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COLLEGE OF DEVELOPMENTAL STUDIES

DEPARTMENT OF TOURISM DEVELOPMENT AND MANAGEMENT

MASTER OF ARTS IN TOURISM DEVELOPMENT AND MANAGEMENT

**ASSESSMENT ON THE CONTRUBUTIONS AND CHALLENGES OF AN IN-FLIGHT
CATERING SERVICE FOR TOURISM DEVELOPMENT: THE CASE OF ETHIOPIAN
AIRLINES**

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**A Research thesis submitted to Addis Ababa University, College of Development Studies in
partial fulfillment of Master of Arts Degree in Tourism Development and Management.**

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ADDISABABA, ETHIOPIA

DECLARATION

I, Abrham Berihun Eyob, do hereby declare that this thesis is entirely my work and it has not been presented to any other Institute of higher learning for a similar or other academic award. In addition, all the sources that I have used or quoted have been indicated and acknowledged as means of complete references.

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ABSTRACT

The main objective of this study is to provide a deeper view of the contribution and challenges of Ethiopian airline in-flight catering service for the development of tourism industry. This study attempted to answer three basic questions: what is the current status of Ethiopian Airlines inflight catering services? What are the challenges facing Ethiopian Airlines inflight catering services? What is the contribution of Ethiopian airline in-flight catering industry for the development of tourism industry? This study was used Qualitative research method and data were primarily gathered from the researcher selected 9 corporate informants including, 1.the operation manager of Ethiopian airline in-flight catering unit, three human resource officers and marketing departments 2.Ministry of Culture and Tourism inspection director and the minister advisor, 3.with two local suppliers via expert interview and review of secondary document analysis. Thematic analysis was used to analyze qualitative data gathered via the aforementioned data collection instruments. The results of the study reveal that as a national flag carrier, Ethiopian Airlines in-flight catering unit as a single section from the seven SBUs (Sub Business Units) is contributing a lot for the development of tourism industry through generating the much needed hard currency, promoting Ethiopian culture, customs, cultural foods, dressing and in general building the image of the country. However, the airline's inflight catering sector is challenged by different technological factors including manual outgoing items handover process with cabin crew (pre-flight), the absence of location indicator like barcode scanner for crews to find loaded products easily (during flight), manual incoming items handover process with catering agent(post flight) and as an environmental factors Some products are not happened to be eco-friendly and passengers special meal order has missed (during the flight).Based on the findings, the researcher concluded that Ethiopian airlines in-flight catering service unit has a significance contribution for tourism development and needs to improve its challenges have faced on environmental technological and passenger satisfaction. The study as would be useful both for students and researchers in the field of tourism, hospitality/catering, destination management, and for practitioners and tourism management representatives who may find interesting insights and ideas for improvement.

Keywords: Aviation industry, in-flight catering, Ethiopian Airlines, challenges and contribution

ACRONYMS OR ABBREVIATIONS

ATAG: -	Air Transportation Action group
ATC: -	Air Traffic Control
APEX: -	Advance Purchase Excursion
CAGR: -	Compound Average Growth Rate
CCPs: -	Critical Control Points
CRM: -	Customer Relationship Management
CRS: -	Computer Reservation System
ECAC: -	European Civil Aviation Control
EU: -	European Union
FDI: -	Foreign Direct Investment
GDP: -	Gross Domestic Product
HACCP: -	Hazard Analytical Critical Control Point
IATA: -	International Air Transportation Association
ICAO: -	International Civil Aviation Organization
IFCA: -	International Flight Catering Association
LCC: -	Low Cost Carrier
LSG: -	Lufthansa Service Group Sky Chef
MDG: -	Millennium Development Goal

MOCT: -	Ministry of Culture and Tourism
PESTELFs: -	Political Economical Social Technological Environmental & Legal Factors
RPK: -	Revenue Passengers Kilometers
SDG: -	Sustainable Development Goal
SWOT: -	Strength Weakness Opportunities and Threats
UNDP: -	United Nation Development Program
UNECA: -	United Nation Economic Commission for Africa
UNESCO: -	United Nation Educational Scientific and Cultural Organization
UNFCCC: -	United Nations Framework Convention on Climate Change
UNWTO: -	United Nation World Tourism Organization
WTTC: -	World Travel and tourism Council

CHAPTER ONE

1. Introduction

The history of the first airlines and early commercial food services were created after World War I by former military pilots for the aim of mail delivery, not for the purpose of passenger transport and gradually the passenger transport included on flights. The historical development of the aviation industry had several evolutionary stages outlining the main phases of the technological and political organization of the aviation industry (Wittmer and Bieger, 2011).

Aforementioned scholars have divided the aviation evolutionary stages as follows:

- I. Technical development 1783–1929
- II. Political development 1929–1944
- III. Development of quality and cost 1945–1973
- IV. Networks, alliances and low-cost operations 1974–1990
- V. New perspectives customer value 1991–2010

Figure 1.1 the aviation evolutionary stages



Source: Dreamstime.com

According to (Franklin, 1980) the world's first powered flight lasted 47 seconds and covered 2000 feet in a heavier-than-air machine, was made by Orville Wright near Kitty Hawk, North Carolina in 1903. There was no food or drink on board as it was not long. However, food and

beverage service became a feature of air travel. In 1914, Zeppelin airships started in-flight meal and champagne for their passengers, and in 1920s the airships introduced flying dining rooms with sky chefs to prepare hot meals (Dana, 1999).

The first regular passenger aircraft in-flight catering service included games, cream, teas and coffee started in August 1919 in Europe, from England to France for two hour flight (Wright, 1985). The in-flight service were enjoyed by passengers on the outward journey from England, but refused on the return trip because of the extremely bumpy flight conditions and it was at a time which aircraft carried no more than four passengers and closed cabins were not enclosed (Franklin, 1980). The world's first commercial airline KLM was founded in the Netherlands on 7 October 1919, (KLM, 2001).

