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Intellectual Capital: A Case Study of Power Loom using AHP

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Abstract
The purpose of this paper is to identify the critical success factors of IC influencing the performance of power loom textiles, to evaluate their impact on the organizational performance and to find out the effect of these factors on the organizational performance of small and medium-sized enterprises (SMEs) in Maharashtra using AHP. The methodology adopted is factors are identified through the literature survey and finalization of these factors is done by taking the opinion of Experts in the Indian context. By cognitive map the relation between these factors is determined and cause and effect diagram is prepared. Then these factors are arranged hierarchically and tree diagram is prepared. A questionnaire was designed and distributed among the experts; data is collected. By using Expert choice software data is filled to quantify by pair wise comparison of these factors and are prioritized. The weights demonstrate several key findings: local and global priority reveals there is a substantial effect of the Human capital on the organizational performance. The work related experience contributes 34.21%, which has a greater impact on performance. Operational procedures or practices contribute 52% in order to improve the operational performance and hence organizational performance. Overall, the results showed the central role of the human capital is important. The research is subject to the normal limitations of AHP. The study is using perceptual data provided by Experts which may not provide clear measures of impact factors. However, this can be overcome using more experts to collect data in future studies. Interestingly, the findings here may be generalisable outside Maharashtra, India. AHP as an innovative tool for quantification of IC factors impacting on performance and improving operational and organizational performance in today's dynamic manufacturing environment. The finding suggests the notion that these critical success factors (CSFs) are to be studied carefully and improvement strategy should be developed. Moreover, the study emphasizes the need to link priority of factors to organizational performance and improvement. The study integrates the CSFs of performance and its quantification by using AHP and its effect on performance of power loom textiles. Very few studies have been performed to investigate and understand this issue. Therefore, the research can make a useful contribution.
Keywords: Intellectual capital, RBV, Power looms, Performance, AHP, Maharashtra

1.Introduction

The decentralized power loom sector is the lifeline of Indian textile industry. India is having approximately 19.42 lakhs of power looms weaving almost 19,000 million meters of fabric, and provides employment to more than 7 million workers as stated in the report of Textile Ministry, India (2012). The industry produces wide range of fabrics ranging from grey, printed fabric, dyed fabric, cotton fabric, various mix of cotton, synthetic, and other fibers. The country exports Rs. 44,000 million worth of goods to countries like U.S.A., France, Germany, Bangladesh, Hong Kong, Italy etc. The past two decades have witnessed the opening up of various sectors of the Indian economy. Under the changed international trade scenario sans quota restrictions on export, the firms in power loom sector are expected to expand their international market competitiveness. As a result, there is a concern on competitiveness and sustainability of these firms. In this context, these firms must enhance their competitiveness at the global level through a mix of productivity enhancing and cost minimizing activities (Zala, 2010).

Most of the Power loom units are concentrated in semi urban, or rural area. Among all; Maharashtra has highest number of power looms, Tamilnadu is at second number and Gujarat ranks the third position. The power loom sector in India operates in what is known as "Small and Medium Enterprises" (SMEs). Economic survey of Government of India (2012-2013) states that, these power looms have flourished prominently at various centers in Maharashtra such as Ichalkaranji, Solapur, Bhiwandi and Malegaon. India's textile and clothing industry contributes 4% percent to Gross Domestic Product, 14 percent in industrial production, 18% of total industrial employment. The power loom sector is weighed down by several problems such as obsolete technology, unorganized production systems, low productivity, weak marketing links, overall stagnation in demand and competition.

Bheda (2002) has stated that when the factors associated with productivity are reviewed; it becomes clear that most of the factors are of techno-managerial nature. The manufacturer can improve productivity performance substantially by implementing best practices in the area of operator and management training, industrial engineering, production planning and control, industrial relations and productivity related incentives. He further states that there are hundred percent chances for productivity performance improvement for average textile industry in India. The paper proposes a systematic work on identification of factors and its effect, quantification of these factors by using AHP in the textile domain.

