Chapter 5
EVALUATION OF EMPLOYEE’S WORTH INDEX (EWI) AND ORGANIZATIONAL PERFORMANCE ENHANCEMENT.

Chapter Objectives:
It emphasize on the greater need to pay attention to quantification of attributes of the employees through a mathematical modeling and expression of the employee’s worth expressed by a numerical index. It aims at introducing the element of objectivity and eliminate subjectivity in determining employee’s worth.

5.1 Introduction:
Firms become prosperous by utilizing the intelligent and valuable human resource of the organization. They develop the concept and implement the principles of knowledge management and knowledge based economy. Since the inception of the organizational system, efforts are always on to measure the human dimensions of employee’s worth and organizational performance. Saad and Siha (2000), also emphasize on the greater need to pay attention to intangible factors as compared to the tangibles. There is enough research evidence that proves that business performance is more influenced by softer elements of TQM, Gotzamani and Tsiotras (2001). In the “Loyalty Effect”, Frederick Reichheld points out “that companies know what their employees cost but not what they are worth”, (Reichheld, 1996). Economists have always rated employee’s worth in terms of whatever compensation they are paid in exchange of their work or worth as assessed by the organization. In order to assess the true worth of an employee, one must see the market place. The concept of evaluating “employee’s worth” is somewhat analogous to “measuring customer satisfaction”. Being an intangible, it is extremely difficult to quantify or measure it. An organization looking for providing customer satisfaction can do so, only if it recognizes employee’s worth and appoints the employees with certain core values. Most of the organizations often say that, “people are our greatest assets”. But it remains only to say so. Most still believe, though perhaps not consciously, what nineteenth century employers believed: “people need us more than we need them”.

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Drucker (1995). Judging the worth of the employees by productivity measurement or measure of “Return on Investment” (ROI) are not enough, as these are influenced by systems, technology, procedures and other factors beyond employee’s control. For a business house, customer satisfaction is important but not sufficient and can be achieved only by healthy organizational culture and environment. It is necessary that in a broader perspective of TQM, management must think about recognizing employees’ worth. In doing so, first objective will be easy to achieve. Measures are needed to go beyond employee’s tasks and assignments and to know their feelings. Only then the employees can develop the feeling of organizational citizenship. To sustain an organization in the competitive environment, the development of the employees and so of their worth must adopt bullion trends. Continuous efforts must be extended / directed to enhance employee’s worth. It is only with the support and cooperation of the competent and committed employees and an open-minded management that TQM philosophy can be adopted. In this work use of graph theory has been made in the determination / evaluation of “Employee worth Index” (EWI). A graph theoretic model is a logical system approach and it helps to understand and analyze the system and the related sub-systems up to the core level. For determination of employee worth index, core values of employees which are important for the organization have been identified and quantified (five in this case) on some suitable scale used by Grover et.al (2006) and expressed in matrix form. Digraphs have been drawn showing the inter-dependencies / interaction between the core values. Digraph models are well established system approach and have found numerous applications of science and technology Gandhi and Agrawal (1992), Venkataswamy and Agrawal (1997). When the number of nodes increase the digraph becomes complicated and analysis becomes difficult. This problem is overcome by matrix representation. The succeeding matter discusses first about different identified core values and then applies graph theoretic approach for evaluating single numerical index for determination of the worth of an employee. This particular matrix has been called as “Sahai-Grover Core Value Matrix (SGCVM), and index so calculated is, “Sahai-Grover Employee Worth Index” (SGEWI). The core values act as additives to employee’s worth.

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5.2 Additives of employees’ worth or core values:
The employees can add worth for themselves by doing something more than their routine work. High profile employees as well as employers must have certain core values.
The core values can be:

(1) Self-efficacy
(2) Competence
(3) Commitment.
(4) Cohesiveness
(5) Creativity.