The advent that Imperial Airways in UK started to serve tea or coffee in their aircraft that pre-packed airline meals first appeared on the flights between London and Paris (O'Hara and Strangely, 1997). Other European airlines the Sabena of Belgium were also established in 1923 and the Imperial Airways UK (one of the forerunners of British Overseas Airways Corporation, which was formed in 1939) was developing. Initially, their catering service consisted of only sandwiches with tea or coffee (O'Hara and Strugnell, 1997). The service was provided by a fourteen-year-old cabin boy, in monkey jackets and tight trousers, (40 kg.) in weight and who travelled the route (Wright, 1985). However, the flight safety inside the aircraft was weak that the seats were often wicker chairs, but they were selected because of their lightweight. Moreover, in 1920, KLM carried a total of 345 passengers, 22 tons of cargo, and 3 tons of mail (KLM, 2001).

The increasingly widespread application of the jet engine in civilian commercial aviation in the 1960s was a trigger for the advent of global tourism and the growth of international tourism increase from 25 million tourists in to over 1 billion anticipated in 1950 and 2012 respectively and the role of tourism considered as “a vehicle for job creation, economic growth, poverty reduction and global growth and development” So the issue is: how can the air transport industry support and benefit from these efforts? is very much due to the advances in air transport as well as to growing wealth in industrialized and emerging countries plus the influence of globalization. However, at the global level, UNWTO is working with industry

bodies such as ICAO, WTTC and IATA to increase the collaboration between air transport and tourism. Therefore, travel and tourism were collectively considered as a strategic industry, with air transport as an interconnected core, with a single voice on such issues as liberalization, security and facilitation, climate change, economic impact and taxes.

1.1. Background of the Study

The United Nations General Assembly declared 2017 as the International Year of Sustainable Tourism for Development, recalling the potential of tourism to advance the universal 2030 Agenda for Sustainable Development and the 17 Sustainable Development Goals (UNWTO, 2016). Therefore, tourism industry appears at the center of the interest in this Sustainable Development goals activity, and Air transport, being an essential part of the worldwide travel industry, is also focused on for improvement.

The growth numbers of Flight passenger were getting back after the pre-9/11 numbers and the Iraq War in 2002/3 and this time was too difficult for many tour operators to cut their overall holiday capacity and holidaymakers were delayed travel decisions until the global political situation became clearer (Mintel, 2005).

In 2017 there has been a dramatic growth in the aviation industry over the last two decades with rise in number of passenger from 1.467 billion in 1998 to 3.979 billion (ICAO, 2018). Airlines are growing up to serve more passengers by modernizing their fleets and buying new generation aircraft that are more fuel-efficient and becoming more sophisticated retailers to compete with low-cost rivals while maintaining healthy profitability. Thus, this growth in the aviation industry is expected to boost the number of airline passenger and thus led to growth of inflight catering service market.

The aviation sector is experiencing rapid growth worldwide owing to booming tourism industries, lower air fares, and the push for greater connectivity in an increasingly globalized economy. Inflight catering is a service provided by catering companies to air travelers during air travel and it is an important service offered by the airline company to the passengers to

make unparalleled travel experience on board. In-flight catering with its meal design and meal planning is a very critical part of the airline business, especially for the network carriers that offer long haul (long distance) service.

According to International Air Transportation Association (IATA, 2019), flight catering planning and operation are important. For example, a large-scale airlines in-flight catering production unit may employ over 800 staff to produce as many as 40,000 meals per day during peak periods and large international airline company may have hundreds of takeoffs and landings every day from just their main hub. Moreover, in long-haul flight a single, huge aircraft has more than 40,000 items are loaded on to it before it flies. Therefore, the above aforementioned facts and others make the airlines in-flight catering industry unlike any other sector of the catering industry.

According to analysis of International Air Transport Association (IATA,2019), more than seven billion passengers are expected to earn from air travel by end of 2036, with a 3.6 % year-on-year growth that has led to increased operational profits and overall net profits of airlines. Moreover, the increase in number of individuals opting for air travel is expected to boost the demand for airlines in-flight catering services and fueling the growth of the in-flight catering market during the forecast period and air transportation companies are thriving to focus on increasing the quality of airlines in-flight catering service in order to attract more passengers from a business development standpoint (global newswire, 2019).

According to global newswire report, (2019) North America is expected to lead the global airlines in-flight catering service market, growing at the highest Compounded Average Growth Rate (CAGR) of 3.78%, in terms of revenue from 2020 to 2026 and Europe was the second largest market in terms of revenue generation and is expected to register a CAGR of 2.91% during the above forecast period. However, the North America, airlines in-flight catering service has ceased expanding in recent years, but South America has shown strong and continuous growth, particularly in Brazil and Peru before the forecasted period. This achievement attributed from the technological developments of South America. Moreover,

rapid development in the Middle East, in terms of infrastructure and technology, drives the growth of the Latin America in-flight catering service market. However, the weak economies in Africa hamper the spending of passengers and which results to restrains the African airline in-flight service market growth.

An Ethiopian flag carrier airline, which was placed first in the 2015 APEX Passenger Choice Awards“ “Best Airline in Africa” category, is an outlier among Africans state-owned carriers. Ethiopian Airlines joined Star Alliance Network, an international airline network giving it access to more routes with partner airlines, in 2011. Ethiopian Airlines is 74 years old with 111 planes flying to link through its vast African network to 55 cities 106 international and 23 domestic destinations with 10.6 million passengers in 2017/2018 \$3.1b (£2.3b) revenue 2017/2018 \$245m (£187m) profits with the aim of modernizing and shaking off the country's poverty-stricken image during the last seven decades, the airline has organized itself in all aspects of the aviation industry including technology leadership, network expansion and aviation controlling.

Ethiopian airlines started their operations and the first flight in 1946 with 5 C-47 aircraft, which was a scrap of 2nd World War, back to Cairo via Asmara. However, Ethiopian airline has been growing rapidly and has kept on introducing new aviation technology and systems, with so many firsts in the history of African aviation as an aircraft technology leader (i.e. providing the first jet service in the continent, availing the first African B767, the first African B777-200LR in 2010 and the first African and second only to Japan B787 Dreamliner in 2012). In addition to this growth, Ethiopian was the first in Africa to acquire Airbus A350 XWB and introduced the extra effect of Ethiopian airline to the African continent. Eventually, Ethiopian was the first African Airline to operate the latest Boeing 787-9 and a multi-award winning airline including: SKYTRAX Best Airline Staff Service in 2013 & 2016, ‘Best African Airline’ in 2017, and Four Star Airline Certification in 2017.

