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- Mg. Editor

- Nandajan. K.A.*

HR Head "You have to cover time management, interpersonal relations, work life balance, team building and communication " Trainer " How much time do I get for the training" HR HEAD " it is very difficult to spare people for long, you cover all these topics in 2 hours"

This is typical discussion table discourse during a training need analysis. All topics should be covered but time is very less. I stand for less topics and more time but is seldom granted. I flabbergasted when authorities of Shell granted it. A training program on the topic TRUST and a full day program. People from different countries and senior in their official capacity. Together we travelled and explored new dimensions of trust in senior management level and team building

A team without trust isn't really a team: it's just a group of individuals, working together, often making disappointing progress. They may not share information, they might battle over rights and responsibilities, and they may not cooperate with one another. It doesn't matter how capable or talented your people are, they may never reach their full potential if trust isn't present.

However, when trust is in place, each individual in the team becomes stronger, because he or she is part of an effective, cohesive group. When people trust one another, the group can achieve truly meaningful goals.

So how can you, as a leader, help your team to build the trust that it needs to flourish? In this article we'll look at the issue of trust within teams, why it's important, and what you can do to build it.

The Importance of Trust

One definition describes trust as a "reliance on the character, ability, strength, or truth of someone or something."

Think about that definition for a moment. Trust means that you rely on someone else to do the right thing. You believe in the person's integrity and strength, to the extent that you're able to put yourself on the line, at some risk to yourself.

Trust is essential to an effective team, because it provides a sense of safety. When your team members feel safe with each other, they feel comfortable to open up, take appropriate risks, and expose vulnerabilities.

Without trust there's less innovation, collaboration, creative thinking, and productivity, and people spend their time protecting themselves and their interests – this is time that should be spent helping the group attain its goals.

10 Ways to Build Trust:

1. Bring Proof: Trust comes with the confidence brought by research, data and logic, which is critical for Analytical Thinkers. These team members build trust by seeing proof and knowing that you will deliver factual, clear results

Presented By : K.A.Nandajan, Corporate Trainer & Ph.D Scholar



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2. Be Accurate: People who love structure and process (Structural Thinkers) build trust by seeing a promise executed and delivered. On time. With precision.

- **3. Get Involved:** People who approach work via <u>relationships</u> (Social Thinkers) build trust by building and cultivating a collaborative and open way to work. Involve them on a real, results-oriented level to build trust.
- 4. Communicate the Vision: People who gravitate to big-picture and visionary work (Conceptual Thinkers) build trust by knowing that what you're asking them to do means something on a broader sense. You need to show how their ideas can be executed.
- 5. Listen: Keep in mind that a more quiet team member on the <u>Expressiveness Spectrum</u> will gain trust by seeing someone who pauses, listens and creates a space for their contribution.
- 6. Provide a Forum: More gregarious employees tend to process information out loud, and a manager who allows them space to bring their thoughts whenever and wherever will build trust.
- 7.. Create a Non-confrontational Atmosphere: For the peacekeepers on your team, (those who tend toward a more genial mode of <u>Assertiveness</u>), a hard-charging, competitive manager can be a bad fit and erode trust. Make a deliberate attempt to work towards consensus with these team members.
- 8. Challenge People: A genial atmosphere doesn't mean to preclude driving things forward or being challenging. Build trust with your more competitive employees by challenging their thinking and encourage them to challenge yours.

- **9. Maintain Focus and Direction:** Clarity and focus from a leader is critical and team members who tend to be more firm on the Flexibility Spectrum could lose trust with a manager who welcomes change since you may appear wishy-washy and confusing. Be sure to communicate the rationale behind a change (Quick Tip: Incorporating their Thinking Preferences into the reasoning will likely increase your success).
- **10. Prepare for Change:** Business is constantly shifting, which <u>means change is inevitable</u>. You can build trust as a leader by tapping into your team members who do love the churn. Trust is built when positive change happens and when they're given an opportunity to convey their ideas and the opportunity to see the change through.

Trust is built over time and based on many exposures. You have a thousand opportunities every single day to engender or endanger trust. Work hard to win each one of these small but important moments of trust.

- 1 https://www.mindtools.com/pages/article /building-trust-team.htm
- 2 https://www.thebalance.com/how-to-build-trust onyour-team-3575707
- 3 http://work.chron.com/importance-trust-within team 3940.html
- 4 https://www.inc.com/samuel-edwards/7-ways strongleaders-build-trust-in-a-team.html

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LETTER TO THE EDITOR:

Congratulations to you for providing the online coverage for OM. Your magazine has always given importance for the research findings of scholars in the management field

And I find that such articles will prove highly beneficial to the students in universities, academicians and managerial personnel throughout the land and even beyond the seas.

This being the only magazine, published by a management association in India, I hope the central and state governments will give due recognition for your valuable efforts in spreading the message of management concepts at a time, when India is moving fast to strengthen the economic superstructure of our land.

Prayers and good wishes. C P CHANDRA DAS Memphis, USA Cpcdas@gmail.com

Sir.



UNDERSTANDING FINANCIAL STATEMENTS

-K.Rajasekaran*

EXECUTIVE SUMMARY

I have presented a write-up on "UNDERSTANDING BALANCE SHEET and other financial statements" as a basic guide to non-finance executives, businessmen and investors. This series of articles will help the reader to learn how to look at Balance Sheet and other financial statements, what interpretations can be made based on various facts presented in such statements and also the meaning and use of various financial ratios.

I have drawn from my experience as Senior Executive during my stint in commercial banks and as a Faculty in conducting program on Finance for Non-Finance Executives at various corporate, management association and training organisations.

The write up deals with the following topics and will be presented in four parts in the forthcoming issues : First part/issue will cover:

 1. Introduction to Financial Statements
 2. Balance Sheet
 3. Liabilities
 4. Assets

 Second part/issue will cover:
 2. Cash Flow Statement
 5. Cash Flow Statement
 5. Cash Flow Statement

 1. Financial Ratios
 2. Analysis of Ratios
 5. Cash Flow Statement
 5. Cash Flow Statement

Fourth part /issue will cover:

1. Comparative Analysis of Ratios of various Companies

INTRODUCTION TO FINANCIAL STATEMENTS

The business firms and companies prepare Financial Statements to find out the result of their operations and understand the financial condition of the business unit from time to time.

The companies have a duty to prepare and publish the financial statements periodically for information of their shareholders and investors. It is a statutory obligation.

The banks and financial institutions (who lend money to the companies and firms for acquisition of fixed assets or for meeting their working capital requirements) also ask for financial statements to keep track of the profitability and financial position of the company.

Further the business firms and companies have to submit financial statements duly audited to the Income tax Department once in a year for determining their tax liability.

Thus financial statements are required for meeting the needs of the owners, shareholders, investors, banks and lenders and the income tax authorities.

The Financial Statements generally include:

- 1. BALANCE SHEET
- 2. PROFITAND LOSS STATEMENT
- 3. CASHFLOW STATEMENT

2. Ratios serving as Warning Signals – Examples

Each of these financial statements has been explained in detail in the ensuing chapters. The contents of the statements, the significance of each of the items in the statements and how these statements need to be analysed for proper interpretation have been explained with various examples.

While various RATIOS used for financial statement analysis have been explained with examples comparative analysis of certain well known companies has also been presented in the ensuing pages to facilitate better understanding of the subject.

Examples showing how ratios help as warning signals of impending financial distress have also been discussed with examples in subsequent pages.

The Annual Reports of Companies, besides presenting the above financial statements, also furnish the following details for information of investors and statutory authorities.

- 1. Directors' Report
- 2. Auditors' Report
- 3. Management Discussion and Analysis
- 4. Notes to Accounts
- 5. Corporate Governance Report
- 6. Business Responsibility Report

* Ex-Chief Manager; State Bank of Travancore.

Former Deputy Director (Academics) at Ahmedabad Management Association



BALANCE SHEET

Balance Sheet is referred to as a Statement of Assets and Liabilities of a firm or business unit. It means that Balance Sheet shows what the firm OWNS and what it OWES. It can also be called a Statement of Sources and Uses of funds.

Balance Sheet is prepared periodically to show the financial condition of the firm as on a particular date say 31st of March every year. The following is an example of a Balance Sheet:

XYZ Co. **BALANCE SHEET** AS ON 31 ST MARCH 2005

· LIABILITIES (Rs. Cr.)	• ASSETS (Rs. Cr	r.)
CAPITAL	50	• LAND / BLDG	10
 RESERVES 	125	 MACHINERY 	125
DEBENTURES	150	• F.D. WITH BANK	15
LOAN fr IDFC	75	 INVENTORY 	375
• BANK O/D	425	 RECEIVABLES 	400
 CREDITORS 	150	CASH IN HAND	10
• EXPENSES o/s	25	PATENTS	15
		LOAN TO SUBS.C	O 50
TOTAL	1000	TOTAL	1000

As one can see in the above statement

- 1. It shows the Assets and Liabilities of the firm
- 2. It is as on a particular date i.e. 31st March 2005
- 3. It shows the SOURCES (liabilities) and USES (assets) of funds of the company

The Liabilities include:

- 1. Capital and Reserves representing owner's/ shareholders' funds
- 2. Secured/Unsecured Loans taken by the company
- 3. Short term credits availed by the company
- 4. Unpaid expenses of the company

The Assets include:

- 1. Fixed Assets or Net Block
- 2. Short term assets like inventory/receivables
- 3. Other investments made by the company
- 4. Cash in hand/at bank

While we can understand the financial condition of the company by looking at the Balance Sheet it helps us mainly to look at:

- The SHORT TERM LIQUIDITY of the company
- The LONG TERM SOLVENCY of the company While we can discuss the above two aspects in detail later the following facts would help in the process:
- 1. Short term liquidity position can be ascertained by seeing whether the short term assets of the company are adequate to cover the short term liabilities of the company
- 2. Long term solvency of the company can be ascertained by seeing whether the long term debt of the company is within reasonable limits vis-a-vis the own funds of the company (including capital and reserves).

However it must be remembered that Balance Sheet is like the 'snap shot of a running train'

because it shows the position of the company at a particular time. It shows the financial condition of the company AS ON A PARTICULAR DATE.

It means that the financial condition as indicated by the Balance Sheet as on (say) 31st March of a year need not necessarily be the normal position of the company.

Therefore in order to understand the true picture of the company's financial position of a company financial analysts look at Balance Sheet at various intervals like quarterly and half yearly statements also.

A copy of Balance Sheet of Tata Motors Ltd is given on the next page to facilitate proper understanding of corporate Balance Sheet.

BALANCE SHEET OF TATA MOTORS LTD

					Note	Page	As March 3	at 1, 2016	As at March 31, 2015
L	FO		DUARILITIES						
	1.	SHARE	HOLDERS' FUNDS						
		(a) Sha	re capital		2	F-15	679.18		643.78
		(b) Resi	erves and surplus		3	F-17	21,688.90		14,218.81
								22,368.08	14,862.59
	2.	NON-CI	URRENT LIABILITIES			F 10	10 (07.04		12210.07
		(a) Lon	g-term borrowings		4	F-18 E-20	10,687.94		12,518.90
		(c) Lon	a-term provisions		0	F-21	1.409.05		2,104,19
								12,307.11	14,709.95
	3.	CURREN	NT LIABILITIES						
		(a) Sho	rt-term borrowings		5	F-18	3,351.74		7,762.01
		(b) Trac	de payables		11	F-21	8,916.60		8,852.65
		(inc (Ma	ludes dues of micro and rch 31, 2015 : ₹139,28 crore:	small enterprises ₹127.39 cro	res				
		(c) Oth	er current liabilities		8	F-20	4,267.23		3,142.88
		(d) Sho	rt-term provisions		10	F-21	1,215.49		613.09
								17,751.06	20,370.63
			TOTAL					52,426.25	49,943.17
п.	AS	SETS	UDDENT ACCETC						
	5	(a) Elva	UKKENT ASSETS						
		(a) rive	Tannihle assets		12	F-72	12 252 78		12 260 50
		(ii)	Intangible assets		13	F-22	3.511.19		3.522.73
		(iii)	Capital work-in-progress				1,469.71		1,349.95
		(iv)	Intangible assets under der	elopment			5,011.18		4,690.84
							22,244.86		21,824.02
		(b) Nor	n-current investments		14	F-23	16,975.46		16,966.95
		(c) Lon	g-term loans and advances		16	F-26	2,363.22		2,403.56
		(d) Oth	er non-current assets		18	F-27	136.80	41 700 24	175.67
	2	CURREN	NT ASSETS					41,720.34	41,570.20
		(a) Curr	rent investments		15	F-25	1,736.00		20.22
		(b) Inve	entories		20	F-28	4,902.20		4,802.08
		(c) Trac	de receivables		21	F-28	1,568.46		1,114.48
		(d) Casl	h and bank balances		22	F-28	452.08		944.75
		(e) Sho	rt-term loans and advances		17	F-26	1,794.32		1,574.41
		(f) Oth	er current assets		19	F-27	252.85		117.03
			TOTAL					52 426 25	8,572.97
m.	NO	TES FOR	MING PART OF FINANCIAL	STATEMENTS				32,420.23	47,745.17
	nu	TES FOR	MING PART OF FINANCIAL	STRIEMENTS					
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(Suggestions/ Feedback / Questions if any can be sent to my email id krskaran@hotmail.com)



ROLE OF POSITIVITY IN DEVELOPMENT – BOTH SKILL & PERSONAL LIFE

-R.K.Singh *

Positivity can actually create real value in our life and help all of us**build skills** that last much longer than a smile. It carries the same weight as words like "work ethic" or "persistence." Most of us would prefer to be positive rather than negative. Positive thinking is about much more than just being happy. The impact of positive thinking on our **work skills**, our health, happiness and life is immense.Contrary to this negativity creates fear, anger, narrows our mind, laziness, feeling bad, stress etc.by shutting off the outside world. Our brain closes off from the outside world and focuses on the negative emotions.

The biggest benefit that positive emotions provide is an enhanced ability to build skills and develop resources for use later the in life, like physical skills (play & joy), social skills(communication) and creative skills (examine the word's happenings). Positive emotions broaden our sense of possibilities and open our mind, which in turn allows you to build new skills and resources. Positivity is so useful for developing valuable skills and appreciating the big picture of life.

In fact, POSITIVITY helps in *De-Conditioning* the mind.Conditioning is a phenomenon of thinking; so it can be changed by counter-thinking. *Thinking and counter-thinking* are both well within the capacity of the mind. Those who look only at external factors invariably, underestimate their own capacity. But those who discover themselves, become free of this obsession and can meet all challenges. *De-condition the conditioning of your mind and you will instantly emerge a new person - even better than what you were in the past.*

Anything that sparks feelings of joy, contentment and love will do the trick. Here are four ideas for us to considerfor practicing Positivity i.e. *Meditation, Reading, Writingand Play*. This gives rise to happiness &in turn success by opening up our mind to explore and **build the skills**.

Not only developing the Skill, *Positive Thinking even* can even cure us from many severe ailments by changing our thought patterns, which triggers chemical changes in the brain, leading to good health and feel good. In fact every thought has an emotion and we are constantly thinking and creating vibrations around us. Everything is really just a vibratory frequency unique to the thoughtemotion.Happiness must not always come from big things. It can even come from polishing small daily habits too. One has to go on taking a very small conscious steps for practicing it.*This itself will*replace the negativity in our surroundings. Methodology is very simple by being in *PRESENT and by focusing on our breath gently* in case of turbulence in mind.Don't let the vague fears drag you down.Be kind.Help out.Just be there. Be grateful for a few of the things, you may often take for granted.

