Addis Ababa University School of Commerce

Master of Business Leadership

Assessing the effect of implementing Achieving Competitive Excellence on Organizational Performance: The case of Ethiopian Airlines.

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Declaration

I, Seblewongel Azene, the undersigned state that this dissertation is: "Assessing the effect of implementing achieving competitive excellence on organizational performance in the case of Ethiopian Airlines." is my original work. I have undertaken the research work independently with the guidance and support of the research advisor. This study has not been submitted for any degree or diploma program in this or any other institution and the sources of materials used for the thesis have been duly acknowledged.

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This is to certify that the thesis prepared by Seblewongel Azene, entitled Assessing the Effect of implementing Achieving Competitive Excellence on organizational performance in the Case of Ethiopian Airlines. and submitted in partial fulfilment of the requirements for the Degree of Master of Business Leadership complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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Acronym

ADD: Addis Ababa

ACE: Achieving Competitive Excellence

ANOVA: Analysis of Variables

Ethiopian Airlines Group (ETAG)

EAL: Ethiopian Airlines Enterprise

ET: Ethiopian Airlines

HR: Human Resources

MFA: Market feedback analysis

P & W: Pratt & Whitney

QCPC: Quality clinic process chart

RRCA: Relentless root cause analysis

SPSS: Statistical Package for Social Science

TPM: Total Preventive Maintenance

TQM: Total quality management

UTC: United Technology Corporation

VSM: Value Stream Mapping

5S+1: Sort, Set in Order, Shine, Standardize, Sustain and plus Health & Safety.

Abstract

In Today's highly volatile, uncertain, complex, and ambiguous business world organizations strive to lower costs, enhance quality, and delight their customers by being more responsive than their competition through utilizing a variety of continuous improvement approaches. The Airline industry in particular; is one of the most turbulent; highly dynamic; hyper-competitive, unpredictable, and overly susceptible to economic cycles. For decades, Ethiopian Airlines has been registering exceptional succuss despite the challenges. In the context of Ethiopian Airlines services, this research examined the impact of Achieving Competitive Excellence - ACE on organizational performance. The major four factors of ACE namely Process Improvement tool, Waste Elimination too, Problem Solving tool, and Decision-Making tool are considered as independent variables while the Organizational Performance is taken as dependent variable. The researcher used a mixed method, a quantitative and qualitative research approach designed with close-ended and open questions and applied both descriptive and correlation and simple random sampling technique to take a sample from the population to the study. A questionnaire and an interview were designed and used the five-point Likert's scales to examine all the major factors of Achieving Competitive Excellence Ethiopian airlines. The statistical analysis of this study was done by SPSS software version 20 the result of the study shows in inference and descriptive analysis. Based on the overall findings it can be concluded that all aspects of ACE's process improvement, decision-making, problem-solving, and waste elimination tools have a significant and advantageous impact on organizational performance. Ethiopia Airlines should therefore focus those tools to improve the effectiveness of its organizational structure.

Keywords: Organizational performance, process improvement, decision making, problem solving, and waste elimination tools

Chapter One

1. Introduction

1.1. Background of the Study

Achieving Competitive Excellence, the continuous improvement program is developed at United Technologies Corporation (UTC) in 1998. It is an integrated improvement program that uses the best practices of lean and Six Sigma, value stream map, waste elimination, and kaizen.

By implementing ACE, UTC's real growth ranged from 7% to 9% from 2004 to 2007 and 5% in 2008. Organizations have enhanced the ACE operating system to bridge the gap between actual results and business goals and eliminate waste (Roth 2010 and Thomas 2004).

The organization drive the ACE operating system to close gaps between actual results and business goals and eliminate waste (Roth 2010 and Thomas 2004).

According to Thomas C. Hutton (2014), quality management systems and advancements are crucial factors in all spheres of the global economy. Quality is crucial for most, if not all, businesses since it plays a significant role in consumer happiness. The report continues by stating that quality in some industries extends beyond customer satisfaction to cover important aspects like customer and public safety. Typical examples of this type of industry are the aerospace and building industries.

ACE is built on a set of tools that assist businesses in problem identification and resolution, process improvement, waste elimination, and strategic decision-making. Organizations can close the gap between anticipated and actual performance by developing a strong culture of employing these tools. There are ten ACE tools, according to Roth (2010) and Thomas (2004), which he categorizes into four major categories: tools for process improvement, tools for waste removal, tools for problem solving, and tools for decision-making.

Since 2005, Ethiopian Airlines (ET) has been mandated to implement ACE as a process improvement system to improve corporate performance following the partnership established with Pratt & Whitney (P & W) a subsidiary of UTC. ET applied ACE as a day-to-day operating system that will enable the airline to achieve competitive excellence.

This study specifically discusses the impact of achieving competitive excellence on organizational performance. And then evaluates airline performance using the implementation of ACE operational tools that are divided into four categories of: process improvement tools, waste elimination tools, problem solving tools, and decision-making tools.

1.2. Background of the Organization

Ethiopian Airlines (Ethiopia) is Africa's leading airline group with over 77 years of experience. It is the flag carrier of Ethiopia and is a member of the Star Alliance. The company currently has over 144 state-of-the-art aircrafts, with an average age of seven years. In addition, 37 state-of-the-art aircraft have been ordered. The airline has established a pan-African and transcontinental air connectivity network connecting its main hub Addis Ababa with the rest of the world under the tagline "The New Spirit of Africa." The airline runs numerous flights with a minimum layover in Addis every day to 134 worldwide passenger and cargo destinations, including 63 destinations within Africa.

After achieving ahead of planning its 15-year strategic plan - Vision 2025, the company has developed a more ambitious strategic roadmap the Vision 2035 to further drive its continued growth. Over the past decade, the company has grown into the largest airline group, managing nine business units: customer service (commercial), cargo and logistics. Maintenance and Repair Overhaul (MRO), University of Aviation Academy. ground service. Gastronomy; HR, IT, Finance. Skylight Hotels, and most recently Ethiopian Airports Authority, which has partnered with airlines. Service, Ethiopian Skylight Hotel, Ethiopian Aviation University, Express Service (Domestic).

Investigating the effects of achieving competitive excellence on airline`s performance for all divisions of the Ethiopian Airlines Aviation Group (ETAG) is the primary goal of this study.

1.3. Statement of the problem

The history of the aviation sector shows that airline expansion puts the core competencies of the company at risk and frequently overextends them primarily because it is highly capital intensive.

However, despite the many pitfalls, most airlines do explicitly seek to expand. But Ethiopian has managed and mitigated the risks of expansion. (Vidya Hattangadi).

Airlines are making significant investments in strategies to boost output and lower variability in cost of maintenance, repair, and servicing procedures. The success of an airline is also influenced by other factors as well in addition to the investments and expansion to new destinations. In this study, the researcher looked at how the adoption of "Achieving Competitive Excellence," a method that promotes continuous quality improvement, affected overall organizational performance.

Although, the ACE Implementation review has made ACE an operational instrument to enable the successful execution of day-to-day operations based on the Ethiopian Airlines Group Annual Report 2021/22 , it however has not yet attained the necessary level of proficiency as the various units within the airline are at different levels of the implementation phases Moreover, the successful implementation of ACE operating tool is set as one of the KPIs by the airline but was never actually measured. A detailed review of the literature on the impact of ACE on corporate performance also revealed a paucity of research in this area, and this study aims to fill a knowledge gap in this regard.

A review of the available literature on ACE and related fields will aid the research in identifying ACE operating system variables that may affect airline performance and understanding their impact and significance on the airline performance. This study also tries to clarify how Ethiopian Airlines' astounding performance is influenced by specific ACE critical elements. And what would the organization`s performance look like if the airline does not implement ACE operating tool. This justification is what drives the researcher to embark on this task. As a result, this study investigated how each ACE major tools have affected the overall organizational performance of Ethiopian Airlines and its success.

1.4. Research Questions

The following research questions will be generated considering the problems. From the viewpoint of the employee, this study aims to address the following fundamental research questions:

- What impact will ACE's process improvement tools have on the overall performance of Ethiopian airlines?
- What impact ACE's waste elimination tools have on the overall performance of Ethiopian Airlines?
- What impact will the ACE's decision-making tool have on Ethiopian Airlines' overall performance?
- What impact will the ACE problem solving Tool have on Ethiopian Airlines' overall performance?

1.5. Objectives of the study

1.5.1 General Objective

The major objective of the study is to assess the effect of implementing achieving competitive excellence on organizational performance in the case of Ethiopian Airlines.

1.5.2 Specific Objectives

This research has the following specific objectives from the employee's perspective:

- To explain the effects of the ACE process improvement tools on Ethiopian Airlines' performance.
- To describe how ACE's waste management tools have impacted Ethiopian Airlines' performance.
- To describe how ACE's decision-making tools impacted Ethiopian Airlines' performance.
- To describe how ACE Problem solving tools affected Ethiopian Airlines' performance

1.6. Significance of the Study

This study is important in a variety of ways. First, by considering the main factors that contributed to the process improvement that resulted in the airline's success, it assists Ethiopian Airlines, the study's primary target, in identifying the major Achieving Competitive Excellence factors that can affect the organizational performance. It can also help the employees and the management members to have better efficiency and effectiveness at workplaces by understanding better the actual contribution of ACE to organizational performance. In addition, it

can help the employees and the stakeholders in creating awareness on the application of ACE operating tool to enhance organizational performance through enhancing quality and service level standards.

According to the researcher, it may be relevant that other institutions and other researchers to make additional research on the effects of ACE operating system on performance. In addition, it is expected that companies will benefit from the researchers' useful insights as they establish future business plans that will produce long-term performance improvements.

1.7. Scope and limitation of the study

The purpose of this study is to evaluate the performance of Ethiopian Airlines in light of the implementation of the ACE operational tool in sustaining its competitiveness in the industry. Despite the fact that the airline has numerous offices throughout the world, this study's scope was limited to describing the impact of ACE on the performance of the airline's core business areas at Bole International Airport in Addis Abeba, Ethiopia. ACE is an organization-wide system for improving processes and performance. Employees of airlines who were also a part of department-based ACE cells were the study's responders. It is assumed that these employees use ACE tools in their regular work.

