KNOWLEDGE MANAGEMENT APPROACH TO COMPETITIVE ADVANTAGE-A STUDY ON THE FOOD SECTOR WITH REFERENCE TO MOKSHA FOODS AND BEVERAGES PVT LTD

By

AHALYA.S

Roll No. 0701MBA0452   *P-2983*
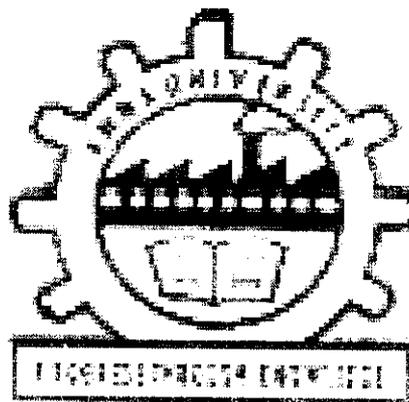
Reg. No. 68107100021

A PROJECT REPORT

Submitted to the

FACULTY OF MANAGEMENT SCIENCES

In partial fulfillment for the award of the degree

Of

MASTER OF BUSINESS ADMINISTRATION

**CENTRE FOR DISTANCE EDUCATION**

ANNA UNIVERSITY CHENNAI

CHENNAI 600 025

APR, 2009

CERTIFICATE

BONAFIDE CERTIFICATE

Certified that the Project report titled KNOWLEDGE MANAGEMENT APPROACH TO COMPETITIVE ADVANTAGE-A STUDY ON THE FOOD SECTOR WITH REFERENCE TO MOKSHA FOODS AND BEVERAGES PVT LTD is the bonafide work of Ms. AHALYA.S who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.
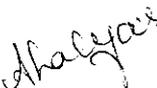
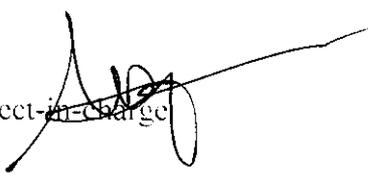Signature of student

Signature of Guide

Name: AHALYA.S

Name: Mrs.HEMANALINI.R MBA. Phil (PhD)

Roll No. : 0701MBA0452

Designation: Lecturer-KCT BUSINESS SCHOOL

Reg. No: 68107100021

Address: KCT BUSINESS SCHOOL, COIMBATORE

Signature of Project-in-Charge

Name: Dr.S.V.DEVANATHAN

Designation: Professor & Director

DIRECTOR
KCT BUSINESS SCHOOL
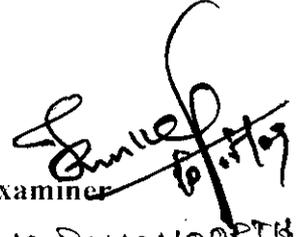KUMARAGURU COLLEGE OF TECHNOLOGY
COIMBATORE - 641 006

Certificate of Viva-voce-Examination

This is to certify that Ms.AHALYA.S
(Roll No0701MBA0452; Register No 68107100021 has been subjected
to Viva-voce-Examination on ..10:.6:.09............ at ....12:.30.... at the
Study centre KUMARAGURU COLLEGE OF TECHNOLOGY, SARAVANAMPATTI,
COIMBATORE.
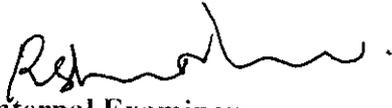
Internal Examiner

Name: Mrs.HEMANALINI.R MBA. Phil (PhD)

Designation: Lecturer. KCT BUSINESS SCHOOL.

Address: KCT BUSINESS SCHOOL

External Examiner

Name: Dr. K. RAMAMOORTHY

Designation: PROF & HEAD, DEPT OFMBA

Address: COIMBATORE INSTITUTE OF MANAGEMENT & TECHNOLOGY

Coordinator
Study centre
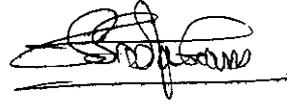
Name   : Dr.S.SADASIVAM

Designation   : Dean (Academic)

Address   : Kumaraguru College of Technology,

Coimbatore-641 006.

Date   : 8.4.2009

CO-ORDINATOR.
KCT STUDY CENTRE
CDE ANNA UNIVER·.   · · NNAI
KUMARAGURU COL. . .   ·NOLOGY,
COIMBATORE ·· . ·06.

ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

I would like to thank the almighty for having showered his blessings throughout this project work

I would also like to thank **The Director, Centre for Distance Education, Anna University-Chennai,** the Dean (Academic). **Dr.S.SADASIVAM,** Kumaraguru College of Technology, Coimbatore and Coordinator, KCT Study Centre, Coimbatore, **Mr.A.SENTHIL KUMAR,** Faculty-Finance, KCT Business School, Kumaraguru College of Technology, Coimbatore and Counselor - MBA Programme, KCT Study Centre, Coimbatore. **Dr.S.V.DEVANATHAN- Professor & Director** KCT Business School, Kumaraguru College of Technology, Coimbatore.

I feel extremely privileged and fortunate to have worked under the able guidance of my esteemed guide **Mrs.HEMANALINI.R,** Lecturer- KCT Business School, Kumaraguru College of Technology.

I extend my heartfelt thanks to **Mr.C.P.MATHEN** (MANAGING DIRECTOR)- Moksha foods and beverages pvt ltd for his valuable support. Last but not the least I would like to thank one and all for their guidance and valuable suggestions which helped me in successful completion of this project

AHALYA.S

ABSTRACT

ABSTRACT

This paper investigates the vital link between the management of knowledge in contemporary organizations and the development of a sustainable competitive advantage. A framework synthesized from a review of the literature is offered.

This project compares the branches of a small scale food industry with respect to the knowledge management and its effect on its competitive advantage. The data is collected through questionnaire and interpreted through statistical methods. The level of knowledge prevailing at both branches is analyzed and the effect of them over the business is evaluated through this study. Our purpose is to fundamentally enhance the process of acquisition, retention, maintenance, and retrieval of knowledge both within the food industry through organizational memory and across the firm's value chain to gain competitive advantage.

Knowledge management involves a strategic commitment to improve the organization's effectiveness, as well as to improve its opportunity enhancement. The goal of this project is to make knowledge management as a process, to improve the organization's ability and to execute its core processes more efficiently. The paper also provides practical implications for creating a competitive advantage in modern firms.

AHALYA.S

TABLE OF CONTENTS

TABLE OF CONTENTS

Chapter 4 – Data Analysis and Interpretation

Chapter 5 – Conclusions

LIST OF TABLES

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES

LIST OF ABBREVIATIONS

LIST OF ABBREVIATIONS

ABBREVIATION	EXPANSION
KM	KNOWLEDGE MANAGEMENT
TAF	TRADE ASSOCIATION FORUM
IKMN	INTERNATIONAL KNOWLEDGE MANAGEMENT NETWORK
APQC	AMERICAN PRODUCTIVITY &QUALITY COUNCIL
ASIS	AMERICAN SOCIETY OF INFORMATION SCIENCE
SME	SMALL AND MEDIUM SCALE ETERPRISE
SEEDA	SOUTH EAST ENGLAND DEVELOPMENT AGENCY
TQM	TOTAL QUALITY MANAGEMENT
CKM	CUSTOMER KNOWLEDGE MANAGEMENT
WRT	WITH RESPECT TO
KMS	KNOWLEDGE MANAGEMENT SYSTEM
KF	KNOWLEDGE FUSION
O	OBSERVED VALUE
e	EXPECTED VALUE
D.O.F	DEGREE OF FREEDOM

INTRODUCTION

CHAPTER-1 INTRODUCTION

Knowledge management (KM) refers to a range of practices used by organizations to identify, create, represent, and distribute knowledge for reuse and learning across the organization. Knowledge management applications & knowledge management tools are used to tie organizational objectives to the achievement of specific business outcomes such as improved performance, competitive advantage, and higher levels of innovation.

Knowledge Management is the *explicit* and *systematic* management of *vital knowledge* - and its associated *processes* of creation, organization, diffusion, use and exploitation - in pursuit of business objectives.

There are many definitions of knowledge management. We have developed this one since it identifies some critical aspects of any successful knowledge management

- **Explicit** - Surfacing assumptions; codifying that which is known
- **Systematic** - Leaving things to serendipity will not achieve the benefits
- **Vital Knowledge** - You need to focus: you don't have unlimited resources

Processes - Knowledge management is a set of activities with its own tools and techniques. It is important to note that knowledge encompasses both tacit knowledge (in people's heads) and explicit knowledge (codified and expressed as information in databases, documents etc.).

The need for Knowledge Management

Some of the most common reasons that makes having a knowledge management solution imperative:

- Volumes of unorganized unsearchable knowledge.
- Knowledge transfer is time consuming.
- Email overload due to knowledge transfer by email.
- Secure sharing of sensitive knowledge among limited people
- Loss of knowledge when people leave or hardware devices fail.
- Ongoing security and backup of knowledge.

Basic sources of knowledge

Your sources of business knowledge could include:

- **Customer knowledge** - you should know your customers' needs and what they think of you. You may be able to develop mutually beneficial knowledge-sharing relationships with customers by talking to them about their future requirements, and discussing how you might be able to develop your own products or services to ensure that you meet their needs.
- **Employee and supplier relationships** - seek the opinions of your employees and your suppliers - they'll have their own impressions of how you're performing. You can use formal surveys to gather this knowledge or ask for their views on a more informal basis.
- Market knowledge - watch developments in your sector. How are your competitors performing? How much are they charging? Are there any new entrants to the market? Have any significant new products been launched
- **Knowledge of the business environment** - your business can be affected by numerous outside factors. Developments in politics, the economy, technology, society and the environment could all affect your business' development, so you need to keep yourself informed. You could consider setting up a team of employees to monitor and report on changes in the business world.

- **Professional associations** and trade bodies - their publications, academic publications, government publications, reports from research bodies, trade and technical magazines..

- **Trade exhibitions** and conferences. These can provide an easy way of finding out what your competitors are doing and to see the latest innovations in your sector.

- **Product research and development** - scientific and technical research and development can be a vital source of knowledge that can help you create innovative new products - retaining your competitive edge.

- **Organizational memory** - be careful not to lose the skills or experience your business has built up. You need to find formal ways of sharing your employees' knowledge about the best ways of doing things. For example, you might create procedural guidance based on your employees' best practice.

- Non-executive directors - these can be a good way for you to bring on board specialized industry experience and benefit from ready-made contracts.

Knowledge management as a business activity with two primary aspects:

- Treating the knowledge component of business activities as an explicit concern of business reflected in strategy, policy, and practice at all levels of the organization.

- Making a direct connection between an organization's intellectual assets — both explicit [recorded] and tacit [personal know-how] — and positive business results.

In practice, knowledge management often encompasses identifying and mapping intellectual assets within the organization, generating new knowledge for competitive advantage within the organization, making vast amounts of corporate information accessible, sharing of best practices, and technology that enables all of the above — including groupware and intranets. That covers a lot of ground. And it should, because applying knowledge to work is integral to most business activities. Knowledge management is hard to define precisely and simply.

Business strategies related to knowledge management

As you explore other explanations of knowledge management – Bo Newman's Knowledge Management Forum is a good starting point — you'll detect connections with several well-known management strategies, practices, and business issues, including

- Change management
- Best practices
- Risk management
- Benchmarking

1.1 RESEARCH BACKGROUND

The company's product range includes Jams, Squashes, Sauces, Pickles and Soft drink Concentrates, made with and without sugar. They are all prepared at our modern processing plant built to HACCP standards, using sophisticated machinery and the latest techniques. Our food products are made from the freshest and finest of fruits and vegetables under stringent hygienic conditions. In fact, all raw materials have to pass very strict quality control tests before it is used for processing. We also boast a highly qualified, result oriented research and development team, which incessantly works on increasing productivity, quality control and identifying new products. Excellence is the key word in all our activities

Squash &
Jams

Sauces &
Pickles

Soft drink
Concentrates
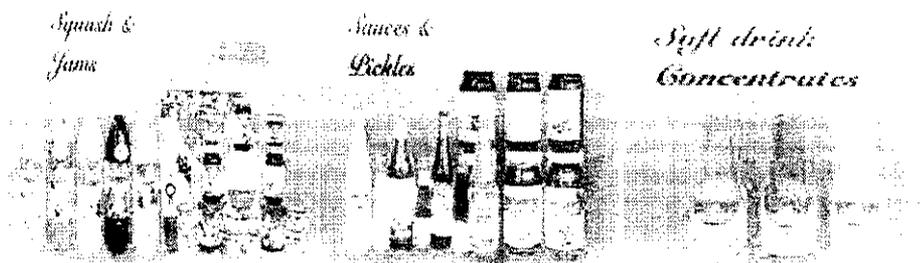
COMPANY NAME & ADDRESS

MOKSHA FOODS & BEVERAGES (P) LTD.	MOKSHA FOODS & BEVERAGES (P) LTD.
14/34-D,	No.261, 2nd Flr, Main Avenue,
Pappampatty Road	Nr Malayalam Manorama,
Pallapalyam,	Panampilly Nagar,
Coimbatore	Ernakulam
Tamil Nadu	Kerala
641103	682036

Knowledge Management has always been practiced in one form or another. People have been appointed for their knowledge, expertise or potential. People have been promoted for their abilities in handling complex managerial problems. Today, the competitive pressures are intense and the market place is fast moving.

