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Proceedings of the
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Knowledge Management
University of Udine, Italy
3-4 September 2015



Edited by
Prof Andrea Garlatti
and
Dr Maurizio Massaro
Udine University, Italy

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Preface

These proceedings represent the work of researchers presenting at the 16th European Conference on Knowledge Management (ECKM 2015). We are delighted to be hosting ECKM at the University of Udine, Italy on the 3-4 September 2015.

The conference will be opened with a keynote from Dr Madelyn Blair from Pelerei Inc., USA on the topic "The Role of KM in Building Resilience". On the afternoon of the first day Dr Daniela Santarelli, from Lundbeck, Italy will deliver a second keynote speech. The second day will be opened by Dr John Dumay from Macquarie University, Sydney, Australia.

ECKM is an established platform for academics concerned with current research and for those from the wider community involved in Knowledge Management to present their findings and ideas to peers from the KM and associated fields. ECKM is also a valuable opportunity for face to face interaction with colleagues from similar areas of interests. The conference has a well-established history of helping attendees advance their understanding of how people, organisations, regions and even countries generate and exploit knowledge to achieve a competitive advantage, and drive their innovations forward. The range of issues and mix of approaches followed will ensure an interesting two days.

260 abstracts were initially received for this conference. However, the academic rigor of ECKM means that, after the double blind peer review process there are 102 academic papers, 15 PhD research papers, 1 Masters research papers and 7 Work in Progress papers published in these Conference Proceedings.

These papers reflect the continuing interest and diversity in the field of Knowledge Management, and they represent truly global research from many different countries, including Algeria, Austria, Bosnia and Herzegovina, Brazil, Canada, Chile, Colombia, Cuba, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Hungary, India, Indonesia, Iran, Ireland, Italy, Japan, Jordan, Kenya, Lithuania, Mexico, Nigeria, Norway, Pakistan, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sultanate of Oman, Sweden, Switzerland, Thailand, The Netherlands, UK, United Arab Emirates, USA and Venezuela.

We hope that you have an enjoyable conference.

Maurizio Massaro and Andrea Garlatti

The University of Udine, Italy
September 2015

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The conference programme committee consists of key individuals from countries around the world working and researching in the Knowledge Management and IS community. The following have confirmed their participation:

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Biographies

Conference Co-Chairs



Prof Andrea Garlatti, PhD, is a full Professor of Public Management at Udine University. He is also Director of Udine University Interdepartmental Center for Research on Welfare and Coordinator of the Accounting and Management Control section within the Department of Economics and Statistics. Andrea has wide research and teaching experience in the fields of public management and welfare.



Dr Maurizio Massaro, Ph.D., is aggregate professor at Udine University since 2008, having worked as teacher at Udine University since 2001. He was visiting scholar at the FGCU, Florida, USA, in 2010 and Leicester, UK, 2013. His academic interests are primarily in the field of business performance measurement, intellectual capital, knowledge management and entrepreneurship.

Programme Co-Chairs



Prof Stefano Miani is full professor of Bank and Finance at Udine University. Stefano is member of the board of Udine University and scientific director of the observatory on financial systems of Udine University.



Prof Andrea Moretti is full Professor of Business Strategy and Relationship Marketing and Head Department at DIES, University of Udine. Andrea has published on the topics of management of growth of SMEs. He has done research in the field of creative industries. Recently, he focuses his attention on the relationship between social media management and firm's performance.

Keynote Speakers



Dr John Dumay is Associate Professor in Accounting at Macquarie University, Sydney. Originally a consultant he joined academia after completing his award winning PhD in 2008. John's research specialties are intellectual capital, knowledge management, non-financial reporting, management control, research methodologies and academic writing. John has published over 30 peer reviewed articles in leading academic journals. He is also on the Editorial Board of *Advice for the Electronic Journal of Knowledge Management*; *Meditari Accountancy Research*; *Accounting, Auditing and Accountability Journal*, and is the Australasian Editor of the *Journal of Intellectual Capital*.



Dr Madelyn Blair is a speaker, author, and senior consultant to management. She is founder and president of Pelerei, Inc. Her specialty is organizational learning and the approaches that support it. She has particular experience in knowledge management from strategic planning to unlocking personal resilience for navigating complex challenges. Dr. Blair is a Taos Institute Associate and charter member of the Associates Council to the Board. She is on the Board of American Friends of Chartres. Dr. Blair received her doctorate in organizational psychology from the University of Tilburg, The Netherlands, and holds an MBA from The Wharton School. She is the author of *Riding the Current* and *Essays in Two Voices*. She is a contributing author of *Lessons from the Field*, *Wake Me Up When the Data Is Over*, *Making it Real: Sustaining Knowledge Management*, and *Smarter Innovation*.



Daniela Santarelli works as Market Access and Public Affairs Director for Lundbeck Italy. She has a technical and analytical background in pharmaceutical business. From a significant regulatory experience, responsibilities have expanded since 2006 both at National and Regional market access levels with first-hand responsibilities and proven track record. She also has an active people management experiences proven over time.

Mini-track Chairs



Dr Carlo Bagnoli is Associate Professor of Strategy Innovation in the Department of Management, Ca' Foscari University of Venice (Italy). He received a Ph.D. in Business Economics from Ca' Foscari University of Venice. He was visiting research fellow at the University of Florida (USA). His research interests include knowledge management, competitive strategy and business model innovation. His research has been published in various outlets including *Journal of Management and Governance*, *Industrial Management & Data Systems*, *Journal of Business Economics and Management*, *Journal of Intellectual Capital*.



