Developing The Competency Framework for Manufacturing Sector: A Case Study

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Abstract

The expectations of the dynamic world is continuously exerting pressure on the organizational systems to go beyond the job description based employee performance which turns stagnant under a period of time. This leads to the development of competency based management system that matches well with the pace of change in the external & internal requirements.

The proposed study aims at identifying the competency framework for the various divisions of operation unit. It throws light on the various managerial & functional competencies that play a major role in creation of superior performance. This results in the creation of individual road maps that provides the requisite reference to the individual & their department while assessing the individual with reference to various HR practices like training & Development, Performance Appraisal, Career Planning & Succession planning, Rewards & incentive Management.

Keywords: *Competency Management, Manufacturing, Functional competencies*

INTRODUCTION

The current economic downtown has forced the world to take the time to refocus on priorities. All future oriented organization need to rethink about their customer value proposition and realign their underlying HR practices with a focus on the internal & external customer experience and an emphasis on the Strategic dimensions.

According to a recent study of 77 companies and almost 6000 managers and executives, the most important corporate resource over the next 20 years will be talent: smart, sophisticated business people who are technologically literate, globally astute, operationally agile & highly competent. A big question that arises is -How do organizations shift from traditional HR practices to the new workplace where all their practices are well aligned & contributing to each other thus leading to an engaged human capital.

In order to compete with the MNCs, Indian organizations need to have leadership that can create strategies which provides a competitive edge to the company in the global scenario, managers who can execute the planed strategies with utmost efficiency & workers who have the right knowledge, skills & attitude to perform & persist in the tough competitive era. They need leaders who may not just direct but rather lead from the front. Rather than hiring an employee who has to be guided towards performing a specific task, employers increasingly need employees who can work in a self managed team & who are continually focused on the innovation of products and processes. Hence, the need for modern employees with advanced leadership, managerial, workplace and technical skills to enable their employers to stay competitive.

LITERATURE REVIEW

The first appearance of competency in business field can be tracked back to Taylor, the father of modern management when he employed time-and-motion studies to estimate productivity. In 1973, David McClelland, a Harvard University psychologist published "Testing for Competence Rather Than for

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Intelligence" in American Psychologist to pioneer the competency testing alternative to the intelligence testing in predicting job performance.

In 1982, Richard E.Boyatzis, David McClelland's partner at Hay-McBer company published "The Competent Manager: A Model for Effective Performance" making the competency profiling a popular HRD tool in American, Briton, Canada and Japan, etc. The authors see 'competency' as an 'underlying characteristic' causally related to superior job performance (McClelland, 1971 and Boyatzis, 1982).

John Kotter and James Heskett (1992) conducted an 11-year longitudinal study at Harvard Business School that summarizes the impact of a performance-enhancing culture (PEC) on the performance of the organization. The performance of companies with a PEC and those without a PEC are compared according to their revenue growth, stock price, and net income growth. Companies that fostered a performance-enhancing culture outperformed those who did in all three areas. This research preposes to not just develop the right processes for the system but also work onto the creation of facilitating internal environment & culture inorder to enhance the organizational productivity.

In 1993, an other acclaimed work "Competence At Work: Models for Superior Performance" by Lyle.M.Spencer & Signe M.Spencer summarized 20 years of research using the McClelland methodology. The book included 286 studies of entrepreneurial, technical and professional, sales, human service, and managerial jobs from industry, government, military, health care, education and religious organizations.

Spencer and Spencer (1993) identified five types of competency characteristics consisting of motives, traits, self-concept, knowledge, and skill. Motives are the things a person consistently thinks about or wants that stimulate action. Motives drive, direct, and select behavior toward certain actions or goals and away from others. Traits are physical characteristics and consistent responses to situations or information. Self-concept is a person's attitudes, values, or self-image. Knowledge is information a person has in specific content areas and skill is the ability to perform a certain physical or mental task.

Knowledge and skill competencies tended to be visible and relatively surface characteristics of people whereas self-concept, trait, and motive competencies were more hidden, deeper, and central to personality. Figure 1 illustrates central and surface competencies stated by Spencer & Spencer (1993).

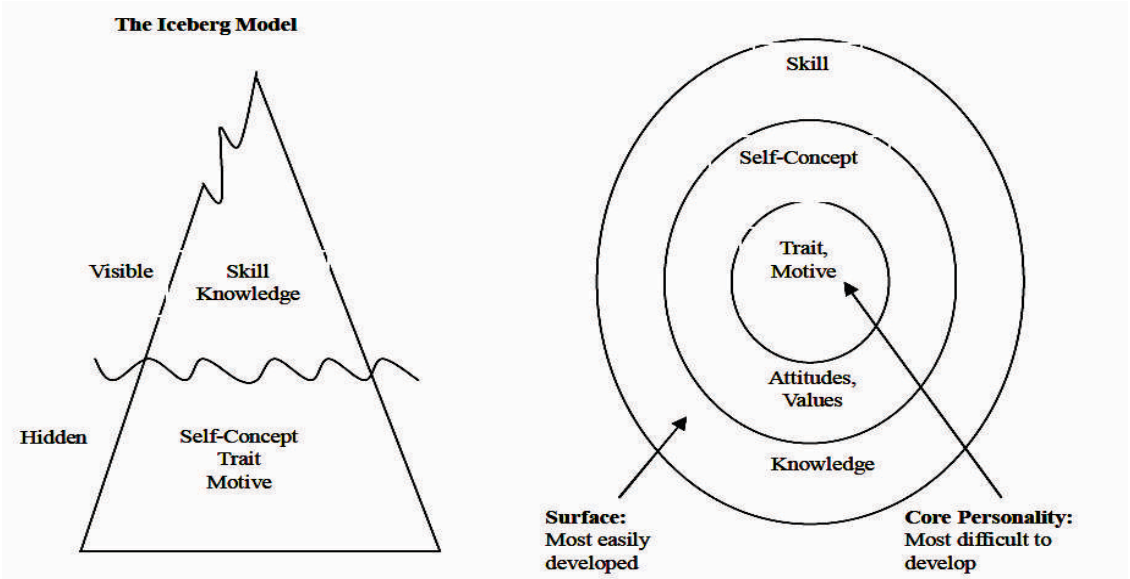


Figure 1: The Iceberg Model and Central and Surface Competencies
Source: Spencer and Spencer (1993: 11)

Competency is a common concept. It's a mode to test knowledge, skills, abilities, behaviors and other characteristics. There are three main categories of behavioral abilities that can be regarded as threshold competencies, which can be used to identify excellent performance. These three threshold competencies are as follows: (1) expertise and experience is a threshold level of competency; (2) knowledge is a threshold competency; and (3) an assortment of basic cognitive competencies, such as memory and deductive reasoning are threshold competencies. Therefore, competency is the integration and coordination of trans-functional abilities, and consists of knowledge, skills, abilities, attitudes and behaviors. Competencies are also a behavioral approach to emotional, social, and cognitive intelligence.

