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EDITORIAL NOTE

XIBA is committed to impart management education suitable to the current trends in business. To translate this objective into a reality it publishes XIBA Business Review every year.

The article "Customers' online shopping attitudes of cosmetics "highlights the customers online shopping attitudes of cosmetic products in Tirunelveli District. It explores the numerous factors influencing the personal innovativeness of customers' online shopping. It is a well thought out, systematic and pragmatic presentation. The authors have employed relevant and updated tools for analysing the problem.

Organisational culture plays a crucial role in instilling and enkindling the interests of the employees in the organisation. The article on 'organisational culture' throws light on various dimensions of it. It also brings out the link between the organisational culture and change. It is a thought provoking and inspiring article.

The article on the 'applicability of social exchange theory for HR practices' is a novel attempt to connect it with HR practices in the Indian Organisations. It also explores the various aspects of work performance of employees. It is very innovative and creative.

The article "The Impact of Work-Life Balance on Employee Job Satisfaction" is a systematic analysis which suggests certain ways to improve work Life Balance for the employees of Hotel Industry.

The article "Marketing Strategy Selection by Interval TOPSIS under Incomplete Data"

analyses the problem in a lucid and creative way with the application of relevant statistical tools. It also suggests the ways to select suitable marketing strategy for the business.

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Research Articles

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Impact of Personal Innovativeness on Customers' Online Shopping Attitude of Cosmetic Products in Tirunelveli District

R. Subhalakshmi*, R. Christina Jeya Nithila**

Abstract *The implausible changes in the worldwide shopping trend and trade, has made the researchers to turn their attention towards e-retailing. This study aims at investigating the impact of personal innovativeness of the customers in determining their online shopping attitude of cosmetic products in Tirunelveli district. The study involves convenience sampling method in which 316 online cosmetic buyers were made to participate. The data collected using questionnaire is analyzed using appropriate statistical tools. The findings indicate that the independent factor - personal innovativeness has significant influence on the customers' online shopping attitude of cosmetic products. The demographic factors - marital status, age, education, occupation and level of income are found to influence the personal innovativeness of customers' online shopping attitude of cosmetic products.*

Keywords *Online Shopping, Cosmetics, Attitude, Tirunelveli, Personal Innovativeness*

INTRODUCTION

In recent years, it is apparent and perceptible that the incredible changes are taking place in worldwide shopping trend and trade. E-commerce has taken the world in its hands with e-retailing becoming the back bone of today's business world. In this regards, many researches are undergone focusing on the customers. Understanding the nature, expectations and behaviour of the customers towards e-retailing and online shopping pattern has become essential for the e-tailers to succeed in this global competition. Enormous studies have been made on the area of exploring the factors influencing online shopping attitude of the customers. This study aims at investigating the impact of personal innovativeness of the customers in determining their online shopping attitude of cosmetic products. The effect of demographic variables over the personal innovativeness is also been focused in this study.

REVIEW OF LITERATURE

THEORY OF PIIT - Personal Innovativeness of Information Technology

Domain Specific Innovativeness reflects "the tendency to learn about and adopt innovations (new products) within a specific domain of interest" (Goldsmith, 1990). Whereas, when it is specific to the adoption of information technology, PIIT is defined as "the willingness of an individual to try out any new information technology"(Midgley, 1978)(Flynn, 1993). Those individuals with higher levels of PIIT are theorized to be more likely to create favourable intentions to use the new IT than those with lower levels of PIIT (Agarwal R. P., 1998). This coincides with the definition of 'innovators' as said in the Theory of Diffusion of Innovation by Rogers.

Reviews on Impact of Personal Innovativeness on Online Shopping Attitude

Very few studies have focused on PIIT as constructs in field of Information Technology acceptance. Fascinatingly, PIIT has been used as an antecedent to, as a consequent of and as moderator between other variables. As an antecedent, PIIT has been proved to influence computer self-efficacy (Agarwal et al. 2000; Thatcher et al. 2002), perceived ease of use and perceived usefulness (Lewis et al. 2003; Lu et al. 2003), and intention to use technology (Thatcher 2012).

PIIT has been proved as a moderator, between perceived ease of use and intention to use, and between perceived usefulness and intention to use (Agarwal et al. 1998). PIIT is proved to be a consequent of the variables trust (McKnight, Choudhury, & Kacmar, 2002), playfulness and flow state

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(Woszczynski, Roth, & Segars, 2002). Rosen (2005) interested to study the direct influence of PIIT on behavioral intentions to use technology as well as to study PIIT as a moderator within the factors of UTAUT model. PIIT was found to be a significant predictor of behavioral intentions to use technology, but not found to be a good predictor of actual use of technology, nor did it ever play a significant moderation role between perceptions (PE and EE), and intentions (BI).

While studying the impact of PIIT over different types of products, Jiunn-WoeiLian & Tzu-Ming Lin (2008) identified that increased PIIT positively affects user attitudes toward purchasing high cost, infrequently purchased, and intangible products or services online. Baybars & Uustundagli (2011) in their study "Attitudes toward online shopping from the aspects of personal characteristics and shopping motive through a developing concept: private shopping" revealed that need for uniqueness and innovativeness affect the attitude towards private shopping positively.

OBJECTIVES OF THE STUDY

This study aims

- To explore the relationship between Personal Innovativeness and online shopping attitude of cosmetic products in Tirunelveli district.
- To determine the impact of demographic variables on the Personal Innovativeness of the customers in Tirunelveli district.

HYPOTHESIS

H_1: There is no relationship between the factor Personal Innovativeness of the customers and their attitude towards online shopping of cosmetic products.

H_2: There is no mean difference between the gender groups of the respondents towards the Personal Innovativeness of the customers

H_3: There is no mean difference between the marital groups of the respondents towards the Personal Innovativeness of the customers

H_4: There is no mean difference among the age groups of the respondents towards the Personal Innovativeness of the customers

H_5: There is no mean difference among the educational groups

of the respondents towards the Personal Innovativeness of the customers

H_6: There is no mean difference among the occupational groups of the respondents towards the Personal Innovativeness of the customers

H_7: There is no mean difference among the income groups of the respondents towards the Personal Innovativeness of the customers

H_8: There is no mean difference between the area of ethnicity of the respondents towards the Personal Innovativeness of the customers

METHODOLOGY

The study is a descriptive research which involves non-probability convenience sampling method. The data is collected using a well structured questionnaire. Pilot study with 30 samples is made to determine the validity and reliability of the contents of the questionnaire. The minimum sample size required is determined using the formula,

$$n= (z^2 * S.D.^2) / e^2$$

Where, n- Minimum number of samples necessary for the study, Z-confidence level, S.D.-Standard deviation obtained from pilot study and e-Allowable error term. The questionnaire is distributed to 600 samples. 553 valid questionnaires were returned in which 316 were online cosmetic buyers. The data collected through questionnaire method is analyzed using appropriate statistical tools such as Regression, Z test and One Way ANOVA.

ANALYSIS AND INTERPRETATION

REGRESSION ANALYSIS

The following table shows the R square value of 0.185 which implies that 18.5% variation in the dependent variable-online shopping attitude is explained by the factor Personal innovativeness. The F value 71.499 and the p-value associated with the F value 0.000 imply the existence of relationship between the dependent and independent variables. The beta coefficient and the t value significance value 0.000 implies that the online shopping attitude of the customer increases moderately (Beta=0. 431) with the increase in Personal innovativeness of the customer. Hence H_1 is rejected.

Table 1: Relationship between Personal Innovativeness and Online Shopping Attitude of Cosmetic Products

Factor	R Square	Adjusted R Square	F	B	Beta	t	sig.
PI	0.185	0.183	71.499	0.214	0.431	8.456	0.000

Dependent Variable: ONLINE SHOPPING ATTITUDE

Z TEST

Table 2: Influence of Gender on Personal Innovativeness

Factors	N		Male		Female		Z Value
	Male	Female	Mean	Std. deviation	Mean	Std. deviation	
PI	156	160	3.47	0.66	3.57	0.71	1.27

Source: Primary data *. The mean difference is significant at the 0.05 level.

The above table shows the number of samples in each gender group, their mean scores, standard deviation and the z test results. It is illustrated that, at 95% confidence level, while comparing the critical values obtained with that of table values, z values are found to be insignificant. Hence H2 is accepted.

Table 3: Influence of Marital Status on Personal Innovativeness

Factors	N		Unmarried		Married		Z Value
	Unmarried	Married	Mean	Std. deviation	Mean	Std. deviation	
PI	201	115	3.34	0.62	3.83	0.69	6.25*

Source: Primary data   *. The mean difference is significant at the 0.05 level.

Z value is significant in the above table, which also exemplifies that personal innovativeness is higher among those who are married (M=3.83) than unmarried (M=3.34). Hence H3 is rejected.

ONE WAY ANOVA

Using One Way Anova test, the f values are used to test the relationship between the demographic factors- age, education, occupation, income, area of ethnicity and Personal innovativeness of customers' online shopping attitude.

Table 4: Impact of Demographic Variables-age, Education, Occupation, Income, Area of Ethnicity on the Personal Innovativeness of the Customers

Factors	F value	Sig. value
Age	8.475	0.000
Education	7.084	0.000
Occupation	6.21	0.000
Income	8.053	0.000
Area of ethnicity	1.668	0.19

Table 4 shows that the demographic factors - age, education, occupation and level of income have significant influence on personal innovativeness of the customers towards online shopping of cosmetic products. The factor-area of ethnicity does not found to have a significant influence. Hence, H4, H5, H6, H7 are rejected and H8 is accepted. Further, post hoc multiple comparisons analysis - Scheffe test is undergone to identify which particular demographic group differ from each other.

Using Scheffe test, the following inferences were made.

- Respondents belonging to the age group above 40 years is highly innovative towards Internet usage (M=4.00).
- PG/Higher educated respondents have a higher personal innovativeness than others comparatively (M=3.63).
- Private employees (M=3.338) are found to have comparatively high personal innovativeness than students.
- The very low income group Rs.20, 000 has low level of innovativeness.
- Respondents of low level income group with income Rs.20, 001-Rs.30, 000 as well as respondents of moderate level income group with income Rs. 30, 001-Rs.40, 000 have high innovativeness.
- Respondents who belong to very high income group with income above Rs. 40, 000 are found to have moderate innovativeness.

DISCUSSION

This study has revealed the fact that consumer characteristics have significant impact on their attitude towards online shopping. The key factor-Personal innovativeness is studied in terms of adopting new technology applications, using latest internet services and willingness to be the first among

all the friends to buy cosmetics online. The online shopping attitude of the customer is found to increase moderately (Beta=0. 431) with the increase in Personal innovativeness of the customer. Though it is contrary to the words of Rosen (2005), it coincides with the principle of the Theory of PIIT. The demographic nature of the respondents has high significant impact on the personal innovativeness of the respondents. The factors-Marital status, age, education, occupation and level f income influences Personal innovativeness whereas, area of ethnicity has no impact on it. The high innovativeness among the age group above 40 years is a favourable stipulation for the progress of positive attitude towards online shopping. Education is found to be an essential criterion for developing innovativeness and willingness towards technology adoption. Hence, creating awareness among less educated people about the available internet services, the benefits of online shopping, steps involved in online purchase activity and the ways to have safe online transaction. This will make them to get rid of fear in using online shopping medium and to develop a positive attitude towards it. Moderate level income group being more innovative, may easily adopt e-tailing whereas, the need of other income groups must be identified and focused to pull them towards online shopping.

CONCLUSION

In the upcoming modern and technological business era, it is indispensable for both the business people as well as every common individual to learn, adopt and use technological changes and up gradations prevailing in the contemporary world. This study divulges the impact of demographic characteristics of consumers in adopting and using online shopping medium. Innovativeness of the consumers plays a vital role in espousing technology advancements. Taking all these view into consideration, the companies should take crucial actions to enliven online sales so that they can thrive in the competitive business environment.

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Role of Organizational Culture in Organizational Change: A Conceptual Framework

I. Casely Sneha*, C. Maria Rex Sugirtha**

Abstract   *This study focuses on the role of culture in organizational change by which organizations respond to the dynamism of business environment. Organizational culture is a powerful force that influences and drives the collective norms of people who work within an organization. Organizational culture is, an essential enabler of change, an underexploited change prospect. Though organizational culture is a double-edged sword, a culture that is well aligned with the organization's interest would enable the organization to be proactive in adopting change. But, a misaligned culture can be an overwhelming obstacle to change through amplifying strong but counterproductive beliefs and behaviors that are not in line with the organization's interests. The purpose of this study is to explore the need and importance of organizational culture, organizational change and the role of organizational culture in change.*

**Keywords**   *Culture, Change and Organization*

INTRODUCTION

The purpose of this article is to help the reader understand the concept of organizational culture change. The organizational culture is considered as an organizations' asset because it denotes how people within an organization behave and it can be used to increase the performance of a firm. In today's scenario, all the levels in an organization need to be revamped to survive in the market. This article gives clear image on organizational culture, organizational change and organizational culture change along with the processes and models to enrich the understanding.

During the last decade, 46 percent of the *Fortune 500* companies are dropped off the list because of slow, laggard, or wrong-headed change efforts (Cameron and Quinn, 1999). The rate of technological change associated with this information bang has created an environment intolerant of the status quo. Therefore, the current challenge is not to determine whether or not to change, but how to change in order to increase organizational effectiveness. Throughout decades several organizations tried different approaches of change such as quality initiatives, downsizing and reengineering. But all these approaches to change do not seem to be fruitful because their organizational culture remained unchanged. Therefore, the desired organizational effectiveness can be achieved only by bringing in the shift in organizational culture.

ORGANIZATIONAL CULTURE

Every firm has a distinct culture that represents the nature of an organization. Organizational Culture (OC) can be defined as a set of values, attitudes, beliefs and assumptions shared by the organizations' members. OC is deep rooted, and reflected in all deeds of employees when it becomes habitual. Thus, an organization's culture acts as a skeleton on which the entire organization behavior is being mounted.
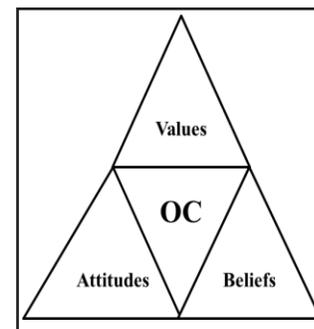
The word culture stems from a Latin root means the tilling of the soil. According to social anthropology, it refers to the way people think, feel, and act. The term organizational culture has its root from organizational behavior - starting from Hawthorne Studies in which an attempt has been made to learn the work environment using the work culture prevailing in the Western Electric Company.

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Organizational culture can be beliefs, expectations, guidelines, and the employees' understanding of how employees should behave, individually and collectively, internally and externally.

