Knowledge Management: A Review

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Abstract—**Since manufacturing has become global to address the needs of the global market, companies take advantage of advanced information technologies in achieving their global supply chain. It is also important to see to what extent this has been used to facilitate innovation and knowledge diffusion along the supply chain for an ultimate improvement of productivity and quality and in turn manufacturing organizational competitiveness. This paper covers knowledge Management implementation steps, critical success factors of Knowledge Management and benefits.**

Keywords—Knowledge, Knowledge Management, innovation, employee satisfaction

I. INTRODUCTION

Without the integration of people and information technology/information systems (IT/IS), it is very hard to achieve any significant improvement in organizational performance [1]. Knowledge has been recognized as the key resources of business survival and success in the knowledge economy. The capability to create and utilize knowledge into business processes and product/services enable organizations to achieve superior performance [2].

To transmit the right knowledge to the right people at the right time, knowledge retrieval is the major part of knowledge management. The next generation of enterprises should be in a position to make use of information and extract knowledge from information system and the business environment to maximize their return and reuse knowledge for innovation [3]. Possible reasons, why organizations embark on KM programs [4]:

1. Lost knowledge after downsizing, organizations have slowly awoken to the fact that knowledge is a human asset and that it is knowledge, not information, which is the primary business asset.
2. The 'customer interface' employees have information on customers for example, sales persons or delivery drivers visit customers on a regular basis, and therefore are in a strong position to build good relationships and gather useful information about customers.
3. Pressure to innovate to gain a competitive edge in the aftermath of a corporate merger.
4. Information and communications technologies, advances phenomenal advances in systems and software provide endless opportunities to utilize available data managed within KM settings.

II. KNOWLEDGE AND KNOWLEDGE MANAGEMENT

According to [5] conversion from data to information and then, knowledge as shown in Fig. 1. The basic building block of knowledge is data, the processing of data resulting in inflammation, and as a consequence of processing information knowledge is derived. Knowledge is the next natural progression after information; that is, a higher order than information.
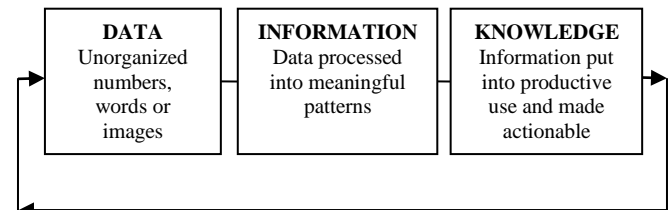

Fig. 1. Conversion from Data to Knowledge

Knowledge is the full utilization of information and data, coupled with the potential of people's skills, competencies, ideas, intuitions, commitments, and motivations [6]. Knowledge is people, money, leverage, learning, flexibility, power, and competitive advantage; it is stored in the individual brain or encoded in organizational processes, documents, products, services, facilities, and systems. It is the result of learning which provides the sustainable competitive advantage. On the other hand, knowledge is that which we come to believe and value, based on the meaningfully organized accumulation of information (messages) through experience, communication, or inference [7]. Knowledge as information combined with experience, context interpretation and reflection [8]. It is 'high-value' from information that is ready to apply decisions and actions. People gain or create new knowledge from numerous activities.

1. Firstly, action-based learning that involves working on problems, and implementation of solutions.
2. Secondly, systematic problem solving, which requires a mindset, disciplined in both reductionism and holistic thinking, attentive to details, and willing to push beyond the obvious to assess underlying causes.
3. Thirdly, learning from past experiences, which review a company's successes and failures, to take the way that will be of maximum benefit to the organization.

Knowledge management, which consists of creating, storage, retrieval, transfer, and reuse of knowledge has become an important approach to improve the competitive advantage of enterprises [9].

KM classified into two primary types namely; Tacit knowledge and Explicit knowledge [10]. Tacit knowledge resides in our mind and cannot be easily shared or it is difficult to communicate with others. Tacit knowledge is deeply rooted in an individual's actions and experience, as well as in the ideals, values, or emotions he or she embraces

[11]. It has two dimensions: the first is the technical dimension, which encompasses the kind of informal personal skills or crafts often referred to as "knowledge." The second is the cognitive dimension. It consists of beliefs, ideals, values, schemata, and mental models. While difficult to articulate, this cognitive dimension of tacit knowledge shapes the way we perceive the world.