Dr Sandra Moffett is a Senior Lecturer of Computer Science with the University of Ulster's School of Computing and Intelligent Systems, Magee Campus. She is a core member of the Ulster Business School Research Institute. Her expertise on Knowledge Management contributes to her being one of the UK leading authors in this field. She has received a number of research awards and citations for her work. External funding has enabled Dr Moffett to undertake extensive quantitative/qualitative research to benchmark KM implementation within UK companies.



Constantin Bratianu is professor of Strategic Management and Knowledge Management at the Bucharest University of Economic Studies, Romania. He is the founding Director of the Research Centre for Intellectual Capital and Entrepreneurship, and the former Director of the UNESCO Department for Business Administration, Bucharest University of Economic Studies. He was a Visiting Professor at Universities in USA, Japan, Austria, Hungary, and Egypt. He is a member of the American Academy of Management, International Association of Knowledge Management, and Society for Business Excellence. His main academic interests are: knowledge dynamics, knowledge management, intellectual capital, learning organizations, and strategic management.



Dr Ettore Bolisani (Laurea in Electronic Engineering, PhD in Innovation Studies - Padua University) after being an EU 'Marie Curie' Research Fellow at the University of Manchester and researcher at the Universities of Trieste and Padua, is currently Associate Professor at the Department of Management and Engineering - University of Padua. His research centres on ICT management and knowledge management. He also was visiting researcher at Coventry University, Visiting Lecturer at Kaunas Technological University, Chair of the European Conference on Knowledge Management, University of Padua, 2009, and editor of *Building the Knowledge Society on the Internet: Sharing and Exchanging Knowledge in Networked Environment*, IGI Global. He is co-Founder and first President of the International Association for Knowledge Management (<http://www.iakm.net>), and a Series co-Editor (with Meliha Handzic) of the IAKM Book Series on Knowledge Management and Organizational Learning, Springer.



Dr Marta-Christina Suci is a Graduate of Cybernetics from the Faculty, Academy of Economic Studies Bucharest (ASE). She is a Research fellow at the Romanian Academy, National Institute for Economic Research. She gained her PhD in Economics in 1995 and has been a PhD supervisor and full professor since 2000. She has been Director of six national research projects: investment in lifelong learning (2001-2003); education, culture & creativity (CERES, 2002-2005); economic convergence (CEEX, 2006-2008); high skills demand (CEEX, 2005-2007); creative economy & knowledge-based society (IDEI, 2007-2010); equality of chance, diversity management and intercultural dialogue (Parteneriate, 2008-2011). Her research interests are in KM, intellectual capital, creative economy, investing in people and skills.

Biographies of Presenting Authors

Jernej Agrež is a teaching assistant and a Ph.D. student at Faculty of Information Studies in Novo mesto, Slovenia. He received his M.Sc. in Management of nonprofit organizations from University in Ljubljana. His research interests include loosely coupled organizational systems, organizational learning and learning management systems in the field of public safety.

Abobakr Aljuwaiber is a doctoral student at Norwich Business School, University of East Anglia, UK. His research interests include knowledge management, knowledge sharing culture and Communities of Practice (CoPs). He is currently studying the influential role of organisational factors in intentionally created CoPs within business organisations.

AlShaima Taleb Hussein is currently studying for a Doctorate in Business Administration at Abu Dhabi University, UAE. Her research area is Knowledge management. She has Master and Bachelor of Science degrees in Computer Science from Abu Dhabi University. AlShaima is a Police Officer in Abu Dhabi Police and a Head of Section in Strategy Department.

Anand Amitabh is an experienced professional in the field of academic and research. An MBA from University of Stockholm, been working on knowledge management research since 2012. Presently he is the doctoral scholar with Ecricome Group in Paris. Previously has worked in senior management positions In Indian Business schools.

Zehra Canan Araci is a PhD researcher at Cranfield University. Zehra completed her BSc in Industrial Engineering in 2008 at Dumlupinar University, Turkey, and MSc in Industrial Engineering and Operations Management in 2013 at University of Not-

Leadership Behavior, Perceived Organizational Support, Knowledge Sharing Intensity, and Knowledge Satisfaction: Study on the Headquarters of 3 State-Owned Enterprises That Implement Knowledge Management

Paul Lumbantobing^{1,3}, Ernie Tisnawati Sule¹, Jann Hidajat Tjakraatmadja², Yunizar¹, Juli Purwanti³

¹University of Padjadjaran, Bandung, Indonesia

²Institute of Technology Bandung, Indonesia

³PT. Telekomunikasi Indonesia, Tbk

paul.tobing@mitratel.co.id

erniesule@gmail.com

jannhidajat@sbm-itb.ac.id

yunizar_2000@yahoo.com

yuli_purwanti@telkom.co.id

Abstract: The purpose of this study was to determine the causality relationship among such variables as leadership behaviour, perceived organizational support, knowledge sharing intensity, and job satisfaction in acquiring knowledge (what we termed as knowledge satisfaction) in the three SOEs in Indonesia. The study was conducted by distributing questionnaires at the headquarters of three major SOEs in Indonesia: Telkom, PLN, and PGN. Structural Equation Modelling was used to analyse the research model. The main finding was the positive influence of leadership behaviour and perceived organizational support on both knowledge sharing intensity and knowledge satisfaction, either partially or simultaneously. There was a positive influence of knowledge sharing intensity on knowledge satisfaction. All influencing relationships were significant except for the influence of: perceived organizational support on knowledge sharing intensity (in Telkom and PGN), knowledge sharing intensity on knowledge satisfaction (in Telkom), and perceived organizational support on knowledge satisfaction (in PGN). Originality: the emergence of a new variable: knowledge satisfaction (job satisfaction in acquiring knowledge); researchers also found that the high volume of corporate knowledge does not automatically lead to knowledge satisfaction, and the influence of leadership behaviour was higher than perceived organizational support on knowledge sharing intensity. This study is expected to contribute to the development of organizational behavior theory and learning/knowledge management theory, particularly on the important role of leadership behavior and perceived organizational support in increasing knowledge sharing intensity, and their implications for the improvement of knowledge satisfaction.

