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May 2013

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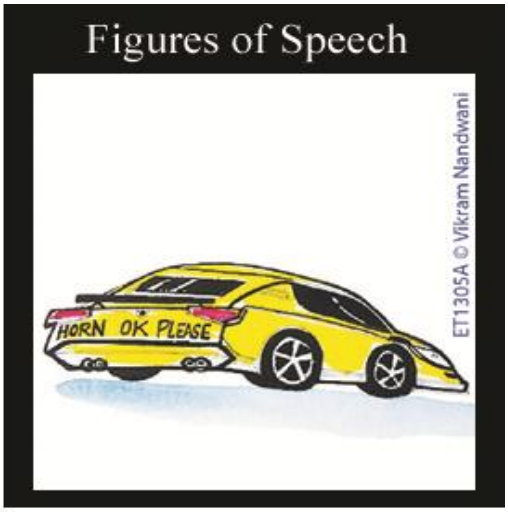
Dear Reader,



Empowering Times this month focuses on the burgeoning offshore engineering design and research & design (ER&D) industry which is benefiting from the technological advancements which have blurred geographical limitations. India with its vast talent pool is expected to reap dividends from the global growth of the industry, as organisations look to gain cost and time advantage to bring new products to the markets. Automotive designing was the mainstay for India in the past decade, but recently there is a gradual shift to other engineering design capabilities with many global organisations setting-up design centres here. The expected growth potential is very encouraging and it is up to the organisations to grab the bigger share of the pie using the domestic skill-sets available. The next decade is expected to be crucial not only from the perspective of volume of business, but also from the value potential that will be offered. Hope you find this month's issue about the ER&D industry interesting and informative.

In ***Thinking Aloud*** this month Jay tells us that in comparison to the traditional IT industry which has been a big victim of the weak global economic scenario, the ER&D industry in India has impressed with a double digit growth figure and holds a robust growth potential. The increased complexities and the availability of specialised software tools to make fine engineering designs has moved the realm of designing from the sweaty shop-floor to super-specialised design centres. With the help of connective technology these centres can be based in far off geographical locations where skill sets are easily and abundantly available. With over USD 20 billion of savings experienced by MNCs in India last year, Jay says that this is just the beginning and the industry is on the verge of explosive growth.

Podium this month features **Sitangshu Goswami**, CEO of Magna Steyr India, who shares with us his thoughts about the ER&D industry in India from an insider's perspective. He says that the slow-down in the global automotive space has led to companies looking at other verticals which are based on the similar fundamental requirement i.e.

engineering design. He is of the opinion that not only will India benefit from the offshore component of the global engineering design industry, but there is also potential of large domestic demand coming from the increased needs of a developing economy. He says that the key challenge in outsourcing engineering design lies in the fact that the original design centres have knowledge bases which have been built over many years and transferring this knowledge is not easy. Also, the academic curriculum is not industry focused and companies have to invest a lot of time and money in training engineering graduates to develop specific skill-sets for practical application. But nevertheless he is optimistic about the market potential and the ability of the domestic skill-set to grab the opportunities.

In ***We Recommend*** this month, we present a collection of various videos on YouTube about automotive and engineering design. There is a video which shows the sketching of a car design right from the rough pencil sketch, while another one is a tutorial on tips and tricks to design a car. In another video, students of the College of Creative Studies (Detroit) speak about their projects and about the future of design, while in another video, teams of sculptors work on building clay models of cars in a GM design centre. The videos are a must watch for any car aficionado and for anyone who wants to become one!

In ***Standing Ovation*** this month we feature Vidyarambam, a Tamil Nadu based NGO focusing on the educational needs of needy children. From a modest beginning in 2002, Vidyarambam today has a wide reach across the state and imparts educational support to children in 96 villages with over 280 study centres. It has a well-defined structure of educational programs for children in various age groups and also has book libraries, mobile toy library and computer centers. For its cause and its determination, Vidyarambam deserves a Standing Ovation!

In ***Figures of Speech***, Vikram presents a designer car MADE IN INDIA!

As always, we value your opinion, so do let us know how you liked this issue. To visit our previous issues you can visit the Resources section on the website or simply Click Here. You can also follow us on **Facebook**, **Twitter**, **Linked In** & **Google+** - where you can join our community to continue the dialogue with us!

Thinking Aloud

Designing Success, Engineering Style - Jay

A lesser known element of the Indian IT success has been the story of the Engineering Design and R&D world.

