A GENERIC SUPERVISORY JOB COMPETENCY MODEL
FOR CEMENT AND STEEL MANUFACTURING:
A CASE STUDY AT CAHYA MATA SARAWAK BERHAD

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ABSTRACT

This research project is a case study at CMS Cement and CMS Steel manufacturing plants with the main objective of developing a generic job competency model for the manufacturing supervisors. This model will be used as a basis for human resources development programmes. In its crudest form, it is a yardstick for measuring how someone is performing, comparing current performance to an ideal and suggesting actions that can be taken to improve that performance.

A total of 70 manufacturing supervisors, 34 from CMS Cement and 36 from CMS Steel were selected for the study. However, a total of 58 sets of completed questionnaire were returned by the respondents, representing a response rate of 83 percent of the population. The statistical tools used in the data analysis are descriptive statistic (frequency and percentage) and inferential statistic (t-test and one-way ANOVA).

The findings revealed that out of 18 null hypotheses tested, 9 hypotheses showed there is a significant difference in the perception of the supervisors with regard to the demographic variables toward the inquiry areas. The study had succeeded in developing a generic supervisory job competency model for the manufacturing supervisors of CMS Cement and CMS Steel plants.
ABSTRAK

Kajian ini adalah merupakan kajian kes yang telah dijalankan di kilang CMS Cement dan CMS Steel bertujuan untuk menghasilkan satu model kompetensi bagi penyelia di kilang tersebut. Model ini akan menjadi asas untuk merangkakan program pembangunan sumber manusia. Dengan erti kata lain, ia akan menjadi kayu pengukur membandingkan prestasi kerja kini dengan yang ideal dan seterusnya mencari jalan untuk meningkatkan prestasi kerja.

Pengumpulan data dilakukan melalui soal selidik ke atas 70 orang penyelia di kilang pembuatan tersebut di atas. Seramai 58 responden mengembaliakan borang soal selidik yang menunjukkan peratusan yang agak tinggi iaitu 85% daripada jumlah populasi. Kaedah deskriptif (kekerapan dan peratusan) serta inferential (ujian-T dan ANOVA sehalah) telah digunakan untuk menganalisis data.

Analisa kajian ini mendapati bahawa 9 daripada 18 hypothesis menunjukkan perbezaan yang signifikan berhubung dengan anggapan responden terhadap kompetensi elemen berdasarkan demografik responden. Kajian ini telah berjaya menghasilkan satu model kompetensi 'a generic supervisory job competency model' bagi penyelia pembuatan di kilang CMS Cement dan CMS Steel.
CHAPTER 1

INTRODUCTION

1.0 Introduction

A growing number of business and government-sector organisations have turned in recent years to competency modelling as the key link to ensuring that employees can execute corporate business strategies. With increased industry interest has come research designed to test the usefulness of new competency models (Purdue, Ninemeier & Woods, 2000).

Research on competencies is frequently but not always focused on specific areas. For instance, Heneman and Ledford (1998) and others have focused their research specifically on competencies relative to compensation. In contrast, Lawler (1994) used competency research to argue for changing the entire efficacy of designing organisations around job structures, which is an approach that has dominated human resources management for decades, to one that focuses on individual competency-based training.

Competency training has also been widely accepted in human resources departments. A study examining training practices at 217 companies found that competency modelling was used to guide a variety of human resources practices, including staffing (88 percent of the companies), training and development (62 percent), performance management (90 percent), and compensation practices (64 percent). Most of these companies make adjustments to training needs, performance management, and compensation, based on revised competency assessments (Purdue, et al, 2000).

Experience in other organisations has shown that in order to create a new culture and build human capacity for the future, it is important to define organisational core competencies which represent the combination of skills, attributes and behaviours which are essential for all employees. Once organisational competencies have been defined, they can be used as a base upon which to build and strengthen other human resources system such as recruitment, placement, development and performance appraisal. Competencies could provide the glue to link human resources systems together in an integrated way.