Companies need to identify the crucial knowledge and competencies that will enable them to remain competitive. Knowledge Management is a responsibility of the Board of Directors. It needs to be coupled with the strategic, long-term decision making processes. There is also a need for formalized methods of knowledge management to be included as a normal function of management. This will lay the foundations for future development of companies' capabilities and also enable continuous improvement of existing methods and systems to be carried out.

Technology and information systems develop very quickly. Knowledge of their potential application and their operation has to develop in step with these improvements.

Organizations are no longer as stable as they used to be. There is a rapidly shifting world of created and recreated organizations or structures within organizations which disperses the articulated knowledge around the company. As organizations

reduce their headcount, knowledge (articulated and tacit) moves out of the organization). Consequently the deep knowledge about the organization (the tacit knowledge) is less strong, and the articulated knowledge can be diminished and weakened.

There is need to mobilize human resources quickly and flexibly. Responding to a proposal for new development or to a client's requirements involves linking up and working with people both inside and outside the organization.

With regard to knowledge, we need to 'know what', 'know how' and 'know who' in order to mobilize these resources.

Increasingly, we will need to 'know where' the sources of knowledge reside in the distributed organization or community of organizations in order to fulfill business requirements.

1.2 IDENTIFIED PROBLEM

• To address market challenges, organizations must develop management methods that accept information as a valued resource, convert information into organizational knowledge and generate value-added information from the knowledge

• To investigate knowledge management in the Moksha foods and beverages pvt ltd specifically through the relationships and interconnections of knowledge management systems, strategy and firm performance across the value chain.

1.3 NEED FOR STUDY

o Marketplaces are increasingly competitive and the rate of innovation is rising.

o Reductions in staffing create a need to replace informal knowledge with formal methods.

o   Competitive pressures reduce the size of the work force that holds valuable business knowledge.

o   The amount of time available to experience and acquire knowledge has diminished.

o   Early retirements and increasing mobility of the work force lead to loss of knowledge.

o   There is a need to manage increasing complexity as small operating companies are trans-national sourcing operations.

o   Changes in strategic direction may result in the loss of knowledge in a specific area

The need to manage knowledge seems obvious, and discussions of intellectual capital have proliferated, but few businesses have acted on that understanding. Where companies have take action — and a growing number are doing so implementations of "knowledge management" may range from technology-driven methods of accessing, controlling, and delivering information to massive efforts to change corporate culture.

Opinions about the paths, methods, and even the objectives of knowledge management abound. Some efforts focus on enhancing creativity — creating new, knowledge value — while other programs emphasize leveraging existing knowledge

1.4 OBJECTIVES AND SCOPE

The main objectives of this research are:

1. To identify the sources of information and knowledge within the SMEs.

2. To explore the processes through which information and knowledge are managed by SMEs.

3. To explore the factors that act as enablers to the management of information and knowledge.

4. To explore the impact of knowledge on the organizational effectiveness of SMEs.

Davenport et al. (1998) describes four broad objectives of knowledge management systems in practice:

- Create knowledge repository
- Improve knowledge assets
- Enhance the knowledge environment
- Manage knowledge as an asset

Environmental data

Observation and Analysis

Information

Problems
Opportunities

Knowledge Consolidation

INFORMATION
Storage
Processing
Communication

Theory
Generation

Results

Approach
Methods

Testing and Application
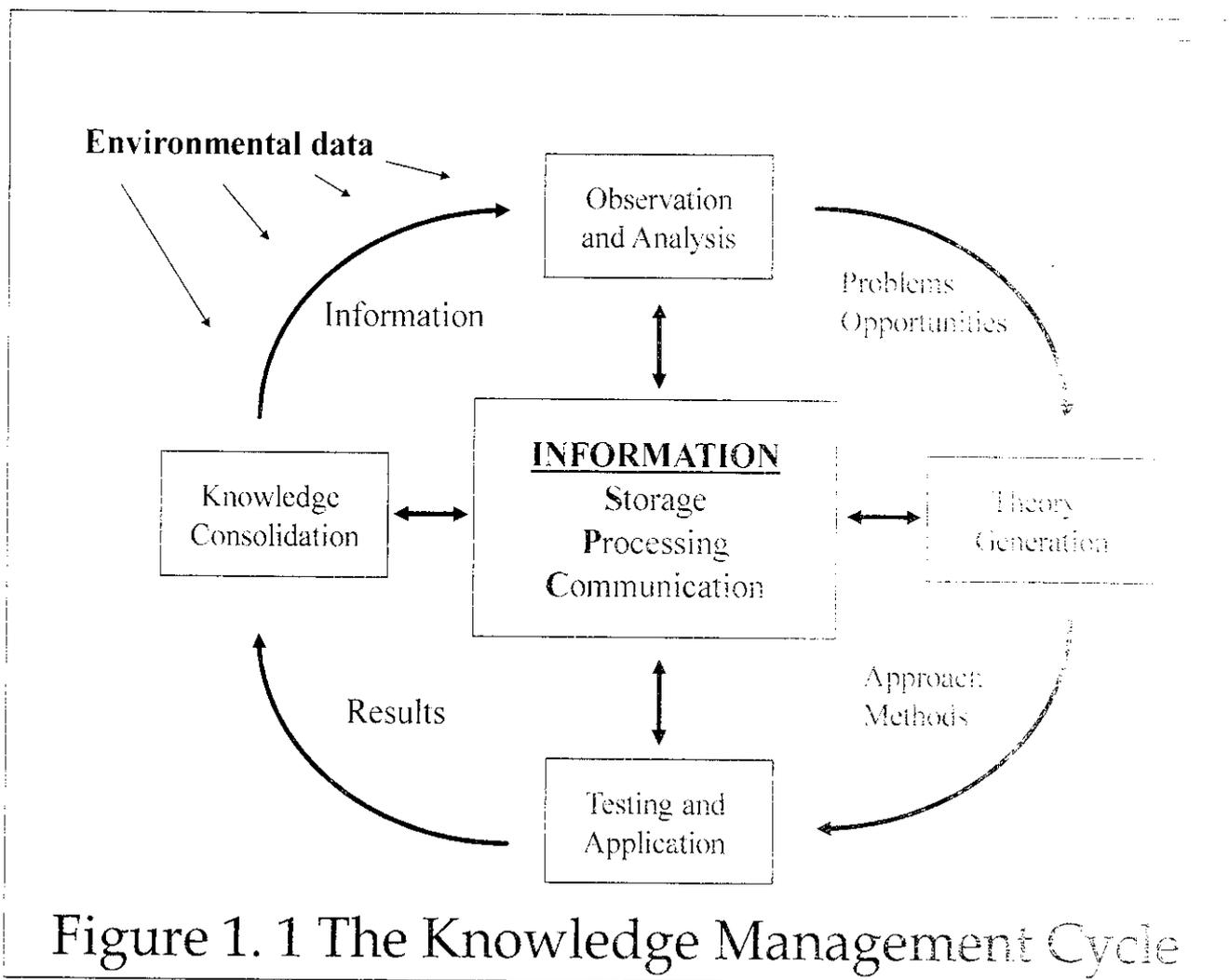
Figure 1. 1 The Knowledge Management Cycle

1.5 DELIVARABLES

The key to knowledge management is capturing intellectual assets for the tangible benefits for the organization. As such, imperatives of knowledge management are to:

1.   Transform knowledge to add value to the processes and operations of the business

leverage knowledge strategic to business to accelerate growth and innovation

2.   Use knowledge to provide a competitive advantage for the business.

The aim of knowledge management is to continuously improve an organization's performance through the improvement and sharing of organizational knowledge throughout the organization (i.e., the aim is to ensure the organization has the right knowledge at the right time and place).

Knowledge management is the set of proactive activities to support an organization in creating, assimilating, disseminating, and applying its knowledge. Knowledge management is a continuous process to understand the organization's knowledge needs, the location of the knowledge, and how to improve the knowledge.

LITERATURE SURVEY

CHAPTER-2 LITERATURE SURVEY

2.1 REVIEW OF LITERATURE

2.1.1 Journal of Knowledge Management Practice. October 2002 Creating

Competitive Advantage By Effectively Managing Knowledge: A Framework for Knowledge Management

Atul Gupta & Jason McDaniel. Lynchburg College

ABSTRACT:

This paper investigates the vital link between the management of knowledge in contemporary organizations and the development of a sustainable competitive advantage. A framework synthesized from a review of the literature is offered. Five distinct hypotheses are developed, which constitute the essential ingredients of the formulated framework. Although each of these should be viewed as critical to the success of the entire process when examined individually, they should be considered most influential when viewed as forming a comprehensive gestalt for effectively managing knowledge. The paper also provides practical implications for creating a competitive advantage in modern firms.

Implications for Creating Competitive Advantage

The five components of the framework described above should be viewed as unique hypotheses regarding the management of knowledge. The research questions produced are essentially two: Does any individual component generate effective knowledge management for the firm?; Does any given component infuse the knowledge management process as a whole in such a manner as to produce measures of sustainable competitive advantage for the firm? These same research questions should also be examined regarding the framework as a whole. The framework elucidated within this paper describes a logical progression from obtaining knowledge to actually applying it, which makes good conceptual sense. However, only rigorous hypothesis testing will yield empirical results, most appropriate for drawing conclusions regarding the actual practice of knowledge management.

2.1.2Towards an integrated approach to knowledge management: 'hard', 'soft' and 'abstract' issues

Vlatka Hlupic [1*], Athanasia Pouloudi [2], George Rzevski [1]

[1]Brunel Knowledge and Business Process Management Centre, Brunel University, UK

[2]Athens University of Economics & Business, Athens, Greece

[*]Correspondence to Vlatka Hlupic, Brunel Knowledge and Business Process Management Centre, Department of Information Systems and Computing, Brunel University, Uxbridge UB8 3PH, UK.

Abstract

Companies are often unaware of the potential value of corporate information and extent of data held in their systems. It is increasingly argued that analysis of such data and information can be transformed into knowledge that in turn can be used to gain business benefits such as a competitive advantage, minimization of costs, improved quality, responsiveness, or improved service to customers. This paper investigates the benefits of a systematic and interdisciplinary approach to research in knowledge management, particularly in investigating technical ('hard'), organizational ('soft'), as well as philosophical ('abstract') aspects of the concept. It describes in detail the framework used in research undertaken by the Centre for Knowledge and Business Process Management at Brunel University. We argue that this framework is useful to researchers and practitioners alike as it contributes to a systematic and more effective knowledge management approach. Copyright © 2002 John Wiley & Sons, Ltd.

2.1.3Customer Knowledge Management Competence: Towards a Theoretical Framework

Rollins, M.; Halinen, A.

Summary: Customer knowledge has been increasingly recognized as a key strategic resource in any company's success. Recent studies conducted in the fields of Knowledge Management and Customer Relationship Management have proposed that the two approaches can have great synergies. In this paper, our purpose is to provide an understanding of Customer Knowledge Management (CKM) as an integrated management approach and competence it requires. We describe CKM as an ongoing process of generating, disseminating and using customer knowledge within an organization and between an organization and its customers. In addition, we propose a tentative theoretical framework of CKM competence, i.e., the ability to integrate customer knowledge into customer relationship management processes.

Knowledge audit is a systematic examination and evaluation of organizational knowledge health, which examines organization's knowledge needs, existing knowledge assets/resources, knowledge flows, future knowledge needs, knowledge gap analysis as well as the behavior of people in sharing and creating knowledge. In one way, a knowledge audit can reveal an organization's knowledge strengths, weaknesses, opportunities, threats and risks.

A knowledge audit should also include an examination of organization's strategy, leadership, collaborative, learning culture, technology infrastructure in its various knowledge processes.

2.1.4 The Knowledge Audit

Dr. Jay Liebowitz, Dr. Bonnie Rubenstein-Montano, Doug McCaw, Judah Buchwalter, and Chuck Browning/Department of Information Systems/University of Maryland-Baltimore County/1000 Hilltop Circle/Baltimore, Maryland

ABSTRACT

One of the critical first steps in the knowledge management area is to conduct a knowledge audit. Some people view the knowledge audit as being the business needs assessment, cultural assessment, and an examination of what knowledge is needed, available, missing, applied, and contained. In the same manner that a manufacturing company will first inventory its physical assets, an aspiring "knowledge organization" should also inventory its intellectual capital assets.

This paper will focus on the third strand of the knowledge audit described above, namely determining what knowledge is needed, what knowledge is available and missing, who needs this knowledge, and how will this knowledge be applied. Then, a case study will be discussed where the knowledge audit instrument was used.

Summary

The knowledge audit process plays a key role in identifying a knowledge management strategy for the organization. Certainly, a proper business needs assessment and cultural assessment also need to be performed as part of the knowledge audit. This paper stressed the third element of the knowledge audit in identifying knowledge assets in the organization. The questionnaire may be used as a first guide to help elicit this type of knowledge from individuals in the organization. Of course, careful analysis of the questionnaire results should be conducted, along with follow-up interviews, focus groups, and other related methods.