1.8. Organization of the study

This research has been organized under five chapters. Chapter one contains the introduction part which includes the background of the study, background of the organization, statement of the problem, objectives of the study, basic research questions, scope of the study, the study's significance, and organization of the study. The next chapter, Chapter Two, contains theoretical and conceptual review, empirical review and conceptual framework while chapter three states research methodology which includes the study area, research approach, research design, population size, data source and type, data collection procedure, method of data analysis and presentation, reliability and validity test and ethical consideration and action plan of the research work. The fourth chapter is about data presentation, analysis, and discussion. Finally, the fifth chapter, is the summary of findings, conclusions, and recommendations.

Chapter Two

2. Review of Related Literature

2.1 Theories and Concepts

ACE was developed in the early 1980s and 1990s based on the principles of Total Quality Management (TQM), but companies began to develop their own quality systems based on these principles (Roth, 2010). ACE is a proprietary quality management system and may only be implemented under license from UTC. Achieving Competitive Excellence is a quality management system or operating system developed and practiced by UTC (United Technologies Corporation) (Thomas, 2004). ACE is a corporate-wide strategy. It is an approach to continuously improve the value we deliver to our customers (Roth, 2010).

Achieving competitive excellence (ACE): is an operating quality system which serves for cost reduction improved efficiency and customer satisfaction and continuous Quality improvement. (ET Company manual)

ACE consists of a collection of tools that help organizations identify and solve problems, improve processes, and make strategic decisions. Consistent and continuous use of these tools will move an organization forward. The ACE operating system helps identify and bridge the gaps between actual results and business goals. By eliminating waste (achieving a lean process flow), ACE encourages partners and suppliers to meet the company's service levels and quality standards. In short, ACE is how a company executes its day-to-day business activities. (Nigatu, T.A., 2010)

According to the ACE protocol, all process improvement designs must be measured against key performance indicators (KPI's) to determine their effectiveness. ACE tools are used to perform root cause analysis during failures, which according to ACE are called "turnbacks." Root Cause Correction Analysis (RCCA) aims to eliminate the systematic cause of an error and produce a long-lasting remedy known as a "mistake proof " solution rather than only finding a simple fix or ignoring some errors and simply hoping they never occur again. It offers the capacity to develop adaptable solutions in a changing environment. It stops the mistakes from happening again. The

capacity to transform feedback into opportunities or ongoing process improvement is a crucial component of ACE. (Achieving Competitive Excellence, 2017)

The strong and competent leadership and empowered workforce of ACE is its greatest assets. Awareness-raising, supervised learning task execution (ACE Change Agent Training, High Impact initiatives), coaching, mentorship by seasoned ACE Change Agents, numerous improvement initiatives, and development through best practices and mobility are all included in the ACE competencies.

According to Achieving Commutative Excellence (2017), there are four levels of ACE implementation achievement standards namely: the Qualification level, the Bronze level, the Silver level and the Gold level. The Qualification level is generally on creating awareness on ACE operating tools. In the Bronze level advanced trainings are conducted on specific tools and major processes of a unit are identified in this level. At the Silver level, the first evidence of incremental improvement in customer satisfaction and on the process improvements are initiated for all key processes. Portal pages are created for each tool to register business results corresponding set KPIs. The protocol demands that everything that is executed should be documents and what ever is documented should be done. The portal pages are accessible to the ACE Cell members which are also used as information source for members while managers could follow up regularly the ACE status level by reviewing these pages regularly. At Gold level, identified problems are solved, procedures are developed for improved processes and significant improved results are registered. (Achieving Competitive Excellence), 2017

2.2 ACE Operating Tools

The foundation of ACE is a set of instruments that aid businesses in problem identification and resolution, process improvement, waste elimination, and strategic decision-making, all of which result in enhanced business operations and higher performance outcomes. Organizations can close the gap between anticipated and actual results by fostering a strong culture of employing these tools in their day-to-day activities.

According to Roth, 2010 and Thomas, 2004, there are ten ACE tools, which are divided into four major groups: process improvement tools, waste elimination tools, problem solving tools, and decision-making tools.

2.2.1 ACE Process Improvement Tools

There are number of sub tools in this category that are based on the principle of “lean manufacturing” (Roth, 2010). The principles of process improvement and waste elimination tools are based on what Womack & Jones called "lean thinking" in Roth (2010). Ultimately, it is based on value streaming, evaluate the value of specific products, identify the value stream for each product, ensure an uninterrupted value stream, enable customers to derive value from the product, and pursue perfection. Tools in this category are 5S+1, Value Stream Mapping - VSM, Process Management and Certification, Standard Work, Production Preparation Process (3P), Total Production Maintenance, Setup Editing.

2.2.2 ACE Waste Elimination Tools

Waste is defined as any cost or effort spent, but not enough to convert raw materials into items the customer is willing to pay for. (Gay, unconfirmed) By optimizing process steps and avoiding waste, it would be possible to create added value at every stage of production. There are two of ACE tools in this category: Value Stream Mapping (VSM), Total Preventive Maintenance (TPM) with a setup redaction tool (TPM + Setup Reduction tool).

2.2.3 ACE Problem-Solving Tools

The tools under this category are Root Cause Corrective Analysis, and Mistake proofing which is addressing a problem or turn back offering a lasting solution ensuring that it does not re-occur again. Activities such as brainstorming, automation and adopting best practices in the industry are some examples applied in the process of problem-solving. Problem solving tools are applied following problem identification tools such as Market Feedback Analysis through which information on customer service and product quality are gathered from internal and external customers.

2.2.4 ACE Decision-making Tools

Decision Making tools are managerial tools. This tools include sub-tools such as; Skill matrix that focuses on knowledge & skill development of employees, “Control Tower” where the business performance results are logged periodically and “Passport” tool which consists of escalated issues that needed the intervention and decision of management for example to increase headcount for a certain unit or revising or revising specific policy & procedure. The Passport System consists of a series of reviews or checkpoints designed to ensure that issues or setbacks not addressed by lower or middle management received the attention of corporate decision makers.

2.3 The ACE Implementation and organizational performance

The industry needs to continuously develop its production and service delivery methods in order to sustain its competitiveness and market share in this international market, claim Singh J and Singh H (2009). The driving force behind greater corporate performance is proving to be the constantly rising standards for both competition and customer service.

Organizations must strive to meet the ever increasing and changing demand of customers through offering high quality product or service, at a faster pace with affordable price. This would be achieved by reviewing major process and updating those processes targeting higher organizational performance. It is through this effort that value adding activities are identified and decisions would be make either to remove or replace non- value adding activities through effective process management continuous activity.

Performance management is the process of ensuring that organizational goals are achieved in the most effective manner. It can be used to measure company performance, departmental performance, and employee performance (Wikipedia, 2019). By measuring performance, organizations can determine if things are going as intended or if there are problems, so they can correct and address issues in a timely manner. Performance is measured based on key performance indicators set by senior management.

The ACE methodology stands on a philosophy about competitive excellence. It is an operating system (with tools) for controlling and improving our processes and eliminating waste; and is

about the competence, commitment, and involvement of the entire organization to live the philosophy and to apply the operating system to everything that the company does.

Proper implementation of ACE results in shorter turn-around times and on-time delivery, Inventory reduction. Reduced floor space; Improved communication and support; improved employee performance; increased customer satisfaction and positive financial returns

In the implementation of ACE, Ethiopian Airlines developed clear procedure and structured each department as ACE Cell and assigned personnel that would monitor and follow up its effective implementation.

Achieving Competitive Excellence – Abbreviated as ACE is a proprietary continuous quality improvement system developed by United Technologies Corporation, UTC and adopted by Ethiopian Airlines. It comprises both value stream and Coding as applicable.

The ACE Cell refers to the smallest organizational unit based on the organizational structure in each SBU or division that is recognized as an ACE operating unit. There would be the ACE Manager who functionally and administratively manage the ACE Cell. And the employee an employee under ACE cell assigned by the ACE manager to help in coordination of ACE activities within the unit is the ACE agent. The remaining employees within the department would be the ACE Cell members. And senior staff are assigned as ACE Tool Leaders while the department manager assumes the ACE Cell Manager task in addition to his/her functional duties.

There are different ACE status levels of the Cell as defined per Achieving Competitive Excellence protocol considering the degree of readiness and achievement in the implementation of the ACE. Accordingly, ACE cell levels fall into four categories of ACE Qualifying level, ACE Bronze level, ACE Silver level and ACE Gold level. The basic requirements or criteria for determining the level of certification and standardization of given ACE cell is stated in the ACE Protocol. ACE activities are documented on the company`s portal page dedicated for this purpose, the ACE Portal page.

2.3.1 Process Improvement and Organizational Performance

As defined by Ashogbon (2012), a process is an activity carried out with the aim of achieving a goal-oriented result that is expected to occur in stages. A process starts at a certain point and ends somewhere else. There are often several more sub-processes involving suppliers in between the process. Suppliers provide input and initiate mapping of current processes (current flow of activities) and identify areas for improvement and develop the To-Be process. To-be process is the improved future state process that a company wants to achieve to reach its goals. The goal of process improvement is to bring the process from its current state to the desired state.

2.3.2 Effect of Waste Elimination on Organizational Performance

TIMWOOD is a framework developed by Toyota to find and eliminate waste in production processes. TIMWOOD stands for Transport, Inventory, Motion, Waiting, Overproduction, Overprocessing, and Defects. These seven wastes are the focus of process improvement by identifying value adding and the non-value adding activities. Apart from the manufacturing industry, the TIMWOOD framework applies to all types of companies. This system helps identify waste within a company and find ways to eliminate it. At the same time, it helps improve processes through reducing production cost and time while improving quality.

2.3.3 Relation between Problem-Solving and organizational performance

Organizations must maintain their competitiveness in order to endure and flourish in a difficult and rapidly changing environment. Flexibility, effective management, and openness to change and innovation all closely correlate with competitiveness. Conscious change activities that result from the fact that change is inevitable make up organizational development.

Organizational change and development activities may be associated with search to detect, identify, mitigate, or resolve existing or potential organizational problems. Only an organization that can timely and accurately identify problems can consciously and proactively initiate organizational development activities in line with organizational goals. (Abdullah Karakaya, Qasim Yilmaz)

2.3.4 Effect of Decision-making on organizational performance

According to Forman E. & Selly M. (2001,), decision-making is defined as the process of choosing best alternatives from various options in order to achieve defined goals and objectives. One of the most crucial and fundamental business skills that managers and executives should master is decision-making. It has been demonstrated that businesses can increase their performance significantly by mastering sound decision-making procedures. (Vuorinen, 2014).