2.Literature Review

Tangible assets include production facilities, raw materials, financial resources, real estate, and computers among others. Intangible assets (such as brand names and company reputation) cannot be seen or touched. However, they are very often critical in creating competitive advantage. Organizational capabilities are not specific "inputs" like tangible or intangible assets; rather, they are the skills—the ability and ways of combining assets, people, and processes—that a company uses to transform inputs into outputs.

The RBV (Barney, 1991; Grant, 1991) is a theoretical perspective that attempts to describe, explain, and predict how firms can achieve a sustainable competitive advantage through acquisition of and control over resources. Resources, according to the RBV, include both tangible (e.g. equipment) and intangible (e.g. process knowledge) assets (Grant, 1991) that facilitate the production and delivery of goods and services. Grant (1991) equated the concept of organizational capability to core competence (Prahalad and Hamel, 1990) as "information-based, tangible and intangible processes that . . . provide enhanced productivity of its resources, as well as strategic flexibility and protection for its final product or service".

Barney (1991) and Peteraf (1993) have discussed, in more specific terms, the five explicit characteristics of a resource that would allow firms to attain a sustainable competitive advantage. First, the resource must be valuable in that it improves firm efficiency and/or effectiveness. Second, the resource must be rare so that by exercising control over it, the firm can exploit it to the disadvantage of its competitors. Third, the resource must be imperfectly imitable to prevent competitors from being able to easily develop the resource in-house. Fourth, the resource must be imperfectly mobile to discourage the ex-post competition for the resource that would offset the advantages of maintaining control of the resource. Fifth and last, the resource must not be substitutable; otherwise, competitors would be able to identify different, but strategically equivalent, resources to be used for the same purpose.

All groups of resources are emphasized by Resource-based View (RBV) theory as a source of heterogeneity of firm performance and above normal returns as they allow firm to develop and implement strategies that improve its efficiency and effectiveness (Barney, 1991). However, the RBV theory claims that not all resources are of equal importance in terms of achieving competitive advantage and superior performance. Those differences are attributed mainly to the issues of how high are the barriers of resource imitation or how durable are resources (Grant, 1991; Barney, 1991; Collis and Montgomery, 1995). Tangible assets are easy to duplicate by competitors and most of RBV scholars claim that they are a relatively weak source of competitive advantage and economic benefit (Barney, 1991; Grant, 1991; Conner, 2002). On the contrary, intangible assets are considered to be more important source of heterogeneity of performance than tangible assets because of relatively high barriers to duplication (Hall, 1992). For example, the findings of Galbreath (2005) confirmed that intangibles such as organizational and reputational assets do contribute more significantly to firm success than tangible assets. The enterprises nowadays are not considered any more as a combination of tangible assets organized for a productive process to achieve some objectives; they have the intangible assets as the strategic component necessary to compete and to obtain advantages in the market. The recent study by Bontis, Chua and Richardson (2000) suggests the existence of a significant positive relationship between intangible assets and business performance, regardless of the industry sector. Organizations efforts to manage knowledge and develop their structural capital led to relatively higher business performance. Carmeli and Tishler (2004a) and Michalisin, Kline and Smith (2000) proved a significant positive relationship between intangible organizational elements and the performance of organization.

3.Decision making model development

A decision making model is presented by taking the opinion of experts. This case study deals with the prioritization of intangible factors impacting on performance of power loom textiles under resource-based view considering intellectual capital (IC). The objective of this case study is to quantify the effect of these factors by making a hierarchy and using AHP. It includes three steps.

3.1Identification of IC factors affecting on performance and their relationship.
3.2Structuring the factors and sub factors hierarchically.
3.3 Quantifying the effect of these factors on performance.

