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Address for correspondence:

21, Central Market, Dr. Ambedkar Nagar, Sector – 5, New Delhi – 110062

E -mail ID's:

pravish123@gmail.com; pravish123@rediffmail.com

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Editorial

This gives me an immense pleasure to announce that **‘PravishRajnam - Centre for Management Education’** is coming out with its **forth volume** of peer reviewed **journal** named as **‘PravishRajnam - Journal of Studies’ (ISSN 2348 -3652)**.

‘PravishRajnam - Journal of Studies’ is a humble effort to come out with an affordable option of a low cost publication journal, at no profit no loss basis, with the objective of helping young and seasoned academicians to show their research and other works to the world at large and also to fulfill their academic aspirations.

The aim of the ‘PravishRajnam - Journal of Studies’ is to cover all areas where ever applications of human ingenuity with reference to decision making ability / managerial skills and knowledge are applied to obtain results in order to achieve success. The journal being bi-annual is published twice every year (i.e. in months of January and July every year).

I am glad to inform you all that from this issue onwards no fees will be charged for publication of articles from every participant subject to condition that our technical review committee found their paper suitable for publication and accepts the same for publication.

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I hope academicians and students will find out the journal to be very useful for enriching their knowledge and meeting their academic aspirations.

Thanks,

Dr.Rajesh Arora,
Chief Editor,
PravishRajnam Journal of studies
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WESTERNISATION AND SANSKRITISATION: HUMAN TALENT DIFFUSION AND RETENTION

Dr. Shashi Kant, Assistant Professor, PDM College of Engineering, Bahadurgarh, Haryana.

ABSTRACT

The title sounds Anti-synthesis of each other. A critical and realistic look at it will justify its importance. In our experience and as universally accepted, Sanskritisation stop leakages.

The title is a metaphor from the field of water, but with a different connotation that Sanskritisation instead of stopping leakages lead to leakages. Sanskritisation here means hurdles and obstacles on the road to employees' effectiveness in an organization. When a talented employee leaves an organization, they do not leave as an individual. They leave with their education, experience, exposure, enlightenment, events and friends—other talented people. As a result, an organization

loses its cutting edge.

The paper explains the factors that act as blockages. This is an empirical work. Data were collected from one hundred and seventy eight IT Professionals regarding the factors that act as Sanskritisation and pave way to the leaving of talent from an organization.

A questionnaire was sent to 410 Informational Technology Professionals across the country. Out of that 178 completed responses were received. The respondents had minimum two years to eight and above years of experience in IT Industry. They were in different positions ranging from Senior Software Engineers, Consultants, Network Administrators and Managers.

KEY WORDS Sanskritisation, Keeping the keeper, .turnover.

INTRODUCTION

Turnover of employees is a natural event. It is sometimes a relief when a particular employee leaves the organization. On the other hand, the cost of losing any employee can be high because of the costs related to lost productivity, training, and the time required for recruiting a replacement.

Hiring good people is tough, but keeping them can be even tougher. The professionals streaming out of today's MBA programs are so well educated and achievement oriented that they could do well in virtually any job. But will they stay? According to noted career experts Timothy Butler and James Waldroop, people will stay, "Only if their jobs fit their deeply embedded life interests--that is, their long-held, emotionally driven passions".

A research work was carried out to identify the causes that are Sanskritisation in the way of effective performance of people. From the interpretation, seven causes are identified, as experienced by the respondents, as blockages. They are,

1. Lack of great professional and personal satisfaction from the work.
2. Lack of excellent career growth.
3. Lack of strong culture to create a very positive work environment.
4. Inadequate training for professional and personal growth.
5. Lack of pride in working.
6. Unfair Appraisal System
7. Inadequate perks and benefits

ROLE HANDICAP OF GREAT PROFESSIONAL AND PERSONAL SATISFACTION FROM THE WORK

Professional and personal satisfaction from work are identified as factors that make a person stick to an organization as Hewlett-Packard's Director of Education noted, "What is going to entice them away? Money? May be you can buy them for a short time, but what keeps people excited is growing and learning." It is found from the survey that 15.17% of the respondents strongly agreed and 54.49 % agreed that lack of great professional and personal satisfaction

from work resulted in the flow of talent from an organization. This result shows that, "Employees" as expressed by Izzo and Withers, "today want more out of a job than a big salary." This finding is in line with the Fleet Banks' analysis that showed that "People were leaving not so much for better pay-their personal testimony notwithstanding-but for broader experience, which they thought would enhance their marketability."

DILEMMA OF EXCELLENT CAREER GROWTH

It is found that 14.61% of the respondents strongly agreed and 44.38 % agreed that lack of excellent career growth failed to provide an incentive to continue with the organization. While the obvious solution to the turnover problem might have been to compensate the remaining employees-say, with higher pay-the more effective and less costly solution, "Fleet Bank discovered, was to focus on employees' career opportunities within the company. Those who moved up the hierarchy, or who even made lateral moves, stayed longer. By offering better internal opportunities for career development, the bank was able to stanch much of the hemorrhaging in personnel"

Jim Sirbasku is justified when he says, "A war of talent is currently under way. One positive alternative to salary hike is to offer opportunities for personal growth." Hence organizations should get a clue from "The knowledge that an employee is looking for a new position is vitally important information to a manager."

CULTURAL LAG TO CREATE A VERY POSITIVE WORK ENVIRONMENT

"Two fast-growing trends are demanding that business leaders pay more attention to employee relations," says Drucker. Every company needs more individuals who are able to get up in the morning, go to work, and enjoy what they do all day long. People need to think of ways they can do things instead of reasons they cannot. This belief is truly accepted when 19.21% and 49.72% of the respondents strongly agreed and agreed respectively that lack of strong culture to create a very positive work environment would lead to the mobility of talent. "...companies should create a culture where employee recognition and appreciation are built into it." This information must make sense to us as McShane says, "...corporate culture assists the sense-making process. It helps employees understand organizational events. They can get on with the task at hand rather than spend time trying to figure out what is expected of them."

DYSFUNCTIONAL TRAINING FOR PROFESSIONAL AND PERSONAL GROWTH

"Training is important because technology is developing continuously and at a fast rate. Systems and practices get outdated soon due to new discoveries in technology, including technical, managerial and behavioral aspects" (Pareek and Rao T.V). It is obvious from the interpretation of the data that 19.10% strongly agreed and 40.45% agreed that inadequate training for professional and personal growth forced employees to look for organizations where training would be a top priority. This situation is warranted as observed by Robbins, "As jobs have become more complex, the importance of employee training has increased."

The solution to remove the Sanskritisation and to stop the leakage of Human Talent is to train them to the point where you may lose them, and then you won't lose them. The effective organizations that are genuinely interested in retaining talent can resort to Training Paradox: increasing an individual's employability outside the company simultaneously increases his or her job security and desire to stay with the current employer.

LOW MANIFESTATION OF PRIDE IN WORKING

Commitment of workforce comes from belongingness. People feel that they belong to an organization when they can identify themselves with their organization. Identity, as identified by Pareek and Rao is important as "Each organization develops an identity. It has a history and a tradition. Its members may have some preferences and commitments." The response to the importance of pride in working for one's company is extremely overwhelming as 25.57%

of the respondents strongly agreed that people always associated themselves with or known by their organization as its size and fields of operations make it unique.

NON FUNCTIONAL APPRAISAL SYSTEM

The need for an effective performance appraisal system is justified when Robbins says "... as a key input to management's reward and punishment decisions, performance appraisals can motivate or demotivate employees." The view is substantiated when 8.47% responded very strongly and 37.29% strongly. Performance appraisal, as a development mechanism can have fundamental changes in the attitude and behavior of the managerial personnel. Dessler advises that "...the appraisal should be central to your firm's career planning process because it provides a good business opportunity to review the person's career plans in light of his or her exhibited strengths and weaknesses."

INADEQUATE PERKS AND BENEFITS

The critical factor that helps employer retain talent and have a cutting edge is the compensation plans available. It should be always above the industry standards. An employer should know how to reward people appropriately to get the best out of the people. 5.06% strongly agreed and 38.76% agreed that perks and benefits available in the company must influence the employees to remain. Barber & Stracksay, "Reward it appropriately-push performance-related variable compensation schemes down into the organization." The compensation system available must send the message that the people are important. "...the compensation system should communicate to the employees that they are valued" (Pareek and Rao T.V). Ghosh also opines the same view that "Employee compensation plays a key role because it is the most vital factor of employment relationship and is of critical importance to both employees and employers."

One of the main concerns of organizations today is how to attract competent people, and more importantly, how to retain them.

Presence of these factors removes Sanskritisation in the way to growth of an employee. Employers need to remove the Sanskritisation to prevent the leakages of employees. The entire study can be summarized as Employers need to recognize five key changes in workers' expectations, namely that they want to lead balanced lives, enjoy partnership with their employers, receive opportunities for personal and professional growth, be able to make a meaningful contribution to the world through their work, and experience opportunities to socialize at work.

Riesz is truly advocating the importance of 'Keeping the keepers' when he says, "When you keep your focus on the human element, the bottom line will take care of itself."