2.1.5 Approaches to the measurement of the impact of knowledge management programmes /William J. Martin

There is currently widespread interest in knowledge management, with organizations of all kinds investing in technologies, systems and people to this end. Concurrently, within business and the economy as a whole, intellectual capital or intangible assets are growing in significance in relation to traditional tangible assets such as buildings and equipment. Many organizations are finding that traditional measures of organizational performance are insufficient for the task of managing intangibles. In trying to measure the value of knowledge inputs and outputs, such metrics as return on investment or the practice of consigning intangibles to the accounting category of goodwill need to be supplemented by alternative approaches. This paper looks at the problem of knowledge measurement and, in reviewing some of the current alternatives, argues for the importance of metrics to the overall process of knowledge management. The

significance of knowledge measurement to the information science community is emphasized.

2.1.6 Measurement practice for knowledge management

Abstract:

Knowledge management (KM) has become part of common vocabulary in academic circles as well as in the business world. Whilst an increasing number of companies have embarked upon knowledge management initiatives, a large proportion of these initiatives remain technically focused. The problem with this type of focus is that it excludes and neglects the true potential benefits that can be derived from knowledge management. In this paper we present a holistic model of KM which dynamically incorporates both tactical as well as strategic elements. Secondly in this paper we address a very important gap in the field of KM, namely how to measure KM by developing a framework which systematically allows for screening and evaluation. The measurement framework proposed enables leveraging knowledge assets effectively and efficiently. Without a holistic perspective which captures all the key elements and dimensions, KM initiatives will create marginal gains at best and failure at worst.

Conclusion

Where do we stand at the moment, and where do we go from here? We conclude with a thought from Bo Newman, via email:

As attested to in numerous articles in the popular press, knowledge management has already been embraced as a source of solutions to the problems of today's business. Still it has not been easy for this "science" to construct for itself that royal road of self validation. On the contrary. I believe that it is still, at least for the majority of the practitioners and their customers, in the stage of blind groping after its true aims and destination.

2.1.7 The Knowledge Management Advantage

Knowledge has been and continues to be the key to success and competitive advantage for every organization.

Effectively managing the processes of actively disseminating and of actively applying knowledge to making an organization successful is Knowledge Management (KM).

Competitive advantage is achieved through developing and implementing both creative and timely business solutions that reuse applicable knowledge and that use newly created knowledge, which is commonly called innovation.

Abstract:

Purpose – The purpose of this research is to investigate knowledge management in the textile industry specifically through the relationships and interconnections of knowledge management systems, strategy and firm performance across the value chain.

Categorization of knowledge management approaches

The term "knowledge management" is now in widespread use, having appeared in the titles of many new books about knowledge management as a business strategy, as well as in articles in many business publications, including *The Wall Street Journal*. There are, of course, many ways to slice up the multi-faceted world of knowledge management. However, it's often useful to categorize them. In a posting to the Knowledge Management Forum, Karl-Erik Sveiby identified two "tracks" of knowledge management:

      o **Management of Information.** To researchers in this track, according to Sveiby, "... knowledge = Objects that can be identified and handled in information systems."

    c   **Management of People.** For researchers and practitioners in this field, knowledge consists of "... processes, a complex set of dynamic skills, know-how, etc., that is constantly changing."

Conclusion

Where do we stand at the moment, and where do we go from here? We conclude with a thought from Bo Newman, via email:

As attested to in numerous articles in the popular press, knowledge management has already been embraced as a source of solutions to the problems of today's business. Still it has not been easy for this "science" to construct for itself that royal road of self validation. On the contrary, I believe that it is still, at least for the majority of the practitioners and their customers, in the stage of blind groping after its true aims and destination.

2.1.8 Knowledge sourcing in foreign direct investments: an empirical examination of target profiles

Management International Review, July, 2005 by Andreas Al-Laham, Terry L. Amburgey

Thus, the number of patents held by a firm appears to be reliable and verifiable information which a foreign investor can observe to evaluate not only a firm's current knowledge base but, more importantly, its ability to generate innovative knowledge in the future. This leads to our first hypothesis:

Hypothesis 1. The cumulative number of prior patents granted to a US biotech firm will have a positive effect on the rate at which a US biotech firm will receive direct investments from foreign partners.

Alliance Experience as an Indicator of Externally Accumulated Knowledge Stocks

has been emphasized as a central motive for such "learning alliances" (Lane et al. 2001, Grant/Baden-Fuller 1995, Mowery/Oxley/Silverman 1996, Badaracco 1991).

Our hypotheses regarding the influence of alliance experience draws upon two quite contradicting observations. The first assumption argues that alliances are an important means to build up a stock of strategic relevant knowledge in the biotech-industry, and that the amount of alliance experiences particular biotec h firm encounters represents its stock of externally acquired knowledge (e.g. DeCarolis/Deeds 1999). According to that view it can be stated that the accumulated alliance experience a firm has enhances its likelihood of successful innovation in two ways. First, the capabilities of a firm to recombine and integrate its own (prior) and the new acquired knowledge might develop over time as firms show a history of successful partnering (Anand/Khanna 2000). Second, biotech firms with a history of successful external collaborations might have a better developed competence in integrating a wide range of disciplinary knowledge. To potential investors they signal greater architectural and integrative competence, which enhances the conversion of current knowledge into new knowledge (Henderson/Cockburn 1994, Kogut/Zander 1992).

2.1.9 Knowledge Fusion:

A framework for extending the rigor and relevance of knowledge

management   Peter Keen and Margaret Tan Nan yang Technological University Singapore

Framework of Knowledge Fusion

The aim of this paper is to point to some gaps in the current body of knowledge about knowledge management (KM) and in doing so to suggest extensions to its frameworks and to areas of investigation that build on its strengths. The final

stage in the development of the Knowledge Fusion framework is to narrow down the very broad range of KM topics, distinctions and concerns into a parsimonious set of "partitions" that link to and from traditional knowledge management research and practice.

We propose that Knowledge Fusion has four main partitions:

Knowledge management: The organizational mission for continuing the evolution of information management to become a core factor in business innovation; the supply and dissemination of knowledge-relevant information, communication and process capabilities, and the development of change management initiatives in order to build new knowledge-building and knowledge-sharing practices.

Knowledge mobilization: The dynamics of the processes by which individuals make their own personal choices about information-seeking, knowledge creation and knowledge-sharing. This demand side must be synchronized with the supply side for effective joint benefit. The discretionary and personal nature of knowledge activation and identity leads to many gaps in practice between corporate supply and individual use, between push and pull. In addition, more and more elements of personal knowledge creation and sharing lie outside corporate ownership and control.

Knowledge embodiment: The deep processes of "knowing" in the widest sense of the term. The pragmatic and axiomatic KM conception of knowledge as an organizational asset is obviously partial at best and many commentators claim that it is largely invalid and little more than a re-labeling of information. (Wilson (2002) attacks the "nonsense" of knowledge management in this regard.) As we show later in the article, the KM conceptions are fully defensible in terms of its focus on knowledge as an organizational asset, and nonsensical only if the foundational organizational aims of KM are rejected.

Knowledge regimes: This term refers to the contextual rules, controls and processes that directly shape and constrain knowledge management. These include political, cultural and sociological factors.

Conclusion

At the core of our framework is a single distinction that we view as fundamental to the effective development and impact of knowledge management as both a field and an area of management practice: knowledge mobilization. Initially, our investigation was targeted at arguing that knowledge management should incorporate and even convert to our viewpoint. Our work remains centered on knowledge mobilization but we quickly realized that unless we carefully maintained a respectful boundary between knowledge management and knowledge mobilization, we would merely add to the blur and multiplicity of KM and get caught up in the definitional debates. To establish our own axioms and distinctions, especially that of knowledge as identity with three levels of activation – accountable, discretionary and autonomous knowledge – we would need to move into intellectual assault mode, attacking the axioms of knowledge as corporate asset and as independent of the individual. That made no sense at all; it would represent an intellectual arrogance, negativism and waste of effort that impedes rather than contributes to a cumulative tradition of research and practice.

References

Capitalizing on Knowledge: From e-business to k-business. Butterworth-Heinemann (2001).

'The Collaborative Enterprise: Creating Competitive Capabilities'. Chapter 9 in *New Frontiers of Knowledge Management*. ed. Kevin C. Desouza. Palgrave Macmillan (2005). .

'Commercialization: The Next Phase of Knowledge Management'. Chapter 63 in *Handbook on Knowledge Management*. ed. C. W. Holsapple. Springer-Verlag (2003).

'The Hybrid Manager'. Chapter 22 in *Information Management: The Organization Dimension*.ed. Michael J. Earl. Oxford University Press (1995).

Public Sector - Public Knowledge: The KM Contribution to Better Government. David J. Skyrme. David Skyrme Associates/Ark Group (2003).

Creating the Knowledge-based Business. David J. Skyrme and Debra M. Amidon. Business Intelligence (1997).

'Knowledge Management: Making It Work'. *The Law Librarian*. Vol. 31. No. 2. pp.84-90 (June 1999

'Hybrid Managers: What Do We Know About Them?'. with M.J. Earl. *Journal of Information Systems*. Vol 1. No. 2. pp169-187 (1992.

'Information Managers: Do We Need Them?'. *Online Information 2004*.

'Making The Case For Knowledge Management: As Simple As ABC?'. *Building A Knowledge Organisation*. OGC Conference. London (11 July 2001.

'K-Commerce: Commercializing Knowledge'. *Knowledge Summit '99*. London (23-24 Nov 1999).

Facilitating Corporate Innovation via Knowledge Management. ICM, New York. 1-2 April (1998). **Synopsis** and **Presentation**.

'Global Knowledge Networking: The Use and Abuse of Technology'. *Managing the Virtual Laboratory*. IQPC, London .16-17 February (1998). **Synopsis** and Presentation.

'Flexible Working - Reaping the Benefits'. Conference - The Best of Both Worlds. Industrial Society, London (Sept 1993). **Synopsis**

Annual Conference. Brighton (May 1992). **Full Paper**.

2.2 Research Gap

Research gap is the gap the researches leave out in the previous researches in the same field. These gaps can be identified from the review of literature and can be used for further research. Similarly gap in the field of knowledge management in specific to food industry is identified as research gap.

The impact of knowledge management over the company's competitive advantage is shown through this study. Two branches of Moksha foods and beverages are taken for comparison. so that all the other major managerial parameters remain same for both.

RESEARCH METHODOLOGIES

CHAPTER-3 RESEARCH METHODOLOGIES:

3.1 Type of Project

It is a descriptive type of study, as it deals with analyzing the knowledge of people working in two different branches of Moksha foods and beverages. Descriptive research uses a set of scientific methods and procedures to collect raw data and create data structures that describe the existing characteristics of a defined target population. The data and information generated through this study can provide us with the evidence that can lead to a course of action.

3.2 Target respondents

Employees of Moksha foods and beverages pvt ltd

- Managers
  1. Ernakulum branch
     - Male -8
     - Female-2
  2. Coimbatore branch
     - Male -9
     - Female-1
- Supervisors
  1. Ernakulum branch
     - Male -17
     - Female-3
  2. Coimbatore branch
     - Male -15
     - Female-5
- Workers
  1. Ernakulum branch
     - Male -26
     - Female-15

2. Coimbatore branch

- ➤ Male -23
- ➤ Female-17

3.2.1 Total population

Category	Ernakulum branch			Coimbatore branch		
	Male	Female	Total	Male	Female	Total
Managers	8	2	10	9	1	10
Supervisors	17	3	20	15	5	20
Workers	26	15	41	23	17	40
Total	51	20	71	47	23	70

3.3Assumptions, Constraints and Limitations

3.3.1Assumptions

- The branches are managed by a single employer, so his view upon both the branches will remain the same.
- Nearly fifty percent of the population is taken as sample, hoping to reflect the characteristic of the entire population.
- Level of knowledge management is considered to be major factor that contribute to the competitive advantage.

3.3.2 Constraints and Limitations

- The study is restricted to the branches of Moksha foods and beverages pvt ltd.
- Competitive advantage include all the aspects like brand image, sales, etc. this study restrict it to sales alone.

3.4 Proposed Sampling Methods

Sampling refers to randomly selected subgroup of people or subjects from the overall membership pool of defined target population. Simple random sampling under probability sampling is used for this study.