Therefore, Ethiopian airline has been registering an average growth of 25% per annum for the previous seven years by implementing a 15-year strategic plan called Vision 2025 that will

make Ethiopian aviation to become the leading airline members in Africa with the seven strategic business units (i.e. Ethiopian Domestic and Regional Airline; Ethiopian International Passenger Airline; Ethiopian Cargo; Ethiopian MRO; Ethiopian Aviation Academy; Ethiopian In-flight Catering Services; and Ethiopian Ground Service (Ethiopian Airlines Factsheet March, 2018).

1.2. Statement of the Problem

This study is conducted to assess the contribution and challenges of Ethiopian Airlines in-flight catering services on tourism development. Transportation is one of the key components of the tourism industry which carries visitors from their place of residence (origin) to destination and vice versa. In addition to this, beyond its primary purpose or function, air transportation is often seen as a status symbol by visitors. So far, many studies have been conducted on various aspects of the aviation industry. However, these studies have less attention to in-flight catering service and its contribution for tourism development.

Njoya (2013) conducted a study in Ethiopia, Kenya and South Africa on Air transport and destination performance. The researcher Divides literature on both Tourism and Aviation into several categories aviation regimes, LCC, charter airlines, transportation costs, airport structure, accessibility, and concluded as air transport contributed a lot for tourism sectors especially in the destination area full filling all the PESTEL sectors.

Many researchers studied about the overall operation of Ethiopian airline in Ethiopia. For example Gashaw (2011) conducted a study on Assessment of Service Quality and Customer Satisfaction in *Ethiopian Airlines* using SERVIQUAL model. Another study conducted by Liliya Tadesse , (2016) on Impact of Service Quality on Customer Satisfaction in Ethiopian Airlines Aviation Industry at AAU. Emnet Hailegabriel, (2011) also conducted a study on the contribution of Ethiopian airlines for the growth and development of Ethiopian tourism in CDS at AAU However, all the above study were focused on the overall operation of the airline, and even Emnet Hailegabriel (2011) has emphasized only on the contribution omitted the challenges and poorly addressed the airline various section especially, the contribution and challenges of the central element of ET airline in-flight catering service unit as a single section

for the development of tourism. Therefore, In-flight catering industry is the most important part of the dining experience and a central part of in-flight services endorsed by the International Flight Catering Associations (IFCA's, 2003 Education Committee).

Moreover, the contribution of air transport to tourism development has been mentioned in multiple studies and books concerning solely air transport (O'Connell and Williams, 2011; Belobaba, Odoni and Barnhart, 2009; Schmitt and Golnick, 2016; Doganis, 2006; Wittmer, Bieger and Mueller, 2011; Peoples, 2014) or the tourism industry (Goeldner and Ritchie, 2007; Page, 2009). Although some of them (e.g. Duval, 2007; Graham, Papatheodorou and Forsyth, 2008; Page, 2009) tackle the link between the two industries, the perspective is usually general and at the macro level, or they explore only general impacts. Surprisingly, the relationship between air transport and tourism at the destination level is often overlooked (Prideaux, 2000; Lew and McKercher, 2005). Transport and tourism studies previously published lack deeper analysis of the connections between the components of the two industries in order to outline more specifically the particular mutual impacts. Despite the numerous reported cases regarding air transport impact on a particular destination (Sengur and Hemdil, 2014; Laplace and Latge-Roucolle, 2016; Dobruszkes, Mondou and Ghedira, 2016; Njoya, 2013, etc.), a conceptual framework, encompassing all common elements of both industries and considering the complex relationships between them is still missing. Therefore, in light of the above reasoning, the main purpose of the current study is to investigate the contribution and challenges of the ET airline catering service unit for the development of tourism industry,

To make further improvement on the in-flight catering service unit of the airline for domestic and international tourists; the contribution, the challenge and the opportunity encountered by the Ethiopian airline has to be assessed. This research tries to put some light on the potentials of the airline by examining and assessing its operational details with regard to tourism services. That is the pattern and trends of Ethiopian airline in transporting and providing in-flight catering service to domestic and international passengers, by ET and, the opportunity and challenge the airline faces while providing its service. In aviation, Air Catering companies

are preparing meals for airlines; they are responsible for adapting the production of industrial kitchen to the world of aviation peculiarities (Stettiner et al., 2015).

Although many studies were conducted on the overall operation of Ethiopian airlines, there is a scanty of knowledge on the contribution and challenges of Ethiopian airline's in-flight catering service for tourism development. It has also tries to look into how the in-flight catering service has expanded the economic opportunities in today's extremely competitive market. It also attempts to forward different possible ways to increase government, private sectors, and stakeholder's benefits and gain competitive advantage through the quality of service provided to the tourists and diplomatic community.

1.3. Research Questions

1. What is the overall operation of Ethiopian Airlines' in-flight catering services?
2. What are the contributions of Ethiopian airlines in-Flight Catering service on Ethiopian tourism?
3. What are the challenges affecting Ethiopian in-flight catering service?

1.4 Objectives of the Study

1.4.1. General Objective

The main objective of the study is to investigate the overall operation, contribution and challenges of Ethiopian Airlines inflight catering services for the development of Ethiopian tourism.

1.4.2. Specific Objectives

1. To assess the overall operations of Ethiopian airlines in-flight catering services.
2. To examine the contribution of Ethiopian Airlines in-flight catering services for the development of Ethiopian tourism.
3. To identify the prevailing challenges affecting Ethiopian Airlines inflight catering services.

1.5. Significance of the Study

This research is important for many parties especially to the company itself, to the researcher, to the university and as guidance for future research. The results of the study will benefit Ethiopian airlines, the scientific community, and tourism and hospitality businesses.

1.5.1 For Ethiopian Airlines

The results of the study help the airlines to identify the factors that influence Inflight catering service and hence customer satisfaction. The finding of this study assisted the company management in developing their marketing strategy in a way that increase their profitability and also satisfying their customer. Besides that this study ensured everybody in the organization know about the importance of in-flight catering industry for future growth.

