CHAPTER 2

REVIEW OF LITERATURE
2 Review of Literature

2.1 Testing for Competence

Intelligence (or) aptitude tests were playing a major role in prospective employees getting selected to an organization (McClelland, 1973). In most of the organizations in the recent years there is an effort to recruit people based on “Competence” rather than “Intelligence” (McClelland, 1973). Does this mean that the earlier methodology of recruiting people through grades and tests was not the perfect way to recruit people?

McClelland in his article testing for “Competence” rather than “Intelligence” in American Psychologist, 1973 presents a view which was a starting point for this. McClelland started this by comparing 8 successful students who scored a grade A in Wesleyan university and with students who scored grade C. The difference in the analysis was McClelland compared those 20 years after they finished college to see what they were doing. Except for getting admission to A grade institutes for the A grade students all the 16 were having a similar performance in their area of occupation. Even with the supposed advantage success of A grade institute students was not notably more than what the C grade students were able to achieve. This made McClelland ask a question if “Competence” is equally or more important than “Intelligence”? should employers test for “Competence” along with “Intelligence”?.

Similar outcomes were documented (Berg, 1970) in a book titled Education and Jobs : The great Training Robbery which clearly documents that neither amount of education nor grades in school are related to vocational success as factory worker, bank teller, air traffic controller.

Another argument put forth by McClelland was, do Intelligence tests tap abilities that are responsible for Job Success? We are trained and taught to think so. In every level of education and job selection at some point all of us undergo some sort of Intelligence tests and aptitude tests and we come through it or come out of the selection process based on the results.
Having criticized what has been happening is not a solution and that is exactly what McClelland thought so when he came out with a suggestion on where do we go from here? The following are some of the points that were listed by McClelland:

- Tests should be designed to identify and reflect changes in what the individual has learned.
- Tests should assess competencies involved in clusters of life outcomes.
- Tests should involve operant as well as respondent behavior.

McClelland based his arguments on facts and statistics and not just based on impulse. As an empanelled interviewer for SAP functional consultant as a part of the team which is involved in laying down recruitment guidelines for SAP functional consultants the researcher did see lot of similarities what McClelland has been thinking and what is happening in reality. In most of the cases, except for couple of top consulting firms selection process for a SAP project and for organization entry has been happening based on:

- Validity tests
- Credentials that the candidate brings in
- Communication Skills of the candidate

There are very few organizations which try to incorporate evaluating competencies into the process. Researcher through his experience has observed there are organizations which check the intelligence level of a resource on Laplace series and Fourier Transformations before recruiting a resource as a SAP consultant. There are instances where a particular score becomes a breaking point to decide if a SAP functional consultant would be called in for an interview or not. From a practical experience as a recruiter researcher sees change in this trend. Does it mean organizations are getting to a decision that Intelligence and aptitude tests alone cannot determine competency of a person. The researcher is looking at taking this ahead and mapping competency
profiles for SAP functional consultants which will in turn help SAP engagements to be delivered effectively.

2.1.1 Understanding Human Competence at Work

Recently the concept of competence has been used more systematically in Management. Primarily it is the concept’s focus on relation between person and work that researchers such as (McClelland, 1973), (Boyatzis, 1982), (Kolb, 1984), argued, the concept of competence encourages scholars to think not only about knowledge itself, but also about the knowledge that is required in competent work performance. Hence the expression “human competence at work” has been coined which refers to knowledge and skill that people use while working but not all the knowledge and skill that a person has got. Three main approaches towards competence are being used today (Sandberg, 1994) and (Veres et al., 1990).

- The worker Oriented
- The work Oriented
- The multi-method Oriented

Within the worker-oriented approaches, competencies primarily seen as constituted by attributes possessed by workers, typically represented as knowledge, skills, abilities (KSAs) and personal traits required for effective work performance (Veres et al., 1990). In work-oriented approaches, competence is also regarded as a specific set of attributes. However, although advocates of the worker-oriented approach stake the worker as the point of departure, advocates of the work-oriented approaches take the work as the point of departure. More specifically, they first identify activities that are central for accomplishing specific work and then transform those activities into personal attributes. By doing so, they are able to generate more concrete and detailed descriptions of what constitutes competence and, thus, largely overcome the problem of generating descriptions of competence that are too general. One basic criticism of the work-
oriented approaches is that a list of work activities does not sufficiently indicate the attributes required to accomplish those activities efficiently (Raven, 1984).

Proponents of the multi method-oriented approaches also stipulate that competence is constituted by a specific set of attributes. What distinguishes the multi method approaches from the others is their more comprehensive approach to competence. More specifically, their advocates attempt to avoid the criticisms raised against the worker- and work-oriented approaches by drawing on both of those approaches.

