Abstract - Knowledge, experience, and way of accomplishing challenging tasks of employees enable organizations to provide customers more value in terms of quality and low cost. Consequently, they sustain competitive advantage by further developing highly valuable and unique employees or human capital. This paper aims to analyze the extent to which human resource management (HRM) factors, knowledge management system (KMS) factors, and leadership factors creating human capital within a firm. In this direction, data were collected from 468 Indian manufacturing employees to analyze the impact of these factors on human capital creation. In this interdisciplinary study, human capital creation is examined by the extent at which employees perceive the benefits from their human capital. The hierarchical regression analysis results show that all the aspects of HRM, KMS, and leadership have significant relationship with human capital creation in Indian manufacturing companies.

Keywords - human capital creation, Human resource management, knowledge management, leadership

I. INTRODUCTION

Firms constantly strive to differentiate their products and processes in order to achieve a competitive advantage in today’s dynamic market environment. Hence they concentrate on human capital creation (HCC) for achieving and sustaining the advantage, since high value and unique human capital are firm’s core competencies [29]. From the economic perspective, human capital is defined in a firm as the ratio of market value to the replacement value of fixed assets [42]; whereas, from an employee perspective, human capital is an employee’s knowledge, skills, capabilities, commitment, know-how, as well as ideas and health [37], [42], [4]. Realizing the enormous contribution of human capital on achieving competitive advantage, firms begin to shift their focus from employee development to human capital development. Initiating paradigm change from human resources to human capital requires immense attention on certain attributes, for example, flexibility, adaptability, and employability [18]. This transformation takes place in line with core competency perspective and social community perspective [36]. However, the process of human capital development or creation at an employee is initiated when an employee takes efforts to involve in self-learning and interactive learning [31]. According to Ulrich et al. [42], organizations
develop human capital by simultaneously increasing both employees’ capabilities and commitment. In view of analyzing HCC in firms, literature focusing on economic perspective analyzing HCC in firms is in abundance in comparison with literature focusing on employee perspective. Hence this study analyses human capital development or creation in Indian manufacturing firms within an employee perceived level. Employee perceived HCC is the degree to which an employee feels HCC when efforts taken for mutual benefits of both employee and organization. The notion is that when an individual employee delivers better performance for organizational activities, wage improvement is more likely to occur in the human capital creational process. Bontis and Fitz-enz [11] represent this process through human capital effectiveness and human capital valuation in the form of high return on investment and compensation factor respectively. Employees perceive their created human capital when organization considers them as future leaders, since they have potential to vertically move into an influential position [42]. Employees can also realize their HCC when they get opportunity to participate in a high profile project or cross functional teams [42]. Employees also perceive the potential of their human capital when their authority and status increases through skill development [21]. This paper attempts to empirically examine the antecedents of employee perceived HCC identified from the fields of HRM, KMS, and leadership. The notion is that the practices implemented in these fields are the firms’ investments on individual employee human capital.

II. HYPOTHESES

A. Knowledge management system factors

Firms leverage collective employees’ knowledge to attain overall benefits through knowledge management (KM) process. Lakshman [28] defines KM as “an organizational capability that allows people in organizations, working as individuals, or in teams, projects, or other such communities of interest to create, capture, share and leverage their collective knowledge to improve performance” (p. 55). Apart from organizational efforts on KM implementation, employees themselves engage in formal and informal tactical KM activities on daily basis. Tactical KM process, engaged by employees, comprises of knowledge acquisition, knowledge documentation, knowledge transfer, knowledge creation, and knowledge application [17]. Knowledge transfer facilitates job-related problem solving among employees and hence, organizations encourage knowledge transfer among managers by providing space to discuss new developments. Such networking enables managers to access knowledge from different communities of expertise. Consequently, managers’ creative thinking and innovative behavior are improved [40]. Similarly, internalization, a form of learning or knowledge acquisition, occurs when explicit knowledge is converted to tacit knowledge that promotes actualization of new product innovation or improvement within organization [34]. Tactical KM process creates new knowledge within an employee’s brain and enhances existing knowledge.