3.1 Identification of factors affecting performance and their relationship.

Managing the intangible assets like Intellectual capital (IC) has been widely considered as a fundamental tool to gain and maintain competitive advantage. In this situation IC concept has become an important issue. Much IC research has been conducted in a variety of international studies including the United Kingdom (Roos et al., 1997), Australia (Sveiby, 1997), Canada (Bontis, 1999), Austria (Bornemann, 1999) and the U.S. (Stewart, 1997; Bassi and Buren, 1999). Three common categories emerged as the most useful ones for describing the construction of IC and these are organizational (or structural) capital, relational (or customer) capital and human capital (Campbell and Rahman, 2010). IC is elusive, but once it is discovered and exploited, it may provide an

organization with a new resource-base from which to compete and win (Bontis, 1999). IC is the term given to the combined intangible assets of – market, intellectual property, human-centered and infrastructure – which enable the company to function (Brooking, 1996). IC includes all the processes and the assets which are not normally shown on the balance sheet and all the intangible assets (trademarks, patents and brands) which modern accounting methods consider ... it includes the sum of the knowledge of its members and the practical translation of his/her knowledge (Roos et. al., 1997).

Measurement of IC is difficult in the real world as attributes are intangible. For this reason, experts need linguistic terms to provide intangible IC assessments based on their opinions (Calabrese et al., 2013). Therefore the contribution of this study is to prioritize the most important IC attributes in the power loom textiles through the adaptation of AHP. The Multi Criteria Decision Making (MCDM) methodologies allow the comparison among factors and sub factors in the same context of industry based on selected or weighted IC attributes which need different expert's opinion. The three main categories that comprise the IC construct have been defined in the literature as follows. These factors can be divided into three categories. Human capital represents the individual knowledge stock of an organization as represented by its employees. Human capital is also a primary component of intangibles. As mentioned before, in this study, the conceptualization of intangibles is based on the theoretical framework of the RBV. From a resource-based view, sustained competitive advantage of a firm comes from some special resources that the firm controls. Here human capital resources consist of training, experience, judgment, intelligence, relationships, and insight of individual managers and workers in a firm. Roos et. al., (1997) argues that employees generate IC through their competence, their attitude and their intellectual agility. Organizations should recruit, develop and retain this element of intellectual assets to gain sustainable competitive advantages (Mehralian et al., 2013). It is obvious that human capital meets criteria of being valuable, rare, inimitable, and non-substitutable (Wright et al., 1994).

Structural capital is the second component of intangibles. It refers to the knowledge that stays within the firm at the end of the working day when employees go home (Edvinsson and Sullivan, 1996; Meritum, 2002). It comprises mechanisms and structures that are essential to support employees and convert individual human assets into group assets. Unlike human capital which cannot be owned by the company, structural capital is the characteristic of the firm that can be reproduced within the firm. (Mehralian et al., 2013). Collis and Montgomery (1995) illustrate that the organizational capability embedded in a company's routines, processes and culture is valuable, as it contributes to the differentiation of a company.

Relational capital is the main theme as customer capital is the knowledge embedded in the marketing channels and customer relationships that an organization develops through the course of conducting business. Customer capital represents the potential an organization has due to ex-firm intangibles (Bontis, 1999). Carson et al., (2004) argue that a firm's relational capital should include relationships with competitors as well, because many new ideas arise out of interactions with competitors, and both the firm and the industry as a whole might benefit from that. It is the main requirement and determinant to convert human capital and structural capital into market value and in turn organizational performance (Chen et al., 2004).

The factors are summarized from the literature of manufacturing and IC, as though no study has been carried out in the area of performance of power looms. The identified factors are then consolidated by taking the opinion of experts from the field of power loom textiles. The research done so far is in the area of apparel and garment industry. This is an attempt made towards the study on IC factors influencing on performance of power loom textiles in Maharashtra state of India.

3.2 Structuring the factors hierarchically.

Cognitive map-design research has the goal of understanding human cognition in order to improve the design and use of maps. The cognitive map (mind map) is an effective tool in helping to identify the factors affecting performance and their relationships. Cognition includes perception, learning, memory, thinking, reasoning and problem-solving, and communication. Eden et al., (1983) define cognitive mapping as a modeling technique which intends to portray ideas, beliefs, values and attitudes and their relationships one to another in a form which is amenable to study and analysis. In this study it is applied for only direct effect because it is most significant as compared to indirect effect.