Building upon previous interpretative research on competence, in earlier research (Sandberg, 1994) explored how attributes are integrated into work performance and outlined the possible variation in workers' competence. In that study, phenomenography was adopted as an interpretative approach to competence. This approach was originally developed by an educational research group in Sweden in the seventies (Marton et al, 1977) to describe the qualitatively different ways in which aspects of reality are experienced (Marton, 1981). Overviews of the development and use of phenomenography approach are offered by (Dall'Alba and Hasselgren, 1996), (Marton, 1981), (Marton, Hounsell, et al., 1984), (Marton and Wenestam, 1984), (Marton and Booth, 1997). As in other approaches within the interpretative research tradition, the primary focus of phenomenography is on the meaning structure of lived experience—that is, the meaning an aspect of reality takes on for the people studied. In the phenomenographic approach, the term conception is used to refer to people's ways of experiencing or making sense of their world. In the present study, a conception signifies the indissoluble relation between what is conceived (the conceived meaning of reality) and how it is conceived (the conceiving acts in which the conceived meaning appears).This approach gives a different view of how competency is looked at in work place.
Current research focuses in building competency model for SAP functional consultants constituted by a specific set of attributes. Based on focus group interviews and discussions with subject matter experts the approach is to group attributes into a main phenomenon which has been experienced by SAP functional consulting world and accordingly arrive at a competency model for SAP functional consultants.

2.1.2 Competency Modeling

The business environment today is characterized by incredible competition and change. In response organizations are flattening, relying on self-managed teams having matrix reporting structure, otherwise reconfiguring structure of work (Ashkenas, Ulrich, Jick et al., 1995). Accompanying these changes has been a growing concern that traditional job analysis procedures may be unable to continue to play a central role in the new environment (Barnes-Nelson, 1996) and (Sanchez,1994). It is with this backdrop we see competency mapping exploding in the past few decades. Given the turbulent practice environment and the magnitude and pace of growth of competency modelling, it is not surprising that practitioners and consumers of human resource services alike are looking for some meaningful reference points to guide their work.

During 2000 a task force headed by Shipmann and seven other members worked towards answering few basic questions. The approach followed by the taskforce was to use SME (Subject Matter Expert) interviews. They went with a number of interviewing five to nine SME’s for a particular area on which they were trying to get answers on. All the SME interviews were compared and contrasted. To arrive at an easier comparison and conclusion while the questions in the interview are open ended same set of questions were posed with SME’s in the same area findings are listed down in the article titled “The Practice of Competency Modelling” in Personnel-Psychology Journal ‘2000.
This method of focus group interviews have been carried out by many researchers in the
this space. Job analysis approaches are focused on describing the content of a job or identifying
what is different between jobs. What seems to be frequently overlooked in job analysis research
is to identify what is common across jobs, job groups, occupational groups, business segments,
and so forth, in an effort to build platforms of information that can be used to support a broad
range of applications in an HR system. In other words, what activities or worker characteristics
are core or important organization-wide? Or, for a particular organization, what descriptive content
of jobs or workers might be business unit specific (e.g., are some general skills or orientations
important in international business segments but not domestic ones?). Is it possible to map out
and chart changes in the common requirements associated with jobs across levels (e.g., which
activities or worker characteristics are components of all executive jobs vs. midlevel
management jobs vs. entry-level supervisor jobs)? Further, how might these broad or general
classes of descriptive content be aligned with the very detailed, technical, functional-specific
activities, skills, and knowledge descriptions that are required to drive some HR applications? By
posing these questions it does not imply that the folks in the competency modeling camp have
got everything figured out. This clearly is not the case. However, in the information-driven
organization of today, where dramatic developments in HR software and enterprise wide
resource planning systems (ERP) are reshaping the role of HR, they appear further down the path
than those in the job analysis camp.

These ERP systems (from companies like PeopleSoft, SAP, Oracle, Baan, and Lawson,
to name just a few) require underlying definitions and architectures of work and worker
requirements. In this arena, competency advocates have been quick to try and build models that
lay the foundation for integrating multiple applications. If the job analysis practitioners are not
careful, they may find themselves left out of the picture in what is shaping up to be a huge
development in HR management.

