

DESIGNING HUMAN ORGANISATIONS

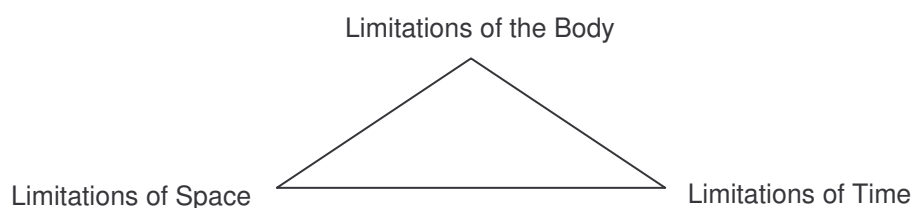
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Which requirements should be considered as most important in the present efforts of the government in building Japanese industry? It can neither be capital nor laws and regulations because both are dead things in themselves and totally ineffective. The spirit or willingness set both capital and regulations in motion. If we attach weight to these three factors with respect to their effectiveness, spirit / willingness should be assigned five parts, laws and regulations four parts and capital no more than one part. Kogyo Iken of 1884 - Maeda Masana.

Let us take this statement and examine its various implications. To begin with, it shifts the focus to human energy as the source and foundation of the organisation. If we look at the history of human organisations and systems from this perspective, we can see the growth and development of mankind is inseparably linked with the way man has invested in systems as the vehicle for the fruition of his aspirations.

The choice of work and live in interdependent and interlinked groups was a choice made by man a few million years ago. It could be the most central feature of being human. This choice allows each individual to transcend his most fundamental limitations. **Through communication and language, man transcends Time** - the learning of all previous generations and contemporaries become available to him. **Through tool making he transcends the limitations of his Body** - the efforts and energy spent to make "raw" material into an object with power (example a drilling machine or even a knife) become available instantaneously. **Through collective coordinated effort he transcends limitations of space.** By creating a set of interlinked roles and a system of converging individual efforts. Organisations extend across great distances. In its most primitive form, a hunting tribe is capable of defending a niche while an individual cannot defend such vast areas. Organisations are a result of this choice made in the prehistoric past and its very positive outcomes. The great collective adventure of human beings is the struggle to create ways of living and working that provide deep security and meaning to each person as well as collective systemic energies that create well being. All human advancement in science and technology has come out of organised effort. This bedrock of "the human way" is superimposed with political and social meanings and structures that often go contrary to it, causing great stress and human waste.

Human Limitations transcended through creating systems



Human Imperatives

If we follow this line of thinking further, into a contemporary context, we must start with a definition of the imperatives of man. Let us look at five basic imperatives of man and then proceed to develop a framework to understand organisation.

1. Needs and Drives
2. Aspirations and Selfworth
3. Interdependence
4. Belonging
5. Curiosity - Learning

1. Needs and drivers : When we look at human beings through this frame, we describe man as a being whose motivations are based upon his lacunae. The body feels hungry when it is depleted of sustenance, the tension created by this lacuna becomes a drive for finding food. The drive is very powerful and many obstacles will be crossed in the persons need to find food. The next step of the logic then says food is the reward for efforts put into search for it. Even animals know that food is not just there waiting to be found but acquired with great effort and stored for getting through long winter months. All we need to do now in taking this logic further is to study animal behaviour and "Operant conditioning" to come to the conclusion that reward can be used to train people to behave in certain ways. These ways are chosen by the one who holds (& withholds) the reward, say food. To see the best example of how this method works, one just has to watch circus animals perform. Unfortunately this is the basic paradigm that permeates much of management thinking.

2. Aspiration and Selfworth : When we use this frame, we describe man as one who is driven by a deep desire to be heroic. Many myths and legends describe the saga of a hero. Heros answer an inner call that makes them envision a way of living and acting that is "more meaningful" / "better than" the present condition. They then go through many trials and tribulations, face great danger and personal deprivation to "subdue dragons and bring back the golden fleece". Entrepreneurial ventures often start with an individual or a small group of persons who place faith in a deep desire to do something different and meaningful.

3. Interdependence : This frame describes the reasons for division of labour and the integration of the individual outputs so that a task much larger than any one persons capability can be achieved. Much has been written about

this by authors like Adam Smith and Taylor. The earliest attempts at civilisation of primitive man start with tribes that hunt in teams. This is therefore a basic direction that man has taken to ensure an efficient use of resources both individual and collective. An individual is free to explore his specialised skills deeply with the certainty that many of his other needs will be met by the outputs of other members of his group. Organisations recognise this imperative and keep trying to achieve teamwork. The price paid for lack of teamwork both individually and collectively is high and well recognised.

4. **Belonging** : Man has often been described as a "social animal". The power of this imperative in man can be understood through the idea of "excommunication" that every community has used as its ultimate tool for disciplining a person. Schools threaten to "suspend" or "expel" a student who has not mended his ways in conformity with the rest of the flock. These threats cause great fear and shame in the person and often act as powerful tools to shape behaviour. Organisation uses this power in many ways. They try to instill a sense of belonging through creating affiliative links and personal bonds of loyalty. Often teams of people say a Senior Manager and his subordinates will move from one organisation to another almost as though they are an inseparable unit. Dynamics of inclusion and exclusion are also used very powerfully in social settings like company parties and get together to "send messages" to erring employees.
5. **Curiosity and the urge to learn** : Man's innate curiosity to learn and understand the world around him is a powerful force. It is very evident in healthy children. This imperative propels a person to venture into all manner of unknowns. When this imperative is not given space for expression, a person feels dull and mechanical. He does not grow inwardly. In the context of organisations, learning does not take place. Organisations that do not foster individual and collective learning can hardly expect to be resilient and responsive to change. They cannot compete in a market with high customer expectations and wide customer choice.

The Organisation Context :

Each of these imperatives can be seen as an energy vector that propels the organisation in a unique direction. While no organisation that creates an exclusive focus on one or another of these imperatives can experience sustained growth, they can flourish in the short run. Let us look at the kind of organisations that get created when each of these imperatives becomes dominant.

1. **Needs and drives** : Organisations that focus themselves on this energy vector look at "Profit" as the "reason for being" of the organisation. While profit is a necessary condition, it is not a sufficient condition for organisation health. A pure profit motive often drives organisations to becoming extractive and to indulge in plunder of a kind. The customer is not a valued person, he is a 'bakra' an animal to be hunted and trapped. The needs of an individual

coupled with the constraints of his individual context drives him to buy products from the market. When the market is monopolistic or nearly so, the organisation can be very callous to the customer and yet plunder profits. We have seen this happen rampantly during the license raj, when many Indian Businessmen have cynically exploited (or even created) scarcities. Internally, such organisations have an adversarial relationship with their employees. An employee is essentially a "hired hand" who must do the bidding of the employer. His contract with the organisation is essentially one where his services are bought. The employer makes money by selling these services dear and paying for them cheap. The core energy of such organisations comes from a "mutuality of dependence". A lot of individual energy is wasted in mutual vigilance : the employer to "extract work" and the employee to maximise his benefits. Mercenaries, agents and good soldiers will abound in such organisations and an undertone of oppression will mark the interpersonal transactions.