Keywords: leadership behaviour, perceived organizational support, knowledge sharing intensity, knowledge satisfaction, and knowledge management (KM)

1. Research background

There are various strategic reasons that push knowledge management (KM) implementation in State-Owned Enterprise (SOE) in Indonesia. First, Indonesian Government expects and designs SOEs to become Indonesian's economic locomotive. In order to act as a powerhouse of the national economy, SOEs should optimize their asset utilization, including their knowledge assets by implementing KM. Second, a change in business climate from monopoly to global competition. Third, knowledge is a strategic asset that is inseparable from the SOEs' products and services.

As research objects, the researchers chose three major SOEs in Indonesia that implemented KM: PGN, PLN, and Telkom. These companies are facing challenges that are strategic for Indonesian economy.

PGN operates a natural gas transmission and distribution, supplying natural gas to power plants, industry, commercial businesses, and households. During the past 10 years of rapid growth, PGN driven particularly by energy issues, is facing the challenge of transforming the nation's energy into the use of clean and more environmentally friendly energy for power plants, industry, and for other needs.

As a company engaged in the business of electricity in Indonesia, PLN is facing the following strategic challenges: economic growth and improvement of living standards, demand for primary energy sources that are more diverse and friendly environment, population growth, and stable electricity prices at a reasonable level.

Telkom is challenged to remain innovative to maintain its dominance in the midst of intense competition domestically as well as globally. Telkom also is facing the dynamic technological changes in the telecommunications business that require a high adaptability to run Telkom's TIMES (Telecommunication, Information, Media, Edutainment, and Services) business portfolio.

The researchers observed some common phenomena in KM implementation in the companies chosen as the research objects. The first phenomenon, there are obstacles to get support in the form of leaders' real actions related to the process of KM. The CEO of Buckman Labs stressed that daily activities and involvement of leaders in KM processes are very important in stimulating knowledge sharing activities (Hislop, 2009).

The second phenomenon is the emergence of transactional culture in running various KM activities. The phenomenon arises as a result of KM policies that have not been fully perceived by employees as a form of organizational support. The implementation of KM policies has led to the phenomenon of transactional culture where knowledge sharing is driven more by compliancy with organizational policies than voluntary action.

The third phenomenon as the further impact of the second phenomenon, is the onset of symptom "*we have too much knowledge, but not enough*". Indicative of this phenomenon is the emergence of a gap between shared knowledge and knowledge needs of employees. The gap is caused by the transactional culture that leads to employees' resistance to share their best knowledge, they just share to carry out their obligations and they ignore the knowledge needs of their workmate.

The fourth phenomenon, the companies do not pay attention to aspects of employee satisfaction in fulfilling their knowledge needs. Symptom "*we have too much knowledge but not enough*" has an implication on the low employee satisfaction in acquiring the employee's the knowledge need. In this situation, the companies only have a plenty stock of knowledge, but on the other hand, employees face a lot of troubles to fulfill their knowledge needs.

1.1 Literature review

1.1.1 Leadership behaviour

Bolman & Deal (2008) defined leadership as a subtle process of mutual influence fusing thought, feeling, and action to produce cooperative effort in the service of purpose and values of both the leader and the led". Hislop (2009) summarized four most popular approaches to get a thorough understanding of leadership: the trait approach, behaviour-based theories, contingency approach, and 'new leadership' theories (including theories of charismatic and transformational/transactional leadership). In the perspective of leadership behaviour, leadership can be viewed as a process that can be observed, and effective leaders judged by how they behave when interacting with followers or potential followers.

Related to leadership and KM, Lakshman (2007) stated: "although KM is very important for the organization, leadership theory has not touched the role of leader in the KM". Research that scrutinized the relationship between leadership behaviour and KM process is rarely done (under – research), and the research is still dominated by transformative leadership theory (Hislop, 2009).

It is inevitable that the various concepts of leadership are dominated by Western-oriented literature and research (de Ver, 2009), which are often less relevant to the context of Indonesia. Ki Hajar Dewantara an Indonesian thinker on education, spawned the concept of leadership behaviour consisting of three dimensions: *ing ngarso sung tulodo*, *ing madyo mangun karsa* and *tut wuri handayani*. Tjakraatmadja and Lantu (2006) defined that *ing ngarso sung tulodo* is a leader who is able to act as a role model, which is able to be fair and to protect his/her followers. *Ing madyo mangun karsa* is a leader who desires to discuss directly in the midst of his/her employees, and a leader who is able and willing to dialogue and discuss the future (vision) of organization, establish an agreed work plan, and measure the success of any program. *Tut wuri handayani* is a

leader who is capable of protecting and giving spirit, so the followers are able to maintain their maturity consistently.