In short, the more rigorous job analysis techniques may also be used to define core
competencies and the role for defining core competencies may get extended to the technology
domain rather than the Human Resources Domain. This research work starts with focus group
interview method as used by Shipmann and others to arrive at

- Critical factors influencing competencies of SAP functional consultant
- Threshold and Differentiating competencies
- Building blocks for a basic competency model of a SAP functional consultant

2.1.3 Software Organizations Competing for Competent People

Competent people are in demand in any industry and software industry is no exception. There are many standing examples and research findings which suggest the same. Analyst reports (Gartner, 1997) suggest that one of Wal-Mart’s sources of competitive advantage is its home grown data warehouse and inventory management systems. In 1998, Internet retailer Amazon.com hired 15 of Wal-Mart’s information technology and logistics professionals intimately familiar with these systems. Alleging unfair competition, Wal-Mart responded by filing suit. Settling the lawsuit out of court, Amazon agreed to reassign most of the hired employees and refrain from actively recruiting Wal-Mart employees for 12 months. Similar interactions have been observed between Microsoft and Borland; Sears and Montgomery Wards; and SAP and Siebel (Bordwin, 1999). Practical implications both for hiring and losing firms have been provided.

According to economic, strategic, and organizational theory, the greater the similarity of the markets in which firms compete, the greater the rivalry between the firms (Baum and Korn, 1996), (Chen, 1996). Firms compete for human resources in three different labor markets:
skill/occupational, industry, and geographic markets (Milkovich and Newman, 1993). By definition, if one firm systematically hires the employees of another, they are competing in the same skill/occupational market. From the perspective of a target firm, a rival may or may not be competing in the same industry or geographic labor markets. When firms compete for customers in the same industry or product-market, they frequently have the same technologies, processes, resource demands, and skill requirements (Chen, 1996; Teece, Pisano, and Shuen, 1997).

A loss of multiple employees to a product-market competitor poses a significant threat to the targeted firm, increasing the likelihood of a defensive response. First, the loss of valuable human and social capital is the first part of the threat (Lepak and Snell, 1999). Second, because a product-market competitor is likely to need the same skills as a target firm, it will potentially hire a wide variety of employees from its target (Baum and Korn, 1996). Third, the product-market competitor will likely be able to profit from the skills and knowledge of the employees it hires away, at the expense of the target firm (Adler, 1999). This increased threat from product-market competitors increases the likelihood the targeted firms will utilize purely defensive and defensive-retaliatory responses.

A firm’s loss of employees to single rival results in the geographic relocation of these employees, the rival’s actions will be more visible to decision makers than will be the loss of employees to local competitors. This heightened visibility will facilitate information processing, increase the target firm’s awareness of the actions and the accuracy of its threat assessment, and thus increase the likelihood of a response (Smith et al., 2001). Second, owing to low or no additional commuting/relocation costs, the employees hired by local rivals have lower employer switching costs than they would if hired by nonlocal rivals (Dessendre and Moline, 1999). The low barriers to changing jobs decrease the effectiveness of purely defensive and defensive
retaliatory actions, thus decreasing decision makers’ expectations about the effectiveness of response tactics (Chen and Miller, 1994).

Losing employees to nonlocal rivals is thus likely to result in defensive and defensive-retaliatory responses. While the article discusses about the tactics that an organization could follow if their employees are poached and how is an organization expected to reach on poaching it does provide one clear indication that due to meeting requirement of competent people organizations involve in poaching and there is shortage of competent people in the market. SAP functional consulting being a very specialized area with limited resources in the market (Indian SAP market is expected to be 50,000+ people strong approx. as indicated by Gartner) it becomes a big challenge for organizations to keep looking for people from outside the organization. They are looking for suggestions from the research and academic world to give them a strategy to get people to do SAP functional consulting work. Industry is looking for innovative thoughts and strategy around how cans the idea of home growing functional consultants can become a reality and when? The researcher being from the same industry and functional consulting space strongly believes if a strong suggestion with strategy becomes an outcome of this research it will be welcomed with open arms form the Industry.

2.1.4 Qualitative approach and Focus Group Methods in analyzing competency models

Usage of qualitative approach along with a right mix of quantitative analysis with focus group interviews was observed to support development of competency models (Lee, 2009). While trying to answer research questions formulated study Yonghak Lee employed Focus group and in-depth interviews. The method is particularly useful for aggregating judgments and soliciting convergence of opinion from several dispersed individuals (Bass, 1983; Ludwig, 1996, 1997). The anonymity of participants should be maintained, especially when electronic mail is used (Ludwig, 1997; Wellman, 2003). The decision to use the focus group method in the
research was based on the purpose and objective of the research because it was to obtain the most reliable consensus of opinion of a group of experts (Wellman, 2003). The research questions in this study were highly appropriate for Delphi in that they required a high degree of expert opinion and because use of statistical methods was inappropriate (Rowe and Wright, 2001). Several previous researchers have used the technique to identify competencies in various fields (Birdir and Pearson, 2000; Cicek and Demirhan, 2001; Reddick, 1997; Watkins and Bacon, 2004; Wilhelm, 1999).