Forman E & Selly M. (2001) described decision-making as a three-step process of identification, development of alternatives, and selection. Identification is the first phase, followed by a determination of whether a decision or analysis is necessary. Searching and planning are steps in the process of developing alternatives. There are moments when one has to make decisions because of a discrepancy between what you want and what you have accomplished. However, decision makers should strive to understand and be aware of the alternative options available. The next step, developing alternatives, is a process that involves searching and planning. Finding alternatives and planning means looking for solutions (Vuorinen, 2014). The final step is the selection phase. The alternatives collected in the previous step are carefully considered, the remaining alternatives are evaluated, and finally the selected alternative is validated with administrator approval. Evaluation here involves three different methods: Judgement, analysis, and negotiation. Judgment is an internal decision-making between people. Negotiations require multiple people to make decisions and choose between them.

2.4 The Implementation of ACE within Ethiopian Airlines

According to the unit established by Ethiopian Airlines - the Corporate Quality Management System (QMS) unit is responsible for the continuous and system wide implementation of Achieving Competitive Excellence – ACE operating tool. According to the policy manual of Corporate QMS unit their mission is stated as below:

> *"It is our approach to relentlessly improve the value that we deliver to our customers. It focuses on the drivers of customer value: our processes and the people who fuel them. ACE involves everyone in the company starting from leaders to the employees alike and it touch all our processes that create and deliver customer value. ACE solicits feedback from our customers on what we need to do to strengthen our value to them and to increase their satisfaction with us. ACE also seeks feedback on where our business, product, or service performance has fallen short. ACE is the way that we control and*

improve processes that deliver customer satisfaction, business results, and enhance the effectiveness of our operations and Performance. ACE is how we solve problems, make critical decisions, and eliminate waste. And ACE drives our partners and suppliers to match our level of competitive excellence. In short, it is the way that we run our business and sustain it."

The ACE operating system consists of a collection of tools that help organizations identify and solve problems, improve processes, and make strategic decisions. Through consistent application of these tools, the organization propels the ACE operating system towards bridging the gap between actual results and business goals.

2.5 Empirical Review

A considerable amount of research has been done on quality improvement systems such as Six Sigma and their impact on business performance. There is however very little available related to the ACE quality-enhancing operating system. This is primarily due to the fact that ACE is a unique quality improvement system owned and developed by UTC and practiced only by UTC owned companies or affiliates (Thomas, 2004). The ACE operating system has been in practice at Ethiopian Airlines for over a decade, but its impact on the airline's overall performance has not been fully evaluated.

2.5.1 Problem-Solving and organizational performance

Process improvement aims to bring a process from its current state to its targeted state, with significant measurable improvements and deliverables that help achieve expected goals (Ashogbon, 2012**).** Like Chhabra (2000), system models identified process improvement as one of the areas that need intervention to achieve performance.

2.5.2 Process Improvement and organizational performance:

A study conducted in Texas by Chhabra (2000) showed that companies are making significant process improvements that have a positive impact on financial and operational performance. The identification and optimization of critical factors that affect the business processes' execution quality and speed in practice, and to prove that by combining simple methods and tools without

complex algorithms, a significant level of the process's optimization can be achieved, thus increasing efficiency (Yener & Yazgan, 2019). Leading companies emphasize customer centricity and process excellence to remain competitive (Machinini, 2010). A study at the University of Kenya by Kissing's et al(2016) showed that process improvement plays a positive and statistically significant role for sustainable competitive advantage (Kising`u et al., 2016).

Harrington, H.J. et al. (1997) stated, "A process is a set of interrelated tasks or actions, usually with some controlled subtasks aimed at achieving a goal. Process improvement can be a key step in improving overall organizational performance, as processes can have a significant impact on the contribution of individual performers. Chhabra (2000) also showed in research that process improvement practices in an organization can have significant financial and operational impacts. He further stated that process improvement is central to improving performance through process analysis and redesign.

2.5.3 Waste Elimination and Organizational Performance

It is becoming more and more obvious that cutting total costs and waste throughout the supply chain is the only way for businesses like the aviation sector to remain competitive. Myers and Stewart (cited in Namrouty & AbuShaaban, **2013)** described lean manufacturing as a concept in which all production team work together to avoid waste. This demonstrates the need for committed personnel to ensure the performance anticipated from the quality system in place. The seven wastes that the lean manufacturing philosophy focuses on are overproduction, inventory, overprocessing, movement, waiting, defects, and transportation (Poppendieck, 2002).

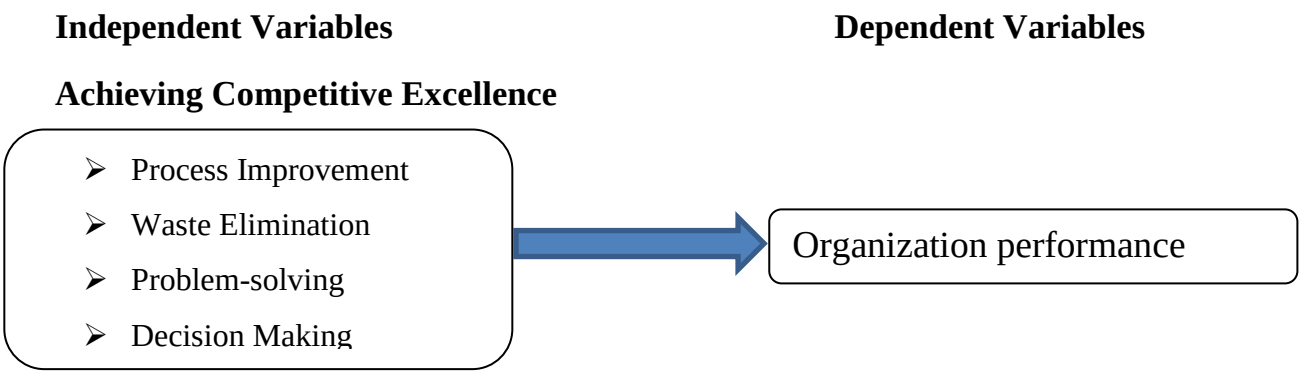
2.5.4 Decision-Making Tools

Efficiencies within supply chains largely depend on management decisions. (Goa & Liu, 2014) and according to Vuorinen (2014), to define and comprehend the decision-making process, theory, methods, practices, and tools are crucial, yet they may not be as important if data are not correctly analyzed. He also went over the decision-making processes and accessible tools for scenarios that businesses were looking into. He has studied benchmarking, SWOT analysis, and brainstorming as tools.

2.6 Conceptual Framework

A conceptual framework is a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. (Kombo and Tromp,2009). The framework describes the relationships between Achieving Competitive Excellence and organizational performance. Based on the different kinds of literature reviewed, the conceptual framework depicted in the below figures is adopted in this study. Dimensions of achieving competitive excellence related to the research question are categorized as independent variables while organizational performance is categorized as a dependent variable shown as below:

Figure 1: Conceptual Framework



2.7 Hypothesis of the Study

A hypothesis is a prediction of something that might happen based on observations. Hypotheses are educated guess based on existing knowledge and observations. A hypothesis is a tested statement that expresses a logically inferred relationship between two or more variables. It is a formal expression of an uncertain but empirically testable hypothesis. (Khalid et al., 2012) Hypothesis testing is also used to account for variation in dependent variables and prediction variables (Engle, 2015). Therefore, this study developed and tested the following four research hypotheses, mainly based on previous research findings from the literature**.**

Hypothesis 1. The implementation of Process Improvement tools of ACE has a significant and positive effect on organizational performance.

Hypothesis 2. The implementation of Waste Elimination tools of ACE has a significant and positive effect on organizational performance.

Hypothesis 3. The implementation Problem Solving tools of ACE has a significant and positive effect on organizational performance.

Hypothesis 4. The implementation Decision Making tools of ACE has a significant and positive effect on organizational performance.

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Chapter Three

3. Research Methodology

3.1 Description of the Study Area

This study focuses on assessing the effect of Achieving Competitive Excellence of Ethiopian Airlines on its organizational excellence. Ethiopian Airlines (ET) is a flag carrier of Ethiopia fully owned by the government. It is currently ranked the leading and largest African Airline with its Fleet size, number of destination served , number of passengers transported, and revenue and profit earned. The study focused on the contribution of ACE to improve the organization's performance and success of the airline. Under this topic: the research design and approach, target population and sampling techniques, method of data collection and analysis, and instrument validity & reliability test are discussed as below.

3.2 Research Design

The research design is the conceptual structure or master plan of the study which specifies the methods and procedure for collecting, measuring, and analyzing the needed data. It is a blueprint that plans the action and activities of the research project. A research design is the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure". Kothari (2004).

In order to capture the logical structure of the study, the researcher used both descriptive and explanatory research designs. These designs clearly attest to the implementation of Achieving Competitive Excellence of the company as well as show its effect on organizational performance. Explanatory research helps to look for reasons or causes and to provide evidence

and explanation that support or refute an explanation. It helps to answer both the why and how aspects of the research question. This design helped in establishing the cause-and-effect relationship between variables of the study Achieving Competitive Excellence dimensions and organizational performance.

3.3 Research Approach

There are three different types of research methods qualitative, quantitative, and mixed method, and the applicable research approach is determined based on the nature of the data to be collected. For this research, the researcher used a mixed method, both quantitative and qualitative research approach designed with close-ended and open questions.

According to Creswell (2014), the quantitative approach is preferred as it attempts to examine the relationship between variables, which are measured numerically and analyzed using a range of statistical and graphical techniques. Quantitative research has its strength as it generates precise, numerical data from large survey sizes. Moreover, the findings are more reliable and can be generalized and replicated in many populations (Maxwell and Delaney, 2004). Therefore, quantitative method is selected as it helps produce reliable and quantifiable data that can potentially be generalized to a large population in a short period of time. On the other hand, the qualitative method is also applied as it helps to ask questions that cannot be easily put in numbers and to understand employees' experience. Kothari (2004:8) asserted that qualitative research is a kind of research which mainly deals with the prejudiced assessment of subjects. The researcher used a qualitative research approach to figure out the day-to-day ACE implementation challenge, benefit and other related factor which affects the organizational performance focusing on management members starting from Team leaders (supervisors) level in order to obtain more factual feedback based on their experience and level of responsibility as they are also given the assignment of being ACE operating tool leader.