1.5.2 For the Academic world:

The findings of this study go on to assist future researchers and academicians as an input for embarking upon similar researches in the future and reckon to further their insight regarding the issue and have a great deal of opportunity to research on the airline in-flight catering service because it provides information about the overall operation of in-flight catering quality service the company is providing to its passengers and their contribution and challenges on tourism development as well. Conducting a good research can benefit the university in many ways. One of them is producing a good reference for future researchers in the university and also to the college of developmental studies itself. It can also be a source of reference for other students who need to conduct research for their studies in the future. Other than that, it can be a new body of knowledge and also as guidance to the future researcher.

1.5.3 For Tourism and hospitality businesses

The travel and tourism industry is one of the biggest and fastest growing industries in the world. This study will give an introduction to the hospitality and tourism industry, providing a sound basis for further study. It gives information about the nature of the industry, its size and scale, and the types of transportations that form its structure and the linkage among hospitality/ the catering industry and tourism industry. In addition it investigated the

development of the industry and the factors which affect the growth of travel and tourism industry.

1.6 Scope of the Study

This study was carried out on Ethiopian airline Bole International Airport, Addis Ababa, Ethiopia. Content wise the study is delimited to the contribution and challenges of Ethiopian airlines in-flight catering service on tourism development. The researcher was limited to cover only in-flight catering service from the seven business units of Ethiopian airlines due to the researcher interest, Methodologically, due to the incidental situation of COVID-19 (CORONA VIRUSE), the researcher relied on interview and document review as the major sources of data collection methods.

1.7 Limitations of the Study

During the course of the study, the researcher has faced several challenges that can be considered as limitations of the study. These limitations could be a constraint to make the research to be conducted smoothly. Due to these problems, precautions were taken in order to minimize and eliminate these factors from affecting the results of the study. Those limitations are:

1.7.1 The accuracy of the information gathered

There were difficulties in choosing the right resources with the high level of accuracy. There were a lot of information but not all of them were relevant for the issue under investigation. Thus the proper selection of information and material was highly required. Some of the online information required for this study was access restricted.

1.7.2 High cost

Cost was considered as usual problem faced by the researcher in conducting the study. Cost incurred in conducting this research was quite expensive in order to get an accurate information and feedback from the internet. These include the cost of finding and conducting interviews with respondents. In order to get absolutely high quality information, it was

necessary for the researcher to put extra money to pay for all the costs involves such internet costs, transportations costs and telephone costs.

1.7.3 Time constraint

This study was constrained by time factor due to some acceptable reasons. This has challenged the researcher to come up with the high quality and relevance findings with short time scale. More specifically not all respondents were willing to spare their time for the interview during the request of their consent. As a result, data were mostly gathered from government office called MOCT and ET airlines in-flight catering service which the study was mostly relied up on and Aster bunna PLC and Arbaminch fish processing company from private suppliers.

1.7.4 Incidental phenomena of COVID-19 (CORONA VIRUS)

The situation which was occurred during the course of this study especially the time after the submitted and presented of the proposal has completely hindered the researcher to collect data from the respondents and has forced to change some of the objectives and methodology.

1.8. Operational Definition of Terms

- **Act of God** An event resulting from natural causes that is not preventable by reasonable foresight or care, such as an earthquake, war or strike, pandemic or flood.
- **Advance Purchase Excursion:** a system of cheap travel tickets that must be bought for particular number of days before traveling:
- **Aero-** Prefix used in combination with nouns usually relating to air and **aircraft**. Hence, e.g., aerodrome, aero plane, aerospace; the physics of air motion and its effects is aerodynamics; the science and practice of aircraft design, construction and operation is aeronautics.
- **Air traffic controls** a system of controlling **aircraft** movements in and out of **airports**. In the UK it is the responsibility of the **Civil Aviation Authority (CAA)**, in the USA of the **Federal Aviation Administration (FAA)** and in Ethiopia it is the **responsibility of Ethiopian civil Aviation Authority (ECAA)**.

- **Amadeus** One of two main European **computer reservation systems (CRS)**, established in 1987 by a **consortium** led by Air France, Iberia, Lufthansa and SAS, and including several smaller airlines, with US **System One** supplying the software. Now owned in equal shares by Air France Group, Iberia, Lufthansa and Sabena, with **partnership** agreements with **Abacus** and **World span**.
- **Antarctic tourism** trips and visits to destinations within the Antarctic Circle, most by sea. And also **Antarctic; Arctic tourism; over flights of Antarctica**.
- **Catering** In the USA the term denotes the provision of food and service for specific occasions on particular dates in particular locations. In other countries, including the UK, the term has a wider meaning and refers to all food services.
- **In-flight catering services:** means the delivery of prepared and packaged food and beverages at any public airport for consumption aboard an aircraft while in flight.

1.9. General organization of the study:

This study is organized in five chapters. The first chapter consists of introduction, background, statement of the problem, and the research questions, and objectives, significance of the study, scope and limitations of the study, definition of key terms and organization of the study. The second chapter discusses theoretical and empirical review including the subjects of in-flight catering service, tourism industry and their relationship. The purpose of this chapter is to examine the factors or elements that can identify these three concepts that can be applied on the theoretical background in the airline literature. This facilitates the development of the conceptual model of all the elements that can assess airline in-flight catering service roles, contribution and challenges. The third chapter discusses research methodology. It discusses the theoretical model, the major constructs, the conceptual model, research approach, design, data collection instruments, and methods of data analysis. The fourth chapter describes the collected data and research findings. This chapter presents an aggregate analysis of the data and the descriptive findings of the interview and the various strands of the thesis are drawn together, the contribution, challenges, limitations and the direction for future research are also clarified. The last chapter deals with summary, conclusion and recommendation.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Airline In-flight Catering Industry

An airline catering is defined as the highly specialized skill, technology and quality oriented food catering for the airline passengers and the crew members with a greater emphasis on hygiene aspects and just in time production. This also involves an intricate planning regarding loading and offloading, the flight time schedules, layoffs and the movement and management of trolleys. Flight catering industry is probably one of the most complex operational systems in the world. Some of the facts referred to later in this study provides an insight into this operational complexity. For example, a large airline in-flight catering industry may employ over 800 employees to produce as many as 40,000 meals per day during the peak periods of the airline (Jones, P. (2007) and Grothues, U. (2006).