Organisations whether government owned, business or non-profit entities provide products and services to their customers. The goal is to fulfil and satisfy the needs of their customers. These can only be achieved if the organisations have a committed and skilled workforce. Thus, human capital or the employees are the greatest assets to the organisations that deliver those goods and services to the end users. It should be a great concern to the organisations to ensure that these assets do not become obsolete and retain their competitive edge in the ever-changing business environment. The quality of people is the greatest strength and key to the organisation success.

The organisation’s incentive for this research is the dream of early identification or development of the people who can have the largest positive impact on organisational strategy, productivity, and quality from a supervisory role. The abolition of trade barriers by ASEAN Free Trade Area (AFTA) which will come into force soon will expose the
organisations to a foreign competition and dislodge them from the niche market. This has heightened awareness of the need to enhance organisational effectiveness.

As emphasised by Albrecht and Zemke (1985), product and service quality has become the new standard used to measure organisational performance, and clearly, management represents the standard’s principle architect. Proactive and highly effective managers and supervisors are no longer organisational luxuries; rather they are necessities for survival.

This study focuses on the critical elemental competencies for developing a generic supervisory job competency model for manufacturing supervisors. Manufacturing supervision was selected as the focus of this study because of the followings:

1. It is a highly visible position in which performance has an immediate and lasting impact on the bottom line of the organisation; and

2. Manufacturing supervisors perform a role that has a direct impact on the employees who actually produce the products of the organisation.

### 1.1 Background of the Organisation under Study

This study was conducted at two manufacturing plants namely CMS Cement Sendirian Berhad and CMS Steel Berhad under Cahya Mata Sarawak Berhad (CMSB) which are based in Kuching. These two organisations were chosen for the study because most of the manufacturing supervisors are stationed there.

#### 1.1.1 CMS Cement Sendirian Berhad

CMS Cement is a wholly-owned subsidiary company of Cahya Mata Sarawak Berhad. It was incorporated as Cement Manufacturers Sarawak Sdn. Bhd. on 8th October 1974 as a joint venture between the State Economic Development Corporations of Sarawak and Sabah. In February 1989, it become the first company from Sarawak to be public listed on the KLSE. In 1994 the Company entered a new era as it crossed the milestone from a single product manufacturer of cement to the leading financial and infrastructure conglomerate engaged in diversified products and activities and become a holding company for a group of subsidiary companies. In order to assume its new identity, the holding company became known as CMSB in 1996. Subsequently the Group’s cement operations and assets were transferred to CMS Cement Sendirian Berhad.

Currently it has two cement grinding plants located in Kuching and Bintulu with a combined capacity of 1.75 million tones of cement annually. The Kuching plant which started operation in 1978 has a capacity of 1 million tonne per annum whilst the Bintulu plant, which was commissioned in December 1998 has a capacity of 750,000 tonnes per annum. On 29th December 1998, the Kuching Plant was awarded the prestigious ISO9002 Certificate by SIRIM QAS.

#### 1.1.2 CMS Steel Berhad

CMS Steel Berhad (formerly known as Steel Industry Sarawak Berhad (SIS)) was first commissioned in 1988. It was the first steel mill in Sarawak with a capacity of 70,000 metric tonnes per year.
In 1999 a new state-of-art mill was installed with a capacity of 300,000 metric tonnes per year capable of producing high quality steel bars and wire rods.

Presently the plant is located at Demak Laut Industrial Estate, Kuching, Sarawak. Its close proximity to a deep-water port provides the mill an access to importation of raw material as well as creates opportunities for the exportation of finished products.

The Company acquired ISO certification in 1995 for the production of both steel bars and wire rods. Apart from ISO certification the steel bars and wire rods are manufactured in full compliance to British Standard 4449:1997 (equivalent to MS 146:2000) and Japanese Industrial Standards (JIS) G 3505:1996 respectively. Therefore customers can always be rest assured the quality of the products.

CMS Steel manufactures carbon steel grades of constructional bar: Mild Steel Round Bar (grade 250) and High Tensile Deformed Bar (grade 460B) according to British Standard, BS4449: 1997 specification and various Wire Rod grades according to Japanese Industrial Standard (JIS) and equivalent international specifications.