Many scholars have written about organizational culture in which they portrayed their perspective towards organizational culture (OC). Among them four authors were chosen to enable better understanding of OC. Organizational Culture is the outcome of an organic process that relies on, and derives from, the organization as a whole.
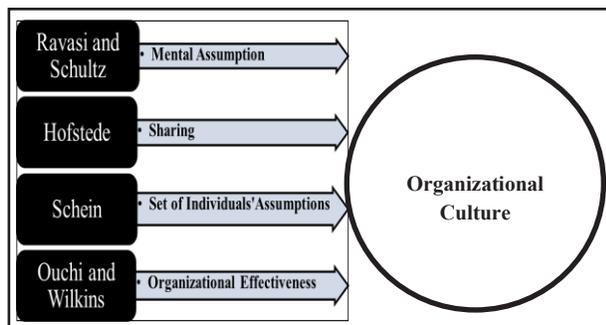
Ravasi and Schultz (2006) defined organizational culture as a set of shared mental assumptions that guide interpretations and actions resulting in appropriate organizational behavior required towards various situations. Thus, the culture of an organization insists on forming and sharpening of norms and values. Hofstede (1983) explains that the culture distinguishes organizations from other organizations among countries and within the same country. The reason behind the difference in culture among organizations is the level of practices, i.e. symbols, heroes and rituals that constitute visible elements of culture. Organizational cultures are manageable since they are embedded in the practices. Hofstede in 2010 proposed six dimensions of cultural values: individualism-collectivism, uncertainty avoidance, power distance, masculinity-femininity, long-term orientation and indulgence vs. self-restraint.

Schein (1985) stated that principles and ideologies followed by an organization determine its culture and decide the way individuals should interact with each other in the organization and with people outside the organization. Cultures have progressed by the way organizations have reacted to important incidents and have thus developed certain norms. In 2004, Schein identified three distinct levels in organizational culture: artifacts, values and assumptions. Artifacts denote the visible elements in a culture that resemble the tip of an iceberg. Values represent the thought process and attitude of the employees regarding what ought to be and not to be done in the organization and its impact on what matters a lot to the organization. Assumptions are indiscernible element of a culture and are hard to recognize, but it is an important element because it acts as a challenge and release anxiety and defensiveness against change efforts.

Ouchi and Wilkins (1985) considered culture as a rational tool of top management intended to shape the behaviors of employees in purposive ways. The process of shaping behaviors starts from recruiting the employees i.e., organization should recruit employees who have the tendency to learn and acclimate to the organization's culture. In 1983, Wilkins and Ouchi said "An important aspect of organizational culture is the maintenance of the culture, which is possible through the recruitment of people who share productive values". Positive culture is characterized by values, attitudes, beliefs and assumptions supportive to excellence and has a constructive impact on organizations' performance by leading behaviors in the right direction. Since it shapes the organizational behavior, unifies organizational capabilities and provides answers to the problems faced by the firm, it facilitates the firm in accomplishing its objectives.

Organizational culture evolves and exhibits itself differently in different organizations. Some scholars view organizational culture as a dependent variable and some consider it as an independent variable. Scholars who consider it as a dependent variable say that a firm's culture is a natural outcome and is not subjected to human attempts. On the other hand, those who view organizational culture as an independent variable state, it is the individuals' thoughts, feelings and behavior that influence a firm's culture and it is also managed by human efforts. Culture management refers to the implementation and the refreshment of the existing culture of an organization or changing an obsolete culture.

Culture is considered as controllable and contributing to the overall stability and effectiveness of an organization (Smircich, 1983). Organizational culture represents the character of an organization which directs its employees' everyday working relationships and guides them on how to behave and communicates within the organization, as well as guiding how the company's hierarchy is built (Tseng, 2010).

While trying to understand the concept of Organizational culture, several typologies have been developed. Goffee and Jones (1998) classified organizational culture based on two dimensions sociability and solidarity, resulting in four main types.

Sociability is valued for its own advantage and independent of its impact on the performance of the organization. Reciprocity is a hallmark of friendship; so that actions are taken to favor others with no expectation of immediate payback. Through friendship ideas, attitudes, interests and values are shared.

On the other hand, *solidarity* is an ability of people to pursue shared goals efficiently and effectively for the larger well-being of the organization without much concern on individuals and the relationship between them. Solidarity is favorable in generating single-minded dedication to the organization's mission and goals, rapid response to

changes in the environment, and an aversion to accept poor performance.
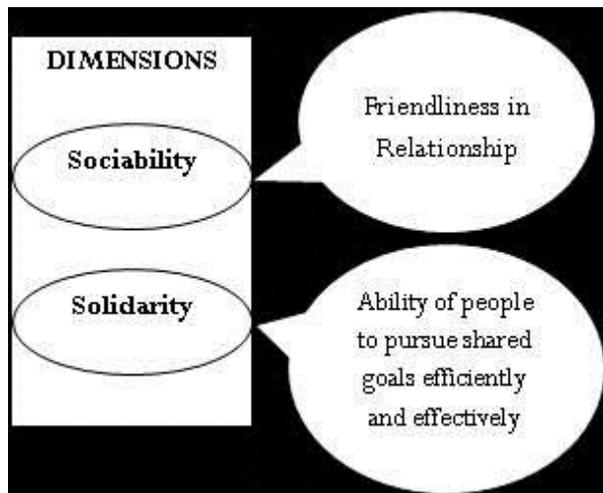
Goffee and Jones suggested there were four main types of corporate culture, namely the communal culture, fragmented culture, networked culture and mercenary culture. In context of communal culture, culture is a community or the way in which people relate to each other.

Corporate culture has been and always will be needed to allow a business to reach its possible success. In the absence of guidelines to pursue, individual employee or companies as a whole, would be in utter chaos.

Elements of Strong Organizational Cultures (Schermerhorn, Hunt, & Osborn, 2005):

- A widely shared real understanding of what the firm stands for is often embodied in slogans.
- A concern for individuals over rules, policies, procedures, and obedience to job duties.
- Recognition of champions whose actions illustrate the company's shared philosophy and concerns.
- A belief in customs and rituals vital to members and to build a common identity.
- A well-understood sense of the informal rules and anticipations so that employees and managers understand what is expected of them.
- A belief that what employees and managers do is essential and that it is crucial to share information and ideas.

ORGANIZATIONAL CHANGE

The organizational change has become unavoidable since the current and future trends in which the organizations survive demands change. The traditional way of doing business has lost its drift and now innovation and creativity has conquered the grip of business. Kotter in 1995 defines change management as the utilization of basic structures and tools to control any organizational change effort. Authors describe organizational change as the systematic effort taken by any organization to challenge the status quo via its employees by providing them adequate and appropriate aids. Thereby it transforms employees as catalysts of change.

Palmer et. al (2006) states that there are two approaches to organizational change: the "hard" approach and the "soft" approach.

HARD APPROACH	SOFT APPROACH
Focuses shareholder value which is considered as the only valid measure of corporate success.	Focuses on developing a culture that enhances human capability through individual learning and organizational learning.

There is an identifiable continuum in this process, ranging from intended to unintended change outcomes. During intended change, the change agents will introduce the change plan and the entire organization will change in the intended direction. Whereas, unintended changes are more dynamic and the change agents are reactive instead of being proactive.

Change is crucial because individuals and organizations usually resist change, they do not embrace change unless it is mandatory. Lewin in 1947 imparted a "force field" analysis model to understand organizational change. Force field analysis proposes that there are two forces which maintain organizational stability: driving forces and restraining forces. Driving force signifies those elements of the organization that supports desired organizational change and the restraining force acts as resistance to change. If the two forces are equal, the organization will remain static.

Change occurs when one of these two forces become stronger than the other (disequilibrium). Once the change has occurred, the organization enters into a new state of equilibrium that reflects the desired change. As a conclusion, Lewin's model foresees that an intervention which strengthens the driving forces or weakens the restraining forces will result in the desired change. The following are the basic elements of a formula based organizational change strategy: a) Determining the need to change b) Development of a vision c) Consensus building d) Identification of barriers to implementation e) Walk the talk f) Creating an overall change strategy and g) Implementation and Evaluation.

Organizational change management comprises both structural and cultural change. Structural change (Aplin& John, 1978) management deals with the way in which the functional units are organized to carry out work responsibilities. Structural change management has to do with things or facilities and focus on the policy and procedure, rules and regulations, management and recruitment, facilities and equipment, and human resource practices (Lewin, 1947). Cultural change is concerned with values, beliefs, traditions and behavior

within the organizational structure (Black, 2002; Claver, Gasco, Llopis, & Gonzalez, 2001). It signifies the way people interact with each other, both in peer relationships and in superior/subordinate relationships. Since cultural change has to be carried midst people, it is more difficult to deal.

Keeping people in the organization as the foremost initiatives of change with the aid of culture will be the complete change initiative. So, changing people involves bringing changes in their attitudes towards change. Dunham et al. (1989) suggested there are three types of attitudes toward change: affective, cognitive and behavioral. The *affective* component consists of the inclination a person has toward an attitude object, which involves evaluation and emotion, and is often expressed as like or aversion for the attitude object. The *cognitive* component of an attitude consists of the information a person possesses regarding a person or thing which is based on what a person believes is true. The *behavioral* tendency points the way a person intends to behave toward an attitude object. Another factor that plays an important role in changing an organization is the leadership (Denning, 2011). Also he stated that, the most profuse success strategy is to begin with leadership tools, comprising a vision or story of the future. Secondly, reinforce the change using management tools, such as role definition and control systems, and finally use the pure power tools of coercion and punishments, when all other fails.

Relationship between Organizational Culture and Change

The link between the organizational culture and organizational change helps in better understanding of organizational culture change. Al-Zu'bi (2011) in his study showed that fragmented culture has strong positive attitude towards organizational change. This denotes that the mercenary culture in an organization can ensure an effective and efficient management of organizational goals because this type of culture ensure people will work hard, make things happen and hit the targets that were set.

The study found that network cultural groups also had positive attitudes towards change because network culture is friendly but work tasks are not particularly interdependent. In this type of culture, it would be easy to change the attitude of other members in the organization to adopt change as they are friends in the organization. This camaraderie acts as the change agent and is a positive trait of a network culture.

Therefore, bringing changes in the values and behaviors, creates the unique social and psychological environment of an organization, is possible only through change agents. Tschirky (2011) says that an individual or a group who undertakes the task of initiating and managing change in

an organization is known as a change agent. Organizational Culture acts as a source for sustainable advantage only when it facilities organizational development by employing changes in itself and in the organization.

PROCESS OF ORGANIZATIONAL CULTURE CHANGE

Bringing change in mindsets is never easy. Usually a strong push is needed to realize that the traditional way of doing things is no longer adequate. Awareness towards need for change is achieved most effectively when employees in an organization are exposed to internal and external pressure. Most discussions of organizational culture (Cameron & Ettington, 1988; O'Reilly & Chatman, 1996) agree with the idea that culture is a socially constructed attribute of organizations which serves as the "social-glue" wrapping an organization together.

As said in relationship between organizational culture and change, changing organizational culture is very difficult because commonly shared interpretations, values, and patterns have become the employees' habit and it is difficult to modify the ingrained culture. However, once it has been determined that culture change is a desired objective, members of an organization has to be engaged in a series of steps that will put a culture change process in motion. The outcome of these steps is a process of moving an organization's culture from the current state to the preferred future state. The following steps are based on the work of several authors who have described successful change interventions aimed at organizational culture change (Hooijberg & Petrock, 1993**;** Denison, 1989). These steps initiate change in individual and organizational processes, conversations, language, symbols, and values, none of which by itself ensures that culture change will occur, but together they create a great deal of momentum toward fundamental culture change in organizations. Cameron (2004) describes how organizations can profile their existing and preferred culture and, when a gap is discovered, how they can change it. Cameron gave the following seven step culture change process.

STEP 1	• **Clarifying Meaning**
STEP 2	• *Identifying Stories*
STEP 3	• *Determining Strategic Initiatives*
STEP 4	• *Identifying Small Wins*
STEP 5	• *Craft Metrics, Measures, and Milestones*
STEP 6	• *Communication and Symbols*
STEP 7	• *Leadership Development*

1) Clarifying Meaning:

The initial step in culture change is to clarify what it means and what it doesn't mean for the organization's culture to change. Moving towards one particular type of culture does not mean that other culture types should be ignored. It means that special emphasis must be placed on certain factors if the culture change should be successful. Questions that may be answered when determining what culture change means and doesn't mean include: What are the attributes that should be emphasized if the culture should move towards the preferred target? What characteristics should dominate the new culture? What attributes should be reduced in the move away from current situation? What characteristics will be retained? What makes this culture type to be prolonged even though there will be an emphasis on another culture type? What is the most important trade-offs?

The purpose of this step is to clarify the organization the things that won't change as well as the things that will. Wilkins and Ouchi (1983) identified the importance of building on corporate character in any change effort on the core competencies, the unique mission, and the special organizational identity that has been created over time. An organization should not discard core aspects of what make it unique, whereas some other aspects of the organization can be transformed. Identifying what culture change means and doesn't mean helps the organization to know what will be preserved as well as what will be changed.

2) Identifying Stories:

Organizational culture is best communicated through stories (Martin, 1992; Martin, et al., 1983) a second step is to identify positive incidents that can demonstrate the key values that will characterize the organization's future culture. It can be communicated publicly via real incidents, events, or stories in order help individuals understand what the culture will be like when the new culture evolves. How will the new culture look like? How will people behave? How it would be when explaining something that will be consistent with preferred future culture had happened in the past? The key beliefs, desired orientations, and behavioral principles that make up the new culture are more clearly expressed through stories than in any other way. These stories not only do help clarify the culture change, but reduces the individuals' anxiety about moving into an unknown future where they can carry parts of the past with them.

3) *Determining Strategic Initiatives:*

Strategic initiatives involve the activity that has to be started, enhanced and stopped. They are actions designed to make major changes that will produce culture change. This involves deciding the following. What new things must be begun? What activities should be stopped, or what would have been done that will now be stopped as a result of the culture change initiative? Most organizations find difficulty to stop something rather than to start something new.

What new resources will be required? What processes and systems need to be designed, or redesigned, to support the change initiatives? In what ways can the organization's core competencies be leveraged and magnified so that the culture change produces a sustained competitive advantage?

Identifying what is to be started helps the organization think of strategic initiatives that have not been previously pursued. Identifying what is to be stopped helps focus resources and energy so that non-value-added activities i.e., the characteristic of the previous culture will not hinder the change process. Identifying what is to be enhanced helps the organization to stop some activities that can engender change if they are enhanced with more resources, more attention, or appropriate leadership and to enhance currently pursued activities that will facilitate change.

