



Addis Ababa University

አዲስ አበባ ዩኒቨርሲቲ

SEEK WISDOM, ELEVATE YOUR INTELLECT AND SERVE HUMANITY !



ADDIS ABABA UNIVERSITY

**CENTER FOR REGIONAL AND LOCAL DEVELOPMENT
STUDIES**

**DEPARTMENT OF REGIONAL AND LOCAL DEVELOPMENT
STUDIES**

**Determinants of Knowledge Management Performance : The Case of
Industry Parks**

By:

Jibril Zerihun

**In Partial Fulfillment of Masters of Arts in Regional and Local Development
Studies**

Advisor: Kumela Gudeta (PhD)

January ,2021

Addis Ababa, Ethiopia

DDIS ABABA UNIVERSITY

Center for Regional and Local Development Studies

Determinants of Knowledge Management Performance in the Manufacturing Sector:
The Case of Industry Parks

By: Jibril Zerihun

APPROVED BY EXAMINERS:

ADVISOR

INTERNAL EXAMINER

EXTERNAL EXAMINER

January, 2021

Declaration

I, the under signed, declare that this thesis titled “Determinants of knowledge management performance in the Manufacturing sector: the case of industry parks”, is my own work and has not been presented in any academic institute, and that all sources of materials used for this thesis have been duly acknowledged

Declared by

Name: Jibril Zerihun

Signature: _____ Date: _____

Place: Addis Ababa University

Center for Regional and Local Development Studies

Department of Regional and Local Development Studies

Acknowledgements

First I would like to say Alhamdulillah and express my deepest gratitude to Allah in helping me accomplish the research project despite social challenges happening in my like and the tensions of Covid 19. Next I want to express my appreciation to my advisor Kumela Gudeta (PhD) and my colleague Yigerem Terfe for their priceless advice and support throughout the research project.

I also want to provide respect and special thanks to all the respondents for providing the information via questionnaire and interview voluntarily and facilitators in data collection and distribution in each sample area for their cooperation and friendliness.

Finally, I respect and thank my friends and my families for their encouragement to accomplish the thesis on time.

Jibril Zerihun

January 2021, Addis Ababa, Ethiopia

ABSTRACT

The study aims to identify the determinant affecting knowledge management performance in industrial parks. Both probability and non-probability sampling techniques were used to select Industry Parks, managers and employees in it. The data collection instruments for this study were both questionnaires and interview. Data collection instruments were developed based on the literature review and previously used standard questionnaires for both structured and unstructured type questions. A total number of 70 items having likert scale and 9 general type choice questions and 5 interview questions were used. Respondents were selected based on simple random sampling and purposive sampling techniques and the sample size determination formula was used to determine its numbers. Data was gathered through structured questionnaires from the 279 employees. In order to get the finding both quantitative and qualitative analysis were used. The findings of the descriptive and inferential analysis revealed that information technology, leadership support, organizational culture and knowledge process were the main determinants of knowledge management performance. Knowledge management performance is at the initiate stage of maturity and there is a wide gap in implementing knowledge management activities. Thus, this study recommends that the factories and the government should work on creating awareness on the importance of knowledge management and the major findings in order to improve the knowledge management contribution for the parks effectiveness and efficiency.

Key words: knowledge management, knowledge management Performance, industry parks

Contents

Acknowledgements.....	4
ABSTRACT.....	5
List of Tables	8
List of Figures	9
ABBREVIATIONS	10
CHAPTER ONE	11
INTRODUCTION	11
1.1 Background of the Study.....	11
1.2 Statement of the Problem.....	13
1.3 Research Question	16
1.4 Objective of the Study.....	16
1.4.1General Objective	16
1.4.2Specific Objectives	16
1.5 Significance of the Study	17
1.6 The Scope and Delimitation of the Study	17
1.7 Organization of the study	17
CHAPTER TWO	18
REVIEW OF RELATED LITERATURES	18
2.1 The Concept of Knowledge Management.....	18
2.2 Empirical Evidence Review	22
2.2.1 Determinant Factors affecting knowledge management	22
2.3 Knowledge Management Levels and Metrics.....	26
2.4 Conceptual Framework of the Study	30
CHAPTER THREE	31
RESEARCH METHODOLOGY	31
3.1 Description of the Study Area	31
3.2 Research Design	32
3.1.1Data type and Sources.....	33
3.3 Study Population.....	33
3.4 Sampling Technique and Sampling Procedure	33
3.5 Sample Size Determination	34

3.6 Data Collection Tools	36
3.7 Data Analysis Methods.....	36
3.7.1 Quantitative Data Analysis Method.....	36
3.7.2 Qualitative Data Analysis Method.....	37
3.8 Data Reliability and Validity	37
3.1.2 Econometric Model Selection.....	38
3.9 Variable Definition, Measurement and Hypothesis.....	39
CHAPTER FOUR.....	43
RESULTS AND DISCUSSION	43
4.6 Factors Affecting Knowledge Management in Industrial Parks	52
4.6.1.1 Regression Results	52
Result of Regression Analysis of Dependent and Independent Variables	55
Hypothesis tests using regression Analysis	56
CHAPTER FIVE	60
CONCLUSIONS AND RECOMMENDATION.....	60
5.1 Conclusion	60
5.2 RECOMMENDATIONS	61
5.3 Direction for Future Study	62
<i>References</i>	63
Annex 1 questionnaire	67
Appendix 1 Table of Critical Values of Pearson's r.....	79

List of Tables

Table 1 Summary of Empirical Findings	24
Table 3 Sample Selection.....	35
Table 4 Reliability Test Results of Chronbach's Alpha	37
Table 2 Summary description of independent variables	41
Table 5 One sample T -test	47
Table 6 One Way ANNOVA Test	49
Table 7 One Way ANNOVA Test Result.....	49
Table 8 Independent Sample T-Test	50
Table 9 ANNOVA Test	51
Table 13 Collinearity Test	54
Table 14 ANNOVA Table	55
Table 15 Model Summary	55
Table 16 Regression Result	58
Table 17 Summary of Hypothesis Tests	59

List of Figures

Figure 1 Knowledge Management Maturity Level	27
Figure 2 Conceptual Framework of the Study	30
Figure 3 Map of the Study Area	32
Figure 4 Sampling Procedures	34
Figure 5 Response Rate	43
Figure 6 Respondents Profile	45
Figure 7 P-P Normal Plot of Regression Standard Residual	
Figure 8 scatter plot	53

ABBREVIATIONS

- ADLI = Agriculture Development Leads Industrialization
- APQC = American Productivity and Quality Center
- GTP = Growth and Transformation Plan
- IDS = Industrial Development Strategy
- IPDC = Ethiopian Industrial Parks Development Corporation
- IT = Information Technology
- KM = Knowledge Management
- KMP = Knowledge Management Process
- KP = Knowledge Process
- KT = Knowledge Transfer
- ROI = Return on Investment
- ROI = Return on Investment
- SECI = Socialization, Externalization, Combination and Internalization
- UNIDO = United Nations Industrial Development Organization
- USAID = United States Agency for International Development

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

According to World development report (1998), knowledge is a critical factor for sustainable economic growth and improvements in human life. Davenport & Prusak (1998) also defined knowledge as the collection of information which is the combination of experience, context, interpretation and reflection and also ready to apply to decisions and actions. Haradhan (2017) also described that knowledge is considered as the most important factor of production, next to labor, land, and capital.

It was also stated in International Alliance of Research Universities (2016), that knowledge is a prerequisite for societal progress. There is increasing awareness that the challenges facing humankind today differ from those of the past, and that new types of knowledge are needed to support the continued development of a global society. Hence, it is clear that Knowledge Management (KM) should not only be seen as a tool for organizational effectiveness, but also as a developmental strategy for nations and societies.

Knowledge helps to build institutions, human capital and research, infrastructure, and business sophistication which in turn facilitate economic development, (Sajjad ,Maryam &Naser,2018).This implies knowledge management is an input for development.

According to sustainable development goals (SDG 8 and 9), inclusive and sustainable economic growth can drive progress and, labor productivity will increase accordingly. Manufacturing is an important driver of economic development and employment however, manufacturing value added per capita is only US\$ 100 in the least developed countries compared to over US\$ 4,500 in Europe and North America. According to the industry parks corporation report, (2019), industry parks are sustained in a negative profit.

Technological development is the basis to achieve environmental objectives by increasing efficiency and effectiveness of resources and energy. Without the application of technology supported by innovation, industrialization objective will not be achieved, and without industrialization, development will not happen. This indicates that needs for more investments in high technology using products that dominate

the manufacturing productions to increase efficiency and increase connections between people. The above description shows that knowledge is the prominent input to build resilient infrastructure to promote inclusive and sustainable industrialization, develop and foster innovation.

According to Wiig (1993), Knowledge is a major factor for achieving competitiveness virtually in every industry and knowledge management is the process of getting, improving, sharing, and effectively using organizational knowledge.

Knowledge management and sharing is one of the base blocks for the success of organizations and it is being used as a survival strategy. Since the 2000, human resources professionals have come to realize the importance of knowledge management with its processes became the center of human resource field (Blankenship & Ruona, (2009); Gourlay,2001). Knowledge sharing is the transference of knowledge among individuals, groups, teams, departments, and organizations (Crossan & White, 1999), Ipe ,2003).

According to Tang (2019), Knowledge management is an asset for innovation in the manufacturing sector. Knowledge management was considered as a crucial comparative advantage in organizations fostering innovation and productivity. These imply that increasing productivity of firms is important to survive in the current competitive environment. Forming manufacturing clusters is a helpful approach to improve learning. In Ethiopia there exists clusters of manufacturing sectors in the name of industry parks and there are various investors from different countries with different knowledge and industries. Therefore, it is important to test that whether the clustered manufacturing sectors are improving the knowledge management and learning or not.

“An industrial park can be defined as a tract of land developed and subdivided into plots according to a comprehensive plan with or without built-up (advance) factories, sometimes with common facilities and sometimes without them, for the use of a group of industrialist” (UNIDO, 1997, p.10).

The Federal Government of Ethiopia has taken industrial park development as a strategy to attract investment in the manufacturing sector and accelerate the growth and development of the manufacturing sector (Gebreeyesus,2013). Industry parks are the potential sources of foreign currency and economic growth. Hence, in order to facilitate the process, the government engages in fulfilling the facilities needed to easily attract foreign investors who come with their foreign currency, technology and knowledge. Resultantly, the host country expected to manage and transfer the knowledge and

technology properly to its citizens. These imply that in order to gain success, the knowledge should be properly managed and transferred. Hence, organizations should be back up by Clear knowledge and expertise helps in acquiring strategic posture (Richard ,2009).

According to UNIDO, (2018) Ethiopia has planned to attract foreign investment to serve as a concrete base for skill and knowledge transfer to strengthen local investors since local capacity cannot develop without the gain of skill and knowledge that is necessary to compute. Hence, the government allowed 20 percent of the industry parks to local investors so that they adapt industrial culture and gain necessary expertise from foreign investors. Manufacturing sector is one of the drivers of economic growth in developing countries. Knowledge and knowledge management helps in manufacturing excellence. It can bring improvement in production and make organizations flexible in terms of their operations and Knowledge acquisition, knowledge creation, knowledge storage and knowledge sharing that contribute to the growth of the organizations (Mageswari,2015, Skyrme,2001). These indicate that solving problems in relation to knowledge management and transfer is very important to achieve such goals.

Manufacturing sectors encountered multifaceted challenges particularly in developing countries to towards achieving manufacturing excellence, their needs to strive for customer satisfaction, employee satisfaction, process efficiency, quality, manufacturing performance. As Azhashemi (2001) stated in this study, embracing knowledge is critical to achieve manufacturing competitiveness and excellence. Liu, Chen and Tsai (2004), indicates that manufacturing organizations need to shift from traditional business management strategies to modern and innovative strategies in order to sustain success and continuous growth. Knowledge management is the potential tool of achievement (Rigby and Bilodeu,2007). However, in Ethiopia knowledge management and transfer has not gained its momentum yet. Therefore, knowing the determinants of knowledge management performance is critical issue so the study aims to identify the determinants of knowledge management performance.

1.2 Statement of the Problem

All the economies of the past were based on natural resources as the means of production and the employment of hard capital in the form of buildings, gold-based currencies and machines. Agriculture and industrial economies are economies of scarcity, based on finite resources. However, the new knowledge economy is based on an infinite resource – ideas. Employees still have physical inputs into

production processes, but the input that gives the greatest competitive advantage is knowledge (Martie,2006). According to Kumar (2017), knowledge and Knowledge management become both local and global necessary issue in many organizations due to advanced economic competition. Managing knowledge in an organization is as significant as other assets are managed. In this competitive era, knowledge management is a major factor that is necessary for an organization to achieve success.

The effectiveness of knowledge management is dependent on the ability of organizations to recognize the value of new knowledge, assimilate and apply it to commercial ends. Trust, communication, leadership, motivation and rewards have a major influence on knowledge management (Doherty and Cormican,2017). However, according to Edvardsson and Durst (2013), in developing countries organizations were facing uncertainty and ignorance towards what kind of value KM approaches and processes generate for them correctly. Developing countries are uncertain about what activities and processes they should implement to gain positive outcomes and benefits from KM. This shows that since Ethiopia is one of the developing countries, it is possible to conclude that there is uncertainties and ignorance on the values of KM.

According to Payne and Sheehan (2004), Dubois and Wilkerson (2008), and Kayani and Zia (2012), better problem solving, quickly finding all the information needed, linking people to people by setting up collaborative methods, improving accountability, providing better ideas, improving staff engagement and rapidly transmitting communication internally and externally, and creating more effective teamwork are some advantages of knowledge management. Hence, these all factors show that it is justifiable to study knowledge management determinants.

Human capital development and infrastructure development are among the identified challenges of the industry sector which are also important variables of knowledge management performance. But in practice the growth and transformation plan (GTP II) did not properly address how to improve the management and technical skills of local entrepreneur and enhance their competitiveness, technology transfer, research and dissemination, poor coordination and communication. Which indicates emphasis is given only on hard aspects of the organization.