Living a life of positive thinking and laughter is bound to have you feeling happier and more successful throughout your day-to-day routine bymaintaining the right attitude. Visualizing goals and going after them is a key component to positive thinking because it is a successful technique that helps you achieve the results you want.

Attimes something unexpected comes up, assess the situation and try to view it as a learning experience rather than see yourself as a victim. Only when you get past your negativity, will you be able to empower yourself enough with right attitude to come up with a solution.

The **BhagvatGita** speaks of attitude. Gita upholds the non-attached attitude as the highest virtue. Non-attached action has the following advantages -

- You can work without fear of favor
- You are committed to work only
- Your performance level is high
- You're fully absorbed in your work
- There is no hindrance or distraction for you
- The chances of your success are very high.

Lord Krishna says: "No man resteth a moment inactive". Even when inactive on the bodily plane, we are all the time acting on the thought plane. Therefore, if we observe ourselves, we can easily mould our thoughts.

If our thoughts are pure and noble (Positive), naturally actions follow the same. If our thoughts are filled with jealousy, hatred and greed (Negative), our actions will be the same.

Karmically, however, thought or intent is more responsible and dynamic than an act. One may perform a charitable act, but if he does not think charitably and is doing the act just for the sake of gain and glory, it is his thoughts that will determine the result.

Theosophy teaches us that every thought, no matter how fleeting, leaves a seed in the mind of the thinker. These small seeds together go to make up a large thought seed and determine one's general character.

Every thought we think, every act we perform, creates in us an impression and that impression, like everything else, is subject to cyclic law and becomes repetitive in our mind. (Continued on Page No. 15)

^{*}Corporate Trainer; Former DGM-HR, ITI Ltd;

Leader of the Workshop on the topic held for one day (23.10.2017) at PMA.



VALUE ENHANCEMENT USING OUTSOURCING TECHNIQUES IN FOUNDRIES

-K.P.Milton*

Outsourcing is an age old technique used in industries to augment production. Vendor development, Subcontracting are extensively used methods. Most of the Automobile companies get their major sub assemblies like body chassis, door assembly, even parts of Engine assembly from their vendors just in time to maintain zero inventories. The other widely used method is to develop Original Equipment Manufacturer (OEM). These parts are exclusively made by select industries. Example RANE MADRAS is for the supply of steering hand wheel and linkages etc. MICO BANGALORE is manufacturing oil filter/Spark plug and TVS GROUP IS manufacturing a host of products like Auto axles, Braking equipments, Diesel fuel injection equipment Head Rear combination lamps, Starter Motors, Alternators, Fan & Motor Wiper mechanisms etc. These companies are having core competences in their area. They are having foreign collaborations and some companies like ROOTS Coimbatore is having buyback arrangement with their foreign principles for the horns with BOSCH Germany. Here the manufacturer gave their specification to the OEMS for design, manufacture and supply.

The third type of outsourcing is for component, casting, and other parts machining to local sub contractors .This way companies can avoid purchasing heavy and costly machineries and employing expensive skilled manpower.

OUTSOURCING TERMINOLOGY

The strategic use of outside resources to perform certain activities traditionally handled by internal staff and resources is called Facilities management.

Outsourcing is a strategy by which an organisation contracts out Major functions to specialised and efficient service provider who later become a valued business partner.

Companies have always hired contractors for particular types of work, or to level of peaks and troughs in their work load and have found long time relationships with firms whose capabilities complement or supplement their own.

1. There is a difference between simply supplementing resources by subcontracting and actual outsourcing. Outsourcing actually involves Transfer of staff from a host company to a specialist, usually a smaller company with required core competencies.

REASONS FOR OUTSOURCING

- Reduce and control operating costs.
- To improve host company focus.
- Gain access to world class capabilities.
- Freeing internal resources for other purposes.

- To reduce manufacturing time.
- To overcome insufficient internal resources.
- Share risks with a partner company.

In earlier days COST and HEAD COUNT reduction were the most common reasons to outsource. In today's world the drivers are often more strategic and focus on carrying out core value-adding activities at in house, where an organisation can best utilise its own core competencies.

MAIN FACTORS INFLUENCING SUCESSFUL OUTSOURCING.

- Understanding company GOALS and Objectives
- A Strategic vision and plan
- Selecting the right vendor
- A PROPERLY structured contract
- Senior executive support and involvement
- Careful attention to personal issues
- Short term financial justification
- Open communication.

According to GARTNER GROUP (UK Company) 25% of outsourcing contracts will be renegotiated or cancelled within 3 years. Ongoing management of the relationship is important. Regular meeting should be held at the operational level to address the working of the outsourcing contract in practice. To identify and resolve any problem that has been encountered and to agree on changes to ensure continual satisfaction.

CONTRACTS AND SERVICE LEVEL AGREEMENTS

The emphasis from the outset should not be on who wins the best deal, but rather on negotiating a reasonable contract for both parties. The key document in outsourcing agreement is the Service level agreement. {SLA}

AGREEMENT FOR KEEPING SECRECY AND CONFIDENTIALITY

Industries are facing cut throat competition; there is certain level of market survey and intelligence going on in the industry. Product pricing, technology, on time delivery are key factors for survival. During outsourcing contracts certain clauses are to be introduced to protect secrecy of drawing, technology and pricing details. In certain cases exclusive rights are protected so that their facility cannot be

*Former Addl.GM, Instrumentation Ltd & present Ph.D.Scholar, Bharathiar University



THEORIES OF OUTSOURCING PROCESS

• TRANSACTION COST ECONOMICS (TCE)

This theory provide best decision making tools to help organisations to decide for outsourcing and to prepare themselves for the fourth coming outsourcing arrangements It deals with concept of switching costs ,making the theory applicable in the reconsideration phase. This theory was criticised as static, which does not correspond to dynamism of current business environment.

• RELATIONAL VIEW

This theory explain how firms gain and sustain competitive advantage with in inter organisational relationships The concept of relational rents has been explored to explain how firms choose their future outsourcing partners and preferred type of the relationship.

The theory has been utilised in studying the transition, managing relationship and Reconsideration phases. This makes the relational view to be the only theory that has been applied in the research of all outsourcing process phases.

• CONCEPT OF CORE COMPETENCES

This theory was developed on the basis of the resource based theory. Prahalad and Hamel (1990) defined the core competencies as the collective learning in the organisation, especially how to coordinate diverse production skills and integrate multiple streams of technologies. The concept argues for the core activity to remain in house and the vendor's competences are assumed to be one of the most important factors that influence success of an outsourcing arrangement (Levina and Ross 2003; Feeney et al 2005)

• RESOURCE BASED VIEW (BARNEY 1986, 1989, 1991)

This theory suggests that resources and capabilities can vary significantly across firms, and these differences can be stable. If resources and capabilities of a firm are mixed and deployed in a proper way they can create competitive advantage for the firm. It has two assumptions of firm, Resource heterogeneity and firm resource immobility. There are four attributes of resources that lead to competitive advantage. They are Valuable rareness, imperfectly imitable, and nonsubstitutable. A resource is valuable if it allows a firm to exploit an opportunity in the market, thwart competitive threats and implement strategies that improve efficiency and effectiveness. This theory is useful in the preparation phases of the outsourcing process for defining the decision making framework and selecting an appropriate vendor.

• ECONOMIC THEORIES

Transaction cost Economic (Coase 1937, Williamson 1985) addresses the questions like, why do firms exit? What are the most effective strategies for maximising profits? What should firms make and buy? It has two important fundamental behavioural assumptions. 1) Bounded rationality (Simon 1957) and 2) opportunism. Bounded rationality refers to that people have rationality, but limited. Therefore it is only possible for both the parties to sign an incomplete contract. Opportunism refers to that people cunningly behave opportunistically at the expense of others. The outsourcing firms need to consider both production costs and transactions costs during outsourcing.

• AGENCY THEORY (EISENHARDT 1989, JENSENAND MECKLING 1976)

This theory is based on the conceptualization of the firm as a nexus of contracts between principals or stakeholders and agents. The stakeholders are represented by different groups or persons with in the firm as well as outside the firm, such as customers, suppliers, or shareholders. The principle being too busy that he cannot monitor the agent perfectly, So the agents have to be motivated by way of sighing incentive contracts. AT is concerned with resolving problems that can exist in agency relationship due to unaligned goals or different aversion levels to risk. The most common agency relationship in finance occurs between shareholder (principal) and company Executives (agents)

• SOCIAL EXCHANGE THEORY

The social association are considered as social exchanges of activities between two or more persons that are motivated by the returns they are expected to bring. Several attributes that is important in an exchange. They are reciprocity, balance, cohesion and power. (Emerson 1972) Trust is also an important construct in social exchange. The SET explains the process of inter-organizational relationship. (IOR) Social exchange is also treated as an independent variable.

• INNOVATION DIFFUSION THEORY (ROGER :2006)

Two important concepts in innovation theories are adoption and diffusion. Adoption is the decision to use the innovation and diffusion is the process by which an innovation is communicated through certain channels among members of a social systems. Individual and organizational are the two units of analysis in innovation diffusion research.

• POWER AND POLITICS THEORIES (PFEFFER :1912)

These theories assume that power and politics play major roles in organizational decision making. Power is a property of a system at rest; politics is the study of power



in action. Power is the potential of an actor to influence the behaviour of another actor on a particular issue within a social system (Tushman 1977) it can come from different resources. The political tactics is the structure and processes of the use of authority and power to achieve goals, directions, other parameters of the organization power politics theories had been used to study the impact of power and political tactics on outsourcing decisions.(e g Lacity and Hirschheim 1993)

FOUNDRY INDUSTRY OUTSOURCING

INDIA is the third largest producer of steel castings next only to USA and CHINA. More than 6000 medium and large foundries produce 10.3 million castings a year. AUTO industry consumes more than 35 % of castings. This followed by heavy engineering sector like pumps valves, water and sewage industry, road and bridges, rail, power, oil and gas are the highest users of castings in India. India also exports over 15 % of produce to overseas market. In south India Coimbatore is having largest cluster of steel casting foundries. In Coimbatore around 35 foundries use INDUCTION FURNACE as their MELT machine .The std furnace capacities are 100Kg, 250Kg, 500Kg, 1000Kg, 2000Kg, 2500Kg. The Furnaces comes with either single OR double crucibles. Depending up on casting requirements they have one or two smaller size Crucibles for Smaller Size Castings and 1.5 Ton Crucibles for larger casting like Machine Bed, Large Valve bodies and Truck Engine housings.

JOB PLANNING IN FOUNDRIES

Lot of meticulous planning is required for successful running of the foundries. The size, no of castings, chemical composition will vary most of the time. The following are the vital areas of the of process planning.

1. Order processing Marketing dept loads the order to planning dept with the following details.

- 1. Customer requirements as per the drawings, (with details of material composition, finish, test certificates etc).
- 2. No. of pieces, delivery dates, (Bulk delivery, staggered supply, urgent part supply).
- **2. Production planning:** The planning dept assigns job order no. and releases the process schedule as below.
- a) Availability of pattern for the mould .If not in stock then release order for making it (either in house ,or out source . patterns are made with teak wood, aluminium, etc)
- b) Ready stock of Casting inputs like iron scrap ,fettling pieces, cast rejections, alloying metals like chromium, ,nickel, copper, zinc, magnesium, manganese, molybdenum, etc.
- c) Furnace load (full capacity, or 60 % or more. In case smaller size castings 250 kg or lesser crucibles can be planned.
- d) Planning dept may also take into account of customer urgency, Turnover value, Store house facility etc.

OUTSOUCING IN MANUFACTUING

- Let us examine most of the possible outsourcing activities in foundries
- 1 Designing mould and generating pattern drawings.
- 2 Pattern making wood, aluminium etc.
- 3 Scrap segregation (labour only).
- 4 Mould shake out, fettling cleaning (Labour only).
- 5 Finished casting products machining (mostly for exports).
- 6 Logistics to handle Raw material sourcing mould sand purchase.
- 7 Finished product despatch.

MATERIAL TESTING

- The casting process involves numerous testing and verifications stages
- 1. checking alloy compositions before pouring
- 2. Test bar pouring to verify Tensile strength, yield strength, Elongation and hardness.
- 3. Ultra sonic, radiography die penetrant tests to determine cracks, porosity, and Blow holes.
- 4. Chemical composition test on the test bars to ascertain required material in %

In the above tests Radiography, ultrasonic and magnetic particle tests can be out sourced.

To summarise foundries involve FIVE types of outsourcing activity

- 1. Designing of mould, patterns, vent and gating systems from expert design centres. Such jobs involve qualified trained and experienced Engineers with AUTO CAD, SOLID WORKS and other software's. To retain them they have to be paid high. So the help of centralised design offices can be beneficial.
- 2. Job works /contract labour outsourcing are vital for effective handling of works like scrap segregation, mould making, shake outs, fettlings etc. These are highly labour oriented and in hot, dusty hazardous and dangerous environments. Now a day's mostly migrant workers are doing such jobs.
- 3. Testing s like radiography ultrasonic etc. These activities are very slow and time consuming. Further only inspectors NDT level ii and above can carry out such tests. So job/work contract will boost good productivity.
- 4. Supply of proof machined casting .This work involves skilled CNC operates. Costly lathes, milling, machining centres. If the quantum of job orders is low or intermittent then outsourcing is the best solution.
- 5. Contract logistics for the steady supply of Raw materials like metal scraps. Ingots and alloying materials' Sand, furnace liners' etc and finished product despatches.

CONCLUSION

In order to assess the level of outsourcing a questioner was framed and sent to few companies in Coimbatore .It is found that many medium and large scale companies are not using Outsourcing technique in most of the process. Only Radiography testing is given to external agencies. Most of the job work and custom based castings are poured using



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patterns supplied by the customers. Few foundries are having their own pattern making work shop to make wooden and aluminium patterns for their direct selling products like companion flanges, STD pump Housings and valve bodies. The outsourcing will increase when Cluster facilities and ancillary industries like CNC Machining centre, Solid modelling and 3D IMAGE .Drawing generation facility, mechanical, chemical and NDT facilities are established to offer services at competitive rates. Only then it will benefit the foundries, other small ancillary industries and entrepreneurs. After all it is competitiveness that gives the required impetus to any company in delivering quality product at a affordable price on time to customers. The easiest way to achieve this is to outsource in the areas of manufacturing process, testing and customer service. REFERENCE

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PROCESS FLOW CHART OF A FOUNDRY



FACTORS INFLUENCING THE SATISFACTION LEVELS OF MBA PROGRAME- AN EMPIRICAL STUDY IN COIMBATORE

-Ashokan.C*

1.0 INTRODUCTION:

With over 40 MBA colleges across Coimbatore, selecting the right one is a tough task for any MBA aspirant. Most of the B-Schools are evenly poised in many ways and magazine surveys which come up every year does not give a clear picture. Most of the decisions are made on the basis of brand reputation and placement records. But once a student takes admission in one of those coveted institutions his/her priorities might change. The factors leading to the satisfaction of an MBA program may not be placements or brand reputation of the college. The broad objective of this study is to find out the key factors which influence the satisfaction levels of the student in a B-School.