3.3 Quantifying the effect of the factor on performance.

Many decision-making problems involve a number of factors and sub factors. For difficult decisions, a quantitative approach is recommended. In this study both qualitative and quantitative approach is used. All of the important factors can then be given appropriate weights. AHP process uses pair wise comparisons and then computes the weighting factors and evaluation. This process was developed by Saaty (1980). The decision maker starts by laying out the overall hierarchy of the decision. This hierarchy reveals the factors to be considered as well as the various alternatives in the decision, in this study the factors and sub factors are considered to prioritize. A number of pair wise comparisons was done, which result in the determination of factor and sub

factor weights and factor evaluations. The AHP is a structured method to elicit preference opinion from decision makers. Its methodological procedure can easily be incorporated into multiple objective programming formulations with interactive solution process.

The AHP approach involves decomposing a complex and unstructured problem into a set of components organized in a multilevel hierarchic form. A salient feature of the AHP is to quantify decision makers' subjective judgments by assigning corresponding numerical values based on the relative importance of factors under consideration. A conclusion can be reached by synthesizing the judgments to determine the overall priorities of factors. The AHP approach has been proposed in recent literature as an emerging solution approach to large, dynamic, and complex real world multi-criteria decision-making problems. Successful AHP applications have been reported in marketing, finance, education, public policy, economics, medicine, and sports. The AHP approach is thus selected to address the multi-criteria decision making problem to be addressed in this study to assess and evaluate the impact of factors on performance.

Five experts opinion was taken for identification of important factors from the factors which were collected through literature survey. Two experts belong to academia and three are from industries.

4.Analytic Hierarchy Process

AHP approach achieves pair wise comparisons among factors or criteria in order to prioritize them at each level of the hierarchy using the Eigen value calculation. In addition to AHP, ANP technique is a general form that allows interdependencies, outer dependencies and feedbacks among decision elements in the hierarchical or non hierarchical structures.

The AHP consists of following steps (Satty, 1980).

1. Identify all relevant and important performance impacting factors.
2. Identify all relevant and important performance impacting sub factors.
3. Construct all factors and sub factors into hierarchy structure
4. Collect experts opinion through questionnaire
5. Pair wise Comparison between main factors and sub factors by expert choice software.
6. Compute priority weights and rating of factors and sub factors.
7. Analyze and evaluate the impact of all factors.

4.1 Satty Scale

The decision-maker expresses the opinion regarding the relative importance of each factor and preferences among the factor by making pair wise comparisons using a nine point(Numerical scale) system ranging from 1 (the two choice options are equally preferred) to 9 (one choice option is extremely preferred over the other) (Table 1). The AHP scoring system is a ratio scale where the ratios between values indicate the degree of preference. The nine-point scale has been the standard rating system used for the AHP (Saaty, 2000).

Table 1 Numerical rating and preferences (Satty, 2000)

Numerical rating	Verbal judgments of preferences
9	Extremely preferred
8	Very strongly to extremely
7	Very strongly preferred
6	Strongly to very strongly
5	Strongly preferred
4	Moderately to strongly
3	Moderately preferred
2	Equally to moderately
1	Equally preferred

5.Intellectual Capital capability Measurement

Many factors can be found in the literature for the purpose of measuring each of the IC categories. The Main attributes of each IC category are detailed in Table 2.