According to Tesfahun (2018), illustration, even GTP II solve the critical shortage of industrial inputs, shortage of foreign currency but under developed trade logistics, poor management and technical skills of local entrepreneurs were the bottlenecks. Enhancing competitiveness, technology transfer, research

and dissemination, coordination and communication platforms are poor. In addition to this creating backward and forward linkages as well as large enterprises with micro and SMEs, improving industrial relationship (employer-employees), were not properly addressed. This shows that knowledge management has gained low emphasis.

According to the information gained from 2019 Industry Parks Corporation report, there are 12 Industry parks (Hawassa Industry Park, Bahirdar industry Park, Bole Lemi Industry Park, Addis Industry Park, Adama Industry Park, Jima Industry Park, Mekele Industry Park, ICT Industry Park, Kilinto Industry Park, Debere Berhan Industry Park, Combolcha Industry Park and Dire Dawa Industry Parks) in the country. The status of industry parks in terms of job creation was 55,033 employees, the gross profit of industry parks was negative 17%, in the third quarter of 2019. The loss of industry parks was birr 19,857,284 and debt to asset ratio of industry parks was 12%. In terms of export industry parks gained birr 252.4 million till the reporting period/2019 and the total turnover of the industry parks were 9,114 employees Industry Parks Corporation (2019). These show that industry parks are still not profitable and there is high employee turnover.

There are a number of factors affecting knowledge management performance among these trust, cultural difference subsidiary and parent company effectiveness may affect the successful implementation of knowledge management (Bhagat, Kedia, Harveston, & Triandis, 2002) and Simonin, 1999).

According to Ernst and Young (1998), in the 21st century, brain power is the differentiating and deciding success factor in manufacturing sector compared to the traditional hard assets. But, managing knowledge is usually a challenge for many organizations, the growing importance of knowledge management performance in organization, facilitation of tacit knowledge sharing among individuals had been a topic of interest for organizations (Taylor, 2007).

Ehsan (2016), listed environmental, organizational and individual factors are the major factors affecting knowledge management application. Due to gradual increasing of evolving technologies, information technology, change acceptance, and top management support becomes challenging factors of knowledge management implementation (Emmanuel, 2013), Zayed and Yusoff, (2012). But, which factors are determinant for knowledge management in industrial parks particularly in Ethiopia are not identified yet.

Social norms, infrastructure structure, culture (trust, communication between employees, reward and learning & development, Organizational Socialization) and top management were the factors affecting knowledge management performance (Zelege and Workineh ,2018). They indicate that, there is little research done in knowledge management and transfer in Ethiopia. The status of knowledge management in Ethiopia is very low and knowledge in developing country like Ethiopia is in the human mind which is not properly shared. Even if the findings of Mohammed, (2015) agree with the above findings in learning and development he disagrees with findings on trust, reward and communication. He argues that trust, reward and communication have insignificant relationship with knowledge management performance. In addition to these Kumar, (2015), considered, culture, people, information technology and structure are enablers of knowledge management.

The gap in the above literatures shows that it is very important to know which factors are affecting knowledge management and transfer to gain positive spillovers and the reason As shown in the above studies, the status and determinants related with knowledge management performance in industry parks were not studied yet in Ethiopia so it is important to study the determinants of knowledge management performance.

1.3 Research Question

- What is the current level of knowledge management performances in the industry parks?
- What are the major determinant of knowledge management performance in the selected industrial parks?

1.4 Objective of the Study

1.4.1 General Objective

The general objective of the research is to identify the determinants of knowledge management performance in the manufacturing sector.

1.4.2 Specific Objectives

- To investigate the status of knowledge management performance in the industrial parks.

- To identify the major determinants of knowledge management performance in the industrial parks

1.5 Significance of the Study

This study identifies the major determinants of knowledge management performance in industrial parks and it helps to understand knowledge management practices and process and fill knowledge gaps in relation to the determinant factors of knowledge management performance of Industrial parks. The study helps policy makers and investors as an input by providing solutions to the bottlenecks of knowledge management in industrial parks. Furthermore, the study serves as a springboard for further investigation on knowledge management to the academic community.

1.6 The Scope and Delimitation of the Study

The research is delimited conceptually on determinants of knowledge management performance within the selected industry parks and methodologically the study has been limited to mixed research design. This study lacks previous studies on knowledge management performance determinants. It used only primary data sources (questionnaire, interview and non-participant observation) due to Covid 19 pandemic, geographically the study is limited to highly operating Industry parks (Bole Lemi industry park, Addis industry park and Adama industry park) which are currently operating and comparatively near Addis Ababa.

1.7 Organization of the study

The study incorporates five major chapters. The first chapter includes the research problem and research questions including the background. The second chapter review of related literature; while the third chapter contains research methodology. Whereas the fourth chapter contains data presentation and analysis, and finally the last chapter presents a brief conclusion of findings, and recommendations and future direction of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURES

This chapter presents relevant definitions and concept, related literature, including conceptual issues regarding knowledge management and various relevant models. It also attempts to explore the results of relevant theoretical and empirical studies which were conducted in different parts of the world which are pertinent and directly linked with the topic of the research.

Definition of Terms

Knowledge Management is the practices used by factories to search, create, and distribute knowledge for reprocess, awareness, and learning across the factory.

Knowledge Transfer is the one aspect of Knowledge Management which is the passing of knowledge from the source to the user.

Theoretical Literature on Knowledge Management

The theoretical literature review of knowledge management, the concept of knowledge management and the models of knowledge management were explored.

2.1 The Concept of Knowledge Management

According to Kumar, (2017) KM is relatively new and highlights how the management of knowledge is just as important as managing resources. It is a new area of management in the era of the knowledge economy. KM is the management of information and knowledge, and their usage in organizational business processes within the organization. It indicates strategies and processes designed to identify, capture, structure, value, leverage, and share an organization's intellectual assets to enhance its performance and competitiveness. KM is about applying the collective knowledge of the entire workforce to achieve specific organizational goals. It involves people, technology and processes.

The concept of KM appeared in the early 1990s within various fields, such as business administration, public policy, healthcare, information systems, and library and information sciences (Bennet and Bennet,2008). In the 21st century knowledge and KM become the most professional element in many

fields of knowledge such as, education, cognitive science, health, sociology, management science, information science, computer science, information and technology, economics, philosophy, psychology, knowledge engineering, artificial intelligence and all branches of business (Martin ,2008, Adekanmbi and Green ,2015). The concept of KM emerged in the world of business in the last two decades of the 20th century. The aim of KM was to improve business performance, competitiveness and innovativeness in the era of globalization (Wiig,1999, Podgorski ,2010).

Interest in knowledge management (KM) research was increased in recent years, resulting in voluminous output of literature on the subject, such as books, databases and journal articles (Moyo,2015). KM is a critical success factor in current organizations which received considerable attention from researchers, scholars and practitioners. But there are constricted ideas about the content of KM as, firstly, some scholars describe the concept as a mechanical process that involves a sender and a receiver; secondly, others view it from a technological perspective, creating the impression that KM can be achieved through the use of technology; and thirdly, some scholars state that KM is inherently human and as such regard people as a critical success factor in the process. These different observations have confused the notion of KM and made it difficult to pinpoint and relate it to other managerial concepts in organizations. The inter-disciplinary nature of KM has exacerbated the situation in that different disciplines bring in their own views and experiences of how it occurs.

Some of the knowledge is very easy to transfer like codified knowledge such as best practice, charted business plan, rules, regulations and policies and procedures. Knowledge can be captured and distributed to many members of the organizations through multiple mechanisms. Several studies investigating knowledge transfer has been carried out on the importance of interpersonal interaction as the mechanism of knowledge sharing and transfer (Roos,1995).

Evily and Reagans (2003), have shown that the ability of knowledge transfer among individuals is critical for the effective organizational process and transfer of best practices. They also state that the main determinants of knowledge transfer are: strong interpersonal connection and social cohesion. The ability to transfer knowledge represents a distinct source of competitive advantages. Informal interpersonal network plays a significant role in knowledge transfer process.

2.1.1 Knowledge Management Models

There are more than six models of knowledge management. Among these, six of them are explained below, these are; - organizational epistemology model developed by Von Krogh and Roos (1995), the Nonakah and Takuchi model, the Choo sense making Km model, Karl Wing Km model, the systems knowledge management framework model and the four pillars models.

2.1.1.1 Organizational Epistemology Model

Organizational epistemology model is the first model developed by Von Krogh and Roos (1995). The model differentiates between individual knowledge and social knowledge. According to the model knowledge is said to be embodied if everything known to someone is known to somebody. The model acknowledges that knowledge is found both in the minds of the people and within their relationship. The authors emphasized that knowledge can be generated, transferred and recreated in the organizations through knowledge conversion and developed three models of knowledge conversion. The knowledge conversion models are socialization, externalization, combination and internalization.

Socialization, Externalization Combination and Internalization (SECI) is a process of knowledge creation through conversions between tacit and explicit knowledge. It consists of four processes (socialization, externalization, combination and internalization).

Socialization implies sharing tacit knowledge, both internally and externally, which it needs employees' willingness to exchange tacit knowledge among members to create common mental models and abilities, and occurs through the medium of shared experience, and through joint activities such as observations, imitation and practice rather than written or verbal instructions.

Externalization implies converting tacit knowledge into the explicit and emphasizes on the importance of group commitment for its realization. It is the process of articulating tacit knowledge and transforming it into models, concepts, analogies, stories, and metaphors that can be communicated by language. Combination which is the third stage of the SECI model is supported by some typically Japanese practices, such as lack of interdepartmental rivalry, polychromic task orientation, consultative decision-making, purposeful overlap of functional responsibilities, organizational redundancy and more secure context for free and open access to organizational information due to high personal commitment and relatively permanent occupation. It is the process of combining or reconfiguring bodies of existing

explicit knowledge in order to generate new explicit knowledge. Knowledge combination is strongly supported not only by computer-based technologies, as in externalization, but also by networks. Databases, classification methodologies, web-based tools, and the Internet are focal tools. Internalization which is the last stage of SECI, that, involves converting explicit knowledge into the tacit through direct experience. It is the process of adding to explicit knowledge (principles, procedures, methodologies) and new tacit knowledge (in the form of sensations, memories, images) through experimenting in various ways, such as through real life experience, or simulation through the use of software. The individual acquiring the explicit knowledge embodied in action and practice can re-experience what others go through, in the model, the basis of knowledge creation in organizations is a continuous interaction (transfer) among individuals, and continuous conversion from tacit into explicit knowledge (and vice versa) by individuals, supported by the group. However, the SECI process alone is not enough for knowledge creation and conversion. It requires a shared space for emerging relationships. These relationships enable the conversion of knowledge within the SECI model, thus providing a platform for individual and collective knowledge is important.

2.1.1.2 The Sense Making Model

Sense making model is a knowledge management model developed by Choo in 1998 which, focuses on sense making, knowledge creation and decision making skills. In this model the organizations adapt and continue to prosper in a dynamic environment and create, organize and process information in order to generate new knowledge through organizational learning.

In the model, the organizations must choose the options among those that are plausible and presented and use it based on the organizations strategy.

2.1.1.3 Karl Wiig KM model

The model developed in 1993 by Karl Wiig. According to Wiig KM has four essential dimensions, these are; completeness, correctness, congruency and purpose. In order for knowledge to be useful and valuable it should be organized and synchronized.

2.1.1.4 The Four Pillars Model

This model is developed by Stankosky's, which the model assumes there are four pillars or elements namely organizations, leadership, learning and technology. According to the model those four key elements are critical for knowledge management.

2.1.1.5 The Systems Knowledge Management Framework model

A model developed in 1966 consists of three strategic building blocks: assets, businesses, and orderliness that represent both a static and dynamic view of an organization as well as the hard and soft part of it. These elements are permeated by four knowledge management processes that are identified as knowledge creation, storage, transfer, and application. These processes are people-based and also technology-based, and mix both knowledge strategies represented by exploitation and/or exploration of knowledge.

2.2 Empirical Evidence Review

The empirical literature section contains different research findings on knowledge management determinants, measurements and conceptual framework. The factors affecting knowledge management indicated by different researchers are summarized in the table 1 below.

2.2.1 Determinant of knowledge management

According to different scholars such as Nesibu,Haile Abera and Gemechu (2020), knowledge management performance were affected by different determinants among these the followings are considered under this study. Some researches such as Khaemba (2013), Ehsan (2016) indicated that factors affecting knowledge management were the following and the measurement of factors indicated below.

Infrastructure and knowledge management process have a positive direct effect on knowledge management performance according to Halil, Selim and Ekrem (2007), and information technology is one part of infrastructure and it is possible to conclude that information technology has positive direct impact on knowledge management performance.

And organizational culture, knowledge management process, human resource and information technology has a positive relationship with knowledge management performance, whereas there was a negative relationship between leadership and knowledge management performance as (Nesibu,Haile,Abera and Gemechu ,2020).

Information technology, organizational culture, human resource, organizational structure, training and retaining are the determinants of knowledge management performance in organizations according to Hossein, Behnam, Sohrab and, Roughayeh (2012). Which indicates that organizational culture is critical for knowledge management performance since trust and learning are the elements in organizational culture followed by human resource and information technology. Another study conducted by Kenneth, Mariam and Yusuf (2014), stated that organizational culture, organizational structure, information technology and human resource capacity had a positive and direct effect on knowledge management practice.

According to Yohannes ,Bonsen and Temsesgn(2016), organizational leadership, organizational culture ,organizational structure and technology are the determinants of knowledge management performance in the public sector. Ikhsan and Omar (2004) indicate people, organizational culture, staff turnover, technology, human resources and political directives as determinants of knowledge management.

Organizational culture, human resource, information technology and knowledge management process were identified as determinants affecting knowledge management practice in the organization. Nesibu , Haile , Abera and Gemechu (2020).