2.0 RESEARCH METHODOLOGY:

2.1 Research Objectives

- To identify the factors contributing to the satisfaction levels of an MBA program
- To prioritize the different identified variables according to level of importance.
- 2.2 Research Tools
- Simple Percentage Analysis & Factor Analysis
- 3.0 SAMPLING:
 - Sample Size:64
 - Sampling Technique: Convenient Sampling
 - Sampling Unit: MBA Students

4.0 LITERATURE SURVEY:

Relevant articles coming in top Indian business magazines were analysed to narrow down the key variables. This was further substantiated by personal interviews with students and own experiences. Even though most of the magazines emphasized on placement records and big brand names, students' reactions were different. Value addition in the two years of the programme was considered most important my most students. These inputs motivated to do an extensive research in Coimbatore to find out the fact.

5. DESCRIPTIVE STATISTICS Brand Name/Reputation plays the most important role while opting for B-School

		Frequenc		Valid	Cumulative
		у	Percent	Percent	Percent
Valid	Can't Say	8	12.5	12.5	12.5
	Agree	36	56.3	56.3	68.8
	Strongly Agree	20	31.3	31.3	100.0
	Total	64	100.0	100.0	









Peers/Friends/Colleagues influence your views about a particular MBA Course

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Can't Say	8	12.5	12.5	12.5
	Agree	56	87.5	87.5	100.0
	Total	64	100.0	100.0	

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An exhaustive and good Library is an inevitable factor to be considered while choosing a good B-School

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Disagree	4	6.3	6.3	6.3
	Can't Say	16	25.0	25.0	31.3
	Agree	28	43.8	43.8	75.0
	Strongly Agree	16	25.0	25.0	100.0
	Total	64	100.0	100.0	

An exhaustive and good Library is an inevitable factor to be considered while choosing a good B-School



A good infrastructure facility attracts towards a particular B-School

		_	_		Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Can't Say	12	18.8	18.8	18.8
	Agree	16	25.0	25.0	43.8
	Strongly Agree	36	56.3	56.3	100.0
	Total	64	100.0	100.0	



Do you think that current curriculum followed in Indian B-Schools prepares you to face the corporate world?







Residential education/hostel facility raises the satisfaction levels of an MBA Program

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Can't Say	28	43.8	43.8	43.8
	Agree	24	37.5	37.5	81.3
	Strongly Agree	12	18.8	18.8	100.0
	Total	64	100.0	100.0	



Reputation of the Faculty also motivates you while pursuing an MBA program

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Can't Say	8	12.5	12.5	12.5
	Agree	20	31.3	31.3	43.8
	Strongly Agree	36	56.3	56.3	100.0
	Total	64	100.0	100.0	





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An MBA program is incomplete without proper industry interface

					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Can't Say	8	12.5	12.5	12.5
	Agree	20	31.3	31.3	43.8
	Strongly Agree	36	56.3	56.3	100.0
	Total	64	100.0	100.0	



Good student/Faculty ratio also determines the quality of an MBA program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	6.3	6.3	6.3
	Can't Say	8	12.5	12.5	18.8
	Agree	28	43.8	43.8	62.5
	Strongly Agree	24	37.5	37.5	100.0
	Total	64	100.0	100.0	





Getting good placement is the most important factor for pursuing an MBA

	Program								
					Cumulative				
		Frequency	Percent	Valid Percent	Percent				
Valid	Agree	20	31.3	31.3	31.3				
	Strongly Agree	44	68.8	68.8	100.0				
	Total	64	100.0	100.0					





Extracurricular activities also play a critical role for the value addition during an

	MBA Course							
		Frequency	Percent	Valid Percent	Cumulative Percent			
Valid	Can't Say	8	12.5	12.5	12.5			
	Agree	32	50.0	50.0	62.5			
	Strongly Agree	24	37.5	37.5	100.0			
	Total	64	100.0	100.0				





Location of the B-School is the deciding factor while considering between two B-Schools of the same reputation levels

10					
					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Disagree	4	6.3	6.3	6.3
	Can't Say	24	37.5	37.5	43.8
	Agree	28	43.8	43.8	87.5
	Strongly Agree	8	12.5	12.5	100.0
	Total	64	100.0	100.0	





Surveys conducted by magazines give a complete picture and influences your

		decision white	choosing B	-School	
					Cumulative
		Frequency	Percent	Valid Percent	P erc ent
Valid	Disagree	4	6.3	6.3	6.3
	Can't Say	32	50.0	50.0	56.3
	Agree	24	37.5	37.5	93.8
	Strongly Agree	4	6.3	6.3	100.0
	Total	64	100.0	100.0	

Surveys conducted by magazines give a complete picture and influences your decision while choosing B-School





VV II	which teaching methodology complements a good wibA Frogram the Best:						
		Frequency	Percent	Valid Percent	Cumulative Percent		
Valid	PPT	24	37.5	37.5	37.5		
	Black Board	16	25.0	25.0	62.5		
	Case Study	20	31.3	31.3	93.8		
	Self-Study	4	6.3	6.3	100.0		
	Total	64	100.0	100.0			
	Which teaching	methodology	complement	s a good MBA Pro	gram the Best?		
					PPT Black Board Case Study Self-Study		

Which teaching methodology complements a good MBA Program the Best?

6. DATAANALYSIS Communalities

The table below shows the output of principle data extraction of the various factors (15) under the study. The initial communalities are estimates of initial variance in each variable accounted for by all components/factors. For principal components, this is always equal to 1. The extracted communalities are estimates of the variance in each variable accounted for by the components/factors. The extracted values are quite high showing that the variance in the variables is well explained by the factors generated.

Communalities		
	Initial	Extraction
Brand Name/Reputation plays the most important role while opting for B-School	1.000	.922
Strong Alumni base is a factor which increases the motivation level while pursuing an MBA	1.000	. 866
Peers/Friends/Colleagues influence your views about a particular MBA Course	1.000	.930
An exhaustive and good Library is an inevitable factor to be considered while choosing a good B-School	1.000	. 93 9
A good infrastructure facility attracts towards a particular B-School	1.000	. 87 5
Do you think that current curriculum followed in Indian B-Schools prepares you to face the corporate world?	1.000	.852
Residential education/hostel facility raises the satisfaction levels of an MBA Program	1.000	. 857
Reputation of the Faculty also motivates you while pursuing an MBA program	1.000	.904
An MBA program is incomplete without proper industry interface	1.000	. 73 5
Good student/Faculty ratio also determines the quality of an MBA program	1.000	. 79 1
Getting good placement is the most important factor for pursuing an MBA Program	1.000	. 95 1
Extracurricular activities also play a critical role for the value addition during an MBA Course	1.000	. 826
Location of the B-S chool is the deciding factor while considering between two B-Schools of the same reputation levels	1.000	. 886
Surveys conducted by magazines give a complete picture and influences your decision while choosing B-School	1.000	.934
Which teaching methodology complements a good MBA Program the Best?	1.000	.983

Extraction Method: Principal Component Analysis.

Total Variance Explained

The table below shows the total variance (in percentage) explained by each of the 7 factors. The cumulative variance of all factors has come out to be 88.341 % which is better than the desired level.



Total Variance Explained							
		Initial Eigen val	ues	Extracti	on Sums of Square	ed Loadings	
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	3.090	20.598	20.598	3.090	20.598	20.598	
2	2.443	16.289	36.887	2.443	16.289	36.887	
3	2.050	13.667	50.554	2.050	13.667	50.554	
4	1.860	12.403	62.957	1.860	12.403	62.957	
5	1.646	10.976	73.934	1.646	10.976	73.934	
6	1.150	7.670	81.604	1.150	7.670	81.604	
7	1.011	6.737	88.341	1.011	6.737	88.341	
8	.522	3.483	91.824				
9	.508	3.387	95.210				
10	.319	2.124	97.335				
11	.165	1.102	98.437				
12	.126	.840	99.277				
13	.085	.567	99.844				
14	.022	.149	99.993				
15	.001	.007	100.000				

Extraction Method: Principal Component Analysis.

Component Matrix

The table below shows the factor loadings (correlations) of all the 15 variables under study in terms of 7 factors. The factor loadings provide an indication of which original variables are correlated with each factor and the extent of the correlation. This information is used later to identify and label the unobservable factors subjectively.

	Component Transformation Matrix						
Component	1	2	3	4	5	6	7
1	.816	099	256	251	.409	.147	.084
2	078	.713	427	.195	018	.508	.079
3	.319	062	.317	.766	087	.037	.445
4	.122	.285	.593	.120	.334	.181	627
5	425	346	.123	046	.565	.513	.316
6	105	.492	.158	139	.462	567	.408
7	.139	.186	.509	526	425	.319	.358

Extraction Method: 1	Principal Component Analysis.
Rotation Method: V	arimax with Kaiser Normalization.

	Component						
	1	2	3	4	5	6	7
Brand Name/Reputation plays the most important role	1	2	5		5	0	
while opting for B-School	047	537	.268	.554	.226	.231	.385
Strong Alum ni base is a factor which increases the motivation level while pursuing an MBA	651	352	.226	.472	079	091	.17
Peers/Friends/Colleagues influence your views about a particular MBA Course	.132	.373	.283	.038	.702	205	.396
An exhaustive and good Library is an inevitable factor to be considered while choosing a good B-School	.153	.137	.481	657	.290	.268	.278
A good infrastructure facility attracts towards a particular B-S chool	.786	010	.284	.157	379	007	095
Do you think that current curriculum followed in Indian B-Schools prepares you to face the corporate world ?	.024	.744	.003	.481	250	.070	.007
Residential education/hostel facility raises the satisfaction levels of an MBA Program	.546	253	031	255	.475	.206	402
Reputation of the Faculty also motivates you while pursuing an MBA program	.849	.048	.069	067	343	056	.224
An MBA program is incomplete without proper industry interface	586	.054	.514	309	096	114	082
Good student/Faculty ratio also determines the quality of an MBA program	088	.610	277	.035	191	.522	.150
Getting good placement is the most important factor for pursuing an MBA Program	121	.191	.749	.227	.056	176	504
Extracurn cular activities also play a critical role for the value addition during an MBA C ourse	220	.488	.609	092	199	.347	.00
Location of the B-School is the deciding factor while considering between two B-Schools of the same reputation levels	.659	299	.480	.155	244	147	.16
Surveys conducted by magazines give a complete picture and influences your decision while choosing B-School	.313	.109	.005	.610	.492	.385	25
Which teaching methodology complements a good MBA Program the Best?	199	709	.162	138	271	.564	05

a. 7 components extracted.



7. FACTOR ANALYSIS

The table above clubs the data into 7 consolidated factors (from 1-7) but we are still not aware as to what all factors form the first factor and hence forth, to evaluate the composition and nomenclature of each of this 7 new factors we have to do the communality calculation with the help of Eigen values. The results of the calculations are shown below.



(Continued from Page No. 5)

We have advanced technologically, but it is only a step. Everything around us is changing drastically, but human nature remains the same and we are influenced by our surroundings and our environment.

This positive attitude lets us have the peace of your mind. This attitude lets us going even under struggle and difficult circumstances. This is truly the attitude all successful people possess. Respecting and smiling at other people and colleagues doesn't mean a thing, if you criticize them at their back. Parroting lofty ideas, does not mean a thing, if you yourself do not follow them.

Tips for Maintaining a Positive Attitude-Think of solutions, Make yourself laugh, Lift your mood with music, Inform yourself, Do good for others as well as yourself, Share other people's joy, Surround yourself with genuinely positive people, Give yourself credit, Change focus, look for the positive, Make a habit of doing it now, Develop an attitude of gratitude,Build a positive self-esteem, Stay away from negative influences, Learn to like the things that need to be done,Start your day with a positive etc.

If you have a bad attitude – Watch yourself by being in PPRESENT and change it. Change is just a thought away, if we really mean it. Our "Attitude is everything". Actually "Attitude is the only thing that makes a big difference". Don't let negativity break you down. Instead, use your energy to find ways to step towards what you wish to have in life and make it happen.

8. CONCLUSION

Thus it can be concluded that most of the factors are combination of more than one component and can be named as a new factor in itself, the names of these factors and their contribution towards the objective of the study are as follows.

Factor 1: Alumni, Infrastructure, Hostel Facility, Faculty Reputation, Industry Interface & Location.

Factor 2: Curriculum, Student Teacher Ratio & Teaching Methodology.

Factor 3: Placement & Extra Curricular Activities.

Factor 4: Brand Name & Library.

Factor 5: Peer Influence.

*

William James once said - "The greatest discovery of my generation is that human beings can alter their lives by altering their attitudes of mind".

Absence of negativity alone does not make a person positive. People with positive attitudes have certain personality traits that are easy to recognize. They are caring, confident, helping, patient and humble. They have high expectations of themselves and others. They anticipate positive outcomes and concerned.

A balloon when released goes up not because of its colour or shape, it is what is inside that makes it go up. The same application can be found in our lives. It is what is inside that counts. The thing inside of us that makes us go up is our attitude.

The answer for every problem in every sphere of our livesis positive attitude, whether in the field of better Skill development, personality development, health, personal relationship or one's Spiritual up-liftment. *If you say, I can, you will. If you say, I cannot, you will never.*

Another name of <u>Positivity is Spirituality</u>, which is the saviour under effect from Negativity. Turn to Meditation, Yoga and breathing exercises. Meditate every day before sleep.*SKILLS in every sphere will develop*.



- C.P.Chandradas*

BOOK REVIEW ONE MINUTE MENTORING by DR KEN BLANCHARD. and CLAIRE DIAZ-ORTIZ A HAROER COLLINS PUBLICATION, NEW YORK . 2017. Price 22.99 US dollars.



Many illustrious writers in India and at the global level have published treatises on general .Management. The authors herein, have now through this publication, have analyzed an important aspect of management. Mentoring.

The style of presentation is unique and totally different from others. In the note to the readers, the reasons have been illustrated as well. " The best advice that we gave or received was given in less than a minute". And the authors add . "The guidance that really made a difference did not come in the form of long, complex theories- it came in short, meaningful insights ". The book reads as a parable from the beginning to end.

The authors, in their introduction to the theme, informs the readers, that it is possible to attain greatness by mentoring others. They have selected this topic" to give readers simple knowledge and easy to use tools to find and leverage mentoring relationships".

The book is divided into two chapters. In the first part, the authors introduce the readers to Josh Hartfield of Joy Soft, a marketing organization. He is there as a sales reorentative for five tells, years. In terms of work, he had

plenty. In terms of motivation, he had none. At the quarterly review, Eva Garcetti, his boss tells Josh to spend some time with a new representative Eric, who has set a new sales record. Josh gets baffled,

But he had no alternative, if he wanted to continue in the organization.. It was depressing to him. The boss assures him that Josh can get a sense of " why he is doing so well".

The demotivated Josh discusses this issue with his parents, who were professionals in different areas. They felt sad, but taking into consideration the realities opined that he should interact with the new entrant to the organization. The parents felt, that it would have been better, if the other person was senior to him in the organization. The parents told him, that " potential mentors are all around you once you start looking for them". And the search starts.

Josh got introduced to Ron, but he was not impressed. Later he met Diane and Josh found the right pathway and a destination. From Diane, he got the " essence and the form" of mentoring . Josh was told that Eric was just a coach in the organization, and that Diane was the real mentor for him. He understood the difference between coach and mentor and his future journey became eventful and purposeful.

Josh got a new lease of life. Diana a mature professional and an outsider guided Josh through E mails, phone talk and personal discussion at different locations in the week ends, transformed Josh and his future journey became peaceful. Josh got transformed and he was elevated to a senior position in the communications department of the same organization. The coach Eric and his boss Eva lend all support for this growth.

How all this happened?. The authors have in an exemplary manner handled this subject for the benefit of the readers. We have to take care of us, and if we do not do that, life will be a disaster. But from the time available, we should also spend some time for others for their betterment.