At a time when the general mood is quite downbeat in the traditional IT industry, it augurs well to note that the National Association of Software and Services Companies (NASSCOM) states that Indian Engineering and R&D (ER&D) services offshoring industry grew at about 14% last year to achieve an export turnover of over USD 10 billion. This is veritably good news, but what really excites is the overall potential of the global offshoring market.

According to a NASSCOM study undertaken in 2010, in their best judgment, the market is expected to balloon to a mega-size of USD 100 billion by 2020. And, India is poised to gain up to 40% of the share of this market, from all

estimates. That amounts to nearly USD 40 to 45 billion of business waiting to be won.

What is causing this market boom? A combination of various factors actually. Complex engineering design today necessarily is based on software platforms using sophisticated tools. This has enabled not just faster turnaround of projects but also cheaper products crafted to better precision, and built by virtual teams across time zones. Take this for example: according to Jeff Immelt, the Chairman of GE, the firm has moved 'from being a company that could build one commercial jet engine every decade to one that can develop a commercial jet engine every year'. That's a huge transformation. And it is a tribute not only to GE's technical & project management skills but also a testimony to the evolution of design methods in today's connected world.

And, it is not only GE that can launch more products every year. The automobile industry used to take anything from five to seven years to bring new cars – from concept to production - to the road, and now this time has been crunched to between three to five years. Suffice it to say that the process of work flow has transformed in multiple ways. 3D simulation is no longer in the realm of science fiction as R&D centers today create virtual environments to test prototypes. Most of this is now standard desktop work for the engineers who hunker to the task, away from the bustle, grease and noise of the conventional shop floor. With advanced tools that seem like magic wands, they are ready to create interesting designs at a faster clip than ever before. This has not only enhanced quality of vehicles but also created vehicles that have significantly superior safety features, as proclaimed from the slew of advertisements that hit our senses daily.

Another facet to be noted is that NASSCOM has observed a discernible change in the nature of the engineering services business that comes to India. While traditional verticals (Aerospace, Automotive, Telecom, Semiconductors, Consumer Electronics and Construction/Heavy Machinery) continue, there is also a shift to new and emerging verticals (Computing Systems, Energy, Infrastructure, Industrial Automation and Medical Devices). Truly, the possibilities are endless.

The ubiquitous lower cost factor continues to exist but no longer is it the primary driver for business. Speak to senior business leaders from across the globe and you will hear them say that the quality and quantity of skilled personnel in the Indian engineering sector is also a major attraction to them in the quest for faster turn-around for product launches to grab market share. The demographic dividend is finally being encashed at a time when western geographies are reflecting fewer and more expensive staff.

The benefits being touted are impressive: over USD 20 billion savings generated by MNC engineering centers in India last year. It is estimated that with over 400 engineering R&D centers in India employing over 180,000 engineers, clearly this is a serious sector that needs more attention. The best names from across the globe are now in India, and the list (to name a few) includes, Caterpillar, Visteon, Emerson, Eaton, John Deere, etc. Besides, there are also home grown giants, including L&T, M&M, Ashok Leyland, etc.

Suffice it to say that the game has just begun. With high stakes being offered, this is one sector that is worth a close watch.

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Podium

Sitangshu Goswami, CEO Magna Steyr India

Sitangshu Goswami, the CEO of Magna Steyr India, is a mechanical engineer from Delhi who started working for the HCL group in 1987. After a short stint with HCL he moved to the automotive industry wherein he worked for Eicher and LML. In 1999 he left OEM and started working for an automotive engineering services company. He joined EDAG India. From EDAG he worked for several years in Germany where he got a chance to serve various global OEMs. Sitangshu became the Jt. Managing Director of EDAG in 2006. During his 12 years of service in EDAG he has worked for various global and domestic vehicle programs. He is primarily a BIW (Body in White) design engineer.

ET: The Indian engineering research and development & design industry has witnessed a paradigm shift from being automobile-industry centric to now include various other verticals. Please share your observations on this trend.

SG: For the last few years the automotive market has shown a marked slowdown – both in the passenger vehicles and the commercial vehicles segments. This has as a result led to a slow down in development activities at OEMs for new models. Due to this, industries which are focused on automotive business only are severely affected, and for many, it is a question of their own survival. The slowing market has led many R&D and design industries to shift their focus from pure automotive to other sectors, such as white goods, shipping, aerospace, railways, etc. All these industries have something common which is engineering. With this, many companies are able to mitigate the risk of low automotive growth.

In parallel to the slowdown in the automotive industry, there has been an increase in opportunities in aerospace, shipping and defence engineering – especially due to the off-set clause which alone offers over USD 3 bn per year. You will see various new ventures have been formed and are doing good business here.