1.2 Problem Statement

The success or failure of an organisation is generally a direct reflection of the calibre and effectiveness of the people who work there. Analysis of business failures tells that the human factor is a major contributor to those failures. People are frequently ill-prepared, insufficiently qualified, lack appropriate experience and do not fully understand the consequences of their decision and action (Pickett, 1980).

In a highly competitive business environment, the efficient utilisation of human resources is a prime responsibility of top management. The calibre of individual employees and their collective contribution to the enterprise has a significant bearing on results achieved. The effectiveness of executive leadership and decision making, the levels of training, development and motivation of employees will influence present and future rates of return on investment. The current problem confronting the organisations endeavouring to introduce competency programmes is the difficulty in identifying competencies for a supervisor’s performance (Pickett, 1980).

According to Pickett (1980), a sample of over one hundred United Kingdom organisations employing nearly half a million people revealed that the majority of organisations elected to use ten competencies or less. Over one quarter of these organisations chose to use between three and five competencies with a similar number using between six and nine.

One simple guideline to use when deciding how many competencies to use is a focus on the most critical elemental competencies, which will really have an impact on performance. This means that the emphasis must be on the critical elemental competencies and the result should be an improvement in performance of the individual, the work unit, and ultimately in the overall performance of the organisation.

The current problem faced by the organisation is how to build up the organisational core competencies to outcompete its business rivals. Clearly, there is an urgent need to define the organisational core competencies and carefully design a competency model which could provide a strategic focus on the development of capabilities for the organisation.
In view of the forthcoming abolition of trade barriers within the Asean region once Asean Free Trade Area (AFTA) is implemented, the organisation has to improve its manufacturing effectiveness and requires training courses carefully structured to address items such as production planning and scheduling, inventory control, work process, productivity improvements and so on.

Any form of job analysis takes time, and competency building is particularly tedious. By necessity, it involves asking many participants to rank or rate many different factors based on their performance to a job. Researchers must code each response into job skills, tasks, and actions, and then undertake a content analysis to determine which responses fall into each major competency area. This rigorous process had prevented the company from taking any steps to develop a job competency model. However, the company had realised the necessity and importance of having a job competency model for use as a guide for human resource practices. Thus, this research study was initiated as the starting point towards building a job competency model for the company. Currently, the critical elemental competencies for the job of manufacturing supervisors are very vague.

1.3 Objective of the Study

The main objective of the study is to develop a generic supervisory job competency model for the manufacturing supervisors.

The specific objectives of the study are to identify the followings:

a) critical elemental competencies based on supervisors characteristics, that is: age, working experience, and educational level;

b) critical elemental competencies according to performance appraisal indicators;

c) critical elemental competencies according to department; and

d) critical elemental competencies according to Strategic Business Unit.

1.4 Conceptual Framework of the Study

<table>
<thead>
<tr>
<th>Demographic Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Characteristics</td>
</tr>
<tr>
<td>1. Age</td>
</tr>
<tr>
<td>2. Working Experience</td>
</tr>
<tr>
<td>3. Educational Level</td>
</tr>
<tr>
<td>4. Performance Appraisal Indicators</td>
</tr>
<tr>
<td>5. Department</td>
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<tr>
<td>6. Strategic Business Units</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Inquiry Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Elemental Competencies</td>
</tr>
<tr>
<td>1. Job Knowledge</td>
</tr>
<tr>
<td>2. Skills</td>
</tr>
<tr>
<td>3. Attitudes</td>
</tr>
</tbody>
</table>

Figure 1.1: Conceptual Framework of the Study

Figure 1.1 above shows the demographic variables and the inquiry areas present in the study. The demographic variables consist of the demographic characteristics such as age, working experience, educational level, performance appraisal indicators, departments and strategic business units while the inquiry areas are the critical elemental competencies.
the Asean region once Asean nations have to improve its carefully structured to address company, work process, which consist of three domains namely, job knowledge, skills and attitudes. Pickett (1980) stated that knowledge, skills and attitudes are generic supervisory competencies which when put into practice produce quality results to the organisation. Supervisors who have the competencies use them to perform a variety of behaviours and activities that produce outputs.