These are the additives of employees’ worth and act as drivers of employee’s worth and so of the performance of the organization. These are diagrammatically represented as shown in Figure 5.1 and discussed as under

![Additives to employees' core values](image)

**Figure: 5.1 Additives to employees' core values.**

5.2.1 Self Efficacy: It refers to the people’s judgment about their capabilities to mobilize the motivation, cognitive resources and courses of action needed to meet the given situational demands Bandura (1986). It is one’s belief about one’s capability to perform the assigned tasks. There is enough evidence regarding the importance of self-efficacy for performance. Self-efficacy based interventions are associated with performance improvement. Gist and Mitchell (1992) identified this as key motivational force within the organization. It forms a core component of Locke and Latham’s (2004) model of work motivation. Self efficacy has been identified as a core component of several higher-order motivational concepts including empowerment Spreitzer (1996), core confidence
Stajkovic (2006) and positive psychological capital Luthan, Avolio, Avey & Norman, (2007). Those who feel that they do not have the requisite skills are most likely not to demonstrate their efforts on a task because the chances of success perceived by them are quite low. Several researches have shown that there exists a very positive relationship between one’s self efficacy and performance. Self-efficacy is now being recognized as an important determinant of employee engagement Christian & Slaughter (2007).

5.2.2 Competence: It is the spirit that tirelessly applies innovativeness in all the work. It is constituted of:

- Creativity.
- Decisiveness.
- Initiative for growth.
- Leadership in small groups.

Figure 5.2 represents how these factors contribute to the development of competence among the employees.

![Figure: 5.2 Employees’ Competence](image)

It ensures for them that what they are performing is the way of doing the work. A good management always encourages the employees to test the rules. Management has to be open minded for accepting the fact that the newer methods can be better and must be accepted gracefully for implementation of improvised methods. Management must not be afraid of the calculated risks of failures. The fig.5.3 represents the algorithm for competence development for a process. The competence of plan or process is directly linked to the competence of the people involved in the process. So it is representative of the competence development of people. A carefully developed plan is executed and any
deviation that occurs is noted and is called 'error'. Correction is applied and re-checking is done.

Figure: 5.3 Framework for Competence Development

If results are positive the process is continued otherwise planning is revised and implemented and checked if results are obtained or not. If positive results are obtained the process is continued otherwise, process is repeated till the appropriate results are obtained. Thereafter, the process is standardized and research for better is continued, as a dynamic process.

5.2.3. Commitment: Employee’s commitment to an organization is a two-way process and is a better way of measurement of human behaviour in organizations than other related measures including job satisfaction and job involvement. One must go the extra
mile to maintain it. Employees’ commitment leads to corporate excellence. Studies show that in both public and private sectors and in all industrial organizations commitment of employees is more driven by intrinsic motivation factors than by extrinsic motivation factors Khalid et.al (2008). The study of the relevant literature and research during the last decade reveals that levels of ‘intrinsic’ and ‘extrinsic’ motivation positively affect the perceived organizational commitment Crewson (1997), Steers & porter (1983). Committed employee is better than the one who promises but never delivers it, because there is a huge difference between promise and commitment. Promise is a statement of intent whereas commitment is a promise to be kept no matter what? Commitment, empowerment and trust go hand in hand, and this takes organization towards excellence. It is corporate leadership that attracts, motivates and retains the committed people for future business objectives. According to Watson Wyatt survey, ‘Work USA2000’ it was revealed that there were seven key factors which made an impact on employee’s commitment levels. ‘Trust and Skill’ occupy the top slot.

5.2.4 Cohesiveness: Organizational scholars and practitioners have devoted a great deal of attention to understand how to foster an environment where all the employees feel valued and can work well with each other particularly in the settings that are demographically diverse Bacharach, Basmberger & Valshidi D (2005), Robertson (2006). Research on inter-group contacts reveal that increased contact between the people from different demographic categories will improve inter-group relations Brewer & Miller (1988), Pettgrew & Tropp (2006). Indeed several theories suggest that an increased disclosure of personal information will lead to higher quality of inter-personal relationship in general, Cozby(1972), Collins & Miller (1994) and also more specifically in organizational work groups. Polzer, Milton & Swann (2002). Sharing of personal information may not be coherent in the workgroups that are demographically diverse, Phillips, Northcraft & Neale (2006). The importance of organization as a social system may be more applicable now as the nature of today’s knowledge work require greater collaboration among the employees, given that the workers are often organized in groups or project teams, Chatman & Spatara,2005 Hurlbert (1991). Supportive co-workers relations are considered to be important aspect of worker’s dignity Hodson & Rosigno

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and more positively related to employee’s pride in their work and the sense that their work is meaningful Hodson (2004) and Hodson (1996). Employees in a more cohesive group have lower absenteeism and turnover rates Inverson & Roy (2004), Sanders & Nauta (2004). The management must try to create an environment where employees of all categories and life circumstances can feel welcome and work well with each other Bachrach et.al (2005) and Robertson (2006).