In the original focus group interview technique, the procedure begins with an open ended questionnaire given to a panel consisting of experts of a studied field or area to solicit specific information about a subject or content area (Custer et al., 1999). A modified version of the focus group interview was used for this study. Many Delphi studies have used the modified version of the Delphi method (Campbell, Cantrill, and Roberts, 2000; Custer et al., 1999; Meijer, Ihnenfeldt, Vermeulen, De Haan, and Van Limbeek, 2003; Watkins and Bacon, 2004). The major modification consists in using a structured questionnaire during the first round and asking panels to rate items prepared by the researcher (Martino, 1983). The structured questionnaire allows the panel to pay immediate attention to the study issues and saves the researchers time and expense (Murray and Hammons, 1995; Uhl, 1983). Even though the modified Delphi with structured questionnaire often has less iteration, the number of rounds seldom goes beyond one or two. Also, this study protocol could be defined as a “focus” Delphi because the respondents were asked to focus on a list of HRD practitioners’ competencies based on the 2004 ASTD list of competencies for Workplace Learning and Performance (Bernthal, Colteryahn et al, 2004). However, it could be broader in one respect than a traditional Delphi process: the protocol included an open-ended portion designed to elicit, and then consolidate, participants’ feelings about adapting international lists of HRD competencies to the Korean environment.
This study also employed semi structured follow-up interviews as a data collection method. It was useful to explore how focus group panelists perceived which ASTD competencies should be modified to fit different cultural organizational contexts, such as that of Korea. Therefore, the purpose of the interview was essentially twofold: (1) to confirm and elaborate on results gathered from Delphi rounds, and (2) to determine aspects of cultural relevance of ASTD competency lists within the Korean cultural context. Because of the nature of the in-depth interview, the sample selection may be emergent over the course of the interview, rather than completely developed at the start of the interview process (Mason, 1996). This allowed inviting research participants who might be able to supply additional information for emerging constructs and categories as the interview process progressed. Six interviewees were selected. Interviews were conducted by telephone for length of about 90 minutes and recorded into an electronic device (MP3 recorder) by the researcher. The interview questions were listed prior to the interview. Most of the interviews covered all the questions. If needed, some follow-up questions and clarifications were added during the interviews. The audio files converted to text files by the researcher.

With the area of research by Lee is for a Niche Specialty and with a limited group of experts available a parallel comparison to SAP functional consulting can be drawn and the researcher has taken leads from this methodology to arrive at a research method and plan for the current research.

2.1.5 Competency Mapping in Niche Areas: An Insight

Analysing literature in the competency space did reveal competency models being applied for Niche areas including medical science. Presenting below summary of few of the articles which provide a view on competency modelling in specialty areas. In Medical Education Journal 2012 Stephen J Lurie’s article on “History and Practice of Competency-based
assessment” explains the history and usage of competency model in medical science. Critiques arose both from within the medical profession, as well as from outside observers.

The heroic standards of historical texts such as Men in White gave way to increasingly sinister modern depictions of doctors in the popular media. Generally speaking, these decades saw a growing concern about the dehumanizing consequences of biomedical training. Some medical educators responded by providing home-grown experiences devoted to communication skills, medical humanities, cultural competence and the like. For a time, training institutions were free to navigate their own courses through these historical currents. Some schools were progressive, whereas others re-committed to traditional educational methods. During this period, medical schools were free to brand themselves according to their unique institutional priorities, such as those defined by the bio psychosocial model, rigorous clinical training, signature research experiences or a special humanistic orientation.

The most recent stage in this historical trend has seen the involvement of regulatory bodies, which are increasingly mandating universal teaching and assessment of various general competencies. Because such competencies are cast in global and overarching terms, they have proven challenging to define and to measure. The language of such competencies is typically derived by a consensus process involving large numbers of national experts, stakeholders and interested parties. The article does provide an interesting view on competency and also suggest there are niche areas wherein competency modelling is being used globally.