Wealth generation for the organisation is essential. No one would wish to work for an organisation where his efforts are wasted. The viability of the organisation in financial terms is important both from the shareholders view of company attractiveness and for an employee to feel secure. However, a focus on this aspect at the expense of the others leads to enormous human waste. There are two important questions an employee asks of the organisation "Will this place acquire wealth and be viable"? His sense of security comes from a positive answer to this question (even mercenaries don't join a losing company, only desperadoes do!). The other question he asks is "What will be my share of the wealth acquired?" if the answer to this question does not lead to a feeling of being treated fairly, he will not offer his best to the organisation. Unfortunately, most Indian organisations leave their employees feeling unfairly treated. The fears anxieties and negative fallout's of this feeling of unfairness become acute when the annual appraisals and the rewards are announced. These forms of human waste remain invisible and therefore, the apparent control that the management experiences when it exercises its right to give and withhold rewards seem like an essential power in the hands of the management to shape people and extract work.

- 2. Self Worth :** Organisations that focus on aspirations and self worth as the energy vector are often entrepreneurial in nature. The perception of value and the status of the organisation in the public eye become intertwined with the perception of self worth in the entrepreneurs eyes. Many start up organisations get their explosive initial energy when a group of people who would otherwise be very mundane in their approach get inspired and put in heroic efforts. We often see this quality in the project phases of an organisation. However, sustaining this energy is not easy. Firstly, the initial success is in a relatively green field context. Achievements are dramatic and are their own best reinforcement. However, as the organisation grows, the rate of growth comes down, the meaning of success changes and does not have the same drama and heroism. The direct link between the inspirational

leaders and the bulk of the organisation thins down. At this phase, anxieties of failure and impatience caused by a slow down in growth creep in. Unless the top management team redefines its practice and parameters of measuring success, it falls prey to accusations and fault finding. The virtues of good governance need to be deployed and the thrust of leadership and expansion needs to be balanced off.

Organisations that work in this mode offer great excitement and inspire its members. The quality of transactions is characterised by a "mutuality of opportunity". Recognition is a key ingredient. Quality of work, quality of products made is given great importance and becomes a source of pride, customers valuing of the organisation and its products is high. Individuals feel evoked to seek excellence and experience honour in working. However, if other factors like profitability, operational efficiency, product development and market development are not kept in focus. Entrepreneurial Organisations fall prey to over extending themselves and taking on goals and strategies that are not heroic but are foolhardy or pompous.

- 3. Interdependence** : Organisations that focus on this aspect, invest their energies in ensuring systemic efficiencies. Often one uses the word "professional" to mean a person or an organisation that will clinically deliver its products and services like a "well oiled machine". Organisation Bureaucracy hopes to achieve this and much has written about this by Fayol and Weber. In the work-a-day context, this vector energises the bulk of the actual conversion processes of the organisation. The efficiency and effectiveness of business processes, the responsiveness of the value chain to customer demands and the daily use of resources is the crux of independence.

The essence of the systemic nature of all living process is best captured by the idea advanced by *Sankhya* and captured in three words : *gati*, *samghatana*, *niyati*.

Gati means change and movement. It also refers to the movement of time as things change form with relentless continuity.

Samghatana means the inter-action parts, no individual element exists without being related to other elements in its universe.

Niyati means ordered-dependent transformation. No part moves or changes without a simultaneous change in other parts linked to it, a change in the part simultaneously means a change in the whole.

Teamwork tries to capture this principle in action. Organisations that recognise this have a quality of "mutuality in task performance". Proactive Communication and a spirit of "joining in" are high. Success and failure is shared. Organisation Design that is based on "Socio-Technical Systems" theories attempt to capture

this mutuality that is essential for task completion in designing work groups and reward and superior-subordinate control, thus putting enormous strains and stresses on the collective nature of any task performance. The key measure of systemic efficiency is the ability of the organisation to adhere to delivery schedules and the time it takes to convert on order into sale and recovery.

4. Belonging : Most Business Organisation speak about the importance of people but, end up seeming to pay lip service to this vector while Non Business Organisations seem to over emphasise it. Often a discussion on ensuring employee morale and belonging will be cut short with the statement. “But, we are not here for charity”. The assumption being, creating a context where individuals feel a strong sense of belonging must imply laxity in task performance and discipline. Yet, no organisation has grown without having a significant percentage of its members from across levels bringing in a great sense of ownership to it. This sense of ownership makes them dream for the organisation, feel for it when things so wrong and to mobilise themselves to put in extra ordinary effort. Often, the sense of belonging that workmen invest in an organisation is not matched by its managers. This is probably due to a combination of factors : easier mobility and lack of traditional values where community belonging is held in pride. Where this sense of belonging and ownership is denied, one finds a great sullenness, and silent resistance. Members of the organisation are treated as instruments and return the favour by turning out mechanical work. Quality, timeliness, cost and efficiency in the use of resources are disowned.

Westernisation and modernisation of work Organisations, the legacy of our colonial past and the credo of non-co-operation that led the independence struggle, have intermingled in a peculiar way and we seem to have lost the sense of collective ownership of resources that characterise large joint families and craft communities. The feeling of shared ownership and interdependence in one another’s well being are clearly evident in the developmental work of Anna Hazare and Baba Amte. Most traditional families that started Business Organisation had this. Yet, understanding shared psychological ownership is conspicuous by its absence. Legal ownership of resources is a deadening weapon. “Mutuality of ownership” is the cornerstone of synergy and a will to fight. Only organisations with a widely shared sense of ownership can generate improvements, sustain quality and reliability and give teeth to Business Strategy. A deep sense of Belonging also creates a context where the members of the organisation work in peace and there is no psychological hurt.

5. Curiosity : This is perhaps the most elusive of qualities in man and one that cannot be systematised. Yet, without providing the space and opportunity for inquisitiveness and creativity, an organisation would dry up and be left behind. Many organisations start off with an innovative product or service and soon find that mere innovation does not keep them in the market. Peoples Express and so many software start ups go through the firmament like a

comet and burn-out. Organisations like Toyota which have revolutionised manufacturing processes have willy nilly to keep innovating to stay ahead. Focusing on creativity and learning tends providing the extra space in which the organisation and the individual can be reflective. Workmen who experience the space and the motivation to be reflective come up with improvements on the shopfloor. Managers who create such spaces for themselves come up with improved systems and strategies.

Tolerance to mistakes and a celebration of the spirit of enquiry are essential to keep the flame of innovation alive. Constant upgrading of knowledge, exposure to the unfolding realms of thought, and deep study have to be kept alive. Transactions in organizations that value learning sustain a "mutuality of discovery".

Most organisations kill the spirit of enquiry through an over emphasis on "job responsibilities". Being given a restricted palette and assigned an unchanging form to paint would kill the spirit of almost any artist. Yet, this is what organisations believe in and appraisals are often made on the basis of these restrictive job responsibilities.