Probability of selection=size of sample/size of population

Total number of employees in Ernakulum branch=71

Managers=10

Supervisors=20

Workers=41

Probability of selection=size of sample/size of population=.492

Total number of employees in Coimbatore branch=70

Managers=10

Supervisors=20

Workers=40

Probability of selection=size of sample/size of population=.5

3.5 Data Processing

3.5.1 Do you consider yourself to be a 'KNOWLEDGE WORKER?'

Q.no 1	Coimbatore branch				Ernakulum branch			
Options	manager	supervisor	worker	total	manager	supervisor	worker	
a	3	1	0	4	a	4	4	2
b	1	7	3	11	b	1	4	4
c	1	2	2	5	c	0	2	
d	0	0	12	12	d	0	0	
e	0	0	3	3	e	0	0	
total	5	10	20	35	total	5	10	2

3.5.2 What do you think of Knowledge Management (KM)?

Q.no 2	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	0	0	6	6	a	0	0	2	
b	0	1	3	4	b	0		7	
c	0	1	11	12	c	0	1	4	
d	3	0	0	3	d	4	4	5	
e	2	8	0	10	e	1	4	2	
total	5	10	20	35	total	5	10	20	35

3.5.3 Do YOU know the difference between INFORMATION & KNOWLEDGE?

Q.no 3	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	5	2	0	7	a	5	0	5	
b	0	6	2	8	b	0	0	8	
c	0	2	13	15	c	0		5	
d	0	0	5	5	d	0	0	2	
total	5	10	20	35	total	5		20	35

3.5.4 I often repeat task unnecessarily.

Q.no 4	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	0	0	2	2	a	0	0		
b	0	2	8	10	b	0	0	2	
c	0	6	10	16	c	0		3	4
d	4	2	0	6	d	0		5	
e	1	0	0	1	e	5	8		
total	5	10	20	35	total	5	10	20	

3.5.5 I usually get information I NEED for my tasks when I need it.

Q.no 5	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	1	0	0	1	a	5	7		
b	1	1	0	2	b	0			
c	3	6	3	12	c	0			
d	0	3	10	13	d	0			
e	0	0	7	7	e	0			
total	5	10	20	35	total	5		20	35

3.5.6 My colleagues readily SHARE job related information with me.

Q.no 6	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	4	0	0	4	a	5	0		
b	1	4	2	7	b	0			
c	0	3	5	8	c	0			
d	0	3	12	15	d	0			
e	0	0	1	1	e	0			
total	5	10	20	35	total	5		20	35

3.5.7 I am given sufficient OPPORTUNITY to fully use my knowledge POTENTIALS within the organization

Q.no 7	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	4	1	0	5	a	5	0		
b	1	4	1	6	b	0			
c	0	3	11	14	c	0			
d	0	2	5	7	d	0			
e	0	0	3	3	e	0	0		
total	5	10	20	35	total	5	10	20	

3.5.8 Staffs are well REWARDED for team spirit

Q.no 8	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	4	5	9	18	a	4	6		
b	0	1	1	2	b	1	3		
c	1	3	7	11	c	0			
d	0	1	3	4	d	0	0		
e	0	0	0	0	e	0	0		
total	5	10	20	35	total	5	0		

3.5.9 My Team's Project Knowledge is well DOCUMENTED for use and RE-USE

Q.no 9	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	5	8	2	15	a	5	10		
b	0	2	6	8	b	0	0		
c	0	0	5	5	c	0	0		
d	0	0	6	6	d	0	0		
e	0	0	1	1	e	0	0		
total	5	10	20	35	total	5	10		

3.5.10 SHARING information and knowledge is greatly ENCOURAGED in the organization

Q.no 10	Coimbatore branch					Ernakulum branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	3	7	11	21	a	4	8		
b	2	2	3	7	b	0			
c	0	1	3	4	c	1	1		
d	0	0	3	3	d	0	0		
e	0	0	0	0	e	0	0		
total	5	10	20	35	total	5	10		

3.5.11 Collecting and sharing information about best practices gains competitive advantage

Q.no 11	Coimbatore branch					Ernakulam branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	5	8	11	24	a	5		7	
b	0	2	4	6	b	0	0		
c	0	0	3	3	c	0	0		
d	0	0	1	1	d	0	0		
e	0	0	1	1	e	0	0		
total	5	10	20	35	total	5			

3.5.12 Setting up networks help in gaining competitive advantage

Q.no 12	Coimbatore branch					Ernakulam branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	5	9	14	28	a	5			
b	0	1	4	5	b	0	0		
c	0	0	2	2	c	0			
d	0	0	0	0	d	0	0		
e	0	0	0	0	e	0	0		
total	5	10	20	35	total	5			

3.5.13 Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks.

Q.no 13	Coimbatore branch					Ernakulam branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	3	7	8	18	a	4			
b	0	2	6	8	b		0		
c	1	1	2	4	c	0			
d	1	0	1	2	d	0			
e	0	0	3	3	e	0			
total	5	10	20	35	total	5			

3.5.14 Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage

Q.no 14	Coimbatore branch					Ernakulam branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	4	5	18	27	a	5	10	7	
b	0	4	2	6	b	0	0	3	
c	1	1	0	2	c	0	0	0	
d	0	0	0	0	d	0	0		
e	0	0	0	0	e	0	0		
total	5	10	20	35	total	5	10	20	

3.5.15 Which of the following best describes your culture?

Q.no 15	Coimbatore branch					Ernakulam branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	0	1	8	9	a	0	1	5	
b	0	4	3	7	b	0	1		
c	4	1	5	10	c	0	0		
d	1	2	1	4	d	5	8	0	
e	0	2	3	5	e	0	0		
total	5	10	20	35	total	5	10	20	

3.5.16 What is the attitude of senior management w.r.t. KM?

Q.no 16	Coimbatore branch					Ernakulam branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	4	3	0	7	a	5	9	5	
b	1	5	9	15	b	0	1	13	
c	0	0	1	1	c	0	0		
d	0	2	10	12	d	0		2	
total	5	10	20	35	total	5	10	20	

3.5.17 What is the current status of Knowledge Management in your company?

Q.no 17	Coimbatore branch					Ernakulam branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	5	10	14	29	a	0	0	0	
b	0	0	1	1	b	1	1	2	
c	0	0	2	2	c	2	7	3	
d	0	0	3	3	d	2	2	15	
total	5	10	20	35	total	5	10	20	35

3.5.18 Do you recognize knowledge as a part of your asset base?

Q.no 18	Coimbatore branch					Ernakulam branch			
	manager	supervisor	worker	total		manager	supervisor	worker	total
a	4	8	19	31	a	5	10	18	
b	0	1	1	2	b	0	0		
c	1	1	0	2	c	0	0		
total	5	10	20	35	total	5	10	20	35

3.6 Tools for Analysis

Chi-square is a statistical test commonly used to compare observed data with data we would expect to obtain according to a specific hypothesis. For example, if according to Mendel's laws, you expected 10 of 20 offspring from a cross to be male and the actual observed number was 8 males, then you might want to know about the "goodness to fit" between the observed and expected. Were the deviations (differences between observed and expected) the result of chance, or

were they due to other factors. How much deviation can occur before you, the investigator, must conclude that something other than chance is at work, causing the observed to differ from the expected. The chi-square test is always testing what scientists call the **null hypothesis,** which states that there is no significant difference between the expected and observed result.

The formula for calculating chi-square (x^2) is:

$$x^2 = (o-e)^2/e$$

That is, chi-square is the sum of the squared difference between observed (o) and the expected (e) data (or the deviation, d), divided by the expected data in all possible categories. Percentage analysis is also used .

The various types of visuals used are tables, pie charts and bar graphs.

DATA ANALYSIS AND INTERPRETATION

Chapter 4 – Data Analysis and Interpretation

4.1 Proposed Analysis and Interpretation methodologies

- Chi square analysis

- Percentage analysis

4.2 Calculations

4.2.1 Summarized data table for the questionnaire

Question	Coimbatore branch					Ernakulum branch				
	a	b	c	d	e	a	b	c	d	e
1	4	11	5	12	3	10	19	3	3	0
2	6	4	12	3	10	2	8	5	13	7
3	7	8	15	5		20	8	5	2	
4	2	10	16	6	1	0	2	4	6	23
5	1	2	12	13	7	21	6	3	4	1
6	4	7	8	15	1	30	2	2	1	0
7	5	6	14	7	3	27	2	3	2	1
8	18	2	11	4	0	20	8	4	3	0
9	15	8	5	6	1	25	6	3	1	0
10	21	7	4	3	0	26	5	2	1	1
11	24	6	3	1	1	32	2	1	0	0
12	28	5	2	0	0	34	1	0	0	0
13	18	8	4	2	3	29	5	1	0	0
14	27	6	2	0	0	32	3	0	0	0
15	9	7	10	4	5	6	5	1	22	1
16	7	15	1	12		19	14	0	2	
17	29	1	2	3		0	4	12	19	
18	31	2	2			33	1	1		

4.2.2 Do you consider yourself to be a 'KNOWLEDGE WORKER?'

Coimbatore branch

0	e	o-e	(o-e)^2	(o-e)^2/e
3	0.571429	2.428571	5.897959	10.321429
1	1.571429	-0.57143	0.326531	0.2077922
1	0.714286	0.285714	0.081633	0.1142857
0	1.714286	-1.71429	2.938776	1.7142857
0	0.428571	-0.42857	0.183673	0.4285714
1	1.142857	-0.14286	0.020408	0.0178571
7	3.142857	3.857143	14.87755	4.7337662
2	1.428571	0.571429	0.326531	0.2285714
0	3.428571	-3.42857	11.7551	3.4285714
0	0.857143	-0.85714	0.734694	0.8571429
0	2.285714	-2.28571	5.22449	2.2857143
3	6.285714	-3.28571	10.79592	1.7175325
2	2.857143	-0.85714	0.734694	0.2571429
12	6.857143	5.142857	26.44898	3.8571429
3	1.714286	1.285714	1.653061	0.9642857

$\sum\{(o-e)^2\}/e$ 31.13

i) H0:employees of Coimbatore branch are considered as knowledge worker

ii) H1:employees of Coimbatore branch are not considered as knowledge worker

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01 and d.o.f=8 is 20.09

vi)Actual value of ψ=   31.13

Solution:

Actual value of ψ is greater than the theoretical value

Hence H0 is rejected

Employees of Coimbatore branch are not considered as knowledge worker

4.2.3 Ernakulum branch

O	e	o-e	(o-e)^2	{(o-e)^2}/e
4	1.428571	2.571429	6.612245	4.62857143
1	2.714286	-1.71429	2.938776	1.08270677
0	0.428571	-0.42857	0.183673	0.42857143
0	0.428571	-0.42857	0.183673	0.42857143
4	2.857143	1.142857	1.306122	0.45714286
4	5.428571	-1.42857	2.040816	0.37593985
2	0.857143	1.142857	1.306122	1.52380952
0	0.857143	-0.85714	0.734694	0.85714286
2	5.714286	-3.71429	13.79592	2.41428571
14	10.85714	3.142857	9.877551	0.90977444
1	1.714286	-0.71429	0.510204	0.29761905
3	1.714286	1.285714	1.653061	0.96428571

$$\sum\{(o-e)^2\}/e \qquad 14.37$$

i) H0:employees of Ernakulum branch are considered as knowledge worker

ii) H1:employees of Ernakulum branch are not considered as knowledge worker

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01 and d.o.f=8 is 20.09

vi)Actual value of ψ=   14.37

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Employees of Ernakulum branch are considered as knowledge worker

4.2.4 What do you think of Knowledge Management (KM)?

Q.no 2	Coimbatore branch						Ernakulam branch			
	manager	supervisor	worker	total	%		manager	supervisor	worker	total
a	0	0	6	6	17.14%	a	0	0	?	?
b	0	1	3	4	11.43%	b	0	1	?	8
c	0	1	11	12	34.29%	c	0			?
d	3	0	0	3	8.57%	d	4	4	?	?
e	2	8	0	10	28.57%	e	1	4	2	7
total	5	10	20	35		total	5	10	20	35

4.2.5 The difference between INFORMATION & KNOWLEDGE

Q.no 3	Coimbatore branch						Ernakulam branch			
	manager	supervisor	worker	total	%		manager	supervisor	worker	total
a	5	2	0	7	20.00%	a	5		?	?
b	0	6	2	8	22.86%	b	0		?	?
c	0	2	13	15	42.86%	c	0		?	?
d	0	0	5	5	14.29%	d	0	0	?	?
total	5	10	20	35		total	5	10	20	35

4.2.6 I often repeat task unnecessarily.

Coimbatore branch

coimbatore

0	e	o-e	(o-e)^2	{(o-e)^2}/e
0	0.285714	-0.28571	0.081633	0.2857143
0	1.428571	-1.42857	2.040816	1.4285714
4	2.285714	1.714286	2.938776	1.2857143
1	0.857143	0.142857	0.020408	0.0238095
0	0.142857	-0.14286	0.020408	0.1428571
0	0.571429	-0.57143	0.326531	0.5714286
2	2.857143	-0.85714	0.734694	0.2571429
6	4.571429	1.428571	2.040816	0.4464286
2	1.714286	0.285714	0.081633	0.047619
0	0.285714	-0.28571	0.081633	0.2857143
2	1.142857	0.857143	0.734694	0.6428571
8	5.714286	2.285714	5.22449	0.9142857
10	9.142857	0.857143	0.734694	0.0803571
0	3.428571	-3.42857	11.7551	3.4285714
0	0.571429	-0.57143	0.326531	0.5714286

€{(o-e)^2}/e   10.41

i) H0:employees of Coimbatore branch repeat task unnecessarily
ii) H1:employees of Coimbatore branch do not repeat task unnecessarily
iii)α=.01
iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8
v)theoretical value of ψ for α=.01and d.o.f=8is 20.09
vi)Actual value of ψ=   10.41
Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Employees of Coimbatore branch repeat task unnecessarily