A competency is the capability of applying or using knowledge, skills, abilities, behaviors, and personal characteristics to successfully perform critical work tasks, specific functions, or operate in a given role or position. Personal characteristics may be mental /intellectual/cognitive, social/emotional/attitudinal, and physical/psychomotor attributes necessary to perform the job (Dubois, 1993).

Heffernan and Flood (2000) outline two approaches to competencies, firstly the US approach and secondly the UK approach.

- The predominant US approach portrayed by Boyatzis, Ulrich and others define competency as the underlying attributes of a person. It is largely an input based approach, defining the inputs needed to demonstrate competent performance.
- In contrast, the UK approach sees competency as a set of performances and standards. Boam and Sparrow, Burgoyne and Silver among others are part of a group of mostly English authors who proposed that competency was best used as a measure of output learning. Training and assessment of performance was the thrust of this approach.

In the research conducted on global leadership competencies the conclusive list of competencies identified by T V Rao are as : Interpersonal skills, Job Domain Functional knowledge, Delegating Skills, Approachable, Calm & Composed & Analytical skills(Rao,2007).

Another study conducted to check the perception regarding the Six competencies defined by SHL framework concluded interesting facts. It was found that their was significant difference in perceptions of relative importance of an competency as per the levels of managers. The Senior managers valued the Interpersonal competency much higher than the middle managers. In the eye of Middle managers the value of Dynamism competency was greatly higher than the perception attributed by first-line managers, and the Operational competency was very highly rated by the first-line managers in comparison to the middle managers. On the contrast it was also observed that regarding the Leadership, Analytical, and Business Awareness competencies, all the three levels of Senior manager, middle manager & first line manager had no significant differences in perceptions.(Mbozaki 2004, Wallace & Hunt 1996).

An attempt to classify the competencies in terms of distinctive & threshold competencies led to the interesting result. The Research work defined "distinctive" as the competencies present with "significantly different intensity" in the best performers' sub-sample (compared with the average performers' subsample), and "threshold" the competencies present with "significantly different intensity" in the best and average performers' sub-sample (compared with the poor performers' subsample). The research resulted in listing the following four threshold competencies for Production supervisors: a) efficiency orientation and initiative (goal and action cluster); b) empathy and group management (people management cluster).

The distinctive competencies (or differentators), instead, are nine: a) planning and attention to detail (goal and action cluster), persuasiveness, self-confidence and development of others (people management cluster); c) use of concepts, networking, use of technologies and social objectivity (analytic reasoning cluster).(Gerli, F.)

P N khandwala 2004 in his research based on Senior Managers Role focused on the competencies related to manage the power structure, Initiative management, fostering innovation, higher resilience & effective coping alongwith strong execution skills.

Inorder to understand the Leadership in manufacturing environment resulted in the identification of following essential competencies that established the credibility & effectiveness of a leader i.e. the ability to foster trust by leadership by acting

fairly and honestly in all relationships, Having a sense of mission and purpose, Ability to communicate a vision, Ability to inspire others, Emotional intelligence, Ability to participate fully with people on all levels, Ability to detect positive qualities in others, and the willingness to share responsibility in a measure appropriate to those qualities, and Willingness to learn, adapt and grow since change is often a step into the unknown.(Mollo 2005).

The terms used in this study are defined as below : A competency is a sum of the **Knowledge, Skill, Attitude** and **Aptitude** required to execute a job.

Functional Competencies - These include technical competencies that are essential to perform a specific job in the organization within a defined technical or functional area of work, such as engineering calculations, mechanical drawing, and tool designing.

Managerial Competencies - These include 'soft' skills that enable a person to perform well in any function, such as communicating effectively, achieving tangible results and creative problem solving. These are generic because they can be applied to a variety of different functions and technical specialties.

Associated Competencies - These include technical competencies in which incumbents need to possess basic awareness to be able to perform the assigned responsibilities effectively. The incumbent may not be proficient or technically expert in these competencies but will exhibit basic understanding of terms and processes.

SIGNIFICANCE OF THE STUDY

This study aims at providing knowledge on the significant competencies that affect the superior performance of Manufacturing organizational professionals. It will fill the gap as enough researches has not been done towards exploring the competencies for technical managers in the Automotive industry in NCR region which has become a hub of corporate activities in the last decade.

The automotive industry in India happens to be the ninth largest in the world. Following Japan, South Korea and Thailand, in 2009, India emerged as the fourth largest exporter of automobiles.

SCOPE OF THE STUDY

Indian automobile industry has gone through a dramatic transformation in terms of technology being used, market dynamics, workforce demographics and the skills necessary to work hence this study is important because it provides guidance towards creating the human capital compatibility in managing the dynamic environment. The present study uncovers the gamut of skills & competencies that will have an impact on the production process in Automotive industry.

THE METHODOLOGY

The methodology used for carrying out the research study is as follows:-

Primary Data: - The information is collected directly from the various stakeholders like the strategic team members, Unit head, Division head, Production Managers , HR Managers & the various job incumbent, of the target organisation with the help of Interviews. including both open-ended and close ended question.

Secondary Data: - Sources used for collection of secondary data are as :

a. Document Review : - Obtaining the actual forms and operating documents currently being used. Reviews blank copies of forms and samples of actual completed forms.
b. Observation : - verifying the statements made during the interviews.
c. Web Search : - contemporary researches will be studied from internet.
d. Research of journals, periodicals, technical materials, seminars and discussions reference book, journals, published data were referred.