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THE ROLE OF EMOTIONAL INTELLIGENCE IN ORGANIZATION COMMITMENT

Priyanka jain, Research Scholar, Amity University

Dr. (Prof) Taranjeet Duggal, Professor, Amity University

ABSTRACT

One of the important factors influencing success of the organization is organizational commitment. It is argued that emotional intelligence acts as one of the factor in promoting organization commitment. In this sense, the purpose of this study is to analyze the influence of emotional intelligence on the organizational commitment of the individuals from a theoretical point of view. This research paper consists of two variables i.e. emotional intelligence and organizational commitment. This study suggests that emotionally intelligent employees are better able to exhibit organizational commitment. As this paper is descriptive, analysis of this paper is totally depending upon secondary data like research journal, articles and various website from internet. It can also aid the organizational practitioners to have an enhanced understanding of the relationship between the mentioned factors.

KEYWORDS *Emotional intelligence, Organizational commitment*

INTRODUCTION

In the era of globalization where the competition is on its edge, focusing on and developing committed employee is very essential for survival of the organization. Success of any organization depends on many factors, workforce is considered to be one of the most important contributors of any organizational competitiveness. In order to help the organization, researchers have proved that emotional intelligence is very effective to improve organizational commitment.

Different factors are investigated and studied for enhancing this variable however, little deliberation in employee's emotional intelligence and its effectiveness on their organizational commitment is witnessed (Abraham 2000). Emotional intelligence has a meaningful relationship with job outcomes such as job satisfaction and organizational commitment (Wong and Law, 2002).

The findings of the study provide evidence that emotional intelligence is at the core of organizational commitment. This study suggests that emotionally intelligent leaders are better able to exhibit organizational commitment.

EMOTIONAL INTELLIGENCE

The construct of Emotional Intelligence (EI) is one of the most frequently researched topics in organizational study. The term emotional intelligence was first used by Salovey&Mayer (1990). According to Salovey& Mayer emotional intelligence is defined as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions". This term was later popularized by Daniel Goleman's book. "why it matters more than IQ". As a fairly new concept, emotional intelligence has only been discussed for the past twenty years and valid researches on the effects of emotional intelligence in the work environment are still not very common. Concerning the implication of emotional intelligence, a lot of experts have presented variety of models and definitions. Researchers have categorized their definition based on the either an ability model or mixed model.

THEORIES AND MODELS OF EI

As per the existing literature two types of emotional intelligence models are available

Ability model, which focuses on the mental abilities to define emotional intelligence.

Peter and Salovey posit that EI is an individual's ability to utilize and understand emotions and this ability tends to emerge over time as individuals grow and experience life. Ability

model proposes that emotional intelligence is comprised of two areas; experiential (ability to perceive, respond, and manipulate emotional information without necessarily understanding it) and strategic (ability to understand and manage emotions without necessarily perceiving feelings well or fully experiencing them). Each area is further divided into two facets that range from basic psychological processes to more complex processes integrating emotion and cognition. The first set “Perception, appraisal and expression of emotions” allows an individual to identify and express emotions in self and others. The second is “assimilating emotion in thought” It allows an individual to use emotions and to facilitate thinking and to recognize respective consequences of different emotional responses and to justify the appropriate one. The third set “understanding and analyzing emotions” concerns with the ability to understand, label and acknowledge emotions and to use emotional knowledge. The fourth set is “reflective regulation of emotion” which deals with the ability to manage and adjust the emotional response to support the situational requirement (Mayer and Salovey, 1997).

Mixed models, which attempted to define emotional intelligence as a mixture of abilities and some personality traits and characteristics. Unlike the ability model, mixed models include non-ability traits such as motivation, optimism, interpersonal skill, stress management in conceptualizing emotional intelligence. Two types of mixed models has been proposed

Bar-On's synthetic model (emphasizing individual's mental health). Bar-On model (1997b, 2000) describes a cross-section of interrelated emotional and social competencies, skills and facilitators that determine how effectively we understand and express ourselves, understand others and relate with them, and cope with daily demands. Five broad areas of emotional intelligence were anticipated in this model: intrapersonal skills (such as emotional self-awareness, assertiveness, self-regard, and self-actualization); inter-personal skills (such as social responsibilities, empathy); adaptability (such as problem solving, reality testing and flexibility); stress management (such as, stress tolerance and impulse control) and general mood (such as happiness and optimism).

Goelman 's synthetic model (emphasizing organizational performance). His model outlines four main emotional intelligence domains;

- Self-awareness, the first construct means that you understand how you feel and can accurately assess your own emotional state.
- Self-management, the second construct, involves controlling one’s emotions and impulses and adapting to changing situation.
- Social awareness, the third construct includes the ability to sense, understand and react to other’s emotions while comprehending social networks.

Finally, relationship management, the fourth construct, entails the ability to inspire, influence and develop others while managing conflict.(Goleman,1998).

ORGANIZATIONAL COMMITMENT

Organizational commitment is one of the most frequently studied concepts in organizational psychology and organizational behavior. Organizational commitment is the physiological link between an employee and his organization that makes it less likely that the employee will voluntarily leave the organization (Allen & Meyer, 1996). No doubt, the organizational commitment has become the one of the most research topic in this globalized era. This construct is an important issue in today’s highly competitive business environment as the organization need committed employees to survive in such a globalized scenario. Numerous definitions of organizational commitment have been proposed (e.g., Meyer& Allen, 1997; Morrow, 1983; Mowday, Porter, & Steers, 1982; O’Reilly & Chatman, 1986),but the common theme of all the definitions is that organizational commitment is the emotional bond or attachment between the offered so far, the most commonly used definition of organizational commitment is proposed by Mowday, Steers, and Porter (1979). They defined

organizational commitment as, “the relative strength of an individual’s identification with and involvement in a particular organization.

Meyer and Allen (1997) have found that organizational commitment consists of affective, continuance, and normative commitment. Affective commitment- it refers to the employee’s who demonstrate emotional attachment to, identification with and involvement in the organization. Continuance commitment is that commitment in which employees are continually working for organization because they cannot bear the cost to leave the organization. Normative commitment occurs when an employee feel a sense of obligation towards his organization

LITERATURE REVIEW

Masrek , M.N et.al (2015) conducted a survey involving 115 IT professionals working in Malaysian Administration modernization and management planning unit (MAMPU) to examine the impact of emotional intelligence on organizational commitment. The study revealed that out of the four cluster of emotional intelligence, only two (social awareness and relationship management) turns out to be the significant predictors of organizational commitment. The other two clusters (i.e. self management and self awareness) were found to have insignificant relationship with organizational commitment. The finding further signifies the importance of emotional intelligence in ensuring organizational commitment in the context of computer professionals.

Raza ,A et.al (2014) conducted the research to explore the impact of emotional intelligence on job performance through the mediating effect of organizational commitment. The study was conducted on 270 employees in the banking sector of Pakistan. The findings of the research revealed that there is a positive and significant impact of emotional intelligence on organizational commitment and job performance. Furthermore the researcher reported that employees with high degree of emotional intelligence are better at appraising, expressing and utilizing their emotions and hence are more confident in performing. The research further suggests that emotionally intelligent workers maintain an emotional attachment with their workplace and hence are better performer.

Alavi,S.Z et.al (2013) conducted an study to investigate the relationship between emotional intelligence and organizational commitment in the Ramia Thermal power plant. The researcher assessed 100 employees using two questionnaire i.e. cyberia-Shrink emotional intelligence questionnaire and Allen –Mayer questionnaire for organizational commitment. The result revealed that emotional intelligence and its subscales are significantly related to organizational commitment.

Antony , J.M (2013) conducted an empirical study to determine the influence of emotional intelligence on organizational commitment and organizational citizenship behavior . The study was conducted on the sample of 115 executives working at FCIOEN connectors, Cochin in Kerala. Researcher collected the data using three different questionnaires i.e. emotional intelligence inventory developed by MeeraShanker and Omer Bin Sayeed 2006 , Organizational commitment questionnaire of Mowday et.al 1979 and the organizational citizenship behavior scale developed by BiswajeetPattanayak, RajnishkumarMisra and Phalgu Niranjana 2003. The result revealed that emotional intelligence has a positive correlation with organizational commitment and with organizational citizenship behavior as well.

Ghorbani, M & Sani, S (2012) conducted the study to identify the relationship between emotional intelligence and organizational commitment of personnel in Salehieen finance and credit institute. Researcher collected the data from the sample of 147 people using two standard questionnaires for assessing internal factors of emotional intelligence and organizational commitment. The result revealed that there is a positive relationship between emotional intelligence and organizational commitment degree of personnel. Moreover

managing relationship dimension of Emotional intelligence of EI is found to exhibit the highest effect on organizational commitment.

Mohamadkhani, K &Lalardi, M.N(2012) This study examines the relationship between emotional intelligence and organizational commitment of the hotel staff in 5-star hotels of Tehran, Iran. The study was conducted on 423 employees of public 5- star hotels in Tehran. The researcher collected data using two standard questionnaire i.e. Bradbury's emotional intelligence (2004) and organizational commitment questionnaire by Mowdayet.al(1979). The result of pearson correlation coefficient revealed that there was a highly positive significant correlation between emotional intelligence and organizational commitment. The research also suggests the necessity of attracting and employing highly emotionally individuals for the better utilization of their skills.

Nikheslat et.al (2012) conducted the study to investigate and examine the relationship between emotional intelligence, job satisfaction and organizational commitment and to find out the mediating affect of job satisfaction on emotional intelligence and organizational commitment as well. The result of the study found that there is a potential relationship between emotional intelligence and organizational commitment. Furthermore the result of this study also revealed that job satisfaction act as a mediator between emotional intelligence and organizational commitment.