4.2.7 Ernakulum branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
0	0.285714	-0.28571	0.081633	0.28571429
0	0.571429	-0.57143	0.326531	0.57142857
0	0.857143	-0.85714	0.734694	0.85714286
5	3.285714	1.714286	2.938776	0.89440994
0	0.571429	-0.57143	0.326531	0.57142857
1	1.142857	-0.14286	0.020408	0.01785714
1	1.714286	-0.71429	0.510204	0.29761905
8	3.285714	4.714286	22.22449	6.76397516
2	1.142857	0.857143	0.734694	0.64285714
3	2.285714	0.714286	0.510204	0.22321429
5	3.428571	1.571429	2.469388	0.7202381
10	3.285714	6.714286	45.08163	13.7204969

$$\in \{(o-e)^2\}/e \qquad 25.57$$

i) H0:employees of Ernakulum branch repeat task unnecessarily

ii) H1:employees of Ernakulum branch do not repeat task unnecessarily

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01and d.o.f=8is 20.09

vi)Actual value of ψ= 25.57

Solution:

Actual value of ψ is greater than the theoretical value

Hence H0 is rejected

Employees of Ernakulum branch do not repeat task unnecessarily

4.2.8 I usually get information I NEED for my tasks when I need it.

Coimbatore branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
1	0.142857	0.857143	0.734694	5.1428571
1	0.285714	0.714286	0.510204	1.7857143
3	1.714286	1.285714	1.653061	0.9642857
0	1.857143	-1.85714	3.44898	1.8571429
0	1	-1	1	1
0	0.285714	-0.28571	0.081633	0.2857143
1	0.571429	0.428571	0.183673	0.3214286
6	3.428571	2.571429	6.612245	1.9285714
3	3.714286	-0.71429	0.510204	0.1373626
0	2	-2	4	2
0	0.571429	-0.57143	0.326531	0.5714286
0	1.142857	-1.14286	1.306122	1.1428571
3	6.857143	-3.85714	14.87755	2.1696429
10	7.428571	2.571429	6.612245	0.8901099
7	4	3	9	2.25

€{(o-e)^2}/e   22.45

i) H0:employees of Coimbatore branch get the information from their task when they need it

ii) H1: employees of Coimbatore branch do not get the information from their task when they need it

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01and d.o.f=8is 20.09

vi)Actual value of ψ=   22.45

Solution:

Actual value of ψ is greater than the theoretical value

Hence H0 is rejected

Employees of Coimbatore branch do not get the information from their task when they need it

4.2.9 Ernakulum branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
5	3	2	4	1.33333333
0	0.857143	-0.85714	0.734694	0.85714286
0	0.428571	-0.42857	0.183673	0.42857143
0	0.571429	-0.57143	0.326531	0.57142857
0	0.142857	-0.14286	0.020408	0.14285714
7	6	1	1	0.16666667
3	1.714286	1.285714	1.653061	0.96428571
0	0.857143	-0.85714	0.734694	0.85714286
0	1.142857	-1.14286	1.306122	1.14285714
0	0.285714	-0.28571	0.081633	0.28571429
9	12	-3	9	0.75
3	3.428571	-0.42857	0.183673	0.05357143
3	1.714286	1.285714	1.653061	0.96428571
4	2.285714	1.714286	2.938776	1.28571429
1	0.571429	0.428571	0.183673	0.32142857

$$\varepsilon\{(o-e)^2\}/e \quad\quad 10.13$$

i) H0:employees of Ernakulum branch get the information from their task when they need it

ii) H1: employees of Ernakulum branch do not get the information from their task when they need it

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01and d.o.f=8is 20.09

vi)Actual value of ψ= 10.13

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Employees of Ernakulum branch get the information from their task when they need it

4.2.10. My colleagues readily SHARE job related information with me.

Coimbatore branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
4	0.571429	3.428571	11.7551	20.571429
1	1	0	0	0
0	1.142857	-1.14286	1.306122	1.1428571
0	2.142857	-2.14286	4.591837	2.1428571
0	0.142857	-0.14286	0.020408	0.1428571
0	1.142857	-1.14286	1.306122	1.1428571
4	2	2	4	2
3	2.285714	0.714286	0.510204	0.2232143
3	4.285714	-1.28571	1.653061	0.3857143
0	0.285714	-0.28571	0.081633	0.2857143
0	2.285714	-2.28571	5.22449	2.2857143
2	4	-2	4	1
5	4.571429	0.428571	0.183673	0.0401786
12	8.571429	3.428571	11.7551	1.3714286
1	0.571429	0.428571	0.183673	0.3214286

€{(o-e)^2}/e   33.06

i) H0:employees of Coimbatore branch share the information among them when they need it

ii) H1: employees of Coimbatore branch do not share the information among them when they need it

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-i)(c-)=4*2=8

v)theoretical value of ψ for α=.01 and d.o.f=8 is 20.09

vi)Actual value of ψ=   33.06

Solution:

Actual value of ψ is greater than the theoretical value

Hence H0 is rejected

Employees of Coimbatore branch do not share the information among them when they need it

4.2.11 Ernakulum branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
5	4.285714	0.714286	0.510204	0.11904762
0	0.285714	-0.28571	0.081633	0.28571429
0	0.285714	-0.28571	0.081633	0.28571429
0	0.142857	-0.14286	0.020408	0.14285714
9	8.571429	0.428571	0.183673	0.02142857
1	0.571429	0.428571	0.183673	0.32142857
0	0.571429	-0.57143	0.326531	0.57142857
0	0.285714	-0.28571	0.081633	0.28571429
16	17.14286	-1.14286	1.306122	0.07619048
1	1.142857	-0.14286	0.020408	0.01785714
2	1.142857	0.857143	0.734694	0.64285714
1	0.571429	0.428571	0.183673	0.32142857

€{(o-e)^2}/e   3.09

i) H0:employees of Ernakulum branch share the information among them when they need it

ii) H1: employees of Ernakulum branch do not share the information among them when they need it

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01and d.o.f=8is 20.09

vi)Actual value of ψ=   3.09

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Employees of Ernakulum branch share the information among them when they need it

4.2.12 I am given sufficient OPPORTUNITY to fully use my knowledge POTENTIALS within the organization

Coimbatore branch

O	e	o-e	(o-e)^2	{(o-e)^2}/e
4	0.714286	3.285714	10.79592	15.114286
1	0.857143	0.142857	0.020408	0.0238095
0	2	-2	4	2
0	1	-1	1	1
0	0.428571	-0.42857	0.183673	0.4285714
1	1.428571	-0.42857	0.183673	0.1285714
4	1.714286	2.285714	5.22449	3.047619
3	4	-1	1	0.25
2	2	0	0	0
0	0.857143	-0.85714	0.734694	0.8571429
0	2.857143	-2.85714	8.163265	2.8571429
1	3.428571	-2.42857	5.897959	1.7202381
11	8	3	9	1.125
5	4	1	1	0.25
3	1.714286	1.285714	1.653061	0.9642857

$$€\{(o-e)^2\}/e \quad 29.77$$

i) H0: employees of Coimbatore branch were given sufficient opportunity to fully use their knowledge and potential.

ii) H1: employees of Coimbatore branch were not given sufficient opportunity to fully use their knowledge and potential.

iii) $\alpha=.01$

iv) Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v) theoretical value of ψ for $\alpha=.01$ and d.o.f=8 is 20.09

vi) Actual value of ψ= 29.77

Solution:

Actual value of ψ is greater than the theoretical value

Hence H0 is rejected

Employees of Coimbatore branch were not given sufficient opportunity to fully use their knowledge and potential.

4.2.13 Ernakulum branch

o	e	o-e	(o-e)^2	{(o-e)^2}/e
5	3.857143	1.142857	1.306122	0.33862434
0	0.285714	-0.28571	0.081633	0.28571429
0	0.428571	-0.42857	0.183673	0.42857143
0	0.285714	-0.28571	0.081633	0.28571429
0	0.142857	-0.14286	0.020408	0.14285714
9	7.714286	1.285714	1.653061	0.21428571
1	0.571429	0.428571	0.183673	0.32142857
0	0.857143	-0.85714	0.734694	0.85714286
0	0.571429	-0.57143	0.326531	0.57142857
0	0.285714	-0.28571	0.081633	0.28571429
13	15.42857	-2.42857	5.897959	0.38227513
1	1.142857	-0.14286	0.020408	0.01785714
3	1.714286	1.285714	1.653061	0.96428571
2	1.142857	0.857143	0.734694	0.64285714
1	0.571429	0.428571	0.183673	0.32142857

$$\varepsilon\{(o-e)^2\}/e \qquad 6.06$$

i) H0: employees of Ernakulum branch were given sufficient opportunity to fully use their knowledge and potential.

ii) H1: employees of Ernakulum branch were not given sufficient opportunity to fully use their knowledge and potential.

iii) α=.01

iv) Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v) theoretical value of ψ for α=.01 and d.o.f=8 is 20.09

vi) Actual value of ψ= 6.06

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Employees of Ernakulum branch were given sufficient opportunity to fully use their knowledge and potential.

4.2.14 Staffs are well REWARDED for team spirit

Coimbatore branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
4	2.571429	1.428571	2.040816	0.7936508
0	0.285714	-0.28571	0.081633	0.2857143
1	1.571429	-0.57143	0.326531	0.2077922
0	0.571429	-0.57143	0.326531	0.5714286
5	5.142857	-0.14286	0.020408	0.0039683
1	0.571429	0.428571	0.183673	0.3214286
3	3.142857	-0.14286	0.020408	0.0064935
1	1.142857	-0.14286	0.020408	0.0178571
9	10.28571	-1.28571	1.653061	0.1607143
1	1.142857	-0.14286	0.020408	0.0178571
7	6.285714	0.714286	0.510204	0.0811688
3	2.285714	0.714286	0.510204	0.2232143

$$€\{(o-e)^2\}/e \qquad 2.69$$

i) H0: employees of Coimbatore branch were rewarded for their team spirit

ii) H1: employees of Coimbatore branch were not rewarded for their team spirit

iii)$\alpha=.01$

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for $\alpha=.01$ and d.o.f=8 is 20.09

vi)Actual value of ψ= 2.69

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Employees of Coimbatore branch were rewarded for their team spirit

4.2.16 My Team's Project Knowledge is well DOCUMENTED for use and RE-USE

Coimbatore branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
5	2.142857	2.857143	8.163265	3.8095238
0	1.142857	-1.14286	1.306122	1.1428571
0	0.714286	-0.71429	0.510204	0.7142857
0	0.857143	-0.85714	0.734694	0.8571429
0	0.142857	-0.14286	0.020408	0.1428571
8	4.285714	3.714286	13.79592	3.2190476
2	2.285714	-0.28571	0.081633	0.0357143
0	1.428571	-1.42857	2.040816	1.4285714
0	1.714286	-1.71429	2.938776	1.7142857
0	0.285714	-0.28571	0.081633	0.2857143
2	8.571429	-6.57143	43.18367	5.0380952
6	4.571429	1.428571	2.040816	0.4464286
5	2.857143	2.142857	4.591837	1.6071429
6	3.428571	2.571429	6.612245	1.9285714
1	0.571429	0.428571	0.183673	0.3214286

$$\mathfrak{E}\{(o-e)^2\}/e \qquad 22.69$$

i) H0: projects were well documented at Coimbatore branch
ii) H1: projects were not documented properly at Coimbatore branch
iii)α=.01
iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8
v)theoretical value of ψ for α=.01 and d.o.f=8 is 20.09
vi)Actual value of ψ= 22.69
Solution:

Actual value of ψ is greater than the theoretical value

Hence H0 is rejected

Projects were not documented properly at Coimbatore branch

4.2.17 Ernakulum branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
5	3.571429	1.428571	2.040816	0.57142857
0	0.857143	-0.85714	0.734694	0.85714286
0	0.428571	-0.42857	0.183673	0.42857143
0	0.142857	-0.14286	0.020408	0.14285714
10	7.142857	2.857143	8.163265	1.14285714
0	1.714286	-1.71429	2.938776	1.71428571
0	0.857143	-0.85714	0.734694	0.85714286
0	0.285714	-0.28571	0.081633	0.28571429
10	14.28571	-4.28571	18.36735	1.28571429
6	3.428571	2.571429	6.612245	1.92857143
3	1.714286	1.285714	1.653061	0.96428571
1	0.571429	0.428571	0.183673	0.32142857

$$\varepsilon\{(o-e)^2\}/e \qquad 10.50$$

i) H0: projects were well documented at Ernakulum branch

ii) H1: projects were not documented properly at Ernakulum branch

iii) $\alpha = .01$

iv) Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v) theoretical value of ψ for $\alpha=.01$ and d.o.f=8is 20.09

vi) Actual value of ψ =   22.69

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Projects were documented properly at Ernakulum branch