The authors in part two gives the mentor model and explains the difference between coaching and mentoring.

The book will be highly useful to all in the field of management of people.

*

E mail id of the reviewer. Cpcdas @ gmail.com

*Formerly HR Consultant at Chennai & Guest Faculty at IIT, Chennai; now residing in USA.



Interview with CEO:

Dr. K. Ramachandran Factory Manager Kottakkal Aryavaidyasala Factory complex Kanjikode,Palakkad-678 621



Responses received to the Questionnaire put across

- 1. How will you enumerate your professional competency by education and training inputs to be successful in the position you are holding in the Organisation.
- Ans: As the Unit Head, I am sufficiently qualified by way of Education and training for ensuring effectively the profit centre as well as CSR responsibilities of the Manufacturing Facility of my parent organization.
- 2. How is your style of functioning- wait for issues to come to you or anticipate them likely sustaining with your style or go ad-hoc in the situational context.
- Ans: I prefer the proactive approach than a reactive response to issues. As for being ad-hoc, it is a situational choice. To the extent possible, I prefer a structured approach to problem-solving.
- 3. Have you made a framework for the better performance of employees and systems you have identified such factors and arrange inputs to further advance on such factors? What are the schemes you have worked out in the above context?
- Ans: There are sufficient opportunities for professional advancement by way of on and off the job training in our organization. I personally mentor and develop innate talent in high potential individuals to grow and mature as responsible and competent leaders to take up higher responsibilities later on.
- 4. In the Kerala working environment, you consider the authoritative style of command to get a result or democratic style if there is any difference between labour and supervisor in this aspect
- Ans: A combination of consultative and middle of the path approach is that I personally prefer. There can be situations when active suggestions from subordinates are required and implemented. But, in policy issues or crisis, I take the appropriate decisions personally if the situation demands so.
- 5. What operational principles you hold in respect of materials, machinery, manpower and quality and are you able to sustain such principles held close to you.
- Ans: The in-house standards as well as the SOPS and AYUSH standards, apart from GMP compliance for pharma sector decide our basis for operations management. We are governed by in-house pharmacopoeia documents as well as the structured

GMP procedures for Schedule T category. As for machinery and operations, we take into account TPM and Quality management aspects as far as possible.

- 6. How have you experienced PMA as a source for providing management development? Are the sessions concerning development deal with knowledge and skill as well; similarly such development programmes are for employees as well as for Managers.
- Ans: As an active facilitator for management training and functioning aspects, the PMA is found to be the ideal foil for development of our professionals to be moulded into good and socially conscious managers. For staff and non-managerial categories also, we find PMA's programmes extremely useful.
- 7. Have you been getting opportunities to develop knowledge and skills through the forums of PMA?
- Ans: Even in the midst of my demanding schedules, the publications and communications from PMA keep me posted on current and relevant issues.
- 8. Do you find PMA can be entrusted with the work of upgrading knowledge and skill of your men through development programmes at PMA or within the Company premises?
- Ans: We have been and are beneficiaries of the various initiatives of PMA coordinated training and motivational programmes. Our managers both line and staff benefit immensely.
- 9. How useful you find on the value addition by the two publications–PMANew Letter and quarterly Journal, OM.
- Ans: Both are extremely useful to me as instruments on providing present and pressing issues faced by the industry locally and in a larger context.
- 10. Have you any suggestion to improve the role of PMA from the point of view of furthering Organisational performance?
- Ans : There can be more roles for PMA, as an active facilitator of managerial development and the apex body can be a centre of excellence by having longer version programmes like an industry-specific programme of Post Graduate Diplomas or other certifications in concurrence with Educational standards of leading autonomous institutes or such professional bodies, like AIMA or the IEI, or even the ICAI.



Contract Administration :

AGREEMENT BETWEEN COMPANY AND CLEANING CONTRACTOR FOR CLEANING OF OFFICE PREMISES OF THE COMPANY Specimen

Whereby it is agreed as follows :

- 1. The Cleaning Contractor shall handle and execute the various cleaning operations in the Company's offie at.....for a period of one year commencing from....... (here in state the period when different than one year.)
- 2. The Company shall during the currency of this Agreement, pay to the Cleaning Contractor Rs...... per month in which such cleaning work is done.
- 3. The Cleaning Contractor shall, carry out all cleaning work inter alia sweeping of the floors, staircases, verandahas, cleaning of bathrooms, lavatories, tables, chairs, almirahs, and furnitures etc. between the hours of...... anddaily on all working days except Sundays being holidays.
- 4. The Cleaning Contractor will decide the number of employees /sweepers/scanvengers/cleaners to be engaged for execution of cleaning work of each floor and bay.
- 5. The Cleaning Contractor shall ensure that all persons employed by him shall be efficient, honest and conversant with the nature of work to be performed by him.
- 6. The Cleaning Contractor 's employers shall be liable for search at entrance and exit of the premises of the Company. The Cleaning Contractor shall issue identity cards bearing photographs of his employees, duly approved by the Company, for gate entry.

- 7. The Cleaning Contractor shall provide to his employees uniforms with different colour than that as provided to the employees of the Company and will also ensure their neatness & cleanness.
- 8. Be it clearly understood and agreed that by this agreement no relationship of employer and employee is created between the Company and the employees engaged by the cleaning contractor. It will be the responsibility of the Cleaning Contractor to pay the wages to his employees and to ensure compliance of the labour laws including seeking licence under the Contract Labour (Regulation & Abolition) Act.
- 9. This Agreement may be terminated by either party by giving to the other party one month's notice in writing.
- 10. If the Cleaning Contractor fails to carry out the said cleaning work to the satisfaction of Company, it shall be lawful for the Company to terminate the Agreement by giving one week's (or one month's notice, even before the expiry of the stipulated period.

IN WITNESS WHEREOF both the parties mentioned above append their signatures in token of having accepted the above terms & conditisons.

Party of the first Part

Party of the Second Part

IN WITNESSES :

1	
2	

[Source : HRD & Labour Law Reference A Product of Labour Law Reporter.

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THE GOODS AND SERVICES TAX AND HR FUNCTION

-A.Ramesh*

Introduction :

July 1st 2017 onwards, the Goods and Services Tax is operational in our country. The integrated tax has replaced all supply and labour related taxation like service tax, octroi, Central Excise Duty and VAT. The GST, in consideration of successive governments since 1999, hopefully is expected to simplify tax structure, increase in government revenue and unify different taxes across the states.

Let us see the various stake holders in the Human Resources field : Apart from the typical HR Executives on full time employment, there are the freelance consultants, staffing and recruiting companies, people on term contracts, specific domain experts on various skill developments, the academia as the source of new and meritorious talent, companies like suppliers of capital machinery and equipment who carry out training on the equipment they supply to their customers, and so on and so forth. These groups have their own peculiar and specific training and outsourcing methods, in which monitory transactions play a major role and, this is where the GST is having a major role to play.

Now, we can examine how it will impact the salaried class, like perks, corporate gifts, and travel and food subsidized amenities given to employees that do not form part of their CTC will be taxed by GST. Those benefits under CTC will be governed by Income Tax and not GST.

The various fees like Director sitting fees, Notice pay recovery under the earlier 15% tax rate under Service Tax will be under 18% GST. All gifts such as Deewali special award, given in cash by employers to employees will be taxable if more than Rs.50,000/- per employee per year under GST. However, those under monitory awards like Bonus, will be under the ambit of Income Tax and not GST. Even then, gifts may be planned by Employer not exceeding an annual limit of Rs.50,000/- per employee.

The Employer is eligible for input tax credit on a case to case specific basis. The indirect benefits enjoyed by employees like reimbursement limits for conveyance may vary by 1-2%, as applicable. Contract employees, freelance consultants and part time workers are working on a principal to principal basis, not under typical employer employee relations.

The services of HR Consultants and Trainers, likewise are taxable typically at 18% as earlier applicable Service Tax, when the rate was 15%.

For hiring, staffing and placement agencies, their fees and invoices under 18% aggregate tax under GST unlike earlier different slabs in erstwhile service tax regime. The interpretation of different types of Services and fees, under unified GST structure, are interpreted on case to case basis and require expert advice of domain specialists in taxation. Generally, schedules are provided on a broad definition of nature of duties and categories by the Government under the Central Board of Excise and Taxes website.

Under the HR Department, there are various employee development programs engaged on an on the job and off the job basis and the payment of fees, lodging and boarding costs of employees by the employer are taxed as per GST and the training provider provide tax invoice under the GST being duly registered under state or centre. The interstate programs are also covered suitably. The HR Manager can refer to domain specific instances for remuneration, service and performance related areas after due reference to relevant provisions of the GST schedules and can have the condensed abstract in the services booklet issued by the Department of Central Excise and Taxes or better still till one attains reasonable proficiency to engage a domain expert.

Conclusion : The GST and its application in the HR Field, or in services in general, require clarity of definition and interpretation and this cannot happen immediately but in due course of time, all ideas will become clear and applicable. Till that time, only a trial and experimentation method with due course correction by expert advice will have to be followed. Hopefully, all initial teething problems can be overcome by sincere and intelligent application of tools available under the GST structure.

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STRATEGIC SCIENTIFIC LEADERSHIP STYLE: CHIDAMBARAM MODEL

Dr.Jayaraman A.P * and Sanjith Nambiar**

Executive Summary

A unique evolutionary model of strategic scientific leadership style can be recognized in the research workand technological missions of Rajagopala Chidambaram. He started his professional career as an experimental physicist, directed nuclear weapon strategy of India, defended the nuclear policy for national security and continues to navigate the national affairs of Science, Technology and Innovation programs as the Principal Scientific Adviser to the Government of India. His fifty five year-long odyssey can be traced as stage wise evolution into a full blown scientific leadership style in Science Technology and Society studies.Disciplinarity, transdisciplinarysynthesis and creativity are sequentially blended in the progressive trajectory of his leadership. Pioneer, Guardian and Driver styles are appropriately deployed until the Integrator model attains maturity. Development of nuclear weaponry remains the supreme technological innovation of our times and his organizational management was largely responsible for it. Nuclear physics on which it is based is perhaps the most resplendent intellectualachievement and the scientific and strategic leadership embedded in the Chidambaram model(CM) is case study both in contemporary history of science and that of management. CM also shows transient applications of disciplinary and transdisciplinary charisma to create coherent synergy in the Integrator pattern deployed to generate appropriate technologies for human development.

Introduction

Somewhere in the front rank of the seminal scientific thought leaders of India there stands Rajagopala Chidambaram, exactly where he stands depends not on his intellectual accomplishments per se but on our own perception of what a scientist has done and could do to the strategic security and sustainable economic development of our 1.2 billion populous country. There have been renowned Indian scientists who have secured high citation indices in the history of science but there never has been such a unique blend of scientific leadership mindsets that converged coherently with a rare consilience in modern Indian history. In the diverse realms of blue sky research, directed basic research, demonstration and deployment of technology offerings, formulation and implementation of policies and programs, strategic security initiatives and nurturing scientific talent over a period of the past five and a half decades hisleadership has undergone coherent evolution to emerge as the ultimate integrator. Over fifty years of research into organizational leadership has provided theoretical underpinnings and analytical frameworks of enterprises outside science and technology. But such studies have not been reported in the organizational leadership of large science multi teams. Leaders who manage large science teams are still learning

on the job through trial and error but efforts are on to study the organizational behavior of CERN and LIGO science enterprises.

Disciplinarity

Chidambaram started his research journey from the Bhabha Atomic Research Centre (BARC). He charged into the heart of matter with the chargeless particle neutron and created the first advanced neutron spectrometer of the country and a world class protein crystallography research ecosystem utilizing the Canada India Research reactor at Trombay. That reactor was celebrated as a dependable source of high neutron flux. Probing hydrates and hydrogen bonds, he laid bare many a secret of amino acids. Wrestling with intricate experimental data, he had posited a brave new model of bent hydrogen bond. Later he laid the strong foundation for the school of High Pressure physics. The depth of his disciplined mind acquired significant breadth developing into the synthesizing mind. The creative mindset emerged with the stretch factor dovetailed completing the architecture of a full blown research scientist leader.

Starting his scientific career with a physics PhD age of 26 in BARC, he seized and optimized the reactor availability making an early entry into Neutron Diffraction Physics.He built a Nuclear Magnetic Resonance (NMR) equipment for his doctoral dissertation. His research work at Indian Institute of Science shows the fully developed distinct

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disciplinary mindset of the iconic Sir C.V.Raman. His mantra to become a successful experimental physicist is to identify an important problem, to build necessary equipment to address the problem and, with the help of electronics, data collection and computation, to arrive at a conclusion. His basic thesis work was NMR where he displayed the depth of his domain knowledge but he also showed the breadth and stretch of the knowledge by seamless transition to crystallography. In the new found field he rose to top position in international academia.He built a sophisticated instrument called Three Dimensional Fully Automatic Diffractor and determined the structure of 6 amino acids out of 20. The equipment was 'the dream of every crystallographer' (1). Experimental physics faced the daunting challenge of instrumentation. Disciplinarityin unalloyed form is visible as he wrestled with NMR instrument for his thesis at IISc. At BARC when he immersed himself in neutron diffraction and crystallography, the synthesizing mindset became dominant (2). The third mindset of creativity is reflected in his design of the instrument which will rotate the crystal under study along three chosen axes and rotate the detector also along one of these. The engineering design mindset, the cornerstone of Next Generation Science Standards, is patent in his instrumentation endeavors (3).

Driver cum Guardian

In the initial phase of Chidambaram's evolutionary leadership model, the defining characteristic of quantitative and technical orientation fits into Driver model (4). In the neutron diffraction stage, disciplinarity in physics and mathematics was dominant. He maintained a direct style, a logical approach with a willingness to make tough decisions. He took full charge of experimentation which he loved and prioritized his goals with his two Ph D students maintaining high loyalty in the group. There was a streak of competition because although his group was the best in class with neutron facility there were other groups abroad with access to higher neutron flux.In the Neutron Diffraction stage he valued challenge and generated momentum. Primacy was in getting results and winning counted most. Characteristic of Drivers, he viewed issues as black-and-white with no grey areas and tackled problems head on, armed with logic and data. With facts and data as the baseline and driven by evidence based reasoning he shares some aspects of Guardian traits with 80 percent Driver and 20 percent Guardian styles. This decade of leadership was signifying the Driver cum Guardian Style(D8G2). In the conventional mode he was both nurturant and transformational in developing physics teams.

For a short span of about five years, early seventies in his role as the leader of the Peaceful Nuclear Experiment we find the two subsets of Driver style blended in equal proportions; the scientist style and the commander style. While retaining the curiosity driven experimentalism of the scientist, he displayed the essential characteristics of the Commander subset of being competitively focused. This was synergized with the Guardian style of great attention to details, practicality, methodicity, order, and some elements of loyalty and reservation completing the spectrum of Guardianship(5). This amalgam brought about the 1974 successful Peaceful Nuclear Experiment project. Backed by the three mindsets, he shifted the paradigm of pure basic or blue sky research into directed basic research. As envisioned by him, this shift created the capability to design and test nuclear devices. His forward looking scientific leadership led to the first time right accomplishment of 18 May in 1974.

Next 15 years he was the dominant scientific research leader and shifted the paradigm of pure basic or blue sky research into directed basic research. He was the Director, BARC during 1990 - 1993 and then Chairman, Atomic Energy Commission during 1993 – 2000, a decade of momentous high profile nuclear leadership. The Bhabha Model was operationalized by him while in the nuclear enterprise (6).