1.5 Research Hypotheses

The hypotheses of this study are used to identify if there are any significant differences with regard to the demographic variables towards the critical elemental competencies.

**Ho1:** There is no significant difference with regard to Age towards Job Knowledge.

**Ho2:** There is no significant difference with regard to Age towards Skills.

**Ho3:** There is no significant difference with regard to Age towards Attitudes.

**Ho4:** There is no significant difference with regard to Working Experience towards Job Knowledge.

**Ho5:** There is no significant difference with regard to Working Experience towards Skills.

**Ho6:** There is no significant difference with regard to Working Experience towards Attitudes.

**Ho7:** There is no significant difference with regard to Level of Education towards Job Knowledge.

**Ho8:** There is no significant difference with regard to Level of Education towards Skills.

**Ho9:** There is no significant difference with regard to Level of Education towards Attitudes.

**Ho10:** There is no significant difference with regard to Performance Appraisal Indicators towards Job Knowledge.

**Ho11:** There is no significant difference with regard to Performance Appraisal Indicators towards Skills.

**Ho12:** There is no significant difference with regard to Performance Appraisal Indicators towards Attitudes.

**Ho13:** There is no significant difference with regard to Department towards Job Knowledge.

**Ho14:** There is no significant difference with regard to Department towards Skills.

**Ho15:** There is no significant difference with regard to Department towards Attitudes.

**Ho16:** There is no significant difference with regard to Strategic Business Units towards Job Knowledge.

**Ho17:** There is no significant difference with regard to Strategic Business Units towards Skills.

**Ho18:** There is no significant difference with regard to Strategic Business Units towards Attitudes.

1.6 Significance of the Study

The primary purpose of these findings will be used to develop a generic supervisory job competency model for the manufacturing supervisors in the manufacturing plants in CMS Cement and CMS Steel under Cahya Mata Sarawak Berhad (CMSB). A secondary purpose is to provide useful data for developing a comprehensive project-planning guide to assist the human resource practitioners who are confronted with the challenges of implementing a major competency framework.
The information on the critical elemental competencies will be used to design a job competency model that could serve as a basis of HR management processes for:

1. Assessing the potential of current individual contributors (engineers, programmers, etc);
2. Recruiting and selecting candidates from outside and/or filling managerial/technical positions from within the company; and
3. Designing training programmes and development strategies for potential managerial/technical positions.

The findings of this study will contribute to the enhancement of the field of human resource development in the organisations. Besides that, this study will also provide insights for the organisations to develop appropriate competency model and training programmes related to supervisory competencies.

1.7 Definition of Terms

1.7.1 Competencies

Competencies are defined as underlying characteristics of job holders that result in effective or superior performance in a job (Boyatzis, 1982). Competencies are operationalised in the current study as knowledge, skills and attitudes or characteristics associated with high performance on a job, such as problem solving, analytical thinking, or leadership.

1.7.2 Critical Elemental Competencies

In this study, the critical elemental competencies refer to the competencies in the competency domains, which will really have an impact on performance. It is difficult to achieve significant performance improvement in more than two or three areas at the same time. This means that the emphasis must be on the critical elemental competencies and the result should be an improvement in performance on the individual, the work unit and ultimately in the overall performance of the organisation (Pickett, 1980).

1.7.3 Supervisor

Supervisor refers to section leader, foreman or charge-hand, superintendent and senior foreman or second-line supervisor. They are the persons who lead their operation team and act as the middleman between the managers and employees.

1.7.4 Job Knowledge

Job Knowledge refers to a body of information relevant to job performance, which the supervisors have to know to be able to perform the job, such as knowledge of policies and procedures.