Aghdasi et.al (2011) conducted an empirical investigation on 234 participants in an Iranian organization analyzed the direct and indirect effects of emotional intelligence and occupational stress, job satisfaction and organizational commitment. The result of the study indicates that emotional intelligence does not have any direct and indirect effect on occupational stress, job satisfaction and organizational commitment. Moreover, occupational stress not only has a direct negative effect on job satisfaction, it also has an indirect negative effect on organizational commitment. Job satisfaction has a strong direct positive effect on organizational commitment.

Rangriz,H &Mehrabi ,J (2010) the study aims to empirically examine the relationship between emotional intelligence , organizational commitment and employees' performance in Iranian Red crescent societies (IRCS) . The study was conducted on the sample size of 116 managers and employees of Iranian Red Crescent societies. The finding of the study reveals that there is a significant relationship between employees' emotional intelligence, organizational commitment and their performance. The study showed not much of differences between male and female employees' EI, OC and their performance. Furthermore the study also reveals that managers' emotional intelligence doesn't affect employee's emotional intelligence, organizational commitment and their performance.

Rathi,N &Rastogi,R (2009) This study examines the relationship among emotional intelligence, occupational self-efficacy and organizational commitment. Researcher collected data from 120 employees working in various organizations in India using the Emotional Intelligence Scale (EIS) for measuring emotional intelligence and organizational commitment questionnaire (OCQ) to measure the commitment of employees towards their organization. The result of the study indicate that EI is positively and significantly associated with occupational self-efficacy .The result also indicated that there is a positive relationship between EI and OC .However this relationship was not found to be significant at any of the two significance levels. Moreover, an emotional stability dimension of EI is found to exhibit a significant positive correlation with organizational commitment.

Salami,S.O (2008) This study investigated the relationships of demographic factors, emotional intelligence , work-role salience ,achievement motivation and job satisfaction on organizational commitment of industrial workers. The researcher conducted the study on 320 employees selected randomly from 5 service and 5 manufacturing organizations in Oyo state, Nigeria. The findings of the study revealed that emotional intelligence and other variables

under study except one demographic factor (gender) significantly predicted organizational commitment of the workers. The researcher reported that emotionally intelligent people are more cooperative and creative and hence are able to display good interpersonal relations which in turn influence the employee's commitment.

Cichy (2007) conducted a study to explore the relationship between emotional intelligence and organizational commitment among private club board committee volunteer members. The researcher collected data from the sample of 51 volunteer leaders using EI scale adopted from a previous empirical study conducted by Cichy et.al (2007) and organizational commitment was assessed by utilizing the Allen and Mayer (1990) organizational commitment scale. The researcher performed the t-test to examine whether the differences in affective, continuance and normative commitment were statistically significant. The result revealed that those in the high EI group had higher score in the composite (overall) scale of affective commitment than those in low EI group. The finding of the result implies that volunteer leaders' EI positively influences their affective commitment.

Nikolaou & Tsousis (2002) conducted an empirical investigation to explore the effects of emotional intelligence on occupational stress and organizational commitment. The sample of 212 participated in the study. The findings of the result showed the expected results. The study showed the negative correlation between emotional intelligence and stress at work and positive correlation was found between emotional intelligence and organizational commitment.

FINDINGS OF THE STUDY

The review of literature shows that there is a positive relation between EI and organizational commitment. Employees who have high emotional intelligent level are better able to exhibit organizational commitment. High EI employees are better able to manage their emotion and establish good relationship with their colleagues and hence are able to exhibit organizational commitment. The finding signifies the necessity of attracting and employing highly emotionally intelligent individuals, training them in different levels in order to energize organizational commitment. Organizations now need to realize the benefits of emotional intelligence by cultivating employees who generate the emotional resonance that may make the organization a better work place.

CONCLUSION

The study recommends that the management in organization must focus on emotional intelligence for improving employees' organizational commitment. Emotionally intelligent people are more cooperative and creative and hence are able to display good interpersonal relations which in turn influence the employee's commitment. We suggest that emotional intelligence enhances the commitment of the employees which could bring the organizational change and achieve desired outcome. The organization should carry out workshops and instruction sessions to promote emotional intelligence of the employees. Emotionally intelligent people are more cooperative and creative and hence are able to display good interpersonal relations which in turn influence the employee's commitment.

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Applications of Supply Chain Management in Science and Technology -Towards Growth and stability

Mr. PremNathPanday, Assistant Professor (Retired), Sharda University - School Of Business Studies, Knowledge Park, Greater Noida.

Ms.SuruchiPanday, Researcher, IGNOU, New Delhi.

ABSTRACT

The distinction between science, engineering and technology is not always clear. Technologies are not usually exclusively products of science, because they have to satisfy requirements such as utility, usability and safety. Technology Management is set of management disciplines that allow organizations to manage its technological fundamentals to create competitive advantage through efficient and effective Supply Chain. Global supply chains and their businesses are under enormous pressure from rising commodity prices, globalization of clients, labor disruptions, natural disasters and constantly changing regulations. The challenges in Supply Chain of Science and Technology are:

Ensuring security of supply will challenge most businesses over the next few years. It will require an evaluation of Science and Technology in Management Science and Applications in Supply Chain Management are truly strategic, and which are not, with security of supply one among the factors that enter into that determination.

By undertaking a comprehensive Lean manufacturing, supplier development and supply chain transformation program in the organization, progressive manufacturing organizations can reap a number of benefits across multiple functions including: Lean supply chains. They can be discovered, they can be enhanced, and they can become drivers of superior customer service performance and increased margin capture. For organizations willing to extend their Lean journeys beyond the four walls of manufacturing, Lean supply chain are the next logical step in Electronic Resource Planning system (ERP). ERP as a change agent and emphasized a "One Company" approach to make certain collaboration among business units.

Firms that manage the crises successfully survived and become high performing organizations my study focuses on the notion that learning orientation as one of the technology-management based elements that effect firm performance of the Industry & market demand or technological opportunity that explains inventors' decisions to bring their ideas to market? Business technology management and Business Process reengineering (BRP) are strategically incorporating both operational and infrastructure levels of technology management to ensure that an enterprise's business strategy can be realized by the technology it deploys.

Organizations are constantly looking for new ways and methodologies to improve their performance in Supply chain and gain a competitive advantage. As they seek improvements to their own business processes, many organizations recognize the importance of learning from best practices that have been achieved by other organizations Supply Chain.

KEYWORDS

Supply Chain Management (SCM), Profitability, Sustainability, and Increased production.

INTRODUCTION

Customer is the Boss. The price is what customer pays for goods; the goodwill is what vendor receives from the customer for the value he receives from the goods. It is the value part of the goods that is very important. That is why it is said that customer is the profit everything else is overhead!

The aim of technology management (TM) is to sustain and improve the competitive position of a company's technology exploitation. The management of technology should comprise three major factors: leadership, motivation of employees and appropriate management of

technology. The goal of TM is to create a synergy among all the factors (i.e. research, development, planning, engineering, machines, software, production, and communication) to make them work together in the most efficient way to produce profit for the company in the long-term. During last decade, researchers usually focused on Supply Chain Management (SCM) issues in profit organizations. Research objectives may include adding value, reducing cost, or slashing response time in various parties involved in the manufacturing supply chain. Reshaping your supply chain to manage volatility, & enabling management to verify that processes are being performed correctly and in an efficient manner, standardized work provides limitless opportunities for Science and Technology. So much so, that it has become a vital component of improvement efforts in Lean enterprise systems.

NEW HORIZONS IN STANDARDIZED WORK IN SCIENCE AND TECHNOLOGY

Applications of Supply Chain Management in Science and Technology Improvements as Management Science is all - inclusive guide to applying standardized work principles to virtually any business in any industry. A fundamental understanding of standardized work principles and the logic is behind their development, so organizations can successfully extend and adapt them to their own work situation.

PULL MANUFACTURING RESOURCES

SCM is needed for various reasons: improving operations, better outsourcing, increasing profits, enhancing customer satisfaction, generating quality outcomes, tackling competitive pressures, increasing globalization, increasing importance of E-commerce, and growing complexity of supply chains (Stevenson, 2002). Supply chains are relatively easy to define for manufacturing industries, where each participant in the chain receives inputs from a set of suppliers, processes those inputs, and delivers them to a different set of customers.

Pull is a foundational element of Lean where the overriding goal is the elimination of waste. Pull allows for just in time inventory management which helps significantly reduce waste. Rather than pushing inventory to the floor whether its needed or not as some computer-based methods do, pull relies on inventory signals to replenish parts when and where they are needed in just the right amounts required to replenish customer demand. New material is produced only after old material has been consumed, thus eliminating waste.

Pull at Toyota is traditionally implemented using a Kanban (meaning card in Japanese) where each part travels with a card. When the part is consumed, the card is removed and signals that replenishment is needed. In environments like automotive, cards work well because there are a limited number of parts, volume is high, demand is stable, product mix is low and changeovers are infrequent. But, what about environments where demand and processes are variable, equipment are shared and product mix changes frequently?

A Kanban system of cards breaks down quickly under such conditions and without some type of pull, Lean becomes difficult if not impossible, to implement.