4.2.18 SHARING information and knowledge is greatly ENCOURAGED in the organization

Coimbatore branch

O	e	o-e	(o-e)^2	{(o-e)^2}/e
3	3	0	0	0
2	1	1	1	1
0	0.571429	-0.57143	0.326531	0.5714286
0	0.428571	-0.42857	0.183673	0.4285714
0				
7	6	1	1	0.1666667
2	2	0	0	0
1	1.142857	-0.14286	0.020408	0.0178571
0	0.857143	-0.85714	0.734694	0.8571429
0				
11	12	-1	1	0.0833333
3	4	-1	1	0.25
3	2.285714	0.714286	0.510204	0.2232143
3	1.714286	1.285714	1.653061	0.9642857
0				

$$€\{(o-e)^2\}/e \qquad 4.56$$

i) H0: employees of Coimbatore branch encourage sharing of information

ii) H1: employees of Coimbatore branch do not encourage sharing of information

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01and d.o.f=8is 20.09

vi)Actual value of ψ= 4.56

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Employees of Coimbatore branch encourage sharing of information

4.2.19 Ernakulum branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
4	3.714286	0.285714	0.081633	0.02197802
0	0.714286	-0.71429	0.510204	0.71428571
1	0.285714	0.714286	0.510204	1.78571429
0	0.142857	-0.14286	0.020408	0.14285714
0	0.142857	-0.14286	0.020408	0.14285714
8	7.428571	0.571429	0.326531	0.04395604
1	1.428571	-0.42857	0.183673	0.12857143
1	0.571429	0.428571	0.183673	0.32142857
0	0.285714	-0.28571	0.081633	0.28571429
0	0.142857	-0.14286	0.020408	0.14285714
14	14.85714	-0.85714	0.734694	0.04945055
4	2.857143	1.142857	1.306122	0.45714286
0	1.142857	-1.14286	1.306122	1.14285714
1	0.571429	0.428571	0.183673	0.32142857
0	0.142857	-0.14286	0.020408	0.14285714

$$\in \{(o-e)^2\}/e \qquad 5.84$$

i) H0: employees of Ernakulum branch encourage sharing of information

ii) H1: employees of Ernakulum branch do not encourage sharing of information

iii) α=.01

iv) Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v) theoretical value of ψ for α=.01 and d.o.f=8 is 20.09

vi) Actual value of ψ=   5.84

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted.

Employees of Ernakulum branch encourage sharing of information

4.2.20 Collecting and sharing information about best practices gains competitive advantage

Coimbatore branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
5	3.428571	1.571429	2.469388	0.7202381
0	0.857143	-0.85714	0.734694	0.8571429
0	0.428571	-0.42857	0.183673	0.4285714
0	0.142857	-0.14286	0.020408	0.1428571
0	0.142857	-0.14286	0.020408	0.1428571
8	6.857143	1.142857	1.306122	0.1904762
2	1.714286	0.285714	0.081633	0.047619
0	0.857143	-0.85714	0.734694	0.8571429
0	0.285714	-0.28571	0.081633	0.2857143
0	0.142857	-0.14286	0.020408	0.1428571
11	13.71429	-2.71429	7.367347	0.5372024
4	3.428571	0.571429	0.326531	0.0952381
3	1.714286	1.285714	1.653061	0.9642857
1	0.571429	0.428571	0.183673	0.3214286
1	0.142857	0.857143	0.734694	5.1428571

$$€\{(o-e)^2\}/e \qquad 10.88$$

i) H0: Collecting and sharing information about best practices gains competitive advantage

ii) H1: Collecting and sharing information about best practices do not gain competitive advantage

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01and d.o.f=8is 20.09

vi)Actual value of ψ= 10.88

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Collecting and sharing information about best practices gains competitive advantage

4.2.21 Ernakulum branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
5	4.571429	0.428571	0.183673	0.04017857
0	0.285714	-0.28571	0.081633	0.28571429
0	0.142857	-0.14286	0.020408	0.14285714
10	9.142857	0.857143	0.734694	0.08035714
0	0.571429	-0.57143	0.326531	0.57142857
0	0.285714	-0.28571	0.081633	0.28571429
17	18.28571	-1.28571	1.653061	0.09040179
2	1.142857	0.857143	0.734694	0.64285714
1	0.571429	0.428571	0.183673	0.32142857

$$\text{€}\{(o-e)^2\}/e \qquad 2.46$$

i) H0: Collecting and sharing information about best practices gains competitive advantage

ii) H1: Collecting and sharing information about best practices do not gain competitive advantage

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01and d.o.f=8is 20.09

vi)Actual value of ψ= 2.46

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Collecting and sharing information about best practices gains competitive advantage

4.2.22 Setting up networks help in gaining competitive advantage

Coimbatore branch

O	e	o-e	(o-e)^2	{(o-e)^2}/e
5	4	1	1	0.25
0	0.714286	-0.71429	0.510204	0.7142857
0	0.285714	-0.28571	0.081633	0.2857143
9	8	1	1	0.125
1	1.428571	-0.42857	0.183673	0.1285714
0	0.571429	-0.57143	0.326531	0.5714286
14	16	-2	4	0.25
4	2.857143	1.142857	1.306122	0.4571429
2	1.142857	0.857143	0.734694	0.6428571

$$\in\{(o-e)^2\}/e \qquad 3.43$$

i) H0: Setting up networks for transferring information between employees who interact with customers and engineers who create the product help in gaining competitive advantage

ii) H1 : Setting up networks for transferring information between employees who interact with customers and engineers who create the product do not help in gaining competitive advantage

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01and d.o.f=8is 20.09

vi)Actual value of ψ= 3.43

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Setting up networks for transferring information between employees who interact with customers and engineers who create the product help in gaining competitive advantage

4.2.23 Ernakulum branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
5	4.857143	0.142857	0.020408	0.00420168
0	0.142857	-0.14286	0.020408	0.14285714
10	9.714286	0.285714	0.081633	0.00840336
0	0.285714	-0.28571	0.081633	0.28571429
19	19.42857	-0.42857	0.183673	0.00945378
1	0.571429	0.428571	0.183673	0.32142857

$$\mathbb{C}\{(o-e)^2\}/e \qquad 0.77$$

i) H0: Setting up networks for transferring information between employees who interact with customers and engineers who create the product help in gaining competitive advantage

ii) H1 :Setting up networks for transferring information between employees who interact with customers and engineers who create the product help in gaining competitive advantage

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01 and d.o.f=8 is 20.09

vi)Actual value of ψ= 0.77

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Setting up networks for transferring information between employees who interact with customers and engineers who create the product help in gaining competitive advantage

4.2.24 creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks

Coimbatore branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
3	2.571429	0.428571	0.183673	0.0714286
0	1.142857	-1.14286	1.306122	1.1428571
1	0.571429	0.428571	0.183673	0.3214286
1	0.285714	0.714286	0.510204	1.7857143
0	0.428571	-0.42857	0.183673	0.4285714
7	5.142857	1.857143	3.44898	0.6706349
2	2.285714	-0.28571	0.081633	0.0357143
1	1.142857	-0.14286	0.020408	0.0178571
0	0.571429	-0.57143	0.326531	0.5714286
0	0.857143	-0.85714	0.734694	0.8571429
8	10.28571	-2.28571	5.22449	0.5079365
6	4.571429	1.428571	2.040816	0.4464286
2	2.285714	-0.28571	0.081633	0.0357143
1	1.142857	-0.14286	0.020408	0.0178571
3	1.714286	1.285714	1.653061	0.9642857

C{(o-e)^2}/e   6.66

i) H0: Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks.
ii) H1 Creating formal procedures to ensure that lessons learned in the course of a project are not passed along to others doing similar tasks
iii)α=.01
iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8
v)theoretical value of ψ for α=.01 and d.o.f=8 is 20.09
vi)Actual value of ψ=   6.66

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks.

4.2.25 Ernakulum branch

0	e	o-e	(o-e)^2	{o-e)^2}/e
4	4.142857	-0.14286	0.020408	0.00492611
1	0.714286	0.285714	0.081633	0.11428571
0	0.142857	-0.14286	0.020408	0.14285714
10	8.285714	1.714286	2.938776	0.3546798
0	1.428571	-1.42857	2.040816	1.42857143
0	0.285714	-0.28571	0.081633	0.28571429
15	16.57143	-1.57143	2.469388	0.14901478
4	2.857143	1.142857	1.306122	0.45714286
1	0.571429	0.428571	0.183673	0.32142857

$$\epsilon\{(o\text{-}e)^2\}/e \qquad 3.14$$

i) H0: Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks.

ii) H1 Creating formal procedures to ensure that lessons learned in the course of a project are not passed along to others doing similar tasks
iii)α=.01
iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8
v)theoretical value of ψ for α=.01and d.o.f=8is 20.09
vi)Actual value of ψ= 3.14

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks.

4.2.26 Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage

Coimbatore branch

o	e	o-e	(o-e)^2	{(o-e)^2}/e
3	3.857143	-0.85714	0.734694	0.1904762
0	0.857143	-0.85714	0.734694	0.8571429
1	0.285714	0.714286	0.510204	1.7857143
7	7.714286	-0.71429	0.510204	0.0661376
2	1.714286	0.285714	0.081633	0.047619
1	0.571429	0.428571	0.183673	0.3214286
8	15.42857	-7.42857	55.18367	3.5767196
6	3.428571	2.571429	6.612245	1.9285714
2	1.142857	0.857143	0.734694	0.6428571

$$\varepsilon\{(o-e)^2\}/e \qquad 8.37$$

i) H0: Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage.

ii) H1: Developing "expert systems" to capture and circulate special skills and knowledge will not help in gaining competitive advantage

iii) $\alpha=.01$

iv) Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v) theoretical value of ψ for $\alpha=.01$ and d.o.f=8 is 20.09

vi) Actual value of $\psi=$ 8.37

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage

4.2.27 Ernakulum branch

0	e	o-e	(o-e)^2	{(o-e)^2}/e
5	4.571429	0.428571	0.183673	0.04017857
0	0.428571	-0.42857	0.183673	0.42857143
10	9.142857	0.857143	0.734694	0.08035714
0	0.857143	-0.85714	0.734694	0.85714286
17	18.28571	-1.28571	1.653061	0.09040179
3	1.714286	1.285714	1.653061	0.96428571

$$€\{(o-e)^2\}/e \qquad 1.99$$

i) H0: Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage.

ii) H1: Developing "expert systems" to capture and circulate special skills and knowledge will not help in gaining competitive advantage

iii)α=.01

iv)Degree of freedom(d.o.f)=(r-1)(c-)=4*2=8

v)theoretical value of ψ for α=.01 and d.o.f=8 is 20.09

vi)Actual value of ψ= 1.99

Solution:

Actual value of ψ is lesser than the theoretical value

Hence H0 is accepted

Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage

4.2.28 Which of the following best describes your culture?

Q.no 15	Coimbatore branch						Ernakulam branch			
	manager	supervisor	worker	total	%		manager	supervisor	worker	total
a	0	1	8	9	25.71%	a	0		5	
b	0	4	3	7	20.00%	b	0			
c	4	1	5	10	28.57%	c	0			
d	1	2		4	11.43%	d	5	5	5	25
e	0	2	3	5	14.29%	e	0	0		
total	5	10	20	35		total	5	10	20	35

4.2.29 What is the attitude of senior management w.r.t. KM?

Q.no 16	Coimbatore branch						Ernakulam branch			
	manager	supervisor	worker	total	%		manager	supervisor	worker	total
a	4	3	0	7	20.00%	a	5	0	5	
b	1	5	9	15	42.86%	b	0		5	
c	0	0	1	1	2.86%	c	0			
d	0	2	10	12	34.29%	d	0	0		
total	5	10	20	35		total	5	10	20	35

4.2.30 What is the current status of Knowledge Management in your company?

Q.no 17	Coimbatore branch						Ernakulam branch			
	manager	supervisor	worker	total	%		manager	supervisor	worker	total
a	5	10	14	29	82.86%	a	0	0		
b	0	0	1	1	2.86%	b				
c	0	0	2	2	5.71%	c	2	7	3	12
d	0	0	3	3	8.57%	d	2	5		
total	5	10	20	35		total	5	10	20	35

4.2.31 Do you recognize knowledge as a part of your asset base?

Q.no 18	Coimbatore branch						Ernakulam branch			
	manager	supervisor	worker	total	%		manager	supervisor	worker	total
a	4	8	19	31	88.57%	a	5	10	18	33
b	0	1	1	2	5.71%	b	0	0		
c	1	1	0	2	5.71%	c	0	0		
total	5	10	20	35		total	5	10	20	35

4.3 Diagrammatic Representation

4.3.1 What do you think of Knowledge Management (KM)?
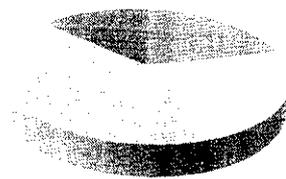
Coimbatore branch

Ernakulum branch

a) Never heard of it.

b) Something we are already doing but not under the same name.

c) It is just a management fad.

d) It is strategic part of our business.