While explicit knowledge can be purchased, stolen, or re-invented, trust, and curiosity are key words in KM. Tacit knowledge is the skills and 'know-how' which reside in our mind that cannot be easily shared [12]. On the other hand, tacit knowledge as something that is simply known, possible without the ability to explain. He also added that the act of sharing tacit knowledge always creates something new. This is unique, the machine of innovation, and capable of real-time reactivity in decision-making. Explicit knowledge may be stored as a written procedure in a manual or as a process in a computer system [13]. The documented procedure of a lesson-learn workshop, the written-up comment of an economist examining a set of financial data, minutes of a meeting, a chain of e-mail correspondence, are all examples of explicit knowledge that we use to support or to make decisions and exercise judgment. Four modes of transferring knowledge [14]:

1. Socialization (tacit to tacit), through coaching and on-the-job training.
2. Internalization (explicit to tacit), learning from the analysis of explicit knowledge.
3. Externalization (tacit to explicit), the articulation of tacit knowledge into procedures or reports that attempt to document experiences in context.
4. Combination (explicit to explicit), the combination several elements of explicit knowledge into summary reports.

Five types of knowledge that correspond to the source of each [3]:

1. Acquired knowledge comes from outside the organization.
2. Dedicated resources are those in which an organization sets aside some staff members or an entire department (usually research and development) to develop within the institution for a specific purpose.
3. Fusion is knowledge created by bringing together people with different perspectives to work on the same project.
4. Adaptation is the knowledge that results from responding to new processes or technologies in the marketplace.
5. Knowledge networking is knowledge in which people share information with one another formally or informally.

Knowledge resources include human capital, structural capital, and customer capital. KM activities include initiation, generation, modelling, repository, distribution and transfer, use, and retrospect. Knowledge Management is influenced by (1) Culture (2) Leadership (3) Measurement (4) education (5) Reward and Incentive system (6) Organizational adaptability (7) Values and Norms (8) Technology [15].

III. KM IMPLEMENTATION STEPS

KM is a complex activity that cannot deliver business impact without a concrete plan. Table I, summarizes the on roadmap for implementation of KM of some authors.

TABLE I.　KNOWLEDGE MANAGEMENT IMPLEMENTATION STEPS

Authors	Steps
Morrissey (2005)	1. Asses What Knowledge is Required
	2. Assess Degree of organization sharing and Retention
	3. Obtain Senior Management Support
	4. Design Integrated System of Tools and Technologies
	5. Design Incentives for Use
	6. Measure Impact
	7. Promote and Advertise Success
Tiwana (2000)	1. Analyse the existing infrastructure
	2. Analyse the existing infrastructure
	3. Align KM and Business strategy
	4. Design the KM Infrastructure
	5. Audit existing Knowledge assets and systems
	6. Design the KM team and Create the KM Blueprint
	7. Develop the KM System
	8. Deploy using the results driven incremental methodology
	9. Manage change, culture, and forward structures
	10. Evaluate performance, measure ROI and incrementally refines KMS

IV. CRITICAL SUCCESS FACTORS OF KNOWLEDGE MANAGEMENT

KM is of growing interest in today's business. With the importance of KM being realized, businesses are viewing KM as a critical success factor in today's dynamic borderless society. Making knowledge available to the right people at the right time is crucial for building and sustaining an organization's competency. In any business, there are a limited number of areas in which satisfactory results ensure successful competitive performance, and those areas are typically referred to as CSFs [16]. Table II, summarizes the diverse perspectives on CSFs of some authors

TABLE II.　CRITICAL SUCCESS FACTORS OF KM

Authors	Critical Success Factors
Choi (2000)	• Employee training
	• Employee involvement and Teamwork
	• Employee empowerment
	• Top-management, leadership, and commitment
	• Organization constraints
	• Information systems infrastructure.
	• Egalitarian climate, benchmarking and Knowledge structure
Heising (2001)	• Store experiences from experts.
	• Exiting e-mail culture (culture, corporate).
	• IT director business-focused and business process-oriented.
	• Integrated among KM processes (create, store, distribute, apply knowledge).
	• KM tasks must be combined with daily work tasks and integrated into daily business processes

CONCLUSION

The benefits of Knowledge Management are as follows,

- Faster and better solution to customer problems.
- Improved innovation and new product development.
- Early warning of potential market changes.
- Identify new business opportunities through better (KM).
- Minimizing of duplication of effort and loss of knowledge following organization restructuring.
- Improved alignment between business strategy and technology infrastructure for knowledge sharing and development.
- Reduces the loss of intellectual capital from employees who leave.
- Reduces the cost of development of new product/services.
- Increase the productivity of workers by making knowledge accessible to all employees.
- Therefore, increasing employee satisfaction.

REFERENCES

[1] Gunasekaran, A. and Ngai, E. (2006), "Knowledge Management in 21st century manufacturing", International Journal of production Research, Vol. 45, No. 11, pp. 2391-2418.