An effective Lean supply chain strategy must provide the disciplines, methods and tools necessary to segment the customer against growth and value-contributing factors, link trading partners through collaborative planning & forecasting regimens, match supply and demand for the most appropriate use of enterprise-wide capacity and drive the selection & integration of strategic suppliers that offer the skills necessary to augment the entire supply chain for the benefit of the ultimate customer. Although Lean concepts and disciplines have long been associated with dramatic improvements in the manufacturing arena including waste elimination, throughput improvements, line changeover cycle time reductions and substantial quality improvements, supply chains today face enormous pressures linked to competitive forces, ever-exacting customer demands and “non-Lean” practices: Simply put, Lean supply chains are those where end-customer demand permits the smooth, synchronized flow of materials, information and physical assets (up or down) based on period-specific demand requirements. Far too often, supply chain management programs focus on the optimization of

intra-supply chain components such as inventory management, warehousing operations or production scheduling. In the Lean environment, such producers of waste are eliminated in favor of a universal supply chain mechanism that rapidly self-adjusts to the pull of end-customer demand through the use of three Lean supply chain concepts:

- Demand-Driven Operations Planning
- Lean Strategic Sourcing & Supplier Integration
- Lean Distribution Operations Fact-based demand signals are required to plan supply chain capacity.

Lean suppliers must provide the global capacity and high-quality goods and services required to execute, and distribution operations must provide profit center-quality capabilities in order to maximize margin capture. Without all three, the Lean supply chain cannot be realized.

DEMAND-DRIVEN OPERATIONS PLANNING

Translating Demand into Capacity Deployment Supply chain planning can begin with the optimization of your internal assets and functional silos, or it can begin with the fact-based confirmation of end-customer demand. Considered by many as the gateway to Lean supply chain planning and execution, effective demand planning must incorporate a seamless approach to both demand confirmation and pull-based production scheduling:

- Sales & Operations Planning': Organizations must possess a rapid, repeatable process to match end customer demand at both the macro and product-family level.
- Level-Pull Scheduling: Once demand is ascertained, customer demand must be translated into a capacity deployment plan based on margin expectation, contractual service levels and global supply chain capacity constraints.
- Manufacturing “pacemakers” are identified which establish the pace, or cadence, of each manufacturing line flow.
- Demand-based inventory levels are established for all three parameters including cycle, safety and buffer stock.
- Kanban-based materials flow systems are extended upstream in the supplier community to balance global supply chain capacity; incremental capacity enhancements (e.g. overtime, added shifts) are immediately costs for margin impact.
- Global development of production TAKT time integrates all supply chain components including inbound material flows, production execution and outbound logistics and warehousing operations.

Moving beyond identification, selection and on-boarding of a new supplier, Lean concepts and disciplines must be deployed as a marketplace differentiator to the supplier community:

- Lean journeys are never complete via in-the-four-walls thinking; buyers must align themselves with suppliers willing and able to negotiate their own personal Lean journey.
- Lean concepts, disciplines and required practices must become equal partners with other selection criteria (service levels, innovative solutions, economic principles, etc.) when evaluating potential supplier candidates.
- Customers are not willing to pay for waste; total delivered value is based on waste elimination across the entire supply chain (including suppliers) and not just on the end seller. Moving beyond price, progressive manufacturers must migrate to total delivered life-cycle costing models where the buyer-supplier relationship is built on an aggressive process that mandates year-over-year total delivered cost reductions mutually shared by the buyer and the supplier. Forming the basis for the eventual relationship, Lean supplier integration and performance management always begins with the supplier selection process: By clearly stating the buyer’s Lean journey progress, waste removal successes and Lean supplier requirements, smart buyers can effectively level the playing field with a go-to-market supplier strategy grounded in

the mutual acceptance of responsibility to serve end customers through a global Lean supply chain. Beyond the go-to-market strategy and the supplier selection criteria, the lean supplier integration process depends on the mutual acceptance of three core responsibilities:

- Buyer-supplier integration processes and mutual value stream enhancements
- Buyer-supplier total delivered cost year-over-year reduction responsibilities
- Successfully completed, the supplier selection process should yield five quantitative deliverables that all combine to deliver predictably superior customer service performance:
 - Written long-term supply contracts outlining key terms, conditions and required performance levels
 - Supplier integration program including adoption of buyer-based lean tools upstream to the supplier
 - Mutual buyer-supplier multi-year total delivered cost reduction responsibility program
 - Creation of a buyer-supplier integration value stream map governing the relationship
 - Targeted “both sides of the fence” kaizen events focusing on process waste removal, performance enhancements and service level improvements Lean mandates waste-free operations, and suppliers cannot be exempted. The choice of the Lean buyer is a simple one; either you can create an environment grounded on the translation of Lean disciplines upstream to the supplier community.
- One-size-fits-all distribution formulas default to single-mode service capabilities
- Distribution operations are not synchronized with customer or production pull
- Space management increasingly monopolizes supply chain planning regimens
- Physical asset network growth (e.g. warehousing) increases cost and complexity
- Lean concepts are often confined purely to manufacturing and are not deemed “of value” to the distribution function In order to avoid these service and margin-reducing impacts, progressive manufacturers are encouraged to deploy Lean concepts, disciplines and practices to the logistics and distribution arena in order to avoid the “manufacturing only” Lean journey trap. Although the deployment of key Lean tools and practices inevitably vary from manufacturer to manufacturer, the core requirements remain the same:

THE DYNAMICS OF SUPPLY CHAINS ARE DEPENDENT ON THE FOLLOWING KEY ISSUES

- Dependable infrastructure and distribution of:
 - Power
 - Communication facilities
 - Transportation by air, rail, road, inland waterways and shipping through high seas
 - Levels of automation
- Access to sophisticated supply-chain capabilities
- Purchasing power of the customers
- Industrial climate of the country
- Availability of technology
- Quality of labour and management
- Security of systems and normal law and order situation
- Global outlook
- Corruption-free environment
- Bureaucratic barriers and hassle-free systems and procedures
- Healthy and hygienic environment
- Customer satisfaction is the ‘mantra’ of supply management

- As regards transportation for the movement and distribution of goods and services, which is the backbone of any supply-chain process the less said the better. Let us take the example of our own country in regard to the vision, planning investment and implementation and networking of various infrastructure systems.
- The MNCs are certainly exploring India as a great outsourcing hub for products and components for global markets. In order to attract foreign investors to set up a manufacturing business, the country must develop investor-friendly infrastructure.
- With power you can work 24 hours. But most of the developing economies are still struggling to provide adequate power to maintain the desired growth in the industrial and service sectors.
- Communication connects the five factors of production namely men, money, machines, materials and management facilitating the flow of information and knowledge, which is vital for a supply-chain success. In underdeveloped nations, it lacks the push from the government channels.
- The growth and progress of the economy of a nation is reflected by the number of air flights it operates in and out of the country. Air transportation is the leading mode of logistics for movement and transfer of sensitive and bulk cargo to and from India.
- The cost-effectiveness of road transportation is washed away as soon as the rainy season begins. The upkeep and maintenance of infrastructure is far from satisfactory. It affects the bottom line of the business enterprises as well as the overall growth of the national economy. It is also an inhibiting factor for attracting the investment opportunities from foreign countries.
- We need an integrated approach of the transport infrastructure which will minimize energy use and emissions while maximizing competitiveness of the domestic industry with a paradigm shift in the supply-chain process.
- A practical approach is required to manage the flow of goods, services and information from various sources based on the physical and financial resources available with each developing country to manage the show.

Ultimately it will be the vision of the nation and its leadership at the macro level and its style of functioning coupled with the leadership of business organizations and the cultural ethos are of the employees which will make a difference between the have and have-not markets. Though customer has been dictated in the market for long, of late, customer has become supreme in the context of global competitiveness intensifying on an unabated manner. Obviously, only those companies are going to be successful that are able to provide goods and services to customer in time and in a cost effective manner to provide customer delight. This requires having competitive advantage. Evidences indicate that every link in supply chain adds to competitive advantage. The new developments are such as the proliferation of Internet technology. World Wide Web, Electronic Commerce, etc., will change the way a company is required to do business and, for that matter, adapt an appropriate supply chain to acquire competitive advantage in future.

In the present ever changing dynamics of world where new technologies can/are disrupting /replacing old monolithic production systems & it is not yet clear what our new government exactly wants from "Skill Development". Is it to predict how many technicians, mechanics or technicians or even carpenters will be needed in some years to come and precisely what skills are needed and hence how to train those youth early?

Two kinds of technologies have combined together to disrupt the existing old conventional manufacturing monoliths. First one is the next big change which No doubt will change the dynamics of Supply Chain processes.As a result, there are ever increasing fears that with the advent of this technology, what would be the role of human beings at operational levels as the number of jobs in Supply Chain will appreciably reduce. No doubt the valuation of machines,

patents, factories will reduce as newer invention of disruptive technologies but the risk of human liability is imperative.

The second one is the Digital technology connecting widely dispersed suppliers and customers which are creating new disruptive business models in India like abroad such as flipkart, olacabs. Even though things aren't as bad for our own Indian *traditional system?* (Brick-mortar retail store) but the combinations of these different technologies are leading to ideation and thus invention of large networks of many small enterprises. Hence, methods of skill development which are based on the Assembly-line production to ensure mass production through large workforce might not be the correct approach.

So this 'New world order' is of cutting edge and more importantly Disruptive technology, we have to plan and devise our policy of 'Make in India' keeping this in mind. A world in which everything is done by machines or computers is very much thinkable if not realistic. Technology is the only force shaping this 'New world order' today. The production systems are changing with technology or sometimes even some business processes get re-engineered (Radically change with a need of doing away with what was done earlier to reduce costs , effort and bring efficiency). But Human need may not be completely eliminated. They will be performing new activities in the enterprises which will gradually take new forms. Technology will enable in shaping new enterprises and may be they will ascertain my earlier concern somehow but we must agree that as more disruptive technologies are developed, human beings will remain at the center of new forms of sustainable and networked Supply Chain systems.