Zelege, Wondmeneh and Workineh (2018) indicate the determinants affecting knowledge management information technology, organizational structure, organizational culture (trust, communication between employees, reward and learning and development, Organizational Socialization) and top management support were factors affecting knowledge management. In addition, the authors indicate that knowledge management in Ethiopia is at a very low level without indicating how they measure the level of knowledge management. Ehsan (2016) summarized environmental, organizational and individual determinants are the major determinants of knowledge management application. Khaemba (2013), Zayed, Khalifa, and Yusoff (2012), information technology, change acceptance and top management support were determinants of knowledge management implementation. The literature shows that, there was little known on which factor affects knowledge management performance in industrial parks. For

the purpose of this study leadership, technology, organizational structure, knowledge process, knowledge management process and organizational culture were used and the conceptual framework developed based on these lists as indicated below in figure 2.

Table 1 Summary of Empirical Findings

No	Researcher	Research titles	Key findings
1	Yohannes, Bosen and Temsesgn (2016)	Assessment of practices and challenges of knowledge management in selected government organizations a case of Addis Ababa and Oromia	The study indicated that organizational leadership, organizational culture, organizational structure and technology are the key determinants of knowledge management practice.
2	Ikhsan and Sharifuddin (2004)	Knowledge management in public organizations	The result shows that People, organizational culture, staff turnover, technology, human resources and political directives are determinants of knowledge management application.
3	Nesibu, Haile ,Abera and Gemechu (2020)	Determinant determinants of knowledge management practice: the case of Ministry of Health	Organizational culture, human resource, information technology and knowledge management process were identified as factors affecting knowledge management practice in the organization
4	Zelege, Wondmeneh, and Workineh (2018)	Factors and barriers affecting knowledge management system on the organizational performance	The finding indicates that factors such as information technology, organizational structure, organizational culture (trust,

in Mesfin Industrial communication between Engineering of Ethiopia employees, reward, learning and development, and organizational socialization), and top management support are the major factors affecting knowledge management application.

5	Ehsan (2016)	Investigating the factors affecting knowledge management application in new ventures	Summarized environmental, organizational and individual factors are the major factors affecting knowledge management application.
6	Khaemba (2013)	Factors affecting knowledge management implementation in telecommunication industry: a case study of Safaricom limited	Information technology, change acceptance and top management support were factors affecting knowledge management implementation
7	Khalifa and Jamaluddin (2012)	A conceptual framework of knowledge management implementation: triangulation methods for a construction industry	The finding shows that organizational, technological, and individual variables are factors affecting knowledge management.

Source: own summary form literatures, 2020

Even if the factors affecting knowledge management performance were studied in different countries with different organizations, In the empirical evidence summery part shown in Table 1 above the status of knowledge management in the industry parks as well as the manufacturing sectors were not studied

and which factor determines knowledge management performance in the industry parks of Ethiopia and also to what extent factors affect knowledge management performance were not studied yet.

2.3 Knowledge Management Levels and Metrics

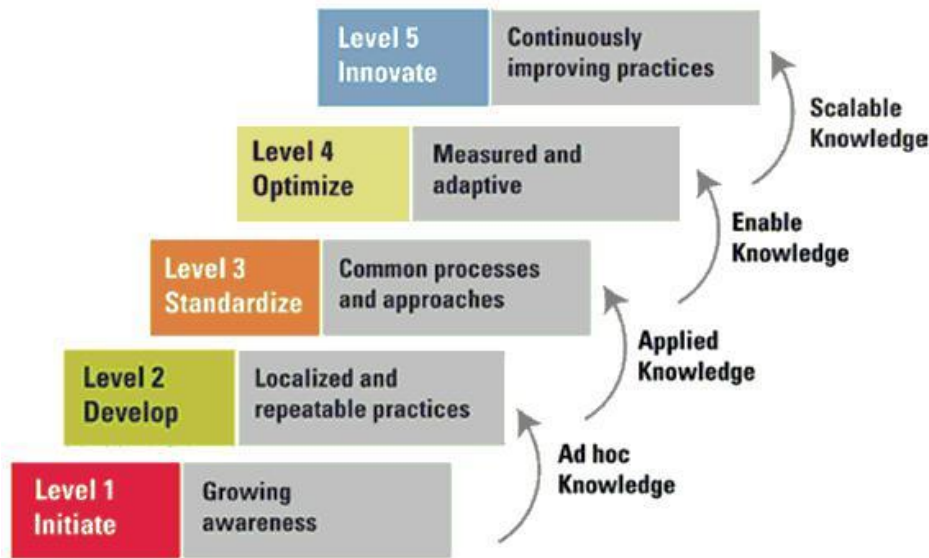
Knowledge management is essentially about getting the right knowledge to the right person at the right time Frost(2010).According to Armistead (1999), the KM process embraces the creation processes, transfer, and knowledge embedding and the study use the knowledge management metrics adopted from the study of Metrics for knowledge management process by Goldoni and Oliveira (2006), even if there are disagreements in measuring knowledge management and there is no agreed measure of knowledge management.

According to Wong, Tan, Lee (2014), knowledge management performance used by researchers to measure its performance can be categorized in to three parts: knowledge resources, KM processes, and the factors that affect KM. Often, these are the main themes that researchers tend to measure by generating various metrics. For the purpose of this research the knowledge management factors were measured. According to Lee (2005) knowledge management performance can be measured using knowledge management performance index which contains the knowledge circulation process of knowledge creation, accumulation, sharing, utilization, and internalization.

Knowledge management is difficult to measure. Even if it is difficult to measure knowledge management Kimiz (2005), there are three popular approaches as the metrics of knowledge management. These are benchmarking, the balanced scorecard method, and the house of quality. However, in this study the knowledge management performance level was measured by converting the indicators in to questions.

There are more than six ‘knowledge management maturity models in order to measure the maturity of knowledge management in organizations. These are Infosys model, Knowledge Process Quality Model, Forrester Group Km Maturity Model, Wenger Community of Practice Maturity Model, Fujitsu Organizational Maturity model, Paulk Organizational Maturity models and the APQC’s knowledge management maturity model. These models show the levels of knowledge management in organizations.

Figure 1 Knowledge Management Maturity Level



Adopted from (APQC,2010)

Initiate; this is the most basic level of maturity at which most organizations begin their knowledge management journeys. At this level, the organization lacks consistent processes or practices for successfully identifying, capturing, sharing, transferring, and applying its core knowledge. The key characteristic of level 1 organization is random and informal knowledge sharing and transfer which, in turn, yields no impact to the business (APQC ,2010).

Develop: The primary focus during this second level is to establish the first iteration of a KM strategy. The strategy for KM should link tightly to the enterprise’s business strategies and objectives and should identify business opportunities to apply knowledge sharing and transfer approaches. The opportunities and value of those opportunities should be assessed and clearly documented in a business case. The business case should provide the calculation of an ROI that includes investments and valuation of assumed benefits that can be measured by undertaking KM projects focused on the work of the business. (Ibid)

Governance and sponsorship are critical success factors for ensuring successful movement through Level 2 activities. Senior-level support is important for establishing executive accountability for performance of the organization’s knowledge management activities and for sponsorship of the KM strategy and program to improve the organization’s processes(Ibid).

Standardize: This level primary focus on managing the KM strategy, processes, and approaches identified and defined in Level 2. During this third level, the KM team often evolves into a KM Center of Excellence with oversight responsibilities for the KM approaches and processes. Oversight includes identifying opportunities to apply the select KM approaches and processes, securing funding and resources for the pilots, marketing and communicating the strategy, implementing a change management strategy, and refining the KM approaches and processes into standard, and replicable methodologies(Ibid).

Using standard (and replicable) approaches and processes allows the organization to gain economies of scale. Standardization can be achieved by integrating best practices from the KM approaches and processes already in use and enhancing the results with external best practices to fill in any gaps(Ibid).

In addition, embedding the standard KM approaches and processes into the daily workflow allows the organization to develop proof of concept. Implementation of standard approaches and processes allows the organization to learn from its experiences by establishing common measures (at the process or approach level), capturing/sharing lessons learned, and developing competencies related to the approaches and processes. Developing competencies and capturing/sharing lessons learned enables the organization to adapt or customize the standard processes and approaches to “fit” business needs while maintaining the integrity of each approach and process. In addition, standardizing and implementing these KM approaches and processes will build the foundation for a knowledge-sharing culture(Ibid).

Optimize: at this level the foundations for KM established and standardized. This is expanding KM initiatives throughout the organization by leveraging the standardized KM approaches and processes (aligned with the KM strategy). The organization’s KM approaches and processes should also work together to create a powerful organizational capability at this level. The primary objective at this level is to develop and market an expansion strategy leveraging the standardized KM processes and approaches. Tangentially, the organization will also need to manage the growth resulting from that expansion(Ibid).

Innovate: in this level, leaders are beginning to count on KM capabilities to support the business strategy and business model. However, while the organization leverages standard KM approaches and processes as part of its expansion strategy in Level 4, it may not be capable of achieving desired business outcomes through the KM processes and approaches alone. The primary objective at this fifth level of maturity is to improve core business processes by optimizing standard KM approaches and

processes and embedding them, end-to-end, within those business processes in order to achieve desired business outcomes and breakthrough innovation.

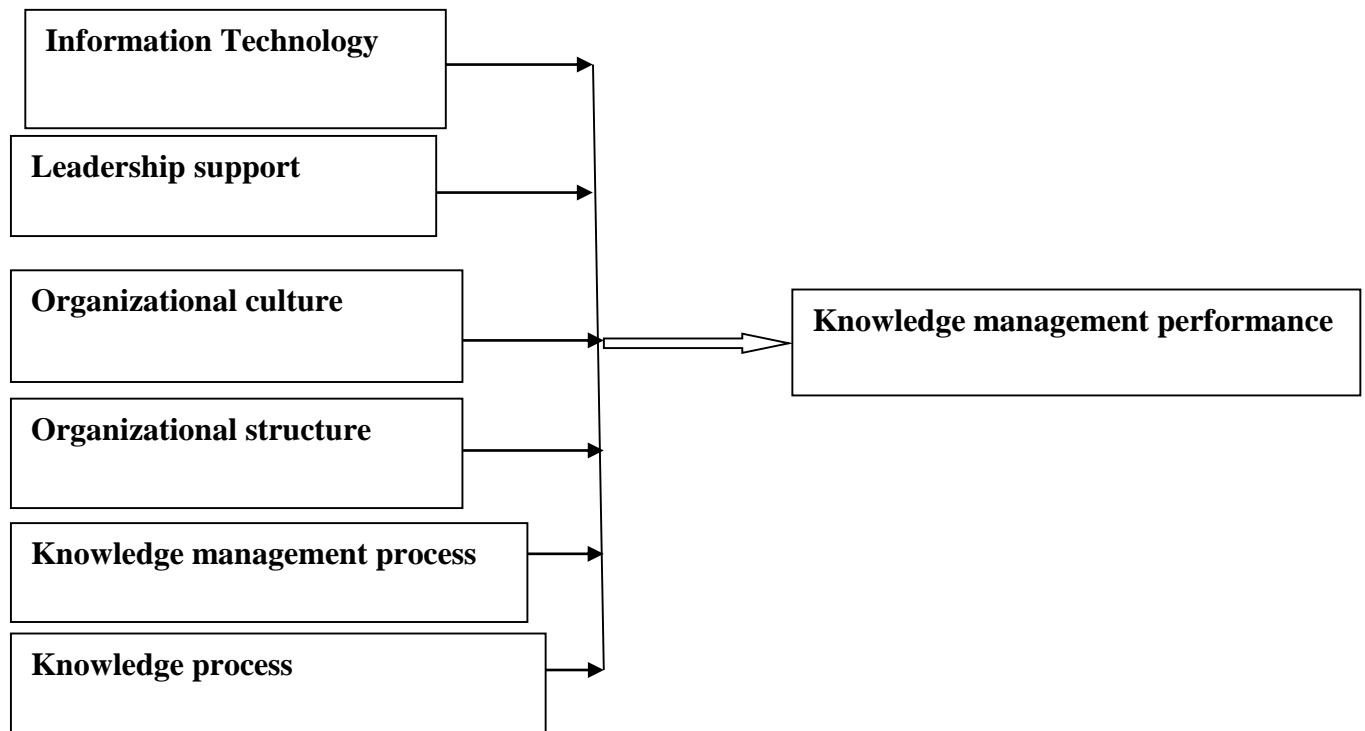
In order to optimize the approaches and processes, leadership needs to deploy proactive continuous improvement activities to close the gaps between current KM capabilities and desired business outcomes. Continuous improvement should be institutionalized so that it occurs at the individual, departmental/functional, and organizational levels. At the same time, it should also re-align performance assessments with the KM strategy. (Ibid)

2.4 Conceptual Framework of the Study

The conceptual framework shown below indicates the interaction between the dependent and independent variables and the relationship between each independent variable. The independent variables found at the left side together affects the dependent variable knowledge management performance which found in the left side of the conceptual framework.

The dependent variables shown in the conceptual framework below expected to have positive effect on the dependent variable knowledge management performance.