1.7.5 Skills

Skills in this study refers to planning and organising, teamwork, communication, problem solving and decision making, leadership, motivation, negotiation and customer focused.
1.7.6 Attitudes

Attitude represents a person's general feeling of favourableness or unfavourableness toward some stimulus object (Fishbein & Ajzen, 1975). Attitudes are always held with respect to a particular object, whether the object is a person, place, event, or idea, and indicate one's feelings or affect toward that object. Attitudes also tend to be stable over time and are difficult to change (Slaw & Ross, 1985).

In this study, attitudes are operationalised as displaying willingness in accepting job assignments and new challenges, accepting and undergoing changes and demonstrating good discipline in conduct and behaviour.

1.7.7 Strategic Business Unit (SBU)

Strategic Business Unit is any part of business organisation that is treated separately for strategic planning purposes. It can be single business or a collection of related businesses. The corporate-level strategy provides the general direction, and a business-level strategy provides the direction for each SBU. The business-level strategic plan is reviewed at the corporate level, changes are made if necessary, and the final business-level strategic plan for the unit is approved. Each SBU has a unique mission and product line and its own competitors and markets (Mondy, 1999).

Strategic Business Unit (SBU) in this current study refers to CMS Cement and CMS Steel SBUs.

1.7.8 Job Competency Profile (JCP)

Job Competency Profile refers to the development of a prioritised set of competencies or success factors for a particular job or group of jobs. It may include the use of proficiency ratings for each competency.

1.7.9 Performance Appraisal Indicators

Performance Appraisal Indicators in this study is operationalised as indicators showing outstanding and good performers.

1.7.10 Competency Model

The term competency model in this study refers to the elemental competencies in the competency domains of job knowledge, skills and attitudes that make for successful performance in any job.

1.8 Limitations of the Study

The limitations of the study are as follows:

This is a case study conducted at two manufacturing plants of CMSB Group, involving only manufacturing supervisors. Thus, its findings may not be generalised to other organisations with different operations and backgrounds. Similar research in other organisations is required to compare the findings.
The study is limited to thirty-nine (39) elemental competencies under the three competency domains namely, Job Knowledge, Skills and Attitudes and there could be other factors that are not included in this study that can be considered as other elemental competencies.

The accuracy of the findings depends on the honesty of the respondents in answering the items in the questionnaire. It is assumed that the respondents will express their true feelings and opinions in the study.

The accuracy of the findings also depends on the respondents’ understanding of the statements in the questionnaire. There is the possibility that some respondents may not totally comprehend the intent of the statements and give inaccurate responses. This will then affect the accuracy of the results.

1.9 Summary

This chapter has discussed the main objective, conceptual framework and significance of the study. The next chapter will discuss the literature review related to this study.
CHAPTER 2
LITERATURE REVIEW

2.0 Introduction

This chapter discusses the related topics and issues of past literature written by early researchers and authors. The literature review related to this study covers the definitions and concept of a job competency model, its application and value, and the various elemental competencies, knowledge, skills, attitudes and supervisors.

2.1 Supervisors

According to the Shorter Oxford English Dictionary, the definition for supervisor is a person who exercises general direction or control over a business and a body of workmen. A supervisor is an employee or member of the group of facilitators called managers who is responsible for the welfare, behaviours and performance of non-management employees-workers (Plunkett, 1996).

The roles of supervisors in the modern context have changed dramatically. Brain Stein, President of consulting firm pointed out that the roles of supervisors in this modern world are to coach their employees, helping in planning, approve company directions and make sure the directions are clear. In essence, the supervisors must find the compromise between exercising too much authority and being a rubber stamp to higher managers. Supervisors are transmitters of decisions made by their managers, but they also have the authority to make the recommendations to the managers on behalf of the employees or subordinates.

Phelps (1985) also stated that supervisor’s role in 21st century is different from the traditional supervisor’s because of the technological and social changes. Nowadays, supervisors must be a manager, counsellor, cost accountant, social worker, coordinator, human resource practitioner, production scheduler, public relation officer and plays the role as engineer too. According to Peter (1982), no job is going to change more in the next decade than that of the first-line supervisor in both factory and office.