Developing the Competency Framework for the Operation Department

The target study organization is a well established medium sized organization of automotive sector. The aim of the study was to identify key activities undertaken by the division to achieve the functional goals and associate the activities to requisite functional or managerial knowledge / skills. This would finaly lead to the creation of t a customized competency model for each division of the organization. This study covers the major contributing department of Operation as its scope. The envisaged

Competency Model would assist in ensuring a fit between "Right Person for the Right Job".

A) Process Flow

The process for the competency based management initiatives is as depicted through the flow chart in Figure 2:

Figure 2

1. Inorder to create an organisation based understanding with reference to the the competency model inputs were obtained from the strategic team .
2. Preliminary study of organization structure to identify key positions in each department was done. Through it was decided to start with defining the competency framework for Operation department as the representative one.
3. Collection of inputs from the strategic team to identify benchmark positions.
4. Focused interviews were scheduled with Unit Heads for attaining the functional overview and their connect with the overall organization objective.
5. Organized specific interviews with Division Heads// subject matter experts with reference to the important dimensions of job & activities to create job Descriptions and define the key activities associated with the department.
6. On the basis of above the major activities are defined in the form of Functional Charters and associated knowledge/skills/abilities (competencies) by reviewing job specifications, and documents describing the job. Job components include major activities, duties, functions, or responsibilities involved in performing the job.
7. Revalidation meeting is organized between the Focus group, strategic team and Division Head to verify, validate and ensure that all the essential job components are covered and the related competencies are identified for the same.
8. Inorder to formulate a department based customized competency model various managerial & functional competencies are compiled as per each function along with their specific definitions and behavioral anchors .
9. Once all the divisional models are created & validated they can be integrated to create the final organizational based competency Model after due key inputs and approval of leadership team. This part is beyond the scope of this paper & will be taken forward for future research purposes.

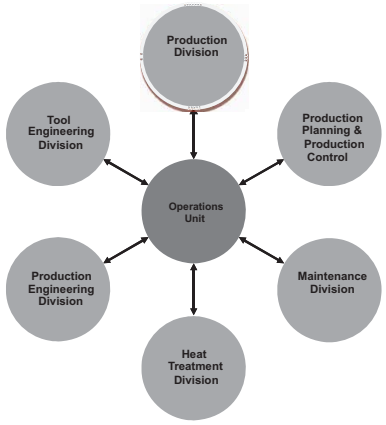


Figure 3

The structural classification of the operational unit of target organization comprises of various seven divisions as displayed in Figure 3:

b) Preparation before creation of Competency Charts

Based on the inputs received from the continuous interactions of focus groups & other stakeholders led to the creation of competency charts.

These charts were substantiated by few other documents :

1) Job Description – It is the documentation of the major objectives and tasks to be performed by in the form of a list that provides an operating boundary to the individual.
2) Functional Charter for the division-It defines the key responsibilities and activities that each division in the organization must undertake.
3) Competency Table- The listing of various Functional and Managerial Competencies for each division is created. It depicts the required key skills and knowledge levels to be demonstrated by each member for the success of division.

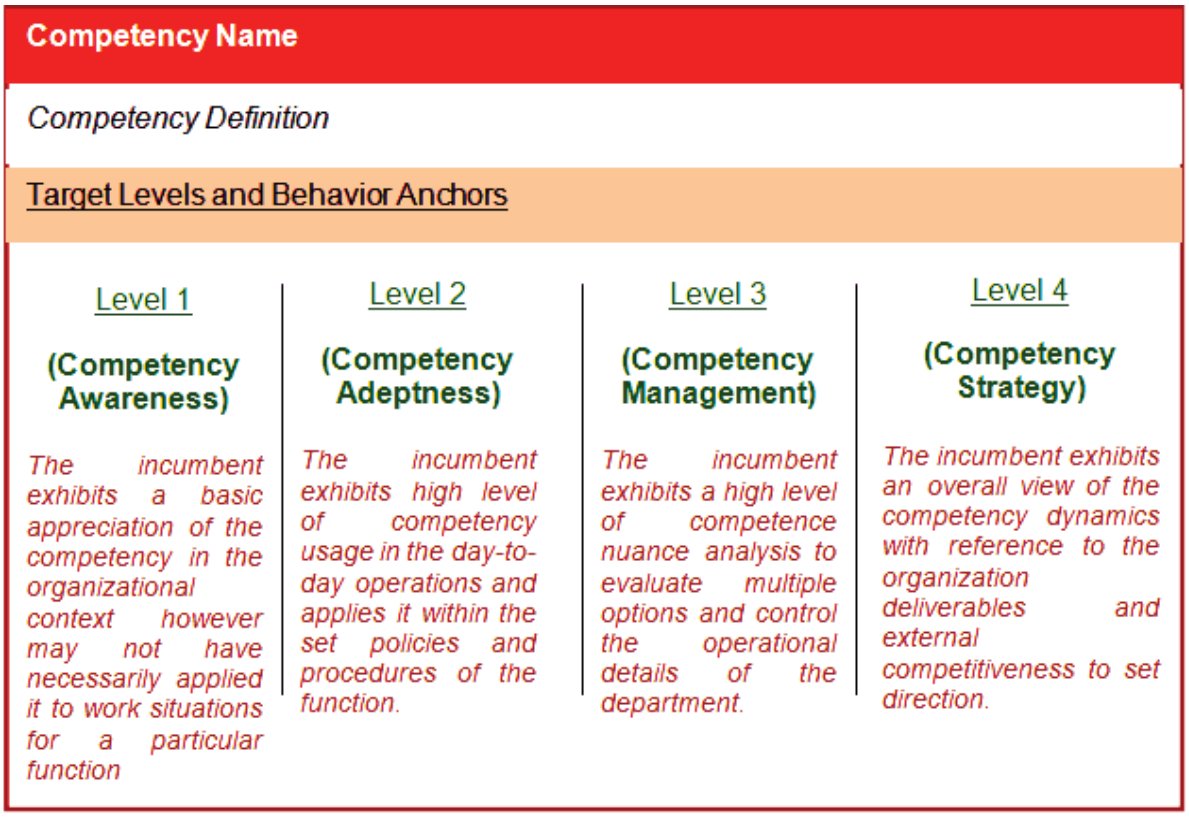
Each competency is defined & provided with their Level wise Behavior Anchors. These Behavior anchors in four target levels represent the job expectations from incumbent manning that position. These levels help differentiate between the superior performance specified at level 4 to the basic competence awareness at level 1 as indicated in Figure 4