Therefore the in-flight caterers have high volume operations. For example, in January 2006 the Cathay Pacific flight kitchen in Hong Kong recorded its highest-ever daily production output in excess of 74,000 meal trays. Moreover, there are around 630 flight kitchens globally with an annual output of more than 1 million meals each. A single flight by a long-haul Boeing 747 may require over 40,000 separate items loaded onto it. Therefore, it is very clear that flight caterers handle a considerable volume of products on a daily basis (Grothues, U. 2006).

Based on different facts gathered from many scholars and practitioners make airline in-flight catering unlike any other sector of the catering industry. However the way food is served on trays to airline passengers makes some similarity to the service styles provided in hotel, restaurants or cafeterias especially the way food is prepared and cooked highly matches with a food manufacturing plant rather than a catering kitchen. Moreover, the airlines in-flight catering industry ways of food and equipment is stored matches a freight warehouse, and the way meals and equipment are transported and supplied has a close affinity to military-style

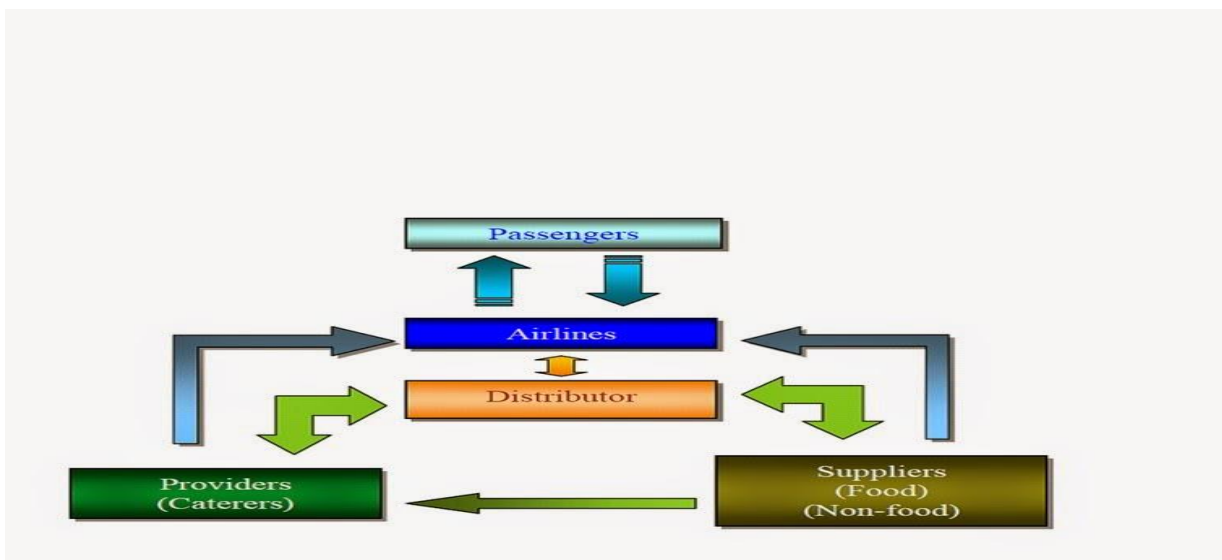
logistics and distribution systems and the process flow in-flight catering, since such operations are highly complex and have a number of alternative configurations. It is this model that provides the structure for this text. Flight catering starts with an understanding of the number of passengers and their needs) such information is available from both market research and actual passenger behavior. On the basis of this, airlines, sometimes in consultation with caterers and suppliers, develop their product and service specifications. Such specifications determine exactly what food, drink and equipment items are to be carried on each route for each class of passenger (Jones, P. 2007).

2.2 The flight catering system

The flight catering system is the flight production unit, which is part warehouse, part food manufacturing plant, part kitchen, and part assembly belt. In response to forecasts of passenger numbers on any given flight, the production unit follows a series of complex steps to produce trayed meals and non-food items ready for transportation to the aircraft. Transportation is usually carried out by using specialist high-loader trucks that enable trolleys to be rolled on and off aircraft. Once loaded, trolleys and other items need to be stowed on board to ensure the microbial safety of edible items and the security and safety of the crew, passengers, and aircraft. At the designated time during the flight, the cabin crews then carry out the service of meals, snacks, and other items. On arrival at its destination, each aircraft is then stripped of all the equipment and trolleys, which are returned to the production units for cleaning and re-use. Moreover, the airline in-flight catering production operations system is a computerized production planning system which enables the airline catering management of ordering, stock control, production control, and flight marshaling. This is similar in many ways to the types of computer systems used routinely in airline in-flight catering operations (Braham, 1988), but it is unique in terms of its links to flight data systems. The production unit may utilize either an integrated computer system or separate linked systems to perform these functions. These systems take their inputs from a number of other systems, through links between the various computer systems, which may be automatic, semi-automatic or manual (Peter.j, 2005). The data, held by the computer systems, are stored in the form of linked databases which include information on the following (Braham, 1988).

1. **Recipe files** Details of ingredients and quantities for each menu based on in-house airline specifications or contract data
2. **Aircraft data** Specific details of configuration data for each type and configuration of aircraft (as configured for a specific airline), in terms of types of storage, type of containers and trolleys, maximum passenger capacity and crew requirements
3. **Flight schedule** Data on flight times, routing, menu plans, capacity per class, specific crew data; detailed specifications in terms of meal requirements, cabin requirements, crew requirements, duty-free, dry stores, beverages, hollowware, glasses, china, headsets, menu cards, and newspapers
4. **Advanced reservations data** Current booking data for a flight, including requirements for special menus and other individual requirements
5. **Check-in data** on actual passengers checked on to flight, based on information from the check-in system of airport
6. **Production plans** Data on the issuing of materials, food quantity and variety to be produced in each production area, plans for tray assembly and trolley-loading areas, together with marshaling times and full inventory lists for each flight.