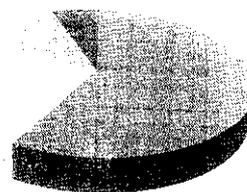e) Something that could be beneficial for the organization

4.3.2 The difference between INFORMATION & KNOWLEDGE
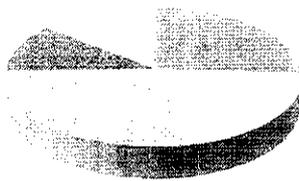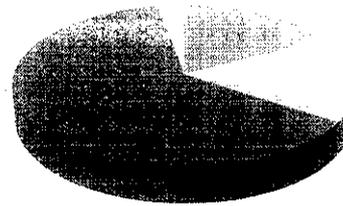
Coimbatore branch

Ernakulum branch

a. exactly

b. to little extent

c. not exactly

d. No idea

4.3.3 Which of the following best describes your culture?

Coimbatore branch   Ernakulum branch

a) Our basic values & purpose emphasize on sharing of knowledge

b) We have an open, encouraging & supportive culture.

c) We think knowledge management is each and everybody's job and so everybody has the best of knowledge

d) All the above

e) The prevailing notion is that the knowledge management is the task of a few designated ones and there is no need for knowledge sharing.

4.3.4 What is the attitude of senior management w.r.t. KM?

Coimbatore branch   Ernakulum branch
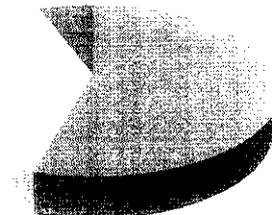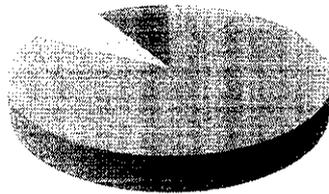

a) Sees it as very important and provides full support.

b) Sees it a very important but hardly supports it

c) Sees it as a waste and hardly bothers.

d) Was very supportive in the beginning but now lost interest.

4.3.5 What is the current status of Knowledge Management in your company?

Coimbatore branch   Ernakulum branch
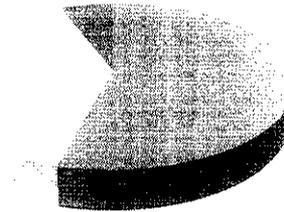
a) Not in existence at all. | | b)   Nascent stage | |

c) Introduction stage. | | d)   Growth stage | |

4.3.6 Do you recognize knowledge as a part of your asset base?

Coimbatore branch   Ernakulum branch

a)   Yes | | b) No | |c)Can't say | |

4.4 Deliverables – Expected Conclusions

It is widely recognized that the success of an industry strongly depend on knowledge, abilities and skills – i.e. the competence – of people managing, supervising and working. Therefore knowledge management is expected to provide a tremen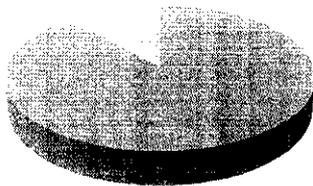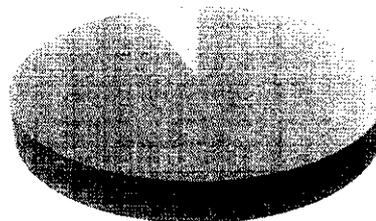dous contribution to the improvement of production planning and performance. Before this background the study aims at comparing these high expectations with today's reality in business by

- identifying the level and type of knowledge that exists in the logistics sector.

- understanding the kind, objectives and success of activities for knowledge creation and knowledge sharing in the logistics sector.

- defining the need for investment in knowledge in the logistics sector.

- finding some evidence of the relation that might exist between knowledge and outcomes of the logistics sector.

Consequently we try to develop a domain-specific approach for measuring the impact of knowledge management on a company's performance and identifying potential for improving a company's performance by means of knowledge management. In particular, we expect to obtain descriptions of knowledge investments in the food sector, of needs for investments in knowledge in the food sector, and of impacts related to knowledge.

*CONCLUSIONS*

Chapter 5 – Conclusions

5.1 Summary of Findings

S.no	Coimbatore branch	Ernakulum branch
1	Employees of Coimbatore branch are not considered as knowledge worker	Employees of Ernakulum branch are considered as knowledge worker
2	KM is an managerial issue	KM is strategic part of our business
3	Employees know the difference between knowledge and information to little extent	Employees know the difference between knowledge and information exactly
4	Employees of Coimbatore branch repeat task unnecessarily	Employees of Ernakulum branch do not repeat task unnecessarily
5	Employees of Coimbatore branch do not get the information from their task when they need it	Employees of Ernakulum branch get the information from their task when they need it
6	Employees of Coimbatore branch do not share the information among them when they need it	Employees of Ernakulum branch share the information among them when they need it
7	Employees of Coimbatore branch were not given sufficient opportunity to fully use their knowledge and potential.	Employees of Ernakulum branch were given sufficient opportunity to fully use their knowledge and potential
8	Employees of Coimbatore branch were rewarded for their team spirit	Employees of Ernakulum branch were rewarded for their team spirit
9	Projects were not documented properly at Coimbatore branch	Projects were documented properly at Ernakulum branch
10	Employees of Coimbatore branch encourage sharing of information	Employees of Ernakulum branch encourage sharing of information
11	Collecting and sharing information about best practices gains competitive advantage	Collecting and sharing information about best practices gains competitive advantage
12	Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks	Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks
13	Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks.	Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks.
14	Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage	Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage
15	Employees think knowledge management is each and everybody's job and so everybody has the best of knowledge	Employees think knowledge management is each and everybody's job and so everybody has the best of knowledge.
16	Management sees KM as very important but hardly supports it	Management sees KM as very important and provides full support
17	KM is not in existence at all.	KM is at Growth stage
18	Employees recognize knowledge as a part of their asset base	Employees recognize knowledge as a part of their asset base

5.2.1. Sales of MFB from 2000-2008

Year	Sales in tonne	
	Coimbatore	Ernakulum
2000	50	55
2001	65	69
2002	57	63
2003	48	62
2004	66	65
2005	67	67
2006	59	69
2007	63	72
2008	72	75

5.2.1. Sales of MFB from 2000-2008 expressed as bar chart
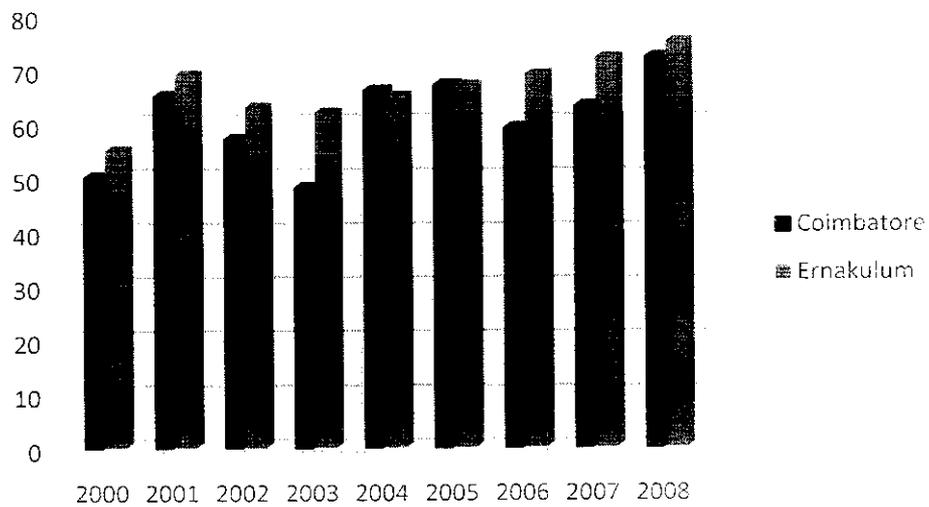
X axis-year

Y axis-sales in Tonne

5.2 Suggestions & Recommendations

- Companies should have common meetings and seminars, so as to have uniform practices throughout the organization.

- Sharing of information should be practiced in a better manner through the advanced facilities like internet, intranet, etc

- Employees should be made aware of the importance of knowledge management at all levels of management.

5.3 Conclusions

From the summary of findings, it is clearly shown that the level of knowledge present in Ernakulum branch is higher when compared to that of Coimbatore branch of Moksha foods and beverages Pvt Ltd. The Sales sheet for the Years 2000-2008 is shown in fig 5.2.1

From our study it is clearly visible that Ernakulum branch stands better when compared to that of Coimbatore branch with respect to knowledge management, the sales table and chart shows the difference in the sales of goods between the branches. From the summary of findings, It can be concluded that knowledge management approach will help in gaining competitive advantage with reference to Moksha foods and beverages.

5.4 Directions for Future Research

- The future research can be done to evaluate the level of knowledge management at various levels of management.

- Knowledge level at each and every level of production can be analyzed, so as to improve the quality and quantity of production.

- To identify the gaps in the current body of knowledge about Knowledge management (KM) to suggest extensions to its frameworks to areas of investigation that build on its strengths

QUESTIONNAIRE

QUESTIONNAIRE

Name: Designation:

Place:

1. Do you consider yourself to be a 'KNOWLEDGE WORKER'?
   a. strongly agree | |
   b. Agree | |
   c. Neutral | |
   d. Disagree | |
   e. Strongly disagree | |

2. What do you think of Knowledge Management (KM)?

   a) Never heard of it. | |

   f) Something we are already doing but not under the same name. | |

   g) It is just a management issue | |

   h) It is strategic part of our business. | |

   i) Something that could be beneficial for the organization | |

3. Do YOU know the difference between INFORMATION &
   KNOWLEDGE?
   a. exactly | |
   b. to little extent | |
   c. not exactly | |
   d. No idea | |

.

4. I often repeat task unnecessarily.

   a. strongly agree

   b. Agree

   c. Neutral

   d. Disagree

   e. Strongly disagree

5. I usually get information I NEED for my tasks when I need it.

   a. strongly agree

   b. Agree

   c. Neutral

   d. Disagree

   e. Strongly disagree

6. My colleagues readily SHARE job related information with me.

   a. strongly agree

   b. Agree

   c. Neutral

   d. Disagree

   e. Strongly disagree

7. I am given sufficient OPPORTUNITY to fully use my knowledge POTENTIALS within the organization

   a. strongly agree

   b. Agree

   c. Neutral

   d. Disagree

   e. Strongly disagree

8. Staffs are well REWARDED for team spirit

    a. strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly disagree

9. My Team's Project Knowledge is well DOCUMENTED for use and RE-USE

    a. strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly disagree

10. SHARING information and knowledge is greatly ENCOURAGED in the organization.

    a. strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly disagree

11. Collecting and sharing information about best practices gains competitive advantage

    a. strongly agree

    b. Agree

    c. Neutral

    d. Disagree

    e. Strongly disagree

12. Setting up networks for transferring information between employees who interact with customers and engineers who create the product help in gaining competitive advantage
    a. strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree

13. Creating formal procedures to ensure that lessons learned in the course of a project are passed along to others doing similar tasks.
    a. strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree

14. Developing "expert systems" to capture and circulate special skills and knowledge will help in gaining competitive advantage
    a. strongly agree
    b. Agree
    c. Neutral
    d. Disagree
    e. Strongly disagree

15. Which of the following best describes your culture?
    f) Our basic values & purpose emphasize on sharing of knowledge. [ ]
    g) We have an open, encouraging & supportive culture. [ ]

h) We think knowledge management is each and everybody's job and so everybody has the best of knowledge. | |

i) All the above | |

j) The prevailing notion is that the knowledge management is the task of a few designated ones and there is no need for knowledge sharing. | |

16. What is the attitude of senior management w.r.t. KM?

a) Sees it as very important and provides full support. | |

b) Sees it a very important but hardly supports it | |

c) Sees it as a waste and hardly bothers. | |

d) Was very supportive in the beginning but now lost interest. | |

17. What is the current status of Knowledge Management in your company

a) Not in existence at all. | | b)   Nascent stage | |

c) Introduction stage. | | d)   Growth stage | |

18. Do you recognize knowledge as a part of your asset base?

a) Yes | | b) No | | c) Can't say :

SIGNATURE OF THE EMPLOYEE

Thank you for your kind co-operation

BIBLIOGRAPHY

Bibliography

1.Books

Capitalizing on Knowledge: From e-business to k-business. Butterworth-Heinemann (2001).

Knowledge Networking: Creating the Collaborative Enterprise. Butterworth-Heinemann (1999

2. Book Chapters

'The Collaborative Enterprise: Creating Competitive Capabilities'. Chapter 9 in *New Frontiers of Knowledge Management*, ed. Kevin C. Desouza. Palgrave Macmillan (2005). .

'Commercialization: The Next Phase of Knowledge Management'. Chapter 65 in *Handbook on Knowledge Management*, ed. C. W. Holsapple. Springer-Verlag (2003).

'Developing a Knowledge Strategy: From Management to Leadership'. Chapter 3 in *Knowledge Management: Classic and Contemporary Works*, ed. Daryl Morey. Mark Maybury and Bhavani Thuraisingham, MIT Press (2000).

'New Metrics: Does It All Add Up'. Chapter 22 in *Knowledge Horizons. The Present and Promise of Knowledge Management*, ed. Danièle Chauvel and Charles Despres. Butterworth-Heinemann. 352pp. ISBN: 0-7506-7247 (October 2000).