The technical competencies have been further segregated as :

a) Core competencies &
b) Associated competencies

The difference lies in the fact that core competencies are essential to be exhibited at higher proficiency level whereas just awareness of associated competency is needed for a position holder

Figure 4



Defining the spread of competencies across the seven divisions

In order to differentiate between competency needs of various divisions a mapping of the various identified functional competencies & managerial competencies was done in terms of required Core & associated competencies as depicted below in the Figure-5 & Figure 6:

Figure-5 - FUNCTIONAL COMPETENCIES

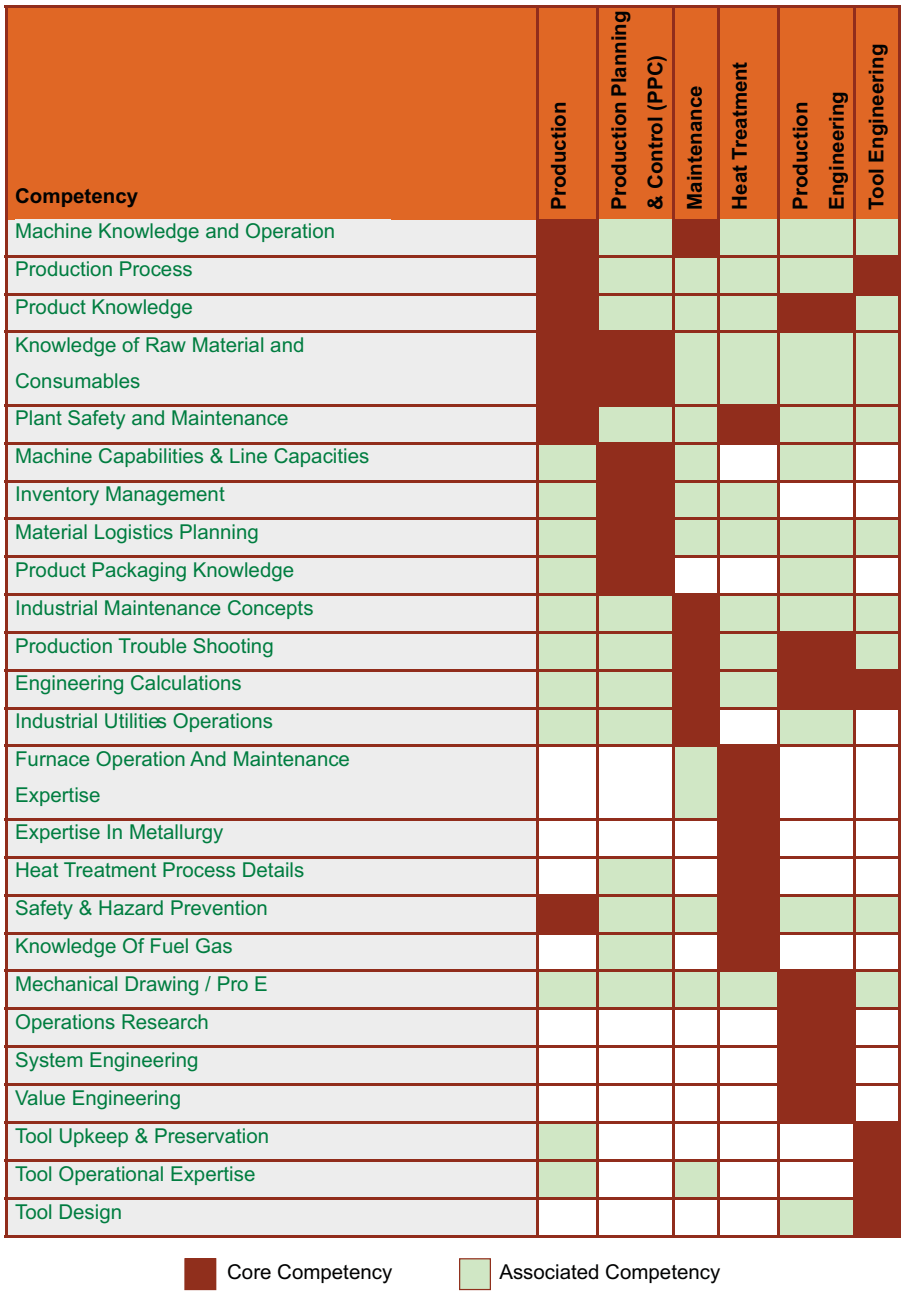


Figure-6 - MANAGERIAL COMPETENCIES

Competency	Production	Production Planning & Control (PPC)	Maintenance	Heat Treatment	Production Engineering	Tool Engineering
Analytical Abilities	✓	✓	✓	✓	✓	✓
Teamwork & Coordination	✓	✓	✓	✓	✓	✓
Planning & Organization	✓	✓	✓	✓	✓	✓
Problem Solving	✓	✓	✓	✓	✓	✓
Cost Sensitivity	✓	✓	✓	✓	✓	✓
Research Acumen	✓	✓	✓	✓	✓	✓
People Development	✓	✓	✓	✓	✓	✓
Process Orientation	✓	✓	✓	✓	✓	✓

Hence it was depicted that the functional competencies vary as per the division's role but the managerial competencies are generic in nature & individuals all across the divisions need to practice the same.

Creation of Competency Chart

This section is depicting the required corresponding documents for the Production division of Operations unit.