Figure 2 Conceptual Framework of the Study



CHAPTER THREE

RESEARCH METHODOLOGY

This chapter consists of description of the study area, research design population, sampling frame, sampling technique, sampling procedure, data sources, data collection tools, data analysis technique and description of variables

3.1 Description of the Study Area

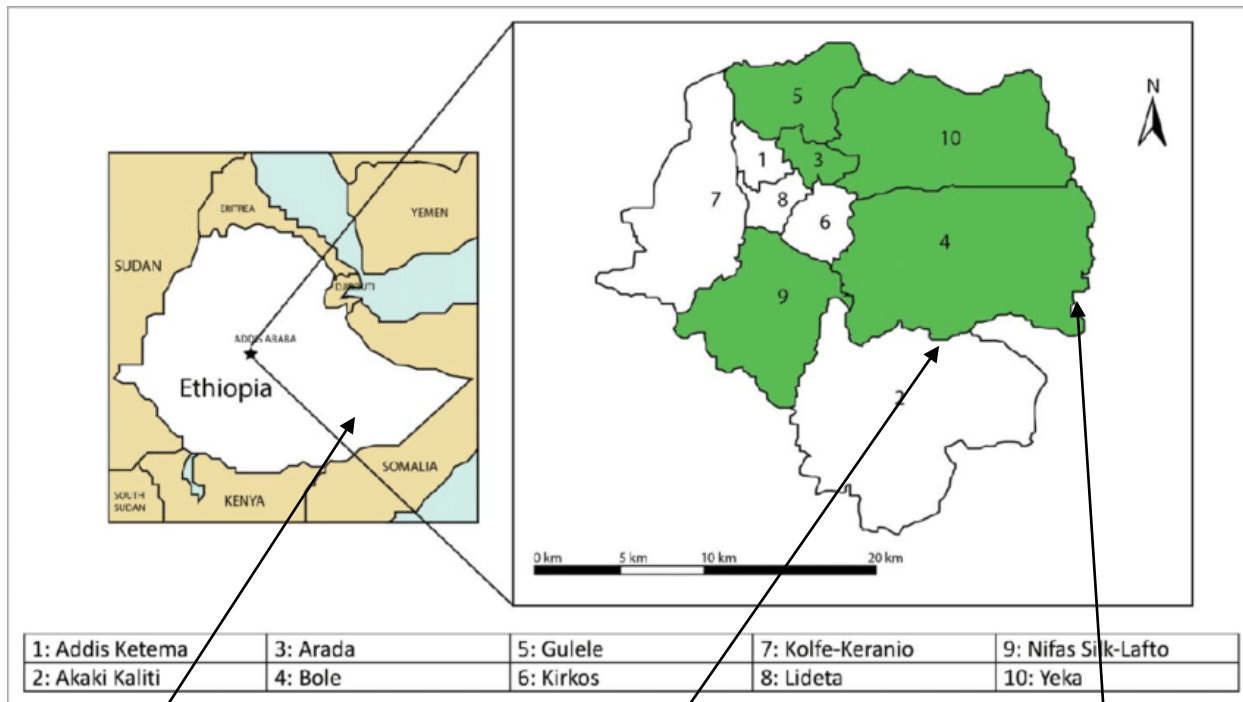
One of the study areas was Bole Lemi Industrial Park which is found in Ethiopia, Addis Ababa, near to Bole International Airport with latitude and longitude coordinates are: 8.971450, 38.856808. It is a huge export region and a modern Industrial Park. Numerous foreign investors are based there undertaking export of Apparel & Textiles and Leather & leather products and other kinds of commercial activities. The region generally comprises two large portions, with the first one being 155 hectares and the other one being 185 hectares. The facility is operating under administration and control of the Ethiopian Industrial Parks Development Corporation (IPDC).

According to IPDC the Addis Industrial Village/Addis industry park was the first ever industrial park established in Ethiopia, in the 1980's, and it is currently undergoing heavy modernization, including a new management system. Geared toward domestic exporters, it comprises of 10 government-built factory buildings (11,000 m²) rented to investors, and nine privately-built factory buildings developed on leased land. Covering 88 hectares of land, it is operating at full capacity.

Adama, also known as Nazareth or Nazret, is a large city in central Ethiopia. The population of the town is 324,000. It is located on the latitude of 8. 55° or 8° 33' north, Longitude of 39.2667° or 39° 16' east its elevation is 1627 meters (5338 feet).

The Park is located 100 KM from the Capital Addis Ababa. Adama Industry Park is Textile & Apparel and Machinery and equipment with total area of land designated for the park is more than 2000 hectare. The park is found along the railway line which connects Addis Ababa to Djibouti Port and the express high way.

Figure 3 Map of the Study Area



**Adama industry park
Park**

Addis industry park

Bole Lemi Industry

3.2 Research Design

In this study, the research design was causal/explanatory research design. According to (Kothari, 2004) explanatory research design helps to describe systematically a situation, or provides information about, believes of a population, which describes attitudes towards an issue.

In this study mixed research methods were used since these method helps to triangulate and strengthen the quality of the research. This research was used cross-sectional type of data to successfully meet the research objectives by analyzing the immediate situation. The method is predominantly quantitative with some qualitative information in order to triangulate and support the quantitative data. The research instrument for the study is designed to extract responses relating to determinants of knowledge management performance in the selected industry parks. The data secured from different sources

organized and categorized to answer questions and meet general and specific objectives of the study through quantitative analysis supplemented by qualitative analysis.

3.1.1 Data type and Sources

In order to achieve the research objective both primary and secondary data were used. Primary data were gathered from employees and management members of manufacturing firms in the industrial parks, and to support the finding, observation and secondary sources (plans and reports) of the industry parks were employed.

3.3 Study Population

Regarding population, the industrial parks of Bole Lemi Industry Park, Addis Industry Park, Adama Industry Park, were the population of the study.

The sampling frame of this study was the list of all employees and managers having diploma and above in Bole Lemi Industry Park, Adama Industry Park and Addis Industry Park. The total number of the sampling frame was 3, 500; from which the sample was selected using lottery method.

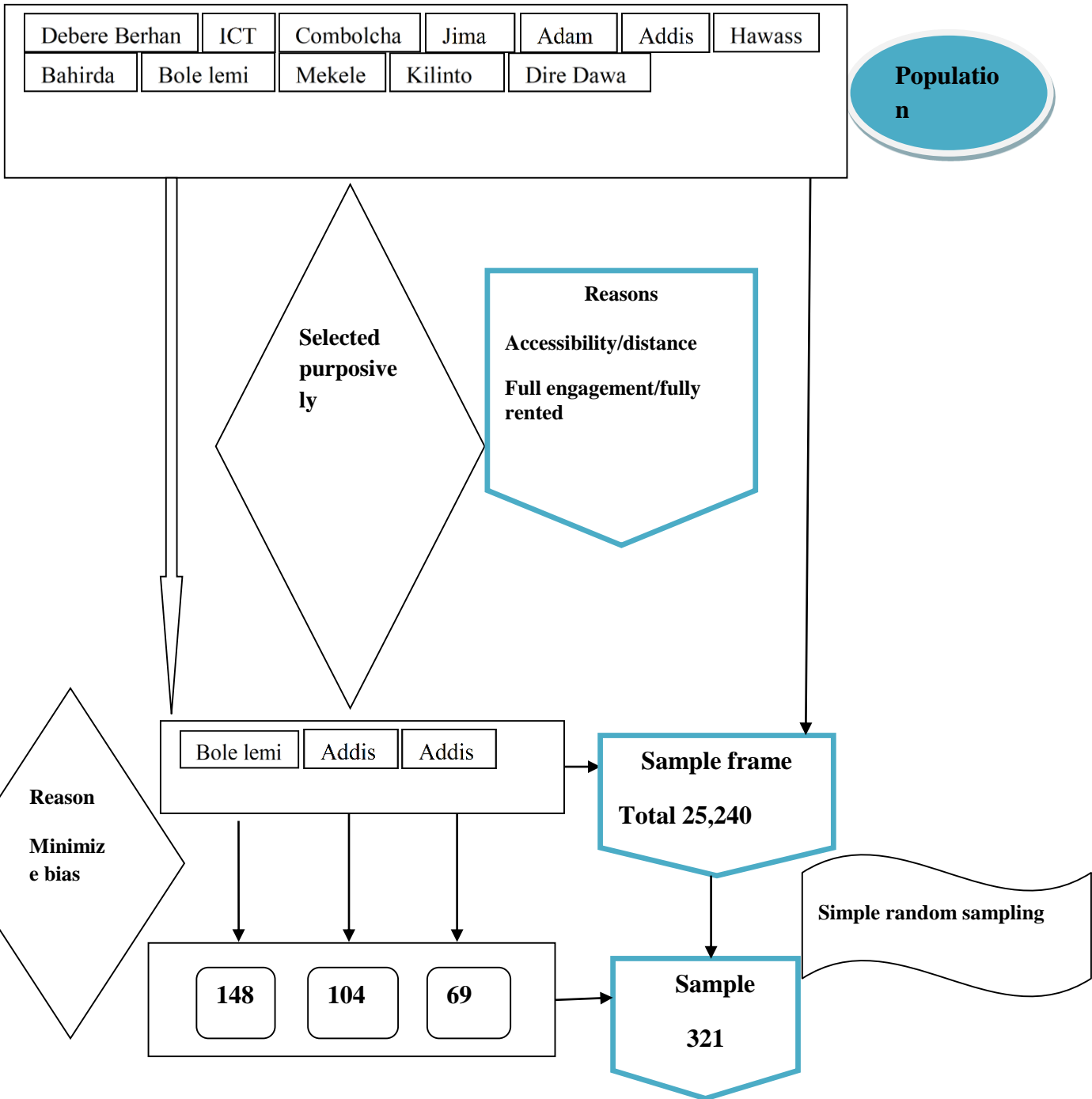
3.4 Sampling Technique and Sampling Procedure

To conduct the study both probability and non-probability sampling design were used. Among the probability sampling, simple random sampling techniques were used. Simple random sampling is appropriate for the population from which a sample drawn consisted as a homogeneous in terms of production, (Kothari, 2004). In this study simple random sampling techniques was used to select respondents from the employees and managers to fill the questionnaire hence probability sampling minimizes bias. From non-probability sampling purposive sampling technique was used to select industry parks and key informants for interview since non probability sampling is advantageous to select potential respondents.

3.5 Sample Size Determination

The sample was drawn first from the population, the sample frame was selected purposefully then from the sample frame the sample was selected randomly and purposively.

Figure 4 Sampling Procedures



The total number of employees having diploma and above in the industry parks are 3,500 based on industry parks corporation 2019 report. Among the 12 industry parks Bole Lemmi, Adama and Addis industry parks was purposively selected because they are fully engaged and their near distance/accessibility as well as the shades are all rented but other industry parks are in the process of building and all the shades are not rented.

The sample size was calculated using 95% confidence level: The sample size determination formula for the study was derived from Kothari, (2004). Kothari stated that in case of finite population the sample size determination formula is as follows;

$$n = \frac{z^2 \cdot p \cdot q \cdot N}{\epsilon^2(N-1) + z^2 \cdot p \cdot q} \text{Where,}$$

N = size of population, n = size of sample = acceptable error =0.05, p = sample proportion of successes, q = 1 – p; and z = the value of the standard variate at a given confidence level

The size of the total population is 1,950, where p is 0.5 because at this p value n will be the maximum and the sample will yield at least the desired precision. The z value at 95% of confidence level is 1.96.

$$n = \frac{1.96^2 \cdot 0.5 \cdot 0.5 \cdot 1950}{0.05^2(1950-1) + 1.96^2 \cdot 0.5 \cdot 0.5} = 321 \text{ i.e } n = 321$$

Thus, the sample size of this study is 321 managers and employees of the industry parks having diploma and above. This total number of sample was proportionally distributed among the selected industry parks. (13 managers out of the total sample i.e. 6 from Bole Lemi, 4 from Adama and 3 from Addis industry parks were purposively selected based on their voluntarism, position proximity to information)

Table 2 Sample Selection

Industry Parks	Sampling Frame	Proportional Percentage	Sample Number
Bole Lemi Industry Park	902	46.25	148
Adama Industry Park	630	32.3	104
Addis Industry Park	418	21.43	69

Source: own data computation, 2020

3.6 Data Collection Tools

The primary data, which was the main source of information for the study, were collected from samples drawn from targeted management members and employees, including foreigners in the Industrial parks using a questionnaire and interview method. Questionnaires of both open ended and close-ended type were used. In order to collect data non participant observation was also used. Most of the questionnaires were Likert scale because Malhotra (2006), considering that Likert scale is easy for the researcher to construct and administer this scale, and it is easy for the respondent to understand

Most of the data gathering instruments used was standard data-gathering instrument. This is important to get valid data. After sample respondents are identified, the instrument was administered according to the sample areas.

3.7 Data Analysis Methods

The collected primary and secondary data have been analyzed quantitatively and qualitatively. The raw data were classified and tabulated after ensuring that they are carefully collected. Data consistency and completeness were checked throughout the data collection, data entry and analysis. The quantitative data were coded and entered into the computer using SPSS 21 software. In the analysis of km, the levels were analyzed using five scale likert methods (very poor, poor, adequate, good and very good) and the factors affecting knowledge management analyzed using five scale likert method (doing very poorly/doing none at all, doing poorly, doing adequately, doing good and doing very good), frequency distribution and percentages, correlation and regression was calculated for selected variables to check associations at 5% level of significance. The unit of analysis was individuals.

3.7.1 Quantitative Data Analysis Method

The quantitative data collected from management members and employees were tabulated, classified, categorized and organized for analysis. The quantitative analysis helps to meet two objectives of the study which relates with the factors affecting knowledge management performance and measuring the impact of each independent variable on the dependent variable evaluation as well as the relationship between the dependent and the independent variables. In this study multiple linear regressions model has been used through SPSS version 21 application to analyze the collected primary data.

3.7.2 Qualitative Data Analysis Method

The qualitative data gathered from interviews and observations were used to answer the research questions related with knowledge management performance status in the industry parks. Qualitative data analysis was done as integral part of the quantitative analysis to justify and triangulate the result of the quantitative analysis. The qualitative data analyzed using content and comparative analysis techniques.

3.8 Data Reliability and Validity

Data Reliability

There are three methods that can be used simultaneously to evaluate the internal consistency reliability of a scale: inter item correlations, Cronbach's alpha, and corrected item-total correlations. In this study Cronbach's Alpha was used to test the reliability. The minimum value of Cronbach's alpha (α) for all items under the same variable must be with a minimum value of 0.70 in order to ensure internal consistency for all items found under the same variable Bernstei and Nunnal (1994). But Michels , Lance and Butts (2006), indicated that in order to get be reliable research should rely upon scales that yield scores with a minimum reliability of 0.80. This study uses the second one.