Measures of Performance :

What makes an organisation world class? If we follow Nakamura's line of thinking, it is defined very simply :

- Highest Product Quality
- Lowest Cost
- Best Delivery
- Most Innovative Product Development
- High Morale in the workforce and High Standards of Safety.

Each of these can be measured. These measures provide a good way of assessing an organisation.

The five imperatives of man have an immediate correspondence to the five parameters outlined above.

Needs and Drives : Various indices of ROI and Cost of Operations.

Self Worth : Indices of Quality and Customer Satisfaction.

Interdependence : Indices of Product Delivery and Reliability.

Belonging : Indices of Employee Satisfaction and Morale.

Curiosity : Indices of Product Development and Systemic Improvement.

Imperatives	Focus	Individual Concerns	Organisational measures	Management Process
Needs and Drives	Acquisition of Wealth	Issues of rewards and compensation	Indices of return on investment and cost of operations	Value Adding Management
Self Worth	Excellence and Output Quality	Issues of recognition and honour	Indices of customer satisfaction (internal and external)	Quality Management
Interdependence	Systemic Efficiencies and Effectiveness	Issues of competence and team work	Indices of delivery and reliability (internal and external)	Value Chain Management
Belonging	Ownership and unilateral commitment	Issues of humanness	Indices of employee satisfaction and morale	Employee involvement
Curiosity	Organisation learning and innovation	Issues of space and experimentation	Indices of Product Development and System Improvement	Continuous Systematic Development

Frame Works for Organisation Design

A very fundamental paradigm of how perception takes place in a person lies at the root of our discussion so far. The western paradigm explains (One uses the word western very loosely) perception using a "Stimulus-response" model. The stimulus emanating from one's environment impinging on one's senses and eliciting a response from one's psyche. The Eastern paradigm (as enunciated in *Yoga* and *Sankhya* as well as in Buddhist thought) however, follows a very different model. A person is moved by a deep inner desire (iccha) to experience the world. The desire triggers a cascade of processes in one's psyche and attention is directed towards the external world. When this inner directed attention makes contact with the world of objects and events through the senses, the imprint of this contact is relayed to the psyche and perception takes place. Cognition and action are wholly inner determined.

There are profound implications of these two paradigms. The "Stimulus-response" paradigm leads to ideas such as "behaviour modification" "Transactional Analysis" and the like which shape a person by "acting upon" the person. They are implicitly seeded with conflict and manipulation. This modality is

useful and has power when the group recognises external threat and delegates the power to determine "right behaviour" to an external agent (who therefore becomes the leader). The "inner direction attention" paradigm leads to ideas such as "evocation" and "context-creation" where the individuals autonomy is respected. A person can offer something from himself and invite the other to join in so that two or more individuals can create together. Sustaining an environment where autonomous investment can be posted together requires effort. However, such organisations are very powerful and highly productive. They recognises the power of conviction in facing difficult situations, and the power of commitment integrating a group of people. Powerful institutions are built on autonomy of choice making conviction and commitment.

One of the principles of creation described in our tradition is called "*Panchi Karana Prakriya*" "five fold creation" The five quintessential principles of existence : Earth, Water, Fire, Air and Space come together in varying proportions and rhythms to form the universe. We can look at the five human imperatives through this analogy. Needs and drives are like the earth they are the substance of living. Belonging is like water it binds people together and nourishes them. Self worth is like fire, it energises action and propels effort. Interdependence is like air, prana, the in breath and the out breath, food and its digestion. Curiosity in space and mind in its constant flow of limit less possibilities. When the five are brought together in the right proportion, beautiful forms emerge. Organisations where the five cohere and converge are aligned and synergistic. When the five elements are to brought together in the right proportion the organisation is fragmented by internal conflict and deformed. Fragments in compulsive movement cause friction, friction generates heat and heat causes fire. Soon the Top Management Team does little other than fight fires, now here, now there. It is a wonder that most organisations are run by Top Management teams engaged in constant fire fighting. How would it be if a city was run by firemen?

Great periods in the history of man are times when great men from diverse fields came together and influenced the governance of the state. Often the top management teams of such times are referred to as the "Navarathna" the nine jewels.

"There are only two possibilities : One of complete domination and control and the voluntary creations of right environment for the fulfillment of man.

J. Krishnamurthi - 1935

1 Value Adding Management

	1	2	3	4	5
<p>1.1 Long term strategy.</p> <p>Strategy-Policy</p>	The firm does not model its future systematically.	The firm begins to model its future by engaging in simple “what if” analysis to anticipate change and plan appropriate responses. The firm considers developing its capabilities to be competitive in the future.	The firm constructs alternative scenarios based on systems theory, game theory, or other systematic basis to anticipate change and plan appropriate strategic responses.	The firm is capable of using computer models to enhance its understanding of the multiple inputs to and impacts of strategic responses to probable change scenarios.	The firm is capable of using computer models to enhance its understanding of the multiple impacts of strategic responses to probable change scenarios.
<p>1.2 Long and Medium Term Plans.</p> <p>Strategy-Policy</p>	Strategy is insufficient. There are no long/medium term plans (5 yrs, 3 yrs)	Long/medium term policies are based on strategy./ Information for strategic analysis is being collected. Departmental plans are not streamlined. Company wide policy is not clear.	Strategy and long/medium term plans are clear. Basic targets and means are clarified. But analysis of the environment in the long and medium term is still weak.	Strategy and long and medium term plans are synchronised. But the long and medium policy and the annual policy are not completely synchronised.	Effective procedures for planning by plan-do-check-act have been established. There is a good match between plan and policy.
<p>1.3 Core Capabilities and Key Factors for Success.</p> <p>Strategy-Policy</p>	The firm has little understanding of its core capabilities and shows no interest in other players in the industry.	The firm begins study of its capabilities. The company sees itself as being on par with the industry. The firm begins to study market segments and the value chain, and to make industry wide comparisons.	The company has a good understanding of its capabilities. The company sees itself as being one step ahead of the industry. The firm has a firm grasp of market segments and the value chain from an industry perspective.	It sees itself as one step ahead of the industry average and able to assimilate new methods and technology. The company constantly probes its capabilities and uses benchmarks to make objective comparisons to firms inside and outside the industry.	The company sees itself as a leader. Capabilities lead the industry. Basic methods and technology are on the leading edge