The Table of competencies are classified in the form of Competency Chart as shown in Figure 7 :

Figure: 7 - Functional Competencies

Core Competencies	Associated Competencies
1. Machine Knowledge and Operation 2. Production Process 3. Product Knowledge 4. Knowledge of Raw Material and Consumables 5. Plant Safety and Maintenance 6. Safety & Hazard Prevention	1. Inventory Management 2. Material Logistics Planning 3. Product Packaging Knowledge 4. Industrial Maintenance Concepts 5. Production Trouble Shooting 6. Machine Capabilities & Line Capacities 7. Engineering Calculations 8. Industrial Utilities Operations 9. Mechanical Drawing / Pro E 10. Tool Upkeep & Preservation 11. Tool Operational Expertise

Managerial Competencies:

1. Analytical Abilities
2. Teamwork & Coordination
3. Planning & Organization
4. Problem Solving
5. Cost Sensitivity
6. Research Acumen
7. People Development
8. Process Orientation

Describing the competency

Once listed then these competencies are being described to demonstrate the level of proficiency required for different position holders. Sample of one functional competency –Production Process, one Associated Competency-Inventory Management & one Managerial Competency is being depicted in the Figure: 8,9,10 below:

Figure 8, 9 & 10

PRODUCTION PROCESS

Ability to integrate multiple independent activities and machine processes in a meaningful sequence and assembly to enable production of automotive components as per requirement and specification.

Competency awareness	***Competency adeptness***	***Competency management***	***Competency strategy***
Identify different processes required to complete a production cycle. Associate different machinery, assembly lines, tools, fixtures and raw material with their respective process. Read production schemes and visualize their effect on the final product and its features. Associate machine, resources, tools and consumable requirements to different phases of production process.	Conduct independent activities such grinding, painting, welding, etc. within each phase of the production process to enable completion of a cycle. Use machinery, resources, and consumables as per predefined instructions of a production process. Relate activities within the process to the overall production cycle. Differentiate between variety of products and their associated differences in production cycles. Relate machine capabilities to different product specifications and models and operate machines accordingly. Check process components for adherence to quality standards as per instructions and check sheets	Relate production process cycle time to manpower capabilities, shift time, quantity of production and resource requirements. Read product specifications and utilize measures and standards for accurately predicting the outcome of parts production processes. Identify critical and potentially hazardous activities within a given process and take appropriate preventions and audits to avoid loss, wastage or damage. Relate product quality, breakdown history and rejection reports to individual production activities and suggest improvement efforts for re-alignment of operating procedures and adjustments. Conduct complex change over processes using tools and fixtures and trouble shoot bottlenecks and critical activities in a given process.	Integrate multiple systems like utilities management, procurement, design, maintenance activities, scheduling, resource planning, process planning, and forecasting to enable smooth and defect free production flow. Evaluate mechanical properties of machines and effects of processing on material performance and tolerances to predict production cycle time and propose replacement options along with associated budgets and financial implications. Set standards for optimal process time based on machine and manpower capabilities. Create opportunities for multi-skilling among team members to enable functioning on multiple processes. Provide expert opinion to Engineering Division on Production process planning for new products and enhancement of existing processes.

INVENTORY MANAGEMENT

Ability to understand present and future demand and relate it to receipt, storage and allocation of raw material/ work in progress/ finished goods across multiple production lines and agencies.

Competency awareness	*Competency adeptness*	*Competency management*	*Competency strategy*
Read item codes and quantity available in the inventory. Segregate between fast moving products and slow moving products. Knowledge of key vendors and suppliers of material and child parts for the purpose of inventory procurement. Knowledge of Material Request Forms and allocation cycles for deployment of inventory. Knowledge of corporate standards for maintaining inventory. Differentiate between receipt store, holding store, and rejection store	Knowledge of Inventory control ERP system and basic formats including order sheet, lot tracking, stock transfer, etc. Relate daily production plan to inventory requirement and plan allocation and mobilization of stocks. Understand concepts and principles of inventory storage such as light weight vs heavy weight, space utilization, material circulation, vertical vs horizontal, etc. while stocking material. Identify direct and indirect environmental factors that effect the store management. Utilize storage racks and trolleys to mobilize stock as per scheduled plans	Apply inventory deployment models such as LIFO/ FIFO/ JIT/ 5s for storing and allocating stock. Knowledge and application of item coding and labeling standards followed . Identify inventory mobilization equipment such as racks, trolleys, tongs, etc to sort, store and retrieve stock as per plans. Utilize stock quantity and space per piece to calculate suitable storage schemes for give storage area. Identify hazardous and potentially inflammable material and apply appropriate safety regulations and prevention activities while storing and holding.	Transfer corporate standards for inventory management into executable inventory limits and standards. Identify critical vs non critical material to define perpetual vs periodic inventory systems. Establish budget allocation and standards for stock storage and mobilization. Integrate the inventory management specifications with cross functional inputs like Supply chain management, customer requirement, long term technological vision, outsource options, etc. Foresee bottlenecks in current process and system before implementation and provide appropriate preventive measures to avoid wastage and losses.

ANALYTICAL ABILITY

Ability to analyze and evaluate information from multitude sources, make sound judgments, think through problems and provide a range of options and solutions.

Competency awareness	*Competency adeptness*	*Competency management*	*Competency strategy*
Recognize and interpret changing trends and issues in environment Exhibit verbal and numerical thinking skills Apply basic cause and effect analysis to address routine and basic issues. Seeks to arrive at inferences based on objective data and facts.	Analyze issues from operational, logistical and financial aspects before arriving at appropriate solutions Assess short and long term impact for option before making an inference Apply complex analytical tools to address complicated issues and problem areas. Propose solutions to a problem based on previously gathered knowledge and experience	Assimilate information for budgeting, forecasting and trend analysis to arrive at appropriate solutions Challenge existing systems and options to arrive at innovative solutions Evaluate proposed options for operational, feasibility, logistical and financial impact before making conclusions Evaluate and select options based on thorough technical knowledge and market awareness	Evaluate and select appropriate solutions post evaluation on the overall business and cross functional implications Provide inputs to enhance overall Returns on Investment and impact on bottom lines Use financial and numerical information to monitor organizational performance in terms of customer satisfaction, manpower performance, resource allocation, market image, etc to arrive at complex solutions having a larger impact on the business

The benchmarked positions identified as representative for competency maps creation for the production division were as:
1-Department Head- Production
2-Section Head