Organizational initiative, like on the site childcare or gym facilities and employees counseling are some of the aspects of employees’ non-work life into the organization. These policies aim to enhance the employees’ abilities to engage fully at workplace by reducing employees’ needs to go elsewhere to handle personal non-work related matters Falkenberg (1987), Kirchmeyer (1995) & Osterman (1995). Further initiatives can be weekend retreats, company sports team and social outings aim to help employees form closer ties to both, their co-workers and organization Fiklestein, Protolipiac & Kulas (2000), Hurlbert (1991).

Thus it is felt that some efforts must be made by the management to create an environment and culture where the employees develop a feeling of ownership towards the organization. Taking care of the employees like parents, helps to foster the kind of culture that is conducive to both, the employees as well as employers. The indulgence of the management to blur the boundaries of work and non-work goes a long way in nurturing the relationships between the employers and employees. This helps in employee retention and employee poaching by the competing organization is also greatly diminished.

It is also felt further, that intangible returns on investments will be much higher than the tangible investments in this regard. Further there is difference of opinion expressed by Phillips, Northcraft and Neal (2006) that “sharing of personal information may not enhance cohesion in the work groups that are demographically diverse”. It is felt that sharing always brings people closer. If the management adopts parent like attitude and feelings for the employees, organization will always tend to earn all kinds of capital gains.

5.2.5 Creativity: Creativity is no more having the status of buzzword, but is being recognized as critical factor for organizational success and may be defined as process by which new ideas that make innovation possible are developed. Fostering creativity and so
innovation is definitely a tedious task. An organization has to have many virtues to encourage innovation. Creativity has direct links to the core competencies and leadership of an organization. The firm must have discipline in its place to enable the organization to be capable. This brings home continuous improvement as one of the objectives of the organization. The ability to think and look beyond what is happening in the organization adds value thus making the organization more competitive. Being competitive is not only desirable but essential. Creativity is the result of listening to and promoting of newer ideas by acting upon them if they are in organization’s interest. There are several factors supporting creativity which are e.g., Information technology & Organizational Change, Leadership, Employee Empowerment, and, Financial support. Of the several promoters of creativity as shown in figure 5.4, the effects of four are discussed.

![Figure: 5.4 Promoters of Creativity](image)

Information technology can act as boon to the creation of the newer ideas and their implementation. *The Economist*, John Browning (1990) wrote: "Information technology is no longer a business resource; it is the business environment." It is useful for the stakeholder as well as it helps in retaining and attracting the employees. Law of requisite variety Ashby (1956) implies that the rate of change of organizational systems must correspond to the rate of change of environmental systems. Being the first to market a newer product gives an organization the first mover advantage. This becomes string focus
in hiring skilled and competent people for the organization. Creativity should become virtue of the organization.

Leadership is persuasion, not domination. The persons who require others to do their bidding because of their power are not leaders. Leadership only occurs when others willingly adopt, for a period of time, the goals of a group as their own. Thus, leadership concerns building cohesive and goal-oriented teams and there is a causal and definitional link between leadership and team performance. The primary purpose of a leader here is to present a positive model of integrity that provides powerful access to increased performance for individuals, groups, organizations, and even societies. High performance leaders empower others to venture into unknown territories, inspiring colleagues to make difficult decisions and are able to move their organizations forward in new ways.

Charismatic leaders can be quite effective relative to non charismatic leaders. They have substantially higher:

(a) Promotion recommendations or performance appraisal ratings from superiors;
(b) Satisfaction, morale, or approval ratings from subordinates;
(c) Historians’ ratings of greatness; or

The 1990s have been called the “Empowerment era,” The most comprehensive, long-term study of empowerment-oriented practices Lawler, Mohrman, & Benson (2001) have empirically demonstrated the positive growth of empowerment practices in the last 15 years. Today, more than 70 percent of organizations surveyed have adopted some kind of empowerment initiative for some portion of their workforce. Why not then for an organization to practice and foster employee empowerment, the management must trust and communicate with employees. Employee communication is one of the strongest signs of employee empowerment. In an honest and repeated communication from elements of the strategic plan, key performance indicators, financial performance, down to daily decision making, employee can demonstrate empowerment by suggesting areas or processes.
It is important as to how an organization provides its financial support to achieve short, medium and long-term strategic goals. Through a process intended to improve its performance, it requires focus on four essential objectives:

- It has to control cost without sacrificing future growth objectives.
- Organizations are expected to do more with less to improve shareholder and stakeholder value.
- Given the nature of current incentives (meeting quarterly or annual targets), there is a risk that you may meet short-term targets at the expense of strategic growth initiatives.
- It has to understand what drives cost and profit (or value). Fewer than 50 percent of executives are happy with their understanding of what drives cost and profit/value.