4) *Identifying Small Wins*:

This focuses on finding something that is easy to change, then changing it, and publicizing it. Then, find another thing that is easy to change, change it, and publicize it. Small successes create thrust in the desired direction, reduces resistance. Since small, incremental changes are seldom resisted and create a trend so that more employees get on the change process. When individuals see that something even small is changing, a sense of progress and advancement is created, and that sense builds support for the larger and more fundamental changes. The biggest mistake made by organizations instituting a small wins strategy is that the first two steps are achieved but not the third. That is, small changes are initiated but they are not publicly acknowledged and celebrated. The publicity accompanying the small wins is the chief momentum creator.

5) *Craft metrics, Measures, and Milestones*:

Defining the key indicators of success, what to measure, how to measure, and when to measure the levels of progress is crucial part of the change process. The most common fault in most change processes, especially when the target of change is as soft and nebulous as organizational culture, is the neglect of firm measures of achievement and progress. Change requires the detection of success indicators in culture change and progress indicators at the same time. Therefore, it is important to understand what is to be measured and on what basis it has to be measured. But overloading with multiple measures is a sure way to kill the change initiatives. So, identify few metrics that are attached to resource allocations, key levers, indicators of change, and also understood by those involved in the culture change process.

6) *Communication and Symbols*:

During culture change in an organization, individuals' basic way of life will be challenged and changed, and familiar area will be altered. Primary aspects of the organization will be changed, so culture change is sure to generate stiff

resistance. Communicating the culture change process, therefore, is a critical tool in overcoming resistance and generating commitment. Explaining the necessity and benefits of culture change is probably the most vital step in generating commitment. Usually people tend to explain "why" to people they care and they tend to tell "what" to those they care less.

A balance has to be maintained while criticizing the past culture in order to pull down the previous culture in the process of moving on to a new culture. Criticism of the past diminishes commitment because it is interpreted as a disapproval of organization members' previous best efforts. Instead of criticism, celebrating the best of the past but sketching a future in which certain elements of the past will not be carried forward is a more effective way. Building coalitions of supporters, involving victims of changes, and empowering individuals to implement aspects of the change process also reduce resistance to cultural change. Sharing as much information, reducing rumors by providing accurate information, providing feedback on initiatives, and organizing public events to share updates are all ways to create support.

Another most important initiative that accompanies culture change is a change in symbols used in organizations. Symbols are visual representations of the new state. Symbols help organization members visualize things different, provide a new interpretation of the organization, and provide a figure for people supportive of the change. New logos, new structures, new events, new charters are forms of symbolic reassembling points that can be used.

7) Leadership Development:

All organizational change requires headship, champions, and owners. Culture change does not occur randomly or unintentionally in organizations, and it requires leaders to consistently direct the process. Leaders play a major role in change processes. Two key points should be noted are (i) each aspect of the culture change process—for example, each strategic initiative, each communication process, needs a champion or someone to accept ownership for the successful implementation and accountability is maintained best when specific individuals are designated as owners of the initiative and ensure participation and commitment, (ii) not the current leaders alone champion the culture change, but a group of future leaders must be equipped to lead the organization when the culture change has been put in place.

The new leadership competencies that are required for the preferred future culture must be specified. Disparity between current and future leadership requirements should be expressed. Then, learning activities, developmental interventions, and training must be put in place to develop the required leadership competencies. Selection processes must be aligned with not just the way the things are at the

present time but with the strengths demanded for the future culture.

CONCLUSION

One of the predominant factors that make an organization profitable is its culture. Organizational culture transforms over time. Once the people turn out to be comfortable with the present culture, considering culture change usually turns to be a considerable event. When an organizations' culture respects and trusts its employees, and allows personal and professional growth, it not just produces a loyal and productive workforce, it also ensures a strong and financially viable organization. Meanwhile inculcating change into such a promising culture is not an easy task. To make such alteration, the organization has to put into play the organizational tools for changing minds. The foremost important thing in using the tools is the order in which the tools (i.e., the leadership tool, management tool and power tool (Denning, 2011)) are deployed because it has a critical impact on the likelihood of success. So, the organization should make the people realize and recognize that their current culture needs to be transformed to support the organization's success and progress. Only then the desired change can occur. Organizations must also create plans to make sure that the desired organizational culture becomes a reality. Thus, the ability to manage culture change while continuously meeting the needs of stakeholders will enhance the organizations' performance.

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EXPLORING SOCIAL EXCHANGE THEORY IN INDIAN CONTEXT

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Abstract *Social exchange theory has been applied in diverse fields like psychology, economy, business etc. Contemporary researchers have started to apply the same in the dynamic field of Human Resource also. Present study tends to explore applicability of the theory in Indian setting by exploring association between High Performance Work Practices (HPWPs) and employee commitment, engagement, motivation and attrition intent. Thirty five HPWPs categorized into nine factors have been used in the study. Finally employee engagement, motivation, engagement and attrition intent has been found to have an association with job performance of the employee. Paper successfully establishes that availability of HPWPs increase employee commitment, motivation etc. and they in turn enhances employee performance. Thus give and take circle of social exchange theory is completed and it establishes applicability of the theory in Indian settings.*

Keywords *Social Exchange Theory, Commitment, Motivation, Engagement, Attrition Intent, Job Performance*

INTRODUCTION

Social exchange at workplace is governed by classified rules and social practices that are designed to instill a positive and mutual beneficial atmosphere for both parties. Both players must perceive these rules or practices as valuable and complementary. For a successful social exchange (Schaninger and Turnipssed, 2005), the employer and the employee must contribute or provide something that is perceived as being valuable (Cropanzano and Mitchell, 2005). Mauss (1954) states that social exchange is structured around three obligations: the obligation to give, to receive and to return. Both parties are equally obliged by these three conditions of social exchange. Further Blau (1964) concludes that exchange is not confined to only material or tangible items. One can reciprocates intangible but valuable item. For example, individuals may exchange advice, support, recognition or even benevolent behavior such as helping. Gouldner (1960) elaborates the concept further through addition of deferred reciprocation. He explains that one may agree to pursue exchange if, in return, they receive things (whether tangible or intangible) of comparable value to those scarified, even if the return is deferred over a period of time. Thus reciprocity becomes a moral norm.

Cropanzano and Mitchell (2005) argue that social exchange theory is one of the most persuasive theoretical paradigms for understanding human behavior at the work place. One of the most fundamental construct of the social exchange paradigm is the fulfillment of mutual obligations between employer and employees. When an employer demonstrates a willingness to create a healthy, happy and safe workplace, a sense of reciprocal obligation emerges among employees. It

leads to increasing desirable outcomes such as extra efforts at work and decreasing undesirable outcomes such as intent to leave. Paillé' et al. (2010) find that when an employer demonstrates a high level of concern for its employees, the employer becomes trustworthy in the eyes of employees. The employees are then reported to be more satisfied and are also are found less likely to exhibit a desire to leave and are revealed more willing to make extra efforts at work.

Effective HRM system recruits and inducts quality employees, motivates and directs them to maximize performance and helps meet their psychological, esteem and social needs. This leads to establishment of long term relationship with skilled, satisfied, motivated and happy employees (Stewart and Brown, 2011). HRM focuses on employees of the organizations. Human resources are a major constituent of any organizations. Organizations with more productive and efficient work force tend to be more successful and profitable. Employee productivity increases when organizations hire and motivate employees effectively. Good human resource practices create more satisfied and more motivated employees (Stewart and Brown, 2011). It is imperative that management retains its best employees and keeps them committed to the organization in order to attract other quality employees (Zaitouni, Sawalha and Sharif, 2011). With the high costs involved in employee selection and recruitment, companies are increasingly concerned with retaining employees.

Social exchange theory suggests that employees and employers are in a symbiotic relationship with each other. The theory states that when employees find themselves to have been treated and cared well by their employer then the employees are more likely to reciprocate positively in

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terms of increased investment of their energies into their work. Employer plays their part through employee friendly HR policy such as through allocating interesting, varied and autonomous work to employees. Employees are believed to revert through higher level of job performance. A number of researchers have tried to explore Social exchange theory in the context of functions of HR department of the organization. Previous researchers have reported that increased attention for employee friendly HR practices leads to enhanced performance through higher level of commitment and engagement level. These findings provide a useful benchmark for improving our understanding of what the social exchange theory framework adds to the study of relationship of performance and HRM.

Blau (1964) reveals that social exchange is based on the norm of reciprocity. Gould Williams and Davies (2005) explain that management expects recognition, empowerment and investment in human assets will be reciprocated by the employees. This relationship of mutual dependence for benefits creates an atmosphere of trust and openness in the organization. And this climate of trust binds the organization and the employee together. Many studies suggest that the influence of HRM practices job performance is not direct but indirect through the psychological links of commitment, engagement, motivation etc. as suggested by the social exchange theory (Kinicki et al. 1992; Whitener, 2001; Agarwala, 2003; Gould-Williams, 2003). Hence, both organizations and employees need to develop and fulfill their psychological contracts by creating a climate of trust.

In this context, present paper tries to investigate the effect of modern HR practices (High Performance Work Practices) and employee commitment, engagement and motivation level. Attrition intent is also explored in terms of high performing practices. Thus present study explores applicability of social exchange theory for HR practices implemented in Indian organizations.

LIETRATURE REVIEW

High Performance Work Practices

Contemporary research work on 'best practice' i.e. high performance and human capital instrumental human resource management (HRM) revealed that organizations offer resources and opportunities that improve the motivation, skills, attitudes and behaviors of their employees (Kuvaas, 2008). And hence involvement, engagement and commitment of employees increase. These modern best HR practices have been synchronized to institute a system known as High Performance Work System. High Performance Work System has been defined as 'a group of separate but interconnected HR practices designed to enhance employees' skills, knowledge and efforts' (Takeuchi et al., 2007). Major constructs of HPWS includes practices related to structured and holistic approaches

to recruitment and selection, training and development of both general and job specific skills, pay based on performance and merit, other incentive based compensation plans, information sharing and Management Information Systems, rigorous performance and potential appraisal processes (Datta et al., 2005, Huselid, 1995). Owing to strong relationship between performance practices and employee engagement, these practices are also known as 'high commitment' or 'high involvement' practices. Guthrie et al. (2009) concluded that High Performance Work Systems, a set of complementary HRM and management policies and practices tend to have lower rates of employee absenteeism and voluntary turnover along with high labor productivity and lower labor costs. HPWPs are thought to endow employees with greater levels of skills, information, motivation and discretion. Wright et al., (2000) regarded human resource practices as an instrument through which employees' perceptions, attitudes, and behaviors could be guided. They affirmed that the role of human resource practices in enhancing employee engagement, commitment and motivation cannot be overlooked. Previous studies related to impact of HPWPs has been studied in detail and a brief description is given herewith.

High Performance Work Practices and Employee Commitment

Ensuring employee commitment is one of the pivotal objectives for both large and small scale organizations. HRM policy aspires to ensure committed and motivated work force and it acts as a harbinger of effective organization (Shahnawaz and Juyal, 2006). The commitment and motivation developed through meticulously designed High Performance Work System can lead to higher level of employee performance at work place. Kumar and Krishnaveni (2008) reports that innovative HR practices increases commitment level of the employees. And this amplified commitment helps an employee to achieve the goals of the organization. The satisfaction of employees with HR practices elicits the commitment of employees towards the organization Kumar and Krishnaveni (2008). Researchers have also explored the relationship between HR functions like selection and recruitment, training and development, performance evaluation, compensation management etc. with organizational commitment of the employees. Zaitouni, Sawalha and Sharif (2011) reaffirm the importance of modern HR system. They elaborates that monetary compensation is important but not sufficient enough to keep employees going well. An institutionalized mechanism for praise, appreciation and positive feedback is imperative to generate greater job satisfaction and commitment. Recognition and empowerment are also found to have cause and effect relation with employee commitment. Job reengineering and enrichment (building block of HPWS) shows affirmative consequences on affective commitment (Meyer, Becker and

Vandenberghe, 2004). Meyer and Allen (1997) state that attractive benefit and compensation packages are regarded as gestures of care and support by employees. It results into the development of a strong affective commitment. Koys (1991) reveals that employees' commitment is directly associated with the intention of the organization's HRM practices to keep skilled employees and treat the fairly. From this point, it is possible to say that good HRM practice can improve commitment of the employees.

Hypothesis 1: Employee commitment is positively associated with High Performance Work Practices in Indian firms.

High Performance Work Practices and Employee Motivation

Various HR practices have been reported to have a positive association with employee motivation. Daft (2006) concludes that recruitment, selection, placement and induction are liable for ensuring right person at right place at right time. And when competent people are given challenging and appropriate responsibility, they are motivated by the work itself and probably it acts as achievement motivator. In addition, internal recruitment increases possibilities for growth and advancement for the employees. It motivates employees to acquire new skills and competencies to equip themselves for higher functions or to other functions at the same organizational level (Torrington et al., 2008). Further according to Boddy (2008), training and development give employees a chance to learn additional skills, values and competencies, related to their present or prospective functions. This is directly related to a positive influence on employee motivation level. Daft (2006) points out several opportunities for training and development, like orientation training, class room training, cross-training and on-the-job training. In view of Valerius (1998) performance appraisal effects career growth and advancement, salary and aspiration for achievement. Thus process of apprising performance may act as a double edged sword. It may motivate employee to perform better or may lead to demoralized work force. A compensation structure includes salaries and other benefits for the employees. Therefore it immediately affects the hygiene factor salary (Miles and Snow, 1984). From above discussion it may be assumed that an appropriate set of HR practices may result into motivated work force.

Hypothesis 2: Employee motivation is positively correlated with High Performance Work System in Indian organization.

High Performance Work Practices and Employee Engagement & Attrition Intent

There are several models and theories in literature to provide a framework for how to enhance employee engagement

(Bakker and Demerouti, 2008; Kahn, 1990; May et al., 2004) through the application of modern HR practices. Human resource practices (Coordination / decision-making, Performance Reward and Employee Involvement) and employee engagement are significantly correlated with each other (Asad et al, 2011; Sardar et al, 2011).Masroor and Fakir (2009) conducted a research on nurses of Malaysia. The study revealed that with effective use of HRM practices, the level of intentions to leave the job is considerably reduced. Many other researchers also come up with the findings that human resource practices like the employee participation, team building and total quality management results into lower turnover intentions and increased engagement of the employees (Huselid, 1995, Pfeffer, 1994, Cho et al., 2006).

Hypothesis 3: Employee engagement is positively correlated with High Performance Work System in Indian organization.

Hypothesis 4: Attrition intent may be negatively related with High Performance Work Practices.

