

need for soft skills in global engineering services

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Introduction

In this article we will go deep into one specific industry - "Global Engineering Services" and use it as an example to conclude that there is no "one size fits all" solution for managing soft-skills. Soft-skills get developed and matured in the course of time and a soft-skills practitioner has to deal with "Variance"- lots and lots of it... There is no one solution to deal with this variance.

The universe of global engineering services is in a state of constant flux as technology and business keeps changing adding to the demographic shift. A significant proportion of population in the US (people born between 1945-64, known as the Baby Boomers) and the same generation in other developed nations like UK, France, Germany, Italy & Japan had opted for aerospace /automotive and mechanical engineering as a career; the subsequent generations of engineers (people born after 1965) opted for service and knowledge oriented careers like IT services, etc. The Baby Boomers are now

retiring; this, combined with the fact that colleges & universities in the developed nations are turning out far lesser engineering and aeronautical graduates, creates a big demand for mechanical engineers and aeronautical graduates.

The engineering services universe is connected to another big universe called "manufacturing" and it is inevitable that all such engineers in services need to have a working knowledge of manufacturing to be truly effective in their roles.

The word 'Services' in Global engineering services implies the commonality to other service businesses and industries. Thereby customer relationship management and communication are important and value is perceived based on overall "experience" and "ambience" at all touch-points and not just on the service or product delivered.

Direct Stakeholders

If you take a look at the Indian context the key stakeholders involved in skill building policy include academia, governmental agencies, private training organizations, CII, NASSCOM, industries, service providers, non-governmental agencies and of-course a young and dynamic new-generation student community. The young generation is a lot more confident, has excellent access to education and information tend to be more self-sufficient and independent, much more tolerant to alien ideas, values and thought streams, a lot better in team-building and bonding and last but not the least, highly informed and conscious of social, political and environmental issues.

The civil and military segments of the Aerospace industry are enjoying robust growth, with the current global spend in the product engineering market being estimated at \$ 60-70 billion worldwide, and growing to \$ 80 - 90 billion by 2020. India has the potential to win 5% to 20% of this business, depending on this country's state of readiness to take on the opportunities.

A study by Booz Allen Hamilton for NASSCOM on Globalization of Engineering Services states that the

demand for engineers in the aerospace, mechanical and electrical engineering disciplines is expected to double from what it was 10 years ago. This gives rise to a big opportunity for engineering students to opt for aerospace, electrical and mechanical engineering as a career option.

The value of off-shored engineering services in Aerospace in India is currently estimated to be about \$ 700-800 million, and is expected to grow to \$3 billion by 2020. If manufacturing is also included, this can rise to \$ 10-12 billion by 2020. Primary drivers for this increased sourcing of aerospace engineering and manufactured items is India's Offset policy, along with the lack of resources in the developed countries, and the need to reduce costs and "Time to Market".

However there is not much material available on the skills demanded in the highly time-conscious global engineering services sector, given this scenario and this article intends to bridge some of those gaps.



Indirect Stake-Holders

When it comes to the engineering services sector, the other stake-holders include customers, customers' customers, governments, nationalities, environmentalists, Mother Nature, including the emergence of a new set of demographics, population distribution by age and the like. Customers are natural stakeholders since they are your lifeline as a service industry. In turn the services provided to these customers form part of a bigger supply chain for engineering leading to manufacturing. The moment you

expand your universe to the compulsions of this larger group, you tend to think of the real budgetary pressures they have, the lead time on logistics and infrastructure surrounding the product you are working on, the lead time on staffing to run and manage this infrastructure and what is core or non-core to their respective businesses as they go about out-sourcing. The impact of all this is that you have to work with a sense of urgency, do things right first time, on time, minimize defects, in short - deliver consistently a very high level of quality.

Soft-skills – Universal Phenomena

It is widely documented and well-known that there is a real challenge on the demand side on sourcing people with relevant soft-skills to address this complex requirement. For various reasons, it is increasingly becoming difficult to allocate trained resources on the job without supplemental soft-skills training. Engineers, taken as a professional, tend to be less endowed with soft-skill than some other disciplines. The highly advanced mathematical, analytical brain may not be much of a communicator. Whether you are in the United States, Mexico, India, China, Poland, anywhere, this is a common issue. Of late many engineering courses have included compulsory subjects that address soft-skills, and also other co-curricular avenues that reinforce such skills including project works in teams, study groups and so forth. In India too continuous work is being done on curriculum development and deployment that addresses these soft-skills. On the professional soft-skills

consulting front, several behavior profiling instruments, most of them proprietary have been devised that profile people and identify their dominant style and behavioral patterns. The accuracy of these assessments are getting more and more refined based on years of cumulative data that gets added.

The classical book “The Unwritten Laws of Engineering” published by the American Society of Mechanical Engineers (ASME), with ideas dating back to 1944 from W.J.King and revised and enlarged by James G Skakoon, clearly shows that the softer and practical attributes of engineering work have endured across generations. The instructions include areas such as self management, being proactive, assertive, keeping commitments, relating to supervisor, always keep records, being clear and concise in documentation, tips for an engineering manager, and professional ethics.

A Look at Contemporary Industry Practices

A Harvard University study revealed that 85% of jobs & promotions happened because of the candidate's attitude and only 15% due to the facts and figures he packed under his belt. Within the Indian industry, there is a definite move towards backward integrating academics with the soft-skill needs including communication and team working. Industries have started collaborating in a structured way with academia thereby resulting in a mutual win-win for both. However

this symbiosis becomes possible whenever there is an assured number of recruitments that the participating industry can commit to and is difficult to sustain otherwise. Through evaluation rigor prior to on-boarding, there is some control on the quality of the incumbents. Some popular mantras include “hire for attitude – train for skills” and “hire for learning ability”. English knowledge comes across as a major gap at many campus-recruitment avenues.