Overall the total global engineering outsourcing spend in 2004 was USD 750 bn – expected to grow up to USD 1.1 tn by 2020. The fastest growing and largest chunk of this will be in telecom space with a 30% share – followed by automotive at 19% and aerospace at 8%.
On the domestic front, though India has the largest railway network, it has a tremendous scope for improvement. Improvement has been initiated in this direction and the Indian government has signed pacts with other countries to improve the infrastructure as well as other areas of rail technology including high speed rail, heavy haulage and station development. All this means opportunities for domestic business in the E&RD space.

ET: Nasscom has estimated that the size of the Indian engineering research and development and design outsourcing industry will touch US$ 40-45 bn in 2020. What do you see as key challenges in reaching this milestone?

SG: Yes, it is true that there is definitely a huge scope for expansion. As Indian OEMs try to keep up and compete with global OEMs, the R&D outsourcing effort will only increase. One of the key factors that we need to work on is how much of this outsourcing will be done out of India using Indian expertise and how much of this will be outsourced to European and American engineering centres. This is the challenge that we need to overcome. One can understand the scale of the challenge when we understand the type of work that is outsourced to India currently and the type that is actually done out of India – both at the OEM level and at the engineering service centre level. The challenge here is linked to being able to develop facilities and competencies that can duplicate the competencies available overseas. If we look at the automotive segment we need to develop facilities and competencies for:

- Styling
- Platform Development
- Electronic
- Prototype Development
- Development Testing

It is not that these competencies are not available in India – but these are not nearly enough and the efficiency and knowledge is not available in India. If we take the example of our own company, Magna Steyr, the engineering knowledge related to passenger vehicles that is available in our European centres is very difficult to duplicate here – especially since this knowledge has been developed over the last 100 years. We have a program of how to increase the competencies and pass this knowledge over to India and Asian Design Centres.

The key lies in our ability at a company level to be able to devise a strategy how to transfer knowledge from our international design centres to offshore locations and how we are able to retain that and grow that knowledge. This to us is the key challenge.

ET: If we are to look at the value chain analysis for this industry, where would India's skills and potentials be perched?

SG: If I look at the value chain of this industry I think we are somewhere midway and still need to walk a long distance. I think Indian industry has good potential and the skills, but what we need to improve is our understanding of quality. For various reasons, the definition of quality is different for different suppliers. Some big global suppliers are at par with rest of the developed world but some are not even acceptable to Indian customers; however they all exist under the same sky. This exists because we have buyers or customers whose expectations are also equally wide. I think this needs a serious improvement if we have to grow our industry.

To increase operational efficiencies, reinvent and embrace new business models which will offer customers a transformed business proposition. For example, based on the customer requirement, shift to transaction-based pricing which facilitates revenue-generating projects drive concerted initiatives to strengthen the innovation capacity and research capabilities through specific domain focus and by encouraging R&D collaborations and public-private partnerships. Pursue continued efforts to further build a high-calibre R&D pool, not only from an educational perspective, but also by instilling the relevant research aptitudes and capabilities.

Continue to strengthen the long-term entrepreneurial environment.
Enhance the skilled talent pool in the country and focus on specialisation.

ET: Please share your thoughts about the readiness of the Indian education system to cater to the

burgeoning demand from the industry.

SG: The biggest challenge today is the education system, as our colleges and universities are not teaching the subjects that are required for the industry, especially in the automotive domain.

What we study is too generic and is not really enough for a person to get started in an organisation. This is one of the reasons why we see many automotive OEMS or engineering services companies have started domain specific courses with which a university graduate can gain some basic knowledge about the current industry trends with which they can apply for jobs.

Out of the 550,000 engineering graduates passing out every year, anywhere between 10% and 25% cannot be readily employed by any technology firm in the country according to Nasscom. The skill gap is not only in engineering domain knowledge – but it is also in communication and presentation skills which today are seen as extremely important in the business environment. It is estimated that the industry spends up to USD 1 bn per year just on training.

Companies like ours have an extremely rigorous and elaborate training and mentoring program in place that helps us take care of this – but this does take time and leads to a lot of unproductive time.

ET: While the Magna Group is well known in the Auto industry globally, in India it is still relatively unknown. Could you please share what Magna Steyr India does?

SG: Magna with its various verticals is slowly building up its presence in India. Overall we have over 1,000 employees in India spread over COSMA, MAGNA SEATING, MAGNA POWERTRAIN and Magna Steyr. We are working on increasing our presence in several sectors.