Pioneer Pattern

In 1998 during 11-13 May, Nuclear India under his Pioneer scientific leadership conducted the Sakthi project with five nuclear devices including a fusion deterrent demonstrating the maturity of Indian nuclear deterrence program. It is a bound, folded and unified leadership of Oppenheimer and Leslie Grove of the Manhattan project type(4). The Teamer-Dreamer oscillation is perceptible in the pioneer pattern of CM and his status as a visible scientist. A legitimately proud Prime Minister declared that India was a nuclear weapon state and a grateful nation gracefully referred to Dr Chidambaram as the Pride of India. Sakthi brought out the sterling leadership qualities in him. Leadership of the Sakthi project required a combination of intellectual brilliance and operational expertise that it is unlikely would ever have been found in a single person. The sheer difficulty and sophistication of the science involved in the project meant that only one of the most intelligent physicists in the country could lead the scientific arm of the project. Comparison with the Manhattan project where the two styles were provided by two leaders and the Sakthi project had the styles of Oppenheimer and Leslie Grover in CMOppenheimer style of leadership is pronounced in CM. The uncanny knack of drawing ideas from scientists and synthesizing them into a pragmatic model is a notable feature. When constraints are encountered he steps in, verbalizes the problem, summarizes solutions, and gives a fillip to teams. The final challenge was to turn theory into an actual working device Articulated vision that national security and national development are two sides of the same coin (7). Pioneer was the dominant style with requisite proportions of Driver and Integrator(P7 I2D1)



As Chairman of the Atomic Energy Commission he has been instrumental for the commissioning of five indigenously designed nuclear reactors. He also gave a fillip to the diversified application of atomic energy for practical and peaceful applications with direct societal benefit outcomes. The workstyle reflected imaginative adaptability and risk friendly spontaneity characteristic of Pioneer mode. He was outgoing but detail averse limiting to critical parameters.

Oppenheimer style of leadership is visible in CM. The uncanny knack of drawing ideas from scientists and synthesizing them into a pragmatic model. When constraints are encountered he steps in, verbalizes the problem, summarizes solutions, and gives a fillip to teams. The final challenge was to turn theory into an actual working device Articulated vision that national security and national development are two sides of the same coin (8).

CM embodies the resilient strength of quickly understanding the many scientific and technical problems involved with the project so that he could help the various specialists work together to solve a problem that required insights from a wide variety of fields bringing in disciplinary and transdisciplinary traits.

Integrator Pattern

The present stage of Integrator pattern of CM also exhibits the component of building and sustaining mutually beneficial relationships through interactions with new or former contacts acquire information, advice and referrals. Dovetailing Guardian and Driver patterns at the base and with a Pioneering style above it the dominant style is that of a self-actualized Integrator operationalizing the tenets of the Sarabhai Model (9).

Development of a National Knowledge Network and Rural Technology Action Groups to develop and disseminate technologies for the rural upliftment are instances of Integrator pattern of CM (10). Redesigning bicycle to carry more load of banana in Assam, mud block for low cost housing in Tamil Nadu, pedal driven potter wheel; dying spring recharge using isotope hydrology in Uttarakhand, light weightDandi for handicapped hill people, portable toilets for the pilgrims, redesigning the "palki" so that it becomes easier for the persons in places like Kedarnath carrying the same,enhancing the efficiency of the furnace to make puffed rice of better quality and quantity for the rural population of West Bengal are the impactful outcomes of Integrator pattern of CM.

CM postulates in conformity with the integrative capacity model proposed by Salazer et al that leaders of interdisciplinary or transdisciplinary teams can build the capacity for deep knowledge integration through several leadership styles and behaviors (11).Strategic leaders of science teams are appointed to these positions based on their scientific expertise.Relevant scientific expertise is critical to the leadership behaviors of managing meaning and visioning in transdisciplinary science teams or larger groups.The ability to transform knowledge through integration is a core competence of innovative teams (12).Multiteam system is a complex and dynamic system and there is relatively low exploration into this area of leadership and further study of CM will provide insightful perceptions.

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Deloitte Leadership Parameters D- Driver,D1- Driver Commander mode, D2-Driver Scientist mode G-Guardian I-Integrator P-Pioneer

EXCHANGE OF JOURNALS

THE PRESTIGE INSTITUTE OF MANAGEMENT AND RESEARCH Indore, has sought exchange of their Bi-Annual Journal,' 'International Journal of Management & Research' with the Quarterly Journal of PMA, 'Organisational Management'. Both parties have agreed to start the Exchange with OM of Vol.33 No. 3. Oct-Dec 2017 and Vol. 10 No.2 July 2017 of 'International Journal of Management & Research'. This is the 12th Journal being received, in Exchange for OM.



THE ROLE OF FINANCIAL TECHNOLOGY (FINTECH) IN THE BANKING SECTOR: AN ANALYSIS

-Dr P Sivadasan*

Introduction

The financial services industry has seen drastic technology-led changes over the past few years. Many executives look to their IT departments to improve efficiency and facilitate game-changing innovation - while somehow also lowering costs and continuing to support legacy systems. Meanwhile, financial technology (fintech) start-ups are encroaching upon established markets, leading with customer-friendly solutions developed from the ground up and unencumbered by legacy systems. Customers have had their expectations set by other industries; they are now demanding better services, seamless experiences regardless of channel, and more value for their money. Regulators demand more from the industry too, and have started to adopt new technologies that will revolutionize their ability to collect and analyses information and the pace of change shows no signs of slowing.

In financial services, 70% of the leaders believe that the speed of change in technology was a concern. One important factor is that the time it takes to go from breakthrough technology to mass-market application is collapsing. For example, in the United States, it took the telephone 76 years to be adopted by half the population. By contrast, the smartphone did it in less than ten years. We are now watching blockchain move from a notebook sketch to an established technology in a tiny fraction of the time it took for the Internet to be accepted as a standard tool. Indeed, technology-driven change is so pervasive that no financial institution is immune.

To succeed in this rapidly changing landscape, IT executives will need to agree with the rest of the management team on the posture they wish to adopt. Whichever direction they choose, they will need to devise a clear strategy to move forward. Most likely, there will be a need to partner with innovative fintech start-ups and change their business practices based on lessons from other industries. They will certainly need to maintain laser-sharp focus on their customers' preferences, both stated and unstated.

According to finance research in the industry, the following elements will be very crucial to the sector in the following years:

1. FinTech will drive the new business model

For a long time, new market entrants found it difficult to break into the financial services industry. The wellestablished financial institutions had advantages in size, and their networks addeda multiplier effect. They had strong compliance systems in place to manage everincreasing regulations, and they had the client base and resources to prosper even in tough economic conditions. FinTech disruptors are fast-moving companies, often start-ups, focused on a particular innovative technology or process in everything from mobile payments to insurance.

Features of these players are:

- Successful disruptors typically offer a better customer experience and greater convenience at a much lower price.
- The effects of disruptors vary significantly across countries and value chains, largely because of differences in regulatory barriers and the robustness of local FinTech ecosystems.
- Regulatory authorities are caught between wanting to encourage competition and innovation and wanting to provide meaningful oversight of these disruptors.

2. The sharing economy will be part of every financial system

By 2020, consumers will need banking services, but they may not turn to a bank for all their services. The socalled sharing economy may have started with cars, taxis, and hotel rooms, but financial services will follow soon enough. In this case, the sharing economy refers to decentralized asset ownership and using information technology to find efficient matches between providers and users of capital, rather than automatically turning to a bank as an intermediary.

A number of enabler companies target specific verticals like student debt, or connecting debtors and investors. They are building platforms that enable ordinary individuals to raise funds and draw credit lines from retail investors. Apple has filed a patent application for "person-to-person payments using electronic devices" that could allow iPhone users to transfer money more easily. This could potentially commoditize retail banking even further. Instead of using relatively high cost bankers to broker the connection between those who have and those who want, the disruptors are using technology to make the match: faster, cheaper, and maybe even better.

3. Blockchain will shake things up

In the late 1990s, when companies began to realize the Internet's potential power, e-commerce investment and experimentation soared. And despite the 'dot com crash,' it is unlikely that anyone would deny just how revolutionary the technology has proved tobe. Today, there are curious similarities with blockchain.A blockchain is a decentralized and distributed digital ledger that is used to record transactions across many computers so that the record cannot be altered retroactively without the alteration of all subsequent

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blocks and the collusion of the network. This allows the participants to verify and audit transactions inexpensively. They are authenticated by mass collaboration powered by collective self-interests. The result is a robust workflow where participants' uncertainty regarding data security is marginal. The use of a blockchain removes the characteristic of infinite reproducibility from a digital asset. It confirms that each unit of value was transferred only once, solving the long-standing problem of double spending. Blockchains have been described as a value-exchange protocol. This blockchain-based exchange of value can be completed more quickly, more safely and more cheaply than with traditional systems. A blockchain can assign title rights because it provides a record that compels offer and acceptance.

4. Digital becomes mainstream

Two decades ago, many large financial institutions built 'e-business' units to ride a wave of e-commerce interest. Eventually, the initial 'e' went away, and this became the new normal. Internet development and large technology investments drove unprecedented advances in efficiency. Today's digital wave has the same markers: separate teams, budgets and resources to advance a digital agenda. This agenda extends from customer experience and operational efficiency to big data and analytics. In financial services, one has seen this approach applied to payments, retail banking, insurance and wealth management, and migrating toward institutional areas such as capital markets and commercial banking.

Over the next few years, digital efforts will advance in areas as diverse as robo-investing, automation of consumer lending and clearing and settlement of cash and securities transactions. As they do, they will stop being exotic, and will just be 'how we do things'. Institutions will need to balance the need for separate 'change the bank' transformation teams with the inevitability that digital will become theplatform. Practically, this means you have to keep the change-thebank and the run-the-bank teams on the same page, operationally and strategically. At the same time, one can see that all organisations have a natural resistance to change, especially after years of a relatively protected status. To ward off a determined fintech opponent, consider 'challenger' models in banking, insurance and wealth management that try to anticipate what a fierce competitor would look like.

5. Customer intelligence will be the important predictor of revenue growth and profitability

Customer intelligence used to be based on some relatively simple heuristics, built from focus groups and surveys. These were proxies for real, individualized data about consumer behaviour, and the results were pretty hazy. Now, technology advances have given businesses access to exponentially more data about what usersdo and want. It is an amazing opportunity for whoever can use analytics to unlock the information inside, to givecustomers what they really want.

For example, consider millennials (people born in the 1990s) a key demographic segment of the population, and one that banks generally have targeted through digital channels. Financial institutions should look below the surface to examine the behavioural attributes that drive consumer decisions. The following are keys to millennial behaviour: they tendto build wealth as a result of owning a small business, investments, or real estate; they turn to social networks for content, product reviews, opinions and referrals; and they look for opportunities to improve their financial 'health'. Financial institutions that look through available data can engage millennials by being ready with the right offer when relevant life events present buying opportunities.

The data is everywhere, and over the next five years, hyper-connectivity will give financial institutions the opportunity to use it. It will not only be computers and smart devices that record and communicate data, but everything from cars to coffee machines. This is referred to as the 'Internet of Things'. Customers are learning more about the value of their personal data. One expects to see them tendering out their information to banks, insurers and asset managers in returnfor the best deal, much as affinity groupsalready do.

Similarly AI, machine learning and customer analytics to become the driver of client engagement over the next decade. Certainly, financial institutions will need to deliver instantaneous, seamless transactions, but speed is just the baseline requirement. Smart businesses will develop new forms of virtual engagement capable of integrating themselves into customers' lives. They will stick because they will be personal: informed by intelligence gathered from data about consumer behaviours, choices and volunteered preferences.

6.Advances in robotics and AI will start awave of reshoring' and localization

ATMs are robots and they are very simplistic, purposebuilt robots – but they provide consistent, convenient, low-cost service and customers have grown to trust them. The same principles will apply to other, more sophisticated financial services applications. There have been astonishing advances in robotics and AI, machine learning and pattern recognition in recent years. Over the next five years, one can see a shift from standalone uses to full integration into a company's business-as-usual activities.

One can already see the alliances between leading incumbent financial services and technology companies, using robotics and AI to address key pressure points, reduce costs and mitigate risks. They are targeting a



specific combination of capabilities such as social and emotional intelligence, natural language processing, logical reasoning, identification of patterns and selfsupervised learning, physical sensors, mobility, navigation and more. And they are looking far beyond replacing the bank teller.

In the last 20 years, US companies have 'offshored' repetitive tasks to lower-cost locations such as India, China and Poland. However, relative costs for labour in those regions have started to rise. Combine this with improvements in robotics and AI capabilities and machines will soon become credible substitutes for many human workers. As the capabilities continue to improve and technology continues to drive down the cost of machines, these forces will combine to spur reshoring, as more tasks can now be performed at a competitive cost on-shore.

7. The public cloud will become the dominant infrastructure model

Today, many financial institutions use cloud-based software-as-a-service (SaaS) applications for business processes that might be considered non-core, such as CRM, HR and financial accounting. They also turn to SaaS for 'point solutions' on the fringes of their operations, including security analytics and KYC verification. But as application offerings improve and as COOs and CIOs get comfortable with the arrangements, the technology is rapidly becoming the way that core activity is processed. By 2020, core service infrastructures in areas such as consumer payments, credit scoring, and statements and billings for asset managers' basic current account functions will be well on the way to becoming utilities.

One can expect that the next several years will result in an increasing adoption of the public cloud within the financial services industry. LikeFinTech, robotics and digital, this will require new ways of thinking for organisations and IT departments. But the benefits will certainly be significant too.

8.Cyber-security will be one of the top risks facing financial institutions

Financial services executives are already depressingly familiar with the impact that cyber-threats have had on their industry.In PwC's 19th Annual Global CEO Survey, 69% of financial services' CEOs reported that they are either somewhat or extremely concerned about cyber-threats, compared to 61% of CEOs across all sectors.

Unfortunately, it is not likely to change for the better in the coming years, due to the following factors:

- Use of third-party vendors
- Rapidly evolving, sophisticated and complex technologies
- Cross-border data exchanges

- Increased use of mobile technologies by customers, including the rapid growth of the Internet of Things
- Heightened cross-border information security threats Cyber-security is already important, and it will become

even more significant for institutions and their regulators in the future. The challenge will be to balance safety with customer convenience. For full-scale providers who are trying to maintainvisibility across channels, this is harder than it looks. But there are guidelines whichcan help financial institutions identify and prioritize threats, quickly detect and mitigate risks and understand security gaps. Witha risk-based framework, companies can communicate and collaborate as necessary, decide how to design, monitor and measure their cyber-security goals, and keep their data safe.

9.Asia will emerge as a key centre oftechnology-driven innovation

Around the world, the middle class is projected to grow by 180% between 2010 and 2040; Asia's middle class is already larger than Europe's. By 2020, the majority share of the population considered 'middle class' is expected to shift from North America and Europe to Asia-Pacific. And over the next 30 years, some 1.8 billion people will move into cities, mostly in Africa and Asia, creating one of the most important new opportunities for financial institutions.