1.1.2 Perceived organization support

Researchers have long been aware that organization is a source of material and social – emotional supports that are important for employees. Organizational support theory recognize that in order to determine the readiness of organization in appreciating the increase in work effort and to meet the need of socio-emotional, employees develop a common belief about the extent to which the organization values their contributions and cares about their well-being (Eisenberger et al., 2001). According to this theory, *perceived organizational support* development is driven by the tendency of employees to determine the personification of organization and attributing the actions taken by agents of the organization as a representation of the organization's goals, instead of the individual motives of agents (Eisenberger et al., 2001). The organization gives signal to employees whether they liked or disliked through HR management practices such as career management and employee's welfare, quality of relationships, and fair treatment in workplace.

Based on literature review, Cheng et al. (2009) classified three main factors that influence people to share: organizational, individual, and technical. It is predicted that sharing environment (organizational factors), and the formation of belief and perception of individual (individual factors) will positively influence *perceived organizational support*.

Recognition and perception of organizational practice are the most important predictors of job and overall organizational satisfaction (Leung, Sui & Spector, 2000). Dubinsky and Skinner (in Sarwar and Khalid, 2011) argued that "if an employee is satisfied with his/her job then he/she shows commitment to the organization, the higher the job satisfaction, the higher the employees' commitment".

Huang and Davison (2008) found that a relationship among employees is critical to the effectiveness of knowledge sharing, and most employees admitted that the quality of relations among employees have a strong impact on the quality of knowledge sharing. In addition to horizontal relations (a relationship among employees), vertical relation in the form of leader – member exchange (LMX) is predicted to influence *perceived organizational support*. Minsky (2002) stated there are two sub dimensions that describe the quality of relationship between followers and leaders. These sub dimensions - *in group relationship* and *out group relationship* - are predicted to influence *perceived organizational support*. *In group relationship* is a superior – subordinate relationship that goes beyond the formal working relationship. *Out group relationship* is the leader – follower relationship that is limited to formal or contractual relationship.

For this study, the researchers use three main dimensions of *perceived organizational support*:

- Perceptions of organizational concern for employee development.
- Perceptions of organizational concern for employees' welfare.
- Leader – Member Exchange

1.1.3 Knowledge sharing intensity

KM consists of several KM processes, and one of the processes is knowledge sharing. Cabrera in Christensen (2007) divided the problem of knowledge sharing in three types: social dilemmas, knowledge dilemmas, and a combination of both. Social dilemma is usually caused by such human behavior as low desire to share, lack of a relationship between the recipient and the sender of knowledge, lack of knowledge about knowledge itself (*no knowledge of knowledge*), lack of trust in the organization, and lack of knowledge presentation skills particularly due to the limitations of language.

Problems related to knowledge dilemmas are caused by *the stickiness of knowledge*. These problems related to the nature of knowledge itself that is mostly located in the inner of human being (tacit knowledge), so it tends to be difficult to be communicated or shared. Another problem related to knowledge dilemma is the belief that "knowledge is power and power is not to be shared". This belief encourages the members of organization to hold knowledge exclusively (knowledge hoarding). Ford (2004) defined knowledge hoarding as psychological ownership of knowledge that in her research was negatively related to the willingness to share.

Crawford (2005) found that KM behavior including knowledge sharing is significantly determined by transformational leadership. Singh (2008) showed that the directive leadership style is negatively and significantly associated with KM implementation (including knowledge sharing). Singh emphasized that the consultative and delegating style of leadership is positively and significantly related to KM. Singh also found that only the delegating mode of leadership behavior to be significant in predicting the creation and management of knowledge for competitive advantage in software companies in India.

As a basis for indicators development, this research uses two dimensions of knowledge: tacit and explicit knowledge.

1.1.4 Knowledge satisfaction

The growing adoption of KM is accompanied by the emergence of knowledge workers. According to Reich (1991 in Newell et al., 2002), knowledge worker is a group of workers who have the following characteristics:

- A group of workers that directly affect the productivity of the company;
- They represent an investment business (not as labor cost).
- Their knowledge represents a form of personal equity, so knowledge worker is a potential entrepreneur.

Besides the needs defined by Maslow, Sirgy et al. (2001) stated that knowledge is one of the primary needs of human. In addition to meeting the human cognitive need, employees also need knowledge to execute their job and for personal growth. In harmony with Sirgy, Tampoe (1993, in Newell et al., 2002) suggested that the main need of the knowledge worker is personal growth, which is the opportunities to realize their individual potential to the fullest. Meeting the knowledge needs is an important factor in determining the success of a person in a job that has implications for job satisfaction. The knowledge fulfillment of the knowledge workers' need for both personal growth and to carry out the tasks, shall generate knowledge satisfaction.

Lee et al. (2007) found that job satisfaction and KM has a positive relationship. Moreover, factors such as accessibility and ease of getting knowledge also influence job satisfaction. Brown (2010) stated that the easier employees gain knowledge, then further improve employee satisfaction and decrease frustration.

The term "knowledge satisfaction" in this study is an employee's pleasant or positive state as a result of the fulfillment of the expectations and needs of employees for knowledge through the availability of a learning organization building or a conducive learning environment.

Human is the main source of knowledge. Human owns and controls both his / her tacit and explicit knowledge. Encouraging employees to have a passion in sharing knowledge makes the supply of knowledge to become fluent. Tjakraatmadja and Lantu (2006) stated: "The essential thing in KM is the formation of a conducive learning environment, so that employees are motivated to learn and share knowledge". Consequently, the creation of a conducive learning environment is critical to an organization to encourage its member to share knowledge passionately. The conducive learning environment or the learning organization building is expected to improve knowledge satisfaction, as it will support the knowledge supply to freely flow to fulfill the knowledge needs of people in organization.