<p>1.4 Bench Marking & Competition.</p>	<p>Goals are set based on past performance and are incremental.</p>	<p>Active data gathering on competitor's competencies and key performance measures.</p>	<p>Goals measures based on competitor's data and organisation's strategy on all key operational areas.</p>	<p>Goal measures based on strategy to become national leaders and global players.</p>	<p>Goals measured on becoming best in class and deployed into specific competencies.</p>
<p>Strategy-Policy</p>					
<p>1.5 Policy Deployment and Work Definition.</p>	<p>No Control items are established. There is no understanding of control items. Policy is loosely set.</p>	<p>Each job sets its own control items. Control value of each items is abstract. Supervisors and subordinates have the same items. The company begins the process of work deployment. There is poor relationship with self diagnosis.</p>	<p>The target value of each item is clarified. Deployment is based on supervisor's policy/plan and control items and is related to last year's self-diagnosis. But there is no system for checking relationships of control items cross-functionally.</p>	<p>The connection of control items with company policy is good. The setting up of daily control items is good. Supervisors and subordinates plans are well related. Policy and control items are set up with good cross-functional checks.</p>	<p>The company has fully implemented a system for deploying policy and control items. There is consistency in deployment of both the policy and the control items.</p>
<p>Throughput</p>					
<p>1.6 Accounting Information.</p>	<p>The firm allocates overhead according to direct labour hours. There are huge discrepancies in estimated and actual product/service costs, but the firm is not aware of it.</p>	<p>The firm designs a new accounting system that allocates overhead accounting to demonstrated causal links between resource consumption and value-adding activities. But the company still operates on the old accounting system.</p>	<p>The new accounting system is deployed to managers and supervisors and is run in parallel with the old system. Total cost management using activity based costing is initiated.</p>	<p>The firm makes improvements to the new accounting system, and abandons the old system, except for required external reports.</p>	<p>Further improvements are made to the new system to integrate it fully with the firm's performance measurement system and to facilitate modelling the financial implications of various policy alternatives during policy analysis and definition. Total Cost Management and Activity Based Costing are fully implemented.</p>
<p>Throughput</p>					

<p>1.7 Equipment Investment and Life cycle costs.</p> <p>Throughput</p>	<p>Equipment investment decisions are made by the finance department based on price and machine capacity. Maintenance is not involved in purchase decisions. There is at least one piece of equipment on the floor that has never run properly.</p>	<p>Finance begins to use life Cycle cost as an investment criteria. The company incorporates some information from equipment users TPM activities in designs for new machine tools.</p>	<p>Life Cycle cost is the major equipment investment criteria. Equipment planning routinely incorporates information from equipment users TPM activities in designs for new machine tools.</p>	<p>Life cycle cost is the major equipment investment criteria. Equipment planning fully involves maintenance personnel and engineers as well as information from equipment users TPM activities to achieve maintenance free designs for new machine tools.</p>	<p>Maintenance Prevention is fully instituted in all processes. Capacity availability is not depreciated due to run down machines which lack process capability.</p>
<p>1.8 Performance Measurement.</p> <p>“Support Services”</p>	<p>There is no awareness that the firm’s results-based performance measures hinder continuous improvement.</p>	<p>The top management team creates a “balanced scorecard” of process-based measures to provide timely feedback for corrective action and improvement. But the company still operates on the old measurement system.</p>	<p>The new process-based scorecard is deployed to managers and supervisors and is run in parallel with the old results-based measures. Financial measures are still the most important, but clearly promote waste.</p>	<p>The firm makes improvements to the new performance-based measures and abandons the old results-based measures, except those that support clear cause-and-effect focused on improvement.</p>	<p>Process focused measures that ensure customer delight forms the basis of performance measurement..</p>
<p>1.9 Compensation.</p> <p>Infrastructure</p>	<p>Compensation is based mainly on hours and security.</p>	<p>The firm uses performance-based pay but it isn’t linked to either company or team goals, Performance pay is mainly for managers.</p>	<p>Some portion of pay is based on gain-sharing and loosely linked to company and/or team goals. Performance pay is for all workers.</p>	<p>Some portion of pay is based on gain-sharing and clearly linked to company and/or team goals. Each employee has a flexible compensation package tailored to individual needs.</p>	<p>Clear understanding of evaluation criteria & membership to the Organisation evokes the alignment of individual mission to the organisation vision.</p>

2 Quality management

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<p>2.1 Vision.</p> <p>Management thinks that the future will be like the past. Company motto exists, but isn't alive. The company is oriented towards large-scale mass production for maximum output.</p> <p>Strategy-Policy</p>	<p>Management thinks that the future will be like the past. Company motto exists, but isn't alive. The company is oriented towards large-scale mass production for maximum output.</p>	<p>Management understands the concept of creative destruction and begins to expect the unexpected. Basic vision is clarified. Company motto is improved. But the company still has a product-out orientation.</p>	<p>Vision is deployed company wide. The firm has a market-in orientation.</p>	<p>Strategy is based upon the company motto and basic concept or vision. The company has a service orientation.</p>	<p>Vision is insightful and evokes total commitment. Leadership is strong both within the firm and in society.</p>
<p>2.2 The Community & environment</p> <p>Strategy-Policy</p>	<p>The firm has little awareness of its role in the communities in which it makes or sells its products and services. The firm has little awareness of its products and production processes impact on the environment. The firm frequently finds itself in arguments with government authorities</p>	<p>The firm analyses its role in the community and initiates programs to improve community welfare, e.g. by improving product safety or helping to educate the work force of the future. It initiates programs to improve environmental conditions by using appropriate technology and through equipment improvement activities. But the firm still has compliance problems.</p>	<p>The firm has established company wide programs for community welfare. There are improvements in the firm's compliance with environmental regulations. The firm is improving its compliance record and its public relations</p>	<p>The firm has achieved full compliance with government regulations in each of its markets. The firm has achieved full compliance with government environmental regulations in each of its markets.</p>	<p>The firm provides leadership in public affairs and environmental affairs. Government considers the firm as a useful source of information about how to solve community problems and environmental problems.</p>

<p>2.3 Customer Relationships</p> <p>Throughput</p>	<p>The firm has a product-out orientation. Customers who complain are treated like criminals who are “guilty until proven innocent.” Customer feedback is not recorded or acted upon to improve.</p>	<p>The firm begins to see customers as a vital resource, and to cultivate them as the primary source of information about the firm’s quality, cost, and delivery performance</p>	<p>The firm has established a sound system to gather and use information from customers to continuously improve quality, cost, and delivery.</p>	<p>The firm actively gathers and uses information from customers to improve</p>	<p>The firm has firmly established a reputation as a customer-oriented supplier of quality products.</p>
<p>2.4 Customer Satisfaction</p> <p>Throughput</p>	<p>The firm does not measure customer satisfaction systematically. The firm frequently fails to meet customer requirements for quality, cost, and delivery.</p>	<p>The firm measures customer feedback based on the customer’s spoken requirements. The firm still fails to meet customer requirements.</p>	<p>The firm measures customer satisfaction based on unspoken as well as spoken requirements. The firm meets the customer’s spoken requirements, but often fails to meet unspoken requirements</p>	<p>The firm measures feedback based on latent as well as spoken and unspoken requirements. The firm meets spoken and unspoken requirements, but fails to delight the customer.</p>	<p>The firm measures feedback based on latent as well as spoken and unspoken requirements. The company regularly delights the customer by anticipating latent requirements.</p>
<p>2.5 Supplier Quality</p> <p>Throughput</p>	<p>The firm has many unqualified suppliers. Price is the major consideration in purchasing inputs. Relationships are based on short term contracts and arms-length dealings.</p>	<p>The firm begins to monitor supplier performance and identifies problem suppliers. Self-certification is encouraged. The best suppliers are offered longer term contracts.</p>	<p>The firm actively reduces the number of its suppliers based on its own certification program. Certified suppliers are offered long term contracts based on quality, cost, delivery, and the potential for improvement.</p>	<p>Long term partnerships are formed with suppliers who have demonstrated the ability to improve.</p>	<p>Suppliers have a sustained record of continuous improvement. Long term partnerships are strengthened,</p>
<p>2.6 Supplier Development</p> <p>Throughput</p>	<p>The firm does not provide leadership or support for the development its suppliers.</p>	<p>Technical support is given on request for any subcontracted component, material, or service</p>	<p>The firm provides industrial engineering support on each of its suppliers lines</p>	<p>The firm begins to provide leadership and support for developing its partners to become world class.</p>	<p>The firm provides sustained leadership and support for supplier development.</p>