Global middle class statistics - population in millions

	2009		2020		2030	
North America	338	18%	333	10%	322	7%
Europe	664	36%	703	22%	680	14%
Central and South America	181	10%	251	8%	313	6%
Asia Padific	525	28%	1740	54%	3228	66%
Sub-Saharan Africa	32	2%	57	2%	107	2%
Middle East and North Africa	105	6%	165	5%	234	5%
World	1845	100%	3249	100%	4884	100%

Source: organization for economic cooperation and development

These trends are directly linked to technologydriven innovation. Initially, as developments in agricultural technology improved labour productivity, rural workers began migrating to cities in search of better opportunities. At first they found jobs in capital-intensive industrieslike manufacturing for the local market– and then, as technology drove quality improvements, for the global market.

According to industry research sources, Asia has now become the global leader in research and development across all industries, accounting for about one of every threedollars spent on corporate R&D spending.And in fintech, the market is second only to the United States in investors' interest. Also, Asia offers some key advantages to Western-based companies looking for innovation, including lower-cost but highly skilled resources (arguably



on a level with those in the West), and a large market for testing and launching new products and services. Disruptive innovations typically begin as low-cost products and services that target the most price sensitive customers. Asia, with its wealth constraints, vast population and favourable regulatory environment, represents an ideal fertile ground for disruptive innovation, as many industries have discovered.

10.Regulators will turn to technology, too

Regulators are rapidly adopting a wide range of data gathering and analytical tools too. They are trying to learn more about individual institutions' activities and overall systemic activity. They also hope to monitor the industry more effectively and to predict potential problems instead of regulating after the fact. Examples of this include the supervisory procedures and data requests tied to 'stress tests', asset quality reviews and enhanced reporting requirements coming out from different financial centers of the world. Using sophisticated analytical tools on large volumes of data, regulators can compare scenarios and address potential issues before they become full-scale market problems.

Regulators can get access to industry data as financial institutions themselves continue to automate controls and monitoring in KYC, trade surveillance, reconciliations and other areas, regulators will seek direct access to these tools either on an ongoing basis or during supervisory reviews. As a result, firms will need to make data and control transparency priorities as they implement these tools and comply with data requests. It is shortsighted to focus solely on compliance with current regulations. Rather, firms should develop a better understanding of where their data and associated controls live. This will let them work with a growing range of interested regulatory bodies more quickly, easily and accurately, on everything from stress tests and periodic exams to individual requests. By doing so, they will improve their credibility with regulators today and be ready for the future.

What is the expected annual return on investment on projects related to fintech?



The pace of change is increasing and shows no sign of slowing. Financial institutions are looking to the IT organisations to do more to help make sure they are wellpositioned to succeed in the future. There are macroeconomic trends sweeping the world, and technologydriven influences buffeting the industry. The following few steps are vital for the existence of the players:

- Update your IT operating model to get ready for the new normal
- Slash costs by simplifying legacy systems, taking SaaS beyond the cloud, and adopting robotics/AI
- Build the technology capabilities to get more intelligent about your customers' needs
- Prepare your architecture to connect to anything, anywhere
- You can't pay enough attention to cyber-security
- Make sure you have access to the talent and skills necessary to execute and win.

Conclusion

The Financial Services industry will be unrecognisable in the near future due to the presents of financial technology. The innovators of today will not necessarily be the innovators of tomorrow. As younger generations enter the market they will expect the same level of service and innovation that they get from the American GAFA (Google, Apple, Facebook, and Amazon) or Asian BATX (Baidu, Alibaba, Tencent, or Xiaomi) companies. The question then that companies need to ask themselves is: what can I do to ensure that I am not caught at the back of the pack?To remain at the centre of the financial technology segment in the future, one's innovation journey should be part of an overall strategic agenda and align with all your company's objectives. While navigating through regulatory compliance, legacy IT issues, cyber security, or talent retention risks, innovation needs to be embedded in all aspects rather than being treated as a separate initiative.



FINANCIAL MANAGEMENT FOR LAY MAN.

-K.V.Venkitaraman*

In this article, we shall cover the most important segment of financial requirement of the business, working capital. Working capital management is very crucial for the success of the business and at the same time very difficult to manage properly as decisions have to be taken in a very dynamic environment with the various factors changing constantly The very success of the enterprise depends upon how effectively the working capital is managed.

Working capital refers to the investment made in inventories such as stock of raw materiels, work-inprocess, finished goods for sale, book debts, stock of spares &consumables, stock of packing materials, advances & deposits, marketable securities, bank balances and cash in hand. Funds invested in these assets change from one form to another, they are also referred to as circulating capital or revolving capital or short term capital.

At the time of the project formulation, a rough estimate of the working capital requirement has to made. The working capital requirement varies from one business to another and generally the working capital requirement of the services sector will comparatively less compared to the manufacturing sector .In the case of certain sectors such as shipbuilding, contract business executing mega projects, contractors executing EPC, the requirement of working capital will be high compared to industries engaged in manufacturing and marketing standard products in large scale.

Working capital can be classified into different categories based on many criteria such as time concept etc.. The following diagram shows the classification of working capital.



Gross Working Capital

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refers to the total investment made in current assets. This includes the investment made in inventories of raw materials, packing materials, stores, spares and consumables, work in process, finished goods, sundry debtors, advance payments and deposits, accrued income not received, bank balances and cash in hand. The sum total of all these assets is referred to as Gross Working Capital.

Net Working Capital

Refers to the net investment in current assets. During the course of the business, the firm gets short term credit from the suppliers of both goods as well as services. This sort term credit partly finances the working capital investment. Generally vendors extend credit on the supplies made by them depending on the credit worthiness, quantity of intake, discount structure etc... Similarly the payment to the service providers is also made after a time gap. Utility bills are received after the month end and there is a time gap for the payment after the bills are received. Salaries are paid after the month end is over, and taxes collected on outward supplies are paid during the middle of the succeeding month. Thus the short term credit received part finances the working capital requirement. Net working refers to the net working capital investment capital financed by the firm ie.. Gross working capital less credit received from vendors/service providers.

On the basis of time, Working capital is classified as Permanent working Capital and Variable Working Capital. Also referred to as Core working capital or Core Current assets, it represents the minimum amount of net current assets that a business will have to maintain. If the business is below the expected levels, the firm will have procure materials based on the Economic Ordering Quantities, it is almost impossible to collect receivables completely, there will be minimum quantities of finished goods in the godown, the production line will operate at the minimum level etc..The investment in this minimum level of current assets is called Permanent /Core working Capital.

The Core/Permanent working capital is also not permenant.As the level of business increases, the investment in the core working capital also increases. The core working capital therefore changes with the volume of business, but for a certain volume of business, it is constant. This portion of the working capital has to be financed out of long term funds, which may be a mix of Owners Equity, Retained Earnings or Long Term Loans.



Reserve Working capital.

This refers to the additional working capital required to meet certain contingencies such as expected short supply of raw materials forcing the firm to procure and stock additional quantities of materials ,rise in prices, strikes/ lockout, business depression, unexpected competition, cancellation of a huge order, calamities such as fire, industrial accidents, etc.. The finance required to tide over these situations is over and above normal requirements. This will have to financed out of short term sources.

Temporary/Variable Working capital

The temporary/Variable working capital requirements may be either seasonal or special. The seasonal requirements are generally felt by units engaged in consumer goods business Eg textile wholesalers/retailers, bakers/confectioners, retail food outlets etc..Special requirements are also generally felt by units in the consumer goods business where there is accumulation of stocks or where there is a change in fashion or trends making demand for the existing stock is reduced.

This refers to the additional working capital requirements that arise due to seasonal variations in business. The level of business remains the same, but due to special factors, working capital requirements increase due to additional business .For eg. In the case of textile business, there will be spurt in sales during the festival seasons of Onam, Deepavali, Christmas, Id, School Reopening season etc....At such times, additional stocks will be procured and this will need more funds. This is called Seasonal working capital.

An example of special working Capital is where a manufacturing unit gets a special order for an extra quantity for export etc...This temporary working capital is generally financed out of vendors credit, temporary/ ad hoc enhancement of limits by bankers, private loans raised by the promoters etc...Similarly, to meet competition or to boost sales or to liquidate piled up stocks, the unit may go for special advertisement and sales promotion, discount offers, exhibitions and display sales etc..The working capital required for such purposes are known as Special working capital. This is also met out of short term funds.

The differentiation between Permanent and Temporary working capital can be depicted by the following diagrams:





Importance of Gross And Net Working capital.

Working capital is vital for the success of the business. A business will fail if there is no sufficient working capital. Over supply of working capital will also lead to loss for the firm.So what is required is OPTIMUM working capital. If working capital is inadequate, there will be stock outs leading to production stoppages, inadequate crdit to customers leading to decreased sales, inability to meet short term commitments leading to poor credit rating of the firm leading to further fall in business etc...

Similarly, over supply of working capital will lead to piling up of stocks leading to obsolescence and damage, pilferage etc.. liberal policy of credit sales leading to mounting bad debts and write offs, large idle funds, etc..As capital has a cost, due to the mis utilisation of the funds, the firm will suffer losses and if not corrected lead to it's failure.

Estimating working capital Requirements.

As said earlier, the working capital requirements vary from industry to industry and depends on the working capital cycle of the business. Working capital cycle refers to the process of converting the funds from one form to another that ultimately, yields profit to the firm.

The firm will have to maintain a positive working capital position always. According to bankers, a Current ratio of 1,33 is optimum, ie.. the current assets should be at least 1.33 times the current liabilities of the firm.

The importance of a healthy current ratio can not be over emphasised. Creditors as well as investors judge the short term financial health of a firm by it's current ratio.

When a firm commences it's business, the working capital will be in the form of cash/bank balances. With this cash/bank balances, raw materials, stores& spares, packing materials, consumables etc.. are acquired. Production process employing the plant and machinery, labour and services is carried on. The raw materials get converted into work in process. Depending upon the processing time, the quantity and value of the work in process ends, the raw materials are converted into finished goods, ready for sale.(Continued on Page No 40)



SCALING US TO INDUSTRY 4.0

-A.Kanthimathinathan*

Introduction

Industry 4 is a vision and Journey. Organizations implement Industry 4.0 initiatives and prepare to turn the clearly document Industry 4.0 vision, concepts, principles ,technologies and architecture into reality within their context. Germany launched the project 'Industrie 4.0 ' concept to digitalize manufacturing in 2011 at Hannover . Moving beyond its roots, today there is a global transformation towards digital transformation of manufacturing and other industries.

Industry 4.0–What does it bring to us?

Value created by Industry 4.0 far exceeds the single digit cost savings that many manufacturers pursue today.

Industry 4.0 can be defined as the digital transformation of manufacturing through third platform technologies, such as Big data/Analytics and Innovation accelerators, such as the (Industrial) Internet of Things, Convergence of IT and OT(Operational Technology), Sensors and actuators, robotics, Artificial intelligence, Smart decentralized manufacturing, Self optimized systems and Digital supply chain in the Cyper-physical environment.

This covers,

- 1. Simulation
- 2. Additive manufacturing
- 3. Autonomous robotics
- 4. Big data
- 5. Internet of Things/Indutrial IoT(IoT/IIoT)
- 6. System integration
- 1. Cloud computing/Cognitive computing
- 2. Additive manufacturing
- 3. Cyber Physical Systems
- 4. Cyber security

We are in the early days of our maturity journey towards industry 4 and every industry starts focusing towards the same. Projects around Energy efficiency, factory energy management bring to us an entirely different world-of solutions/skill levels/standards. For example, additive manufacturing, robotics or augmented reality are few projects every industry is working `with`/`on`. *Industry 4 has scope for the specialists who focus on `Integration and Convergence*`. Industry 4 requires strategic view and staged approach.

Evolution of the industry 4.0

First industry revolution-Year of start: 1784

First Industrial revolution brought mechanization, Steam engines, Power from water and steam, new manufacturing systems in Iron, Textile, Mining, Metullargy and Machine tools.

Second industrial revolution-Year of start: 1870: added technological electrification, mass production, globalization, Engines/turbines and broad adoption of Gas/telegraph and water supply.

Third industrial revolution(Year of start: 1969) was enriched with Computer/Internet/Digital manufacturing/PLC/Robotics/Automation/Digital networks/Digital machines.

Now Industry 4.0 (Year of start: 2011) calls for Convergence of IT/OT, Autonomous machine, Advanced robotics, Big data, Internet of Things(IoT),Digital ubiquity/Smart factory Machine learning and Artificial Intelligence.(Base: Cyber physical systems)

Goals of the Industry 4.0

Goals for the Industry 4.0 are Automation, Process improvement and productivity/Production optimization; the more mature goals are innovation and the transition to new business models and revenue sources with information and services as cornerstones. Industry 4.0 is sometimes called as `*Smart Industry* ` too as it embraces `Smart manufacturing`.

Vision of Industry 4.0 encompasses more than Automation and Data exchange in Manufacturing technologies by

- Stretching beyond technologies
- Looks into the end to end chain including warehousing, logistics, recycling and energy conservation

IoT-Internet of Things

Internet of Things consists of objects with embedded or attached technologies that enable them to sense data, collect them for a specific purpose (e.g. CCTV Data capturing in a Mall). Depending on the object and goal this could be capturing data regarding movement, location, presence of gasses, temperature, health condition of devices, the list is endless and voluminous. This data as such is a beginning, the real value can be appreciated only when these data is analysed and acted upon.

IoT devices can also receive data and instructions, again depending on the end uses. In other words, what an IoT can do for the industry?

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- Track and trace possibilities: We can track the performance of a system/machine/men and get `accurate data online`.
- Structural Health Monitoring: With the right kind of sensors and systems the structural health of all kinds of objects/production assets/cyper physical assets in Manufacturing and Industry.

IIoT-Industrial IoT

A key component of IIoT is connectivity. According to a global research, industrial manufacturers still have to catch up in connectivity. Especially in India, many industries need to improve their connectivity. As per research in 2017, the number of IIoT connections across the globe will be 66 million. The current rate of new IIoT connections is 13 million per year which expects to be accelerated to *18 million per year* anew by 2021.

Manufacturers historically isolated their factories, plants, sites and facilities from data connections. Today significant opportunities are available to leverage the benefits of digital network and enable extraction of data for analysis and ultimately improve `plant performance`.

Additive Manufacturing

Additive manufacturing is an appropriate name to describe the technologies that build 3D objects by adding layer upon layer of material whether the material is plastic ,metal, concrete, fibrous substance or one day it could be human organs too...

Application of AM is endless.AM is being used to fabricate end use products in Aircraft, dental restorations, medical implants, automobiles and even fashion products.AM extends itself to the diverse needs like:

- As a means to create customized product for consumers
- As industrial tooling
- Producing small lots for customers
- One day....production of human organs

HoT-Technology of connectivity

It moves at an accelerated manner from fixed line connections to WiFi,4G platform and now towards LPWA technology. LPWA (Low Power Wide Area) connectivity is gaining significant recognition as the dominant wireless connectivity solution for the IoT.

3DP-3D Printing

It involves building a model in a container filled with powder of either starch or plaster based material. An inkjet printer head shuttles applies a small amount of binder to form a layer. Upon application of the binder a new layer of powder is sweeped over the prior layer with the application of binder. This process repeats until the model is complete. As the model is supported by loose powder there is no need for support. Additionally this is the only process that builds in colors.

Cyber physical Systems

Within the modular structured Smart Factories, Cyber physical systems monitor physical processes, create a virtual copy of the physical world and make decentralized decisions. Decentralized intelligence helps create intelligent object networking and independent process management, with the interaction of the real and virtual worlds representing a crucial new aspect of the manufacturing and production process. It helps Industry 4.0 to have paradigm shift from `centralized ` to `decentralized` production.

(This is the first part of the paper and second and concluding part will throw more light on practical examples of Industry 4.0 leading to Smart Factories).