The Job Description form detailing the profile of job, requisite knowledge, Reporting relationships, expected duties & responsibilities created for each role are as depicted in the corresponding Figure: 11 & Figure: 12

Figure: 11

JOB DESCRIPTIONS

Unit :	Operations		
Level:	SM 1/ SM 2	**Division:**	Production
Designation:	Department Head - Production	(Plant 1 & 3 / Plant 2 & 4)	
Immediate Reporting to:	Division Head - Production		
Minimum Qualifications Required:	Diploma/ Degree in Mechanical and Production Engineering		
Minimum Experience Required:	15 - 20 years		

Knowledge Requirement:

Knowledge of Products
Knowledge of Manufacturing Machines including CNC Machinery and its related Programing
Knowledge of Production Cycles for different Products
Knowledge of Materials, child parts and Consumables
Knowledge of Machining Tools and Guages
Knowledge of safety standards and machine maintenance standards
Knwoledge of quality standards and audit check points

PURPOSE *(WHY does the position exist, WITH what objectives and WITHIN what limits)*

Establish standards of production and monitor plants for implementation of production activities as per standards. Collaborate with cross functional teams to reduce downtime and product rejection rate and ensure continuos production as per set quality standards.

SIZE

Financial Management		**People Management**
Budget Utilization :		Direct Reports : 4 - 6 Section Heads Indirect Reports: 3 -4 Supervisors, Operators as per shifts

INTERACTION DETAILS

INTERACTING WITH	***FOR (Purpose)***
Internal	Internal
Division Head - production	MFO, Status review, Feedback and guidance
Maintenance Division	Standards of machine operation and Maintenance activities
Section Head - Production	Production related updates, query resolution, improvement activities, Trouble shooting, planning production activities
Production Planning & Control Division	Inputs on weekly and monthly production plans and customer requirements
SCM Division	Procurement of Raw materials, child parts and consumables
Quality Assurance	Quality Check of finished products
Quality Systems	Inputs on Safety and quality regulations and customer Audits
Production Engineering	Inputs on New products and mass production, process related issues, manufacturing costs standards
Human Resources	Recruitment and training of manpower as per requirements
External	External
Production consultants	Technical inputs on improvement activities on existing processes and machines

Figure: 12

JOB DESCRIPTIONS

Unit	Operation		
Level:	JM 5	**Division:**	Production
Designation:	Section Head - Production		
Immediate Reporting to:	Department Head - Production		
Minimum Qualifications Required:	Diploma/ Degree in Mechanical and Production Engineering		
Minimum Experience Required:	10 - 15 years		

Knowledge Requirement:

Knowledge of Products
Knowledge of Manufacturing Machines including CNC Machinery and its related Programing
Knowledge of Production Cycles for different Products
Knowledge of Resources and Consumables
Knowledge of Machining Tools and Guages

PURPOSE *(WHY does the position exist, WITH what objectives and WITHIN what limits)*

Manage and direct production teams of Plant 2 & 4 to execute production activities as per production plans, control downtime, reduce rejection rate and trouble shoot routine bottlenecks to ensure adherence to production standards.

SIZE

Financial Management		**People Management**	
Budget Utilization :		Direct Reports :	2 Departmental Heads
		Indirect Reports:	9 Section Heads

INTERACTION DETAILS

INTERACTING WITH	***FOR (Purpose)***
Internal	Internal
Department Head - production	MFO, Status review, Feedback and guidance
Section Heads Maintenance	Break down and preventive maintenance of electronic and mechanical machines
Supervisors - Production	Production related updates, query resolution, improvement activities, plannning
Section Head - Production Planning & Control	Inputs on Production plans and customer requirements
Purchase Department	Procurement of Raw materials and child parts
Quality Assurance	Quality Check of finished products
Quality Systems	Inputs on Safety and quality regulations and customer Audits
Production Engineering	Inputs on New products and mass production system streamlining, process related issues
External	External

The above two document establishes the connect between the required competencies for the division & the essential key activities/ job based expectations. In-order to link the above two all the key activities of various roles in the division that have an impact on its success are collated in the form of Functional Charter for the Production Division . A abridged version of the same is depicted in the Figure:13 below

Figure: 13

Functional Charter

Unit Name Operations
Division Name Production
Division Scope (ncludes a formal conglomeration of multitude mechanical and electronic processes applied to given raw materials and child parts and enables transformation into usable finished products as per customer requirements. This includes creation, transport, and warehousing of finished products.
Division Size

Total	*56*		
Unit Head	1	Operations Head	
Division Head	1	AGM - Production	
Department Head	2	Department Heads	
Section Head	9	Section Head	
Supervisors	43		

Processes	Process Performance Measures	Activities	Documentation	Associated Technical Skills/ Knowledge	Associated Behavioral Skills	Manned By	Identified Competencies
Production Requirements	Adherence to time schedules Adherence to customer specifications	Obtain daily, weekly and monthly requirements from PPC department including models, number of parts and time lines	Production Schedule	Knowledge of concepts of Just in time Production Kan Ban concepts while scheduling production	Collaborate with inter functional teams	Section Head/ Department Head	
Scope of activity Timely delivery of quality finished products		Analyze the production schedule vis a vis existing capacities and manpower	Production Schedule	Knowledge of Machine capacities and manpower capabilities	Analytical Ability	Supervisor/ Section Head	
		Create daily production plans as per the production schedules. Plans will include resources, manpower, shifts and tools required. Address unforeseen breakdowns by maintaining buffer inventory for 4 hours.	Daily Production Plan	Knowledge of machining process and usage Knowledge of types of machines and consumables required Knowledge of production flow Inventory planning concepts	Planning & Organizing Problem Solving	Supervisor/ Section Head	
		Communicate the daily production plan to all lines and supervisors	Daily Production Plan	Knowledge of shop floor work instruction sheets	Teamwork & Coordination	Section Head	
		Communicate the plan to cross functional teams such as tool engineering, CPC, maintenance teams to organize tools, gauges and raw materials for the production plan	Daily Production Plan	Knowledge of tools associated with each model and machine Knowledge of resources and raw materials required for production process	Teamwork & Coordination Planning & Organization	Supervisor/ Section Head	
		Coordinate with CPC department for procurement of raw materials and consumables. Coordinate with Tool engineering division to plan for change of tools during change over periods.	Material Requisite Form	Knowledge of raw materials and consumables associated with machines	Teamwork & Coordination Planning & Organization	Supervisor/ Section Head	
		Supervise Model changes on the production lines as per production schedules		Knowledge of CNC programming (creation and re-setting) Knowledge of change over process including re-setting of machines and change of tools and gauges Ability to start, stop machine and remove finished products Knowledge of product specifications and adjustments required	Problem Solving	Supervisor/ Section Head	
		Monitor lines for functioning and adherence to production schedules. Facilitate on line quality checking of parts using on line gauges		Knowledge of tools and gauges associated with each model and machine Knowledge model specific quality specifications Knowledge of usage of precision measuring instruments	Problem Solving	Supervisor/ Section Head	
		Send finished products to Quality Assurance for inspection and adherence to quality standards	Quality Tags	Knowledge of quality standards and quality tools	Teamwork & Coordination Planning & Organization	Supervisor/ Section Head	
		Send approved finished products to Sales department for packaging and dispatch as per schedules	Dispatch Order		Teamwork & Coordination Planning & Organization	Supervisor/ Section Head	
		Address any manpower or mechanical issues that occur during production process			Problem Solving		
		Train new incumbents on the production process and monitor performance regularly					