Following KM process, KM enabler, e.g., communication, has positive relationship with knowledge sharing [1], [24]. Importantly, technology used for communication supports HCC notion. For instance, groups using computer-mediated communication, for the purpose of gathering more information, generate more unique and high-quality ideas [43]. In addition, the communication tools, such as Internet and Intranet, create new knowledge, since these facilities support employees to access disseminated expertise in the company [1]. Communicating employees, in the form of distributing a newsletter or magazine publicizing a team’s successful high profile projects, enhance their knowledge about technical details of company’s processes and services. Thus, communication makes an employee a high performer and increases an
employee’s commitment towards an organization.

Culture, a KM enabler, is associated with knowledge creation and it has also been reported that it has an association with HCC. For instance, innovation-supportive culture encourages employees’ creative and risk-taking skills, which are components of human capital contributing to achieving competitive advantage [25]. Further, employee-supportive culture encourages employees to participate in decision making process, which increases their status and authority [9]. Receptivity, a dimension of organizational culture, improves employees’ belief of improving their skills and self-efficacy for development [10]. Following the notion that KMS creates high performers who have more opportunities to participate in high value projects and have an opportunity to become future leaders, we hypothesize that

**Hypothesis 1:** KMS factors, such as tactical KM process, organizational culture, and communication, have positive associations with employee perceived human capital creation.

**B. Leadership factors**

Managers possessing transformational leadership behaviors are: (1) sharing risks with employees, (2) motivating followers by providing meaningful and challenging work, (3) displaying enthusiasm and optimism, (4) stimulating followers’ effort to be innovative and creative through questioning assumptions and reframing problems, as well as (5) paying mentor-like attention to each individual’s need for achievement and growth [3]. These leaders articulate employees, their business purposes and priorities that stimulate intelligent questioning [14]. Specifically, Vera and Crossan [44] found that this leadership style positively influences firm’s innovation and organizational learning through promoting intellectual stimulation, inspirational motivation, and self-confidence among employees. Leaders also encourage individual and group learning through institutionalization and imposing certain changes in vision [44].

Interim leadership gives employees the opportunities to take over temporary leadership roles without changing their current jobs, to face greater challenges and contribute to organizational performance [45]. In comparison with an external interim, selecting an internal interim working within a firm for a leadership role is an internal development process that generates high value and uniqueness of human capital. As an interim, s/he manages departmental stability and uncertainty, shares knowledge with peers, performs in-work environment that requires changes, and participates in the decision making process [20], [15]. If a new leader is found for that position, the worthy discussions will take place pertaining to acting leader’s career management process. In this direction, the performance delivered from an interim role increases an employee’s status and authority.

**Hypothesis 2:** Leadership factors, such as transformational leadership and interim leadership, are positively related to employee perceived human capital creation.

**C. Human resource management factors**

Recruitment strategy is a process of developing a strategic plan composed of specific requirements for each job aligned with corporate strategic goals [19]. It deals with the process of identifying high performers and building human capital pool. High value and unique human capital is built-up via an internal development mode within an organization [29]. It is yet undeniably understandable that there are possibilities to enhance acquired employees’ uniqueness through this internal development process. While withstanding global pressures, large firms apply advanced techniques to identify quality of hire and then they create new positions to fit identified talents [30]. Therefore, they rely on Internet-based recruitment that highly associated with generating quality of applicants [30]. In this direction, investments
on recruitment-oriented activities are positively related to labor productivity and quality of hire [27].

Organizations provide training to employees to improve their knowledge, skills, and abilities required for satisfactory performance. The amount of time and money spent on these training programs, reveals the degree to which organizations contribute for developing workforce competencies [39]. In this direction, Snell and Bohlander [37] quote that training has a positive relationship with employee performance and wage improvement. Performance appraisals serve as a tool for employee development in any firm. The appraisal is designed to measure and assess employee characteristics, such as dependability, creativity, initiative, and leadership [37]. It supports employees to improve their weak or unsatisfactory performances and highlights their strengths and abilities that they are unaware of [41]. Research also advocated that increased interactivity between superiors and employees in the performance measurement system improves employee performance [39].

Careers are viewed as repositories of knowledge since it accumulates individual’s own knowledge through work experiences [8]. Therefore, organizations offer mentoring, job rotation, shadowing, and career development interviews [33]. Research study has discovered that job rotation rate is positively related to the perceptions that it improves administrative, technical, as well as business knowledge and skills [13]. Further, self-nomination, a career enhancing strategy, enhances superiors’ awareness on employees’ abilities, skills, and knowledge, and thus, enables superior to highly motivate employees who have certain number of positions in need for progressing in an organization [32]. As a result, employees who perceived receiving more support from their supervisors, have reported that they have taken greater efforts in participating in developmental activities [22].