There are three (3) major dimensions on the learning organization building that mostly influence knowledge satisfaction:

- The foundation of a learning organization building that consists of mutual trust and a culture of learning.
- Learning skills, which consists of a systemic problem-solving skills, skills to experiment with a new approach, the ability to learn from experience, learning from successful practices and the ability to transfer knowledge quickly and efficiently.
- The learning discipline, especially the discipline of personal mastery, mental models discipline, the discipline of systemic thinking, and discipline of team learning

1.2 Research paradigm

Based on the above literature review, researchers made a theoretical framework that could be illustrated in the following chart as a research paradigm:

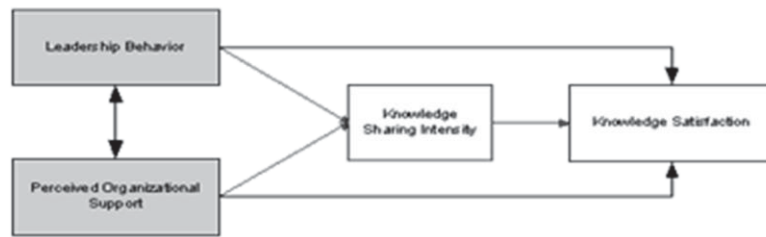


Figure 1: Research paradigm

1.3 Hypothesis

H.1.1. There is a positive and significant influence of leadership behaviour and perceived organizational support simultaneously on knowledge sharing intensity.

H.1.2. There is a positive and significant influence of leadership behaviour on knowledge sharing intensity.

H.1.3. There is a positive and significant influence of perceived organizational support on knowledge sharing intensity.

H.2. There is a positive influence of knowledge sharing intensity on knowledge satisfaction.

H.3.1. There is a positive and significant influence of leadership behaviour and perceived organizational support simultaneously on knowledge satisfaction.

H.3.2. There is a positive and significant influence of leadership behaviour on knowledge satisfaction.

H.3.3. There is a positive and significant influence of perceived organizational support on knowledge satisfaction.

1.4 Differences with previous research

Comparing to others studies, this study is the first in the following matters:

- Formulate the concept of *knowledge satisfaction*.
- Examining the concept of *leadership behaviour* from Indonesian Scholar, Ki Hajar Dewantara, which associated with *knowledge sharing* and *knowledge satisfaction*.
- Examining the four variables (*leadership behaviour*, *perceived organizational support*, *knowledge sharing intensity*, and *knowledge satisfaction*) in Telkom, PLN, and PGN.
- Examining the relationship among *leadership behaviour*, *perceived organizational support*, *knowledge sharing intensity*, and *knowledge satisfaction*.

2. Methods and research implementation

The nature of this study was descriptive and verificative. The descriptive study aims to gain an overview of the characteristics of studied variables. While the verificative study aims to confirm the relationship among variables through a hypothesis testing based on the data.

The unit analysis of this study was employee who felt and experienced all the variables studied in headquarters of PLN, PGN, and Telkom. Observations were cross section / one shoot, meaning that the information obtained was the result of research conducted in the period of April to July in 2013.

The head office is also called headquarter is also known as the place from which military operations are controlled (Longman, 2003). Headquarter is a strategic location in the apex and techno structure in Mintzberg's basic design of organization. Based on this understanding, researchers selected the headquarters as locations and objects of research.

The researchers used the method of Structural Equation Modelling (SEM) as a tool for analysis. Reasons for the selection of SEM are its ability to measure construct indirectly, i.e. through the indicators, and to analyse the indicator variables, latent variables and its measurement errors.

2.1 Operationalization of variables

The operationalization of variables is the determination of construct with various values to provide an overview of the phenomenon that can be measured. Construct as an abstraction of a phenomenon or reality for research purposes, should be operationalized in the form of measured variables with different values (Cooper and Schindler, 2007). Operationalization of research variables aims to facilitate the preparation of a list of questions (questionnaire).

2.2 Data source and data collection

Secondary data was collected from documents which relevant to the problem under study. While the primary data collection was done by spreading the closed questionnaire which contains a list of questions with alternative answers that have been provided based on Likert's scale 1 – 5. Sampling was done using random sampling techniques by inviting the entire population, so that all employees who work in the headquarters of PLN, PGN, and Telkom could participate to answer the questions online or offline.

The number of samples were determined by reference to the opinion of Hair et al. (2001). They stated that the determination of the number of samples for SEM is according to the following guidelines:

- Most research with SEM method considered eligible when using a sample of at least 100 for model with 5 (five) constructs or less with each construct more than 3 items measured variables with high commonality items (0.6 or higher).
- The number of samples of at least 150 for a model with seven (7) constructs or less, with moderate communality items (0.5).
- The number of samples of at least 300 for a model with seven (7) constructs or less with a low communality (0.45 or less).

The number of samples collected were 201 (Telkom), 240 (PLN), and 101 (PGN). And this study consists of four constructs, more than 3 indicators per construct, and communality value greater than 0.6, so the number of samples were qualified.

2.3 Testing of research instrument

- **Kruskal Wallis Test:** The results showed that the characteristics of population in Telkom, PLN, and PGN are different. Thus, the analysis of the results of research should be carried out for each company.
- **Validity Test:** The results showed that all coefficients of correlation between the scores of items and a total score were significant and valid for all variables on all companies studied.
- **Reliability Test:** The results with the technique of split-two (split-half) through the Spearman-Brown reliability coefficients, indicated that all variables for all companies studied, proven reliable.
- **Normality Test:** Based on skewness and kurtosis values, the data was not normally distributed for Telkom, PLN, and PGN. To estimate not normally distributed data using the maximum likelihood method, it is necessary to add the asymptotic covariance matrix. When the maximum likelihood estimation using asymptotic covariance matrix, then the maximum likelihood estimate is an estimate of Robust Maximum Likelihood (Eguchi & Kano, 2001).