Another article which generated interest to the researcher was Core Competencies for Pain Management: Results of an Inter professional Consensus Summit by Scott M.Fishman et.al the objective of this project was to develop core competencies in pain assessment and management for pre licensure health professional education. Such core pain competencies common to all pre licensure health professionals have not been previously reported. An inter
professional executive committee led a consensus-building process to develop the core competencies. An in-depth literature review was conducted followed by engagement of an interprofessional Competency Advisory Committee to critique competencies through an iterative process. A two day summit was held so that consensus could be reached. The consensus-derived competencies were categorized within four domains: multidimensional nature of pain, pain assessment and measurement, management of pain, and context of pain management. These domains address the fundamental concepts and complexity of pain; how pain is observed and assessed; collaborative approaches to treatment options; and application of competencies across the life span in the context of various settings, populations, and care team models. A set of values and guiding principles are embedded within each domain.

The reason behind referring the articles in this research is to impress upon the fact that competency identification as a specialty has it wings extended to multiple streams of life including medicine

2.1.6 Competitive Landscape in Asia Pacific for SAP Service Providers

The demand that exists for SAP Application service providers has been highlighted (Twiggy Lo, 2013) and gives a point of view on how competition is going to be for the Asia Pacific Service providers. Most local and multinational organizations in Asia/Pacific rely on service providers to plan, design, implement and manage their SAP applications. These organizations also seek help from their service providers on how to consolidate and harmonize their SAP systems, as well as to enhance usability and improve cost-effectiveness of their SAP investment through mobility and cloud computing. The Gartner report examines factors shaping the SAP application service market and how service providers compete in the Asia/Pacific market.
The 2013 consulting and implementation market in Asia/Pacific is forecasted to reach $38.3 billion, a market growth of 10.8% compared with 2012, and the highest growth rate of all regions (see "Forecast: IT Services, 2011-2017, 1Q13 Update"). Asia/Pacific's application solution consulting and implementation services are estimated to comprise 26.2%, or $10 billion, of the region's total consulting and implementation market in 2013, with an estimated growth rate of 7.3%, the second highest growth region after Latin America (Forecast: Application Solution Services, Worldwide, 2010-2015). The high growth rates indicated that, although there is some dampening in the global economy, Asia/Pacific's huge domestic market continues to have high demand for application solution services, especially the high-growth developing markets of China, India and Southeast Asia, such as Indonesia, Thailand and Malaysia. In particular, the core SAP ERP application has always been an area of high demand because of the region's huge discrete and process manufacturing installed base. Other industries like energy and utilities, natural resources, retail, transportation, healthcare, and public are also expanding rapidly and are at various stages of implementing SAP applications. Although emerging countries have high growth rates, the largest market is Australia — the most mature country in Asia/Pacific. Australia's 2013 application consulting and implementation market size is estimated at $2.5 billion, with only a 1.9% growth rate.

The Asia/Pacific SAP application service market is highly competitive, with many kinds of providers. In this research, we discuss the players based on the prominence of their overall SAP application service strategy and execution plan of their coverage in the region. Service providers that offer SAP application services in Asia/Pacific include the following:

The Big Four consultants: Deloitte, Ernst and Young, KPMG and PwC — All have presence in most Asia/Pacific markets and are strong in providing business and technology advisory services. Deloitte is the most active in providing implementation services, while PwC is
very selective in providing application implementation services to its customers. Ernst and Young provide consulting services for enterprise application solutions but stops short of implementation. Ernst and Young are starting to expand its implementation practice in other regions, such as the U.S. and Europe, and are planning to be more aggressive in emerging markets. KPMG is not active in providing implementation services in Asia/Pacific. Global and multinational consulting and implementation service providers — these are consultants and system integrators; examples are Accenture, Atos, Cap Gemini, HP Enterprise Services and IBM Global Business Services.

SAP Services — this service arm of SAP provides consulting and implementation services for its own application products. The core SAP application, in particular, ERP, is its major source of revenue in the region. In recent years, SAP has aggressively pushed Hana and its BI and CRM products, and has been carefully selecting and training service partners. SAP Services' size and scale is limited to priming strategic deals and/or supporting partners. Its challenge is to cultivate the Tier 2 partners, and keep up with the relationship and co-innovation with the global Tier 1 providers at the regional and local level.

India-based service providers — these are consultants and system integrators; examples are Cognizant, HCL Technologies, Infosys, Mahindra Business Services Group (a joint group of Tech Mahindra and Mahindra Satyam), Tata Consultancy Services and Wipro. They have been investing in the region for many years, with stronger presence in Australia, Singapore, Malaysia and India, and have started to gain presence in Southeast Asian emerging countries, such as Indonesia, Thailand and the Philippines.

The study also gives an overview of Estimated Consulting and Implementation Service Spending Percentage by Application Solution in Asia/Pacific
While the overall economic conditions are not so upbeat this analysis and report from Gartner does provide a breather to SAP Application service providers in terms of how the APAC market looks like, this does give the confidence that irrespective of the global economic outlook the demand for SAP service will continue to exist and is going to be an area where service
providers can make their balance sheets healthier. Gartner in its various reports do give an account of the number of resources in SAP space in Indian market which will act as a guideline for the total population.