Supervisor must maintain good working relationship with their subordinates and employees from other units who vendor services for them. Supervisors must understand the individual problems and needs of their subordinates so that the supervisors can develop the appropriate approach to resolve individual employees problems.

Supervisor reports to middle manager who is accountable for the actions (Plunkett, 1996). Supervisors have a reverse manager-to-employee relationship with managers at higher levels. Supervisors are the employees who must support and reinforce their managers.

2.1.1 Working Experience

Most of the companies prefer employees with working experience because most organisation are not able to spend the time and money required to train someone to be a supervisor (Plunkett, 1996). Many supervisors are promoted from highly skilled jobs and then must turn around and supervise others who apply those same skills (Plunkett, 1996).
Such an experience will become tools to the supervisors when they are coaching their subordinates to operate the plant. Supervisors will no longer have to execute their technical skills in the workplace. The supervisor's responsibility is to get those subordinates to be as proficient as they can be in the execution of their skills.

Supervisors commonly come up through the ranks (Gibson, 1995). In other words, supervisors are promoted out of the very group of employees they are leading. This means that supervisors learn their technical skills on the job and possibly outperform others or otherwise distinguish themselves in order to be promoted. Supervisors are always expected to have better technical skills than their subordinates. Successful supervisors work hard to keep these skills up-to-date so that their employees will continue to have respect and trust in their technical knowledge.

Most supervisors started out working in the department they now supervise (Certo, 1997). The person who is selected to be a supervisor is often an employee with a superior grasp of the technical skills needed to perform in the workplace. Most of them are more senior than the other employees in the organisation.

Pickersgill (1997) reported that most employers look for good attitudes and values in recruiting new supervisors rather than experiences and communication.

Giniger (1983) in his Decremental Theory of Aging suggested that older workers can perform better for the work that requires a combination of skills and working experience. The rate of absenteeism and attrition is lesser among older workers.

2.2 Competency Modelling

A current hot topic in Human Resource Development is Competency Modelling. The term competency model refers to the knowledge, skills and behaviours that make for successful performance in any job (Mirabile, 1997). Competency models are not a new concept, having been around for well over 20 years. The concept developed by David McClelland was the result of his growing belief that high IQ was not a determinant of high performance on the job. McClelland successfully demonstrated his concept by helping the government better select candidates for the foreign service. His concept was that top performers use certain specific knowledge, skills and behaviours to perform a specific job in an outstanding manner (LeBleu & Sobkowiak, 1995).

2.2.1 Elements of a Competency Model

A competency model comprises three elements for successful execution of the tasks in any given job. These elements are:

- The knowledge required for successful performance. Examples might be knowledge of what constitutes effective project management, an understanding of key technologies, or how the business in which information system resides really operates.

- The skills, technical and non-technical, necessary for successful performance. Examples might be how to manage projects effectively (beyond the knowledge of what good project management involves), writing ability, and speaking ability.
when they are coaching their
longer have to execute their
responsibility is to get those
on of their skills.
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are leading. This means
possibly outperform others or
ed. Supervisors are always
ates. Successful supervisors
ployees will continue to have
now supervise (Certo, 1997).
ployee with a superior grasp of
Most of them are more senior

good attitudes and values in
munication.
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skills and working experience.
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vours that make for successful
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developed by David McClelland
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vours to perform a specific job
ful execution of the tasks in any

eamples might be knowledge
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system resides really operates.
for successful performance.
ebeyond the knowledge of
ly, and speaking ability.

• Appropriate on-the-job behaviours needed to bring both knowledge and skills to bear. Examples here might include demanding concrete communication from others, actively seeking out needed information from all sources to complete certain tasks, or insisting on the achievement of high standards in your own work and in the work of others.

2.2.2 Tools for Building a Competency Model

Job-analysis interviews. Job-analysis interviews can be conducted in person or on the phone, and one-on-one or in focus groups. Interviews are probably the best method of data collection because the interviewer can probe and ask follow-up questions. It is, however, time-consuming.

Focus groups. Focus groups are useful for collecting information from small medium enterprises (SMEs) when it is not practical to conduct one-on-one interviews. Focus groups also stimulate dialogues among the SMEs, though the information can be biased in favor of dominant participants.