'Information's Golden Age: Substance with Style'. *i in the Sky: Visions of the Information Future*, Alison Scammell (editor). Aslib (1999).

'The Knowledge Agenda', David J. Skyrme and Debra M. Amidon, pp. 108 - 125 in *The Knowledge Management Yearbook*. ed. James D. Cortada and John A. Woods, Butterworth-Heinemann (1999

'The Realities of Virtuality', in *Organizational Virtualness*, ed Pascal Sieber and Joachim Griese, pp. 25-34, Simowa Verlag (1998).

'Virtual Teaming and Virtual Organizations', Chapter 12 in *Web-Weaving*, Peter Lloyd and Paula Boyle, Butterworth Heinemann (1998).

'The Hybrid Manager', Chapter 22 in *Information Management: The Organization Dimension*.ed. Michael J. Earl, Oxford University Press (1995).

'Multimethodologies - the Knowledge Perspective', Chapter 9, pp.217-241 in *Multimethodology*, eds. John Mingers and Anthony Gill, John Wiley & Sons (1997

3. Reports

Public Sector - Public Knowledge: The KM Contribution to Better Government. David J. Skyrme, David Skyrme Associates/Ark Group (2003).

Measuring Knowledge and Intellectual Capital. David J. Skyrme. Business Intelligence (2003).

Measuring the Value of Knowledge. David J. Skyrme. Business Intelligence (1998.

Creating the Knowledge-based Business, David J. Skyrme and Debra M. Amidon, Business Intelligence (1997).

4. Articles

'Getting to Grips with Intellectual Capital', in a survey of value creation efficiency in the Croatian economy (November 2002).

'Knowledge Inside-Out', exploiting your knowledge assets (May 2001)

Are you e-ready?, an online feature on Getting Started with ecommerce. Ecominfonet (July 2000).

'From Knowledge Management to Knowledge Commerce', *Knowledge Management* (Dec 1999).

'Knowledge Management: The Next Steps', *Consultants Guide*, pp.8-10 (July 1999).

'Knowledge Management: Making It Work', *The Law Librarian*, Vol. 31, No. 2, pp.84-90 (June 1999

'Creating a World Trade of Ideas: A Global Knowledge Innovation Infrastructure', with Debra M. Amidon, *Knowledge Management*, Vol 2, No. 7, pp.17-20 (April 1999).

'Building Communities at the 1998 Knowledge Summit: Oxymorons and healthy cynicism', *Knowledge Management Review*, p.6, (January/February 1999).

'Know-Why Know-How', Guru Feature, *Information Age*, pp.8-9 (September 1998.

'Fact or Fad? Ten Shifts in Knowledge Management', *Knowledge Management Review*, No 3, pp.6-7, (July/August 1998).

'Effective Knowledge-Sharing Teams', *Journal of High-Performance Teams*, Vol 3, No. 3, pp. 15-20 (May 1998).

'Valuing Knowledge: Is it worth it?', *Managing Information*. Vol 8, No. 3 (March 1998).

'Knowledge Management: Solutions: The Role of Technology', *ACM SIGGROUP Bulletin*, Special Issue on Knowledge Management at Work (March 1998).

(Word6 format: 62K).

'New Measures of Success', coauthored with Debra Amidon, *Journal of Business Strategy*, pp.20-24 (Jan/Feb 1998).

'Developing A Knowledge Strategy', *Strategy*, pp.18-19, (Jan 1998).

'The Globalisation and Virtualisation of Knowledge', Gyosei Journal, Vol 1, No. 3, pp. 71-86 (December 1997

.

'The Knowledge Agenda', coauthored with Debra Amidon, *Journal of Knowledge Management*, Vol. 1, No. 1, pp.27-37 (September 1997).

'Knowledge Management: Oxymoron or Dynamic Duo', *Managing Information*, Vol.4 No.7, pp. 16-18 (September 1997).

'From Information to Knowledge Management', *Information Age*, Vol. 1, No. 20, pp. 16-18 (September 1997).

'Global Intelligence Networking: Technological Opportunities and Human Challenges', *AGSI Journal*, pp.106-115 (November 1995). .

'When information management encounters organisational culture', *Records Management Bulletin*, Issue No. 64, pp.3-5 (Oct 1994).

'Flexible Working: Building a Lean and Responsive Organization'. *Long Range Planning*. Vol 27. No. 5. pp98-110 (Oct 1994).

'Take a look at teleworking'. *Management Consultancy*. p.21 (June 1994)

'Ten Ways to Add Value to Your Business'. *Managing Information*. Vol 1. No 3. pp20-25 (March 1994).

'Knowledge Networking'. *The Intelligent Enterprise*. Vol 1. No 9 (Nov 1991).

'Developing Successful Marketing Intelligence: A Case Study'. *Management Decision*. Vol 28. No. 1. pp 54-61 (1990).

'The Planning and Marketing of the Marketing Intelligence Function'. *Marketing Intelligence and Planning*. vol 7. No. 1/2. pp 5-10. (1989).

'Hybrid Managers: What Should You Do?'. with Michael J. Earl. *Computer Bulletin*. pp 19-21 (May 1990).

'Hybrid Managers: What Do We Know About Them?'. with M.J. Earl. *Journal of Information Systems*. Vol 1. No. 2. pp169-187 (1992.

5. WorkingPapers

'Leveraging Knowledge through Socio-technological Fusion'. with Debra Rogers. *Technology Knowledge Activities*. IC^2 Institute. University of Texas at Austin. Vol. 2. No. 1. pp. 1-6 (Summer 1994). Shorter version of conference paper

'From Hybrids to Bridge Building'. Research and Discussion Paper RDP92/2. Oxford Institute of Information Management. Templeton College. Oxford (Jan 1992).

'The Social Environment' (Chapter 2) and 'Consumerism, Lifestyles and Socio-Demography' (Chapter 6) in *Proceedings of the Business Environment Group* ed. Richard Whaley, The Strategic Planning Society (1988).

'Crafting a Strategy for Understanding the Effects of IT on Organisational Structure', with Roy Payne, Sudi Sharifi. Working Paper 201, Manchester Business School (Nov 1990).

6. Conference & Other Papers

'Information Managers: Do We Need Them?'. *Online Information 2004*.

'Making The Case For Knowledge Management: As Simple As ABC?'. *Building A Knowledge Organisation*. OGC Conference, London (11 July 2001.

'Knowledge Management: Approaches and Policies', paper on policy issues affecting small and medium sized enterprise in Europe, delivered to DEEDS Policy Group Meeting, Brussels, July 2002. (Word2002 format: 541kB).

'Business Value From Knowledge Management', delivered at *Mobilsing Knowledge for Business Performance*, Aslib Conference, London (May 2002).

'From Teleworking to E-Work', *West Berkshire Virtual Labour Conference*, July 2000.

'K-Commerce: Commercializing Knowledge', *Knowledge Summit '99*, London (23-24 Nov 1999).

'Knowledge Commerce: Succeeding in a Global Knowledge Marketplace', *The Knowledge Economy and China*, Beijing (1-3 Nov 1999).

'From Measurement Myopia to Knowledge Leadership'. *Performance Measurement for Knowledge Management*. Access Conferences International. London (28-29 June 1999).

'The Realities of Virtuality: 25 Principles of Proven Practice'. *IVCC '99 - International Virtual Company Conference*. Charleston, West Virginia (26-27 May 1999.

'Virtual Knowledge Teams and Global Flexible Working'. *Future Work Forum*. Henley (4 March 1999).

'Knowledge Management: Beneath the Fad'. *Technology Strategy Forum*. RSA. London (9 Dec 1998).

'The Future of Knowledge Management'. *Knowledge Summit 98*. Business Intelligence. London (5-6 Nov 1998). See **related article** or **13 UPDATE No. 20**.**Presentation**.

'Fad or Fundamental? Making Knowledge Work for You'. *The Institute of Information Scientists*, 40th Anniversary Members Day. London (17 Sept 1998).**Synopis** and **Presentation**.

'Knowledge Networking - Succeeding with Collaborative Technologies'. *Online Collaboration*. ICEF. Berlin. 9-10 June (1998). **Presentation Synopsis.**

'Measurement Myopia'. *Turning Intellectual Capital into a Strategic Asset*. Business Intelligence. London. 21 May (1998).

'Avoiding the Measurement Trap: Measures in Knowledge Management and Innovation'. *Facilitating Corporate Innovation via Knowledge Management*. ICM. New York. 1-2 April (1998). **Synopsis** and **Presentation**.

'Global Knowledge Networking: The Use and Abuse of Technology'. *Managing the Virtual Laboratory*. IQPC. London .16-17 February (1998). **Synopsis** and**Presentation**.

'Knowledge Management A Fad or a Ticket to Ride'. *Institute of Information Scientists*. (Feb 1998). **Synopis** and **Presentation**.

'From Information Management to Knowledge Management: Are You Prepared'. *Online '97*. London. 9-11 December (1997). **Full Paper.**

'Distance Working - The Corporate Perspective'. The European Distance Working Conference. Robinson College. Cambridge (April 1993). **Full Paper**.

'Flexible Working - Reaping the Benefits'. Conference - The Best of Both Worlds. Industrial Society. London (Sept 1993). **Synopsis**

'The Teleworker's Toolkit: Navigating the Technology Maze'. Flexible Working Conference. IBC. London (5-6 Dec 1994).

'Getting Value from Information Technology - The Human Factor'. UKCMG Annual Conference. Brighton (May 1992). **Full Paper**.

'Harnessing Knowledge through Socio-Technical Fusion'. with Debra Amicon, M. Rogers. The Strategic Management Society. 12th International Annual Conference. London (Oct 1992). **Full Paper** (Word 6 format: Size: 260K).

'Integrating Business, People and Technology' with Tony Attew. Ramsay Maclaren and Philip Scott. DECUS UK Conference. Warwick (March 1991).

APPENDIX

Table of Chi-square statistics

P=0.05 P=0.01 P=0.001

df	P = 0.05	P = 0.01	P = 0.001									
1	3.84	6.64	10.83	31	44.99	52.19	61.10	63	82.53	92.01	103.46
2	5.99	9.21	13.82	32	46.19	53.49	62.49	64	83.68	93.22	104.72
3	7.82	11.35	16.27	33	47.40	54.78	63.87	65	84.82	94.42	105.97
4	9.49	13.28	18.47	34	48.60	56.06	65.25	66	85.97	95.63	107.26
5	11.07	15.09	20.52	35	49.80	57.34	66.62	67	87.11	96.83	108.54
6	12.59	16.81	22.46	36	51.00	58.62	67.99	68	88.25	98.03	109.79
7	14.07	18.48	24.32	37	52.19	59.89	69.35	69	89.39	99.23	111.06
8	15.51	20.09	26.13	38	53.38	61.16	70.71	70	90.53	100.42	112.3
9	16.92	21.67	27.88	39	54.57	62.43	72.06	71	91.67	101.62	113.5
10	18.31	23.21	29.59	40	55.76	63.69	73.41	72	92.81	102.82	114.84
11	19.68	24.73	31.26	41	56.94	64.95	74.75	73	93.95	104.01	116.08
12	21.03	26.22	32.91	42	58.12	66.21	76.09	74	95.08	105.20	117.35
13	22.36	27.69	34.53	43	59.30	67.46	77.42	75	96.22	106.39	118.60
14	23.69	29.14	36.12	44	60.48	68.71	78.75	76	97.35	107.58	119.85
15	25.00	30.58	37.70	45	61.66	69.96	80.08	77	98.49	108.77	121.11
16	26.30	32.00	39.25	46	62.83	71.20	81.40	78	99.62	109.96	122.36
17	27.59	33.41	40.79	47	64.00	72.44	82.72	79	100.75	111.15	123.60
18	28.87	34.81	42.31	48	65.17	73.68	84.03	80	101.88	112.33	124.83
19	30.14	36.19	43.82	49	66.34	74.92	85.35	81	103.01	113.51	126.08
20	31.41	37.57	45.32	50	67.51	76.15	86.66	82	104.14	114.70	127.3
21	32.67	38.93	46.80	51	68.67	77.39	87.97	83	105.27	115.88	128.57
22	33.92	40.29	48.27	52	69.83	78.62	89.27	84	106.40	117.06	129.80
23	35.17	41.64	49.73	53	70.99	79.84	90.57	85	107.52	118.24	131.04
24	36.42	42.98	51.18	54	72.15	81.07	91.88	86	108.65	119.41	132.28
25	37.65	44.31	52.62	55	73.31	82.29	93.17	87	109.77	120.59	133.5
26	38.89	45.64	54.05	56	74.47	83.52	94.47	88	110.90	121.77	134.74
27	40.11	46.96	55.48	57	75.62	84.73	95.75				
28	41.34	48.28	56.89	58	76.78	85.95	97.03				
29	42.56	49.59	58.30	59	77.93	87.17	98.34				
30	43.77	50.89	59.70	60	79.08	88.38	99.62				
				61	80.23	89.59	100.88				
				62	81.38	90.80	102.15				