According to table 4 reliability test below, items that significantly improve the construct Chronbach's alpha values when item deleted column were identified and remove in order to improve the data reliability. After items removal the values of Chronbach's Alpha (α) for each variable/construct range from 0.810 to 0.897 that indicated good internal consistency of items.

Table 3 Reliability Test Results of Chronbach's Alpha

No.	Name of the construct	Items initially included	Chrombach's Alpha(α) at the beginning	Problematic items removed	Chrombach's Alpha(α) after deletion
1.	Knowledge management performance		0.897	No	0.897
2.	Organizational structure	6	0.832	No	0.832
3.	Knowledge management		0.806	1	0.850

	process			
4.	Information Technology	0.857	No	0.857
5.	Leadership support	0.810	No	0.810
6.	Organizational culture	0.874	No	0.874
7.	Knowledge process	0.874	No	0.874

Source: own computation, 2020

Data Validity

In this study, content and face validity were done to check whether the measure is reflecting the meaning of the construct validity and this was done through the review of literature and adapting instruments which was used from previous studies. Validity of organizational structure, contents was also checked by former researches with a validity coefficient of 0.888 Hamdan and, Mohammad (2013).

In addition, to the above based on Ferketich (1991), description construct validity can be measured or checked using corrected item – total correlation and inter item correlation. The author recommends that corrected item-total correlations should range greater than .30 for a good scale and the inter item correlations for the items found under the same construct are expected to have good positive correlation indicating that they measuring the same concept. In this study by taking 25 sample respondents validity was checked, based on the test result, there was no item that had corrected item-total correlation value less than 0.3. The result attached on appendix 3.

3.1.2 Econometric Model Selection

Multiple linear analysis regression is the most common form of general linear modeling, which is appropriate statistical technique. When examining the relationship between a single continuous dependent variable and several independent variables (Roony,2014). This study used Multiple Linear Regression analysis since, in this study, there is one continuous dependent variable and more than one independent variable.

Multiple linear regressions model was used to analyze the data since the model helps to estimates the coefficients of the linear equation, involving more than one independent variable to predict the value of the dependent variable. Multiple linear regressions are used to determine a mathematical relationship

among a number of random variables. In other terms, multiple linear regressions examine how multiple independent variables are related to one dependent variable. Based on this, since the independent variables are six and the dependent variable is one, the data type is continuous, as a precondition, the study used multiple linear regressions with the formula of Knowledge management performance(KMP)= $\beta_0 + \beta_1$ leadership(L)+ β_2 information technology(IT)+ β_3 organizational structure(OS)+ β_4 knowledge management process(KMP) + β_5 knowledge process(KP)+ ϵ which can also be shortened as;

$$KMP = \beta_0 + \beta_1 L + \beta_2 IT + \beta_3 OS + \beta_4 KMP + \beta_5 KP + \epsilon$$

β_0 =y-intercept (constant term)

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ and β_6 = slope coefficients for each explanatory variable

ϵ =the model's error term (also known as the residuals)

3.9 Variable Definition, Measurement and Hypothesis

The dependent variable '**Knowledge management performance**': The level of knowledge management performance was measured as the combined score of indicators of knowledge management performance. The knowledge management, performance had 34 questions with five scales having alternatives of doing none at all, doing poorly, doing adequately, doing good and doing very good taken which is taken and contextualized from Goldoni and Oliveira (2006) and Yohannes, Bonsen and Temsesgn (2016). Then finally knowledge management performance was measured by the combined score of each question. Lubek (2004), measuring likert scale items using continuous models as problematic but emphasized that to get improved results it is possible to compute average of lickert items.

According to Zeleke, Wondmeneh, and Workineh (2018), knowledge management performance in Ethiopia were low knowledge is in the minds of the people. The knowledge management in industrial parks hypothesized as low.

The independent variable '**information technology**'; - Appropriate technology usage to disseminate appropriate knowledge. The systems, tools, and technologies that fit the factors requirements - properly designed and implemented. This variable was measured by 6 questions having five scales having alternatives of doing none at all, doing poorly, doing adequately, doing good and doing very good (Goldoni and Oliveira, 2006, Yohannes, Bonsen and Temsesgn ,2016) and the measurement

contextualized and improved. Finally, the combined score of the questions serve as a measure for the variable. The independent variable information technology has expected to have a positive effect on knowledge management performance.

The independent variable **‘Leadership support’**: It is the role that an organization may or may not need to implement, including, knowledge managers, knowledge brokers and so on. The variable measured by 6 questions having five scales having alternatives of doing none at all, doing poorly, doing adequately, doing good and doing very good (Goldoni and Oliveira ,2006, Yohannes, Bonsen and Temsesgn ,2016) and the measurement contextualized and improved. The variable measured by the combined score of the questions. The independent variable leadership has expected to have a positive effect on knowledge management performance.

The independent variable **‘Organizational culture’**: organizational culture is the way people interact, the context within which knowledge is created, the resistance they will have towards certain changes, and ultimately the way they share (or the way they do not share) knowledge. The variable measured using 6 questions having five scales having alternatives of doing none at all, doing poorly, doing adequately, doing good and doing very good (Goldoni and Oliveira ,2006, Yohannes, Bonsen and Temsesgn ,2016) and the measurement contextualized and improved. The variable finally measured by combining the values of the total questions. The independent variable organizational culture has expected to have a positive effect on knowledge management performance.

The independent variable **‘Organizational structure’**; it is the condition in which the functions, roles and responsibilities of management and employees and also the coordination, information exchange system and interaction. The variable has 6 questions with five scales having alternatives of doing none at all, doing poorly, doing adequately, doing good and doing very good (Goldoni and Oliveira, 2006, Yohannes, Bonsen and Temsesgn ,2016) and the measurement contextualized and improved. The variable measured by combining the result of each question. The independent variable organizational structure has expected to have a positive effect on knowledge management performance.

The independent variable **‘Knowledge management process’**; it is activities of creation, acquisition, refinement, storage, transfer, sharing, and reuse of knowledge. The variable measured using 6 questions having five scales having alternatives of doing none at all, doing poorly, doing adequately, doing good, and doing very good (Goldoni and Oliveira ,2006, Yohannes, Bonsen and Temsesgn,2016) and the

measurement contextualized and improved. The dependent variable knowledge management process has expected to have a positive effect on knowledge management performance.

The independent variable ‘**Knowledge process**’; which is the way of making knowledge, or forms of action or things in order to know which includes applying analyzing, conceptualizing and experiencing. The variable measured 6 questions having five scales having alternatives of doing none at all, doing poorly, doing adequately, doing good and doing very good (Goldoni and Oliveira ,2006, Yohannes , Bonsen and Temsesgn ,2016) and the measurement contextualized and improved. The results or values of each question combined to measure the variable. The independent variable knowledge process has expected to have a positive effect on knowledge management performance.

Table 4 Summary description of independent variables

No	Variable	Description	Type	Values	Expected impact on KMP
1.	Knowledge management performance	The performance of industries based on the indicators of knowledge management	Continuous	Number	
2.	Organizational structure	The reporting relationships in the factories in relation with knowledge	Continuous	Number	Positive
3.	Knowledge management process	The process of knowledge management identification up to reusing form	Continuous	Number	Positive
4.	Information Technology	Information technology infrastructure access and usage by employees and managers	Continuous	Number	Positive
5.	Leadership support	The activities of the management in order facilitate knowledge management	Continuous	Number	Positive

6.	Organizational culture	The relationship, trust, communication and related issues in the factory	Continuous	Number	Positive
7.	Knowledge process	The way and the activities to get knowledge	Continuous	Number	Positive

Source: own computation, 2020

Remark 1= dependent 2-7 independent

CHAPTER FOUR

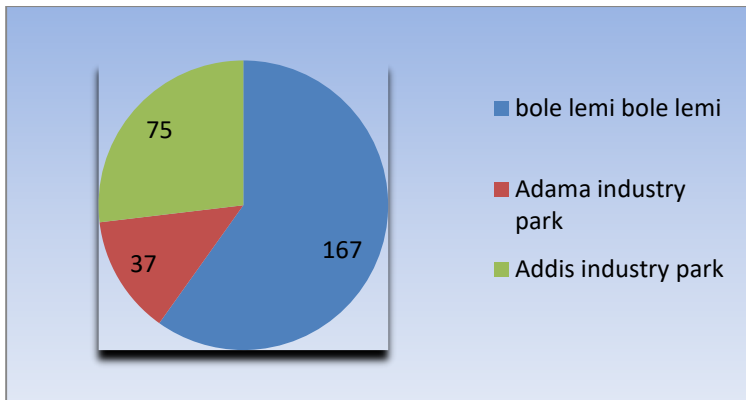
RESULTS AND DISCUSSION

This chapter presents the results and analysis of data collected via questionnaire and interview. The first part of the chapter presents and discusses results related with response rate, preliminary data analysis, demographic data of the respondents and descriptive statistics. The second part of results and discussion presented the tests, correlation and regression analysis.

4.1 Response Rate

For the purpose of the study, 321 questionnaires were distributed to the sampled individual respondents selected from the three industrial parks, Bole Lemi, Adama and Addis industry parks. From the total questionnaires, 279 questionnaires were returned and the response rate was 86.9 % and the remaining 13.1 % of the questionnaires were not collected as a result of the respondent's absence at the appointed time. In this study, the sample respondents included in the analyses are those respondents from three industrial parks. From the responses received 167 (60 %) were from the Bole Lemi Industry park, 37 (13%) were from the Adama Industrial Park, and 75 (27 %) were from the Addis Industry Park. Mugenda (2003), stated that a response rate 70% and above is considered great response rate.

Figure 5 Response Rate



Source: own computation, 2020

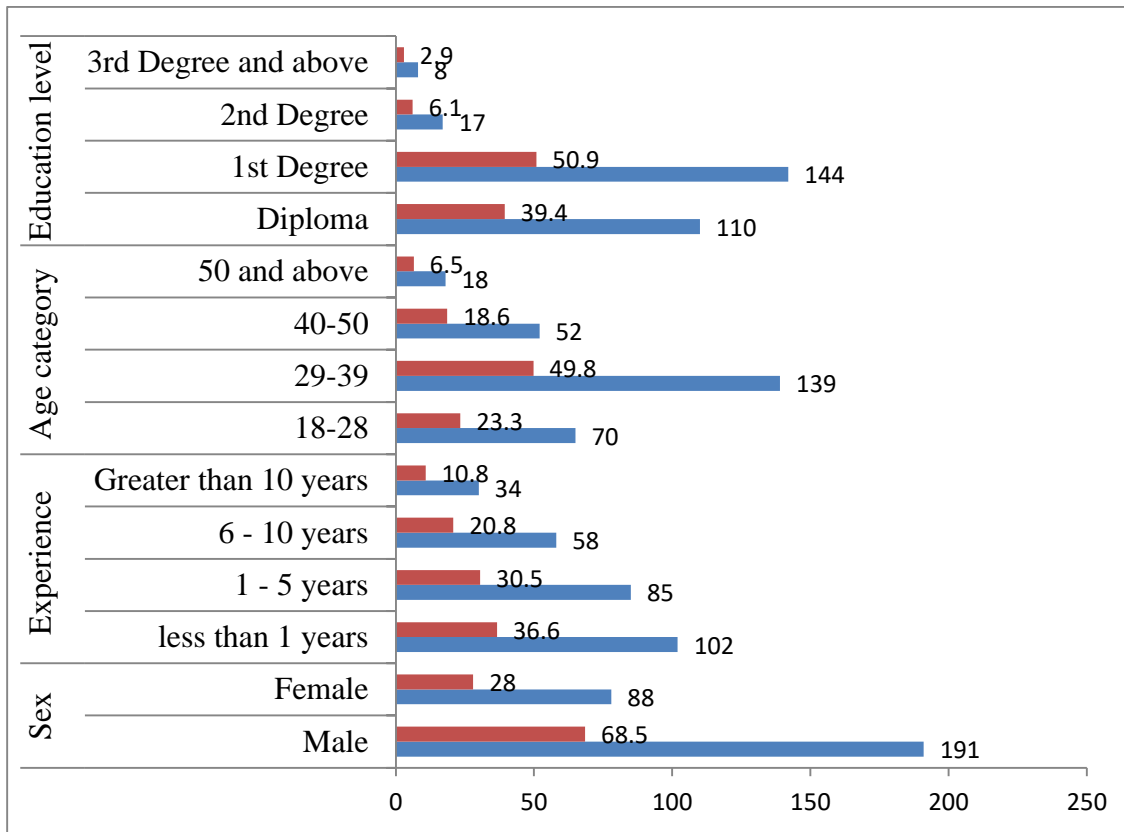
4.2 Preliminary Data Analysis

According to Roni (2014) preliminary data analysis is a significant step in quantitative research. In this study preliminary data analysis was carried out by using appropriate statistical methods; and the missing values were checked and corrected.

4.3 Respondents Profile

The profile of respondents including sex, experience, age and educational status are presented in figure 6. Accordingly, as it is indicated in the figure, out of the total respondents 65.5 % of the respondents are male and 28 % of them are female. Regarding experience, 36 % of the respondents have been working less than one year, 30.5 % have (1-5) years of work experience, 20.8% of the respondents have (6-10) years' work experience and the remaining 10.8 % of the respondents have more than ten years of work experiences. In relation to the educational background, the majority of respondents, 50.9 % owe bachelor degree, 39.4% have diploma, 6.1% have 2nd degree and the remaining 2.9% have 3rd degree and above. According to the data the major part of the respondent i.e. 49.8% lays between age categories of (29-39), the second age category 23.3% of respondents were within the age category of 8-29, and the remaining 25.1% lies above the age of 40.

Figure 6 Respondents Profile



Source: Own computation, 2020

4.4 Interview Data Analysis

the qualitative data gathered from the employees and managers in the industry parks, the respondents evaluate the knowledge management performance in the industry parks is at low status according to majority of the respondents, the respondent's emphasis that knowledge management in the industry parks are almost at the beginning stage and employees and managers have knowledge gap about the benefits of knowledge management and there is no proper knowledge management mechanism.