2.2 Analysis of India as offshore service location for Global Client

Before starting on this research the researcher did have thought on if the study has to be India centric as the global market scenario is changing and there are more than 30 locations along with India which are getting noticed as offshore location for Global clients. On analysing the information available there were enough evidences and study to indicate that India is still much ahead in terms of being a preferred offshore service location for Global clients and it is no different for SAP technology too. Gartner’s report on Analysis of India as an Offshore Services Location dated 5th November 2012 delivers a clear outcome where analysis has been carried out on 10 Criteria for 30 offshore locations. The table below gives a summary of findings which justify India as a location retaining three to five year lead when compared with other countries

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>Very Good</td>
</tr>
<tr>
<td>Government Support</td>
<td>Very Good</td>
</tr>
<tr>
<td>Labour Pool</td>
<td>Excellent</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Good</td>
</tr>
<tr>
<td>Education System</td>
<td>Very Good</td>
</tr>
<tr>
<td>Cost</td>
<td>Very Good</td>
</tr>
<tr>
<td>Political and Environment Support</td>
<td>Very Good</td>
</tr>
<tr>
<td>Cultural Compatibility</td>
<td>Very Good</td>
</tr>
<tr>
<td>Global and Legal Maturity</td>
<td>Good</td>
</tr>
<tr>
<td>Data and Intellectual Property Security</td>
<td>Good</td>
</tr>
</tbody>
</table>

Source: Gartner (Arup Roy, 2012)
Key Findings

- Lack of execution and slow development of infrastructure development plans have kept India from keeping pace with the demands of the industry.
- India's cost advantage continues to dwindle. Steady wage increases, high inflation and high attrition rates create the anticipation of an increasing role of Tier 2 cities to counterbalance the current cost run up.
- India continues to improve its educational system and infrastructure. Both will have positive impact on creating next-generation offshore appeal for India, if progress does not stagnate.

Recommendations

- First-time offshore buyers should consider India as your key destination for large-scale, process-oriented work, such as application development, ERP support, transactional business process outsourcing (BPO), and services in which India's "first shift" can provide 24/7 IT support.
- Prepare to address and calculate for increasing labor rates — factor them into your budgeting and contracting process.
- Evaluate the quality versus cost proposition of Tier 2 and Tier 3 cities, along with your provider, for some elements of your portfolio. "Lower end," technical-skills-centric work will increasingly be positioned to be delivered out of Tier 2 cities in India. However, quality requirements must be addressed as this move is made.
- Proactively request rate breakouts by city tier as some providers homogenize rates although they may be leveraging a Tier 2/3 city.
Key Factors which had supported Gartner in findings and recommendations

Language

- India is 16th in the International Institute for Management Development (IMD) global competitiveness ranking for English language skills in 2012.

- Data on school enrollment for 2010 through 2011 shows that, for the first time, the number of children enrolled in English-medium schools from Classes I to VIII has crossed the 20 million mark — a 274% rise since 2003 through 2004.

- Although India still remains an outsourcing preference, the gap is gradually closing. Government agencies and other bodies are taking steps in this direction to improve overall English language skills in countries and markets such as China, Malaysia, the Philippines and Latin America.

- There is an increasing recognition of the importance of high-quality communication, which is driving the creation of "finishing schools" across the country, with the sole focus of improving communication skills.

Government Support

- India's government has launched a variety of funding programs. Grants for individuals to soft loans and equity capital for private limited companies are currently available across the country. Amounts greater than 10 million rupees are available for:
  - Biotech enterprises
  - Revenue-generating technology enterprises that need funds to scale

- With more attractive and investor-friendly foreign direct investment (FDI) policies, India has become one of the favorite destinations for ICT investment portfolios. The introduction of liberalized foreign direct investment policies by the Indian
government allows 100% investment in the Indian ICT sector. The government has initiated numerous measures to facilitate licensing, thereby making investment procedures easier.

- In 2011, the government of India launched a $1 billion initiative, India Inclusive Innovation Fund (IIIF), which fosters technological innovations aimed to serve the needs of the millions of poor in the country. The $1 billion IIIF will start with seed capital of $20 million.

**Labor Pool**

- In 2012, India was ranked 14th by IMD in the availability of IT skills.

- India will likely add close to 250 million workers to its labor pool from 2005 through 2025. This trend stands in sharp contrast with the working-age populations of the rest of Asia/Pacific, especially China, where the number of workers is expected to peak and start dropping already by 2010.