<p>2.7 Quality System & corrective action</p>	<p>There is no established quality policy or system. Quality is whatever sells. Defects are considered inevitable, and they are the customer's problem. Defect information is sent to managers who then decide which products to discontinue or modify.</p>	<p>A basic quality system is established on paper; the firm can pass on ISO 9000 paper audit. Quality is whatever is not returned. Defects are caught before they leave the company. Defect information is compiled into reports used by engineers to troubleshoot quality problems.</p>	<p>The quality system has been deployed; the company is in compliance with its own system. The company can pass both the paper and on-site ISO 9000 audits. Statistics are used to reduce company wide defect rate. Quality is defined by AQL. Defect information is collected by a centralised QC/SPC department and selectively fed back to engineers for troubleshooting.</p>	<p>The quality system is being refined. Quality is still defined by AQL. But defect rates are being reduced by self checks and successive checks performed by operators on the line. Defect information is used by operators to target quality improvements in their operations.</p>	<p>The quality system is being refined. Quality is defined as Zero Defects. Defects are eliminated 100% by self-checks, successive checks, and poka-yoke. Defect information is replaced which operators and engineers use to develop poka-yoke devices.</p>	
<p>"Support Services"</p>	<p>2.8 Recognition</p>	<p>Recognition of employees is sporadic and based on personal likes and dislikes of managers and supervisors.</p>	<p>The firm initiates a system for recognising employee contributions through suggestions schemes and team competitions. But the links to company policy are still weak. Managers still believe that money is all that employees care about.</p>	<p>A sound system for recognising employee contributions that further company policy is established. The system is based on a balanced idea of monetary and non monetary motivators.</p>	<p>The recognition system is refined so that recognition and rewards have clear links to company policy. Managers have carefully studied what motivates the company's work force</p>	<p>Clear understanding of evaluation criteria & membership to the Organisation evokes the alignment of individual mission to the organisation vision.</p>
<p>"Support Services"</p>						

3. Value Chain Management

	1	2	3	4	5
3.1 Multifunctional Structure & team orientation	The company structure is an Military form bureaucracy with top-down management style and no teams or employee involvement. There are many misconnects and disconnects in company processes. The firm does not favour teams or work groups. Employees are viewed as pieces on a chessboard	The firm initiates cross-functional committees to solve chronic problems or help manage strategic initiatives. Process mapping begins. Misconnects and disconnects are being identified. The firm begins team-building. Employees are viewed as members of a co-operative team. Management has a strategy for playing the game, but team members must co-ordinate their own moves	The firm has cross-functional committees in most major areas, but committee heads and team leaders are not full-time. Misconnects and disconnects are being reduced as business processes are re-engineered. Teams exist in most major areas, but are immature.	Multifunctional team leaders are full time, and are part of the top management team. But department managers to hold the balance of power. Misconnects and disconnects are infrequent. Teams in major areas are mature. Teams exist in most supporting areas.	The balance of power shifts to multifunctional team managers. Misconnects and disconnects are virtually eliminated. The company continuously re-engineers itself. There is zero bureaucracy. The top management team has matured. Several teams within the company have achieved high performance.
Strategy- Policy					

<p>3.2 Task Definition</p>	<p>Most members of the company wait to be told what to do and are apprehensive of being blamed for mistakes. Task is what the boss tells me to do.</p>	<p>Adequate jobs descriptions are available but this is seen as the limits to which initiative can be taken. The boss is the customer and task is the job assigned to me.</p>	<p>Link responsibilities are clearly defined and form the basis of what needs to be done. A clear customer-supplier link can be seen defining the delivery system. Task is what I need to do to ensure customer delight and next is customer</p>	<p>The Total System Responsibility to various take holders is defined and forms the basis for all task definition. "Task is what I need to do to ensure the health of the system. I can define my link and job responsibilities based on my understanding of the system".</p>	<p>There is a deep commitment to the organisation vision and the members of the organisation feel evoked to invest in shaping the organisation system. "My task is being a stake holder in organisation building. I actively contribute to work flow design and system redesign".</p>
<p>Strategy- Policy</p> <p>3.3 Flow Production</p>	<p>Unbalance machine capacities. Ill planned material movement.</p>	<p>Line balanced. Material movements streamlined. In process defects high because machines are not capable of reliable process control.</p>	<p>High flexibility for rational lot sizes. Inventory levels monitored. Machines capable of process reliability.</p>	<p>Process capability being enhanced with world class benchmarks. Production flow fully streamlined.</p>	<p>Synchronised manufacture. Low in-process inventory. Machinery of high process capability comparable to World Class.</p>
<p>Throughput</p>					

<p>3.4 Automation with Human Touch</p>	<p>All processes require manual assistance. There is no understanding that monitoring equipment is wasteful</p>	<p>There is some automation, but operators are always present while machines work. But there is a thorough understanding that monitoring is wasteful. Some equipment can run one unmonitored cycle during lunch.</p>	<p>Human and machine work are separated. Major equipment is able to run one unmonitored cycle during lunch. Machines still sometimes make defects</p>	<p>Human and machine work are separated. Most machines run unmonitored during lunch, and many machines are left cycling when operators go home. Machines still sometimes make defects, but poka-yoke is being applied actively</p>	<p>Human and machine work are separated. Machines make no defects. The firm is capable of FMS.</p>
<p>Throughput</p>					
<p>3.5 Multi-process Handling</p>	<p>There is unquestioned support for single-skill, single process operations.</p>	<p>Caravan-style co-operative operations</p>	<p>Flow-based co-operative operations. Workers are capable of helping the next worker “upstream” and “downstream”.</p>	<p>Flow-based co-operative operations. Workers are capable of helping in other cells and on other lines. Flexible job assignments with wide variation in output volume.</p>	<p>Flexible job assignments, with narrow variation in output and volume</p>
<p>Throughput</p>					
<p>3.6 Quick Changeover</p>	<p>There are monthly changeovers, requiring half a day each time.</p>	<p>Management studies the impact of changeovers on plant capacity and flexibility. People are aware of changeover needs. Die change analysis and pilot changeover improvement projects are begun.</p>	<p>Change over teams are active in most major areas. All employees are trained in SMED. Changeover times are coming down.</p>	<p>One Touch Exchange of Dies is implemented on bottleneck equipment. All changeovers can be done in under 10 minutes</p>	<p>Changeovers can be done within cycle times. Where necessary, changeovers are automated. Flexible Manufacturing Systems are used where necessary to ensure precise control.</p>
<p>Throughput</p>					