Table 2 Factors and Sub factors affecting the performance

S. N.	Main attribute of IC	Examples	Reference
1	**Human capital (C1)**		
	1. Work related experience (C11) 2. Skill, abilities and expertise (C12) 3. Abseentism (C13) 4. Training program (C14) 5. Attitude (C15) 6. Employee satisfaction (C16)	Skills, abilities and expertise, problem solving abilities and Leadership styles. Competence, attitude, and intellectual agility. Employees are an organizations most Important asset. The individual-level knowledge that each Employee possesses.	Brooking (1996); Roos (1997); Stewart (1997); Wright et al., (1994); Bontis (1999); Mehralian et al., (2013); Shih et al.(2010); Bontis and Richardson(2000); Suraj and Bontis(2012); Bozbura et al.,(2007); Shih et al.(2010); Baxter and Matear(2004)
2	**Structural capital (C2)**		
1.	2. Organizational culture (C21) 3. Research & development (C22) 4. Information system (C23) 5. Organizational operational procedure (C24) 6. Organizational internal structure (C25) 7. Organizational external structure (C26)	All the technologies, processes and Methodologies that enable company to function. All organizational, innovation, processes, Intellectual property and cultural assets. Knowledge embedded in information Technology. Non-human assets or organizational capabilities used to meet market requirements.	Brooking (1996); Roos (1997); Edvinsson and Sullivan, (1996); Meritum, (2002); Stewart (1997); Collis and Montgomery (1995); Bontis (1999); Mehralian et al., (2013); Tai and Chen(2009); Bozbura et al. (2007); Bontis et al.(2000); Calabrese et al (2013); Bozbura(2004); Baxter and Matear(2004); Campbell and Rahman (2010)
3	**Relational capital (C3)**		
1.	2. Customer satisfaction (C31) 3. Customer trust (C32) 4. Customer complaints (33) 5. Customer services (C34) 6. Customers loyalty (C35) 7. No. of customers (C36) 8. Relationship with customers (37)	customers, Customer loyalty and distribution channels. Relationships which include internal and external stakeholders. Market information used to capture and retain customers. Customer capital is only one feature of the knowledge embedded in organizational relationships	Brooking (1996); Roos (1997); Stewart (1997); Bontis (1999); Carson et al., (2004); Mehralian et al., (2013); Baxter andMatear(2004); Chen et al.,(2004); Calabrese et al. (2013); Campbell and Rahman (2013); Baxter and Matear(2004); Tai and Chen(2009)

6.Group decision making

The AHP allows group decision making, where group members can use their experience, values and knowledge to break down a problem into a hierarchy and solve it by the AHP steps. Brainstorming and sharing ideas and insights (inherent in the use of Expert Choice in a group setting) often leads to a more complete representation and understanding of the issues. The following suggestions and recommendations are suggested in the Expert Choice Software Manual. (Trial version, Non commercial use)

1. Group decisions involving participants with common interests are typical of many organizational decisions. Even if we assume a group with common interests, individual group members will each have their own motivations and, hence, will be in conflict on certain issues. Nevertheless, since the group members are `supposed' to be striving for the same goal and have more in common than in conflict, it is usually best to work as a group and attempt to achieve consensus. This mode maximizes communication as well as each group

member's stake in the decision.
2. An interesting aspect of using Expert Choice is that it minimizes the difficult problem of `group-think' or dominance by a strong member of the group. This occurs because attention is focused on a specific aspect of the problem as judgments are being made, eliminating drift from topic to topic as so often happens in group discussions. As a result, a person who may be shy and hesitant to speak up when a group's discussion drifts from topic to topic will feel more comfortable in speaking up when the discussion is organized and attention turns to his area of expertise. Since Expert Choice reduces the influences of group-think and dominance, other decision processes such as the well known.
3. When Expert Choice is used in a group session, the group can be shown a hierarchy that has been prepared in advance. They can modify it to suit their understanding of the problem. The group defines the issues to be examined and alters the prepared hierarchy or constructs a new hierarchy to cover all the important issues. A group with widely varying perspectives can feel comfortable with a complex issue, when the issue is broken down into different levels. Each member can present his own concerns and definitions. Then, the group can cooperate in identifying the overall structure of the issue. In this way, agreement can be reached on the higher-order and lower-order objectives of the problem by including all the concerns that members have expressed. The group would then provide the judgments. If the group has achieved consensus on some judgment, input only that judgment. If during the process it is impossible to arrive at a consensus on a judgment, the group may use some voting technique, or may choose to take the `average' of the judgments. The group may decide to give all group members equal weight, or the group members could give them different weights that reflect their position in the project. All calculations are done automatically on the computer screen
4. The Group Meeting: While Expert Choice is an ideal tool for generating group decisions through a cohesive, rigorous process; the software does not replace the components necessary for good group facilitation. There are a number of different approaches to group decision-making, some better than others. Above all, it is important to have a meeting in which everyone is engaged, and there is buy-in and consensus with the result.
The above four points which are mentioned in the expert choice manual is useful while conducting a meeting on line or off line. In this paper while collecting the data first of all the entire main and sub factors are finalized by the Experts which is taken from the review of literature. The next step is direct and indirect impact of factors on performance is finalized. Then the main factors, sub factors are arranged hierarchically. The questionnaire is prepared for pair wise comparison. A numerical scale is provided for pair wise comparison. The filled questionnaires were collected from the experts and then the data is entered in the software. The example of the questionnaire is shown in Appendix D.