Organizational decisions involve the structure of the supply chain and strategic choices the firms must make in order to incorporate sustainability considerations. Research effort here has largely focused on designing the supply chain to collect and re-use end-of-life products returned by customers, structuring supply chain incentives to properly motivate partners, and managing competition between remanufactured and new products. Manufacturing environment can be from a marketing perspective with an emphasis on important characteristics of a manufactured product such as low-cost, lower valuation, cannibalization and supply constraints. In addition to analyzing the profitability of remanufacturing systems for different cost, technology, and logistics structures, we can provide an alternative and somewhat complementary approach that considers demand-related issues, such as the existence of 'green' segments, original-equipment manufacturer competition, and product life-cycle effects.

CONCLUSION

A supply chain is defined as a set of three or more, directly linked by one or more of the upstream and downstream flows of the products, services, finances and information from a source to a customer. It consists of all the stages involved, directly or indirectly, in fulfilling a customer's demand. It not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers and customers themselves. Within an organization, the supply chain includes all the functions involved in fulfilling a customer demand. These functions include, but are not limited to, new product development, marketing, operations, distribution, and finance and customer service

In order to achieve a sustained superior performance in the supply-chain process, a developing country must strive and evolve an appropriate strategy and execution plans keeping in view the internal capabilities and understand the fundamental needs of the business organizations, which will ultimately give an impetus to their sales, revenues and profits.

The objective of the supply chain is to maximize the overall value generated. The value a supply chain generates is the difference between what the final product is worth to the customer and the effort the supply chain expends in filling the customer's demand. It is

strongly correlated with the supply-chain profitability, the difference between the revenue generated from the customer and the overall costs across the supply chain. Smart enterprises today are rightfully pursuing alignment of technology and supply chain with the business, and that in itself is no small achievement. But for some, the right level is really synchronization, where technology shapes strategic choices. And at the highest level of achievement, business, Supply Chain and technology leadership actually converges, reflecting an executive and management team that has achieved an extraordinary level of cross-understanding and vision for the future.

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Citation Analysis of Health Science

Research Output: a case study of select Indian Health Science Journal

Tawfeeq Nazir ,*Ph.D Research Scholar, Department Library & Information Science University of Kashmir*

Sumaira Jan ,*Ph.D Research Scholar, Department Library & Information Science University of Kashmir*

Sabha Ali ,*Ph.D Research Scholar, Department Library & Information Science University of Kashmir*

ABSTRACT

The research output and citation analysis is an essential part of an institution's measure and evaluation of research quality. The present study is tracing the growth and visibility of Health Science research output in India. The study analyses the source type preferred for publishing research and to trace pattern and growth of citations. The journal observed progressive inclination in the no. of publications over the year with few exceptions. In an aggregate 538 publications have been published during time span of 17 years. Among all source 100% of citations affect to research articles only whereas review articles and book reviews obtain zero citations The authors have a preference to work in alliance at various levels, which evidently signifies that they are well aware of the benefits working in collaboration that enable the exchange of knowledge and ideas among researchers leading to qualitative research.

KEYWORDS Bibliometric, health, India, citation analysis, collaboration

INTRODUCTION

The bibliometric investigations are used to recognize the patterns of publication, authorship, citations or journal exposure in the hope that such regularities can give an insight into the dynamics of universe of knowledge. This consequently leads to improved organization of literature. Eggle and Rousseau (1990) define "bibliometrics as a study of documents and their bibliographic references and citation structure". However, Tague-sutcliffe (1992) is of view that "bibliometrics is the study of quantitative aspects of production, dissemination, and use of recorded information". Bibliometrics encompasses a number of empirical methods such as bibliographic coupling and co-citation analysis as opined by (kessler, 1963).

Citations are conventionally regarded as the formal appreciation of the previously published sources of information that relate to the citing author's research. Thus, the number of times that a publication has been cited by other authors might indicate its overall scientific utility (Murphy, 2012). Given that utility is one aspect of scientific quality, citation counts are commonly used by decision makers to gauge the academic performance of individual researchers, departments and research institutions when making decisions about funding, hiring, promotion and tenure and as well as to compare the development of different disciplines and national scientific outputs and the use of citation counts for academic evaluation has increased rapidly since the introduction of computerized citation indexes and citation scores have been advertised as objective quantitative indicators of scientific performance and a precious addition to conventional methods of research evaluation, such as peer review.

The use of citation counts for academic evaluation is based on the assumption that authors select references based on their relevance and contribution to the author's own work, and that all important sources are credited by citation. Citation analysis has conquered the world of science policy analysis. The main objectives of citation analysis are to evaluate and to interpret citations received by the articles, authors, institutions and other aggregates of scientific activities. The primary function of citation is to provide a connection between two documents, one which cites and the other which is cited (Leta, 2012).

Citation analysis has been used for the evaluation of research performance. Among others, the main uses have been the study of rankings of journals, university departments, scientists, research institutions and academic journals. The starting point of this approach is that citations, even the negative ones, are a measure of influence in science: the more often an article is cited the more it is known to the scientific community. The whole academic community acts as a big set of peers to recognize, by means of citations, the value of a given contribution and the decisions of this jury can be studied using Citation Indices. Citation analysis can be used to identify the most frequently cited journals relevant to a given field. As noted by many studies, in a given area or discipline, a few core journals receive many citations and the rest of journals receive far less citations. This pattern has been also identified with authors and other units of analysis (Astrom, 2007).

De Bellis (2009) Dynamic mapping of science using Citation Indices has been pursued for more than 30 years now. The starting point is that citations from paper to paper or from journal to journal provide indicators of intellectual linkages between subject areas, organizations or individuals. Research approaches used in this field study are co-citations (one document is cited by two other documents) and bibliographic coupling (two documents are cited in another document). Eggle and Rousseau (1990) there are mainly three application areas in citation analysis first Qualitative and quantitative evaluation of scientists, publications and scientific institutions, Second is Modelling of the historical development of science and technology and final is Information search and retrieval.

PROBLEM

The contemporary epoch is facing a drastic change in the way people find and use information resources. Although the information gathering and use pattern in the traditional print environment have been studied for many years, the electronic media present a new and relatively unexplored area for such study. citation analysis is an essential tool to know the impact of research. Consequently, need was felt to determine the citation analysis of the India health science journal.

REVIEW OF RELATED LITERATURE

Many research studies have been carried out to show the visibility of research work carried out in different fields, countries, institutions to show various factors related to their visibility and impact on international level. A large amount of literature has been published in the field of citation analysis and following papers were found relevant to the study.

Arunachalam, Srinivasan and Raman (1993) analyzed the internationally jointly authored papers involving authors from the advanced countries and the Third World countries, using SCI 1991. They found that China has published many more collaborative papers with most Asian countries and the advanced countries of the West except the UK than India — confirming the Both India and China collaborate with USA much more often in physics followed by clinical medicine. Basu (1999) analyzed that the foreign collaboration has great impact on visibility of Indian science research. Okubo (1999) compared the international paper proportion of five Chinese scientific journals in 1996 with that of well-known foreign journals in the same category, and argued that journals with a high impact factor always have internationalization. Das and Sen (2001) analyzed the authorship patterns of the citations and shows that more than 15 per cent contributions are single-authored and about 85 per cent are the result of teamwork. Single-authored articles amount to 15.52 per cent of the total citations and about 28 per cent resulted through the collaboration of five or more authors. Of the citations 88.73 per cent pertain to journal articles. Out of the total citations 9.48 per cent are author self-citations and 7.3 per cent are journal self-citations. Ren and Rousseau (2002) analyzed journal citation report (JCR) data from 2000 and 2001. They found that Chinese English language journals are not internationally recognized and have very low international visibility.

Glanzel and Schubert (2005) found that the standards and, particularly, the visibility of scientific research, depend on the level of collaboration. Lee (2005) found that IMCB (Institute of Molecular and Cell Biology) researchers have been very selective in where they publish - 95.6% of the articles were published in ISI journals. The articles received an average of 25 to 35 citations per article, and the percentage of non-cited articles is 11.6%. Four articles received more than 200 citations, and 18 received between 100 to 200 citations. Moin, Mahmoudi and Rezaei (2005) reviewed the scientific output of Iran over the period 1967-2003 and compared it with 15 countries in the year 2000. During these years Iran's relative share in global scientific output increased from 0.0003 per cent to 0.29 per cent in 2003. Comparing the ratio of science output to gross national product, Iran stood at the 13th place among 16 countries in the year 2000. Harirchi, Melin and Etemad (2007) investigated factors behind co-authorship between scientists in Iran and elsewhere and also compared the Iranian pattern of collaboration with other countries. The results showed that not all co-authored articles were the result of a collaborative project. Sharing laboratory devices, accessing knowledge and increased efficiency of the study were the main collaborative motives behind the co-authorships. Wang, Wang and Weldon (2007) analyzed the internationalization of ten of China's English language scientific journals. The data showed that though the total trend of Impact Factor and Total Citation keeps rising; their subject rank has shown a slight decrease.