Figure 2.1 Major Stakeholders of Flight catering Services



Source: Flight catering Jones, P. (2007)

2.3.1 Role of the passenger

Now a day, the feature of the airline industry is the huge diversity of passengers. Prior to the 1960s, air travel was exclusive only the very rich or government employees would fly long-haul. The development of jet aircraft and charter airlines lead to mass air travel. Subsequently in the 1990s, the business model was redesigned by the operators of so called low cost or budget airlines and as a result satisfied loyal passengers, were created gradually who were highly demanded the in-flight catering service especially in their long-haul service. Therefore, this passengers have a vital role in their re- flying, re- use all in-flight services, recommendation and good word of mouth to their relatives and friends. (Willy, 2000).

2.3.2 Role of airlines

Airlines are responsible for the design of onboard service. This is affected by:- the time of flight, length of flight, point of embarkation and disembarkation, nationality or ethnicity of passengers, seat class (economy, business or first), budget allowed by the airline, price of food, seasonality of food, cost of labor to make a food item, time required to serve the food, number of flight attendants available to serve food, time needed to consume food, ability of meal to be consumed in a small place on a plane, the time and effort needed to clear an item, the needs and desires of the passengers, Odors that may penetrate the cabin, the ability of meal to be rethermalised and the ability of the meal to withstand low humidity and pressures (Peter.j, 2005).

2.3.3 Role of caterers

Caterers have two main roles: to prepare items not bought in directly from suppliers to a state ready for loading on board and to assemble trays and trolleys. Flight kitchens are always located near to major airports and are usually used to 'manufacture' consumable food items. There are two main reasons why menu items may be made outside of airport-based flight kitchens: the cost of space and the cost of labor. Airport space is at a premium so often it is not feasible for a flight kitchen to produce all of the meals needed for every seat class. For instance, some flight kitchens or caterers may make their first-class, and in some cases business-class, meals from scratch at the flight kitchen and outsource all other meal production. The caterer is often in an unusual and sometimes difficult, position. Although they

are a customer of the supplier, the products used may not be of their choosing but may have been determined by the airline. When the products used are those purchased directly by the airline, caterers only charge for a handling and storage fee of the product but not the cost of the product. For instance, all liquor products for tax reasons must be purchased by the airlines, either through a prepaid arrangement with the distributor or through an arrangement whereby the charges are directly invoiced to the airline. However, the caterer is often responsible for keeping and accounting for any such products and these products are usually delivered directly to the caterer's bonded store. The challenge for caterers is that the products are the property of the individual airlines served by the caterer. Products belonging to one airline cannot be used for another, even if the two airlines use identical products (Taylor and Francis, 2011).

2.3.4 Role of suppliers

Suppliers may supply the inflight industry in two main ways.

2.3.4.1 Based on the planned menus, the supplier receives direct orders from the airlines, although they deliver their goods to flight kitchens operated by the contracted caterers. Airlines buy direct from suppliers because they want to have continuity of supply in all their stations, because they negotiate a discount, or because they want to maintain a particular brand image (Peter.j, 2005).

2.3.4.2 The supplier may supply the caterer directly

Likewise suppliers have two approaches to manufacturing their products. Some supply airlines (or their caterers) with their standard products, whereas others make and supply specialist products specifically designed for the in-flight kitchen. In the first instance, the manufacture of these products is likely to take place in a factory or plant producing many other products. The products for in-flight service may be slightly modified for that market. For instance, spirits manufacturers need to bottle their spirits in miniatures rather than 40 oz. bottles. In the second case, the manufacturer concentrates on simply producing a cycle of food items, often providing their sole business and hence they can produce large amounts of these items to be sold to the flight kitchen, as a method of outsourcing. These food manufacturers can make these items in volume at a lower cost than the flight kitchen can. The cost of labor to mass

produce meals is obviously cheaper a good distance away from large cities where airports must exist. Historically it was mainly frozen meals, or ‘pop-outs’ as they are called in the USA, that were outsourced in this way. Today all kinds of specialist food items may be outsourced, such as canapés, ethnic meals, vegetarian items, patisserie, and so on (Grothues, U. 2006).

2.3.5 Role of distributors

Distributors are typically global logistics companies, specializing in moving goods around the world, often in containers. As most of the airline distributors are predominantly travel agencies and tour operators, thus air transport is indirectly related to the tourism industry (Peter.j, 2005).

They provide two main services for airlines or caterers.

- a) They can distribute materials and meals from vendor/suppliers to both the caterers and the airlines and
- b) They can track the numbers, volumes, and brands of the products they distribute. Using a specialized distributor or logistics company allows the airline and caterer to better manage the flow of materials from aircraft to passengers.

2.4 The global market of air travel trends

It is important to locate the trends in airline catering in the context of changes which are affecting the market-place, as it is these trends which will dictate the way the industry has to adapt. The World Tourism Organization (WTO, 2001) suggested that in the period of 1990–2000 international travel trends would reflect those of the 1980s but that long-haul travel would shift the importance of specific geographic areas in terms of travel generation and expenditure. Three high-growth flows were forecast:

1. Intra-European travel (including west/east travel)
2. Asia Pacific
3. North Atlantic (originating from Europe).

This indicates that while Europe continued to attract more arrivals it was consistently losing overall market share to other tourism regions (Table 2.1).

Following the below tables indicates the tourist arrivals and markets globally from (1994 to 2000) GC of air travel trends. As it shown on the table the growth rate of tourist arrival with in 7 consecutive years were increased in each region especially America were high in number globally except Middle East, Africa and Oceanic region which was below thousand.

Table 2.1 Global Markets of Air Travel Trends

Year	Europe	Americas	Africa	Middle East	Asia	Oceanic	Total	Percent change
1994	8119	28051	173	403	5551	556	42853	
1995	8793	26680	186	454	6616	588	43317	-3.2
1996	9727	27948	205	480	7500	629	46489	7.3
1997	10390	28155	234	552	7756	680	47766	2.7
1998	10675	27513	258	587	6724	639	46396	-2.9
1999	11243	28747	274	625	6935	667	48491	4.5
2000	11597	30010	295	702	7554	731	50891	4.9

Source: Air Inclusive Travel market (Evans, 2001)

The following below (table 2.2) next page including all regions and continents holds the distribution of passengers flows in the global travel market become more increasing in t different region with different comparison parameters such as, passengers traffic (RPK), load factors and region in million and percent indicated Asia Pacific scored 34% which was the highest passengers flow than the rest of the region in the worlds.