7.Applying the AHP method

A questionnaire is prepared which consists of the human, structural and relational capital comparison at second level. The third level consists of sub factors of the human, structural and relational capital. The questionnaire is distributed among the academia and industry personnel. The researcher has invited the owners who are having bachelor’s degree in textiles. One consultant has shown interest in the study and two Industrial Engineering professors are invited for the same. The sample size of expert is five. Experts have given the pair wise comparison between these factors. By following the AHP procedure which is described earlier, the hierarchy of the problem can be developed. The decision-makers have to indicate preferences or priority for each factor in comparison to other factor.

7.1 Breaking down the problem

The first step is to develop the hierarchy of the problem. This classifies the goal, factors and sub factors into three major levels. The highest level of the hierarchy is a goal which is to find out the factors which makes highest impact on performance. The level 2 represents the main factors which include human capital, structural capital and relational capital. The level 3 represents sub factors which are shown in Table 3.Breaking down the problem in hierarchy; this is shown in the Figure 1.

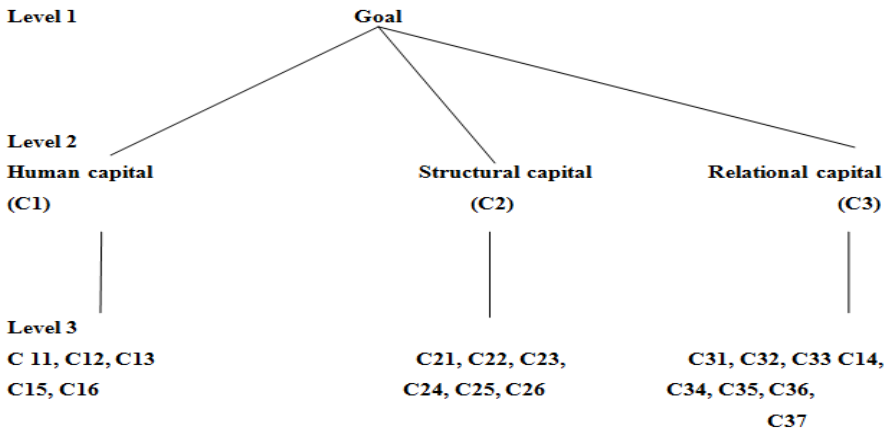

Figure 1 Hierarchy of objectives (Factors)

The Figure 1 represents the hierarchy of factors. The level 1 is goal, determination of potential factors which impact on performance. Level 2 is the categories made for the factors which impact on performance like human capital, structural capital and relational capital which constitute 19 sub factors.