Without this understanding, managers are unlikely to allocate resources appropriately and may not know where to focus attention for improvement. At best, it may mean the organization is generating suboptimal results; at worst, it could mean, it is destroying value without realizing it – until it's too late to recover. Change is happening faster than ever and information is doubling faster than ever. Organizations that can identify opportunities and threats more easily than their competitors, understand the implications, update strategy quickly and then execute that strategy consistently across the organization will be the winners. However, only a very few of the CEOs and CFOs are happy with their organizations' agility. The most significant obstacles to improving performance are accountability, culture toward measurement and transparency. An organization has to identify and respond to environmental, social and economic risks, and opportunities. Quite a number of global executives regard global climate change as strategically important for product development, investment planning and brand management. A large majority expects some form of climate change regulation in their organization's home country within five years. A focus on the "triple bottom line" of people, profit and planet drives increases brand value through innovation, improves internal efficiencies and accountability, and engenders the loyalty of consumers, employees and other stakeholders.
5.3 Graph theoretic approach to Evaluation of Sahai-Grover Employees, Worth Index (SGEWI) A graph theoretic model helps to understand and analyze the system and the related sub-systems up to the core level. The systematic and logical approach utilizes properly documented applications of graph theory Narsingh (2000), Robinson and foulds (1980). Graph theoretic approach is a systematic methodology consisting of ‘Digraph representation’, ‘Matrix representation’ and ‘Permanent function’ that leads to single Numerical index.

A digraph consists of nodes and edges and it depicts connectivity between different parameters. The digraph is useful in visualizing the relationships and interactions, but does not fulfill the purpose of mathematical analysis and computer processing. Matrix representation shows the connectivity in matrix form and the elements thereof represent the numerical values assigned to the parameters for their inheritances and interdependencies. The nodes (Ci’s) represent the core values identified and edges (Cij’s) represent the interaction among the core values. It is useful for computer processing. A permanent multinomial function characterizes the system uniquely and permanent value of a multinomial represents the system by a single numerical index which is useful for comparison and ranking or grading.

5.3.1 Connectivity between the additives of Core Values: The figs 5.5(a) to 5.5(f) show the connectivity between the different core values. A person with a high level of self-efficacy is able to do a task, handle an obstacle or a challenging situation with confidence. The lack of it blocks personal growth and affects self-esteem. Figure 5.5 (a) represents the relationship between Self efficacy and Commitment.

![Self efficacy](#) ![Commitment](#)

**Figure.5.5 (a): Self efficacy leads to Commitment**

People who produce their desired results believe that they are capable to execute the actions required and find the resources to create ideas and manage situations. Such a subject has enough / adequate capabilities to mobilize the motivation, cognitive resources
and courses of action needed to meet the given situational demands. Then he / she becomes more committed to the task to realize the objectives and establish the correctness of his / her convictions. Commitment therefore depends upon self-efficacy. Organizational commitment is positively related with age, length of service in present cadre and is dependent on self-efficacy and negatively with psychological barriers to technological change. Psychological barriers to technological change are positively related with age, length of service in present cadre and negatively with self-efficacy.

Fig 5.5(b) refers to the relationship between commitment and competence. A person who is committed will always acquire competence.

![Diagram: Commitment to Competence](image)

**Figure 5.5 (b): Competence comes from Commitment**

Competence is a necessary stage to the development of the level of creativity that should characterize highly skilled social work practice.

![Diagram: Creativity and Competence](image)

**Figure 5.5(c): Creativity and competence are interdependent on each other**

Competence comes automatically as an outcome of commitment and creativity, therefore competence depends on commitment and creativity and creativity depends upon competence. Figure 5.5(d) represents the relationship between Commitment and Cohesiveness.

![Diagram: Commitment to Cohesiveness](image)

**Figure 5.5 (d). Commitment and Cohesiveness are interdependent on each other**

Commitment and cohesiveness are interdependent on each other. Cohesiveness will give rise to creativity and so creativity depends upon group’s cohesiveness or teamwork like attitude of the group.
Due to cohesiveness comes the competence. Figure 5.5(f) shows the relationship between cohesiveness and competence.