Davarpana and Behrouzfar (2009) investigated the internationalization and visibility of Iranian scientific journals covered by the Institute for Scientific Information (ISI) between 2000 and 2006. The results showed that the visibility rate of Iranian journals is low compared to their international counterparts. Garg and Kumar (2010) analyzed 5317 articles and reviews published in 46 Indian science journals indexed by Science Citation Index Expanded (SCIE) during 2006 indicated that these journals predominantly published domestic papers. About 40 percent of the papers published in these journals were cited in the international literature during January 2006-June 2009. The proportion of cited papers and the rate of citation varied for domestic, foreign and collaborative papers, as well as among disciplines and publishers. The analysis indicated that collaborative papers had the highest rate of citation per paper. Mingers and Xu (2010) investigated the number of citations received by papers published in six well-known management science journals. It considers factors that relate to the author(s), the article itself, and the journal. The results show that the strongest factor is the journal itself; but other factors are also significant including the length of the paper, the number of references, the status of the first author's institution, and the type of paper, especially if it is a review.

Sotudeh (2011) found that Iran experienced a considerable citation loss, compared to its expectation level. The results also confirmed a relatively poor publication strategy adopted by Iranian scientists and that a publication concentration does not necessarily enhance the chance of being widely cited.

OBJECTIVES

The main objectives of the study are:

To trace the growth of Health Science research output

To determine the source type preferred for publishing research

To explore the pattern and growth of citations

To examine the impact authorship/collaborative pattern on the citations

METHODOLOGY

The study is based on the data collected from the journal of *"Noise and Health"* in the field of Health Sciences. Noise and Health has been ranked *no. 1* journal in India in the field of Health Science according to SJR (Scimago Journal Ranking).

SCOPE

Scope of Study is confined only to research articles, review articles and book reviews published between (1998-2014).

DATA- ANALYSIS AND INTERPRETATION

Year –wise distribution of publications

The journal witnessed progressive trend in the no. of publications over the year with few exceptions. In an aggregate 538 publications have been published during time span of 17 years. Year 1998 represents the least productive year with just (8) publications while as 2014 has been the most productive year with 60 publications (Table 1).

Table 1: year- wise distribution of publications

Year	No. of publications
1998	08
1999	23
2000	28
2001	24
2002	34
2003	32
2004	33
2005	24
2006	13
2007	13
2008	14
2009	34
2010	31
2011	57
2012	51
2013	59
2014	60
Total	538

Compound annual growth rate of publications

The 17 years study makes it obvious that research publications shows Compound Annual Growth Rate (CAGR) of 28.09%.

Table 2: Compound annual growth rate of publications

Period	Output	Cumulative Output	CARG (Compound Annual Growth Rate)
1998	8	8	-
2014	60	538	28.09%

Distribution of source type

The research output in the field of Health sciences is published in diverse formats like research articles journals, Review articles, book reviews etc. based on the type of research performed by the researchers. Out of total 538 publications, 523 (97.21%) publications are published as research articles, 13 (2.45%) as review articles least no. of 2(0.37%) as book reviews (Table 3).

Table 3: Distribution of source type

Year	No. of Publications		
	Articles	Review Articles	Book Review
1998	04	02	02
1999	18	5	0
2000	22	6	0
2001	24	0	0
2002	34	0	0
2003	32	0	0
2004	33	0	0
2005	24	0	0
2006	13	0	0
2007	13	0	0
2008	14	0	0
2009	34	0	0
2010	31	0	0
2011	57	0	0
2012	51	0	0
2013	59	0	0
2014	60	0	0
Total	523 (97.21%)	13 (2.45%)	2(0.37%)

Authorship pattern of publications

434 (80.67%) publications are co-authored. The top coalition has taken place among more than three authors, which constitutes 37.17% of the total (Table 4).

Table 4: Authorship pattern of publications

Authorship pattern	No. of publications
Single authored	104 (19.33%)
Two- authored	115 (21.38%)

Three-authored	119 (22.12%)
Multi-authored (> three authors)	200 (37.17%)
Total	538

Citation pattern of publications

Majority of publications receive citations in the range of 1-10. Only one publication receives highest citation in the range of 101-150 (Table 5).

Table 5: Citation pattern of publications

Range of citations	No. of Publications
0	195
1-10	245
11-20	58
21-30	28
31-40	7
41-50	1
51-60	0
61-70	1
71-80	0
81-90	2
91-100	0
101-150	1
Total	538

Citation pattern of source type

Among all source 100% of citations pertain to research articles only whereas review articles and book reviews receive zero citations (Table 6).

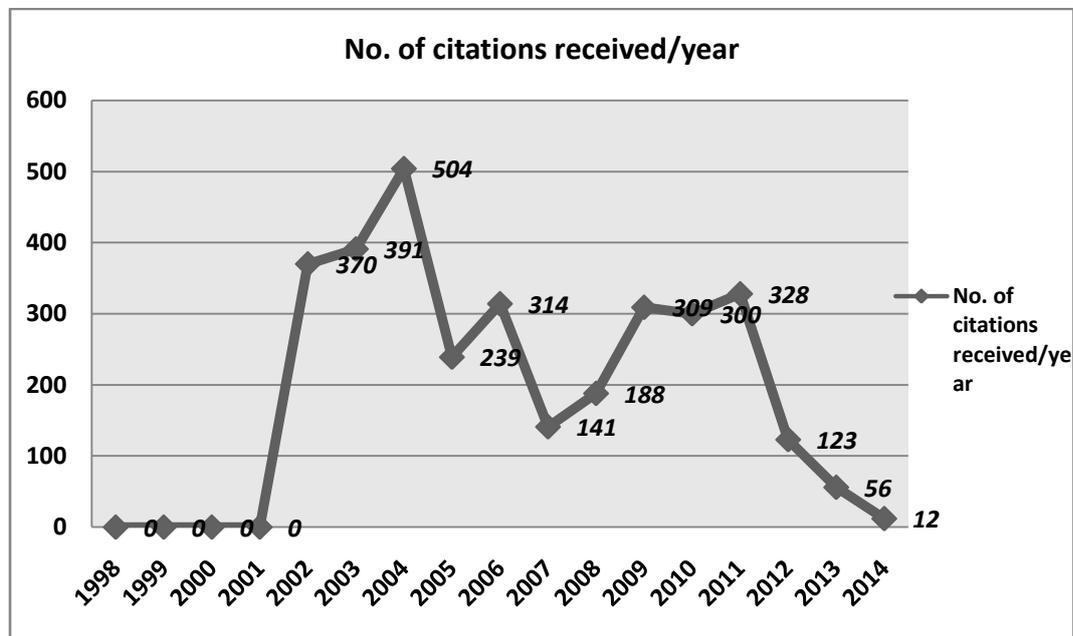
Table 6: Citation pattern of source type

Source Type	No. of Publications	No. Of Citations received
Articles	523 (97.21%)	3275
Review Articles	13 (2.45%)	0
Book Review	2(0.37%)	0
TOTAL	538	3275

Yearly distribution of citation pattern among publications

The publications of the journal showed progressive trend over the years from its inception with fluctuating patters. Publications in Year (2004) emerge to be top cited with 504 citations (Fig. 1).

Fig 1: Yearly distribution of citation pattern among publications



Yearly Average citation pattern of publications

Publications in the year 2006 received highest no. of average citation/ publication followed by 2004 and 2008 (Table 7).

Table 7: Yearly Average citation pattern of publications

year	No. of citations received	No. of publications	Average Citation per publication
1998	0	8	0
1999	0	23	0
2000	0	28	0
2001	0	24	0
2002	370	34	10.88
2003	391	32	12.22
2004	504	33	15.27

2005	239	24	9.95
2006	314	13	24.15
2007	141	13	10.84
2008	188	14	13.42
2009	309	34	9.08
2010	300	31	9.6
2011	328	57	5.75
2012	123	51	2.4
2013	56	59	0.95
2014	12	60	0.2
Total	3275	538	6.09

FINDINGS

The major findings of the study are discussed under following headings

Growth in publications: The initial years of the journal received modest amount publications, which eventually rose with fluctuating patterns over the years. However, Health Science being the most vast and innovative field of research for every nation the growth of publications must escalate further with qualitative publications. The fluctuations in no. of publications may be attributed to an array of factors, which include first in year (1998) only one issue is published; another one may be that although the journal received no. of publications but not meeting quality factors and so on.

Quality of publications: Publications during the inceptive years received zero citations. However, in preceding years quality of publications seems to enhance with rising no. of citations, and average citation/ publication, which also featured fluctuating pattern over the years. The fluctuations in citations can be due to no. of factors, which include less visibility of the journal, not so suitable topics of research according to current trends in Health Science Research that may be of meaning in near future.

Collaborations: The authors have a preference to work in alliance at various levels, which evidently signifies that they are well aware of the benefits working in collaboration that enable the exchange of knowledge and ideas among researchers leading to qualitative research.

CONCLUSION

The study provides an overview of growth and development of research out in the field of Health Sciences published in Indian journal (*Noise and Health*). Although the publications count in journal show increasing trend with qualitative publishing yet, keeping in view the immense importance of the Health Science research particularly for developing nations like India there is much to do to improve the growth and development of scholarly out put in the

particular field to improve and advance stability of the nation. In above milieu it becomes imperative to deliberate upon the causes that are contributing towards stumpy research output in the journal.