- The total number of IT/BPO employees in India is estimated to be around 3 million in 2012. As of 2012 estimates, India is producing about 1 million engineering graduates every year, of which more than 40% are from IT/software engineering alone.

- India has a strong demographic advantage that is likely to persist for a long period, because the dependency ratio (proportion of nonworking population to working population) will decline steadily from 59% in 2005 to 47% in 2020 to 44% in 2025.

**Infrastructure**

- As per GCR 2011 study, India ranks 42nd in availability of latest technologies among 142 countries studied.
• In the same study, India ranks 83rd in quality of overall infrastructure among 142 countries studied. This is actually an improvement of eight ranks from a similar study done in the previous year.

• The government of India is spending to boost the infrastructure of India to make it more business-friendly and investment-worthy.

• India's power infrastructure scenario looks grim, as several states are in constant shortage in their power requirements.

Educational System

• India ranks 28th in IMD's educational system ranking for 2012 (a decline of 10 ranks FROM2011) on the basis of the educational system's ability to meet the needs of the competitive economy. Likewise it ranks 24th in management education and 28th in university education.

• India also has one of the largest talent pools in the world, churning out around 3.1 million graduates each year — highly qualified men and women in fields as diverse as medicine, IT, law, finance, writing and website designing.

• The government is also looking into strengthening the vocational education curriculum and instructor training in India through industry relevant train-the-trainer curriculum and materials development. The purpose is India's need to increase the numbers of educated and skilled young adults to compete in an increasingly globalized, knowledge-based economy.

Cost

• IT salaries in India have continued to rise over the past couple of years. With inflation figures hovering about 9%, this has added to the overall wage/salary increases, which impacts end user costs.
• According to a survey by Ma Foi (an Indian HR company) in 2012, salaries across India are expected to increase an average 11.2% for 2012, slightly less than the previous year's rate. The country fares competitively with China on the salary hike front.

• The Chinese government, as a matter of national policy, has been increasing minimum wages by 15% to 25% annually for the past three years, and average salaries across China have been increasing at a similarly rapid pace.

• The overall increase in the cost of experienced workers in India has meant that the country is no longer the least-expensive option on a pure resource cost basis, compared with some other developing countries. However, volume and quality of the Indian labor pool must also be considered IMD ranks India at fourth position in cost of living index 2011 among 59 countries.

Political and Economic Environment

• The Indian government released a new consumer price index (CPI) in February 2012, which pointed to continued easing in price pressures in January. CPI inflation rose 8.6% year over year in March. Inflationary pressures remains persistent as a result of supply-related factors (primarily food), despite weaker domestic demand.

• India's foreign-exchange reserves rose to US$291.8 billion on 11 May 2012 from US$306.9 billion one year earlier. As the rupee dipped to all-time year lows in late 2011, the Reserve Bank of India sold U.S. dollars to curb the volatility in the currency market, which led to a slight depletion of foreign reserves. In addition, the build-up of reserves moderated on a rising trade deficit and weaker foreign capital inflows, as both global trade and investor confidence had begun to feel the pinch from rising global economic and financial uncertainty.
• According to Transparency International's 2011 corruption perceptions index, India is ranked No. 96 out of 185 countries (with No. 1 being the best and No. 185 the worst). Ranking went down by nine positions from 2010.

• World Audit's 2011 democracy ranking ranks India 49th out of 150.

**Cultural Compatibility**

• IMD International ranks India at ninth position in attitude toward globalization in a 2011 study among 59 countries.

• Recent visa-related amendments have made changes so that expats working at senior Positions in India need not go back home and seek fresh Indian employment visas when they take intergroup transfers, this will provide flexibility to foreign companies that have multiple businesses in India in deploying their resources.

• India ranks 18th in IMD's 2012 ranking of national culture, which ranks countries on their openness to foreign ideas. It ranks ninth in flexibility and adaptability of people when faced with challenges.

• India has experienced a constant increase in tourism industry and, thereby, increased investments from the government to support the growth of tourism in the past five years.

**Global and Legal Maturity**

• India ranks 132 out of 183 countries in the domestic regulatory environment for doing business ranking of 2012. India's rank has improved by seven due to the improvement in regulatory framework, which now allows for e-filling of value-added tax and collateral registry.

• World Audit ranking democracy of 2011, India placed 49th out of 150 countries (where 1 is the best).
• India ranked 46th in the Freedom House Global Press Freedom Rankings 2012 (out of 150 countries).

• As per GCR 2010, India ranks 20th in legal rights index out of 142.