High Performance Work Practices and Job Performance

Ample empirical evidences about the impact of HPWS on productivity and profitability of employees are available (Kuhlmann, 2004). High Performance Work Practices have been found associated with increased organizational agility and innovativeness (O' Regan, 2011), which are key ingredients of performance excellence. Systematical implementation of high performance work system through restructuring of whole work system and not individual HR practices is a key element to achieve positive effects linked with greater work place efficiency (Appelbaum et al., 2000). Many researchers have argued that one way to increase employee work outcome is through enrichment of the job. And HPWS includes three fundamental concepts - enriching the job, empowering the employees and streamlining the work process. The theoretical basis for enrichment efforts of jobs is the Hackman and Oldham's (1975) job characteristics theory. The theory states that higher work performance and work motivation could be achieved through designing the job in a way that it maximizes (1) skill variety; (2) task identity; (3) task significance; (4) autonomy and (5) feedback. Wood (1999) concludes that these practices concentrate on empowering and enriching employees through increased information flows and devolution of decision making. Thus they are associated with increased productivity and loyalty of the employees. Other scholars like Ichniowski et al. (1999), Arthur (1994), Huselid (1995), MacDuffie (1995) etc. have also hinted at positive relation between HPWS and employees productivity and performance. Thus it is likely that high performance work practices have a greater positive impact on performance of the employees.

Taking a clue from literature review and other allied aspects following objectives and methodology has been framed.

OBJECTIVE AND METHODOLOGY

The main aim of the present research is to explore the applicability of social exchange theory for HR related functions especially in Indian organizations. Firstly availability of High Performance Work Practices is investigated; it reflects employers' concern for their employees. Secondly employees' commitment, motivation, engagement and attrition intent level is studied and their linkage with HPWPs is examined. It echoes impact of modern HR practices on these parameters. Thirdly job performance is inspected for being impacted by employees' commitment, motivation, and engagement and attrition intent. In nutshell the present study tries to investigate social exchange theory by relating employers' initiative (implementation of HPWPs) to employees' response (commitment, engagement etc.). It completes circle of mutual benefits and hence confirms social exchange theory.

The study is based upon exploratory-cum-descriptive research design. Primary data is collected through collaborating specialized questionnaire of previous researchers into a single unified questionnaire. Part A of the questionnaire captures the respondents' demography such as age, gender, work experience and educational qualification and is analysed using the descriptive statistics. Part B comprises of 35 HPWPs as scrutinized by Punia and Garg (2012). Five-point rating scales ranging from highly available to unavailable is used to access availability level of HPWPs in Indian organisations. These 35 practices are clubbed together in nine factors using factor analysis (Punia and Garg, 2013). The extracted factors are F-1: Reward Oriented HPWPs, F-2: Traditional HRM Practices, F-3: Value Creating HPWPs, F-4: Employee Engagement HPWPs, F-5: Team Oriented HPWPs F-6: Social and Safety Need Driven, F-7: Employee Empowerment HPWPs, F-8: Procedural Improvement HPWPs and F-9: Psycho-Strengthening HPWPs. Part C contains 34 statements of study attrition intent (Verma and Sharma, 2013). Attrition intent is also measured using five-point scale ranging from 'strongly agree' to 'strongly disagree'. Part D measures employees' organisational commitment using questionnaire developed

by Allen and Meyer (1990). Part E investigates employee engagement level with the help of 72 statements. The main constructs of employee engagement were work environment (14 statements), leadership and direction (11 statements), relationship with immediate seniors and co-workers (14 statements), compensation programme (4 statements), job security and career development (7 statements), policies and work procedures of the company (6 statements), work life balance (6 statements), and workplace wellbeing (10 statements).

Random sampling has been used to collect data from various organisations. The industries mainly includes banking, insurance, textile, BPO, sugar, shoe, consultancy, cold drink, rice, etc. Sample size is 300. Employees were taken from top and middle level as they are more likely to encounter HPWPs. For analysis purpose, it has been strictly ensured that an array of manufacturing, service, private, public, Indian and foreign companies are approached. Further, while administering questionnaire, it has been ensured that data come from all categories like men, women, highly experienced to less experienced ones, aged personnel to fresh recruits, etc. Regression analysis is used to explore relation between extracted factors of HPWPs and variables taken as response of employees like employee engagement, commitment etc.

RESULTS

Demographical Profile

Female respondent comprised of 49%, which means 147 of the total respondents and male employee contributed 51% that is 153 of the total respondents. The study revealed that out of the total sample surveyed, approx. 13% of them were below the age of 25 years. 50% of respondents were found within the age category of 26-35 years. 20% were within the age range of 36-45 years. 10% were within the age group of 46-55 years and the remainder 7% were found above the age of 55 years. The majority of the surveys participants (38.09%) have been employed for more than 5 years. 33.33% of employees were within the category of 5-10 years of work experience and 28.52% falls within the category of more than 10 years of work experience. 60% of respondents were found to be Graduate. Out of 300 respondents 70 were under Graduate and only 50 were Post Graduate.

Table 1: Mean and Standard Deviation of Variables

Variable	Mean	Standard Deviation	N
Reward Oriented HPWPs	4.01	4.352	300
Traditional HRM Practices	4.52	4.028	300
Value Creating HPWPs	2.89	3.852	300
Employee Engagement related HPWPs	3.74	2.357	300

Variable	Mean	Standard Deviation	N
Team Oriented HPWPs	4.21	3.120	300
Social and Safety need Driven HPWPs	3.76	4.782	300
Employee Empowerment related HPWPs	3.42	2.687	300
Procedural Improvement related HPWPs	3.98	2.369	300
Psycho-strengthening HPWPs	2.97	3.785	300
Attrition Intent	2.45	1.024	300
Employee Commitment Level	3.57	4.012	300
Employee Engagement Level	3.60	2.325	300
Employee Motivation Level	4.07	1.350	300
Job Performance	3.90	3.320	300

Regression analyses are conducted to study linkage between availability of nine extracted factors of HPWPS with employee commitment. Following equation is formulated to access relation between employee commitment and availability of nine extracted factors of HPWPs.

$EC = \beta_0 + \beta_1 F1 + \beta_2 F2 + \beta_3 F3 + \beta_4 F4 + \beta_5 F5 + \beta_6 F6 + \beta_7 F7 + \beta_8 F8 + \beta_9 F9$

Here, EC refers to Employee Commitment β_0, β_2 β_9 are constants, F1, F2……F9 are nine factors of HPWPs.

Table 2: Multiple Regression Analysis Results (Nine Factors Predicting Employee Commitment)

Predictor Variables	Unstandardized Coefficient	Standardized Coefficient	t-value	Sig.	Tolerance	VIF
Constant	5.320		4.254	.014		
F1	0.201	0.222	5.698	.044	.520	5.75
F2	0.787	0.800	3.254	.039	.106	9.63
F3	0.541	0.547	4.012	.004	.965	2.12
F4	0.420	0.435	2.365	.018	.254	5.63
F5	0.024	0.039	4.698	.032	.339	6.06
F6	0.474	0.470	6.951	.000	.620	1.60
F7	0.034	0.047	2.304	.001	.254	4.01
F8	0.217	0.285	5.985	.021	.328	7.08
F9	0.608	0.693	6.241	.019	.710	3.01

Table 2 gives regression equation explaining causal relation between HPWPs and employee commitment. Hair et al. (2003) stated that optimum value for tolerance and VIF have to above 0.10 and below 10 respectively to avoid problem of multi co-linearity. Here no problem of multi co-linearity is observed. All nine factors of HPWPs were found to contribute positively (standardized coefficient beta>0) and significantly (Sig. value<.05) at 5% level of significance.

Table 3: Model Summary and Result of ANOVA (HPWPs and Employee Commitment)

Regression Model Summary			ANOVA	
R	R Square	Std Error of Estimate	F-Value	Sig.
0.63	0.39	.4705	48.25	.044

Table 3 reports that 39% of variations in employee commitment are explained by modern HR practices. F-value indicates that the contribution of HPWPs is significant. In other words it could be said that availability of HPWPs in an organization has significant impact on commitment level of the employees. Thus causal relationship between HPWPs and employee commitment is established herewith. Hypothesis 1 is accepted herewith.

Table 4 establishes causal relationship between employee engagement and availability of High Performance Work Practices. All factor except factor-5 (Team oriented HPWPs) are found to contribute significantly. Regression equation comes out to be:-

$EE = 4.140 + .387 F1 + .799 F2 + .264 F3 + .116 F4 + .654 F6 + .474 F7 + .504 F8 + .295 F9$

Table 4: Multiple Regression Analysis Results (Nine Factors Predicting Employee Engagement)

Predictor Variables	Unstandardized Coefficient	Standardized Coefficient	t-value	Sig.	Tolerance	VIF
Constant		4.140	7.072	.014		
F1	0.385	0.387	6.240	.044	.147	7.254
F2	0.789	0.799	6.992	.037	.365	6.505
F3	0.254	0.264	5.214	.022	.447	4.012
F4	0.106	0.116	6.018	.039	.135	0.365
F5	0.752	0.784	**1.025**	.068	.854	6.024
F6	0.637	0.654	5.005	.009	.647	9.584
F7	0.444	0.474	2.365	.019	.224	4.325
F8	0.501	0.504	5.040	.037	.668	3.024
F9	0.285	0.295	2.025	.025	.178	2.014

Table 5 states that 64% variation in employee engagement is explained by presence of modern HR practices in Indian organizations. F-value shows that the relationship is significant and it establishes a causal relationship between HPWPs and employee engagement. Hypothesis 3 is accepted herewith.

Table 5: Model Summary and Result of ANOVA (HPWPs and Employee Engagement)

Regression Model Summary			ANOVA	
R	R Square	Std Error of Estimate	F-Value	Sig.
0.81	0.64	.4520	20.39	.011

Table 6: Multiple Regression Analysis Results (Nine Factors Predicting Employee Motivation)

Predictor Variables	Unstandardized Coefficient	Standardized Coefficient	t-value	Sig.	Tolerance	VIF
Constant	4.014		7.071	.019		
F1	0.651	0.674	6.321	.038	.250	7.120
F2	0.704	0.715	4.078	.006	.198	5.541
F3	0.002	0.015	5.389	.044	.684	9.027
F4	0.321	0.384	3.864	.032	.117	4.870
F5	0.419	0.425	4.025	.017	1.250	8.254
F6	0.854	0.868	3.692	.000	2.025	6.387
F7	0.147	0.149	2.980	.031	.354	1.351
F8	0.389	0.397	4.369	.028	.698	0.984
F9	0.259	0.278	**1.327**	.077	.885	8.257

Table 6 and table 7 studies the relationship between employee motivation and presence of High performance practices. Only factor-9 (Psycho-strengthening HPWPs) is observed to contribute insignificantly to employee motivation. Again a significant causal relationship is found between HRM practices and motivation level. Hence hypothesis 2 is also accepted.

Table 7: Model Summary and Result of ANOVA (HPWPs and Employee Motivation)

Regression Model Summary			ANOVA	
R	R Square	Std Error of Estimate	F-Value	Sig.
0.87	0.64	5.6902	21.08	.007

Table 8: Multiple Regression Analysis Results (Nine Factors Predicting Attrition Intent)

Predictor Variables	Unstandardized Coefficient	Standardized Coefficient	t-value	Sig.	Tolerance	VIF
Constant	2.980		1.978	.004		
F1	-0.187	-0.190	8.147	.008	.185	9.354
F2	-0.624	-0.638	5.255	.025	.365	0.742
F3	-0.257	-0.301	3.658	.014	.157	4.024
F4	-0.008	-0.017	3.264	.038	.365	6.287
F5	-0.387	-0.399	**1.627**	.981	.879	2.624
F6	-0.780	-0.792	0.210	.098	1.369	5.210
F7	0.145	0.174	**1.014**	.087	.587	4.698
F8	-0.357	-0.378	3.647	.042	.834	1.654
F9	-0.442	-0.445	5.327	.027	.741	6.987

Table 9: Model Summary and Result of ANOVA (HPWPs and Attrition Intent)

Regression Model Summary			ANOVA	
R	R Square	Std Error of Estimate	F-Value	Sig.
0.91	0.82	.6254	49.025	.027

Table 8 and 9 explores the relationship between HR practices and attrition intent of the employees. Six factors are found to have negative correlation with HPWPs and the relation is found statistical significant too. Factor 7 is reported to have positive correlation HR practices but is found to be statistically insignificant. Two other factors F5 and F6 are found to have insignificant relation with HPWPs. Again F-value states causal effect is significant and negative correlation is established. In simple words, presence of HPWPs in an organization will reduce attrition intent of the employees.

Table 10: Multiple Regression Analysis (Employee Response Variable and Job Performance)

Predictor Variables	Unstandardized Coefficient	Standardized Coefficient	t-value	Sig.	Tolerance	VIF
Constant	2.365		7.025	.004		
Commitment	0.754	0.769	4.352	.047	.358	6.980
Motivation	0.524	0.539	3.654	.036	.687	7.025
Engagement	0.834	0.852	5.365	.022	.951	9.201
Attrition	-0.354	-0.347	2.774	.019	.414	0.258

Table 11: Model Summary and ANOVA (Employee Response Variable and Job Performance)

Regression Model Summary			ANOVA	
R	R Square	Std Error of Estimate	F-Value	Sig.
0.80	0.640	.8702	50.35	.027

Table 10 and 11 explores the association between job performance and employees' response to HPWPs (commitment, motivation, engagement and attrition). Attrition intent is negatively related with performance while all other variables are found statistically positively correlated with job performance. Finally equation is as follows:

Job Performance= 2.365 + .796 EC + .539 EM + .852 EE - .347 AT

Where EC= Employee commitment, EM= Employee motivation, EE= Employee engagement, AT= Attrition Intent.

DISCUSSION AND CONCLUSION

This study makes a number of contributions to the literature concerning SET and HRM in Indian organizations. This study is one of the first to examine how social exchange occurs

in the HRM in Indian firms by incorporating the following variables in a single research model: employee commitment, motivation, engagement and intent to leave the organization. Therefore, the first major contribution of the present study is to fill a significant gap in the HRM literature on an SET framework especially for Indian Inc. With the exception of a small number of studies SET has been rarely used in research on HRM for Indian settings. The literature on HRM based on European and American firms provides a significant amount of empirical results showing how variables involved in an SET framework impacts employees' attributes that finally contribute to organizational performance. The institutionalization of High Performance Work System is in nascent stage in India and is likely to grow exponentially in coming decades (Punia and Garg, 2014). Thus SET might not be of much use for now but its usefulness will grow with the growth of high performance paradigm. By developing well-being in the workplace rooted in the social exchange process, employers reduce the desire of employees to leave and at the same time enhance employee willingness to provide extra effort. The outcomes of this exploration are valuable for enlightening our understanding of how the social exchange process contributes to the enhancement of employee effectiveness (i.e. low intent to leave and high commitment, engagement and motivation). Consistent with the conclusions of Cropanzano and Mitchell (2005), who noted that in an exchange based relationship something must be given and something must be returned. The findings of this research indicate that employee welfare related HR practices (the gift) fosters desirable work outcomes (the counter-gift). Social exchange theory describes a give and take relation of employee and employer. Paper could establish that as employer institutionalizes practices in the favor of employees, then employee commitment level, motivation level and engagement level increases. Also employees' intention to leave the organization decreases. Further these variables are also found statistically correlated with job performance. In nut shell, implementation of HPWPs is reported to have an impact on commitment, motivation and engagement level of the employee and it ultimately leads to higher level of job performance. Employers' investment (in terms of adopting modern HR practices) gives them return in form of higher employee performance through building higher level of commitment, engagement and engagement.