Rewards (i.e. bonus, promotions, salary increases, and stock awards) as well as recognitions (i.e. employee of the month/year, intangible awards, performance appraisal/s rating, and written recognition) are consistently acknowledged by organizations as important elements for motivating employees and encouraging their development and learning by inducing risk-taking skills and new initiatives [12], [26]. A team-based pay motivates better performance and innovativeness [37]. Particularly, leaders motivate employees by sending personal notes appreciating their behaviors as well as to acknowledge their accomplishments [16]. Thus, the above arguments lead to

Hypothesis 3: HRM factors, such as recruitment strategy, training, performance appraisal, career management process, and reward strategy, have positive associations with employee perceived human capital creation.

III. METHOD

A. Sample

With the help of both random and non random sampling procedures, data were collected from 468 management level employees working for Indian manufacturing companies. Median age and average tenure of participants (male, 425; female, 28; non-respondents, 15) were 32 years and 8.4 years respectively. Further, 72% and 24% of employees completed their under graduate as well as post graduate degree respectively, and the remaining did not provide educational details.

B. Measures

This study utilized Birasnav and Rangnekar’s [5] 6-item scale of recruitment strategy (e.g. ‘How well developed recruitment strategies are able to attract talents?’), cronbach alpha $\alpha = 0.70$), 6-item scale of training (e.g. ‘Availability of training facilities to meet the requirements of my job’, $\alpha = 0.71$), 6-item scale of performance appraisal (e.g. ‘On average in a year, organization appraises our performance
more than once’, \( \alpha = 0.73 \), 5-item scale of career management process (e.g. ‘To what extent do you give importance to your career exploration?’ , \( \alpha = 0.70 \)), and 5-item scale of reward strategy (e.g. ‘How much importance is given to reward your risk-taking?’ , \( \alpha = 0.79 \)) to measure HRM system factors. In order to measure of KMS factors, respondents completed Birasnav and Rangnekar’s [6] 6-item scale of tactical KM process (e.g. ‘How often your superiors share his/her work experiences written manual with you?’ , \( \alpha = 0.71 \)), 7-item scale of organizational culture (e.g. ‘To what extent your organization allows you to take decisions freely?’ , \( \alpha = 0.77 \)), and 6-item scale of communication (e.g. ‘Safety instructions to handle machines and materials and precautionary actions are conveyed’, \( \alpha = 0.73 \)). To assess leadership factors and perceived HCC, respondents filled out Birasnav and Rangnekar’s [7] 6-item scale of interim leadership (e.g. ‘How much importance do/did you give to interim role?’ , \( \alpha = 0.68 \)), 8-item scale of transformational leadership (e.g. ‘I feel my leader sets a challenging goal’, \( \alpha = 0.83 \)), and 5-item scale of perceived HCC (e.g. ‘The return I give is more than what organization invested at me’, \( \alpha = 0.70 \)). The alpha values of the measures were ranged from 0.68 to 0.83 and each measure’s corrected item-total correlations was above 0.30. These psychometric properties show that the studying measures are reliable [23]. Variables such as employee’s age, education, rank, and tenure, are controlled for in this study due to its significant association with human capital development process [4].

### IV. FINDINGS

By using SPSS version 15, correlation analysis and a series of hierarchical regression analyses were performed to test the hypotheses. Results of correlation analysis indicate that all the factors are significantly related to perceived HCC (correlation coefficients are ranged from 0.53 to 0.66, \( p < 0.01 \)). To perform hierarchical regression analysis, control variables, such as age, education (1 = under graduate, 2 = post graduate), rank (0 = non-manager, 1 = manager), and tenure were entered in the first block. In the second block, KMS factors were entered. Leadership factors were entered in the third block. Finally, HRM factors were entered in the fourth block. The results of this analysis are shown in Table I. After controlling for the covariates, organizational culture (\( \beta = 0.10, p < 0.1 \)), communication (\( \beta = 0.38, p < 0.01 \)), and tactical KM process (\( \beta = 0.28, p < 0.01 \)) are strongly associated with perceived HCC. Thus, hypothesis 1 is strongly supported. Interim leadership (\( \beta = 0.21, p < 0.01 \)) and transformational leadership (\( \beta = 0.19, p < 0.01 \)) explain significant beta value over perceived HCC. Therefore, hypothesis 2 is also acceptable. Furthermore, recruitment strategy (\( \beta = 0.09, p < 0.05 \)), training (\( \beta = 0.18, p < 0.01 \)), performance appraisal (\( \beta = 0.12, p < 0.05 \)), reward strategy (\( \beta = 0.14, p < 0.01 \)), and career management process have positive relationships with perceived HCC (\( \beta = 0.18, p < 0.01 \)). Thus, hypothesis 3 is also accepted.