		Analyze previous day's production process and assess breakdowns, if any, rejections, manpower shortages, resource mobilizations, etc	Production Reports ERP Reports	Knowledge of production process and key risk areas Knowledge of production cycles for each product	Analytical Skills Problem Solving	Section Head/ Department Head	
		Create preventive maintenance requirements based on assessment and highlight requirements of tools/ gauges and material	Maintenance Requisition form	Knowledge of Maintenance parameters Knowledge of tools and gauges required per model/ process Usage of precision tools	Planning & Organizing	Section Head/ Department Head	
		Discuss the requirements and highlight problems in daily production meetings with the Production Engineering, Maintenance. Tool engineering, PPC and CPC divisions		Knowledge of cross Functional Roles	Team work and coordination Problem Solving	Department Head/ Division Head	
		Understand the concepts and specification of Jishu Hozan (Autonomous Maintenance) from maintenance division	Jishu Hozan Check list	Knowledge of maintenance and operation activities Ability to visually check assembly errors and improper alignment within products	Teamwork & coordination	Department Head/ Division Head	
		Train production teams on autonomous maintenance activities.	Jishu Hozan Check list	Knowledge of basic maintenance and upkeep of multiple machines	People Development	Section Head/ Division Head	
		Create schedules for on - line checking and basic checks (daily, weekly and monthly) to be conducted by line operators during the production process	Jishu Hozan Check list	Knowledge of Usage of Gauges and tools Knowledge of quality parameters	Planning & Coordination	Section Head/ Division Head	
		Analyze machine breakdowns and product quality to provide feedback to maintenance department on proposed maintenance activities	Maintenance requisition Form	Understand machine parts tolerances and life cycles	Analytical Ability Teamwork & Coordination	Section Head/ Division Head	
		Release machines to maintenance team for implementation of maintenance activities			Team work & Coordination	Supervisor/ Section Head	
		Train existing manpower on multiple machine operations to cater to manpower shortages	Training Manuals	Knowledge of multiple machine operations	People development		
		Obtain Process control check sheets from Production Engineering Division for continuous process checking	Process Control Check Sheets	Knowledge of production process Knowledge of quality standards	Teamwork & Coordination	Supervisor/ Section Head	
		Conduct Daily/ weekly checks of the production process to ensure adherence to check sheets	Process Control Check Sheets	Knowledge of production process Knowledge of machine operations Knowledge of product specifications	Process Orientation	Supervisor/ Section Head	
		In case of deviations, conduct root cause analysis of the deviation	Process Control Check Sheets	Knowledge of production process	Analytical Abilities	Section Head/ Department Head	
		Mobilize Production engineering and maintenance division to address the root cause and rectify the deviation	Process Control Check Sheets		Teamwork & Coordination	Department Head/ Division Head	
		Train team members on process checking as per check sheets to enable autonomous process control	Process Control Check Sheets		People Development	Section Head/ Department Head	
Improvement Planning	- Reduce Production Downtime	Study the production feedback for the previous year and month in terms of breakdowns, down time, product rejections, tool re-setting requirements, customer feedback and bottlenecks	Production Reports ERP Reports	Knowledge of tools and gauges associated with each model and machine Knowledge model specific quality specifications Knowledge of usage of precision measuring instruments	Analytical Abilities	Department Head/ Division Head	
Scope of the Activity Enhance quality of production process		Assess root cause of the breakdowns, down time, bottlenecks and rejections and identify gaps between desired levels of performance and actual performance		Knowledge production processes and assembly line Evaluate all production variables	Analytical Abilities Problem Solving	Department Head/ Division Head	
		Initiate Group Kaizen activities to brainstorm and apply TPM pillars, QC tools and problem solving techniques to suggest corrective or preventive measures		Knowledge of process improvement techniques Knowledge of new production techniques Multiskilling	Problem solving Teamwork & coordination	Section Head/ Department Head	