The present study explores as many as thirty-five high performance practices and there possible causal relation with commitment, engagement etc. All factors like team related employee engagement related, psycho-strengthening HPWPs etc. are reported to contribute positively to employee commitment level. The findings are parallel with observations of Paul and Anantharaman (2004), Browning, (2006), Payne and Huffman (2005), Wright, Gardner, and Moynihan (2003), Wright et al. (2005), Gardner, Moynihan and Wright (2007) etc. Interesting team oriented HPWPs are

observed to contribute negatively to employee engagement level. This finding does not corresponds to that of Bhatnagar (2006), Harter (2002), Karnaghan (2011), Saks (2006) etc. All HR practices are supposed to result into lower level of attrition intent. But here as many as three factors namely team oriented, social and safety need driven and employee empowerment related HPWPs are found to have negative correlation with employees' intention to leave the organization.

Overall, the contributions of this paper must be observed in light of several precincts. Firstly, the data is gathered at one point in time, so no inferences of causality can be conclusively established. Further chances of reverse causality cannot be ruled out also. On the same front data is collected via surveys of the employees. It gives rise to concerns about common method bias. However, a longitudinal design, cross validation of the findings, and increased number of sources of data would enable us to further assess the causality of the hypothesized relationships. Second, the study has used thirty-five HR practices that are selected by experts and researchers. Hence a different set of experts may choose some other practices or may neglect some practices taken in the present study. Finally, although regression models have been developed, but it does not preclude the existence of other models that with different practices or different contributions.

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THE IMPACT OF WORK-LIFE BALANCE ON EMPLOYEE JOB SATISFACTION

R. Sangeetha*, N. Pradeep Kumar*

Abstract   *Work-life conflict is a serious problem that impacts workers, their employers and communities. Life will often deliver the value and balance we desire when we are achieving and enjoying something every day in all the important areas of our lives. Therefore, a good working definition of work/life balance is meaningful to daily achievement and enjoyment in each of our important life quadrants. Job satisfaction is the level of contentment a person feels regarding his or her job. This feeling is mainly based on an individual's perception of satisfaction. Job satisfaction is the term that explains how individuals feel towards their job. Employees get high job satisfaction when they get what they expect from a job. Employers provide various benefits to make their employees happy and satisfied with the job. They provide various Work-Life Balance (WLB) facilities too to enable them to balance their work and personal life. This study seeks to bring out the various factors of work-life balance affecting employee job satisfaction in Sterlite Copper Inc. There are a wide variety of practices currently being used to help employees achieve work-life balance. It is important to note that some work-life balance programs help employees handle stress and otherwise cope more effectively while other programs help to reduce the absolute stress levels by rebalancing work life. Therefore, this study will therefore help enlighten management of various organizations of the various effects of work-life balance on employee job satisfaction on the performance of employees in an organization.*

Keywords   *Work, Employee, Work Stress, Work-Life-Balance, Job Satisfaction, Achievement, Responsibilities*

INTRODUCTION

Today's workers have many competing responsibilities such as work, children, housework, volunteering, spouse and elderly parent care and this places stress on individuals, families and the communities in which they reside. Work-life conflict is a serious problem that impacts workers, their employers and communities. Long work hours and highly stressful jobs not only hamper employees' ability to harmonize work and family life but also are associated with health risks, such as increased smoking and alcohol consumption, weight gain and depression. Work life conflict has been associated with numerous physical and mental health implications.

Employees, especially the younger generation who are faced with long hours, the expectations of 24/7 connection and increasing pressure of globalization are beginning to demand changes from their employers. Also, people in the elderly employee segment are working longer now than in the past and are demanding different work arrangements to accommodate their life style needs.

WORK-LIFE BALANCE

Work-life balance is about creating and maintaining supportive and healthy work environments, which will enable employees to have balance between work and personal responsibilities and thus strengthen employee loyalty and productivity.

It is a broad concept that encompasses prioritizing between work (including career and ambition) on one hand, and life (including areas such as health, leisure, family, pleasure and spiritual development) on the other. There are also two key concepts related to work-life balance - achievement and enjoyment. Achievement can be related to setting and achieving the goals we have in life i.e. buying a new house, job satisfaction, further education etc. Enjoyment is related not just to happiness, but also pride, satisfaction, celebration, love, and a sense of wellbeing. Life will often deliver the value and balance we desire when we are achieving and enjoying something every day in all the important areas of our lives. Therefore, a good working definition of work/life balance is meaningful to daily achievement and enjoyment in each of our important life quadrants. These life quadrants will vary for each person but, may include, for example, work, family, friends and self.

JOB SATISFACTION

Job satisfaction is the level of contentment a person feels regarding his or her job. This feeling is mainly based on an individual's perception of satisfaction. Job satisfaction can

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be influenced by a person's ability to complete required tasks, the level of communication in an organization, and the way management treats employees.

Job satisfaction falls into two levels: affective job satisfaction and cognitive job satisfaction. Affective job satisfaction is a person's emotional feeling about the job as a whole. Cognitive job satisfaction is how satisfied employees feel concerning some aspect of their job, such as pay, hours, or benefits.

Many organizations face challenges in accurately measuring job satisfaction, as the definition of satisfaction can differ among various people within an organization. However, most organizations realize that workers' level of job satisfaction can impact their job performance, and thus determining metrics is crucial to creating strong efficiency.

Despite widespread belief to the contrary, studies have shown that high-performing employees do not feel satisfied with their job simply as a result of high-level titles or increased pay. This lack of correlation is a significant concern for organizations, since studies also reveal that the implementation of positive HR practices results in financial gain for the organizations. The cost of employees is quite high, and creating satisfaction relevant to the return on this investment is paramount.

RELATIONSHIP BETWEEN WORK LIFE BALANCE AND JOB SATISFACTION

Employee satisfaction is very important aspect for any organization in order to ensure its effective functioning. In today's competitive world we see organizations are spending lot of time and money on employee satisfaction in an effort to improve productivity, increase customer satisfaction, and also to help the organization needs. Work-Life Balance does not mean an equal balance. Trying to schedule an equal number of hours for each of the various work and personal activities is usually unrewarding and unrealistic.

Job satisfaction is the term that explains how individuals feel towards their job. Employees get high job satisfaction when they get what they expect from a job. Employers provide various benefits to make their employees happy and satisfied with the job. They provide various Work-Life Balance (WLB) facilities too to enable them to balance their work and personal life. The facilities that are created may vary as per the nature of the organization and nature of the job.

Evidence suggests that improvements in people management practices, especially work time and work location flexibility, and the development of supportive managers, contribute to increased work-life balance. Work-life balance programs have been demonstrated to have an impact on employees in

terms of recruitment, retention/turnover, commitment and satisfaction, absenteeism, productivity and accident rates.

If the workforce will be very motivated and so the employer can be benefited from maximised available labour. Every employee will give his/her very best during the working hours. The balance makes employees feel valuable. Implementing work-life balance programmes gives an impression that the organisation cares about the employees. Thus, they will feel more valuable and work harder as a result. The work environment will be less stressful; which means, less stress related illnesses and decreased health care costs. The presence of work-life balance programmes in an organisation makes it attractive to a wider range of candidates when it comes to recruitment.

COMPANY PROFILE

Sterlite Industries (India) Ltd. is a subsidiary of Vedanta Resources plc, a diversified and integrated metals and mining group. The company is based in Mumbai, India. Sterlite Industries (India) Limited (Sterlite) is the flagship company of Vedanta Resources Plc Vedanta) and is a major global player in the nonferrous metals business. Vedanta is listed on the LSE and is a FTSE 100 metals and mining company with a market capitalisation of over US$ 7.5 billion.

SIGNIFICANCE OF THE STUDY

Employers are becoming increasingly aware of the cost implications associated with over-worked employees such as: operating and productivity costs, absenteeism, punctuality, commitment and performance. There are five main reasons why companies participate in work life balance programs: high return on investment, recruitment and retention of employees, legislation, costs and union regulations.

STATEMENT OF THE PROBLEM

Employees are identified with not only the organization, but also with other facets of their life (family, children, religion, etc.). Sometimes these identities align and sometimes they do not. When identities are in conflict, the sense of a healthy work-life balance may be affected. Organization members must perform identity work so that they align themselves with the area in which they are performing to avoid conflict and any stress as a result.

Companies that have implemented the work-life balances programs recognize that employee welfare affects the bottom line of the business. In today's competitive world, organizations are spending lot of time and money on employee satisfaction in an effort to improve productivity, and also to help the organization needs. A comfortable state

of equilibrium is to be achieved between an employee's primary priorities of his/her employment position and his/her private lifestyle. Most psychologists would agree that the demands of an employee's career should not overwhelm the individual's ability to enjoy a satisfying personal life outside of the business environment.

SIGNIFICANCE OF THE STUDY

This study seeks to bring out the various factors of work-life balance affecting employee job satisfaction in Sterlite Copper Inc. There are a wide variety of practices currently being used to help employees achieve work-life balance. It is important to note that some work-life balance programs help employees handle stress and otherwise cope more effectively while other programs help to reduce the absolute stress levels by rebalancing work life.

This study will therefore help enlighten management of various organizations of the various effects of work-life balance on employee job satisfaction on the performance of employees in an organization.

OBJECTIVES OF THE STUDY

- To study the impact of work-life balance on employee job satisfaction.
- To identify the opinion of employees towards work-life with special reference to Sterlite Copper Inc.
- To suggest the organization to take necessary steps to improve the factors related to work-life balance based on the findings of this research study.

METHODOLOGY

The researcher used Questionnaire Method to collect the primary data. Besides, the data were collected from Books, Magazines, Newspapers, Research Articles, Research Journals and E-Journals. Totally, there are 837 employees working at present in Sterlite Copper, Tuticorin. The researcher has taken 100 respondents as samples based on the availability of population. Percentage Analysis is used for analysing the collected data.

LITERATURE SURVEY

A. Work-Life Balance

Iqan lazar (2010): Work life balance practices are organizational changes designed to reduce work family conflict. These work life balance practices enable employees to be effective in both work and personal roles. The more control an employee has on their lives the more able they

are to balance work and family. Conclude that, a successful balance between work and non-work roles are beneficial for both employee and employer. And this balance in work and life domains enhances quality of personal relationship and organizational outcomes.

Felicity Asiedu-Appiah (2013): He concludes that work life balance is important in enhancing employee performance at work and home. Gender difference exists in work life balance needs because work and non-work responsibilities are different for male and females. And also the results show that female demonstrated more need for work life balance as compared to male. An individual derive satisfaction in life from work and family domains. Researches find that work balance practices effect overall organization and individual performance.

B. Job Satisfaction

Afshan Naseem (2011): The researcher found that satisfied employees show excellent performance that leads to organizational success thus result in improved financial success. Employee satisfaction increases the quality of work. Employee satisfaction leads to customer satisfaction because customer service eventually depends on the community who provide that service. Result of the study show that employee satisfaction is a key factor of organizational success.

Ms. Chetnapandey (2012): Job Satisfaction also refers to the employee's general attitude towards his job. Job satisfaction is used to describe how content an individual is with his or her job. Many organizations develop training programs and benefits packages to develop loyal employees. Longer employees work for the organization, more valuable the employees become. Job satisfaction is most important attitude in the field of the organization behavior.

C. Reviews On Work-Life Balance & Job Satisfaction

Noor (2011): The level of employees' job satisfaction increases by many factors and when employees are satisfied with their work, they feel motivated. The demand of employees work life balance is increased by change in trends in the business such as change in organizations structure, diversity of work force and female employees working in organizations. Organizations should provide work life balance facilities to their employees so that employees can perform their duties effectively and leads organization to the success.

Yutaka Ueda (2012): Employees feel more satisfaction with their work and family when they enjoy the benefits of work life balance programs provided by their employers. Conclude that work life balance programs have different effects for male and female employees. Male employees are

satisfied with all the three measures such as job, work life balance program and employer. But female employees have a significant relationship only with employer satisfaction. Work life balance programs have greater effects for Employees of higher income as compared to lower income.

DATA ANALYSIS AND INTERPRETATION

Table 1 : Gender

S . No	Gender	Marital Status		Percentage
		Married	**Unmarried**	
1	Male	40	28	68
2	Female	22	10	32
	Total	62	38	100

Inference

It is clear from Table 1 that out of 68 Males working in Sterlite, most of them (40) are married and and also only few are unmarried(10) out of 22 female employees.

Table 2: Marital Status

S. No	Marital Status		No of Respondents	Percentage
1	**Single**		**38**	**38**
2	Mar-ried	Number of De-pendents	1	12	62
			2	25	
			3	13	
			4	10	
			5	2	
	Total		100	100

Inference

The table 2 depicts that out of 62 Married respondents, Majority (25) of respondents are having 2 dependents.

Table 3: Age Group of the Employees

Age Group	Grad-uates	Post Grad-uates	Eng-ineering	Diploma	Total
Below 25yrs	3	2	3	8	16
25-34yrs	5	5	15	6	21
35-44yrs	18	9	5	4	36
Above 44	8	3	3	3	17
Total	34	19	26	21	100

Inference

Table 3 highlights that out of 100 respondents, majority of the employees (57) are in the age group of 25 - 44 years. Out of these, 45% of them are with higher educational qualification such as Post Graduation and Engineering. Hence, it is inferred that majority of the employees are highly qualified.

Table 4: Employees' Experience

S. No	Years	10001-20000	20001-30000	Above 30000	Total
1	0-10 yrs.	23	11	6	52
2	11-20 yrs	10	8	4	26
3	21 – 30yrs.	13	5	3	16
4	Above 30 yrs	11	3	3	6
	Total	57	27	16	100

Inference

Table 4 clearly gives information about the working experience as well as monthly income of employees. Out of 100 respondents, 52% of them have only 10 years of experience and most of them (23) are getting less than Rs. 20,000. Out of 6 people having more than 30 years of experience, only 50% (3) are getting an income of above Rs. 30,000. Most of the employees are less experienced, so the organization can mould them in the initial stage itself to achieve corporate objectives in an effective manner.

Table 5: Employee's Option Towards Opportunity To Do The Best Every Day

S. No	Opinion	No of Respondents	Percentage
1	Strongly Agree	41	41
2	Agree	21	21
3	No Opinion	21	21
4	Disagree	16	16
5	Strongly Disagree	1	1
	Total	100	100

Inference

Table 5 states that out of 100 respondents, around 62% of the respondents feel that they get opportunity to do their best every day. But, 21% of the respondents are unable to identify the opportunities for doing their best in their jobs.