Table 2.2 **Distribution of passenger flows by regions/continents**

Region	Traffic (RPK) (million)	Load factor	Region	Traffic (RPK) (%)
Africa	92 818	68.2	34.3	4%
Asia Pacific	1 954 254	79.6	1 035.1	34%
Europe	1 714 827	83.2	867.6	22%
Latin America	273 305	80.0	180.9	8%
Middle East	508 380	77.1	173.3	7%
North America	1 669 165	83.7	923.8	25%
TOTAL	6 302 749	81.2	3 215.0	100%

Source: Flight global, Flight Airline Business magazine (2016)

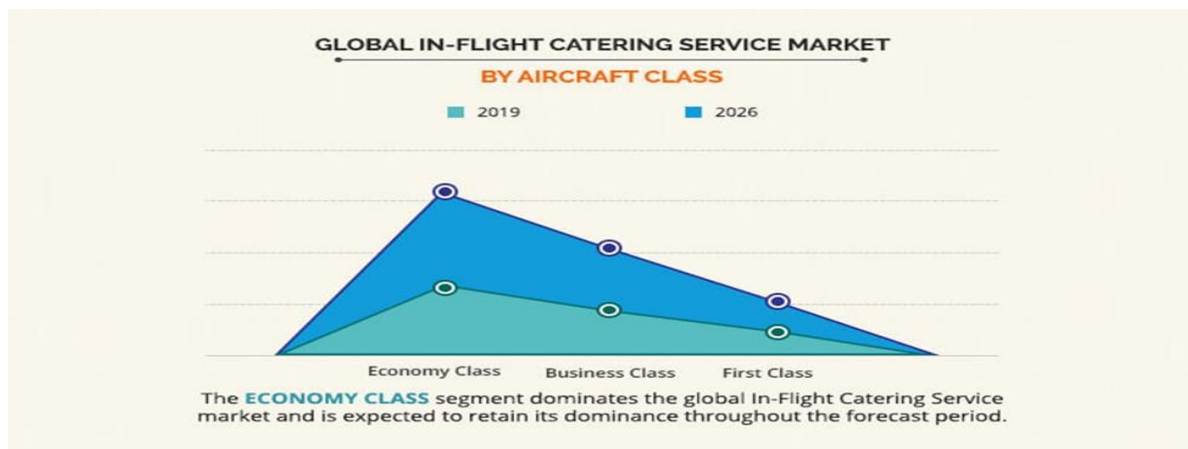
2.5 The In-Flight Catering Service Market Globally

The global in-flight catering service market classified in to four basic types based on different Criteria globally Press Release Newswire, (2018). These includes: Based on aircraft class, based on flight type, based on food type and based on regions.

2.5.1 Based on aircraft class

In-flight catering service market is divided into three basic segments based on aircraft class; these include first class, business class and economy class. From the above listed segments the economy class segment occupied around 51% of in-flight catering service market share of the total market in 2018 and is expected to retain its dominance throughout the forecast period.

Figure 2.2 Global In-Flight Catering Service Market

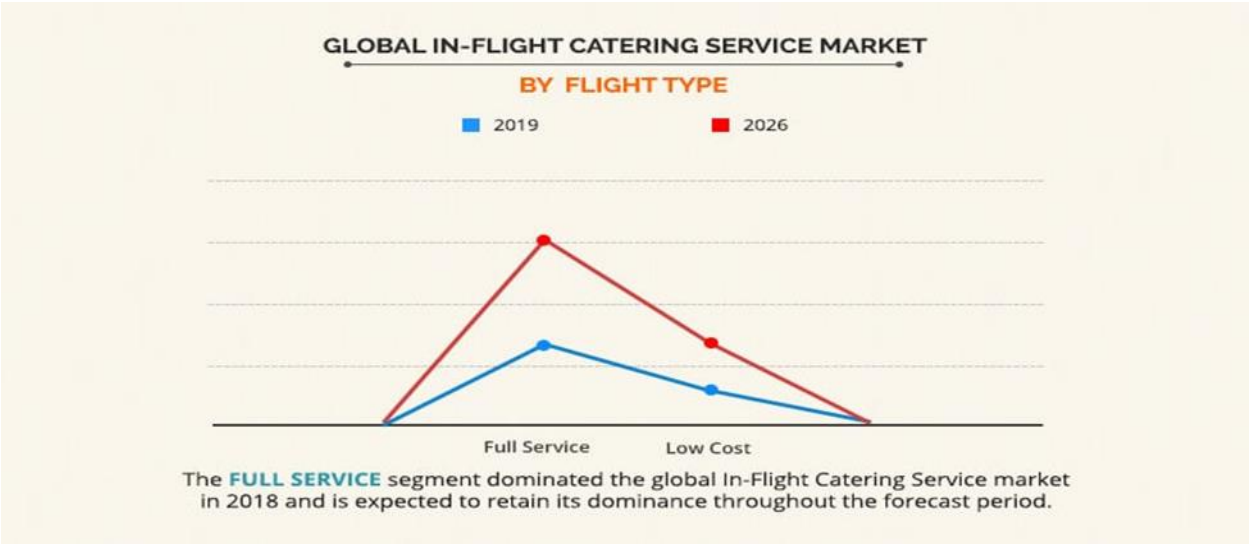


Source: Global in-flight service Industry Press Release Newswire (2018)

2.5.2. Based on flight type

The global in-flight service market segment further classified in to full service carrier and low cost carrier (LCC), but in terms of revenue the full service segment dominated a major share of the global market in 2018. However, the U.S. was the largest country, in terms of revenue generation in the global in-flight catering service market, and is expected to grow at a CAGR of 3.49% and expected to retain its dominance throughout the forecast period.