2.4 Assessing the fitness of model

2.4.1 Structural equation modeling (SEM) analysis

Test of the fitness of model was done to determine whether the model obtained was appropriate in describing the relationship among variables, which were evaluated by the fitness of the measures of model (Goodness-of-Fit Measures). In order to determine the suitability of a model, researchers simply consider one of the items of absolute fit measures and one of the items incremental fit indices Hair (2010).

Table 1: The results of model conformance test

Goodness of Fit (GOF) Measures	Criteria (Hair, 2010)	Estimation			Model Evaluation
		Telkom	PLN	PGN	
Chi Square					
Chi Square	Expected small	77,88	64,90	54,88	See Normed Chi Square
Degrees Free (df)	Expected large	38	38	38	
P-Value	>0,05	0,00015	0,0042	0,037	
Normed Chi Square	<2: Very Good 2-5: Acceptable	2,049	1,707	1,444	FIT
Absolut Fit Measures					
RMSEA	<0,08	0,072	0,044	0,054	FIT
GFI (Goodness of Fit Index)	>0,90	0,93	0,95	0,91	FIT
Incremental Fit Indices					
NFI (Normed Fit Index)	>0,90	0,94	0,95	0,91	FIT
CFI (Comparative Fit Index)	≥0,90	0,97	0,98	0,97	FIT
IFI (Incremental Fit Index)	>0,90	0,97	0,98	0,97	FIT
RFI (Relative Fit Index)	>0,90	0,92	0,93	0,87	FIT
Parsimony Fit Indices					
AGFI (Adjusted GFI)	≥0,90	0,89	0,92	0,84	Marginal

Source: Data Processing, Lisrel, 2013

Based on the above results, it can be said that empirical models obtained are in accordance with the theoretical model. Measurement model describes the proportion of the variance of each manifest variables (indicators) for each latent variable. Through the measurement model, the value of construct reliability can be calculated, which indicates whether a set of manifest variables have a high degree of conformity in forming a latent variable. Recommended construct reliability value is 0.7, but the value of the construct reliability in the range of 0.6-0.7 is still acceptable and the limit value of variance extracted 0.5 is still acceptable (Hair et al., 2010). Based on test results, all values of the construct reliability and variance extracted were still within an acceptable limit.

2.5 Hypothesis testing

Hypothesis testing was done with SEM empirically through the use of Lisrel software version 8.5. A complete model of the flow among variables framework based on the hypothesis proposed in the study is shown in the following figure:

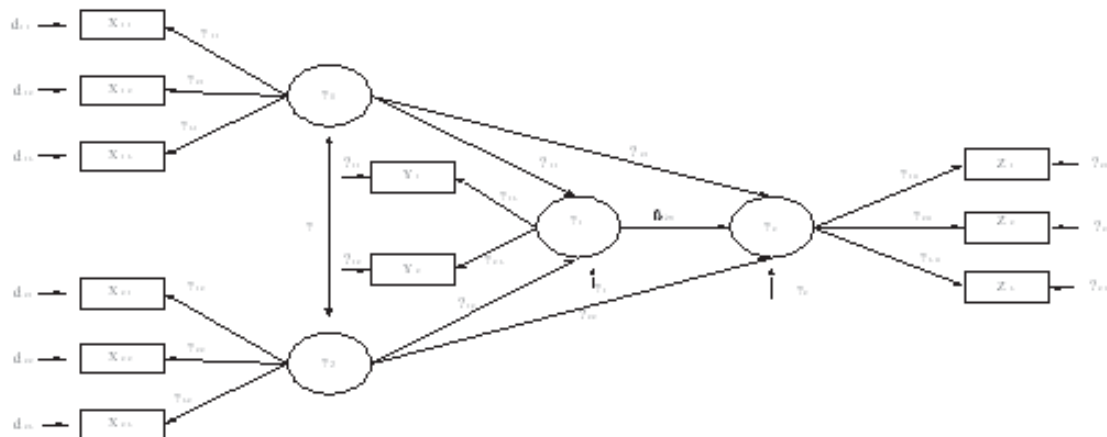


Figure 2: Structure analysis of overall research variables

Where:

- ξ_1 = leadership behavior (exogenous latent variable)
- ξ_2 = perceived organizational support (exogenous latent variable)
- η_1 = knowledge sharing intensity (intervening latent variables)
- η_2 = knowledge satisfaction (endogenous latent variables)
- ζ = error model is a structural interruption or errors in the equation
- γ = coefficient of influence of exogenous to endogenous latent variables (gamma)
- β = coefficient of influence of endogenous latent variables to other endogenous
- λ = coefficient measurements at manifest variables to the latent variables [*loading factor*]
- δ = error measurement of the manifest variables for the latent exogenous variables
- ϵ = error of measurement of the manifest variables for the latent endogenous variables

3. Findings and discussions

3.1 Respondents

The number of employees as population in this study were 1851 respondents. From that population, the number of respondents who answered the questionnaire completely and accurately were 542 people, with the following details:

Table 2: The number of respondents

SOE	Population (Headquarter)	Respondents
Telkom	605	201
PLN	852	240
PGN	394	101
Total	1851	542

3.2 Summary of findings

The summaries of hypothesis testing results are shown in Table 3 below:

Table 3: The summary of findings

Hypothesis	Telkom	PLN	PGN	Remarks
1.1. The influence of leadership behaviour and perceived organizational support on knowledge sharing intensity	24.76%	38.85%	23.33%	Positive and Significant
1.2. The influence of leadership behaviour on knowledge sharing intensity	20.78%	23.33%	21.47%	Positive and Significant

Hypothesis	Telkom	PLN	PGN	Remarks
1.3. The influence of <i>perceived organizational support</i> on <i>knowledge sharing intensity</i>	3.98%	15.52%	1.86%	Positive&Significant (PLN), insignificant (Telkom & PGN)
2. The influence of <i>knowledge sharing intensity</i> on <i>knowledge satisfaction</i>	1.96%	8.41%	34.81%	Positive and Significant (PLN and PGN), not significant (Telkom)
3.1. Direct influence of <i>leadership behaviour</i> and <i>perceived organizational support</i> on <i>knowledge satisfaction</i>	21.46%	18.18%	7.93%	Positive and Significant
3.2. The influence of <i>leadership behaviour</i> on <i>knowledge satisfaction</i>	15.21%	7.29%	7.29%	Positive and Significant
3.3. The influence of <i>perceived organizational support</i> on <i>knowledge satisfaction</i>	6.25%	10.89%	0.64%	Positive and Significant (Telkom & PLN), not significant (PGN)

3.3 Discussions

3.3.1 *The influence of leadership behavior and perceived organizational support on knowledge sharing intensity (hypothesis 1.1, 1.2, and 1.3)*

In all companies studied, *leadership behavior* and *perceived organizational support* simultaneously had a positive and significant influence on *knowledge sharing intensity*. The result indicated that the influence of *leadership behavior* was more significant than the influence of *perceived organizational support* on *knowledge sharing intensity*. This finding is consistent with Bontis' opinion (2001), who concluded that *leadership behavior* which provides an exemplary model, the main characteristic of *ing ngarso sung tulodo*, has an influence in increasing the *knowledge sharing intensity*. Bontis also stated that *leadership behaviour* in which a leader is amongst employees, also a key feature of *ing madyo mangun karso*, results in an increase in mutual trust, which in turn encourages employees to share knowledge.

Perceived organizational support, another exogenous latent variables, had a positive influence on *knowledge sharing intensity* in Telkom, PLN, and PGN. This result is consistent with the Smoyer finding (2009), which showed that *perceived organizational support* plays a positive role in influencing the willingness of employees to share knowledge. Even more interesting, in Telkom and PGN was found that *perceived organizational support* did not have a significant influence on *knowledge sharing intensity*. This result is in accordance with the fact that Telkom and PGN impressed rely heavily on awards to increase *knowledge sharing intensity*. Kohn (1993, in Anita Chennamaneni, 2008) gave 6 reasons why the economical organizational support failed to change the attitudes of employees. First, for most people, money is not the main motivator. Second, award is manipulative and has the influence of punishment on people. Third, award damages the relationship among employees. Fourth, award ignores the causes of problematic behavior. Fifth, award deters risk taking. Sixth, the award ruins someone's motivation.

3.3.2 *The influence of knowledge sharing intensity on knowledge satisfaction (hypothesis 2)*

Knowledge sharing intensity had a positive and significant influence on *knowledge satisfaction* in PLN and PGN. In line with this finding, Bontis et al. (2011, in Misuraca, 2013) found that *knowledge sharing* has a significant influence on *job satisfaction*. In contrast, *knowledge sharing intensity* in Telkom did not have a significant influence on *knowledge satisfaction*. This can be due to several factors. The first factor is the existence of a knowledge gap between the shared knowledge and the knowledge needs. The second factor, the implementation of knowledge-sharing policies have led to transactional attitude, in which the motivation of employees to share knowledge merely to fulfill obligations, as a consequent, the quality of shared knowledge is at stake.

The findings can be explained by the model as shown in Figure 3 below:

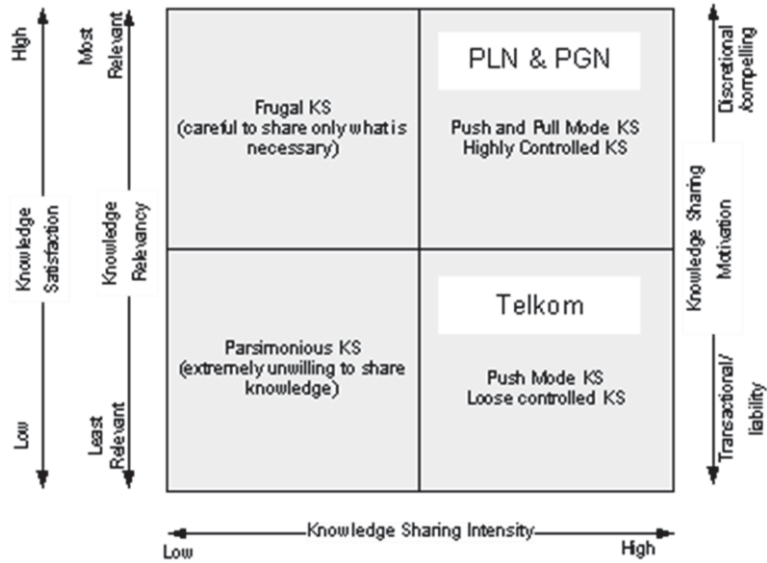


Figure 3: Relationship models among *knowledge sharing intensity*, knowledge relevancy and knowledge sharing motivation

The third factor as described by the model in Figure 4, related to the influence of *knowledge sharing intensity* on *knowledge satisfaction*, there was a difference in research’s result between PLN and PGN on the one hand, and Telkom on the other hand.