[2] Teece, D. (1998), "Capturing value from knowledge assets", California Management Review, Vol. 40, No. 3, pp. 55–79.

[3] Davenport, T., Prusak, L. (1998), "Working knowledge: How organizations manage what they know", Harvard Business School Press, Boston.

[4] Gourlay, S. (1999), "Communities of practice": a new concept of the millennium, or the rediscovery of the wheel?", Organizational Learning, 3rd International Conference, Lancaster University, 6–8th June, vol. 1, pp. 479–95.

[5] Newman, A. (1999), "Knowledge Management", Info-line, No.9903, March, pp. 1-15.

[6] Grey, D. (1996), "What is knowledge management?", http://www.km-forum.org/ what is.htm., accessed February 2003.

[7] Zack, M. (1998), Developing a Knowledge Strategy, California Management.

[8] Davenport, T., DeLong, W., and Beers, C. (1998), "Successful Knowledge Management Projects", Sloan Management Review, winter, Vol. 39 No. 2, pp. 43 -58.

[9] Albers, J. and Brewer, S. (2003), "Knowledge Management and Innovation Process, The Eco-Innovation Model", Journal of Knowledge Management Practice, http:// www.tlatinc.com/articl52.htm.

[10] Pinjari H., Teli S.N., A. R. Honnutagi (2017), "Knowledge Management" International Journal of Scientific & Engineering Research, Vol. 8 (3), PP. 242- 249.

[11] Nonaka, I. and Konno, N. (2000), "The Concept of ba : Building a Foundation for Knowledge Creation" In Hermans, J. (Ed.), The Knowledge Management Yearbook, 1999 -2000. pp. 37-51. USA: Butterworth-Heinemann.

[12] Hubert, S. (1996), "Tacit Knowledge: The key to the strategic alignment of intellectual capital", Strategy and leadership, Vol.24, No. 2, pp. 10-14.

[13] Snowden, D. (2000), "The social ecology of knowledge management", In C. Despres & D. Chauvel (Eds.), Knowledge Horizons: The Present and the Promise of Knowledge Management, Boston: Butterworth-Heinemann, pp. 237-265.

[14] Nonaka, I. (1994), "A Dynamic theory of organizational knowledge creation", Organizational Science, Vol. 5, No. 1, pp. 14-37.

[15] Lai, H. and Chu, T. (2002), "Knowledge Management: A Review of industrial Cases".

[16] Alazmi, M. and Zairi, M. (2003), "Knowledge Management: A proposed Taxonomy", International Journal of Applied Quality Management, Vol.2, No.2, pp. 1-33.

[17] Kwang, L., Pervaiz, K., Ahmed & Mohamed Zairi (1999), "Managing for quality through knowledge management", Total Quality Management, Vol.10, No.4-5, pp 615-621.

[18] Pinjari H., S.N. Teli (2018), "Integrated approach of Six Sigma and Knowledge Management", ", International Journal of Scientific & Engineering Research Volume 9, No. 5, pp-370-374,ISSN 2229-5518.

[19] Seubert, E., Balaji, Y. and Makhija, M. (2001), "The Knowledge Imperative, Retrieved January 13, 2002 from http: www.cio.com/sponsors/031501_Km.html.

[20] Skyrme, D. (2001), "Knowledge Strategy Development". http: //www. skyrme. com/ services/kmstrat.htm., accessed 13 Jan 2002.

[21] Sojan V.V.and Teli S.N. (2015), "Application of Knowledge Management System practices in Value Engineering Study", SK Int. Journal of Multidisciplinary Research Hub, Vol 2, No. 5, pp. 1-5.

[22] Teli S.N., V.S.Majali and U.M.Bhushi (2012), "Cost of Quality in Automotive Industry & Essence of Knowledge Management", JM Int. J. of Management Research, Vol. 2, No.3, pp.192-199.

[23] Teli S.N., V.S.Majali, U.M.Bhushi and A.S.Deshpande (2012), "Knowledge based Supplier Quality Management System for Automobile Industry", International Journal of Engineering Innovation and Research, Vol. 1, No. 4, pp.327-321

[24] Teli S.N., V.S.Majali, U.M.Bhushi and S.Patil (2012), "Developing a knowledge Management strategy to reduce cost of Quality for Automobile Industry", International Journal of Research in Commerce, IT &Mgmt. Vol. 2, No. 7, pp.45-48.

[25] Tiwana, A. (2000), "The knowledge management toolkit: practical techniques for building a knowledge management system", Prentice Hall PTR, USA.