Two characteristics, competency and commitment have been the key success factors in a competitive business environment. In order to achieve its goals and high performance quality, management cannot solely focus on the managerial competency, but they must also pay more attention on managerial commitment, particularly the employee empowerment. Achieving of goals are the more immediate determinants of performance, mediating the effects of attributes 'Self efficacy', 'Competence', 'Commitment', 'Cohesiveness' and 'Creativity' on performance of an organization.

The core values can be:

1) Self-efficacy (C₁)
2) Competence (C₂)
3) Commitment (C₃)
4) Cohesiveness (C₄)
5) Creativity (C₅)

Figure: 5.6 Digraph model of Core values
Figure 5.6 represents the integrated digraph of the core values already identified viz. Self Efficacy, Competence, Commitment, Cohesiveness, and Creativity. In the digraph $C_{ij}$ is represented as a directed edge from node $i$ to node $j$.

5.3.2 Matrix representation:

Matrix representation helps to avoid the complexities of the digraph and makes visual analysis easier and convenient for computer processing Grover et.al, (2004). For evaluation of “Employee Worth Index” (EWI) on the basis of a few attributes / core values (five selected in this case), “graph-theoretic approach” has been used along with the “Matrix representation” of the selected attributes on suitable scales. The scale in table 5.1 represents the ‘Interdependencies’ of attributes on each other and that in table 5.2 ‘Inheritances’.

Table 5.1 Quantification of Interdependencies /off diagonal elements.

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Quantitative Measure of Interdependencies / Off diagonal elements</th>
<th>$C_{ij}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Very Strong</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Strong</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Medium / Moderate</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Weak</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Very Weak</td>
<td>1</td>
</tr>
</tbody>
</table>
Table 5.2 Quantification of Inheritances: diagonal elements

<table>
<thead>
<tr>
<th>S.NO</th>
<th>Qualitative Measure of Core Values</th>
<th>Assigned Value of Core Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Exceptionally /Extremely Low</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Very Low</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Low</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Below Average</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Average</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>Above Average / Good</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>High</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Very High</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>Exceptionally High</td>
<td>9</td>
</tr>
</tbody>
</table>

The matrix developed on the basis of values assigned to each attribute represented on a suitable scale has been shown in eqn (5.1). The suitable scales selected in this reference are for numerification of the attributes. Grover et.al, (2006) have also used the same scales.

Thus, the attributes are interacting with each other and it becomes necessary to consider these interactions along with their inheritances for the net effect of the attributes. Although the digraph shows interdependencies with directed edges, the extent to which one factor is dependent on another is not the same for all. The graphical representation of factors given through the digraph is suitable for visual analysis. But it becomes complex when a number of nodes in a given case (i.e. the factors) increase. Moreover, it is not suitable for computer processing. For this reason, the digraph is represented in matrix form.

5.3.2.1 Matrix representation of Core values of the Employees:

It is proposed to represent the Employee core Value digraph in matrix form to avoid the complexity of a digraph in case more factors are incorporated, and the ease with which matrix representation can be stored, retrieved and processed by computer.
The Core Value matrix is an \( N \times N \) matrix, which considers all the factors (Ci’s) and their relative interdependencies (Cij’s). It presents a one-to-one representation of the digraph. As a general case, if interaction among all five factors (i, j, k, l, m) is considered, the core value 5*5 matrix is written as:

\[
C_{ij} = \begin{pmatrix}
C_1 & C_{12} & C_{13} & C_{14} & C_{15} \\
C_{21} & C_2 & C_{23} & C_{24} & C_{25} \\
C_{31} & C_{32} & C_3 & C_{34} & C_{35} \\
C_{41} & C_{42} & C_{43} & C_4 & C_{45} \\
C_{51} & C_{52} & C_{53} & C_{54} & C_5
\end{pmatrix}
\]