<p>3.7 Pull System/Coupled Production</p>	<p>Push production, with retained inventory everywhere.</p>	<p>Push production, with organised storage sites for WIP. All employees understand the importance of coupling points are established between major processes.</p>	<p>Coupling points are established throughout the factory. Pull production, with fixed locations and fixed volumes. Kanban implementation begins in pilot areas.</p>	<p>Pull production, with Kanban. The plant combines individual cells into lines.</p>	<p>Pull production, with refined kanban. Short lines are organised into long lines. Many coupling points are eliminated</p>
<p>Throughput</p>					
<p>3.8 Production Scheduling</p>	<p>Production is scheduled once a month manually. There is no relation between the production schedule, the business plan, and strategy. Processes have own rhythm. Deliveries are routinely late.</p>	<p>Production is scheduled twice a month manually, but using a standard schedule control system, but the relationship to the business plan and strategy is still weak. Each process still has its own rhythm. There are occasional late deliveries</p>	<p>Production is scheduled weekly using a computer. There is some relation to the business plan and strategy. Each overall line has some kind of common rhythm. Arrangements are made with customers to minimise ill effects of late deliveries</p>	<p>Production is scheduled daily and, if appropriate, is integrated with CAD. The relation to the business plan and strategy is clear. Overall lines have a common rhythm. All deliveries are made on time, somehow. The firm uses MRP as needed.</p>	<p>Production is scheduled daily and is completely level. The relation to the business plan and strategy is strong. Overall line has a common rhythm. There are no late deliveries.</p>
<p>Throughput</p>					

<p>3.9 Autonomous Maintenance</p>	<p>All maintenance is performed by maintenance personnel.</p>	<p>Operators expose and correct abnormalities in equipment. The first two steps of Autonomous Maintenance are implemented: 1) initial cleaning 2) identify and eliminate sources of dirt and contamination.</p>	<p>Operators understand equipment functions and structure. Steps 3 and 4 of Autonomous Maintenance are implemented: 3) create initial standards for cleaning and lubrication; 4) develop general inspection skills through training.</p>	<p>Operators understand the relation between equipment conditions and quality. Steps 5 and 6 of Autonomous Maintenance are implemented: 5) conduct autonomous inspection; 6) organise and manage equipment and the work place with the 5S's and visual controls.</p>	<p>Autonomous Maintenance is fully implemented</p>
<p>Throughput</p>					
<p>3.10 Equipment Improvement</p>	<p>No equipment improvement teams exist. O.E.E. is not measured</p>	<p>Equipment improvement teams are formed eliminated chronic loss dues to production bottlenecks. Visible model machines are established in major areas. 40% <O.E.E.<65%</p>	<p>Model machines exist in all areas. The firm establishes model lines in some major areas. Teams strive to achieve zero defects after changeover. 65%<O.E.E.< 75%</p>	<p>Every machine and every line is managed as a model. Teams set conditions for zero defects. Processes are highly capable by variability is still too high. 75%<O.E.E.<85%</p>	<p>PM circles set conditions for zero defects. Equipment improvement teams refine equipment to be even more productive. Variability is very low. O.E.E.> 85%</p>
<p>"Support Services"</p>					

<p>3.11 Housekeeping and Hygiene</p>	<p>It is hard for anyone to tell what goes where and when. Much time is wasted searching for tool, dies, material, documents, and personnel</p>	<p>The firm initiates a workplace organisation program by removing all unneeded items from the workplace. Visitors still cannot see what goes where.</p>	<p>The workplace is put into order using outlining and sign boarding. Machine, tools, and material their own addresses and a return addresses. The workplace is cleaned, and neatly organised. Visitors can see what goes where.</p>	<p>Workplace organisation is practised company wide with regular neatness audits based on detailed checklists for each area. Workers are reorganising work flow in their own areas. Visitors can see the flow of production.</p>	<p>The workplace is immaculate. The work force is highly disciplined. If anything is our of place, corrective action is taken automatically to put it right. There is constant wall-to-wall cleaning.</p>
<p>Throughput</p>					
<p>3.12 Visual Control Systems</p>	<p>The firm does not use visual controls. Information about standards and abnormalities is not readily available or widely shared. Abnormalities often occur and only create confusion. Much time is wasted searching for vital information</p>	<p>Managers share information about standards through sign boarding and create simple ways for workers to report abnormalities. But workers still don't get enough information. Abnormalities often occur and are usually resolved in some way.</p>	<p>Managers involve workers in creating visual control systems using control boards, "building standards in", and andon to ensure that vital information is shared in a timely way. Supervisors can tell when an abnormality occurs.</p>	<p>Workers are involved in controlling their own work areas visually. Management assures company wide consistency of visual signals. The first poka-yoke devices are deployed. Everyone can tell what the company strategy is and when an abnormality occurs.</p>	<p>Everyone is actively engaged in improving the company's visual control systems using the full range of available controls: signboards, "built-in" standards, andon, and poka-yoke. Immediate action is taken to resolve abnormalities</p>
<p>"Support Services"</p>					

<p>3.13 Information Production Lines</p> <p>“Support Services”</p>	<p>Administration and support services operate independently from value-delivery processes. Everyone works in separate offices and cubicles. There is a strong distinction between “white” and “blue” collar work.</p>	<p>The firm becomes aware of the need to reduce cycle times in administration and support industrial engineering concepts. Pilot projects are begun in some major areas to create information production lines based on flow production concepts</p>	<p>The firm redesigns all major administrative and support areas using industrial engineering concepts. The number of desks is reduced by using round tables. Much work is carried out while standing at specially raised tables.</p>	<p>The firm continues its redesign of administrative and support areas. Steps in each administration and support process have been reduced by 50%</p>	<p>The firm refines administrative and support areas. Steps in each administration and support process have been reduced by 67%. Task owners seek the help of Administration proactively since they appreciate the need for the infrastructures provided by admin.</p>
<p>3.14 Administrative TPM</p> <p>“Support Services”</p>	<p>Administration and support services operate independently from value-delivery processes. Everyone works in separate offices and cubicles. There is a strong distinction between “white” and “blue” collar work.</p>	<p>Administration and support services become aware of their supporting roles in production and equipment management. The firm begins to measure administrative losses administrative work, distribution, and inventory.</p>	<p>Workplace organisation has been implemented in all major administration and support areas.. Personal files are kept to a bare minimum.. Other files are public. Many tools are shared. Regular audits are carried out.</p>	<p>Workplace organisation is practised in all and support areas. There have been significant reductions in administrative losses. Administration takes care of all external interfaces not directly in line with the Value Adding activities of throughput..</p>	<p>TPM is extended to project management. Public relations are excellent and there is no distraction from work on account of statutory demands.</p>