7.2 Comparative judgments to establish prioritize

The filled questionnaire is used for pair wise comparison by taking either a numerical scale, verbal scale or graphical scale. In this study a numerical scale (1 to 9) is used. The pair wise comparison is done for main factors and sub factors. For example the human capital is most important factor than structural capital and moderately important than relational capital it means that the relational capital factor is least important criteria. After inputting the factor with its importance into Expert choice, the priorities from each set of judgments were found and which is recorded in Table 3. The Table shows the local and global priority. A consistency check must be applied. Satty (1980) has proposed a consistency index (CI) which is related to the eigenvalue method. The consistency ratio, the ratio of CI and RI is given by: CR = CI/RI, where RI is random index. The consistency ratio should be less than 0.10, in this hierarchy the consistency ratio is 0.06.

Table 3 Priority of objectives/factors

Objectives	Local Priority	Global Priority
Goal	100	100
Human capital (C1)	38	38
Work related experience (C11)	34.21	13
Skill, abilities and expertise (C12)	8.42	3.20
Abseentism (C13)	10.52	4.00
Training program (C14)	8.94	3.40
Attitude (C15)	30	11.40
Employee satisfaction (C16)	7.89	3.00
Structural capital (C2)	32.50	32.50
Organization culture (C21)	12.30	4.00
Research & development (C22)	1.53	0.50
Information system (C23)	3.07	1.00
Operational procedure (C24)	52.30	17.00
Organizational internal structure (C25)	15.38	5.00
Organizational external structure (C26)	15.38	5.00
Relational capital (C3)	29.50	29.50
Customer satisfaction (C31)	44.06	13.00
Customer trust (C32)	5.08	1.50
Customer complaints (33)	37.28	11.00
Customer services (C34)	3.39	1.00
Customers loyalty (C35)	3.39	1.00
No. of customers (C36)	3.39	1.00
Relationship with customers (37)	3.39	1.00

8.Findings of AHP

AHP aims at evaluating of a set of criteria elements and sub-criteria elements uses pair-wise comparisons. Despite its popularity, there are some criticisms imposed upon AHP for practical decision-making such as ambiguity in ratio scales (Dyer, 1990), pair-wise comparisons (Watson and Freeling, 1982), criteria weight, and problems in the rank reversal (Belton and Gear, 1983). However, AHP overcomes other decision-making methods in many ways. It is a method with large penetration both in academic and professional environment and is implemented by business tools widely tested and validated. This study gives an idea of factors which influences on performance of power loom textiles which gives guidelines to the owners/managers about the potential area for improvement. The opinion of academician, consultants and experts from core textiles count the result in a positive manner.

The objective of this study is to find out the important intangibles which influence the performance of power loom textiles. Literature suggests the various factors which influence the performance of power loom textiles.AHP tool quantifies the factors which influence the performance. The priority of the objectives (factors) is shown in Table 3. The role of human capital is very important as the industry is labor intensive. The priority for the human capital is 38.00% which is greater than structural and relational capital as it is also involved in the structural capital. In human capital the work related experience contributes 34.21%, which has a greater impact on performance. Abseentism can be reduced by the incentive schemes. The training program improves the skills of worker. Survey based research supports the hypotheses that operational performance has a direct and positive impact on organizational performance. Operational procedures or practices contribute 52% in order to improve the operational performance and hence organizational performance. The study shows that organizational internal and external structures are equally important each contributing 15.38%. Under relational capital customer satisfaction is the most important factor followed by complaints in order to take the corrective actions to improve the performance. The hierarchical framework for intellectual capital is shown in Figure 1.

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Appendices

Intellectual capital (IC) capability decision making model: A case study using AHP

Compare the relative preference with respect to: main criteria < goal

Numerical Scale 1 to 9 (Saaty), where (1= equally important, 2= equally to moderately, 3= moderately preferred, 4= moderately to strongly, 5= strongly preferred, 6= strongly to very strongly, 7= very strongly preferred, 8= very strongly to extremely, 9= extremely preferred)

Table I Evaluation criteria

Sr.no	Evaluation criteria A	Numerical scale	Evaluation criteria B
1	Human capital	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Structural capital
2	Human capital	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Relational capital
3	Structural capital	9 8 7 6 5 4 3 2 1 2 3 4 5 6 7 8 9	Relational capital

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