Data and IP Security and Privacy

• The Indian government has come up with a new data protection (DP) regime. The DP rules became effective 11 April 2011, as a transition period has not been provided. The DP rules could have a significant impact on the business processes of companies operating in India or outsourcing to India.

• A survey on India's IT security scenario identifies that the main challenge for India is to train and equip its law enforcement agencies and judiciary, particularly outside big cites. As per the survey India stands fifth in the worldwide ranking of countries affected by cybercrime.

• The government of India is planning to set up agencies Defense Intelligence Agency and

• National Technical Research Organization for taking care of offensive cyber operations, if necessary. All other intelligence agencies will be authorized to carry out intelligence gathering abroad, but not offensive operations.

• IMD's World Competitiveness 2011 ranks India 40th for cyber security out of 59 countries (with No. 1 being the best).

• The National Association of Software and Services Companies has set up the Data Security Council of India (www.dsci.in) as a self-regulatory organization to establish, popularize, monitor, certify and enforce privacy and data protection standards for India's IT-enabled services/BPO industry.

Literature reviews do provide further clarity on the points mentioned below
• Competency models for Niche areas are considered to be important and are in existence for areas like Medicine (Scott M. Fishman, MD, 2013 and Stephen J. Lurie 2012)

• Competency modeling of specific areas extend beyond the domain of Human resources and actually lie in the technology domain (Schipmann, 1999)

• Industry is looking for out of the box thinking in bringing up fresh management graduates up to speed in handling SAP as a product (Mark C.Springer ,Steven C.Ross and Nate Humann,2003)

It is clear through review of literature available that there is very limited literature available on competency models (or) competency modeling for SAP Technology and in specific for SAP functional consultants.

2.3 Gaps in Existing Research

Based on the literature review process, from his personal experience and discussions with subject matter experts in SAP functional consulting space the gaps are identified and summarized as below:

• Literature reviewed suggests many approaches towards identifying competencies and building a competency model. There is a gap in identifying and implementing competency model in SAP space, this research attempts to close that gap.

• There has been lot of studies in building a competency model and integrating it with organizational requirements whereas there is limited information available for researcher on implementing competency modeling in SAP technology space from a practical angle. This study aims at providing a practical study wherein the model created gets integrated into the training program to develop competency of a SAP functional consultant.
• There are very limited or negligible studies investigating the competency factors that impact competency of a SAP functional consultant (i.e.) is business process knowledge an important competency factor and how important it is when compared with the SAP product knowledge? Hence, it is identified that similar gaps need to be addressed through this study.

• SAP functional competency gets impacted by multiple competencies like knowledge in SAP knowledge, business knowledge and so on. There is a felt need to identify combination of competencies that impact SAP functional competency.

• Appropriate training model through which SAP functional consultants can be trained to acquire required competencies is not available in current literature. Hence it is identified that this research will be towards addressing that gap too.

2.4 Statement of Problem

With reference to the literature reviewed and facts on the ground in SAP world it is very clear that there is a lot of responsibility and accountability expected from a SAP functional consultant in a SAP implementation /support or a rollout engagement. Organizations are finding it very hard to get a competent functional consultant who can deliver what is expected to be delivered out of him/her. This becomes a challenging point in managing SAP Technology rather than managing people. Complexity and the nuances involved in this due to involvement of technology make this more of a technology management issue rather than a people management issue. The expectation changes from phase to phase of a SAP engagement and the SAP Technology group has the experience and expertise to really identify what is expected out of a SAP functional consultant rather than a people management person

Industry looks for guidance from research world as to how to impart technology and functional consulting skills to a functional consultant to deliver what is to be delivered (or) how
to have a clear plan of grooming a SAP functional consultant depending upon the exposure and the experience the consultant has.

Prospective beneficiaries of this research:

- SAP project leaders could refer the model to bring in functional consultants with right level of competency to handle clients, client requirements, multiple stakeholders of the engagement and the engagement itself.
- Individuals can refer this model to identify what is required in them if they need to grow as SAP functional consultants and accordingly build their competency.
- Clients can refer this model as a baseline to see the Systems Integration vendor provides a competent functional consultant for their engagement.
- SAP training leads and education partners can refer this design SAP functional consulting training to people who are looking to take training in SAP functional consulting.
- Educational Institutes (Business Management and Engineering) could apply this model and integrate the same with the ERP curriculum to get resources at bottom of the pyramid deliver value added work in the Industry.
- Teams involved in bridging demand supply gap in SAP world could use the model as a criteria to evaluate and suggest right coaching and guidance to SAP functional consultants.