For five attributes / core values selected in this case the matrix can be written as under as in eqn. (5.2) for the evaluation of “Employee-worth Index” by finding permanent function \( C^* \) of the matrix. This index has been designated as “Sahai-Grover Employee worth Index” (SGEWI) and the matrix has been named as “Sahai-Grover Core Value Matrix.” (SGCVM). For the five factors considered in this case, \( C_1, C_2, C_3, C_4 & C_5 \) the Sahai-Grover Core Value Matrix is represented by eqn. (5.2)

\[
C^* = \begin{pmatrix}
C_1 & C_{12} & C_{13} & C_{14} & C_{15} \\
C_{21} & C_2 & C_{23} & C_{24} & C_{25} \\
C_{31} & C_{32} & C_3 & C_{34} & C_{35} \\
C_{41} & C_{42} & C_{43} & C_4 & C_{45} \\
C_{51} & C_{52} & C_{53} & C_{54} & C_5
\end{pmatrix}
\]
The diagonal elements in the above matrix refer to the inheritance of factors (five selected in this case) and off-diagonal elements refer to interaction among factors. The row represents inheritance of a factor and its influence on other factors. Similarly, the column represents the inheritance of factor and its dependency on other factors. For core values the digraph is shown in Figure 5.6. Some off-diagonal elements in the matrix (5.5) are zero since there is no directed edge among them in the digraph.

5.3.2.2 Permanent function of Employee’s Worth: To have the net effect of Employee’s worth; it is proposed to find the permanent function of matrix C. The permanent function of matrix \( C_1 \) is a multinomial and a standard matrix function, which has been used and defined in combinatorial mathematics Jurkat and Ryser (1966). This is evaluated by standard procedures and is the same as the determinant of the matrix but with all signs positive. It leads to a better appreciation of the attributes, since no information is lost unlike in the determinant (due to negative sign). It contains \( N! \) terms, where \( N \) is number of factors (here \( N = 5 \)). Moreover, the terms in permanent function are arranged in a systematic way in \((N + 1)\) grouping. The first group contains only one term and represents the presence of core values \( i.e., C_1, C_2, C_3, C_4 \& C_5 \). The second grouping is absent since there are no self-loops \( i.e., \) this grouping will occur in expression only if a factor is connected to itself. The third grouping contains set of two core value factor interdependence and remaining \( N-2 \) \( (i.e., 2 \text{ here}) \) factors. Each term of fourth grouping represents a set of three core value factor interdependence and the remaining \( N-3 \) \( (i.e., 1 \text{ here}) \) factors. The fifth grouping contains terms arranged in a two-sub grouping. The first sub grouping contains a set of two core value factor, the interdependence and measure of remaining \( N-4 \) factors. The second sub grouping is set four core value factor interdependence or its pair and measure of remaining \( N-4 \) human resource factors. Thus the permanent function of core value matrix \( i.e., \) expression (5.4) is a true representation of measure of Employee’s worth in an organization. The combinations in the per \( (C^{'}) \) expression are represented in graphical form in Figure 5.

5.3.2.3 Variable Permanent Function / Matrix representation of Employee’s worth Index.

\[
VPM—SGEWI = \quad = C^{'} \text{ (say)}.
\]
The VPF – SGEWI - the expression corresponds to five factor digraph/ VPM – SGEWI and is given by

$$\text{VPF} - \text{SGEWI} = \text{per} \ C^* 5$$

$$= \prod C_1 + \Sigma \Sigma \Sigma \Sigma (C_{12} C_{21}) C_3 C_4 C_5$$

$$+ \Sigma \Sigma \Sigma \Sigma (C_{12} C_{23} C_{31} + C_{13} C_{32} C_{31}) C_4 C_5$$

$$+ (\Sigma \Sigma \Sigma \Sigma (C_{12} C_{23}) (C_{34} C_{43}) C_5 +\Sigma \Sigma \Sigma \Sigma ((C_{12} C_{23} C_{34} C_{41}) + (C_{14} C_{42} C_{32} C_{21})) C_5)$$

$$+\Sigma \Sigma \Sigma \Sigma (C_{12} C_{21} (C_{34} C_{45} C_{53} + C_{35} C_{54} C_{43}) +\Sigma \Sigma \Sigma \Sigma (C_{12} C_{23} C_{34} C_{45} C_{51} + C_{15} C_{54} C_{13}$$

$$+ C_{32} C_{21})) = C^* \quad \text{------------------------- (5.3)}$$

5.3.2.4 Quantification of Interdependencies and inheritances: (Please refer to tables 5.1 and 5.2). The core values in this case have been assigned numerical values to create a matrix represented by equation (5.5). The values can be assigned by a team or an expert opinion. For demo the values selected here are arbitrarily chosen.