3.4 Population and Sampling Design

Based on Ethiopian Airlines Human resource department the past fiscal year (2021/22) report, the total number of permanent employees and management staff serving the airline in different positions at Addis Ababa Bole headquarters is more than 13,000. Among these around 9000 are permanent staff based in Addis Ababa. Employees working outside Addis Ababa, in international stations, contract, part-timers, and junior employees with less than one year of service are excluded from the target population. This is due to accessibility, cultural difference, luck of experience and expertise those working for less than 1 year and part-timers might not be familiar with ACE, and they might have not practices the ACE tools comprehensively. Accordingly, the population of this study is around 9000 permanent employees of the airlines. In addition, the researcher also considered a total of 40 management members of Ethiopian Airlines as population those working at the management position and who are working at Addis Ababa headquarter of Ethiopian Airlines.

3.5 Sample Size Determination and Sampling Technique

3.5.1 Sample Size Determination

It is not feasible to study the whole population due to constraint factors like feasibility, accessibility, and cost implications. So, it's very crucial to choose a sample that is a genuine representative of the population. The practical limitation: cost, time and other factors which are usually operative in the situation stand in the way of studying the total population (Singh, 2006). There are several methods for determining the sample size. In this paper, the researcher adopted a sample size determination formula from Yamane's (1967) formula has been used to calculate the sample size for this study. The sample size determination formula is as presented below:

$$n = \frac{N}{1+N(e^2)} \qquad n = \frac{9000}{1+9000(0.05)^2} \qquad n = 383$$

Where "N" is the population size and "e" level of precision n=sample size

This formula assumes a degree of variability (i.e., proportion) of 0.05 and a confidence level of 95%. Thus, the total sample size is 383. Further, the researcher selected 40 team leaders and middle management members for the purpose of conducting interview.

3.5.2 Sample Technique

The next step after the determination of the representative sample size is selecting representative respondents and applying appropriate sampling techniques. Accordingly, simple random sampling techniques are used as a sampling technique. The sampling frame is divided into homogenous, non-overlapping groups called strata which are departments in this study. Then proportionate stratified sampling was drawn from each stratum in proportion to employee size.

Sekaran (2003) stated that stratified random sampling involves a process of stratification, followed by a random selection of subjects from each stratum.

Table 1: Sample size by division

NO*	Division	Total No of Employees	The sample size for strata	Percentage of Strata
1	ET MRO	1350	58	15%
2	Customer Service	2070	88	23%
3	Ethiopian Cargo And Logistics	1530	65	17%
4	Addis Hub Ground Service	1890	80	21%
5	Corporate HR And Finance	990	42	11%
6	Other Functional Department	1170	50	13%
	Total	**9000**	**383**	**100%**

Source: own survey 2023

3.6 Data Collection Instrument

This study largely utilized primary data collection methods through survey methods by using standard questionnaires and interview. According to Krishnaswami and Ranganatham

(2007), the advantage of this method is that it is less expensive, permits anonymity and may result in more responses that are honest. And factual. Moreover, secondary data is gathered from both published and unpublished theoretical literature. Books, company procedure manuals, Ethiopian Airlines periodic reports, Dissertations, online sources, and scholarly journals were reviewed for secondary source data. An interview on the other hand will enable the researcher to obtain additional information based on factual experience through selection of appropriate candidates in this case team leaders and managers from various departments.

The five-point Likert scale (i.e., Strongly Agree, Agree, Moderate Agree, Disagree, and Strongly Disagree) applied in the questionnaire to obtain and measure the responses of the respondents. The advantages of using the Likert scale are that it is simple to construct a questionnaire, and easy and less time taking to read and complete. The questionnaire is designed from different previous literature on related topics and customizes to fit the research problem. Sample questionnaires were distributed to pre-test and check their appropriateness for gathering all the required information and adjusted based on initial recommendations. The reason for the selection of the questionnaire is it`s a relatively inexpensive, faster, and efficient way of collecting extensive data at a lesser cost and to have access to wide geographical area coverage in a relatively reasonable span of time.

3.7 Method of Data Analysis

The collected data were analyzed using the quantitative and qualitative data analysis method. Descriptive analyses such as frequencies and percentages are used to present quantitative data in the form of tables and graphs. Data were coded and entered d the computer using the statistical package for social science (SPSS Version 20) for analysis. It gives means, standard deviations, correlations, coefficient of variables, and All ANOVA results including statistical model specification output, and frequency distribution of each independent and dependent variable. Inferential statistics are used for the organizational performance regression against the four independent variables (process improvement, waste elimination, problem-solving and decision-

making) with the multiple regression models and its ANOVA. The mean and standard deviation are the most descriptive statistics used in this study to describe the data.

The research used the statistical model specification methods to determine which independent variable to include and exclude from a regression equation and to avoid biased results. These statistical models' specifications are selected models that have larger adjusted and predicted R-squared values, the p-values have been less than the significance level but reducing the model until the model contains only significant terms and by omitting variable bias in multiple regression model.

The model specification equation multiple regression models are as follows.

$$OP= \beta 0+ \beta 1\ X1 + \beta 2\ X2 + \beta 3\ X3 + \beta 4\ X4 + \varepsilon$$

Where:

- OP (Organizational Performance) in the dependent or predicted variable.
- β 0 is the OP intercept, i.e., the value of OP when X1, X2, X3 and X4 are 0.
- $\beta 1$, $\beta 2$, $\beta 3$, and $\beta 4$ are the regression coefficients representing the change in OP relative to the one-unit change in X1, X2, X3 and X4 respectively.
- ε is the model's random error (residual) term.

3.8 Reliability Test

To measure the reliability of data, the widely used Cronbach's Alpha approach was applied to test as a measure of internal consistency to validate the questionnaire survey and to measure the consistency of the questions. The alpha factor varies between 0 and 1, and values below 0.5 generally indicate poor confidence in internal consistency and are unacceptable (Ramayah, 2011). According to Zikmund et al. (2000) a scale of alpha coefficients between 0.6 and 0.7 indicates reasonable and acceptable reliability.

Table 2: Reliability Test

Each Variable Reliability Statistics

	Number of Items	N	Cronbach's Alpha
Process Improvement	3	35	.898
Waste Elimination	6	35	.888
Problem-Solving	6	35	.884
Decision-Making	5	35	.909
Organizational Performance	8	35	.847
Total number of Item	**28**		

Sources: Own-survey 2023

Based on the ranges above, all 28 designed variables proved to be good measures of internal consistency. The variable's alpha coefficient is greater than 0.8, meaning that the reliability of the data is acceptable.

3.9 Validity Analysis

Validity is the extent to which differences detected by an instrument reflect actual differences among test subjects (Kothari, 2004). On the other hand, effectiveness is the most important criterion, it tells you how well an instrument measures what it's supposed to measure. To assure study quality, the suitability of the study's design and organization was examined. According to Kothari (2004), content effectiveness is the extent to which the instrument adequately covers the research subject. Content effectiveness is good if the instrument contains a representative sample of the universe. Based on this, the validity of the content was checked by experts.

3.10 Ethical Consideration

The personal integrity of each participant was respected in conducting the study. Prior to initiating information collection, each study participant was adequately and clearly informed of the purpose of the study and asked for verbal consent. The researcher never requested information from participants without their prior consent. Information provided by each respondent will be kept confidential and used for research purposes only.

Chapter Four

4. Data Analysis, And Interpretation

4.1 Response Rate of Respondents

According to Saunders (2002), a response rate of 70% and above for a questionnaire survey is sufficient to carry out the analysis. Accordingly, the below table showed that the researcher distributed 383 questionnaires to the respondents, and 341 were returned which makes the response rate approximately 89%. Therefore, the response rate is highly acceptable to carry out analysis and generalize the study.

Table 3: Respondent's Response Rate

Questionnaire Distributed	Returned Questionnaire	Returned %
383	**341**	**89%**

Source: own survey 2023

The questionnaires were distributed to employees of Ethiopia at the main headquarter of Ethiopian Airlines. Fundamental aspects of achieving competitive excellence are improving processes, eliminating waste, solving problems, and supporting decision making tools and they have significant impact on business performance. A multiple regression modeling approach has been proposed as an effective way to study the relationship.

The results of this multiple regression model are analyzed and discussed in this chapter. Statistical analysis in this study was performed using SPSS software version 20 and the results of the study are presented in the Inference and Explanation section. Charts are used in the tables in the description section and the results of several linear regressions are analyzed in the inference section.

4.2 Demographic factors of respondents

Table-3 below shows the respondent's profile for providing background information about the respondents concerning the gender distribution of respondents, among the total respondents 120 (35.2%) are females whereas 221 (64.8%) are males. This response rate shows the male respondents are significantly high when compared with their female.

Table 3 : Respondents' Profile Analysis

No	Item	Characteristics	Frequency	Percentage (%)
1	Gender	Male	221	64.8
		Female	120	35.2
2	Age Group	20-30	184	54.0
		31-40	111	32.6
		41-50	33	9.7
		51-60	11	3.2
		61 and above	2	0.6
3	Academic status	Diploma	29	8.5
		First Degree	253	74.2
		Second Degree &Above	59	17.3
5	Work	1-5	194	56.9

Experience	6-10	109	32.0
	11-15	18	5.3
	16-20	12	3.5
	Above 20	8	2.3

Source: Survey Result (2022)

The age distribution among respondents showed that 54.0% of them are between the ages of 20-30 years. Whereas those between 31-40, 41-50, 51-60 and above 61 years only account for 32.6%, 9.7%, 3.2% and 0.6% of the study participants, making it the least represented age group respectively. The fact that most of the respondents, which is 86.6%, are below 40 years indicated that the employees of Ethiopian Airlines are young employees who can contribute more to the achievement of company objectives.

Respondents' profiles regarding their educational status revealed that the majority 253 (74.2%) of respondents are first-degree holders; 59 (17.3%) are master-degree holders and the remaining 29(8.5%) are diploma holders. The fact that all the respondents are above college diploma and most of the respondents or around 91.5% hold first or second degree reveals that the people taken as subjects of the study are capable of understanding and answering the questions provided to them.