3.15 Production Engineering	New products introduced into the manufacturing line without any planning.	Manufacturing methods are envisaged while new products are designed but preparedness of manufacturing system is not established.	Preparedness of machines and methods on-site. Suppliers not brought into full preparedness.	Preparedness in terms of suppliers on-stream. Machines and methods have been proved for manufacturability. Quality plans are not established.	Full preparedness of men, materials, machines and measures while bringing new products into the manufacturing line.
"Support Services"					
3.16 Co-Makership	The firm's suppliers receive all designs from the company. Supplier feedback is limited to feedback about supplier costs.	The firm begins to solicit supplier QCD feedback on new designs before they are finalised.	The firm begins to involve its suppliers more closely in the design phase of new product development	The firm's supply partners are fully involved on product development teams from the early phases of new product development.	The firm's supply partners are integral members of product development teams from the early phases of new product development.
"Support Services"					

4. Employee Involvement

	1	2	3	4	5
4.1 Philosophy	The firm's managers subscribe to theory X and demonstrate negative attitudes concerning the intelligence and trustworthiness of employees.	Top management subscribes to theory Y and begins training for all managers to promote a positive shift in paradigms about workers.	All managers have been trained in Theory Y or other positive philosophies of human nature and generally demonstrate good attitudes towards employees. Supervisors still lack training and sometimes demonstrate negative attitudes.	All managers and supervisors have been trained as coaches, facilitators, and leaders and generally demonstrate positive attitudes.	The firm's leadership and management command worker respect and loyalty as measured by turnover, morale, and other indices.
Strategy-Policy					
4.2 Morale	The firm does not collect information about employee morale	The firm conducts employee surveys, but these are not systematic. There is no good understanding of the impact of poor morale on the QCD. Results of surveys are not fed back into the planning process.	The impact of morale on the QCD is grasped by all managers. The firm conducts regular employee surveys, and results are fed back into the planning process. The morale shows improvement but the surveys lack precision and industry comparisons are not made	The firm conducts scientifically designed surveys and makes comparisons on an industry wide or nation-wide basis. Results are fed back to the strategic planning and policy making process. Employee morale is generally high.	Employees see themselves as one of the stake holders and actively partner the company in its movement towards this vision
Strategy- Policy					

<p>4.3 Communication</p>	<p>All information is structured and given only on a “Need to know” basis.</p>	<p>There is a sharing of results and relevant information selected by the top management.</p>	<p>There is an active process of information sharing and consultation with the members of the company on matters of importance and for critical decisions. There is active consultation across departments.</p>	<p>Information is easily accessible to all genuine users of the information and decisions are based on process of consensus building. There is a flow of inter-functional communication.</p>	<p>Information use and dialogue in the organisation lead to a precise understanding of expectations and of role performance where job responsibilities, link responsibilities and total system responsibilities are discharged with high synergy.</p>
<p>Strategy-Policy</p> <p>4.4 System Design</p>	<p>The systems operate in a way that conflicts with the values and goals of the organisation</p>	<p>Systems do not impinge negatively on the organisation processes</p>	<p>Systems are analysed for their impact on the organisation processes and corrective steps are initiated.</p>	<p>Systems are aligned to the organisation processes but do not highlight dysfunctional behaviour</p>	<p>Systems are fully supportive of behaviour that is aligned with the organisation’s goals and values and actively discourage dysfunctional behaviour.</p>
<p>Throughput</p>					

<p>4.5 Small Group Activities</p> <p>Throughput.</p>	<p>There is no desire to start small group activities. Employees who are caught talking are told to “get back to work.”</p>	<p>The company develops an interest in small group activities, creates a schedule for implementation, and kicks off the new system with a pilot project.</p>	<p>A sound system for small group activities is in place. But links to company policy are not clear. SGAs are supported with training, resources, and time for participation. Improvement corners are established in major areas.</p>	<p>Small group activities are active, enthusiastic, and clearly lined to company goals. Employees have access to dedicated equipment installed in improvement corners.</p>	<p>Small groups activities are vital and well integrated with company policy.</p>
<p>4.6 Suggestion systems</p> <p>“Support Services”</p>	<p>Any suggestion system is nothing but a formality</p>	<p>The company develops an interest employee suggestions, creates a schedule for implementation, and kicks off the new system.</p>	<p>The suggestion system is sound. But feedback on employees is slow. Rewards are inappropriate. Links to company policy need clarifying. The suggestion rate is less than 1 suggestion/employee /month. Suggestions are not well-related to strategy.</p>	<p>The system is improved. Feedback occurs weekly or fortnightly. Rewards are appropriate, often cash. Link to policy are clear. The suggestion rate is 2 suggestions/employee/month. Suggestions are generally related to strategy</p>	<p>Employees have authority to test ideas before submission. Feedback is swift. Rewards include gain-sharing. There are more than 5 suggestions/employee/month. Suggestions follow the company’s annual improvement themes.</p>

<p>4.7 Role Stances</p>	<p>A majority of the members of the company take roles of instruments, spectators, sceptics and experience superiors as oppressors.</p>	<p>A majority of the members of the company take roles of competent performers or achievers. They don't experience others as significant players in these achievements.</p>	<p>Interdependence in task performance is recognised and many of the members take roles of team players & captains, people playing support roles feel valued</p>	<p>A large number of the members of the company are committed to the growth of the company, and play roles of facilitators, coach, experimenters and opinion leaders.</p>	<p>A significant number of people in the company across levels of hierarchy play roles of entrepreneurs, explorer, organisation builders, institution builders, leader and the like to nurture and foster the company as a World Class Organisation</p>
<p>"Support Services"</p>					
<p>4.8 Relationship between labour and management</p>	<p>The labour and management are located in self interest only and are anxious to extract maximum benefits for themselves. Interface between labour and management is hostile.</p>	<p>The labour and management limit their interest in the company to a contractual bargain. Interfaces between labour and management is characterised by tolerance</p>	<p>The labour and management experience a mutuality of dependence and see a common interest in the company. Interface between labour and management is characterised by information exchange and active participation.</p>	<p>The labour and management experience a mutuality of opportunity and actively invest in the shared vision of the company. The interface between labour and management is characterised by offering and seeking, Labour and management feel a sense of belonging.</p>	<p>The labour and management see themselves as partners and bring in a passion for the growth of the organisation. The interface between labour and management has the quality of dialogue, discovery and shared excitement.</p>
<p>"Support Services"</p>					