Table 6: Employee's Opinion Towards Availability of Leave Facility while his /her indisposition

S.No	Opinion	No of Respondents	Percentage
1	Strongly Agree	54	54
2	Agree	15	15
4	Disagree	16	16
5	Strongly Disagree	15	15
	Total	100	100

Inference

Table 6 shows employee's opinion towards getting time off for duties while they are not well. Out of 100 respondents, 54% of the respondents strongly agreed and 15% agreedthat they are availing leave facility during indisposition.

Table 7: Employee's Opinion Towards Time Spent on Family

S.No	Opinion	No of Respondents	Percentage
1	Highly Satisfied	18	18
2	Satisfied	33	33
3	No Opinion	11	11
4	Dissatisfied	29	29
5	Highly Dissatisfied	9	9
	Total	100	100

Inference

It is evident from table 7 that out of 100 respondents,majority (51%) of them are satisfied with the Time Spent on Family personally. However, 11% are unable to say whether they are satisfied or dissatisfied with the time spent with family. The duration of time spent for this purpose plays a vital role in determining work - life balance.

Table 8: Satisfactory Level of Employees Towards Welfare Policies

S.No	Opinion	No of Respondents	Percentage
1	Highly Satisfied	12	12
2	Satisfied	35	35
3	No Opinion	12	12
4	Dissatisfied	30	30
5	Highly Dissatisfied	11	11
	Total	100	100

Inference

The above table 8 depicts that less than 50 % (47) of the Employees are satisfied with the Welfare Policies provided by the employer due to which she/he is able to balance both his/her work as well as life.

Table 9: Employee's Opinion Towards Ability to Have Good Work-Life Balance With the Present Employment

S.No	Opinion	No of Respondents	Percentage
1	Strongly Agree	28	28
2	Agree	21	21
3	No Opinion	18	18
4	Disagree	24	24
5	Strongly Disagree	9	9
	Total	100	100

Inference

It is significant from the table 9 that 49 of the respondents strongly agreed that they are able to maintain good work-life balance with the present employment.

Table 10: Employee's Opinion towards Job Satisfactory Level due to Work Load

S.No	Satisfactory Level	No of Respondents	Feeling Pressure Due to Workload	Total
1	Highly Satisfied	27	2	29
2	Satisfied	22	3	25
3	Dissatisfied	4	10	14
4	Highly Dissatisfied	27	5	32
	Total	80	20	100

Inference

The table 10 shows that out of 100 respondents,nearly half of the respondents (49%) are feeling satisfied with the work load assigned to them.

Table 11: Employee's Opinion Towards Having Clear Direction of Personal and Career Goals

S.No	Opinion	No of Respondents	Percentage
1	Strongly Agree	12	12
2	Agree	41	41
3	No Opinion	10	10
4	Disagree	30	30
5	Strongly Dis-agree	7	7
	Total	100	100

Inference

Table 11 clearly states that 53% of the employees agree that they are having Clear Direction and they are able to develop Personal And Career Goals and only 37% of the respondents disagreed that they do not have clear direction of personal and career goals.

FINDINGS OF THE STUDY

1. Out of 68 Males working in Sterlite, most of them (40) are married while, just 10 females are unmarried.

2. Majority (25) of respondents are having 2 dependents and they are trying to have work-life balance.

3. Majority of the employees (57) are in the age group of 25 – 44 years. Besides, 45% of them are with higher educational qualification such as Post Graduation and Engineering. Hence, it is inferred that majority of the employees are highly qualified.

4. Out of 100 respondents, 52% of them have only 10 years of experience and most of them (23) are getting less than Rs. 20,000.

5. 21% of the respondents are unable to identify the opportunities for doing their best in their jobs. But around 62% of the respondents feel that they get opportunity to do their best every day.

6. Majority (54%) of the respondents strongly agreed that they are availing leave facility where they are able to balance their work as well as health.

7. (51%) of them are satisfied with the Time Spent on Family personally. However, 11% are unable to say whether they are satisfied or dissatisfied with the time spent with family. The duration of time spent for this purpose plays a vital role in determining work - life balance.

8. Nearly half of the respondents (49%) are feeling satisfied with the work - life balance.

9. Besides, 47 of the Employees are satisfied with the Welfare Policies provided by the employer due to which she/he is able to balance both his/her work as well as life.

10. 53% of the employees agree that they are having Clear Direction and Develop Personal and Career Goals and only 37% of the respondents disagreed that they do not have clear direction of personal and career goals.

SUGGESTIONS

- As a part of the wellness programs the company can pay for their employees' gym membership as part of a benefits package. The management can also invite fitness trainers or yoga instructors into the office to hold lunchtime sessions.

- It is also better to undertake initiatives to improve employees' healthy eating habits.

- Human resources policies that can be used to increase work-life balance include:
  – implementing time off in lieu of overtime pay arrangements,
  – providing a limited number of days of paid leave per year for child care,
  – having policies around weekend etc.

- Work-Life Balance practices such as

- Shift snapping

- Self rostering

- Job sharing

- Special leave arrangement and

- Parental leave can be adopted and implemented by the company.

CONCLUSION

The benefits of a work-life balance initiative are not confined to just the workforce. Work/life policies and flexible working practices can also help to react to changing market conditions more effectively and meet customer demands - for example, shift work, part-time work and flexitime can help employees work longer hours, meet seasonal peaks and troughs in the organization. Besides it also helps to boost the competitiveness and become recognised as a business that people want to work for.

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Marketing Strategy Selection by Interval TOPSIS under Incomplete Data

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Abstract   *The choice of suitable marketing strategy is extremely valuable for any business. Some authors claim that, marketing strategy development involves a high degree of uncertainty and ambiguity on the one hand, and can be classified as a Multi-criteria Decision Making (MCDM) problem on the other. In this paper, we try to see all aforementioned factors together. Since, in order to reflect uncertainty of the given information, interval TOPSIS, incomplete decision matrix, and interval criteria weights (instead of conventional modes, crisp data) are obtained is applied. However, in marketing strategy selection problem incomplete data is common; TOPSIS are not applicable to incomplete data. Therefore, to resolve this limitation, the Tamaddon et al. method (the mathematical formulations for finding the missing data in the Data Envelopment Analysis [DEA] environment), has introduced. In this paper, we focus our main attention on the innovative combination of TOPSIS and proposed method initiated by Tamaddon et al., and its uses in the marketing strategy selection problem under incomplete data. In the proposed method, input and output factors play the role of cost and benefit respectively. In addition, comparative analysis performed, and the proposed method seems to be more satisfactory than the traditional method in solving decision problem. The paper concludes with limitations and further research directions.*

Keywords   *MCDM,, TOPSIS, Incomplete Data, Marketing Strategy Selection Problem*

INTRODUCTION

Since strategy is concerned with the future, the strategic context of a firm is always uncertain, although the degree and the source of uncertainty may be different for different firms. Facing an uncertain future, the first decision a firm has to make is when to act. The firm has the choice of acting now or waiting until after the uncertainty is resolved, or at least partly resolved. If the firm does act early while there still is uncertainly, it has to decide whether to focus its resources on several scenarios, thus maintaining flexibility (Wernerfelt and Karnani, 1987). It is important considering that marketing strategy is not a standalone endeavor and should be an integral component of functional area strategies of the firm, e.g. marketing, finance, and human resources, of the firm (Ebrahimi et al., 2015). Also, according to the viewpoint proposed by Li et al. (2000), marketing strategy involves a high degree of uncertainty and ambiguity. Therefore, uncertainty is the main challenges to the marketing strategy selection problem.

An organizations marketing strategy describes how the firm will fulfill the needs and wants of its customers (Ferrell and Hartline, 2011). Since, marketing activities to succeed in business is so important. So, organization should try its best in selecting its marketing strategies and behave rationally (Jandaghi and Aziziyan, 2015). The purpose of marketing strategy development is to establish, build, defend and maintain competitive advantage (Li et al., 2000). Therefore,

proper and strong marketing strategy is essential for the survival and success of any business in the increasing complex, competitive environment of organizations (Ebrahimi et al., 2015). There are many definitions of marketing strategy in the marketing literature, reflecting differing points of view. However, most of the definitions agree that marketing strategy provides the means of utilizing the company's skills and resources to achieve marketing objectives. Generally, marketing strategy is concerned with the four major element of the marketing mix: product, price, place and promotion. Essentially, marketing strategy evolves as a consequences of an interplay of four major strategic inputs and the processes which act on them (Li et al., 2000). In other words, marketing strategy focuses on ways in which can differentiate itself from its competitors, investing on its distinctive strengths to deliver better value to customers. A good marketing strategy is characterized by: a) a clear market definition, b) a proper match between corporate strengths and market needs, and c) a superior performance relative to the competition, in the key success factors of the business (Ebrahimi et al., 2015). One of the greatest frustrations and opportunities in marketing is change-customers change, competitors change, and even the marketing organization changes. Strategies that are highly successful today will not work tomorrow. Customers will buy products today that they will have no interest in tomorrow. Another fact about marketing strategy is that it is inherently people driven. Marketing strategy is about people (inside and organization) trying to find ways to deliver exceptional value by fulfilling

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the needs and wants of other people (customers, shareholders, business partners, society at large), as well as the needs of the organization itself. In short, marketing strategy is about people serving people. The combination of continual change and the people-driven nature of marketing make developing and implementing marketing strategy a challenging task (Ferrell and Hartline, 2011). In other words, arriving at a sound and timely marketing strategy is not an easy task. Because of bitter competition, uncertainty, high stakes, and the complexity and fast pace of change in the environment, strategic marketing planning presents a real challenge to managers (Li et al., 2000). In addition, selecting a strategy mainly encompasses mental and qualitative judgments. Therefore, selecting marketing strategies is a strategic issue that is limited to organization resources needs, realistic support, time requirements, compliance with outcomes, or business purpose (Jandaghi and Aziziyan, 2015). So, a marketing strategy decision can be classified as a Multi Criteria Decision Making (MCDM) problem (Wu et al., 2010).

Multiple criteria decision problems are prevalent in many business fields, including marketing, operations management, finance, accounting, etc. (Javalgi and Jain, 1988). MCDM mainly consists of the following two parts: 1. Collect decision information. The decision information generally includes the attribute weights and the attribute values. In a MCDM problem, there are generally a finite set of alternatives and a collection of attributes. The attributes are the indices used to measure the given alternatives, and each attribute has its importance, which is to be determined in the process of decision-making. The attribute values are usually the measure values for the alternatives with respect to each attribute, which mainly take the form of real numbers, interval numbers, triangular fuzzy numbers, intuitionistic fuzzy numbers and linguistic variables, etc. 2. Aggregate the decision information through some proper approach and then rank or select more of the alternatives. In other words, MCDM models are used for evaluating, ranking and selecting the most appropriate alternative from among several alternatives (Azadfallah, 2016$_a$). In this paper an extended Technique for preference by Similarity to Ideal Solution (TOPSIS) method with interval data is proposed to solve the marketing strategy selection problem under incomplete information. TOPSIS proposed by Yoon & Hwang, is one of the widely used techniques in Multiple Attribute Decision Making (MADM / often-called MCDM). MADM models are selector models that are used for evaluating, ranking, and selecting the most appropriate alternative from among several alternatives. Moreover, TOPSIS can rank a finite number of feasible alternatives in order of preference according to the features of each attribute of every alternative and select a suitable alternative that confirms to the decision makers ideal. The basic concept of TOPSIS technique is that the selected alternative will have the shortest Euclidean

distance from the ideal solution and the farthest Euclidean distance from the anti-ideal solution. In the classical TOPSIS method, the rating of alternatives and the weights of criteria are presented by real values (Azadfallah, 2016$_b$). According to viewpoint proposed by Stanujkic et al. (2012), in such environments classical MADM methods, which use crisp numbers to express the rating and weights, do not provide adequate and effective decision-making. So, when determining the exact values of the attributes is difficult or impossible, it is more appropriate to consider them as interval numbers. The interval numbers are more suitable to deal with the decision-making problems in the imprecise and uncertain environment, because they are the simplest form of representing uncertainty in the decision matrix (Sayadi et al., 2009). Therefore, Jahanshahloo et al. (2006) extended the concept of TOPSIS to develop a methodology for solving MADM problems with interval data. That is the problem we will wish to address here. On the other side, in 2009, Tamaddon et al., developed the mathematical formulations for finding the missing data in the case that the data are interval, in the Data Envelopment Analysis (DEA) environment. In this method, firstly, the missing amounts via the sum of other DMUs (Decision Making Units) inputs and outputs in the case that the data are interval, upper and lower bounds of the missing data via crisp processes determined, and by using convex combination of the interval beginnings and endings, we can obtain a linear function of an analogous variable with each one of the inputs and outputs components; so that we can obtain a function for the missing data via crisp process. In this paper, we focus our main attention on the innovative combination of TOPSIS with interval data and proposed method initiated by Tamaddon et al., and its uses in the marketing strategy selection problem under incomplete information. Whereas, in the proposed method, input and output factors play the role of cost and benefit respectively.

The paper is organized as follows. In the second section, the literature and in the third section, the proposed approach is discussed. Numerical example is provided in the next section. The paper is concluded in the fifth and the last section.