In terms of multiple years of work experience, the sample population was mostly consisting of newcomers with 1-5 years of service, accounting for 194 (56.9%) of the total respondents. 109 (32.0%) 5-10 years, 18 (5.3%) 11-15 years, 12 (3.5%) 16-20 years, and only 8 (2.3%) 20 years or more.

4.3 Descriptive Analysis

The reason for using descriptive statistics is to use mean and standard deviation values to compare the factors that influence the level of performance of an organization to achieve competitive excellence. Mean values indicate degree of agreement and a lower average indicates that most respondents disagree, while a higher average indicates that they agree**.** According to

Zaidatol **et** al., (2012), mean = 1.00 - 2.33 are low values**,** mean = 2.34 - 3.67 are moderate and mean = 3.68 - 5.00 are high values.

Standard deviation was also used to indicate the deviation of measurements from the mean**.** A higher standard deviation indicates a greater spread of values from the mean. Although the values are lower, the values around the mean are more similar or evenly spread, indicating a narrower distribution (Mark et al., 2009).

In terms of this descriptive statistic, implementation of the 'Achieving Competitive Excellence' factor affecting the airlines performance is at a moderate level, averaging 3.474 on a 5-point Likert scale. This means that process improvement, waste elimination, problem solving, and decision making are affecting the airlines performance.

Table 4: Descriptive analysis

Descriptive Statistics

	N	Mean	Std. Deviation
Process Improvement	341	3.766	.6097
Waste Elimination	341	3.490	.5484
Problem-Solving	341	3.528	.5651
Decision-Making	341	3.283	.6123
Organizational Performance	341	3.304	.5474
Valid N (listwise)	341		

Source: own survey 2023

From the descriptive statistics performed using the data collected relating to the effect of the implementation of Achieving Competitive Excellence on organizational performance, the effect with the higher mean is process improvement (3.766) and the effects with the moderate means included problem-solving (3.528), waste elimination (3.490), and decision-making (3.283). These affirms that responses majority of the respondents admitted almost all factors are moderately significant factors to the organizational performance at Ethiopia Airlines.

4.4 Inferential Statistics

In this section, the result of inferential statistics employed in the study supported on Pearson correlation coefficient and multiple regressions were elaborated.

Multiple regression is statistical methods used to explain the relationship between the variables. Regression models were calculated to examine the significant impact of the Achieving Competitive Excellence on Ethiopian Airlines' performance. This regression is performed to see how well the independent variables explain the dependent variable. It is also used to understand how much each independent variable process improvement, waste elimination, problem solving, decision making explains the performance of the dependent variable, the organization. Regression models represent the extent to which differences in measures of organizational performance are explained by the underlying dimensions for achieving "achievement of competitive excellence" in airline performance this dimension was used as the dependent variable and the Achieving Competitive Excellence dimensions were used as the independent variables.

4.4.1 Regression Assumption Test

4.4.1.1 Test of Normality Assumption

The data should be tested for normality before the skewness and kurtosis of the data are evaluated. According to Field (2005), normally distributed data assume that the data come from one or more normally distributed populations. The logic behind hypothesis testing relies on a normally distributed population. So, if these assumptions are not met, the logic behind hypothesis testing is flawed. Therefore, the researcher calculated the S (skewness) and K (kurtosis) values and their respective standard errors. Absolute values between -2 and +2 for skewness and kurtosis are expected to be significant at $p<0.05$. Larger samples have smaller standard errors. For large sample sizes, even small deviations from normality in both skewness and kurtosis yield significant values (Field, 2005).

Table 5: Normality Test

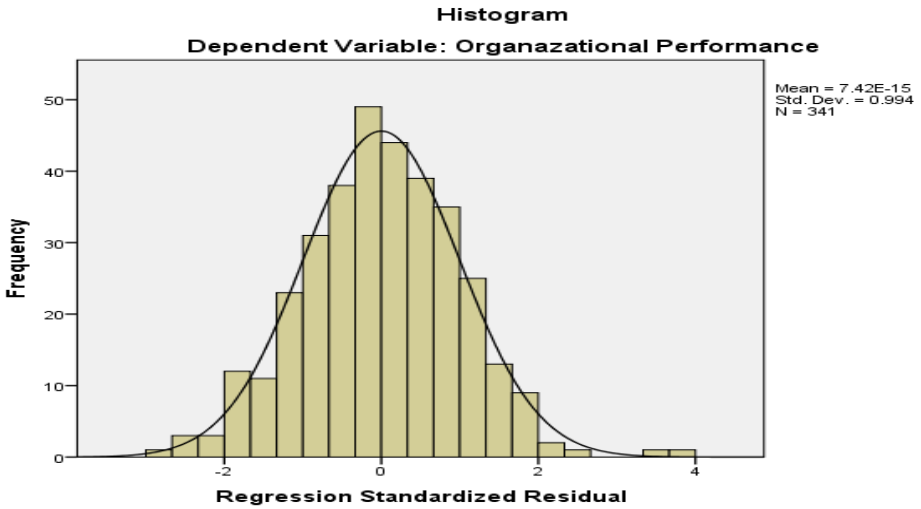
Descriptive Statistics

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Process Improvement	341	-.228	.132	-.519	.263
Waste Elimination	341	-.050	.132	-.511	.263
Problem-Solving	341	-.171	.132	-.175	.263
Decision-Making	341	.160	.132	-.159	.263
Organizational Performance	341	.265	.132	-.263	.263
Valid N (listwise)	341				

Source: own survey 2023

As the above table result, the researcher would conclude that all the absolute values of skewness and the kurtosis are between -2 and +2 and it indicates that all the ACE implementation dimensions significantly affected the organizational performance of Ethiopian Airlines dependent variable.

Figure 2: Normal distribution Histogram



4.4.1.2 The Assumption of Multicollinearity

The assumption is that there should not be a high degree of relationship between the independent variables**.** If high correlation values are found, they are said to be multicollinear. A tolerance of 1 means no multicollinearity, and tolerances approaching 0 indicate severe multicollinearity

problems**.** Commonly used cutoff values for determining the presence of multicollinearity are tolerance values less than 0.10 or VIF values greater than 10 (Pallant, 2005).

Table 6: VIF and tolerance for Multicollinearity

Coefficients

Model		Collinearity Statistics	
		Tolerance	VIF
1	Process Improvement	.366	2.730
	Waste Elimination	.337	2.965
	Problem-Solving	.360	2.780
	Decision-Making	.547	1.828

a. Dependent Variable: Organizational Performance

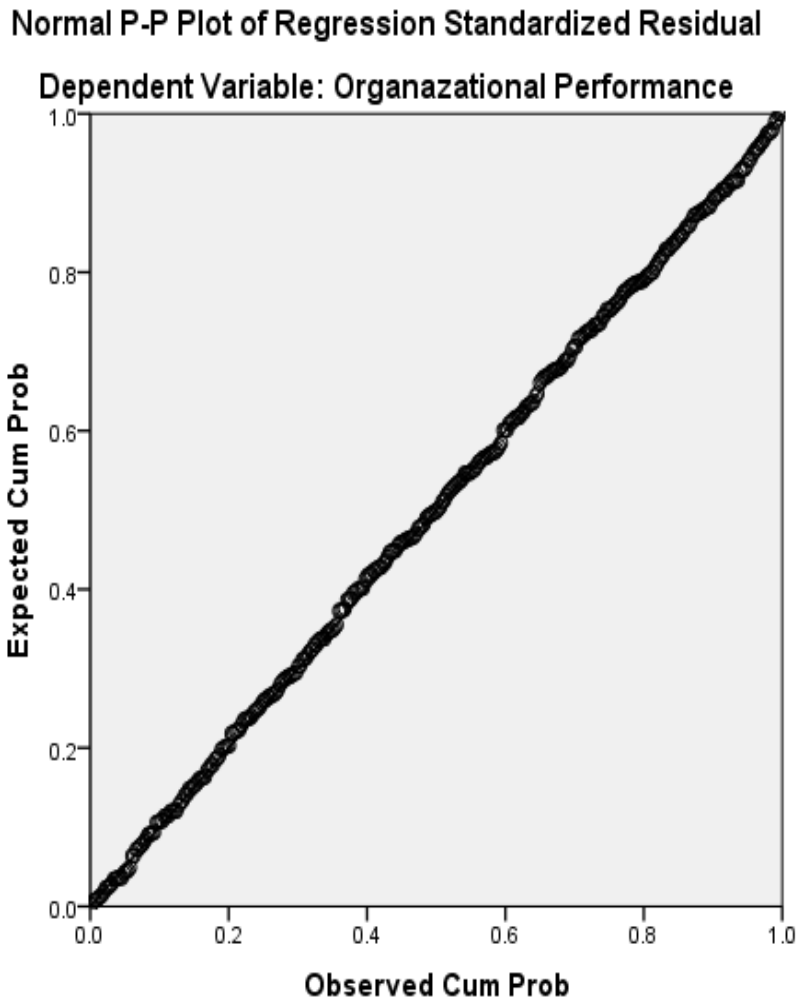
Source: own survey 2023

As shown in the table above, the multicollinearity problem assumption fails because the VIF values are less than 10 for all explanatory variables or the tolerance is greater than **0.**

4.4.1.3 The Assumption of Linearity

Linearity determines whether the relationship between dependent and independent variables for process improvement, waste elimination, problem solving, and decision making is linear. Plots of regression residuals using SPSS software were used. Also, the scatterplot of the residuals in the figure below does not show much difference in the scatter of the residuals. This result suggests that relationship researchers were trying to predict a linear relationship.

Figure 3: Linearity Test



4.4.1.4 Correlation Analysis

Correlation is synonymous with association or relationship between variables. A correlation coefficient is a statistical measure of how much a change in the value of one variable predicts a change in the value of another variable. A higher correlation value indicates a stronger relationship between the two data sets (Coetzee, 2003). Correlation coefficients are expressed as values from +1 to -1. A coefficient of +1 indicates a perfect positive correlation. A coefficient of -1 indicates a completely negative correlation.

To interpret the results, it is advisable to refer to a definition (Franzblu, 1985) containing the five classical rules for interpreting the correlation coefficient between two different variables, as shown below. For example, (r=0 to 0.20) indicates negligible or no correlation, (r=0.2 to 0.40)

indicates positive but weak correlation, (r=0.4 to 0.60) indicates positive and moderate correlation**,** (r=0.6 to r=0.8) indicates a strong positive correlation and (r=0.8 to 1.00) indicates a highly positive correlation.