Examples of AM

SLS-Selective laser Sintering technology is an example of AM.SLS utilizes a high powered laser to fuse small particles of plastic, metal, ceramic or glass.

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March of Law Decisions of the Apex-Court

A. Industrial Disputes Act ,1947 section 2(00)bb-Termination of services of fixed term contractual employee- Not illegal- Services of the workman was terminated on completion of contract period challenged by workman and the Labour court dismissed the dispute raised- Workman challenged the award in writ petition-Held workman never completed 240 days in a year immediately preceding to the date of alleged termination- The appointment was for a fixed term and the petitioner not qualify the requisite examination held for regular posts. Back door entry is not permitted in law. Seeking regularisation is illegal and hence writ petition is dismissed.

As per Section 2(00) bb, of the Industrial Disputed Act, 1947, on expiry of fixed term of employment of an employee, refusal from service by employer, does not amount to illegal termination of services of that employee.

Case WP(C) 6195/2017, Dt. 28.07.2017.

(Suman kumari Vs M/S Bhagini Nivedita college and

Anr. - LLR 948-9/2017)

B. Employees State Insurance Act, 1948 section 2 (22) – Wages – whether interim relief paid to employees is "wages"? – As per the recommendation of the wage board in respect of working journalists and news paper employee's rate of wages were increased- Employees were paid the same by the respondent as interim relief and ESI contributions were not paid. ESI authority directed the respondent company for remitting contribution which was challenged by the respondent in ESI court, which was dismissed. Respondent challenged the order of the EI court - High court allowed the appeal holding the amounts as paid as Interim relief as ex-gratia. Appellant challenged the judgement of the HC in Civil appeal-held interim relief to be treated part of wages as per provisions of the Act-Interim relief as paid is not a "gift" or "Inam" but a part of wages as defined under section 2(22) of the ESI Act 1948. Hence appeal is allowed-Supreme Court of India

CAJCA No 4681/2009 dt. 21.09.2017 -

(ESI Corp V/s Mangalam Publications (I) Pvt. Ltd. 2017 (LLR 1121)

C. Enquiry When liable to be quashed- Complaint against the delinquent was that he disobeyed the order of his Incharge and misbehaved- Before the Enquiry Officer the Complainant / Incharge was not examined cor he was made witness- Delinquent employee was held guilty of the charges- He was removed from his services- Dispute raised and Industrial Tribunnel dismissed his claim statement- Delinquent employee filed writ petition challenging the award- Held since the complainant was neither made witness nor he was examined, in the absence of his evidence the Enquiry officer cannot come to the conclusion that the delinquent committed the misconduct-Hence termination order is void.

When Order of termination is found void, in normal course, the workman is entitled to reinstatement with back wages and continuity of service.

For proving the charge of disobedience and misbehaviour if the complaintant is not examined as witness, the enquiry finding is liable to be quashed since such a charge cannot stand proved in the absence of examination of the complainant.

CWP No. 21516/2017 dtd. 18.07.2017 – Punjab and Haryana High Court - LLR 915, 2017.

D. Industrial Dispute Act 1947- Section 11A- Dismissal when justified- Workman , a union leader, was dismissed from service after holding enquiry and proving the charges of instigation to other employees, causing physical assault to production Manager and committing disorderly behaviour- However labour court awarded reinstatement with 50% back wages – management challenged the award in writ petition held condoning an act of physical assault caused to production manager, is not justified since in such cases sympathy or leniency towards workman effects adversely the discipline at the place of work- In such grave and serious misconducts, punishment of dismissal is justified-

Madras High court WP.No 17122/2003 dt. 28.02.2017 Management of Carborandum universal Ranipet Vs Presiding officer Labour Court, vellore & Anr.

Compiled By: Shri.Prakash.M, HR-Manager, Patspin(I) Ltd



Experience Sharing:

ENERGY SOURCES AND CHANGING PERSPECTIVES

-A. Ramesh*

The various fuel guzzlers of earlier times are slowly making way to newer fuels and techniques : The fuel oil fired boilers are being replaced by Solar Boilers, Biomass fired units burning Producer Gas and of course, the LNG, shale gas fired units though costlier in fuel unit costs are much in vogue presently. The concept of cogeneration that was not thought as viable, particularly with sugar industry where bagasse is the fuel of choice. When solar, wind or the power of waves are harnessed available fossils are conserved for the future and the remaining quantities be kept for our future generations as well as the universe itself.

To put in perspective, the solar power is harnessed by mirrors and concentrators, and the per MW costs for power generation is 5-6 times more than that of a Wind Turbine Genset of same power. But, the abundance and availability of sunlight particularly in arid climate of north west India clears the way for more exploitation of Sun as the most suitable power source. Wind, as a viable option is finding its utility in the Palghat Gap and in Tamil Nadu, and the IPP or CPP routes are actively pursued by the power producing and selling entities pan India.

The gasifier units are utilizing organic waste or matter that is converted to gas as Methane plus Producer Gas that is burnt and turbines are run using steam produced by the fuel. This results in twin benefits as the waste is properly converted to useful fuel and low cost power is also generated.

The experience of solar PV System is most effectively evident in our Cochin International Air Port and also the floating unit of Banasura Sagar Dam. The entire power requirements are met by the Grid connected solar PV panels of Cochin Air Port. The Sugar based cogeneration plants with surplus capacity of power are selling the units to the grid and in the process, they get process steam to operate the Evaporators and related equipments. The usage of biomass briquettes are also increasing nowadays for process steam boilers.

The gas based power turbines operating on LNG and other gaseous fuels are increasingly utilized for power production. Even though a costlier proposition, the ready availability of fuel gas through pipelines, like the GAIL supply schemes are finding increased acceptance. As for tidal energy and geothermal systems, there are only limited avenues for practicable options. The Nuclear option is another viable alternative for cheap power. Even though there is a hue and cry on the safety aspects, the increasingly stringent regulations by agencies such as IAEA, prevent effectively any untoward incidents as well as ensure the environmental concerns.

For the traditional coal based thermal plants, difficulties in getting good quality fuel, like high calorific value and low ash content, with reasonable size of the lumps, is becoming increasingly difficult. Our own collieries are producing lesser quality coal and the option of importing from Indonesia or Australia, though possible, is a costly proposition and can be prohibitively expensive for smaller customers.

All the above problems point in the direction of non depleting energy sources like Wind and the Sun, that ultimately will be the next generation sources for all our power, heat or cooling needs. These, coupled with energy efficient buildings that consume the minimum energy either cooling or heating, will be the game changers. The Absorption cooling systems, Solar Heat Pumps and Heating and Cooling solutions are the next gen alternatives and will definitely augur well for the increasing requirements that combine cost effectiveness, efficient operation and maintenance free life. The Heat Pump applications, with solar panels powered coolers or heaters, are under commercial as well as patent stages.

Summing up, what we have already achieved and are in the process of achieving, for partial to full implementation of meeting the energy needs of the country, the non depletable sources with eco friendly refrigerants like the Lithium Bromide solution or evaporative chilled water systems are the need of the hour, and we are already more than half way through. Hopefully, energy efficient electrical systems with higher star ratings by each successive revisions, can go a long way in the traditional conservation measures. To that end, our policy planning bodies and Bureau of Energy Efficiency with the state level Energy Management Centre can help in finding the best possible alternatives for the present and future.

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Corporate Scene MANUFACTURING SECTOR – IN SEARCH OF DYNAMISM

-Dr. Francis Cherunilam*

The term corporate sector has been traditionally associated with manufacturing. Although the recent period has witnessed a rapid corporatisation in the tertiary sector, the performance of the manufacturing sector often gets great attention by governments and economy watchers because a vibrant manufacturing sector is essential for accelerating the pace of economic growth in general, substantial employment generation, healthy transition of the agricultural sector, supporting development of the service sector, improving the balance of trade, encouraging R & D and promoting entrepreneurship. However, there has been a widespread dissatisfaction about the performance of the manufacturing sector of India and its performance continues to be far from satisfactory despite the concerted actions taken since the mid last decade.

A very important initiative by Government of India to put the manufacturing sector on fast growth track and to make it play a substantial role in the development of the economy was the establishment, as part of the National Common Minimum Programme, of a National Manufacturing Competitiveness Council (NMCC), in September 2004, as an inter-disciplinary and autonomous body at the highest level to provide a continuing forum for policy dialogue to energise and sustain the growth of manufacturing industries in India. In the Forward to theStrategy Paper brought out in 2006 by the NMCC, titled The National Strategy for Manufacturing (NSM), Prime Dr. Manmohan Singh observed that the Minister contribution of the manufacturing sector to the GDP should be somewhere in the range of 25 to 35 per cent and to achieve this the manufacturing sector should grow annually at 12 to 14 per cent. In the Preface of the Strategy Paper, Mr. V. Krishna Murthy, Chairman of NMCC, observed that the decade 2006-15 is the decade of manufacturing for India and that the share of manufacturing should be raised to 30 to 35 per cent by 2030 by achieving a manufacturing growth rate of 12-14 per cent. In other words, almost a doubling of the manufacturing growth rate as well as the share of the manufacturing in the GDP was envisaged. The Make In India Strategy introduced by the Modigovernment exalted similar targets. However, there has not been any improvement - the manufacturing value added (MVA) is a low 15 per cent of the GDP and the growth rate is only about half of the target..

Manufacturing's share in India's GDP as well as its own growth rate over the last several decades have not been consistent. The share of manufacturing in the GDP in recent yearswas one of the lowest in the last four decades. Its share increased from 16.3 per cent in 1980 to reach a peak of 18.25 per cent in 1996-97, but declined in the subsequent years and was only about 15 per cent in recent years.

The long term average growth of India's manufacturing sector was less than 7 per cent compared to 12 per cent for China. While India's manufacturing sector contributes barely 15 per cent to the GDP, with a share in world manufacturing of less 2.5 per cent, manufacturing contributes more than one-third of the GDP of China which accounted for nearly 18 per cent of the world manufacturing in 2012 – up from less than three per cent in 1991. It is true that the contribution of manufacturing to the GDP of several industrial economies and some other developing countries is low. But it is very important to note that in respect of the advanced economies, although the contribution of manufacturing to the GDP is low, the MVA per capita is very high. In their case, the share of MVA in the GDP declined due to the fast expansion of the services sector only after the manufacturing sector reached high levels of development, unlike the case of India where the services sector became dominant, albeit much less pronounced than in the industrial economies, with an unsatisfactory level of development of manufacturing. Indeed, India presents a rather dismal picture with a very low MVA-GDP ratio, compared to developing economies like China, Republic of Korea, Thailand, Malaysia, Taiwan, and Indonesia. Although India ranks 9th in the total MVA, with a dismal MVA per capita her ranking in terms of MVA per capitais deep down at 117 (compared to 54 for China, 9 for S Korea, 41 for Malaysia, 47 for Mexico, 64 for Brazil, and 60 for Russia).

Historically, global manufacturing has been highly concentrated in a very small number of countries. There has, however,been very significant changes in the names of major manufacturing nations, a significant development being the improvement in rankings of developing economies. The growth figures for manufacturing products in developing countries have remained quite high in the last two and half decades, which significantly increased exports from developing countries. Although the share of local value addition was relatively low in the production of export- oriented goods, the expansion of industrial activities had a huge impact on employment generation, household income and consumption expenditure.

As Table 1 indicates, manufacturing sector of developing economies, particularly the emerging industrial economies, has been growing substantially faster than the industrialised economies.

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Rank in Global	Country	Share in G	lobal MVA	Share of MVA
MVA		2000	2012	in GDP
2012				2012
1	USA	25.6	20.5	13.5
2	China	6.7	17.4	34.4
3	Japan	18.0	10.9	20.9
4	Germany	6.8	6.5	18.9
5	S. Korea	2.3	3.4	27.9
6	France	3.3	2.7	10.8
7	Italy	3.6	2.7	13.8
8	UK	4.0	2.6	10.2
9	India	1.1	2.3	14.9
10	Mexico	1.9	2.0	17.8

 Table 1: Top 10 countries by manufacturing value added

Source: UNIDO, Industrial Development Report (different issues)

As a result of the divergence in the growth rates, the share of developing economies in MVA and their global ranking have moved up very significantly, as Table 1 shows. China emerged as the second largest manufacturing nation increasing its global share of MVA from 6.7 per cent in 2000 to 17.4 per cent in 2012, relegating Japan to the third position. According to some sources, today China ranks 1st and India 6th in the global MVA.

Since the beginning of the last decade Chinese manufacturing grew dramatically more than doubling its contribution to world MVA. As Table 1 reveals,SKorea, India and Turkey also improved their share in world MVA. Five major European economies are among the top 15, but their combined contribution to world MVA during 2002 – 2012 declined from 23 percent in 2002 to 16 percent in 2012. It is observed that**the 'Mighty Five'—Malaysia**, India, Thailand, Indonesia and Vietnam—will emerge as the 'New China' by 2020 given its abundant supply of cheap labour, favourable demographic profiles, and market and economic growth.

Although India has improved its global ranking on certain manufacturing parameters, performance of the country's manufacturing sector is regarded as unsatisfactory on the basis of its contribution to the GDP, growth potential, employment generation and technological efficiency, innovation etc.

Post-industrial revolution, manufacturing has pushed the world economy to a high growth track and the strength of the industrial sector has become the most important determinant of the global economic power of a nation. Industrial growth is indeed a catalyst for the growth of the agricultural and services sectors.Several empirical researches amply substantiate this point.For example, one study has shows that economic growth in developing countries has been strongly associated with the development of modern industrial sectors (both manufacturing industries and agribusiness). Another empiricalstudy has confirmed the 'engine of growth hypothesis' for a sample of 90 countries (21 advanced economies and 69 developing countries).

Manufacturing continues to receive great importance in the economic development strategies of both developed and developing economies.Most fast growing economies, with the notable exception of India, show a fairly high level of contribution of manufacturing to GDP. There was an enormous expansion of the service sector in the advanced economies but thedwindling of their manufacturing has raised alarm bells.

As a UNIDO Working Paper points out, for several decades, deindustrialisation, loss of strategic manufacturing industries, increasing trade imbalances, decreasing technological dynamism and industrial competitiveness had been major concerns in industrialized economies. Hence, many countries across the world, both developed and developing, have been actively pursuing strategies for aggressive development/revitalisation of the manufacturing sector, i.e. following a make in the country strategy.

[it is proposed to continue this piece in the next issue of *Organisational Management*]



HYBRIDFUZZY MULTI CRITERIA MULTI OBJECTIVE OPTIMIZATION MODEL FOR ECONOMIC ANALYSIS OF QUALITY MANAGEMENT

-Dr.A.Sailaja*

Executive Sammary

This paper presents an analysis of the effectiveness of the current methods of economic analysis of quality management in manufacturing industries in India along with their limitations and tries to develop a better and effective method so that it could be utilized as an effective decision making tool for organizational improvements.

The strength of Multi Criteria Decision Making (MCDM) tools like Fuzzy Analytic Hierarchy Process (Fuzzy AHP) and Fuzzy Multi Objective Optimization and ratio Analysis (Fuzzy MOORA) are used in this research work for addressing the fuzzy nature of quality system as well as to deal with the mutually conflicting organizational objectives in an effective and efficient way.

The major outcomes of this work have the potential to influence the present trends of quality costing methods in manufacturing industries. The proposed model is validated in real time environment using qualitative and quantitative techniques and found to have several advantages over the prevailing models in practice and has easiness in implementation and interpretation of results.

