a service-based company has secured its technology, processes and tools under the appropriate IP protection, it can think of commercialising them.

If a tool is generic, it can be licensed to various OEMs for an annual maintenance fee. On the other hand, if the deal involves sensitive technology, it can be assigned completely to one customer in exchange for a lump-sum payment.

Often, services are provided to customers under the work-for-hire concept, wherein any foreground intellectual property developed during the project belongs to the customer. In these circumstances, organisations may find themselves in a weak bargaining position. However, they should try their best to avoid being vulnerable and position their intellectual property as a potential product that would enhance the customer's asset portfolio, quoting a price that would be fair remuneration for creating these IP assets on the customer's behalf.

Internally developed solutions can boost a company's standing in the market

A leading product engineering company and IT consulting partner to manufacturing industries has unveiled an internally developed solution which can be used in automobiles. This hybrid technology solution is designed to increase fuel efficiency and engine performance significantly, while decreasing greenhouse gas emissions. The solution has been tested by the Automotive Research Association of India, which reports that integrating it into vehicles could increase fuel efficiency by more than 40%, while reducing greenhouse gas emissions by at least 30%. In order to develop and commercialise this technology, the pioneering company has formed a joint venture with a manufacturing company whereby the pioneering company will license the technology to the joint venture while the manufacturing industry will contribute its manufacturing and assembly expertise. The solution will then be marketed to OEMs and group and individual vehicle owners through a network of certified and authorised dealerships.

This is an ideal illustration of how internally developed solutions can prove to be breakthrough technologies, giving rise to multiple avenues of commercialisation.

Greenfield ventures

Another area where intellectual property can be leveraged is greenfield ventures, where a parent company sets up operational facilities from the ground up through foreign direct investment. A company that owns IP rights to technology can scout for countries where the relevant technology or facilities do not exist. Once these are identified, the company can set up a manufacturing unit to integrate technology into products either independently or through a joint venture. These products can then be offered to untapped markets. This can prove lucrative not only to the company, but also to the host country's economy. Establishing such manufacturing set-ups helps to generate employment for local communities, access to updated technology and enhanced consumer experience.

Service-based companies that are confident of their internally developed solutions can look for manufacturing partners to set up operations in untapped markets and can maximise the potential of their internally developed technology.

Bright ideas

Alfred Hitchcock once said that "good ideas come from everything" – an aphorism that is apt for IT-based solution providers, which are often discouraged by the conventional perception that they are merely partners to the manufacturing industry and have no potential for generating their own innovative solutions. Good ideas do indeed come from everything – an automation tool developed by an in-house engineer to make his life easier could in all probability become the company's most popular product.

Software-based companies should be aware that internally developed solutions can be offered as product packages with multiple benefits for one's client base and could prove to be extremely lucrative. If all service providers succeed in mining relevant solutions, it will not be long before software-based products revolutionise not only the IT consultancy business, but also the manufacturing industry. **iam**

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