LITERATURE REVIEW

In sum, given the complexity and uncertainty in our environment, MCDM is a powerful decision-making tool to structure problem clearly and systematically (Clin et al., 2009). Nevertheless, in the current MCDM literature, many studies exist on missing data (or incomplete information), however, most of them are limited to Analytic hierarchy Process (AHP) method. Harker (1987), Wedley (1993), Wedley et al. (1993), Wedley (2006), Fedrizzi and Giove (2006), Gao et al. (2010), Carmo et al. (2013), Srdjevic et al. (2014), and Azadfallah (2016$_c$), could be referred to as an example in one hand. Many studies relate to marketing

strategy and marketing resources, but few deals with criteria for MCDM marketing strategy on the other. It is also worth noting here that during our review of the current literature, no studies were found that focuses the combination of methods proposed in this paper. Nevertheless, we will mention some of them. Wind and Saaty (1980) suggested the potential application of the AHP to various marketing decision. Javalgi and Jain (1988) focused on integrating the MCDM models within the decision support system (DSS) framework to encourage greater use of these models. A DSS framework and the criteria used for choice of a model are discussed. Then, based on these MCDM models generally used in the marketing field are evaluated. Li (2005) established a web-enabled approach that combines the advantages of a web-based expert system with the benefits of the group Delphi technique and links strategic marketing planning with internet and e-commerce strategy formulation. Amir et al. (2001) analyzed the process of market selection of investment strategies in an incomplete asset market. Albadavi et al. (2007) introduced the application of PROMETHEE as a multi criteria decision-making approach for ranking preferential alternatives and for determining the best target market. Hartline et al. (2008) used of social networks in implementing viral marketing strategies. In their model, a buyer's decision to buy an item is influenced by the set of other buyers that own the item and the price at which the item is offered. They consider the incomplete information setting in which we only need to know the optimal price. Josephy et al. (2007) presented an algorithm producing a dynamic non-self-financing hedging strategy in an incomplete market corresponding to investor-relevant risk criterion. Read et al. (2008) discussed how marketing strategy decisions should be made in situations of uncertainty. So, they begin to fill the gap between existing marketing tools and the needs of managers facing uncertainty by giving a representative task to individuals with related real-world expertise, and comparing their strategies to those without such experience. Lin et al. (2009) provided a five-step decision making process to enable careful marketing strategy assessment, and contributes to practical implementation for fuzzy ANP utilization by marketing experts in a real industry. Read et al. (2009) extracted some common decision strategies of expert entrepreneurs faced with uncertain business problems and from these findings, made inferences to aid our understanding about the genesis of products, firms, and markets. Shahbandarzadeh and Haghighat (2010) considered the international marketing strategies of Boushehr province according to the variability in target markets. The marketing strategies were defined on the base of participation in six target markets of Boushehr exports. Each of the markets was investigated in terms of four general attributes of opportunities, threats, weakness and strength points, and the sub-attributes thereof by using of IFE and EFE matrixes. Then, LINAMP technique was employed for investigation

and gradation of the above-mentioned strategies (separately for each level). At last, the results of each model (or level) were combined by using Borda technique and final grading was achieved. Wu et al. (2010) implemented of the integration of the ANP and TOPSIS, which can be utilized by marketing strategists in a real industry to determine the appropriate marketing strategy. Alaybeyoglu et al. (2012) studied marketing strategies and marketing decisions in the new product development process, so, the criteria that are effective in this process defined and a MCDM mode (particularly, ANP model) proposed to weight the criteria and to define the best strategic marketing scenario. Alaybeyoglu and Albayrak (2013) evaluated pricing strategies and select the pricing strategy solution while considering internal and external factors influencing the company's pricing decision associated with new product development. To reflect the decision maker's subjective preference information and to determine the weight vector of factors (attributes), the fuzzy LINMAP under intuitionistic fuzzy environments is used. Helm and Gritsch (2014) examined determinants of an international marketing mix strategy within a specific business-to-business context that includes the effects of uncertainty. Wieloch (2014) designed two new procedures (for dependent and independent criteria matrices) for multi criteria decision making with scenario planning with an example of marketing strategies selection. Ebrahimi et al. (2015) proposed a suitable model for determining the appropriate marketing strategy based on corporate resources and capabilities. In this regard, a three-step multi criteria decision-making framework is developed to determine the most appropriate marketing strategy in an efficient manner. Jandaghi and Aziziyan (2015) tried to select the optimum marketing strategy for privileged deposits of Maskan bank by purpose of selecting the optimum marketing strategy and using combined multi-criterion decision-making strategy of two ANP and DEMATEL techniques. Finally, An et al. (2007) investigated a market-based mechanism for resource allocation. This paper presents a proportional resource allocation mechanism and gives a game theoretical analysis of the optimal strategies and the analysis shows the existence of equilibrium in the incomplete information setting. In this regard, a hybrid MCDM- mathematical approach (TOPSIS-mathematical formulations for finding the missing data) is suggested to determine the most appropriate marketing strategy in effective manner.

CONCEPTUAL FRAMEWORK AND PROPOSED APPROACH

Conceptual Framework

According to the viewpoint proposed by Robinson (2006), most business decisions are made with incomplete

information and in the face of an uncertain future. In other words, in reality, markets are incomplete (Staum, 2008), and uncertainty is a salient concern in many markets (Flood, 1991). At the same time, proper and strong marketing strategy is essential for the survival and success of any business, and involves a high degree of uncertainty and ambiguity (Li et al., 2000) on the one hand, and can be classified as a MCDM problem (Wu et al., 2010) on the other. Since, in this paper, TOPSIS, which is one of the widely used techniques in MCDM (Azadfallah, 2016$_b$) proposed. Furthermore, in order to reflect uncertainty of the given information,

interval TOPSIS is applied. Because, according to Sayadi et al. (2009), the interval numbers are more suitable to deal with the decision-making problems in the imprecise and uncertain environment. However, TOPSIS with interval data method are not applicable to incomplete information. So, to overcome this drawback, this paper focuses on the application of the TOPSIS with interval data method in combination with mathematical approach (Tamaddon et al. method; the mathematical formulations for finding the missing data), for solving a marketing strategy problem, under incomplete information (Fig. 1).
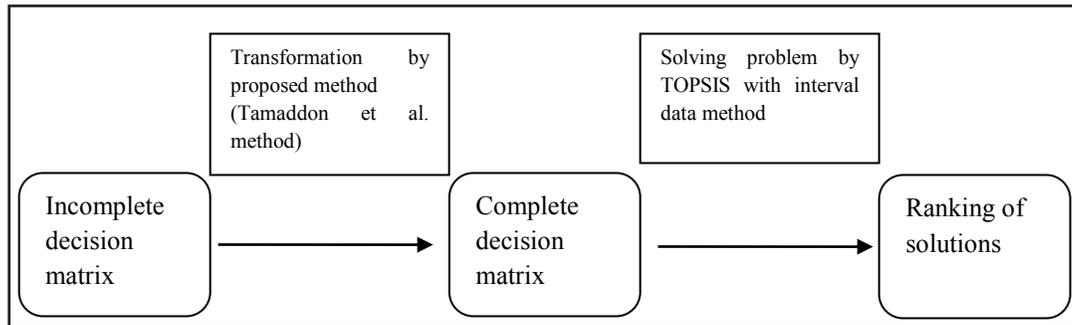

Fig. 1: The Proposed Framework

The Proposed Approach

In many real life problems, the data of the decision-making processes cannot be measured precisely and there may be some other types of data, for instance interval data and fuzzy data. In other words, the decision maker would prefer to say his/her point of view in these forms rather than a real number because of the uncertainty and the lack of certain data, especially when data are known to lie within bounded variables, or when facing missing data, judgment data, etc. (Lotfi and Fallahnejad, 2010). So, Suppose $A_1, A_2,…,A_m$ are m possible alternatives among which decision makers have to choose, $C_1, C_2,…, C_n$ are criteria with which alternative performance are measured, x_{ij} is the rating of alternative A_i with respect to criterion C_j and is not known exactly and only we know $x_{ij} \in [x_{ij}^l, x_{ij}^u]$. A MADM problem with interval data can be concisely expressed in matrix format as (Jahanshahloo et al., 2006):

-	C_1	C_2	C_3
A_1	$[x_{11}^l, x_{11}^u]$	$[x_{12}^l, x_{12}^u]$	$[x_{1n}^l, x_{1n}^u]$
A_2	$[x_{21}^l, x_{21}^u]$	$[x_{22}^l, x_{22}^u]$	$[x_{2n}^l, x_{2n}^u]$
A_3	$[x_{m1}^l, x_{m1}^u]$	$[x_{m2}^l, x_{m2}^u]$	$[x_{mn}^l, x_{mn}^u]$

$w= [w_1, w_2… w_n]$, where w_j is the weight of criterion C_j.

TOPSIS with Interval Data

In Jahanshahloo et al. (2006), an interval extension of original TOPSIS method was proposed. This approach may

be described as follow:

1. Calculate the normalized decision matrix. The normalized value $\bar{n}_{ij}$ is calculated as:

$$\bar{n}^l_{ij} = x^l_{ij} / \sqrt{\sum_{j=1}^{m} (x^l_{ij})^2 + (x^u_{ij})^2}, \quad j=1,…,m, \quad i=1,…,n, \tag{1}$$

$$\bar{n}^u_{ij} = x^u_{ij} / \sqrt{\sum_{j=1}^{m} (x^l_{ij})^2 + (x^u_{ij})^2}, \quad j=1,…,m, \quad i=1,…,n, \tag{2}$$

2. Calculate the weighted normalized interval decision matrix. The weighted normalized value $\bar{v}_{ij}$ is calculated as:

$$\bar{v}^l_{ij} = w_i \bar{n}^l_{ij}, \quad j=1,…,m, \quad i=1,…,n, \tag{3}$$

$$\bar{v}^u_{ij} = w_i \bar{n}^u_{ij}, \quad j=1,…,m, \quad i=1,…,n, \tag{4}$$

Where w_i is the weight of the i_{th} attribute or criterion, and $\sum_{i=1}^{n} = 1$.

3. Determine the positive ideal and negative ideal solution.

$$\bar{A}^+ = \{\bar{v}_1^+,…, \bar{v}_n^+\} = \{(\max \bar{v}^u_{ij}/i \in I), (\min \bar{v}^l_{ij}/i \in J)\}, \tag{5}$$

$$\bar{A}^- = \{\bar{v}_1^-,…, \bar{v}_n^-\} = \{(\min \bar{v}^l_{ij}/i \in I), (\max \bar{v}^u_{ij}/i \in J)\}, \tag{6}$$

Where I is associated with benefit criteria, and J is associated with cost criteria.

4. Calculate the separation measures, using the n-dimensional Euclidean distance. The separation of each alternative from the ideal solution is given as:

$$\bar{d}^+_j = \{\sum_{i \in I} (\overline{v^l_{ij} - \bar{v}_i^+})^2 + \sum_{i \in I} (\overline{v^u_{ij} - \bar{v}_i^+})^2\}^{1/2}, \quad j = 1,…, m. \tag{7}$$

Similarly, the separation from the negative ideal solution can

be calculated as:

$$\bar{d}_j^- = \{\sum_i \epsilon_I \overline{(v}_{ij}^u - \bar{v}_i^-)^2 + \sum_i \epsilon_I \overline{(v}_{ij}^l - \bar{v}_i^-)^2\}^{1/2}, \ j = 1,\ldots, m. \tag{8}$$

5. Calculate the relative closeness to the ideal solution. The relative closeness of the alternative A_j with respect to $\bar{A}^+$ is defined as:

$$\bar{R}_j = \bar{d}_j^- / (\bar{d}_j^+ + \bar{d}_j^-), \quad j = 1,\ldots, m. \tag{9}$$

Obviously, an alternative A_j is closer to the $\bar{A}^+$ and farther from $\bar{A}^-$ as $\bar{R}_j$ approaches to 1.

(6) Rank the preference order. Therefore, according to the closeness coefficient, we can determine the ranking order of all alternatives and select the best one from among a set of feasible alternatives.

Entropy with Interval Data

In Lotfi and Fallahnejad, (2010), an extended Shannon's Entropy method was proposed. This approach may be described as follow:

1. The normalized values P_{ij}^l and P_{ij}^u are calculated as:

$$P_{ij}^l = x_{ij}^l / \sum_{j=1}^m x_{ij}^u, \quad P_{ij}^u = x_{ij}^u / \sum_{j=1}^m x_{ij}^u, \quad j=1,\ldots, m, \\ i = 1,\ldots, n. \tag{10}$$

2. Lower bound h_i^l and upper bound h_i^u of interval entropy can be obtained by:

$$h_i^l = \min \{- h0 \sum_{j=1}^m p_{ij}^l. \text{Ln} \ p_{ij}^l, - h0 \sum_{j=1}^m p_{ij}^u. \text{Ln} \ p_{ij}^u\}, \\ i = 1,\ldots, n. \tag{11}$$

$$h_i^u = \max \{- h0 \sum_{j=1}^m p_{ij}^l. \text{Ln} \ p_{ij}^l, - h0 \sum_{j=1}^m p_{ij}^u. \text{Ln} \ p_{ij}^u\}, \\ i = 1,\ldots, n. \tag{12}$$

Where h0 is equal to (Ln m)-1, and P_{ij}^l. Ln p_{ij}^l or p_{ij}^u. Ln p_{ij}^u is defined as 0 if $P_{ij}^l = 0$ or $P_{ij}^u = 0$.

3. Set the lower and the upper bound of the interval of diversification d_i^l and d_i^u as the degree of diversification as follow:

$$d_i^l = 1 - h_i^u, \ d_i^u = 1 - h_i^l, \quad i = 1,\ldots, n. \tag{13}$$

Set $w_i^l = d_i^l / \sum_{s=1}^n d_s^u, \ w_i^u = d_i^u / \sum_{s=1}^n d_s^l$, $i = 1,\ldots, n$, as the lower and upper bound of interval weight of attribute i.

Theorem. The inequality $w_i^l \le w_i^u$, $i = 1,\ldots, n$ is held.

The mathematical formulations for finding the missing data (or Tamaddon et al. method).

According to the view point proposed by Tamaddon et al. (2009) for finding the missing data (or incomplete information) the following method is suggested. Suppose that n DMUs with m inputs and s outputs which are the data of interval inputs and outputs are existed, but the i_{th} input

of DMU_k; that is $[X_{ik}^l, X_{ik}^u]$ is missing (as noted earlier, in this paper, input, output, and DMUs factors play the role of cost criteria, benefit criteria, and alternative respectively). In continuation, the lower bound of the missing interval is calculated as the following:

$$P_1^l = X_{1k}^l / \sum_{j=1, j\ne k}^n X_{1j}^l, \ P_2^l = X_{2k}^l / \sum_{j=1, j\ne k}^n X_{2j}^l, \ldots, P_i^l = ?, \ldots,$$

$$P_m^l = X_{mk}^l / \sum_{j=1, j\ne k}^n X_{mj}^l \tag{14}$$

$$P_1^{'l} = y_{1k}^l / \sum_{j=1, j\ne k}^n y_{1j}^l, \ P_2^{'l} = y_{2k}^l / \sum_{j=1, j\ne k}^n y_{2j}^l, \ldots, \\ P_s^{'l} = y_{sk}^l / \sum_{j=1, j\ne k}^n y_{sj}^l \tag{15}$$

Therefore:

$$\bar{P}^l = \sum_{i=1}^m P_i^l + \sum_{r=1}^s P_r^{'l} / m + s - 1 \tag{16}$$

Finally:

$$X_{ik}^l / \sum_{j=1, j\ne k}^n X_{ij}^l = \bar{P}^l \rightarrow X_{ik}^l = \bar{P}^l \sum_{j=1, j\ne k}^n X_{ij}^l \tag{17}$$

In addition, the upper bound of the missing data is calculated similarly:

$$\bar{P}^u = \sum_{i=1}^m P_i^u + \sum_{r=1}^s P_r^{'u} / m + s - 1 \tag{18}$$

Finally:

$$X_{ik}^u / \sum_{j=1, j\ne k}^n X_{ij}^u = \bar{P}^u \rightarrow X_{ik}^u = \bar{P}^u \sum_{j=1, j\ne k}^n X_{ij}^u \tag{19}$$

We have,

$$[X_{ik}^l, X_{ik}^u] = [\bar{P}^l \sum_{j=1, j\ne k}^n X_{ij}^l, \bar{P}^u \sum_{j=1, j\ne k}^n X_{ij}^u] \tag{20}$$

Now, we should show that every point considered within the intervals of defined inputs and outputs and we use the suggested way for finding the missing data among crisp data. Therefore, we consider the convex combination of all inputs and outputs, which are interval.