### V. DISCUSSIONS

The purpose of this study is to identify the antecedents of perceived HCC from the fields of KM, leadership, and HRM. In this direction, the entire hypotheses, mentioned in this study, are supported by Indian employees’ sample. Employees who engage in KM process participate in organizational learning and the knowledge creation process [34]. Consequently, they enhance problem solving skills in the forms of know-how, know-what, and know-why. If an employee perceives that created knowledge is more valuable, it is quiet natural to emotionally claim ownership for such created knowledge [24]. Therefore, employees perceive HCC, since their highly valuable knowledge is associated with improving status and reputation as well as with career mobility or advancement [24]. Innovation-supportive culture encourages knowledge sharing.
creativity, as well as risk-taking skills and consequently, it improves human capital development. Pareek [35] has witnessed this kind of culture established in Indian companies. Further, staff and union meetings enable firms to directly communicate with their employees. This facilitates idea generation and suggestion for product or process improvement. Such communication facilitates employees to acquire new knowledge, improve their commitment, and increases employees’ perceptions encouraged by top management to propose innovative ideas. Transformational leaders support employees to rethink their works to be performed, and consequently, they enhance employees’ perceived commitment, performance, and potential [3]. As transformational leaders exhibit this behavior of setting and articulating visions or goals to alter the status quo of the organization, it improves employees’ human capital development potential. Thus, transformational leaders support employees to attain high status and authority in organizations by stimulating their problem solving skills and creativity as well as by instilling commitment that develops employees’ human capital. As leadership skill is one of the components of human capital, interim leadership provides employees opportunities for career mobility or vertical job movement. This successful interim experience absolutely creates identity and authority by appointing employees permanently for the interim position. Since high performance of interims attracts incentives, earning chances deeply increase.

According to Koch and McGrath [27], investments on recruitment-oriented activities are positively related to labor productivity and quality of hire. Since the current human capital is initially acquired from labor market, this strategy has significant impact on the current human capital effectiveness. Therefore, it is expected that recruitment strategy would have certain association with employee perceived HCC. Training gives birth to talents and improves their job performance. So they have more opportunities for their career mobility within a firm. In other

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words, high performers would have more opportunities to participate in high profile project teams. Firms, using advanced manufacturing technology and total quality management, consider performance appraisal as an employee developmental tool, since considerable discretion and flexibility are needed to promote firms’ operations and quality that facilitate competitive advantage [38]. Therefore, employers are more likely to reward employees in the form of occupational authority and status based on their performance. Consequently, high performers in the firm, attain status and authority very quickly, produce more return on investment, earn more, and involve in high value projects than others. On focusing career management, dual ladder approach comprises of the usual managerial ladder, leading to an improved managerial authority of employees, as well as professional ladder leading to increase in employee salary, status, autonomy, and responsibility. Similarly, the rate of upward mobility and external indicators of achievement, such as, salary and social status, are determinants of career success as well as HCC [2]. Corporate enthusiasm and reward for participating in team motivate employees to develop problem solving skills and innovative behaviors. Chances to participate in high profile project team increase when employees are rewarded more based on these behaviors. Creating a systematic mechanism composed of all discussed antecedents of human capital development in the organization, would work very well in achieving competitive advantage. However, cautions are required to interpret the above findings, since this study did not consider any hypothesis examining interrelationships among antecedents and did not administer larger sample size. Further, due to socio-economic variations, findings of the study probably may not be applicable to other states of India not covered in this sample. In addition, future research is needed to examine the roles of HRM and KMS factors in the relationship between transformational leadership and perceived HCC.

REFERENCES