Table 7: Correlation Analysis

Correlations

		Process Improvement	Waste Elimination	Problem-Solving	Decision-Making	Organizational Performance
Process Improvement	Pearson Correlation	1	.758**	.688**	.590**	.808**
Waste Elimination	Pearson Correlation	.758**	1	.737**	.534**	.820**
Problem-Solving	Pearson Correlation	.688**	.737**	1	.641**	.788**
Decision-Making	Pearson Correlation	.590**	.534**	.641**	1	.769**
Organizational Performance	Pearson Correlation	.808**	.820**	.788**	.769**	1

**. Correlation is significant at the 0.01 level (2-tailed).
Source: own survey 2023

In this study, the correlation results are shown in Table **7.** This illustrates the relationship between the values of organizational performance variables that pertain to process improvement, waste elimination, problem-solving, and decision-making and the attainment of competitiveness.

Accordingly, the correlation result of process improvement and waste elimination has a positive and higher degree of correlation between organizational performance with the correlation coefficient of (r=0.808, P=000) and (r=0.820, P=000 respectively. Moreover, the correlation result of problem-solving and decision-making have positive and marked degrees of correlation with the correlation coefficient of (r=0.788, P=000) and (r=0.769, P<0001 respectively. This indicates that a positive and higher degree correlation value is seen between the overall ACE implementation and organizational performance.

4.4.2 Regression Result Analysis

The overall regression result is summarized as follows:

Table 8: Analysis model summary of R and R Square

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.928[a]	.860	.859	.2057	.860	518.143	4	336	.000

a. Predictors: (Constant), Decision-Making, Waste Elimination, Process Improvement, Problem-Solving

b. Dependent Variable: Organizational Performance

Sources: Own Survey 2023

As it is indicated in the above table, the correlation between the dependent and independent variables is given by R and R square -value 0.928 and 0.860 respectively. Additionally, the adjusted R square values are given by 0.859. This is interpreted as approximately 86% of the variance in organizational performance (dependent variable) is explained by the independent variables, while 14% of the variation in organizational performance can be attributed to other variables which are not considered in this study.

Therefore, the implementation of Achieving Competitive Excellence of dimensions such as process improvement, waste elimination, problem-solving and decision-making are excellent explanatory variables of the organizational performance level of Ethiopian Airlines, but it does not mean that all these factors of the implantation of the achieving competitive excellence dimensions have equally significant correlation with organizational performance level.

Table 9: ANOVA Summary

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	87.656	4	21.914	518.143	.000[b]

	Residual	14.211	336	.042		
	Total	101.867	340			

a. Dependent Variable: Organizational Performance

b. Predictors: (Constant), Decision-Making, Waste Elimination, Process Improvement, Problem-Solving

Source: own survey 2023

The F-test results and significance values in the ANOVA table (9) indicate whether the overall regression model is a good predictor and whether the probability of this outcome occurred by chance. A significance value of 0.00 is less than 0.05. Therefore, the model is statistically useful in predicting how process improvements, waste elimination, problem-solving, and decision-making support to achieve competitive excellence will impact student academic performance. significantly. The critical F-value at the 5% significance level is 0.00, indicating that the overall model is significant.

Table 10: Multiple Regression Coefficient

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.232	.079		-2.940	.004
	Process Improvement	.216	.030	.241	7.162	.000

Waste Elimination	.344	.035	.345	9.822	.000
Problem-Solving	.139	.033	.144	4.228	.000
Decision-Making	.314	.025	.351	12.734	.000

a. Dependent Variable: Organizational Performance

Source: own survey

Researchers examined the relative importance of each independent variable, starting with the Beta Coefficient table, with emphasis on standardized beta coefficient values.

Therefore, a multiple linear regression equation for the dependent variable (organizational performance) and the four independent variables of process improvement, waste elimination, problem solving, and decision making takes the form of the following regression equation:

$$OP= \beta 0+ \beta 1\ X1 + \beta 2\ X2 + \beta 3\ X3 + \beta 4\ X4$$

Where:

- OP (Organizational Performance) in the dependent or predicted variable.
- X1: process improvement, X2: waste elimination, X3: problem-solving and X4:decision making.
- β 0 is the OP intercept, i. e, the value of OP when X1, X2, X3 and X4 are 0.
- β1, β2, β3, and β4 are the regression coefficients representing the change in OP relative to the one-unit change in X1, X2, X3 and X4 respectively.

Based on **Table 10** and **considering** the unstandardized beta **values,** the regression equation **for** this study can be expressed as:

OP = -0.232 + 0.216X1 + 0.344X2 +0.139X3+ 0.314 X4

Interpretations from the equation

- **As a** result of multiple regression analysis, it was found that ACE's waste elimination tools have a positive and significant impact on airlines performance with a coefficient value of 0.344 and a significance level of 0.000. Keeping everything else the same, increasing the

implementation of the waste elimination tool by 1 unit or 100%, the improves the organization's performance increase by 0.344 units or 34.4%.

- In addition, the results of multiple regression analysis show that the implementation of ACE decision-making tools has a positive and significant impact on organizational performance with a coefficient value of 0.314 and a significance level of 0.000. When all other (independent) predictors were set to constant values, a 1 unit or 100% increase in the value of the ACE decision-making tool then the organizational performance increase by 0.314 unit or 31.4%.
- The results of the multiple regression analysis, with a coefficient value of 0.314 and a significance level of **0.000,** indicate that the implementation of ACE decision-making tools has a significant positive impact on organizational performance. Increasing the implementation value of the ACE decision -making tool for airlines by 1 unit or 100 percent and setting all other (independent) predictor variables to constants, resulted in a value of 0.314 units for the organizational performance (dependent) response variable, or 31.4 % increases**.**
- Furthermore, multiple regression analysis showed that the implementation of ACE process improvement tools had a positive and significant impact on organizational performance with a coefficient value of 0.216 and a significance level of 0.000. With all other (independent) predictors set to constant values and one unit or 100% increase the value of ACE's process improvement tools, the organizational performance (dependent variables) increased by the 0.216 unit or 21, 6%
- Finally, ACE's problem-solving tools has a significant positive impact on airlines performance with a coefficient value of 0.139 and a significance level of 0.000. With all other predictors set to constant values, a one unit or 100% increase in ACE problem solving tools implementation, increases the value of the organization's performance by 0.139 units, or 13.9%.

All explanatory variables have a significant positive impact on Ethiopian Airlines' organizational performance. The results provide important support for the process improvement, waste elimination, problem-solving, and decision-making tools in the ACE literature that advocate variables affecting Ethiopian Airlines' organizational performance.

This result has been supported and aligned with different empirical evidence such as according to Chhabra (2000) and his research result showed that process improvement practices in an organization can have significant financial and operational impacts and generally according to Singh J and Singh H (2009), the industry needs to continuously develop its production and service delivery methods in order to sustain its competitiveness and market share in this international market claim.

4.4.3 Hypothesis Testing Statements Interpretation

In this study, researchers found that four hypotheses derived from four independent variables or predictors: process improvement, waste elimination, problem solving, and decision-making had significant relevance to organizational performance.

Table 11: Summary of hypotheses testing

	Hypothesis	Result
H_1	1. The implementation of process improvement tools of ACE has a significant and positive effect on organizational performance.	Accepted with P=0.000 <0.05 β =0.216
H_2	The implementation of waste elimination tools of ACE has a significant and positive effect on organizational performance.	Accepted with P=0.000 <0.05 β =0.344
H_3	The implementation of problem-solving tools of ACE has a significant and positive effect on organizational performance. .	Accepted with P=0.000 <0.05 β =0.139
H_4	The implementation decision-making tools of ACE have a significant and positive effect on organizational performance.	Accepted with P=0.000 <0.05 β =0.314

Source: own compilation 2023

4.5 Interview Analysis and Discussion

4.5.1 Management Members Demography Characteristics Analysis

The researcher considered the demographic variables of the management members' interviewees such as the gender, age, education, and work experience and position of the employees for the overall validity of the research. The gender issue is important as it would indicate whether there is gender balance in the research. Similarly, variables such as age, education, and work experience are very significant for it would give the student researcher variety of views to investigate.

Table 12: Management Members' Respondent's Demography Characteristics

Variable	Response	Frequency	Percentage
Gender	Male	28	70
	Female	12	30
	Total	40	100
Age	30-45	19	47.5
	46-60	21	52.5
	Total	40	100
Education	Degree	17	42.5
	Masters	23	57.5
	Total	40	100
Work experience	15-16 Years	24	60
	16 and above Years	16	40
	Total	40	100

Source: Own Survey Data (2023)

As shown in the above table there represented gender is male which is 52.5% and 47.5% female. Furthermore, 47.5% of the participants were young adults while 52.5% were middle-age-adults who covered the majority. In terms of their educational background, most of the participants (57.5%) were found to have a master's degree in a certain field of study and the reaming 42.5% of the interviewees have bachelor's degrees.

Finally, regarding the work experience of interview respondents about 60% have between 15-16 years of work experience, and the rest 40% of the respondents (management members) have 16 and above years of work experience in Ethiopian Airlines. Since the respondents (management members) are qualified and experienced and almost all of them being active role players in the implementation of ACE the information given by them is reliable.

4.5.2 Interview Summary and Discussion

Based on the management members' interviews about their understanding of Achieving Competitive Excellence, most of the management members have understood the concept of ACE and they stated "*ACE is an operating system that consists of tools that help an organization identify and solve problems and improve its process and make strategic decisions. It contributes to the betterment of customer service and cost-saving. In addition, they also explained "ACE is a very useful tool to identify the gap, analyze operating tools that applied in the section and to excel the current practice that can bring business result and customer satisfaction. It also prompts the participation of all employees to achieve organizational goals. It gives an opportunity to listen to the customer's voice that is collected through market feedback and brings turnbacks (service problems) to the attention of the organization for correction and improvement." They added that "Through adopting ACE continuous improvement methodology results in easing of tasks while increasing output. It was discussed that ACE is process improvement method whereby organization gain substantial savings by avoiding waste and excelling in customer service and therefore remain competitive and successful all its aspects with stringent application of the ACE tools. Generally, ACE is a continuous improvement operating tool used to control costs, increase responsiveness towards highly demanding customers while offering high quality standard service throughout the airlines network. ACE is a process of incremental steps in which small improvements are achieved, while major results are more obvious over an extended period. As an example, the airline benefits through reviewing and optimizing flight plan of its aircrafts corresponding each route and saving large amount from fuel expense. Moreover, the executive management`s decision on the purchasing of fuel-efficient aircrafts such as the B787which is 20% fuel efficient has contributed significantly towards its successful achievements. ACE is designed to continuously improve processes and eliminate waste, to*

search for ways to find and solve problems and wastes, and to provide a sound basis for making decisions.