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STATUS OF LICENSING AND PRICING MODELS OF E- RESOURCES: ISSUES AND CHALLENGES

TawfeeqNazir, Ph.D Research Scholar, Department Library & Information Science,
University of Kashmir

ABSTRACT

The paper aims to explore and identify the recent contributions to the literature available in the current developments and issues in licensing and pricing models in e-resources. An extensive literature survey was performed in an attempt to identify substantial works published to date concerning pricing and licensing issues coupled with the publishers and librarians. The literature review connotes that hardly any systematic study or scholarly output which can facilitate the precise and accurate facts about pricing and licensing issues coupled with the publishers and librarians is available, although the size of the scholarly publishing industry and its effect on the cost and licensing of e-resource is quite large. It is evident from the scrutiny of literature existing that there are still areas for advanced exploration on the topic of pricing and licensing concerns of the scholarly publishing industry; and study paves the way for the concerned organizations and institutions (such as Libraries and Publishers), at global level, to take substantial measures to overcome monopoly effects from the publishers and come up with the standard models. The study is very helpful for librarians or authorities in selecting the best available e-journal package for their libraries. The paper is the first ordered and thorough attempt to review the literature and provide that there is not any standard pricing model available for e-resource subscription in the market to control the monopoly of publishers and aggregators.

KEY WORDS Pricing, E-resources, Pay Per article, Big deal, Print, Publishers, Vendors

INTRODUCTION

Electronic resources represent an increasingly important component of the collection building activities of libraries. "Electronic resources" refer to those materials that require computer access, whether through a personal computer, mainframe, or handheld mobile device. The globalization of education and multi-directional research output constantly vanish the borders between different disciplines. In fact, discrete boundaries no longer exist between the disciplines. Therefore, the new paradigm for 'seamless integration of disciplines' posed the multidisciplinary research opportunities, results a great demand for scholarly communications. Due to financial constraints, increasing cost of print documents, storage problem and publication of larger number of journals, It is not possible for one library or information centres to hold the full stock of information resources or to procure all information, which may be in demand by its clientele. Even not a single library or information center can meet the thrust of knowledge of all the readers from its holdings.

To solve this problem, library cooperation started long ago, such as interlibrary loan, document delivery, library networks, etc. At present, the more accepted system of resource sharing is called library consortia..Consortia are the means to have an effective negotiation enhancing buying power at reduced rates for access to electronic resources and provide expanded access to electronic products. Due to different pricing models, each year the library survives but does not succeed to meets its obligations. In effect, each library meets its mission just a little less effectively than the previous year due to increase in costs and reduced library budgets. In order to succeed in our mission we need to have a new set of pricing models taking advantage of new technologies, ever emerging e-products and collective

buying power of the consortium. The price variations depend upon various factors (King & Alvarado-Albertorio, 2008) such as:

Strength of sale of e-journals

Size of the journal frequency, number of articles

Content other than articles

Special graphics

Rejection rates and other content quality considerations

Additional revenue sources to publishers, such as-author page charges, advertising, tax relief, subsidy from parent organization, etc.

Since 2000, the scope of electronic resources has broadened beyond current journals to include journal archives, reference and e-books (monographs). The range of business models has grown to provide libraries with both purchase and subscription options for such products. Library consortia have become a normal - and significant - part of the business of licensing electronic resources. PEAK (Pricing Electronic Access to knowledge) is exploring several pricing dimensions, including different product bundle as well as nonlinear pricing opportunities offered by electronic access. While traditional journals have familiar bundling conventions, electronic access allows us to conceive of new types of bundles and pricing options for those bundles.

Per article – unlimited access by individual users to specific articles purchased at a fixed price.

Title-by-Title Subscription Model: The practice followed in most of the libraries to subscribe print journals. The only concession library may get by this model is the special rates if one subscribes few (Physical Reviews package from American Physical Society/AIP) or all publications (ASPP from IEEE) from the publisher, regarded as set price schemes.

Print Plus Model: The pricing of the electronic journal product is expressed as an "add-on" to the price of the print product, or the price quoted is linked to a "no-print cancellation" clause in the contract.

Electronic Plus Model: The electronic journal content supplied for a base price and the price for print copies added to that base price. ICOLC argues for keeping the purchase of the print copies as optional, and the base price for the electronic content is not more than 80% of the price for the electronic-plus-print and the combined electronic and print price is no more than current print-only prices.

ALL- You-Can-Eat Model: Some publishers offer their total content for the price that a library might have paid for a limited number of print journal subscriptions.

Pay-by-the-Drink Model: Provision to purchase blocks of journal articles, or may pay only for the delivery of the articles that are actually used.

CONSORTIA COST SHARING MODELS

Each member institution will have specific needs and budgets, circumstances and size can vary greatly. All these aspects need to be taken in examination, but as Farrow states: *"In the end, a consortium is as much about collaboration and networking as it is about resources. Through a clear cost sharing model and strong communication among members, a consortium can thrive."*

The following library consortia cost sharing models are evaluated and illustrated:

Equal share: The total e-resources subscription cost is equally divided between all the member institutions. Example: Consortium of Academic & Research Libraries in Ghana (CARLIGH)

Type of institution: The nature of the institution determines its share of the e-resources invoice. Example: Kenya Library and Information Services Consortium (KLISC)

Size of institution: The size of the user population determines the share. Example: Consortium of Tanzania University Libraries (COTUL)

Ability to pay: Based on available budget. Example: Bangladesh INASP-PERI Consortium (BIPC)

Actual usage: Payment is based on the amount e-resources have been used.

Centralised funding: E-resources are centrally funded at government level. Example: Pakistan's National Digital Library Programme (NDLP)

ISSUES RELATING TO LICENSE AGREEMENTS

Providers of electronic information resources (i.e. licensor) are employing licenses as a legal means of controlling the use of their products. In the electronic environment where the traditional print practice of ownership through purchase is being replaced by access through license, libraries need to be aware that licensing agreements may restrict their legal rights and those of their users.

Authorized users: persons who are authorized to use library's facilities and/or are affiliated with library as students, faculty or employees, or are physically present in the library.

Fair Use: use of the product for non-commercial educational, instructional and research purposes by authorized users including viewing, downloading, copying, printing and emailing.

Access: permanent use of the resource or access rights only for a defined period of time. Access provided through IP address or other mutually acceptable authentication and authorization methods.

Use: searching, displaying, copying, saving data, reformatting data, interlibrary loan, course packs and electronic reserves by authorized users simultaneously as well as remotely.

Intellectual property: Any trademarks, issued patents and patent applications, copyrights and copyright registrations and applications, rights in ideas, designs, works of authorship, derivative works, and all other intellectual property rights relating to the licensed resource.

Network: a group of computers linked together to share information. Networks can consist of a number of linked computers in a single physical location, a Local Area Network (LAN) or they may consist of computers located at different physical sites linked together by means of phone lines and modems or other forms of long distance communications (Kumbar&Hadagali, 2005).

PROBLEM

By the turn of the 21st century, library automation and the Internet had revolutionized information access and library operations around the world. The effect of this revolution has been profound, especially on academic institutions. Electronic resources represent an increasingly important component of the collection building activities of libraries. The present study has been undertaken to know the different pricing models adopted by e-journals. The study also highlights the issues and perceptions relating to different pricing models.

OBJECTIVES

The objectives of the study are enumerated as:

To find out the different studies done on the pricing & licensing models of e-resources and the issues related to it.

To know the perception of the publishers and librarians on the e-resource pricing and licensing.

To ascertain the strength and weakness of various pricing models provided by publishers.

METHODOLOGY

An extensive literature survey was performed in an attempt to identify substantial works published to date concerning pricing and licensing issues coupled with the publishers and librarians. A range of online scholarly databases, search engines and websites of recognized international as well as national organizations and publishers was searched, to spot out the substantial works carried out in the area. Varied search terms such as "pricing models of e-

resources”, “issues pricing models of e- resources” licensing models of e- resources” “e-journals packages provided by publishers”, etc. were used for retrieving the literature.

LITERATURE REVIEW

All electronic resources available through the Consortium, university or individually purchase are governed by license agreements. The terms and conditions for using these resources are spelled out in license agreements that are signed with publisher by the licensee.

Davis (2004) opinion is that Fair (equitable) pricing requires transparency in the marketplace. The use of confidentiality clauses may result in higher prices for all library consumers. The open sharing of local cost and usage data would provide immediate and beneficial effects on the scholarly publication market. An open market for sharing price and licensing information puts the library in a much stronger position for negotiation than does a confidential and opaque market. Big deals’ are inflexible, in the long run expensive, and are squeezing out small not for- profit publishers, who are going to pay the bill for the inability of libraries to step out of big deals or to manage their budgets via cancellations to journals that form part of big deal arrangements. Moreover, libraries become aware of the lack of transparency and incomparability of the pricing of big deals, internally within the consortia and externally between consortia (**Verhagen, 2007**).

Publishers will need to innovate with their business models and use technology and data analysis to match the price charged for content to the needs of an individual institution. The future is likely to place increased control in the hands of the library community, through initiatives like patron-driven acquisition (PDA) (**Kenneway, 2011**). The Big Deal today is the biggest bugbear for librarians and currently the focus of a face-off between U.K. librarians and publishers (**Poynder, 2013**). **Anglada et al (2003)** The Consortium of University Libraries of Catalonia (CBUC) prefers the electronic plus print option, the cost of electronic access is paid consortially, and a price is established with a discount for the paper subscriptions that the libraries wish to continue receiving (optionally and at their own expense). This option, which was first adopted in 2000, has proved a success. Since then the libraries have progressively cancelled their paper subscriptions, each at their own pace, and the number of them is now merely symbolic.