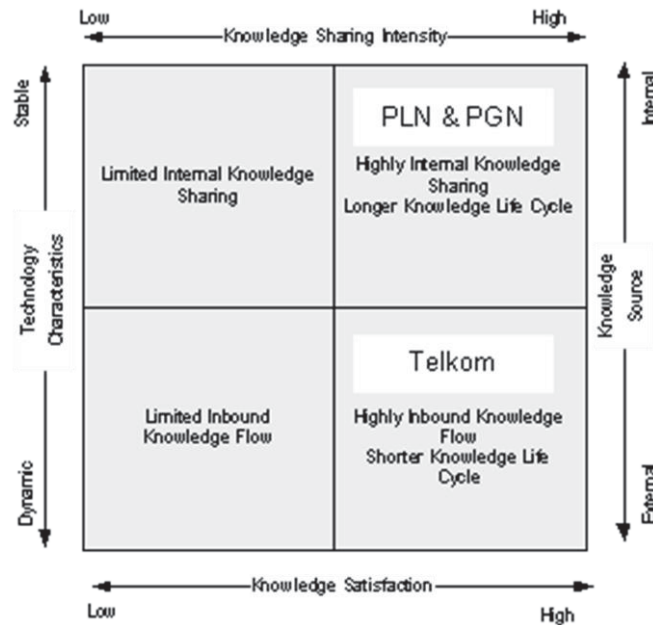


Figure 4: Relationship models among *knowledge satisfaction*, *knowledge sharing intensity*, technology characteristics and knowledge source

The difference is correlated to the changing dynamics of knowledge that represented by technological change. PLN and PGN are included in the category of stable technology companies, characterized by incremental technological changes in production and distribution of energy. PLN and PGN also have a relatively longer time to internalize and circulate new knowledge. Moreover, they rely on internal knowledge source for knowledge supply. In contrast, Telkom is included in the category of dynamic technology companies with shorter technology life cycle. Consequently, Telkom does not have a longer time to internalize and circulate new knowledge, thus knowledge needs of employees largely filled with knowledge from outside the company (external knowledge source).

This study found that *knowledge satisfaction* in Telkom was high. However, the high *knowledge satisfaction* was not attributable to the high *knowledge sharing intensity*. It can be seen from Figure 4 that the high *knowledge*

satisfaction is most likely due to satisfactory knowledge supply from external source. This condition is accordance to the fact that Telkom collaborates with various consultants, vendors, technology owners, and world-class universities (e.g. INSEAD) to meet its knowledge need.

3.3.3 *The direct influence of leadership behaviour and perceived organizational support on knowledge satisfaction (hypothesis 3.1, 3.2, and 3.3) simultaneously and partially*

Statistical analysis showed there was a positive and significant influence of *leadership behaviour* and *perceived organizational support* simultaneously on *knowledge satisfaction* in Telkom, PLN, and PGN. To understand the result of simultaneous influence, it is necessary to analyze the result of partial influence.

The finding that *leadership behaviour* had a positive and significant impact on *knowledge satisfaction*, is in line with the finding of Hu et al. (2010), who found a significant relationship between the two indicators of transformative leader (i.e.: intellectual stimulation and inspirational motivation) and job satisfaction. The intellectual stimulation can be equated with the indicator “foster the spirit so as employees continue to learn to find the essence of himself/herself and improve his/her competence” from *ing ngarso sung tulodo*; and the inspirational motivation can be aligned with “foster confidence in the company’s future success” from *ing ngarso sung tulodo*.

The influence of *perceived organizational support* on *knowledge satisfaction* in Telkom and PLN was positive and significant. This result is consistent with the finding of Miles (2010), which stated that there was a positive and significant relationship between a good career management (as one of the dimensions of *perceived organizational support*) and *job satisfaction*. Employee competency development as one of the dimensions of *perceived organizational support* also had a positive influence on *job satisfaction* (Choo and Bowley, 2007).

The insignificant influence of *perceived organizational support* on *knowledge satisfaction* in PGN was a unique condition. This finding may in line with a survey conducted by Telkom’s consultant in PGN in 2009, which concluded that the existing system (policies & procedures) was the element that need to be improved to support KM implementation in PGN (Telkom, 2009). This result indicates that PGN has not been able to improve the quality of its systems and procedures to support its KM implementation.

4. Conclusions and suggestions

4.1 Conclusions

- There are indications that policy that forces employees to share knowledge has led to the transactional knowledge sharing activities. The transactional knowledge sharing activities are most likely will deteriorate the quality of shared knowledge, which in turn, decrease *knowledge satisfaction*.
- The *knowledge sharing intensity* is not always has a significant influence on *knowledge satisfaction*.
- The influence of *perceived organizational support* on *knowledge sharing intensity* in Telkom and PGN was not significant. This is expected because both companies are overly relying on a reward policy in an effort to increase *knowledge sharing intensity*.
- *Leadership behaviour* had the higher influence than *perceived organizational support* on both *knowledge sharing intensity* and *knowledge satisfaction*.

4.2 Suggestions

- It is necessary to do research on the fulfilment of the knowledge need of *knowledge worker* in a variety of research paradigms.
- Research on dimensions of *leadership behaviour* from Ki Hajar Dewantara is necessary to find the most influential dimension in increasing *knowledge sharing intensity*.

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