Questionnaires. These are useful when it is necessary to interview many SMEs, when SMEs are inaccessible, and when there are time constraints. It is imperative to have appropriate questions, a sufficient sample returned, and the results analysed and interpreted accurately.

Job descriptions. These can be useful sources of information, assuming that they are up-to-date and supplemented with some data from interviews or questionnaires.

Competency-Model Formats. The best way to explain the different formats for building a competency model is to give examples. Some models use statistical data to describe the competency requirements in specific detail and use less detail in the competency descriptions. Others reserve the balance.

2.2.3 Value of a Competency Model

A Competency Model is best thought of as a blueprint, a set of design principles or underpinnings for several important human resources programs. The model can be used as the basis for executive development, recruitment, selection, compensation, performance appraisal, career development, job design, and organizational design. In its crudest form, it is a yardstick for measuring how someone is performing, comparing current performance to an ideal and suggesting actions that can be taken to improve that performance. What makes the competency model concept work is its simplicity, the prevailing conditions in the company that provide a fertile bed in which it can grow, managers believing in it, and employees accepting it.

Competency models can be the first step in developing job competency profiles (JCP) and in rating an employee’s level of competencies against a model or profile for manufacturing supervisors in the manufacturing plants under study.

The JCP for the manufacturing supervisors in the manufacturing plants at CMS Steel and CMS Cement shall be based on the competency model concept developed by David McClelland which was adopted by the United States Information Systems (IS) Organisation for the following reasons:
(a) It is one of the more precise means for clearly laying out what is expected of an employee when the company and the management team are expecting to operate at a new and higher level;
(b) It is behaviourally anchored so that both managers and employees can see what is expected of them;
(c) It is quickly constructed and easy to modify if necessary;
(d) It is also trendy; and
(e) The most compelling and possibly the most powerful reason for adopting this approach is that it makes explicit what the best performers already know and are doing and what the other performers know in their hearts that they too must do in order to improve their performance and stay effective in their jobs.

Figure 2.1 illustrates a sample of a competency topic for a manufacturing company.

**Sample Competency Model Topic**

<table>
<thead>
<tr>
<th>Manufacturing Company</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>Creativity</td>
</tr>
<tr>
<td>Visioning</td>
<td>Proactivity</td>
</tr>
<tr>
<td>Self-Management</td>
<td>Quality Process, Tools and Measures</td>
</tr>
<tr>
<td>Organisational Effectiveness</td>
<td>Managing Quality, Cost and Deliverables</td>
</tr>
<tr>
<td>Operations Management</td>
<td></td>
</tr>
<tr>
<td>Human Resource Management</td>
<td></td>
</tr>
<tr>
<td>Business Knowledge</td>
<td>Technology</td>
</tr>
<tr>
<td>Business Awareness</td>
<td>Maintain Technical Currency</td>
</tr>
<tr>
<td>Understanding of Customer Plans</td>
<td>IS Vision, Goals and Objectives</td>
</tr>
<tr>
<td>Problems and Requirements</td>
<td>Automation</td>
</tr>
<tr>
<td>Inventory Management</td>
<td>New Technologies</td>
</tr>
<tr>
<td>Leadership</td>
<td>System Applications</td>
</tr>
<tr>
<td>Communications</td>
<td>Project Management</td>
</tr>
<tr>
<td>Strategic Thinking</td>
<td>Maintenance</td>
</tr>
<tr>
<td>Teamwork</td>
<td>Competitive Systems</td>
</tr>
</tbody>
</table>

Figure 2.1 Sample Competency Model Topics
Figure 2.2 shows a Competency Model for a Systems Engineer that identifies technical competencies, with the definitions on the left-hand side and on the right-hand side, possible performance behaviors for establishing a level of proficiency for each competency. The best application of this type of model is for establishing competencies and a proficiency-rating scale to provide indicators of expected performance behavior. That approach is considered performance management.