This matrix has been named as “Sahai-Grover Core Value Matrix” (SGCVM) and its’ value as permanent function can be expressed in the multiples of thousand and it has been named as “Sahai-Grover Employee worth Index” (SGEWI).

$$C^* = \begin{pmatrix}
C_1 & C_{12} & C_{13} & C_{14} & C_{15} \\
C_{21} & C_2 & C_{23} & C_{24} & C_{25} \\
C_{31} & C_{32} & C_3 & C_{34} & C_{35} \\
C_{41} & C_{42} & C_{43} & C_4 & C_{45} \\
C_{51} & C_{52} & C_{53} & C_{54} & C_5
\end{pmatrix}$$

$$\text{Vertex}$$

$$1 \quad 2 \quad 3 \quad 4 \quad 5$$

$$\text{Permanent matrix can also be written as} \ \text{Per}(C^*) = C_1C_2 \ C_3 C_4 C_5.$$

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The values of interactions and inheritances are to be determined by the experts. For the demonstration of the methodology some values are taken from table 5.1 and table 5.2 as for example:

\[
\begin{array}{ccccc}
1 & 2 & 3 & 4 & 5 \\
7 & 0 & 3 & 0 & 0 \\
0 & 8 & 0 & 0 & 3 \\
0 & 2 & 7 & 3 & 0 \\
0 & 2 & 3 & 6 & 2 \\
0 & 3 & 0 & 0 & 6 \\
\end{array}
\]

\[\text{SGEWI} = \begin{array}{ccccc}
1 & 2 & 3 & 4 & 5 \\
7 & 0 & 3 & 0 & 0 \\
0 & 8 & 0 & 0 & 3 \\
0 & 2 & 7 & 3 & 0 \\
0 & 2 & 3 & 6 & 2 \\
0 & 3 & 0 & 0 & 6 \\
\end{array} \quad \begin{array}{c}
\text{Vertex} \\
1 \\
2 \\
3 \\
4 \\
5 \\
\end{array} \quad \text{---------- (5.5)}
\]

On solving the above matrix using software, the answer is 20349. This has been designated as “Sahai-Grover Employee worth Index” (SGEWI).

The (SGEWI) can also be expressed in the multiples of thousand. Higher is the value of index higher is the employee’s worth.

5.4 Concluding Remarks: After a careful study and analysis, it has been concluded that for assessing the true worth of an employee:

(A). Thinking in terms of productivity measures to assess the worth of employees may not be appropriate. Judging the worth of the employees by productivity measurement or measure of “Return on Investment” are not enough, as these are influenced by:

(a) Systems
(b) Technology
(c) Procedures
(d) Other factors beyond employee’s control.

For employees to become ‘Value added employees’ they must add to them some core values e.g.; Self efficacy, Competence, Commitment, Cohesiveness, Creativity etc which have been selected in reference to this study.

(B) A digraph has been developed, indicating the interrelationship between the various intangible attributes (Self-efficacy, Competence, Commitment, Cohesiveness and
Creativity). In order to avoid the complexities of digraph, Sahai-Grover Core Value Matrix (SGCVM) has been developed.

- A method has been developed utilizing graph theoretic approach and numerical index has been found. The index has been named as ‘Sahai-Grover Employee Worth Index’, (SGEWI) and is obtained by solving (SGCVM), for quantifying the employee’s worth. Higher the values of SGEWI, higher will be the worth of the employee. It is possible only through good employees to upgrade organizational performance.

- SGEWI is the worth of employee in terms of a single numerical index calculated by taking into considerations, essentially desirable qualities on some point scale (used by several researchers: ref. table 2.1. p.28) for performing a particular task. This Index has been expressed in the multiples of thousands. This technique will help in fixing the salaries / compensations of the employees in a more rational way and selecting the employees only having the virtues required for the job. This will act as a satisfier of both the employer as well as employees.

Further, it is concluded that:

- For attaining higher efficiency levels, some efforts must be made by the management to create an environment and culture where the employees develop a feeling of ownership towards the organization.

- Organizations must constantly try to add value to the employee by training and cultural transformations.

- Taking care of the employees by sharing their problems like parents helps to foster the kind of culture that is conducive to both, the employees as well as employers.

- The indulgence of the management to blur the boundaries of work and non-work goes a long way in nurturing the relationships between the employers and employees.

- This helps in employee retention and employee poaching by the competing organization is also greatly diminished.

- Intangible Returns on Investments will be much higher than the tangible investments in this regard which ultimately lead to indirect financial gains.