It was also possible to confirm through the interview that almost all management members pointed out they were considering ACE as the operating tool, and they were familiar with it as they are either tool leaders of a specific ACE tool, ACE Cell change agent or ACE Cell managers of their department.

Upon being requested on their overall outlook on ACE, they stated that ACE has more benefits to their department such as is not complicated to implement and helped them to streamline their processes across the entire system , identify gaps , work to solve it , obtain general and real time market feedback from internal and external customers, minimize their response time and cost and give systematic solutions to turnbacks, and standardize their process and achieve higher customer satisfaction." Some stated that the implementation of ACE is actually an exciting exercise as there is no end to it but is continuous improvement addressing the consequences of changes in the industry.

The management members were also asked to explain the challenges faced while implementing ACE which they explained as follows:

> "*The major change of implementing ACE is lack of ownership by some of the staff specially most junior ones and they consider it as extra work on top of that is expected of them based on their job description. To mitigate such resistance the ACE change agents conducted continuous awareness sessions on a general overview of ACE and on specific ACE tools. Other challenges are some passport items which are escalated to higher management for resolution sometime take longer time specially when the turnback requires high capital expenditure such as purchasing of a simulator for a newly purchased aircraft. They also added that although the company has declared Thursday for performing ACE activities, units and employees are tied up with operational routines and fail to consistently focus on ACE activities. Nevertheless, as employees and management team involve themselves more in ACE activities and started to enjoy the significant performance gains as a result, they have accepted the ACE methodology as an operating tool for everything they do every day. It is not any more a burden but a process*

improvement tool that brings standardization to what they do and hence simplifying their day-to-day activity."

With regards to the overall organizational performance improvement, it was concluded from the responses on the interview that "*they believed ACE has several benefits on the organization performance such as it helped to benchmark and adopt best practices within the industry to update their processes to higher standard and perform better". A team leader from the Call Center stated that, "thanks to the adoption of industry best practices, the department managed to address the employee complaints following the poor quality of headsets which caused ear problems before. Due to this issue, the department used to have higher rate of absenteeism and sick leave which is now significantly reduced following the acquisition of headsets which is benchmarked with that of Lufthansa which is a star alliance member airline. In addition, following an escalated passport case to higher management, the Call Center Office is now moved to a noise-free location building enabling the telephone handling agents handle customers without noise pollution or destruction applying the 5S+1 tool primarily followed by decision making tool of the management." Generally, the implementation of ACE has contributed to the improvement of quality and standard of the airline`s performance*.

Based on the information collected, most of the management members agreed that ACE has indeed changed their view on how to run the day-to-day activities. They have become more cost sensitive and hence alert on any waste identified in their processes, they have understood that past success stories do not guarantee the future and the industry is in continuous change. It is only through the adoption of new continuous methodology that the organization could be able to compete and stay in business. They have acknowledged that the major ACE tools: Process improvement; Waste Elimination; Problem Identification and Decision making in fact have assisted them in meeting their departmental targets and contributed to achieve organizational performance. They have managed to avoid rework and duplicate efforts and facilitate decisions and responsiveness. Market feedback analysis tool (MFA) not only enabled them to know customers` needs but also reinforced their relationships with them as they continuously engage with them. Focusing on the skill matrix tool employees are

coached and trained regularly enhancing their skill and knowledge and hence boosted their confidence and commitment to contribute towards the organizational goal.

Finally, the management members recommend that it would be possible to get even better performance results if there are dedicated personnel who are relieved from the routine operation to apply and lead ACE or change management”

Chapter Five

5. Findings, Conclusion, and Recommendation

5.1 Introduction

This chapter presents an overall overview of the study, conclusions, and research recommendations.

5.2 Summary of Findings

The main objective of this study is to assess the impact of achieving competitive excellence on organizational performance in the case of Ethiopian Airlines.

Descriptive analysis revealed that most of the employees of Ethiopian Airlines were male(64.8%), and the majority of the respondents, which is 86.6%, are below 40 years indicated that adult employees who can contribute more to the achievement of company objectives, regarding the education level, majority of the respondents or around 91.5% hold a first and second degree, and about 56.9 % of the employees of Ethiopian airlines have from 1-5 years of work experience this implies that the employee of the airlines is dominated by new entrants.

Descriptive statistics results showed that implementation of Achieving of Competitive Excellence, which influences organizational performance, was at a moderate level, averaging 3.474 on a 5-point Likert scale. This means that process improvement, waste elimination, problem-solving and decision-making all have an impact on the organization performance.

Hence, the overall effects of ACE on organizational performance are moderate-level means including process improvement (3.766) problem-solving (3.528), waste elimination (3.490), and decision-making (3.283). These inducted that responses majority of the respondents admitted almost all factors are moderately significant factors to the organizational performance at Ethiopia Airlines.

The correlation result showed that process improvement and waste elimination have a positive and higher degree of correlation between organizational performance with the correlation coefficient value of 0.808 and 0.820 respectively. In addition, the correlation result of problem-solving and decision-making have positive and a moderate correlation with the correlation

coefficient values of 788 and 0.769 respectively. This indicates that a positive and higher degree correlation value is seen between the overall ACE implementation and organizational performance.

The study result in general shows that the regression coefficient of the ACE's waste elimination is 0.344 which means keeping everything else the same, increasing the implementation of the waste elimination tool by 1 unit or 100%, the improves the organization's performance increase by 0.344 units or 34.4%.

In addition, the regression coefficient of decision-making tools is 0.314, which implies when all other (independent) predictors were set to constant values, a 1 unit or 100% increase in the value of the implementation the ACE decision-making tool then the organizational performance increase by 0.314 units or 31.4%.

Furthermore, the regression coefficient of values of decision-making tool is 0.314, Increasing the implementation value of the ACE decision -making tool for airlines by 1 unit or 100 percent and setting all other (independent) predictor variables to constants, increased the organizational performance by 0.314 units or 31.4 %.

Finally, ACE's problem-solving tools has a significant positive impact on airlines performance with a coefficient value of 0.139 and with all other predictors set to constant values, a one unit or 100% increase in ACE problem solving tools implementation, increases the value of the organization's performance by 0.139 units, or 13.9%.

In addition, the management members interview on the concept, challenge, contribution and the future recommendation in relation with the effect of ACE implementation on organizational performance, revealed that most of the management members have sufficient level of understanding on the concept of ACE methodology and how to implement it as an operating tool in their day-to-day activities. They have explained the challenges as well as the contribution of the Process Improvement, Waste Elimination, Problem Identification and Decision-Making tools.

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5.3 Conclusion

The primary objective of this study is to investigate the effectiveness of achieving competitive excellence on Ethiopian Airlines' organizational performance. To this end, researcher investigated the impact of ACE's process improvement, waste elimination, problem-solving, and decision-making tools on organizational performance.

A questionnaire was designed and used five Likert scales (Strongly Agree, Agree, Neutral, Disagree, Strongly Disagree) to explore all aspects of organizational performance. A total of 383 employees were selected as population respondents who are a full-time airline employee, and 341 valid responses were collected. This means that about 89% of questioners were returned. Statistical analysis in this study was performed using SPSS software version 20.

The adjusted R-squared value results is 0.859. This means that approximately 86% of the variance in organizational performance (the dependent variable) is explained by the independent variable, and 14% of the variance in organizational performance can be attributed to other variables and those in this study were not considered.

The result of the correlation analysis shows that there is a strong positive and significant relationship or correlation between organizational performance and the ACE implementation dimensions such as process improvement, waste elimination, problem-solving and decision-making tools of ACE of organizational performance. The results of the correlation analysis show there is a strong and meaningful relationships or correlations between organizational performance and ACE implementation dimension tools.

Based on the findings, the regression coefficient value of waste elimination tools is 0.344, decision-making is 0.314, process improvement is 0.216, and problem-solving is 0.139, which implies that for one unit or 100% increase in the value of process improvement, waste elimination, problem-solving and decision-making tools of ACE, when all other respective

predictor variables to be constant, the value of response variable organizational performance is increase by 34.4%, 31.4%, 21.6% and 13.9% respectively. Therefore, all the tools of ACE (process improvement, waste elimination, problem-solving and decision-making tools) have a significant positive impact on Ethiopian Airlines' organizational performance.

5.4 Recommendations

Based on the findings of the study and the conclusions drawn above, the researcher forwards its recommendation.

- Generally, Achieving Competitive Excellence tools (process improvement, waste elimination, problem-solving and decision-making) are highly significant positive impacts on organizational performance; Ethiopia Airlines should emphasize those tools to increase its organizational performance.

- Airlines must implement effective ACE problem-solving, waste elimination and decision-making tools to improve organizational performance.

- The airlines shall implement effective problem-solving, waste elimination and decision-making ACE tools to improve organizational performance each department of the airlines should define their process and those processes should be continuously improved by using ACE tools like 5S+1 & visual control, process management, value stream mapping and total productive maintenance for equipment downtime management. Problems in the departments should be solved using market feedback analysis, mistake proofing, Quality Clinic Process Charts (QCPC), Root Cause Corrective Action (RCCA) and mistake proofing. All decisions that require higher management involvement should be passed immediately through the passport process ACE tool.

- The Management of the airlines must give more attention and develop a strategy to implement the ACE tools effectively and efficiently.

- Ethiopian Airlines' top management shall continue to follow up the implementation of the ACE tools by each department in a better way by allowing employees to participate in its implementation until the employee consider the ACE tools as operating tools or work facilitator tools rather than considering it as the usual work.

- The ACE implementation assessment and evaluation shall be always conducted in each department, and it should be reflected in their KPIs.
- The airlines shall coordinate all the involvers in the ACE implementation and apply the various financial and non-financial motivational mechanisms to improve the employee's participation and commitment towards successful ACE implementation.
- The airlines shall give more emphasis to create regular ACE implementation awareness training and maximize the employees' potential.

5.1 Recommendation for Future Research

Future researchers could include other variables which are not included in this study and use this study as a reference for his/her research and other paperwork.