**A Competency Model for a Systems Engineer**

<table>
<thead>
<tr>
<th>Technical Cluster</th>
<th>Proficiency Ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systems Architecture</td>
<td>Ability to design complex software applications, establish protocols, and create prototypes.</td>
</tr>
<tr>
<td></td>
<td>0 - Is not able to perform basic tasks.</td>
</tr>
<tr>
<td></td>
<td>1 - Understands basic principles; can perform tasks with assistance or direction.</td>
</tr>
<tr>
<td></td>
<td>2 - Performs routine tasks with reliable results; works with minimal supervision.</td>
</tr>
<tr>
<td></td>
<td>3 - Performs complex and multiple tasks; can coach or teach others.</td>
</tr>
<tr>
<td></td>
<td>4 - Considered an expert in this task; can describe, teach, and lead others.</td>
</tr>
<tr>
<td>Data Migration</td>
<td>Ability to establish the necessary platform requirements to efficiently and completely coordinates data transfer.</td>
</tr>
<tr>
<td>Documentation</td>
<td>Ability to prepare comprehensive and complete documentation including specifications, flow diagrams, process control, and budgets.</td>
</tr>
<tr>
<td></td>
<td>0 - Is not able to perform basic tasks.</td>
</tr>
<tr>
<td></td>
<td>1 - Understands basic principles; can perform tasks with assistance or direction.</td>
</tr>
<tr>
<td></td>
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<td>4 - Considered an expert in this task; can describe, teach, and lead others.</td>
</tr>
</tbody>
</table>

**Competency Models.**

Figure 2.2 A Competency Model for a Systems Engineer

The most important point about competency models is that the formats be governed by the collective wisdom of the people that need and build them. Still, if those people have only one way of producing output, a second opinion might be desirable. The decision to use a particular type of competency model should be determined by the desired applications.

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2.3 Competencies

Competency is a combination of skills, knowledge, performance behaviours and personal attributes that contribute to improve employee performance and organisational success (http://www.doer.state.mn.us/staffing/STF-T-BX/rskt-inf.htm). This includes self-confidence, conceptual thinking and innovation, and shows that competency allows us to adapt and learn more specific skills.

Cohen (1996) from Strategic Action Group defines competency as the smallest unit of on-the-job behaviour that is observable, measurable, and changes over time. Cohen also stated that competencies are not something new but many organisations have been working with it under various names. There are a variety of names to represent the words of competencies such as attributes, professional skills or combination of skills, knowledge and behaviours. Cohen believes it is important to emphasise the employees' competencies in selection criteria nowadays. This is so, because a criterion for success lies in the selection of the right individuals for the job, which includes the supervisory level. Cohen (1996) also points out that the key characteristics that will determine the success of the organisation will depend on the leaders, who are asking the right questions, taking the right perspectives and having the right people.

Watson (1996) from Xerox Quality Services also agreed that definition of competency is the application of knowledge and skills in relation to their customer requirements. According to Watson, the first thing the company must do is defining the competency profile which is the most important selection criteria that are needed to hire someone. Secondly, to define the measurement component which is the assessment tools that can help people to understand where they are in relation to a set of requirements. Thirdly, to define the development component which is the learning resource guide.

Vice President of National Rubber, Garrett (1996) defines competencies as tangible. Competency analysis comprises critical knowledge, skills, abilities and the behaviours a person must have.

Competencies are the behaviours that encompass the knowledge, skills, abilities and attitudes that distinguish excellent performers from others (University Services Competencies for Service Excellence, 1998). Competencies are important for selection criteria because they are required for employees to become outstanding supervisors. Competent supervisors can lead to personal, team and organisational growth.

2.3.1 Knowledge

Knowledge can be classified into priori and posteriori (Bourland, 1996). Knowledge of Priori known as relations of ideas concerning the statements either true or false by thinking and without any other aid, for example, calculation of sums or technical works which needs a lot mathematical skill. Knowledge of Posteriori also known as matters of facts which concern knowledge gained from the appeal sense of experience or observation. These statements are said to be continently true or false in that the contradiction of the proposition is always possible.