Stoller et al (1996) concluded that the advent of the electronic journal, with the possibility that it’s pricing will be based strictly according to usage, may lead to the most equitable pricing system, as well as the most efficient use of societies’ resources. Subscribers will be charged for and will receive only the articles they plan to read, saving resources for both producer and consumer. They argued for a flat-rate system on the grounds that price differences between journals in different academic disciplines, particularly the higher prices for those in natural sciences and engineering, appeared to be based on price discrimination rather than differences in production costs.

An economic analysis of the journal industry indicated that high and discriminatory prices resulted from the existence of monopoly power among publishers. University and library administrators could alleviate this problem by providing journal users with an incentive for keeping prices lower, by encouraging library organizations and university consortia to exploit their potential monopsony (i.e., a buying monopoly) power into a bilateral monopoly situation and by attempting to create and demonstrate high elasticity of demand for journals in any way possible **Stoller et al (1996)**. **Tenopir and King (1997)** found that the average direct cost involved in publishing a printed journal article was about \$2,000, to cover refereeing, subject editing, copy editing, typesetting, and preparation of illustrations. They added \$2,000 of indirect costs such as contracting with authors, marketing, subscription management, and a proportion of all the property, staff, and equipment costs incurred by any organization. They also found that articles cost around \$4,000 each simply to produce the first copy. These costs were incurred regardless of the medium of output—print or

online. **Fishwick et al (1998)** concluded that electronic journals be made available through a combination of payment by usage and subscription. **Hunter (1999)** it was in publishers and consortia's interest to work together if they believed that there was value in the roles they played or that the scholarly community would be less well served by their absence. **Prior (1999)** survey of publishers' views on the pricing of electronic journals revealed the differing approaches which were reflected in the variety of pricing models being used. The results of continuing experimentation may produce models which are more acceptable to librarians than the current ones. **Wade (1999)** determined that for the success of library consortia there needed to be establishing sound governance and funding, that would provide the key to not only delivering high quality services but also to establishing the consortium that was able to be agile and effective in its actions and thus be also able to occupy a pre-eminent position in redefining the delivery of library services.

In the changed scenario it was observed that the librarian was becoming more and more involved in negotiating complex licensing agreements, addressing issues of copyright, organizing methods of access to information through networked resources and aggressively engaged in liaising with the academic community in the purchase of information products (**Ashcroft, 2000**). **Cox (2000)** developed model licenses for the use of electronic content in libraries and these model licenses can help reduce the negotiation and administration for both publishers and librarians. They do not predict the outcome of negotiation or specify best practice; but rather are tools in a new and rapidly changing, information environment. **Bley (2000)** viewed that The National Electronic Site License Initiative (NESLI) has overcome the resolution of technical and licensing problems for site, multi-site, and offsite access; clarification and standardization of license terms and conditions; separation of print and electronic subscriptions; and, the further development of a single seamlessly linked electronic journal delivery system. **Hurt (2000)** concluded that consortia purchase products at a fair price and publishers ended up with wider publicity and sales within a shorter period of time.

Tenopir and King (2000) analysis revealed savings of between twelve and thirteen dollars in processing electronic articles on demand compared with the cost of a paper-based interlibrary loan or document delivery transaction. **Xenidou-Dervou (2001)** found that the dramatic price increase in journal subscriptions over the past 30 years have undermined the ability of academic libraries to sustain their collection development at the level necessary to support educational and research activities in the institutes they served. He supported the foundation of a consortium in order to go some way towards alleviating the problem.

Anglada and Comellas (2002) viewed that library consortia existed to help their members to obtain better prices and buying greater number of resources at the disposal of their users. Commercial publishers try to combine their interests with the technical possibilities and demands of the libraries but the emergence of the pricing models and the types of licenses have improved considerably but a number of the parameters used in the calculation of prices are clearly unfavorable at present for some consortia. The best way to use the competitive titles identified, is in the pricing charts and some indexes provide impact factors, which can assist you in looking at the top rated journals, but we may also want to do market research to determine where the subscriptions are held **Ginn (2002)**. **Montgomery and King (2002)** study the impact of library's shift to electronic journals on staff and costs and they concluded that electronic journals were much cost effective on a per use basis. Storage space for low use bound journals was a major expense. A readership survey showed that the library's electronic collection was widely accepted and extensively used. **Arora and Agrawal (2003)** perceived that full-text resources and databases proposed for subscription for various categories of institutions in the INDEST (Indian National Digital Library Engineering, Science & Technology) consortium would have costed Rs. 164 crores as per

their list price, while through the consortium, the total cost came to be Rs. 18.60 crores for all institutions being considered under the consortium, a total overall saving of Rs.145.60 crores.

Ball (2003) identified the main concerns as the lack of a national dimension and strategy and of expertise in individual authorities and consortia, particularly with licenses.

IP based access authentication is a good choice if the users are closely located and covered by a single network. This method allows seamless access, usage statistics for the institution, greater security as there is no misuse of usernames and passwords, access to all computers thereby releasing other terminals and staff time and direct recognition of institutional networks by publishers and vice versa (**Armstrong et al 2003**). **Goudar and Narayana (2004)** concluded that pricing, archiving and copyright issues were yet to be tackled globally. Some of the pricing and payment constraints specific to Indian libraries include - inadequate funds, single point payment, rigid administrative, financial and auditing rules, problems of defining asset against payment and pay-per-view not yet acceptable. **Jose and Pacios (2005)** study the impact of consortia purchased periodical publications on document supply services. They found that the users' acceptance of electronic journals has undoubtedly been excellent. Consortia purchasing projects have become a basic tool that expands collections, but these mass purchases did not seem to be the ideal solution for libraries, they entailed losing freedom when choosing the collection and often made library collections homogeneous by publisher. **Kumbar (2005)** showed the significance of consortia and how Libraries in India have been affected by an uncertain financial constrains. **Sreekumar and Sunitha (2005)** viewed that there were various issues relating to Library Consortia like uninterrupted online access, perpetual access to back issues, pricing, licensing, copyright and archival solutions etc. **Malviya and Kumar (2007)** found that highly decentralized models suffer due to non-availability of common agenda, no external funds, central sponsor and central staff. On the other hand, highly centralized models overcame these lacunae and also got maximum discounts. **Varaprasad and Madhusudhan (2010)** suggested that Bundled packages and big deals from the publishers may be avoided and those journals, which satisfy to the highest degree of user needs, may only be subscribed. Formation of a National Consortium and collective and logical negotiation with the publishers for a win-win situation may be the other alternative which will satisfy the growing information needs of users.

Keeping in view the multiplicity of research programmes pursued by DBT (department of Biotechnology) institutions, every attempt was made to subscribe to e-resources that were multidisciplinary in nature with widen scope and coverage. All resources were evaluated for their qualitative and quantitative contents, coverage, and rate applicable for these resources to individual institutions as well as to other consortia (**Lal, 2012**). **Patra et al (2012)** perceived that several factors like price and number of users influenced the decision regarding the subscription of e-resources while negotiating with a particular publisher or journal aggregator.

Sunithal and Sreekumar (2012) study the present systems used by libraries to address the on-campus and off campus users' access requirements. For a long time libraries have been pondering on solving of this issue and SSOs and remote login applications. There were a number of applications found to be used by libraries such as EZproxy, One Log, Shibboleth, Athens and so on. Looking at the long term and the landscape of the online information resources SSO and remote login solutions promised a strong and long standing stake in the upcoming library services.

Ledayn and Shepherd (n.p) revealed that a consortium was in a stronger position than individual customers to negotiate favorable contracts with software vendors, and had a stronger voice in negotiating fixes and enhancements. Consortium hosting charges had economies of scale that were spread across all consortium members. The consortium, with its

collective strength of participating institutions, has attracted highly discounted rates of subscription with most favorable terms of agreement **Yernagula et al (n.p).**

CONCLUSION

Pricing is global problem with no proper consideration particularly for developing countries have so far in this area. Bundled packages and big deals from the publishers may be avoided and those journals, which satisfy to the highest degree of user needs, may only be subscribed. The price differences between journals in different academic disciplines, particularly the higher prices for those in natural sciences and engineering, appeared to be based on price discrimination rather than differences in production costs. Some of the pricing and payment constraints specific to Indian libraries include - inadequate funds, single point payment, rigid administrative, financial and auditing rules, problems of defining asset against payment and pay-per-view not yet acceptable. The various issues relating to Library Consortia like pricing, archiving, copyright uninterrupted online access, perpetual access to back issues. IP based access authentication provides seamless access, usage statistics for the institution, greater security as there is no misuse of usernames and passwords. The consortium was in a stronger position than individual customers to negotiate favorable contracts with software vendors, and had a stronger voice in negotiating prices and enhancements. Consortium hosting charges had economies of scale that were spread across all consortium members. Consortia movements are drawing prices down and the formation of a National Consortium and collective and logical negotiation with the publishers for a win-win situation to both the parties.

Publishers will need to innovate with their business models and use technology and data analysis to match the price charged for content to the needs of an individual institution. An open market for sharing price and licensing information puts the library in a much stronger position for negotiation than does a confidential and opaque market. Highly decentralized models suffer due to non-availability of common agenda, no external funds, central sponsor and central staff. On the other hand, highly centralized models overcame these lacunae and also got maximum discounts. The Big Deal today is the biggest bugbear for librarians and currently the focus of a face-off between U.K. librarians and publishers.

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