Appendix I: Questionnaire

Addis Ababa University School of Commerce

Master of Business Leadership

Questionnaire to be filled by Ethiopian Airlines customers

Dear Respondents,

This questionnaire is designed to collect data about **"Assessing the Effect of Achieving competitive excellence on organizational performance: The Case of Ethiopian Airlines".** The information you provide through this questionnaire will be used as primary data in the case study I am conducting as a partial fulfillment of the requirements for the degree of Master of business leadership.

Confidentiality

Please rest assured that this research is conducted only for the academic purpose authorized by Addis Ababa University School of Commerce. No other person can access the collected data. In any report I may publish, I will make sure that no information is included that may make it possible to identify any respondents. I kindly request that you take a few minutes to complete the questionnaire.

Note: No need of writing your name. If you have some queries, use the following contact address.

The Researcher: Seblewongel Azene

Contact Address: **+251-911 440048**

E-mail: **saworkneh@gmail.com**

PART I: Demographic Information

Direction: Please put "X" to give your answer in the given boxes.

1. ☐ ☐ Gender Male Female

2. Age ☐ 20-30 Years ☐ 31-40 Years ☐

41-50 Years ☐ 51-60 Years ☐

61 and Above ☐

3. Educational background (choose more than one if necessary).

Below Diploma ☐ Master's Degree ☐

Diploma ☐ PhD ☐

Bachelor's Degree ☐

4. ☐ work experience ☐ years

6-10 years ☐

11-15 years ☐ 16-20 years ☐

Above 20 years ☐

PART II: Assessing the Effect of Achieving competitive excellence on the Organization's Performance

Remark: Please **circle** your level of **agreement/disagreement** for each given statement using the following scales: Where 1= strongly disagree, 2 = disagree, 3 = Neutral, 4 = Agree, 5 = strongly agree

Perceptions of respondents towards the effect of achieving competitive excellence on the organization's performance	**Agreement Scale**				
Items	**1 strongly disagree**	**2 disagree**	**3 Neutral**	**4 Agree**	**5 strongly agree**
Process Improvement					
Work processes are simplified, structured and facilitated to					

ensure maximum quality, consistency, long-term seriousness and employee safety.					
Standard Operating Procedures (SOPs) are simplified for employee convenience.					
Service Level Agreements (SLAs) are signed with key parties that affect airline operations (customs, maintenance, security, etc.) and their performance is monitored.					
Waste elimination					
Employees are happy to report defects/waste/inefficiency they find					
All operational handling equipment is reliable, safe and efficient to use and operate.					
Minimize business interruptions due to equipment downtime (failure)					
Acceptable level of operator involvement with the machine or equipment					
ACE helped Ethiopian Airlines Group identify and eliminate waste					
There are still people and resources that do not add value to airline operations.					
Problem-Solving					
A system is in place to regularly identify opportunities for improvement from customers and employees in order to provide better and more effective service.					
Employee and customer collected turn back is well documented and prioritized					

Corrective actions identified for these high-priority opportunities are typically found to be effective solutions and monitored for effectiveness.					
For prioritized opportunities, an 8-step root cause analysis corrective action is performed to identify the most effective solutions.					
Identified solutions are effectively implemented and all similar processes are standardized and integrated into SOPs to prevent recurrence of problems.					
Identified solutions are effectively implemented and all similar processes are standardized and integrated into SOPs to prevent recurrence of problems.					
Decision Making					
Management has decided that high-level objectives should be communicated to each airline's operations so that employees are aware of them.					
Management makes smart and timely decisions on business matters					
Have a developed process for effective and efficient program/project management					
Management is strongly committed to making ACE the culture of the Ethiopian Airlines Group.					
For each activity there is a well-developed work quality check to proceed to the next step.					
The ACE Practice on the Airlines Performance					
There is High data quality in the airlines					
There is error-free documentation handling in the					

airlines					
The service delivery time is better than the competitive airlines					
The quality of the products/services is well above the industry average.					
The productivity of employees is much higher than the industry average.					
Damage-free use of resources of the company					
Management makes smart and timely decisions on **business matters**					
ACE helped the Ethiopian Airlines group to identify and eliminate waste and keeps safety.					

Thanks again for your time!!!

Appendix II: Interview Question for Management Member of Ethiopian Airlines

Part I: Demographic Information

1. Gender Male ☐ Female ☐
2. Age 18-29 ☐ 30-45 years old ☐ 46-60 years old ☐ and above 60 years ☐
3. Educational background (choose more than one if necessary)
   Diploma ☐ Master's Degree ☐
   Bachelor's Degree ☐ PhD ☐
4. work experience 1-5 years ☐ 5- 10 years ☐ 10-15 years ☐ 16 and Above 10 years ☐

Part II: Interview on the effect of Achieving competitive excellence on Organizational Performance

1. What do you understand about Achieving Competitive Excellence – ACE?
2. Are you familiar with the operating tools for Achieving competitive Excellence?
3. What role do you take in implementing the ACE methodology?
4. What benefits are gained by implementing ACE within your department?
5. What are the major challenges in implementing ACE within your department?
6. Do you believe that the implementation of ACE has contributed to organizational performance? If yes; please explain how.

7. Does ACE help or assist the organization in removing waste, process improvement, decision-making, and problem-solving? Please explain.
8. Do you have any additional comments on the contribution of the implementation of ACE toward organizational performance?

Thank you for your time

Appendix III- Reference

Abdullah, F. (2003). Lean Manufacturing Tools and Techniques in the Process Industry with a Focus on Steel. The University of Pittsburgh.

Arvis, J. F., John Arnold, Michael Webber, & Heinrich Bofinger. (2009). Air Freight: A Market Study with Implications for Landlocked Countries. THE WORLD BANK GROUP.

Ashogbon, K. (2012). Achieving business process improvement through knowledge management. Hamk University of applied sciences.

Chhabra, M. K. (2000). Performance improvement in an accounting firm: comparing operational and financial data before and after process redesign. University of North Texas

C.R Kothari. (2004). Research Methodology (2nd Ed.). New age international.

Deming Management Method. Academy of Management Review, 19(3), 472-509.

E, F., & Selly M. (2001). The decision by Objectives. How to convince others that you are right? World Scientific

El-Namrouty, K. A., & AbuShaaban, M. S. (2013). Seven wastes elimination targeted by lean manufacturing case study "gaza strip manufacturing firms''. Science PG, 2013(1(2)), 68– 80.

Field, A., 2009. Discovering Statstics using SPSS. 3rd ed. London: SAGE Publication Ltd. Gay, C. (n.d.). 8 Wastes of Lean Manufacturing | MachineMetrics. Retrieved June 8, 2020, from https://www.machinemetrics.com/blog/8-wastes-of-lean-manufacturing

Gilbert, T. (1996). Human competence: Engineering worthy performance. HRD Press, Inc.

Huang, W. (n.d.). Achieving Competitive Excellence [ACTS]. ACTS, ACTS.

Jaafreh, A. B. (2013). The Effect of Quality Management Practices on Organizational Performance in Jordan: An Empirical Study. Journal of Financial Research, 4(No.1), 93– 109.

Jovanović, J. Š. Mirko Sokovic, Aleksandar Vujovic, & Zdravko Krivokapic. (2009). Basic Quality Tools in Continuous Improvement Process. Research gate, 55(5).

Jun Song. (2013). Comments on air cargi supply chain: essay of identification, assessment and control of risk. Université de Grenoble.

Juran, J.M. (1988). On planning For Quality. London: Collier Macmillan.

Kising'u, T. M., Namusonge, G. S., & Mwirigi, F. M. (2016). The Role of Organizational Innovation in Sustainable Competitive Advantage in Universities in Kenya. 3(9 2016), 2762–2786.

Kumar, R. (2011). Research Methodology A Step by Step (3rd ed.).

Manzouri, M., Ab-Rahman, M. N., Che, C. R., & Azraai Jamsari, E. (2014). Increasing Production and Eliminating Waste through Lean Tools and Techniques for Halal Food Companies. National University of Malaysia.

Milanoi, M. E. (2013). Quality management and organizational performance of manufacturing firms in Nairobi County. University of Nairobi.

Neely, A., & Adams, C. (2018). Perspectives on Performance: The Performance Prism.

Panza, C. (1998). Best practices in performance improvement (National vision care example). HRD Press, Inc.

Poppendieck, M. (2002). Principles of Lean Thinking. Published by Poppendieck.

Rahman, S., Laosirihongthong, T., & Sohal, A. S. (2010). Impact of lean strategy on operational performance: a study of Thai manufacturing companies. Journal of Manufacturing Technology Management, Vol.21 (No.7), pp839-852.

Roth, G. (2010c). UTC ACE Operating system-case study. UTC.

Singh, J., & Singh, H. (2009). A Review of Literature Kaizen Philosophy. Research Gate.

Smith, P. G. (2016). Development of a four-stage continuous improvement framework to support business performance in manufacturing. The University of Wolverhampton.

Tesema, C. (2018). The role of achieving competitive excellence operating system implementation on company's internal supply chain integration: Ethiopian Airlines in focus. Addis Ababa University.

Thomas, C. H. (2004b). ACE Vs. Six Sigma. B.S Industrial Technology, Central Connecticut State University.

Vuorinen, J. (2014). Decision-Making Models and Tools to Support Strategic Decision-Making - Case: Tarvekaluste Oy. Saimaa University.

Wikipedia. (2019). Performance management. Wikipedia. https://en.wikipedia.org/w/ index.php? title=Performance management & old id=93014709

https://www.google.com/search?q=What+is+Achieving+Competitive+Excellence&sxsrf

https://www.google.com/search?q=What+is+Achieving+Competitive+Excellence

https://corporate.ethiopianairlines.com/AboutEthiopian/Overviewhttps://corporate.ethiopianairlines.com/AboutEthiopian/Overview May 2023 Fact sheet

https://drvidyahattangadi.com/the-success-story-of-ethiopian-airline/#:~:text=Despite%20being%20100%25%20government%2Downed,onboard%20product%20and%20staff%20service. Dr Vidya Hattangadi

Abdullah Karakaya and Kasim Yılmaz / Procedia - Social and Behavioral Sciences 99 (2013) 322 – 331

GROUP QMS, SMS, COMPLIANCE & ACE (ethiopianairlines.com)