Knowledge management in the industry parks according to the respondents is at the minds of individuals which is not properly managed and transferred to get benefited from knowledge. The respondents claim that there is no employee retention mechanism and employee turnover affects knowledge management performance negatively.

Based on the data there is no any monitoring and evaluation mechanism inside the industry parks or from the side of the regulatory organs even if one of the objectives of industry parks was knowledge transfer from foreign firms to domestic firms. The respondents affirm that there is no any domestic firm which exist in side the industry parks.

The respondents answered that knowledge management performance can be determined by organizational culture, knowledge process, leadership support, information technology determines knowledge management. The existence of facilitative organizational culture which is based on trust, mutual understanding and coordination may lead to improved knowledge management in the industry parks. The existence of knowledge process which is based on clear flow of knowledge from knowledge and mechanism to get knowledge supported by proper monitoring and evaluation is important for knowledge management improvement. According to majority of the respondent's appropriate leadership support which is based on role modeling and motivation leads improvement of knowledge management and regarding information technology applying appropriate information technology and software by creating awareness and usage trainings helps knowledge management performance improvement positively affects knowledge management performance.

Based on the interview response knowledge management in the industry parks are not properly managed as other resources. The respondents respond that as an opportunity the industry parks can share experiences from different organizations having experience in knowledge management and arrange global exposures for employees and management members to share experiences.

According to the respondent's knowledge management do not have any resource allocated to get the appropriate benefit of knowledge management .in addition according to the interview result one of the objective of establishing industry parks were to facilitate knowledge transfer between the foreign investors and local investors involving in the industry parks but there is no any local investor in industry parks.

The interview result implies that knowledge management in the industry parks are determined by knowledge process, leadership support, information technology, organizational culture employee retention, resource allocation. And knowledge management is not properly managed i.e. the industry parks are not getting benefit from knowledge management.

4.5 Knowledge Management Performance in the Industry Parks

Knowledge management performance maturity can be measured using different models. In this study, Knowledge management performance level was compared with using five scale maturity level models (Initiative, develop, standardize, optimize and innovate).

In this study, knowledge management performance level was compared with the APQC's knowledge management maturity model. Based on the model, the dependent variable 'knowledge management performance' in the industry parks was compared with five levels of APQC's, model which has its own attached indicators according to the qualitative data. Accordingly, the majority of the respondents' share that the level of knowledge management performance in the industry parks based on the maturity level of knowledge management PQCS model is at the first stage.

Based on the qualitative data the stage of knowledge management performance of the industry parks is at its first stage, the result shows that in the industry parks the knowledge management performance is completely matching with APQC's model first stage i.e. the industry parks managers are explaining knowledge management to participants in the industry parks, they are trying to link knowledge management with the business outcomes and creating understanding between senior leaders and key stakeholders and searching for areas of industry parks that benefit from the flow of knowledge.

In the quantitative analysis of knowledge management performance, the level of knowledge management performance was tested using mean analysis. According to Oumer, (2012), mean can be interpreted as between 4 and 5 as highly effective, between 3 and 3.99 as effective, between 2 and 2.99 as ineffective and below 2 as highly ineffective in likert scale type of questions. Based on the respondent's perception in this study, as shown in table 5 below, the mean value of knowledge management performance was below the cut points of 3, which says doing adequately and also it is below the cut points of 2.99 and we can conclude that knowledge management performance in the industry parks are at low status with mean value of 2.24.

Table 5 One sample T -test

Knowledge	Test Value = 3
-----------	----------------

management performance	Mean	Std. Deviation	Std. Error Mean	T	Df	Sig. (2-tailed)	Mean Difference
	2.2430	.62660	.03772	-20.071	275	.000	-.75703

Source; Own computation, 2020

The interview results supported the quantitative finding i.e. as the majority of the respondents responded in the interview that knowledge management performance status is low because of the concepts of knowledge management is a new concept in the newly established industry parks, because of high turnover of staff, and because of absence of clear strategies and supervision from the government. There is also no motivation and reward system to encourage and retain the workforce.

Based on the interview and document analysis result, even if one objective of establishment of industry parks is transferring knowledge and enabling domestic firms in addition to job creation and foreign currency gain, the result shows that knowledge is not properly managed and transferred. The result shows that there is no even domestic firm in the selected industry parks. The finding also correlates with the findings of Zeleke, Wondmeneh, and Workineh, (2018), which say that knowledge management in Ethiopia is at low level and the knowledge is in the minds of individuals.

4.5.1 Test of Differences Across Experience, Age, Sex, and Education Groups in Knowledge Management Performance Perception

Perception by Experience

According to Roni (2014), test of difference provides a basis to analyze difference between two sample groups, when the group of sample is more than two groups of variables having categorical groups one way (ANOVA) test is applicable. In this study, the mean of knowledge management performance across different experience groups (less than one year, between 1 and 5, between 6 and 10 and above ten years' respondents were found to be 2.5, 2.6, 2.6 and 2.4 respectively. Based on the test result, there is no statistically significant difference of perception among different experience groups of respondent on knowledge management performance, (Table 6). Therefore, according to the result of the ANNOVA being in a different age group can not affect the perception of participants towards knowledge management performance.

Table 6 One Way ANNOVA Test

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	.904	3	.301	.787	.502
Within Groups	94.575	247	.383		
Total	95.479	250			

Source own computation, 2020

Perception by Age

Table 7 indicates that the mean of knowledge management performance of age groups from 18 to 28, 29 to 39, 40 to 50 and 50 and above of respondents were found to be 2.64,2.57,2.44 and 2.59 respectively. Based on the one-way ANOVA-test result, there is no statistically significant difference in knowledge management performance perception among the different age group of the respondents. This implies that age difference does not bring any perception change regarding knowledge management performance(Table7).

Table 7 One Way ANNOVA Test Result

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.066	3	.355	.943	.420
Within Groups	92.635	246	.377		
Total	93.700	249			

Source own computation, 2020

Perception by Sex

Two sample T-test is an analysis to check the difference between two sample groups and if the test is significant with the indicated confidence level, the two sample means are statistically different. If the test result is statistically not significant the two sample means are statistically not different. The assumption is that variances are equal across sex. In order to conduct two sample t test and the dependent variable is measured in ratio (Roni, 2014). The mean knowledge management performance of male and female respondents was found to be 2.56 and 2.59 respectively. Based on the ANOVA -test result, at p value 0.78, there is no statistically significant perception difference in knowledge management performance, between male and female respondent. This implies that the assumption becomes true that perception towards knowledge management performance is not different either for male or female (Table 8).

Table 8 Independent Sample T-Test

		Levene's Test		t-test for Equality of Means						
		F	Sig.	T	Df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
Knowledge management performance	Equal variances assumed	.015	.902	-.285	246	.776	-.024	.086	-.195	.146
	Equal variances not assumed			-.280	126.9	.780	-.024	.088	-.199	.150

Source own data computation, 2020

Perception by Education

The mean of knowledge management performance of respondents having Diploma, 1st Degree, 2nd Degree and 3rd Degree and above was found to be 2.62, 2.50, 2.79 and 2.63 respectively. Based on the one-way ANOVA -test result, there is no statistically significant difference in knowledge management performance perception between different educational groups of respondent. The result implies that knowledge management performance perception is not different across different educational groups (Table 9).

Table 9 ANNOVA Test

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1.633	3	.544	1.442	.231
Within Groups	93.963	249	.377		
Total	95.596	252			

Source own data computation.

4.6 Determinants of Knowledge Management Performance In Selected Industrial Parks

4.6.1.1 Regression Results

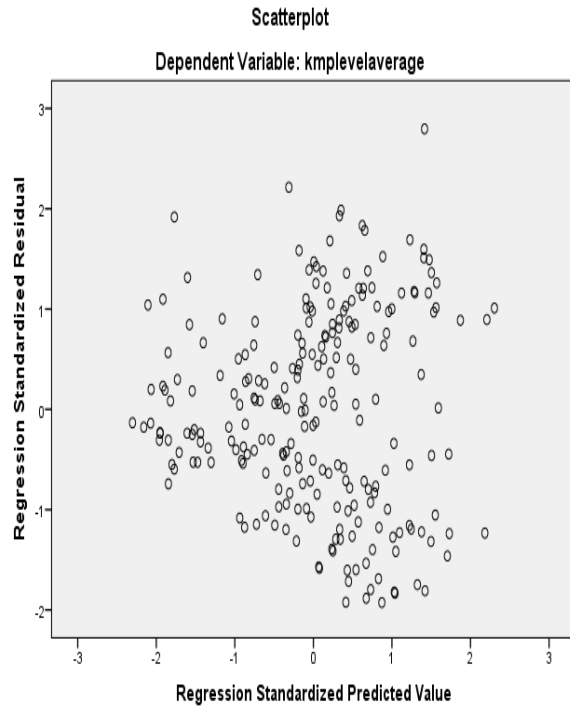
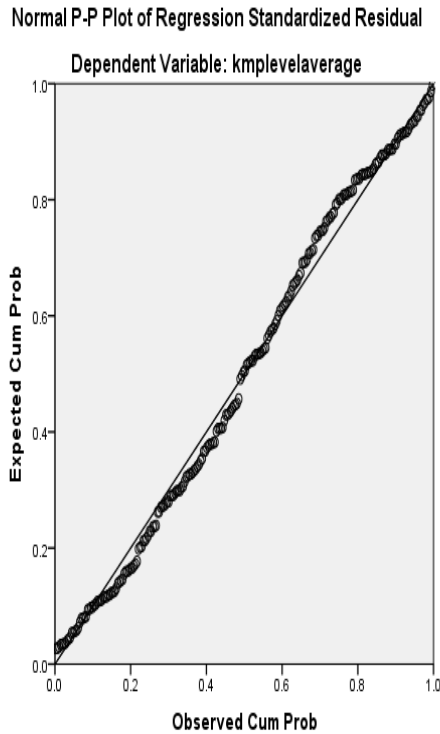
In this study, multiple linear regression model was employed in order to identify important factors having a significant effect on knowledge management performance in the industrial parks. The model was selected as an appropriate model since the dependent variable 'knowledge management performance' was measured using a continuous scale. Before running the regression model, the data were checked for the basic assumptions of multiple linear regressions i.e. normality, multi-coleniarity, homocidacity, and linearity (Roni ,2014). The assumptions are tested below:

Assumption Tests of Multiple Linear Regressions

Normality, Linearity Homocedasticity

The normal p-p plot regression standard residual indicates that the residual is normally distributed since there is no deviation of observation from the line. Moreover, in the scatter plot, the absence of a clear pattern of data indicates that the assumption of normality, linearity and homocidacitiy are fulfilled (Roni ,2014). As shown in the figure 7 below, there is no deviation of observations from the line in the pp plot. This indicates that the residuals are normally distributed. The scatter plot also shows that there is no clear pattern of data which shows that the assumptions of normality, homocidacity and linearity are held (Roni, 2014). Based on figure 7 below, there is an absence of a clear pattern of data spread which indicates the fulfillment of assumptions normality, linearity and homoscedasticity of residuals.

Figure 7 P-P Normal Plot of Regression Standard Residual Figure 8 scatter plot



Test of Multicollinearity

Multicollinearity is the existence of a high inter-correlation between independent variables. In multiple linear regressions, multicollinearity of data is a problem. It occurs when the independent variables correlated each other and when the variance inflator factor (VIF) is greater than 10 (Roni ,2014).

Roni (2014), indicate that tolerance < .1 indicates multi-collinearity problem, but as shown in table 13 below, there is no collinearity problem since the value of VIF ranges between 1.16 to 2.43 which is less than 10 and tolerance greater than .1.

Table 10 Collinearity Test

No Variables	Collinearity Statistics	
	Tolerance	VIF
1. Organizational structure	.490	2.039
2. Knowledge management processes	.411	2.431
3. Information Technology	.545	1.835
4. Leaderships support	.695	1.438
5. Organizational culture	.862	1.160
6. Knowledge process	.366	2.730

Source own computation

Model Significance Test

According to the analysis of ANOVA, as shown below in table 14, ($F=91.38$, $DF=6$, $P \leq 0.001$). The result shows F is large enough to conclude that the coefficients of all the independent variables are different from zero. Therefore, the regression model is significantly improved our ability to predict the overall knowledge management performance.

The ANOVA table indicates that the regression model predicts the outcome variable significantly. Furthermore, it indicated the statistical significance of the regression model that was applied. As shows in the table 14, $p= 0.000$, which indicated the applied statistical regression model predicted the outcome variable significantly.

Table 11 ANNOVA Table

Model	Sum of Squares	Df	Mean Square	F	Sig.	
1	Regression	63.083	6	10.514	91.384	.000 ^b
	Residual	26.577	231	.115		
	Total	89.659	237			

Source: Own Computation, 2020

R square shows the total variance explained by the model with regard to the contribution strength and direction of each independent variable. The overall variance explained by the model (R Square) as well as the unique contribution and adjusted Rsquared was explained as an alternative measure of the goodness-of-fit, which penalizes the inclusion of additional variables in the model according to Roni (2014). In this study, as shown in the table 15 below, the value of R or squared and adjusted R squared are 0.839, 0.704 and 0.696 respectively. This tells us the independent variables together can predict the dependent variable ‘knowledge management’ by 69.6 % at 1% significance level with ($P \leq 0.001$). This means that the rest 30.4 % of the variation in overall knowledge management performance cannot be explained by the indicated independent variables. Therefore, there must be other factors that have an influence on knowledge management performance.

Table 12 Model Summary

Model	R	R Square	Adjusted Square	R Std. Error of the Estimate
1	.839 ^a	.704	.696	.339

Source; own computation, 2020

Result of Regression Analysis of Dependent and Independent Variables

According to table 16 below, except the independent variables ‘organizational culture and knowledge management process’ all other variables are statistically significant, i.e. technology, leadership, organizational structure and knowledge process with p value of (0.000, 0.000, 0.000 and 0.013) respectively which is $p \leq 0.01$.