This model is recommended for the evaluation of any quality improvement programs in any manufacturing firm. Also, the proposed model makes it easy to select the optimal one from a set of quality improvement alternatives. The data compilation is also made easier with an application developed in MATLAB. In a nutshell, the proposed model provides a better platform for decision making by the top management of any manufacturing firm.

Key Words: Economic cost analysis, Cost of Quality, Fuzzy AHP, Fuzzy MOORA, Cost Driver analysis.

1. Economics of Quality Management.

Modern manufacturing industries face a myriad of challenges due to the globalization of operations and supply chains, rapid changes in the product features, increasing customer expectations for superior quality and the pressure to deliver products in the most cost effective manner. This challenge can be met through quality management tools which help an organization to increase productivity and customer satisfaction through superior quality products and services.

As noticed from the innumerable definitions and dimensions of quality, quality management is very much related to conformance to certain specifications based on customer requirements and this leads directly to the concept of quality related costs, which is concerned with capturing the costs associated with deviations from specifications and expectations. As quality is widely acknowledged as a key competitive weapon in the global market place, the analysis of quality related costs provides a method for assessing the overall effectiveness of the quality management and identifies the problem areas, opportunities, savings and action priorities (Gill, J. ,2009, Miller & Morris, 2000,).

The concept of cost of quality (COQ) was first introduced by Juran around six decades ago under a relatively simple business and accounting environment. However, the business environment has changed dramatically in last six decades and under this new economics many new models have been developed byredefining theunderlying theories with respect to prevention, appraisal, and failure costs. Consequently, there may be new roles that the new economics of quality concept plays beyond the conventional quality measures, contributing more to the decision making process of management. Under the new business environment, the concept of quality is more than just the quality of a product, or a service, it has been extended to the quality of systems. Therefore, quality issues no longer deal with products or manufacturing process only; COQ encompasses the whole system of a firm, from top management, research and development (R&D), engineering, production, purchasing, material handling, training, and customer service, etc.(Mahmood, S., M. Ahmed, S., Panthi, K., &IshaqueKureshi, N.,2014).

Cost of quality (COQ) in a broader sense is the expenses incurred by an organization in achieving and maintaining good quality as well as in managing poor quality throughout the whole line of operations with an aim to attain highest level of customer satisfaction. The need to improve the financial position of an organization directly correlates with the process of making quality improvements. Transforming quality system measurements into value provides a better explanation regarding the effect of the quality improvement activities (Michalska, 2006). Thus, the value of quality improvements is a measure of Return on Quality Improvements (ROQI), which can provide an evaluation of the quality improvement efforts as of higher, fair, or lower return (Setijono&Dahlgaard, 2008).

Economic cost analysis can provide an overall index for managers to evaluate and monitor the economics, effectiveness and efficiency of quality activities in the whole system, and highlight improvement areas by product,

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service, operation, process, department and environment (Chiadamrong, N. ,2003,Souza, Collaziol&Damacena, 2010).

However, Organizations are more likely to use accounting cost principles rather than economic cost principles in deciding on their quality level due to many practical constraints. Aspects of the economics of quality include the attitudes and approaches by management to the quality problem and to the factors which contribute to determining the optimal quality decision. Many components of quality costs can only be estimated and this adds to the difficulty in applying the economic models of analysis in an organization. Since data on quality costs are elusive, many companies are unable to identify real benefits which can accrue from improving quality (Bajpai and Willey, 1994,Eben-Chaime, M., 2013).

2. Motivation of the Research

India's manufacturing sector has evolved through several phases - from the initial industrialization to the current phase of global competitiveness -and today many of the Indian manufacturing companies in several sectors are targeting global markets. As quality and costs are the two crucial factors for achieving this target, effective quality management with the least possible incurred costs has gained much more importance in the present manufacturing scenario, which constitutes the motivation for this research.

The resources- man, material, machine and time- are to be utilized in the most cost effective manner to ensure the profitability of any business. But at the same time, this should be done without compromising in the quality of the product. Economic analysis of quality management can provide a basis for planning the resources for the quality operations. When trade-offs between quality and costs are clearly identified, a stronger rationale can be made for budgeting the quality function.

Hence, an investigation with an aim to improve the current methods of cost analysis of quality is having paramount importance for manufacturing firms and an attempt is made by the investigator in this direction to develop a new method for economic analysis of quality management, taking care of all limitations/ drawbacks in the current system.

3. Scope of the Study

The scope of this study is limited to firms under manufacturing industry in India.

For the purpose the study, the data on prevailing practices on quality cost analysis was collected from various manufacturing firms under different industrial sectors and assessment was done subsequently. Further with the knowledge gathered on drawbacks/ limitations in the current practices, the study was extended to develop a new method for economic analysis of quality management for manufacturing industries in India.

4.. Literature Review

An extensive review of literature was conducted to have an in depth knowledge on the concept of quality cost, its importance in manufacturing industries, different models emerged during last six decades, enhancements adopted in line with the technological advances, methods for data collection, reporting and analysis. A detailed review of literature focusing on Indian contexts was also made.

A total of 450 research articles were reviewed for the purpose of identifying current status of studies related to this topic and to identify the research gaps and the research questions were formulated based on this reviews.

5. Research Gaps Identified

There is a vast amount of literature on concerned subject and in spite of overwhelming academic interest shown by quality experts, not many industries found practicing these theories for the organizational improvement. Most of organizations are measuring and calculating quality cost within the frame work of accounting cost principles considering it only as a documentary evidence for achieving accreditations and does not conduct any economic analysis.

It is evident from literature study that the situation is very same in India as well. Even though the quality cost system has the potential to become an excellent tool in the overall management of a business, the concept is not wide spread among the Indian manufacturing industries. Industrial managers in India are not fully convinced on the facts that quality earns money and not muchliterature isavailable to encourage the investments in quality. Literature analyzing the current systems of quality costing practices, difficulties in implementation and suggesting solutions for current situations is rarely found in India. Detailed case studies are also notavailable.

The research questions and objectives are framed from the inferences of these outcomes of the literature review.

6. Research Questions

The research is undertaken to find out the answers to a number of research questions arising out of the present scenario of cost of quality practices in manufacturing firms in India. These questions are:

- 1. What is the awareness level on the concept of economic analysis of quality managementamong manufacturing industries in India?
- 2. What are the current quality cost methods in practice in manufacturing industries in India?
- 3. What are the objectives and intended benefits of implementation of economic analysis system in manufacturing firms?
- 4. How effective is the present system to capture all the quality related costs in a manufacturing firm?
- 5. Whether any limitations/ drawbacks exist in the present system? If so, what all are the improvements required?



- 6. Whether the quality cost analysis is utilized for organizational improvement or not?
- 7. Is it necessary to develop a better model? If so, what areall the additional dimensions required?

7. Objectives of the Study

Two research objectives were framed to find out the answers to the above mentioned questions.

1. Detailed study on quality cost analysis models, theirusage and difficulties in implementation with a focus on manufacturing firms.

It was done first through the survey method among various firms under manufacturing industries using a survey questionnaire devised with constructs arrived through the extensive literature study after content validation tests and secondly, through detailed case studies in selected firms.

2. Formulation of an effective alternative method for economic analysis of quality and to utilize this tool for organizational improvement in Indian industries.

8. Research Methodology

Research Type	Descriptive and Exploratory.
Research Approach	Quantitative and Qualitative.
Methods	Survey method, Case studies, Model development & Validation.
Data Type	Primary and Secondary data
Data collection Tools	Primary data using surveys, Secondary data from the history records.
	Reliability of survey instrument : Cronbach's Alpha
	Analysis of survey results: Average composite score, Mean, Pie charts,
	Hypothesis tests using t-test, Kruskal-Wallis non-parametric test, Chi-Square
	Test, Mann-Whitney U test, and ANOVA.
Data Analysis I ools	Case studies: Pie chart, Trend analysis, Pearson Product Momentum
	Correlation, Regression analysis.
	New model : Fuzzy AHP, Fuzzy MOORA
	Model validation: By action research. Quantitative and Qualitative studies.
Amelania Callerana	IBM SPSSversion 16.0, Microsoft Excel Real-stat, Minitab, MATLAB
Anarysis Software	version 6.5.
Population	Firms under Manufacturing industrial sector in India.
Sample Size	300 firms with various manufacturing profiles.
Sampling Procedure	Random Sampling procedure.

9. Details of Study

An extensive survey among the manufacturing industrieswas conducted to identify the current awareness level on the concept of economics of quality among manufacturing industries, objectives which lead the firms for quality cost system implementation, the intended benefits, various models of quality cost analysis prevailing in manufacturing firms and also the difficulties faced by the organization in implementing as well as in maintaining a good economic analysis system for quality management. Further each model in practice was analyzed in depth to find out the cost elements captured, data collection systems, measurement methods, techniques used for data analysis and reporting and also the utilization of the reports by the top management. Comparative analysis between different systems is also made to find out the strengths and weaknesses of each model in practice, limitations/ drawbacks, and scope for further improvements.

This study reveals that the average awareness level on quality cost concepts and its importance is very low in the manufacturing firms under study. Pattern of awareness level on quality costing found depending on the product profile, type of industrial sector, and also on the accreditation status of quality management system. The survey shows that the quality cost practices are not given serious attention in most of the firms. Only the direct and easily measurable cost elements are tracked and accounted, whereas no attempt is made in tracking hidden / indirect elements. It is also assessed that the prevailing practices in the manufacturing firms are not adequate enough to capture and analyze the quality cost elements in total and the quality cost analysis is not effectively utilized for any decision making by the top management.

Average composite scores, rank analysis and piecharts were used for the analysis of the responses. Testing of hypothesis- using t-tests,Kruskal-Wallis non-parametric test, Chi-Square Test, Mann-Whitney U tests and Anova tests were used to verify the dependency level of awareness with the industrial sector, type of industry, product profiles, size of the firms, accreditation status etc.

9.1 **Results and Analysis**

The survey results and the detailed case studies in the selected firms, highlight the following drawbacks and limitations in the present systems.

- 1. Cost accounting principles are inadequate to support the multidimensional aspects of quality management systems.
- 2. Cost of quality analysis practiced in most of the manufacturing firms is not full-fledged and effective for organizational improvements.
- 3. None of the firms are found assessing all the elements of quality costs depicted in the literatures; No attempts were found in assessing the indirect costs as well as hidden costs and costs pertaining to missed out opportunities. Hence present practice cannot be reliable and conclusive and to a certain extent, misguiding also.
- 4. Due to the absence of Cost driver analysis, control measures are not focussed andfound misguided.
- 5. Correlation and Regression analysis shows strong interdependence among quality cost categories and elements. Attempts to control any of the cost categories will get reflected in many others. But this impact of interdependence is not addressed in any of the analysis in the present systems.
- 6. Results of quality cost analysis are not properly utilized in manufacturing firms as an effective tool for the identification and accomplishment of quality improvement opportunities.
- 7. The quality cost items which are generally determined using approximations and measurements of hidden quality cost elements are ambiguous in nature.



- 8. The degree of importance of various cost elements differ significantly based on its impact on the control of overall cost of quality. This factor is also found not addressed while doing the comparisons and prioritization of cost items.
- 9. Qualityimprovement plans are with multiple, mutually conflicting objectives and benefits. The accounting cost theories are inadequate to address these conflicts.
- 10. Inherent fuzziness attached with many of the quality cost elements are also not addressed in the present methods.

The conclusions drawn from these studies highlights the need for a comprehensive system which captures all the quality cost elements including direct, indirect, hidden and opportunity costs in the whole processin the manufacturing firms. Also the requirement of additional dimensions which are not seen reckoned in the prevailing systems for deriving a more effective, practical and useful method for economic cost analysis is evident. Following are the additional dimensions identified in this study:

- 1. Cost driver analysis to find out the root causes of highlysignificant elements.
- 2. Composite priority index: to address the high interdependence and difference in weights of each quality cost element.
- **3.** Fuzzy logic: to address the inherent fuzziness of quality cost concept and vagueness in assessments.
- 4. Optimization techniques: to address the mutually conflicting nature of quality improvement alternatives.
- 5. Cost-Benefit analysis: to select the best alternative.

The cost driver analysis and identification of root causes of high cost elements have been identified as vital factors to be added in the present method, which provides various options of quality cost control programs to the management. But the selection of the most optimal quality cost control program out of these, with the incurrence of lowest possible expenses and highest benefits is found to be difficult due to many constraints in the practical application. The fuzziness involved in quality system is also to be reckoned. Moreover the complexity of the interrelationship between different cost categories make the selection of the alternative much more complex since different alternatives have different patterns of investments and benefits. Apart from all these, the difference in degree of importance of each quality cost element also plays a crucial role in the determination of the best alternative.

The research objective was to develop a better model with the inclusion of all these additional parameters which also deals with the mutually conflicting organizational objectives in an effective and efficient way as well as addressing the fuzzy nature of quality system.

This Multi Criteria, Multi Objective Optimization problemis addressed in the research and a new model is proposed, using a hybrid method with fuzzy Analytic Hierarchy Process (Fuzzy AHP) & Fuzzy Multi Objective Optimization and Ratio Analysis (Fuzzy MOORA)technique (Sailajaetal, IJPQM, 2017).

MATLAB coding techniques are used for making the data compilation much easier and adaptable to any firms under manufacturing sector.

9.2 Model Validation

The proposed model is validated against real manufacturing environment by implementing the same in a selected firm, using action research method and also by collecting expert judgments against a set of essential quality characteristics of the model. It is observed that the model has good objectivity, reliability, practicality and acceptability. Also the model is found to be economically viable, easy to implement and provides easily interpretable results. The model is evaluated using both quantitative and qualitative analysis, and found suitable for any type of manufacturing environments.

The results of the evaluation shows that,

1) The model proposed is easy to percolate, practical and results are easily interpretable.

2) This model provides a better platform for decision making by the top management.

9.3 Relevance of the Study

This study attempts to overcome certain limitations/ drawbacks in the present quality cost systems in manufacturing firms in India, with the proposal of a new method for economic analysis of quality management. The study helps in understanding the current system and attempts to find out solutions for filling the gaps. It also helps in understanding the reasons of inefficiencies in the current system. Finally the study tries to recommend certain steps to improve the performance of the present quality costing system and proposes a better method for its analysis so as to utilize it as an effective tool for management decision making.

9.4 Scope of the Future Study

The study can be expanded further by using a broader spectrum of variables applicable to service industries. Further to this, possibility of developing online software program for real time capturing and analysis of quality cost can be explored as an extension of this study.



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(Continued from Page No 29) A firm will have a inventory policy considering it's process time, availability of raw materials, demand, seasonal variations in demand etc.. to fix it's finished goods inventory level. Now comes the sales. Again the firm will have a sales and credit policy for cash sales as well as credit sales. Factors such as demand and supply for the product, marketing channels, competition, maturity level of the product as well as the market etc... determine the volume of credit sales. Thus the finished goods stock get converted into book debts. The book debts are collected as per the credit policy, credit levels, volume off take, credit worthiness of the customers, seasonal factors, discount policies etc.. The book debts are collected and becomes again either cash/bank balances. This is called the working capital cycle and is depicted in the following diagram.



The operating cycle of a non manufacturing concern will not be the same as that of a manufacturing concern given above. In the case of a non manufacturing concern, the cycle will be shorter as the steps involved are less; purchase of goods for sale, sales of goods on credit/ cash, collection of book debts. This short working capital cycle is depicted in the diagram given below.



The methods of estimating working capital needs and how to finance these requirements will be discussed in the ensuing part.

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