Magna Steyr India has been in the country since the mid 90's in engineering services. Initially we were catering to our group companies globally, but off late we are aggressively marketing ourselves as an engineering service provider – taking advantage of our strengths in passenger vehicle and commercial vehicle verticals. Our company in India is a JV with two Magna group companies – Magna Steyr and Magna Powertrain. This gives us a wide range of expertise – from platform development, BIW (Body in white) development to driveline and all-wheel drive systems.

Magna Steyr with its over 100 years of experience in vehicle production and a broad range of services makes it the worldwide leading brand-independent engineering and manufacturing partner for OEMs.

Magna Steyr India is also into automotive engineering services with branches in Pune and Gurgaon. From these locations it is catering to global OEMs as well as to the Indian OEMs. Apart from this, it also works extensively for shipping, defence and railways as well. We provide end to end solutions to the automotive industry ranging from styling to production release. Since Magna Steyr in Austria is into contract manufacturing, as a result, we have strong know-how available within the organisation to convert a concept to a finished product which is manufacturable.

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We Recommend

Engineering Design videos on YouTube about

As we talk about engineering research and design, in the We Recommend section we present some amazing videos about automotive designing and sketching.

1) This video shows a designer, Sangwon Seok, from the Car Design Institute (SKEREN), Korea drawing a car sketch from scratch. A treat to watch as the pencil sketch transforms into a complete car design.

   Link: http://www.youtube.com/watch?v=f4hqBRaiTuc
2) **A YouTube channel by AutoConception.com, a monthly e-zine focusing on automotive and transport design. The channel features many videos related to automotive design and modelling.**

   Link: http://www.youtube.com/user/AutoConceptionTV
3) This video features Autoweek Executive Creative Director, Ken Ross taking a tour of the College for Creative Studies in Detroit, Michigan. Transportation Design students talk about their projects and about the future of automotive design.

   Link: http://www.youtube.com/watch?v=XtpwuPzkmcg&feature=endscreen&NR=1
4) A video for those who wish to dabble in automotive sketching and designing, this is a demo and tutorial video which talks of various tricks and tips to design your own car!

   Link: http://www.youtube.com/watch?v=xSY2vAb4pmE
5) A video about automotive body sculpting internship teams working at GM on clay models of new cars. The sculptors speak about their journey of designing and moulding raw clay into a future car.

   Link: http://www.youtube.com/watch?v=QsuEN57LBS4

Hope you enjoy viewing the videos!

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Standing Ovation

Vidyarambam Trust – The beginning of learning

Vidyarambam is an NGO based in Tamil Nadu, India which finds its roots in a learning center formed in 2002 by Mr. Ranganathan, which catered to the educational requirements of 17 students. Today, Vidyarambam's span covers over 96 villages, over 280 study centers and touches over six lakh rural children. The NGO strives to support and enhance education as it believes that every student is a success, and to make this a reality it offers support courses to aid in their journey towards literacy. Accordingly, it lends a helping hand to children already in school (pre-primary to class VI), but weak in languages and mathematics.

To achieve its benign objectives, Vidyarambam runs the following programs:

- **Pre-Primary (Balwadi):** Vidyarambam introduces children between three and six years of age, to language and numeracy. Social Skills are imparted too.
- **Support Course Junior:** At this level, Vidyarambam works at further improving language skills and reading abilities and adds to the basic mathematical skills of the students of classes II & III.
- **Support Course Senior:** This is aimed at classes IV and V. Besides languages and mathematics, students are also assisted in the curriculum they deal with in school. Special emphasis is placed on grammar and language skills.
- **Easy Learning English:** Easy Learning English is for students of classes VI, VII and VIII. Special textbooks have been designed which give the students a feel for diction and grammar, thereby giving them a welcome edge.
- **Libraries:** More than 250 children's storybooks are available at each library.
- **Mobile Toy Library:** About 250 toys and games travel in a van from village to village. Children are encouraged to play with these for up to 2 hours.
- **Easy Learning Computers:** An initiative for empowering the rural children and women, about 5 computers are made available in each Vidyarambam Computer Learning Center, to impart basic computer skills.

Vidyarambam reaches to 24 out of 32 districts in Tamil Nadu and has so far launched 2,508 Pre-Primary learning centers (64,892 children) and 2,579 Support Course Junior and Senior centers (51,743 students).

For the unwavering efforts and a kind cause, Vidyarambam truly deserves a Standing Ovation!

If you want to get more information and support Vidyarambam, you can visit the website at http://www.vidyarambam.org

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