Which $0 \le \mu \le 1$.

In order to obtain missing data, the solution for finding the missing data among crisp data should be executed:

$$P_1 = \mu X_{1k}^u + (1-\mu) X_{1k}^l / \sum_{j=1, j\ne k}^n (\mu X_{1j}^u + (1-\mu)X_{1k}^l, \ldots, P_i = ?, \\ \ldots, P_m = \mu X_{mk}^u + (1-\mu)X_{mk}^l / \sum_{j=1, j\ne k}^n (\mu X_{mj}^u + (1-\mu)X_{mj}^l) \tag{21}$$

$$P_1' = \mu y_{1k}^u + (1-\mu) y_{1k}^l / \sum_{j=1, j\ne k}^n (\mu y_{1j}^u + (1-\mu)y_{1j}^l, \ldots, P_s' = \\ \mu y_{sk}^u + (1-\mu)y_{sk}^l / \sum_{j=1, j\ne k}^n (\mu y_{sj}^u + (1-\mu)y_{sj}^l) \tag{22}$$

Therefore:

$$\bar{P} = \sum_{i=1}^m P_i + \sum_{r=1}^s P_r' / m + s - 1 \tag{23}$$

And:

$$X_{ik} / \sum_{j=1, j\ne k}^n (\mu X_{ij}^u + (1-\mu) X_{ij}^l = \bar{P} \tag{24}$$

Finally:

$$X_{ik} = \bar{P} \sum_{j=1, j\ne k}^n (\mu X_{ij}^u + (1-\mu) X_{ij}^l) \tag{25}$$

Therefore, by considering the convex combination of all obvious inputs and outputs, the missing data X_{ik} is obtained through a function based on μ such as f (μ).

NUMERICAL EXAMPLE

A numerical example is discussed in this section to show how to implement the proposed method. The problem is to rank alternatives by TOPSIS with interval data method according to the DMs incomplete preference information on alternatives (in other words, marketing strategy selection problem). Assume that there are five alternatives (marketing strategy; S_1= developing new product, S_2= entering new markets, S3= new modes of distribution, S4= offering pricing and sales incentive, and S5= growth through acquisition), and four criteria (C_1=required investment, C_2=sales growth, C_3=market share, and C_4=brand image). However, expert for each reason fails to make some judgments (i.e. adding new products or entering new market, etc.), thus there is empty cell in the corresponding decision matrices (table 1).

Table 1: Incomplete Decision Matrix

Criteria Alternative	C_1	C_2	C_3	C_4
S_1	[12000,15000]	[2100,2200]	[12,14]	[3,7]
S_2	[15000,21000]	[2100,2800]	[4,9]	[5,9]
S_3	?	[2700,3300]	[10,17]	[7,9]
S_4	[14000,15000]	[2300,2900]	[13,17]	[3,5]
S_5	[14000,20000]	[2800,3800]	[14,15]	[1,3]

Where C_1 is cost type criteria, and C_2, C_3 and C_4 benefit type criteria. As noted earlier, there is incomplete information in the DMs preference judgment on alternatives (i.e. for a_{31}).

For finding the missing interval $[a^l_{31}, a^u_{31}]$, we use the process expressed in section (3.2.2.). in continuation, consider table (2), the data of this table are the convex combination of the intervals of table 1 which in this table, a_{31} is missing.

Table 2: The Convex Combination of Interval Data

Criteria Alternative	C_1	C_2	C_3	C_4
S_1	15000μ + 12000(1-μ)	2200μ + 2100(1-μ)	14μ+12 (1-μ)	7μ + 3 (1-μ)
S_2	21000μ + 15000(1-μ)	2800μ + 2100(1-μ)	9μ + 4 (1-μ)	9μ + 5 (1-μ)
S_3	?	3300μ + 2700 (1-μ)	17μ + 10 (1-μ)	9μ + 7 (1-μ)
S_4	15000μ + 14000 (1 - μ)	2900μ + 2300 (1-μ)	17μ + 13 (1-μ)	5μ + 3 (1-μ)
S_5	20000μ + 14000 (1 - μ)	3800μ + 2800 (1-μ)	15μ + 14 (1-μ)	3μ + 1 (1-μ)

In this section, the missing value for a_{31} regards to formula number (25) can be finding and the result is as follows (table 3).

a_{31}= ((((3300 μ +2700(1- μ)/(11700 μ +9300(1- μ)) + ((17 μ +10(1- μ)/(55 μ +43(1- μ)) +((9 μ +7(1- μ)/(24 μ +12(1- μ)))/(2+2-1))*(71000 μ +55000(1- μ)

If μ=1, the amount of a_{31} is equal to 22865 which is that a^u_{31} and if μ=0, a_{31} is equal to 20281 which is that a^l_{31}. Therefore, the missing interval is obtained through [20281, 22865].

Table 3: Complete Decision Matrix

Criteria Alternative	C_1	C_2	C_3	C_4
S_1	[12000,15000]	[2100,2200]	[12,14]	[3,7]
S_2	[15000,21000]	[2100,2800]	[4,9]	[5,9]
S_3	**[20281, 22865]**	[2700,3300]	[10,17]	[7,9]
S_4	[14000,15000]	[2300,2900]	[13,17]	[3,5]
S_5	[14000,20000]	[2800,3800]	[14,15]	[1,3]

In continuation, first, we want to get a weight for each criterion by using the proposed approach (the extended Shannon's entropy method with interval data). So, in table 4, the normalized rates, and in table 5, entropy, degree of diversification and weight are presented.

Table 4: The Normalized Rates (P_{ij})

Criteria Alternative	C_1		C_2		C_3		C_4	
	x^l_{1j}	x^u_{1j}	x^l_{2j}	x^u_{2j}	x^l_{3j}	x^u_{3j}	x^l_{4j}	x^u_{4j}
S1	.128	.160	.140	.147	.167	.194	.091	.212
S2	.160	.226	.140	.187	.056	.125	.152	.273
S3	.216	.244	.180	.220	.139	.236	.212	.273
S4	.149	.160	.153	.193	.181	.236	.091	.152
S5	.149	.213	.187	.253	.194	.208	.030	.091

Table 5: Entropy, Degree of Diversification and Weight

-	C_1		C_2		C_3		C_4	
Entropy	.904	.991	.907	.990	.846	.986	.719	.958
degree of diversification	.009	.096	.010	.093	.014	.154	.042	.281
weight	.015	1.275	.016	1.231	.023	2.048	.068	3.729

From the above results, it can be concluded that, the criteria weights is as follows.

W_j = ([.015, 1.275]; ([.016, 1.231]; ([.023, 2.048]; ([.068, 3.729]).

Next, When the TOPSIS method with interval data is applied; the following values are derived (table 6-11).

Table 6: The Interval Normalized Decision Matrix $(\bar{n}_{ij})$

Criteria Alternative	C_1		C_2		C_3		C_4	
	x_{1j}^l	x_{1j}^u	x_{2j}^l	x_{2j}^u	x_{3j}^l	x_{3j}^u	x_{4j}^l	x_{4j}^u
S1	.220	.274	.241	.253	.291	.339	.163	.381
S2	.274	.384	.241	.322	.097	.218	.272	.490
S3	.371	.418	.310	.379	.242	.412	.381	.490
S4	.256	.274	.264	.333	.315	.412	.163	.272
S5	.256	.366	.322	.437	.339	.363	.054	.163

Table 7: The Interval Weighted Normalized Decision Matrix $(\bar{v}_{ij})$*

Criteria Alternative	C_1		C_2		C_3		C_4	
	x_{1j}^l	x_{1j}^u	x_{2j}^l	x_{2j}^u	x_{3j}^l	x_{3j}^u	x_{4j}^l	x_{4j}^u
S1	.003	.350	.004	.311	.007	.694	.011	1.420
S2	.004	.490	.004	.396	.002	.446	.018	1.825
S3	.006	.533	.005	.467	.006	.843	.026	1.825
S4	.004	.350	.004	.410	.007	.843	.011	1.014
S5	.004	.467	.005	.538	.008	.744	.004	.608

Table 8: The Positive and Negative Ideal Solution $(\bar{A})$

-	C_1	C_2	C_3	C_4
$\bar{A}^+$	.003	.538	.843	1.825
$\bar{A}^-$	.533	.004	.002	.004

Table 9: Distance of Each Alternative from the Positive Ideal Solution $(\bar{d}^+_j)$

$\bar{d}_1^+$	$\bar{d}_2^+$	$\bar{d}_3^+$	$\bar{d}_4^+$	$\bar{d}_5^+$
2.097	2.120	2.123	2.097	2.125

Table 10: Distance of each Alternative from Negative Ideal Solution $(\bar{d}^-_j)$

$\bar{d}_1^-$	$\bar{d}_2^-$	$\bar{d}_3^-$	$\bar{d}_4^-$	$\bar{d}_5^-$
1.691	1.988	2.126	1.474	1.217

Table 11: Closeness Coefficient $(\bar{R}_j)$

$\bar{R}_1$	$\bar{R}_2$	$\bar{R}_3$	$\bar{R}_4$	$\bar{R}_5$
.446	.484	.500	.413	.364

It is also worth noting here that, as can be seen from table 5 and 7, the results are not contained in [0, 1]. Nevertheless,

according to the viewpoint proposed by Yue (2012, and 2013), the property to which the ranges belong [0, 1] is not preserved for the normalized interval numbers too. Since, further transform can be done. Further investigation on this property would be investing but it is beyond the scope of this study. Therefore, interested readers may refer to aforementioned references, for more discussions on the existing approaches.

From the above results, it can be concluded that, the ranking is as follow:

$S_3 > S_2 > S_1 > S_4 > S_5$

Therefore, the best marketing strategy is S_3, since it is superior to all the other strategies. Meanwhile, S_5 have very bad performance.

Here, more studies have been done. According to the viewpoint proposed by Batista and Monard (2003), in a general way, missing data treatment methods can be divided into the following three categories: 1. ignoring and discarding data, 2. parameter estimation, and 3. imputation. In This paper, we focus on ignoring and discarding data. In other words, what happens if we drop the alternative 3 (S_3; alternative with incomplete information) and redo our assessment of alternatives? With no intension to describe the whole procedure, we shall only point to the final results. Results are shown in table 12 and 13.

Table 12: The Criteria Weights (without S_3)

Criteria Weight	C_1	C_2	C_3	C_4
Wj	[0.015,0.915]	[0.023, 0.841]	[0.030, 1.362]	[0.090, 3.181]

Table 13: Closeness Coefficient (without S_3)

S_1	S_2	S_3	S_4	S_5
0.443	0.492	-	0.392	0.327

From the above results, it can be concluded that, the ranking is as follow:

$S_2 > S_1 > S_4 > S_5$

Therefore, the best marketing strategy is S_2, since it is superior to all the other strategies. Meanwhile, S_5 have very bad performance.

A comparison of the test results is given in table 14, and Fig. 2.

Table 14: Comparison of Results

Model	Priority
TOPSIS with incomplete data (with S_3)	$S_3 > S_2 > S_1 > S_4 > S_5$ .500 .484 .446 .413 .364
TOPSIS with complete data (without S_3)	$S_2 > S_1 > S_4 > S_5$ .492 .443 .392 .327

|	1	2	3	4	5
TOPSIS with incomplete data (with S3)	0.446	0.484	0.5	0.413	0.364
TOPSIS with complete data (without S3)	0.443	0.492	0	0.392	0.327
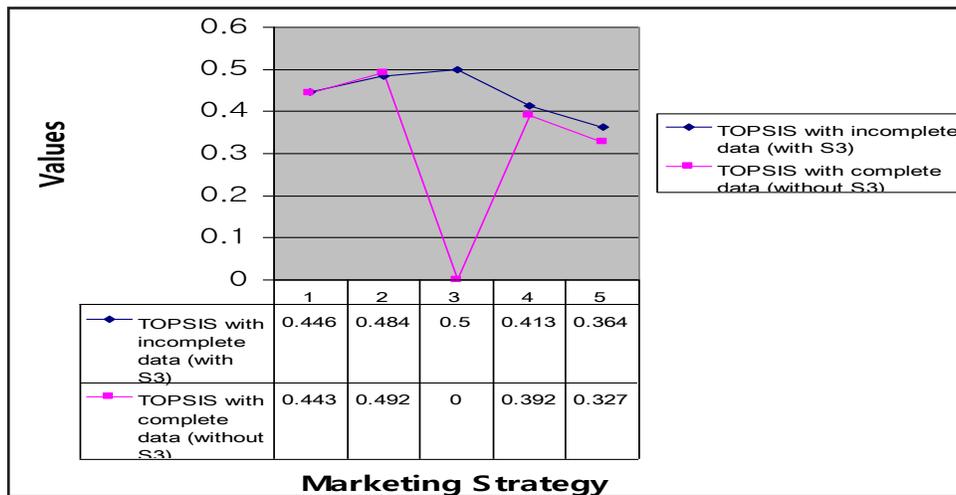
Fig. 2: Comparison of Results

As can be seen in table 14 and fig. 2, the differences between two models are clear. The current priority (TOPSIS with complete data) is $S_2 > S_1 > S_4 > S_5$. This differs from that of the TOPSIS with incomplete data [with S_3; proposed method] ($S_3 > S2 > S1 > S4 > S5$). This difference is due to the missing value considered. In other words, missing value estimation impact could greatly improve the decision making process. So, S_3 becomes the suitable alternative instead of S_2. Therefore, findings in this paper confirm the effectiveness of proposed method.

CONCLUDING REMARKS

In this paper, we focus on the following problem: how to help the senior managers to determine the optimal marketing strategies from sets with incomplete information. Because, marketing strategy involves a high degree of uncertainty and ambiguity on the one hand, and can be classified as a Multi-Criteria Decision Making (MCDM) problem on the other. Therefore, this paper addresses the ranking strategies by using TOPSIS method with interval data. However, in marketing strategy, selection problem incomplete data is common; TOPSIS are not applicable to incomplete data. Since, in this paper, the combination of two methods: TOPSIS-Tamaddon et al. method (mathematical formulations for finding the missing data) was applied. The method has two stages: 1. finding the missing amount and 2. Rank solution. However, ignoring and discarding missing data is the default method in many decision problems, but findings in this paper show that results obtained by proposed method were significantly different from those got when conventional method was used. The alternative ranking provided by TOPSIS with complete data was $S_2 > S_1 > S_4 > S_5$ (note, S_3 is discarded), while the TOPSIS with incomplete data (with S_3; proposed method) method ranked the alternatives as $S_3 > S2 > S1 > S4 > S5$. Moreover, proposed method (Tamaddon et al. method), has been developed for the neither DEA nor MCDM environment. Since, this could cause some bias in the final results. So, more studied are needed. In addition, further research can apply this proposed approach to other managerial issues or compare it with another existing model.

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