The regression result with regard to the knowledge management performance shows that all variables together affect knowledge management performance with ($P \leq 0.001$) at 1 % significance level. The dependent variable ‘Knowledge management performance’ can be explained by all independent variables (technology, leadership, organizational culture, knowledge management process, knowledge process and organizational structure). Based on Table 16, the standardized beta coefficient value indicates the relationship direction and magnitude of the dependent and the independent variables.

Hypothesis tests using regression Analysis

In the study there are six hypotheses among the six four of them are statistically significant and two of the six are not statistical significant the detailed result is discussed under starting from the significant hypothesis.

Hypothesis 3 -Information technology is a factor that affects knowledge management performance positively.

The variables information technology was found to have a statistically significant positive effect on knowledge management performance at 1% level of significance ($t=10.95$, $\beta= 0.53$, $P \leq 0.001$). Based on regression findings, a change of 1 standard deviation in information technology will result a change in knowledge management performance by 0.53 standard deviation. This means improvement in information technology in industrial parks leads improvement in knowledge management performance. The finding agrees with the hypothesis and with the systems ‘knowledge management framework’ which emphasizes the importance of technology for knowledge management process improvement. The result of findings directly related with the findings of Nesibu, Haile, Abera and Gemechu (2020) and Zeleke, Wondmeneh, and Workineh (2018), which conclude that information technology is a determinant of knowledge management performance.

Hypothesis 4- leadership support is a factor that affects knowledge management performance positively.

The independent variable ‘leadership support’ was found to have a statistically significant positive effect on knowledge management performance at 1% level of significance ($t=5.04$, $\beta= 0.22$, $P \leq$

0.001). Based on regression findings, a change of 1 standard deviation of leadership support will lead to a change in knowledge management performance by 0.22 standard deviations. This means when the management support improves, knowledge management performance also improves. The finding is similar to the hypothesis which indicates the existence of positive impact of leadership support on knowledge management performance. The finding also related with the spiral knowledge management model which consider leadership support as one determinant of knowledge management performance.

Hypothesis 5- Organizational culture is a factor that affects knowledge management performance positively.

The independent variable organizational culture was found to have a statistically significant positive effect on knowledge management performance at 1% level of significance ($t=6.70$, $\beta= 0.26$, $P\leq 0.001$). Based on regression findings, a change in 1 standard deviation of the independent variable ‘organizational culture’ will lead to a change in the dependent variable ‘knowledge management performance’ by 0.26 standard deviations. As shown on the finding, facilitative organizational culture helps to improve knowledge management performance, which agrees with the hypothesis. The finding is similar with Li-Su, Mohammed, Anna and Cheng (2011), which says knowledge-intensive culture which contains teamwork, respect and trust positively affects knowledge management performance.

Hypothesis 6- Knowledge process is a factor that affects knowledge management performance positively.

The variables ‘knowledge process’ was found to have a statistically significant positive effect on knowledge management performance at the 5 % level of significance ($t=2.50$, $\beta= 0.15$, $P=0.01$). Based on regression findings, a change by 1 standard deviation in knowledge process will lead to a change in knowledge management performance by 0.26 standard deviations. The findings are similar to the hypothesis and it is also similar to other findings of Wong and wall (2005), who listed leadership support, information technology, and organizational culture as critical success factors for knowledge management performance. In addition, Valmohammadi (2010), revealed that

organizational culture and leadership support as the two determinant factors in order to implement knowledge management process.

Improper organizational culture and weak leadership support were listed as causes of failure in knowledge management (Frost,2014). Leadership and ICT infrastructure had also important roles in knowledge management initiatives implementation success (Ndou ,2004).

Table 13 Regression Result

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for β	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	.470	.114		4.124	.000	.245	.694
Organizational structure	-.019	.037	-.027	-.531	.596	-.092	.053
Knowledge management processes	-.025	.040	-.034	-.614	.540	-.104	.055
Information Technology	.349	.032	.532	10.955	.000	.286	.411
Leaderships support	.142	.028	.217	5.047	.000	.087	.197
Organizational culture	.211	.031	.259	6.709	.000	.149	.273
Knowledge process	.104	.041	.148	2.501	.013	.022	.186

Source own computation, 2020

Table 14 Summary of Hypothesis Tests

Hypothesis		Significant		Result
No	Hypothesis of Dependent variables	Beta	Sig.	
1.	Organizational structure is a factor that affects knowledge management performance.	-.027	.596	Rejected
2.	Knowledge management process is a factor that affects knowledge management performance.	-.034	.540	Rejected
3.	Information technology is a factor that affects knowledge management performance.	.532	.000	Accepted
4.	Leadership support is a factor that affects knowledge management performance.	.217	.000	Accepted
5.	Organizational culture is a factor that affects knowledge management performance.	.259	.000	Accepted
6.	Knowledge process is a factor that affects knowledge management performance.	.148	.013	Accepted

Source: Own Computation, 2020

The qualitative analysis result shows that knowledge management determined by quality of human power, resource allocation, motivation and reward, supportive management, availability of computers and access to internet, knowledge and experience sharing practices in the selected industry parks.

The qualitative analysis asserted that high turnover, lack of established knowledge management system, unskilled managers, weak communication, low trust, and absence of motivation are the determinants of knowledge management performance in addition to organizational culture, information technology, leadership support and knowledge process affects knowledge management performance of industry parks which affects knowledge management performance negatively. The finding in the qualitative analysis is similar with the findings in the quantitative analysis.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATION

5.1 Conclusion

The main aim of the study was to identify the factors affecting knowledge management performance in industry parks. The study also tests the maturity level of knowledge management in industrial parks. The findings of the descriptive and inferential analysis revealed that there is a wide gap in the application of all the components of knowledge management performance factors such as, leadership support, information technology, organizational culture, and knowledge process were the major factors and the level of knowledge management performance is at low status which is at the developing stage.

Generally, the inferential statistics, according to the regression result, shows that the four independent variables (leadership support, information technology, organizational culture, and knowledge process) are the determinants of knowledge management performance. The result shows the P value < 0.05 at 95% confidence level.

The interview responses also support the findings of the qualitative analysis in which the qualitative analysis asserted that focusing on factors like building leadership support, establishing monitoring and evaluation system, creating enabling information technology, facilitate organizational culture, and establishing knowledge process play a significant role to support the contribution of knowledge management for organizational achievement. In addition to those listed above, employee turnover, lack of proper motivation, resource scarcity, skill gap, low communication and lack of trust becomes affects knowledge management performance negatively. Therefore, since knowledge management is an important component of organizations which helps them to be competitive, the industry parks management and other concerned bodies should focus on the listed determinants.

Finally, the researcher concludes that the selected industry parks did not focus on the important determinants of knowledge management performance so as to get the benefit of knowledge management.

5.2 RECOMMENDATIONS

The findings of the descriptive and inferential analysis revealed that there is a wide gap in the application of all the determinants of knowledge management performance. In addition, the result of regression analysis shows that variables have significant effect on knowledge management performance. This could mean that knowledge management performance improvement is depending on different determinants. Hence, it offers insight to owners about the knowledge management improvement areas in improving performance. Based on the findings of the study, the researcher forwarded the following recommendation:

Implications for Policy

- ✓ From the findings, the study recommends that the industry parks corporation should work on preparation of knowledge management policy at all industry parks level found in the country, which includes the evaluation and follow up of its implementation in the industry parks.
- ✓ In order to improve knowledge management performance in the selected industry parks, the huge employee turnover from parks should be treated by creating opportunities like organizing them through financial support so that they can organize their own small-scale industries.
- ✓ Policy makers interested in improving the manufacturing sector need to understand the interaction between the employees and employer as creating conducive working environment and culture.
- ✓ Finally, the policy makers/ federal government should encourage the private sectors to involve in the industry parks and share knowledge and experience from foreign firms.

Managerial Implications

The Management in the industry parks should:

- ✓ Improve their knowledge through training and education on the importance and contribution of knowledge management.
- ✓ Create conducive environment for knowledge and implement knowledge retention mechanism such as retaining employees.

- ✓ Create a knowledge worker position/department in each industry park to manage knowledge for better performance.
- ✓ Link the industrial parks with the well experienced local or international firms to gain knowledge management experience.
- ✓ Constantly aware of how knowledge management processes and systems affect the organization achievement.
- ✓ Working on the major determinates of knowledge management through organized planning monitoring and evaluation system with appropriate technology, supportive organizational culture, proper and timely management support and preparing brief knowledge management process is important.

5.3 Direction for Future Study

In this study, this study lacks previous knowledge management performance determinants study in selected industry parks for possible comparison and insight. Secondly, the researcher has been used only primary data sources, but it is important using secondary data such as document analysis in order to check the knowledge management performance determinants and measurement issue to measure the knowledge management performance with alignment of overall performance management of industry parks.

Therefore, it is important to study on determinants of knowledge management performance other than organizational culture, leadership support, information technology and knowledge process in industry parks.

Further researchers should study to what extent the independent variables found by qualitative analysis (turnover, motivation, communication, trust and resource) determines knowledge management performance.

References

- Adekanmbi, O. and Green, P., (2015). *Assessment of User Authentication Risks in a Healthcare Knowledge Management System*, *International Business & Economics Research Journal*, 14(1): 95–105.
- Alebel Bayrau Weldesilassie, Mulu Gebreeyesus, Girum Abebe & Berihu Aseffa, (2017). *Study on Industrial Park Development: Issues, Practices and Lessons for Ethiopia*, *Ethiopian Development Research Institute (EDRI) Analysis of three Journals*, Stellenbosch University <https://scholar.sun.ac.za>
- Becerra-Fernandez, (2004). *Factors Influencing Knowledge Management*, Prentice Hall
- Bennet, D. and Bennet, A., (2008). *Engaging Tacit Knowledge in Support of Organizational Learning*, *The Journal of Information and Knowledge Management Systems*, 38(1): 72–94.
- Brian (Bo) Newman, Kurt W. Conrad, (1999). *A Framework for Characterizing Knowledge Management Methods, Practices, and Technologies*
- Bryan Bergeron, (2003). *Essentials of Knowledge Management* John Wiley & Sons, Inc
- Kenneth Wanjau & Mariam M. Yusuf, (2014). *Factors affecting implementation of knowledge management practices in state corporations in the national treasury in Kenya*. *International Journal of Management Technology* Vol.2, No.2
- L.Kuladeep Kumar, (2015). *Lecture Notes on Knowledge Management*. Chadalawadanagar, renigunta road, tirupati (a.p) – 517506.
- Dubois, N. and Wilkerson, T., (2008). *Knowledge Management: Background Paper for the Development of a Knowledge Management Strategy for Public Health in Canada*, *The National Collaborating Centre for Methods and Tools*, the Public Health Agency of Canada.
- Edvardsson, I. R., & Durst, S. (2013). *The Benefits of Knowledge Management in Small and Medium-Sized Enterprises*. *Social and Behavioral Sciences*, 81 (28), 351-354.
- Fayize Jumahalnazir, (2016). *Knowledge Management Process and Their Impact on Organizational Performance, the adoption of balanced scorecard: the moderating role of quality assurance standards and applied study*
- Ferketich, S., (1991). *Focus on psychometric: Aspects of item analysis*. *Research in Nursing & Health*, 14, 165–168.

- Frost, A. (2014). A Synthesis of Knowledge Management Failure Factors.*
- Gebreeyesus, M., (2013). 'Industrial Policy and Development in Ethiopia: Evolution and Present Experimentation'. UNU-WIDER Working Paper 2013/125. Helsinki: UNU-WIDER
- Gita H lubek, (2004). Analyzing multi group confirmatory factor models for continuous outcomes of Likert scale data complicates meaning full data comparison. *Structural Equation Modeling A Multidisciplinary Journal*
- Hamdan Salim Alawamleh and Mohammad Abdalraheem Kloub, (2013). Influence of Organizational Structure on Knowledge Management in the Jordanian Insurance Companies: From the Perspective of the Supervisory Leadership. Vol. 4 No. 11*
- Hardan Kumar, (2017). The role of knowledge management for organizational development. Available online at www.jsiachv.com Journal of Scientific Achievements*
- Hossein Gharehbiglo, Behnam Shadidiza ,Sohrab Yazdanic and Rouhayehkhandehzamin, (2012). The survey of affecting Factors on knowledge management Case Study: Municipality of the city of Rasht in Iran*
- Industry Parks corporation, (2019). Third quarter implementation report of industrial parks, Addis Ababa*
- Karl Wiing, (1999). A model for Comprehensive Knowledge Management to support enterprise viability and success.*
- Kayani, J. and Zia, M.Q. (2012). The Analysis of Knowledge, Knowledge Management and Knowledge Management Cycles: A Broad Review, International Journal of Academic Research in Economics and Management Sciences, 1(6):152–162.*
- Kimiz Dalkir, (2005). Knowledge Management in Theory and Practice. Amsterdam, Boston, Heidelberg, London*
- Kuan Yew Wong, Li Pin Tan, Cheng Sheng Lee, (2014). Knowledge Management performance measurement: measures, approaches, trends and future directions. 2015, Vol. 31(3) 239–257, Universit Teknologi Malaysia*
- Kumar, Ranjit.(1999). Research methodology: A step-by-step guide for beginners. London: Sage publication.*