		Create feasibility action plans for corrective and preventive measures for replacement/ correction/ enhancement of machines/ removal of bottlenecks	Action Plans	Knowledge of 7 QC tools, problem solving techniques Knowledge of manpower capabilities Ability to control the process and minimize fluctuations	Problem Solving Cost Analysis and Knowledge of Activity based costing	Section Head/ Department Head	
		Facilitate monthly, weekly and daily action plans for implementation of corrective and preventive measures along with associated responsibilities and timelines	Work In Progress Report (WIP)	Knowledge of production processes Knowledge of new production techniques and equipment Knowledge of Business process re-engineering concepts Knowledge of manpower capabilities	Planning and Organization	Department Head/ Division Head	
		Mobilize cross functional teams such as maintenance, production engineering, PPC teams for implementation as per action plans			Teamwork & Coordination Communication	Department Head/ Division Head	
		Analyze the existing plant layout with regards to circulation of manpower, resources and material (as per need or bi-annually)	Plant Layout Drawings	Knowledge of plant layout Knowledge of machine layout knowledge of assembly lines	Teamwork & coordination	Department Head/ Division Head	
		Identify potential areas for improvement and activities that are not adding value to the main production process		Knowledge of plant layout Knowledge of machine layout knowledge of assembly lines	People Development	Section Head/ Division Head	
		Initiate Group Kaizen activities to brainstorm and apply TPM pillars, QC tools and problem solving techniques to suggest corrective or preventive measures		Knowledge of plant layout Knowledge of machine layout knowledge of assembly lines	Planning & Coordination	Section Head/ Division Head	
		Create feasibility action plans for corrective and preventive measures for replacement/ correction/ enhancement of machines			Analytical Ability Teamwork & Coordination	Section Head/ Division Head	
		Facilitate monthly, weekly and daily action plans for implementation of corrective and preventive measures along with associated responsibilities and timelines			Team work & Coordination	Supervisor/ Section Head	
		Mobilize cross functional teams such as maintenance, production engineering, PPC teams for implementation as per action plans					
Process Quality Audit	- Customer feedback - Rejection Rate	Obtain quality requirements from customer via the Engineering Department	Customer Specifications Quality Audit list WIS	Understand product quality specifications	Teamwork & coordination	Department Head/ Division Head	
Scope of the Activity Maintain quality processes as per customer requirement		Coordinate with engineering department to create standards for quality control and check list.	Quality Audit list	Understand product quality specifications	Teamwork & coordination	Department Head	
		Check current processes as per established standards and audit check list		Knowledge of production processes Knowledge of Quality standards	Analytical Ability	Supervisor/ Section Head	
		Coordinate with quality teams to check processes and products for adherence to quality standards and product specifications	Quality Audit list	Knowledge of Quality standards	Planning & Organization Teamwork & Coordination	Department Head	
		Apply concepts of on line checking and First/ Middle and Last piece checking to ensure adherence to quality standards	Quality Audit list	Usage of On line quality tools and gauges Understand concepts of batch checking (FML/ physical verification)			
		Invite customer for inspection of the production lines and assess adherence to requirements			Teamwork & Coordination	Department Head	
New Product Development	Adherence to quality Adherence to time schedules	Understand specifications of the new products from production engineering	Machine process drawings Product Specifications	Ability to read product drawing and machine process drawings	Analytical Ability	Division Head	
Scope of the Activity Process realignment or new process for new products		Understand projected volume of production required for new products	Production Plan	Knowledge of process capacities and line capabilities Understand the flow of production	Analytical Ability	Division Head	

		Assess internal capacities for production of new products and new processes		Knowledge of process capacities and line capabilities Knowledge of new production process	Analytical Ability Planning & Organizing	Department Head/ Division Head	
		Provide feedback to production engineering team on existing capabilities and process capacities		Knowledge of new machine and tools for new process Knowledge of quality checks for new products	Teamwork & Coordination	Department Head/ Division Head	
		Project expansion and realignment requirements based on the new product production cycles and volumes of production	Production Plan	Knowledge of production life cycles Knowledge of Product specific operations	Analytical Ability Problem Solving	Department Head/ Division Head	
		Pilot test new process in coordination with engineering and maintenance division		Knowledge of FMEA systems, Testing standards, knowledge of production errors, knowledge of product tolerances	Analytical Ability Problem Solving	Section Head/ Department Head	
		Train team members on the new process to mobilize mass production of the new product as per requirement	New Production Process	Knowledge of New production process and operations	People Development	Section Head/ Department Head	
		Include new process in daily/ weekly and monthly planning	Production Plan		Planning & Organization	Section Head/ Department Head	
Production Safety	- Adherence to safety standards	Obtain Safety standards and POKA YOKE regulations from the SHE pillar Team	Safety Procedures POKA YOKE Formats	Knowledge of POKA YOKE Regulations (Mistake Proofing) Knowledge of Plant Housekeeping standards	Teamwork & Coordination Analytical Ability	Division Head	
Scope of the Activity Ensure safe working condition across plants		Plan for internal process audits to check for adherence to safety standards	Safety Audit Sheets	Knowledge of safety procedures Knowledge of new safety devices Knowledge of 6 Sigma principles	Planning & Organizing	Department Head/ Division Head	
		Conduct internal audits (weekly and monthly) in coordination with the SHE pillar team	Safety Audit Sheets	Knowledge of audit checklist Knowledge of health and safety measures Prevention tools and procedures	Analytical Ability	Department Head/ Division Head	
		Observe deviations and provide feedback for corrective actions			Analytical Ability	Department Head/ Division Head	
		Train operators on Safety procedures and regulations while operating machines	Safety Procedures POKA YOKE Formats	Knowledge of safety procedures Knowledge of machine operations	People Development	Section Heads/ Department Head	
		Provide safety messages at high risk areas within the production area		Knowledge of audit checklist Knowledge of health and safety measures Prevention tools and procedures		Section Heads/ Department Head	

The combination of these three documents establishes a clear alignment between the expectations from the individual job incumbent (Job Description), required functional & behavioural competencies for the division(Competency listing) & the key activities that are critical to the success of the division(Functional Charter). Hence they become a handy point of reference while assessing a candidate for various HR Practices like – Recruitment, Training & Development, Performance Appraisal, Career planning, Succession planning etc

Similar Sets of documents were prepared for the other five divisions of Production Planning & Production Control, Maintenance, Heat Treatment, Production Engineering & Tool Division. This provides an overall competency framework required for the operation unit.

CONCLUSION

The created competeny framework successfully manifested the dimensions that product knowledge, Machine knowledge & Operation, Integrated understanding of production process were the commonly identified functional competencies across the seven divisions in the functional section . The organizational culture promotes the teamwork based developmental culture where the professional are expected to demonstrate proficiency towards rigourous planning & organisation, sensitivity towards cost, analytical approach & research focused process orientation.

The clarity of expected performance & documentation of the various competency framework will lead to significant increase in productivity & employee morale. Competency management would act as an integrative tool for enhancing the organizational effectiveness & efficiency in the dynamic environment.

The created frameworks & the implication of this study should be valuable for the future researches exploring towards the production oriented competencies.

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