The onboarding exercise is usually elaborate and includes a reinforcement and alignment to customer specific hygiene factors on engineering proficiencies. These hygiene factors include specific areas such as honesty, integrity, forthrightness in admitting mistakes, willingness to seek help, attention to detail and assertiveness manifesting as an ability to say NO when appropriate. The engineering services industry demands flexibility to adapt to changing and adverse situations.

There is at least a three month window before full productivity of fresh candidates resulting in a “sail or sink” situation for the freshers. It is usually impossible to fit freshers into mission critical projects. Carefully designed competency assessment, customized training and evaluation, maintaining a graded competency dictionary and role profile for all careers, periodic competency assessment and profiling are the infrastructural support to meet this requirement. For example, the competency based soft-skills interview consists of leading questions that draw out previous behavior demonstrated along four dimensions

“situation”, “task”, “action” and “results”, leading to a fairly reliable assessment.

At various stages of the career, the soft-skills requirements keep varying. The scope and impact of roles keep increasing as careers progress and therefore the specific interventions and methods to augment soft-skills need to be carefully planned, based on budgets available. A learning map published to employees helps to keep them conscious and aware of behavior expected at their level and at the next higher level. It is theoretically impossible to have all-rounders. At lower stages in career, competency gaps can be bridged through training interventions, but at senior levels of career, dominant strengths have to be focused on and developed. The approach of bridging competency gaps may not work out at senior levels. Similarly during recruitment, the weightage ascribed to the soft-skills is different across various bands of seniority, usually classified as execution, coordination, managing, leading and strategizing.

Recent Developments

The top challenges based on a study across four engineering service industries in India revealed, “Not asking enough questions”, “Assuming customer / authority figure is always right”, “Being afraid to ask questions” and “Assuming everything is understood based on whatever customer has told us”.

Recent challenges of globalization are proving that the weightage for technical excellence towards overall effectiveness has reduced making way for newer skills like knowledge of interacting with trans-national cultures, business etiquette, expected and acceptable behavior in new geographies, handling telecons, graphic communication including use of annotations with pictures, conducting walk-through WebEx sessions and so forth. Traditional soft-skills continue to be relevant and these include adaptability, open-mindedness,

problem solving, decision making, communication skills, self learning and knowledge discovery, empathy and team work, motivation, attitude and a spirit of enquiry. “Attitude” is a word encompassing several factors, need for taking initiative, perseverance in adversity and motivating others. The thinking faculty is something that will really help create a world-class work-force. The thinking workforce continuously tries to explore the “why”, not just “what”. Going beyond “why”, the doors of innovation are opened up through imagination and asking the question “what if” and then following it through in a structured way.

As an illustration, the changing business scenario today has resulted in specific soft-skills assuming importance as shown below



Table: Services Skills Linkage

BUSINESS PARADIGMS IN ENGINEERING SERVICES	SOFT-SKILLS DEMANDED BY THESE PARADIGMS
Project management	Team work
Knowledge management	Written English, writing skills
Integrated product teams (IPT), Concurrent engineering	Spoken English, verbal communication
Quality systems and processes	Mindset, attitude, attention to details, assertiveness, integrity
Global project teams	Business etiquettes, cultural sensitivity
Rapid changes in business and technology	Stress (self) management
Innovation / Productivity improvement	Open, inquisitive mind, creativity

Leadership Development

All aspects of leadership development relevant to any knowledge industry apply even in the sphere of engineering services and is therefore not elaborated in detail. The selection process has to be rigorous and the development of these selected candidates has to be planned and executed carefully. Quality time from the top management time and support to this program is the strongest factor that can bring about break-through improvements and flowering of potentialities. Apart from this niche group, the single biggest transition in the entire career of an engineer is the transition from

individual contributor to people manager and apart from leadership development, this particular transition during promotions needs careful attention.

Once they don the role of leaders, they have to become role models, walk the talk and drive in several hygiene factors. These include such attributes critical to business like decisiveness, attention to details, quality mindset, global outlook, business acumen, change championship, ownership and accountability.

Conclusion

In these changing times, there is no one method to fit all situations. However a little thought will reveal a very important conclusion - the process of effectively imparting soft-skills or any other skill for that matter depends on professing three fundamental competencies "Communication skills", "Psychology" and of course "Subject matter knowledge" . For examples, if you are trying to communicate to a young generation on the

need for a "green" lifestyle, the approach you follow in imparting this message has to draw on "excellent communication skills", include the compulsions of consequences of decisions they can relate to, and of course be technically convincing, supported with data and evidences. This is a vast area of work and only an organization-wide concerted effort can bring change of the scale that is required today.



About the Author

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About QuEST Global

QuEST Global is a focused global engineering solutions provider with a proven track record of over 17 years serving the product development & production engineering needs of high technology companies. A pioneer in global engineering services, QuEST is a trusted, strategic and long term partner for many Fortune 500 companies in the Aero Engines, Aerospace & Defence, Transportation, Oil & Gas, Power, Healthcare and other high tech industries. The company offers mechanical, electrical, electronics, embedded, engineering software, engineering analytics, manufacturing engineering and supply chain transformative solutions across the complete engineering lifecycle.

QuEST partners with customers to continuously create value through customer-centric culture, continuous improvement mind-set, as well as domain specific engineering capability. Through its local-global model, QuEST provides maximum value engineering interactions locally, along with high quality deliveries at optimal cost from global locations. The company comprises of more than 7,000 passionate engineers of nine different nationalities intent on making a positive impact to the business of world class customers, transforming the way they do engineering.



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