<p>4.9 Utilisation of human potential</p>	<p>Managers own information in the company and do all data collecting and analysis. Much information is lost and information processing capability wasted because managers have a low opinion of employee intelligence.</p>	<p>There is insufficient understanding of the latent potential of people in the organisation. Training begins to uncover this potential.</p>	<p>Every employee is trained to recognise abnormalities and opportunities for improvements, to apply statistics and cause-and-effect logic systematically to solve problems, and to communicate effectively with managers, supervisors, and peers.</p>	<p>Training in problem recognition, problem solving, and communication skills is reinforced and extended. All employees understand the role of information, how to interpret it, when to share it, and how to build it in to production and support processes.</p>	<p>The company is a cybernetic network of highly aware, logical, communicative employees. Organisational learning is continuous. Innovation is an everyday occurrence.</p>
<p>“Support Services”</p>					
<p>4.10 Evaluation</p>	<p>Annual performance evaluations are based on personal opinions of managers and have more to do with managers career plans than with company goals.</p>	<p>Annual performance evaluations have some link to company goals; e.g., MBO. But the focus of evaluation is still individual performance. Teams are not evaluated separately.</p>	<p>Performance evaluations have a sound relation to company policy, with proper attention to teams as well as individual performance. But feedback is of little improvement value because it is given long after the fact.</p>	<p>Performance indicators are built into the workplace, so that employees know from day to day how to evaluate their own performance and the performance of their work groups and teams. Management evaluations are diagnostic, not critical..</p>	<p>Clear understanding of evaluation criteria & membership to the Organisation evokes the alignment of individual mission to the organisation vision.</p>
<p>“Support Services”</p>					

5. Continuous Systematic Development

	1	2	3	4	5
5.1 Policy Analysis Strategy-Policy	<p>There is no self-diagnosis through the collection and analysis of information. Improvement themes are hit-or-miss. Only results are evaluated. There is no process-oriented improvement concept. Analysis is haphazard</p>	<p>Self-diagnosis is begun. Company policy is clarified, but is still abstract, with weak base of targets/means. Data collection (type and quantity) is insufficient. Work on critical problems is weak, with no proper weighing and study of key factors</p>	<p>Critical problems and key factors are studied based on self-diagnosis. Targets and means are set based on cause-and-effect analysis. Integration of company policy and budgeting is planned. Weak PDCA analysis</p>	<p>Cause-and-effect analysis is used throughout the diagnostic and analytical process. Targets and means are set in relation to critical problems. Still budget-control oriented. Relation to profit plan is still weak</p>	<p>A system of effective procedures for planning of the company policy based on self-diagnosis has been fully implemented. Control with emphasis on improvement and breakthrough is normal and well related to budget control. Revisions are timely.</p>
5.2 Development Process Throughput	<p>The firm practices "over-the-wall" product design. Design is the responsibility of engineers and design specialists who work through the steps of the design process sequentially. Time to market is well below the industry average.</p>	<p>The firm initiates concurrent engineering by practising quality function deployment for one or more new products. Time to market is still longer than average. The company begins to listen for the voice of the customer.</p>	<p>The firm routinely employs concurrent engineering for all products and expands its product development tool kit to include FMEA. Time to market is on par with the industry. The company hears the voice of the customer.</p>	<p>The firm expands its product development tool kit to include design for manufacture and Taguchi design of experiments. The voice of the customer is well integrated into new designs. Time to market is shorter than average.</p>	<p>The firm demonstrates sustained industry leadership in being first to market innovative quality products. The voice of the customer is fully integrated into new product designs.</p>

5.3 Standardisation	Operating procedures are generally left to each operator. There is no way to tell if a job has been done the same way twice. It is impossible to rely on shop floor data. Statistics are at best useless and at worst misleading.	Operating procedures are vaguely standardised in roughly the same order. Standards are set for major processes, but are not made effective by employing visual controls. Rough benchmarks can be set. Data quality is improving	Standard procedures are written for all processes and most operations, but still are not clear to workers in the office and on the line. There is a sound system for updating standards, but again it is not effectively implemented. Data are more reliable.	Standards are visually clear and changes in standards can be communicated in a timely and effective way. Standards are being updated based on worker input, but mainly based on input from managers and engineers. Data can be trusted.	There is continuous updating of standards based upon innovations of workers as well as upon input from managers and engineering. Data is reliable and directly supports continuous improvement.
Throughput					
5.4 Waste Elimination	There is no differentiation between value-adding and non-value-adding operations. Improvements are not systematic and generally are responses to the bottleneck of the moment.	The systematic improvement of each process begins, based upon the elimination of non-value-adding wastes: transportation, motion, overproduction, inventory, defects and scrap, inspection, information, and creativity	All employees have been trained in problem-solving and one or more improvement techniques, e.g., SPC, industrial engineering, equipment improvement, etc. Improvements are made in all major processes. Inventory levels are down, work content up.	Each employee has become a “mini-quality scientist,” a “mini industrial engineer, and a “mini trades person.” Company wide improvements are made based on the annual policy	ZERO waste stage is the norm in all processes. VA Ratio is at world class Norms.
Throughput					

<p>5.5 On-The-job Training</p> <p>“Support Services”</p>	<p>Only managers and new employees receive training</p>	<p>Training is carried out mainly by workers themselves-“man to man” and on teams. Skill training begins within groups. But most training funds are still spent on managers.</p>	<p>Training is carried out mainly by workers themselves-“man to man” and on teams. The firm allocates training funds to train the total work force, not just managers.</p>	<p>A specialist training system is introduced, using in-house expertise as well as external schools, trainers, and consultants. The firm trains intensively</p>	<p>Employees themselves carry out R&D of new methods and technology in-house</p>
<p>5.6 Specialist Education</p> <p>“Support Services”</p>	<p>Only managers and new employees receive training</p>	<p>Training is carried out mainly by workers themselves-“man to man” and on teams. Skill training begins within groups. But most training funds are still spent on managers.</p>	<p>Training is carried out mainly by workers themselves-“man to man” and on teams. Complete cross-training is carried out within work groups. The firm allocates training funds to train the total work force,</p>	<p>A specialist training system is introduced, using in-house expertise as well as external schools, trainers, and consultants. Cross-training between job groups is done. The firm trains intensively.</p>	<p>Employees themselves carry out R&D of new methods and technology in-house</p>
<p>5.7 In-house training capability</p> <p>“Support Services”</p>	<p>No strategy for continuous learning and skills upgradation through in-house training.</p>	<p>Awareness of the need for continuous in-house training and sending people for external training aimed at developing expertise.</p>	<p>In-house training capability limited to a few key areas.</p>	<p>Planned training programs run by internal trainers. Investment in training trainers in World Class techniques.</p>	<p>Continuous upgradation of knowledge, skills and attitude . Bench marked against world class by internal trainers.</p>

<p>5.8 Technology Transfer.</p> <p>“Support Services”</p>	<p>Technology transfer happens because engineers tell people what to do. Some ideas are disseminated by word of mouth. What workers know and practice is not considered part of site technology.</p>	<p>Managers understand that methods are technology. Method transfer is done through general examples of improvements in model lines and “wall newspapers.” Transfer is still sporadic. Retention of new methods is not good.</p>	<p>Special training is conducted using high level texts and video tapes. Transfer is more systematic, but understanding and retention of new methods is improving.</p>	<p>A system for high speed training based on adult learning techniques and training on workers own equipment is established. One-point lessons are used on the jobs. Retention is good.</p>	<p>The company has a refined system for continuous training and retraining of office staff and machine operators in best practice.</p>
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