- Lee KC, Lee S, Kang IW (2005). Measuring knowledge management performance with key knowledge performance index.*
- Leedy, Paul D and Ormrod, Jeanne Ellis, (2001). Practical research: planning and design. 7th edition United States of America: Prentice hall.*
- Martie Maria Squier, (2006). The Principles and Practice Of Knowledge Management, University of Pretoria*
- Mugenda, O.M. and Mugenda, A.G. (2003). Research Methods, Quantitative and Qualitative Approaches. ACT, Nairobi.*
- Muhamed Habibur Rahman, Ikramul Hassen and Md. Zahidul Islam, (2015). Factors affecting knowledge transfer, Article in Asian Social Science*
- Muhammad Asrar-ul-Haq and Sadia Anwar, (2016). A systematic review of knowledge management and knowledge sharing: Trends, issues, and challenges*
- Ndou, D., (2004). E-Government for Developing Countries: Opportunities and Challenges. Electronic Journal on Information Systems in Developing Countries.*
- Nesibu Agonafir, Haile Mekuanint, Abera Timbula and Gemechu Abdisa, (2020). Determinant factors of knowledge management practice: the case of ministry of health, Ethiopia. Journal Perspektif Pembiayaan dan Pembangunan Daerah Vol. 8 No. 1,*
- Nomaqhawe Moyo, (2015). Conceptions of Knowledge Transfer in Organizations a Bibliometric and Content*
- Nur Husna AbdRahman, Mohd Shamsul Mohd Shoid, (2017). Key Success Factors that Affecting Knowledge Transfer among Public Organization Employees: A Conceptual Framework. International Journal of Academic Research in Progressive Education and Development, Vol. 6, No. 3 ISSN: 2226-6348*
- Payne, J. and Sheehan, T. (2004). Demystifying Knowledge Management, A Best Practice Guide for the Construction Industry, Constructing Excellence, UK.*
- Robert J Casson, Franzco and Lachlan Farmer, (2014). Understanding and Checking the Assumptions of Linear Regression: A Primer for Medical Researchers*
- Sajjad Barkhordari, Maryam Fattahi & Naser Ali Azimi, (2018). The Impact of Knowledge-Based Economy on Growth Performance: Evidence from MENA Countries*

- Syed-Ikhsan Syed Omar Sharifuddin, (2004). Knowledge Management in a Public Organization: A Study on the Relationship between Organizational Elements and the Performance of Knowledge Transfer.*
- Valmohammadi, C. (2010). Identification and Prioritization of Critical Success Factors of Knowledge Management in Iranian SMEs: An Experts' View. African Journal of Business Management.*
- Vanessa Goldoni and Mirian Oliveira, (2006). Metrics for Knowledge Management Process.*
- Vivian Doherty, Kathryn Cormican, (2017). Analysis of Knowledge Transfer Practices: Insights from a Medical Device Manufacturing Organization.*
- Wong, K.Y., & Aspinwall, E.M. (2005). An Empirical Study of the Important Factors for Knowledge-Management Adoption in the SME Sector. Journal of Knowledge Management.*
- World development report, (1998). Knowledge for development, Ferroni, Marco Off of Sr VP Dev Econ/Chief Econ (DECVP)*
- Zelege Kiros, Wondmeneh Mamo, and Workineh Tesema, (2018). Factors and Barriers affecting Knowledge Management System on the Organizational Performance in Mesfin Industrial Engineering of Ethiopia. Universal Journal of Industrial and Business Management Vol. 6(2)*

Annex 1 questionnaire

Addis Ababa University

Knowledge management questionnaires

This questionnaire prepared to undertake a study entitled Determinants of knowledge management (KM) in industry parks: the case of manufacturing sector. The research conducted is purely for academic purpose and all the information given are confidential.

Dear Respondents:

I am a graduate student in the department of Regional and local development studies. Currently, I am undertaking this research in partial fulfillment for M.A in regional and local development studies given by Addis Ababa University. You are selected to be one of the participants in this study and I request you to give your genuine answer voluntarily. I assure you that no personal identity will be published or transferred to third party.

Part I: Instruction

Please use \surd mark for Choice Questions and write on the blank spaces on open ended questionnaires.

1. What is your sex?
A. Male B. Female
2. Age
18-28 B. 29-39 C. 40-50 D. above 50
3. What is your education status?
Diploma B. 1stDegree C. 2nddegree D.3rd degree and above
4. Work experiences in the industry?
A. less than 1-year B.1-5 years C.6-10 D. greater than 10 years

Part II: Instruction

Please complete this form by indicating in the rating column a score from 1 to 5 according to the definitions below.

No	1	2	3	4	5
	Very Poor	Poor	Adequate	Good	Very Good
1.	Existence of discussion groups on process or product innovation				
2.	Knowledge management of the factory has valid contribution for organizational memory				
3.	Messages or documents stored in the system				
4.	There are registered users who use knowledge management system				
5.	The knowledge Stored is considered as Quality				
6.	Experts evaluation to check quality				
7.	Editions or updates on knowledge				
8.	Level of knowledge updating increase				
9.	User's feedback changed to positive				
10.	Active communities of practice to facilitate knowledge sharing in factories.				
11.	Statistics on use of organizational memory / intranet				
12.	Perception of collaborators with available internal means of communication				
13.	Distribution cost of knowledge decrease				
14.	Suggestions incorporated to productive processes and/or products				
15.	Utilization of the system of knowledge management				
16.	Utilization of the search mechanism				
17.	Existence of ideas or patent				

18.	Performance measured on planned hours and actual hours	
19.	Evaluations made in comparison with the plan	
20.	Knowledge management performance level identified using measurement tools like knowledge key performance index (KPMI)	
21.	Improvement in employee's skills	
22.	Improvement in strategy's quality	
23.	Improvement in core business processes	
24.	Development in customer relationship	
25.	Development in supplier relationship	
26.	Development in innovative culture	
27.	Decrease of product cycle time	
28.	Increase on operation productivity	
29.	Average time to solve problems decrease	
30.	Grade of reduction of customer complaints on products & services Grade of reduction on rework	
31.	Grade of individual and organizational learning increase ,evidence of best practice	
32.	Reduction of operational costs	
33.	Economic Value Added/km currently adds economic value in the factory	
34.	Earnings per share Growth rank in industry increased	

Part IV: Instruction

Please complete this form by indicating in the rating column a score from 1 to 5 according to the definitions below.

	1	2	3	4	5	
	Doing very poorly or doing none at all	Doing poorly	Doing adequately	Doing good	Doing very good	
	Km Leadership					
1.	The factory has a shared knowledge vision and strategy strongly linked to the factory's vision, mission, and goals.					
2.	Factory arrangements has central coordinating unit for knowledge/information management					
3.	Financial resources are allocated for KM initiatives.					
4.	The factory has a policy for safeguarding knowledge (i.e., copyrights, patents, KM, and knowledge security policy).					
5.	Managers role-model the values of knowledge sharing and collaborative working.					
6.	Management promotes, recognizes, and rewards performance improvement, factory and employee learning, sharing of knowledge, and, knowledge creation and innovation.					
	Knowledge process					
7.	The factory determines its core competencies and aligns it to their mission and strategic goals.					
8.	The factory designs its work systems and key processes to create value to customers and achieve performance excellence.					
9.	New technology, knowledge shared in the organization, flexibility, efficiency, and effectiveness are factored into the design of processes.					
10.	The factory has an organized system for managing crisis situations or unforeseen events that					

	ensures uninterrupted operations, prevention, and recovery.	
11.	The factory implements and manages its key work processes to ensure that customer requirements are met and business results are sustained.	
12.	The factory continually evaluates and improves its work processes to achieve better performance	
	Organizational culture	
13.	The factories' education, training, and career development program builds employee knowledge, skills, and capabilities.	
14.	The factory has a systematic induction process for new staff that includes familiarity with KM and its benefits, the KM system, and KM tools.	
15.	The factory has formal mentoring, coaching, and tutoring processes.	
16.	The factory has a database of staff competencies.	
17.	Knowledge sharing and collaboration are actively encouraged and rewarded/corrected.	
18.	Employees are organized into small teams/groups (i.e., quality circles, work improvement teams, cross-functional teams, communities of practice) to respond to workplace problems/concerns.	
	Technology	
19.	There is established IT infrastructure (i.e., Internet, intranet, and website) and has developed capabilities to facilitate effective KM.	
20.	The IT infrastructure is aligned with the factories KM strategy.	
21.	Everyone has access to a computer/The firm applies technological tools to manage knowledge	

22.	Everyone has access to the Internet/Intranet and an email address.	
23.	Information delivered in the website/intranet is updated on a regular basis.	
24.	Intranet (or similar network) is used as a major source of organization-wide communication to support knowledge transfer or information sharing.	
	Knowledge management process	
25.	The factory has systematic processes for identifying, creating, storing, sharing, and applying knowledge.	
26.	The factory maintains a knowledge inventory that identifies and locates knowledge assets or resources throughout the organization.	
27.	Knowledge accrued from completed tasks or projects are documented and shared.	
28.	Critical knowledge from employees leaving the factory is retained.	
29.	The factory shares best practices and lessons learned across the factory so that there is no constant re-inventing of the wheel and work duplications.	
30.	Benchmarking activities are conducted inside and outside the factory, the results of which are used to improve organizational performance and create new knowledge.	
	Organizational structure	
31.	Design the organizational structure helps to detect and correct administrative errors.	
32.	Provides the organizational structure of the company to connect with the experienced	
33.	Helps the organizational structure of the company's employee's work as a team	

34.	Enjoy the organizational structure of the company flexible enough to develop knowledge	
35.	Allows the organizational structure of the company knowledge and information flow in all directions	
36.	Allows the design of the organizational structure of the company to achieve opportunities for cooperation and coordination among employees	

Interview questions for managers of industry parks and head office concerned participants

1. How do you evaluate knowledge management in your factory /sector?
2. What factors determine knowledge management in the factory /industry parks?
3. What are the opportunities to manage knowledge?
4. What should be the solution to the problems/challenges in relation with knowledge management and transfer?
5. does knowledge properly managed in the industry parks? If yes, why? If no, why?

Annex 2 Validity and Reliability Results

Item-Total Statistics for knowledge management performance

Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Deleted	Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Deleted
km1	85.50	418.99	.554	.891	km18	85.28	432.07	.347	.895
km2	85.58	428.84	.460	.893	km19	85.23	428.88	.390	.895
km3	85.43	413.30	.681	.889	km20	85.25	429.90	.418	.894
km4	85.28	415.49	.655	.890	km21	85.33	429.98	.375	.895
km5	85.66	420.10	.586	.891	km22	85.35	429.11	.405	.894
km6	85.55	423.31	.536	.892	km23	85.28	434.31	.332	.895
km7	85.67	425.969	.500	.893	km24	85.35	439.39	.210	.898
km8	85.46	418.947	.578	.891	km25	85.16	444.53	.140	.898
km9	85.42	414.881	.653	.890	km26	85.24	442.00	.173	.898
km10	85.41	418.196	.601	.891	km27	85.38	440.08	.230	.897

km11	85.500	422.57	.570	.891	km28	85.17	437.39	.320	.895
km12	85.519	418.18	.560	.891	km29	85.17	437.76	.264	.897
km13	85.468	422.01	.517	.892	km30	85.19	435.34	.326	.895
km14	85.015	424.69	.516	.892	km31	85.32	430.46	.410	.894
km15	84.792	424.24	.536	.892	km32	85.32	440.29	.227	.897
km16	84.792	423.77	.535	.892	km33	85.39	441.84	.186	.898
km17	84.761	425.86	.486	.893	km34	85.54	443.26	.181	.898

Source: Own Computation, 2020 Km' refers to knowledge management performance variables

Item-Total Statistics for organizational structure

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q1	15.93	18.29	.560	.354	.815
Q2	15.49	18.67	.641	.439	.797
Q3	16.00	19.23	.611	.393	.803
Q4	15.96	18.19	.648	.466	.795
Q5	16.25	18.20	.633	.511	.798
Q6	16.39	19.65	.537	.421	.817

Item-Total Statistics for knowledge management process

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q7	15.60	20.02	.399	.244	.806
Q8	15.18	19.35	.565	.378	.766
Q9	14.85	18.10	.633	.413	.749
Q10	14.83	19.17	.545	.409	.770
Q11	14.64	18.42	.620	.519	.753
Q12	14.94	18.93	.582	.402	.762

Item-Total Statistics information technology

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q13	14.46	22.42	.625	.430	.836
Q14	14.58	22.42	.486	.240	.867
Q15	14.78	22.79	.568	.381	.847
Q16	14.48	20.99	.725	.560	.818
Q17	14.72	21.19	.773	.658	.810
Q18	14.95	21.47	.737	.622	.817

Item-Total Statistics leadership support

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q19	13.91	17.42	.734	.556	.743
Q20	14.29	19.40	.520	.308	.791
Q21	13.85	18.19	.627	.422	.768
Q22	13.70	19.55	.434	.267	.811
Q23	13.72	19.09	.508	.391	.794
Q24	13.72	17.96	.614	.491	.770

Item-Total Statistics for organizational culture

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q25	14.04	22.06	.616	.387	.863
Q26	14.38	20.68	.722	.550	.845
Q27	14.64	22.02	.639	.431	.859
Q28	14.04	20.49	.683	.485	.852
Q29	14.22	21.24	.704	.541	.849
Q30	14.26	20.58	.702	.532	.849

Item-Total Statistics for knowledge process

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Q31	14.34	19.33	.648	.451	.858
Q32	14.34	19.42	.698	.523	.850
Q33	14.21	20.72	.544	.330	.875
Q34	14.29	18.87	.709	.609	.847
Q35	14.33	19.14	.775	.683	.837
Q36	14.17	19.21	.700	.529	.849

Appendix 1 Table of Critical Values of Pearson's r

N (df=N-2)	2-Tailed p < .05	2-Tailed p < .01	N (df=N-2)	2-Tailed p < .05	2-Tailed p < .01
3	.997	.999	15	.514	.641
4	.950	.990	16	.497	.623
5	.878	.959	17	.482	.606
6	.811	.917	18	.468	.590
7	.754	.874	19	.456	.575
8	.707	.834	20	.444	.561
9	.666	.798	40	.312	.403
10	.632	.765	80	.224	.292
11	.602	.735	100	.195	.254
12	.576	.708	200	.138	.181
13	.553	.684	500	.088	.115
14	.532	.661	1000	.062	.081