Figure 2.3 Global In-Flight Catering Service Market

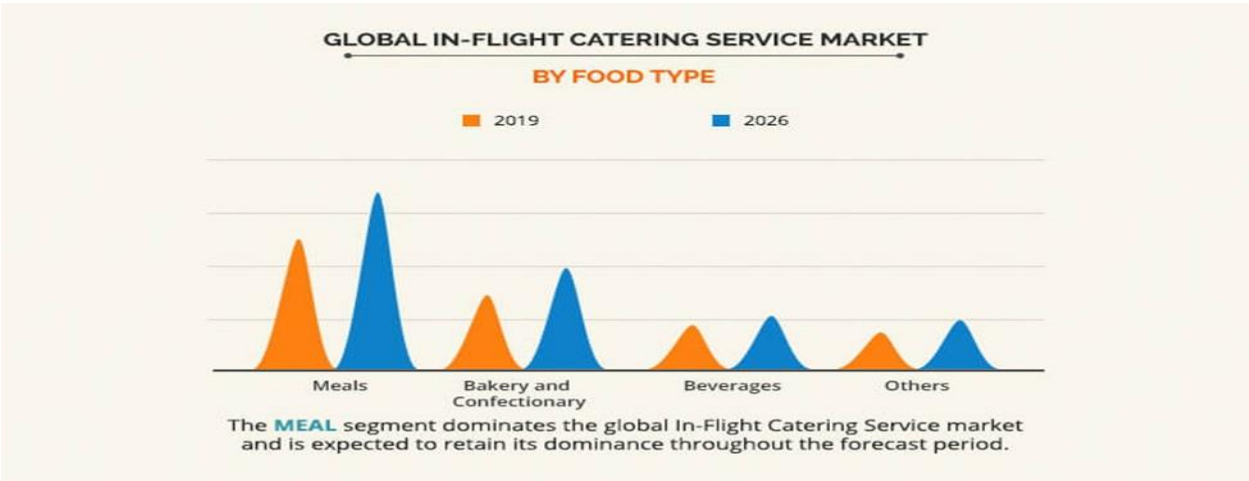


Source: Global in-flight service Industry Press Release Newswire (2018)

2.5.3. Based on food type

The market share of the food segment of the in-flight service market dominates around 45% the total market of global in-flight service market in 2018 than bakery and confectionery, beverages and other services. The Meal service market segment is expected to retain its dominance in terms of revenue generation, throughout the forecast period. The global in-flight catering service market is estimated to bring significant growth during the forecast period, owing to rise in number of passengers across the globe.

Figure 2.4 Global In-Flight Catering Service Market



Source: Global in-flight service Industry Press Release Newswire (2018)

2.5.4. Based on region

According to the analysis taken from different regions across the world such as, North U.S., Europe, Asia-Pacific, and Latin America, South Africa, United Arab Emirates, North America dominated the global in-flight catering service market in 2019 and is forecasted to lead the global in-flight catering service market by growing its highest Compounded Average growth Rate (CAGR) of 3.78%, in terms of revenue, and expected to to retain its dominance throughout the forecasted period.

Figure 2.5 Global In-Flight Catering Service Market



Source: Global in-flight service Industry Press Release Newswire (2018)

2.6 Pattern and Trends of the global tourism economy

The following below Table 2.3 elucidates the global total tourist arrivals statistics between 2015 and 2018. The Fast and comprehensive growth of the global tourism economy and total global tourist arrivals reached nearly **11.9 billion** in 2017, **1.6 times as** many as the total global population.

Table 2.3 Global Total Tourist Arrivals (2015-2018)

Years	2015	2016	2017	2018
Total global tourist arrivals (trillion)	10.45	11.12	11.88	12.67
Ratio of global tourist arrivals to global population (100%)	1.4	1.5	1.6	1.7

Source: (WTCF) **World Tourism Council Federation Report Berlin (2018)**

As indicated in table 2.4 Global tourist revenue amounted USD **5.3 trillion**, around **6.7%** of GDP in 2017. In 2018, the global tourism receipt and GDP contribution has further increased to USD 5.6 trillion and 6.8%, respectively.

Table 2.4 Global Total Tourist Revenue (2015-2018)

Years	2015	2016	2017	2018
Total global tourist revenue (USD trillion)	4.9	5.0	5.3	5.6
Percentage to global GDP (%)	6.6	6.7	6.7	6.8

Source: (WTCF) **World Tourism Council Federation (2018) Report Berlin**

Table 2.5 shows statistical data about the growth rate of global tourism economy, both in terms of tourist arrivals and revenue generated, from 2016-2018. The figures indicate an increasing growth rate, i.e., arrival and revenue during the stated period.

Table 2.5 Global tourism economy growth rates (2016-2018)

Years	2016	2017	2018
Growth rate of global tourist arrivals (%)	6.4	6.8	6.7
Growth rate of total global tourist revenue (%)	2.6	4.3	5.9

Source: (WTCF) World Tourism Council Federation (2018) Report Berlin

Table 2.6 indicates comparisons between tourism growth figures with that of the global GDP. And the global tourism economy growth rate exceeded that of global **GDP** in 2017.

Table 2.6 Comparison with GDP growth rates (2016-2018)

Years	2016	2017	2018
Growth rate of global GDP (%) IMF	3.1	6.8	3.6
Growth rate of global GDP (%) WB	2.4	2.8	2.9
Growth rate of total global tourist revenue (%)	2.6	4.3	5.9

Source: (WTCF) World Tourism Council Federation (2018) Report Berlin

Table 2.7 elucidates the tourism growth rates of the five regions (Europe, America, Asia Pacific, Middle East, and Africa) in 2017. During the stated period, the Asia Pacific region surpasses the rest of the regions, both in terms of the growth rate of tourist arrivals (9.4%) and total tourist revenue (6.9%).

Table 2.7 Tourism growth rates of five regions in 2017

Regions	Europe	America	Asia-Pacific	Middle East	Africa
Growth rate of total tourist arrivals	2.1%	1.9%	9.4%	0.9%	1.0%
Growth rate of total tourist revenue	1.1%	4.9%	6.9%	4.8%	3.5%

Source: (WTCF) World Tourism Council Federation (2018) Report Berlin

Tourism growth’s contribution to global trade:

As shown in figure 2.6, below the overall contribution of global tourism and the growth rate of the global international tourism was higher than that of the global international trade during the period between 2006 2017.

Figure 2.6 Growth rates of global trade and global tourism trade (2006-2017)

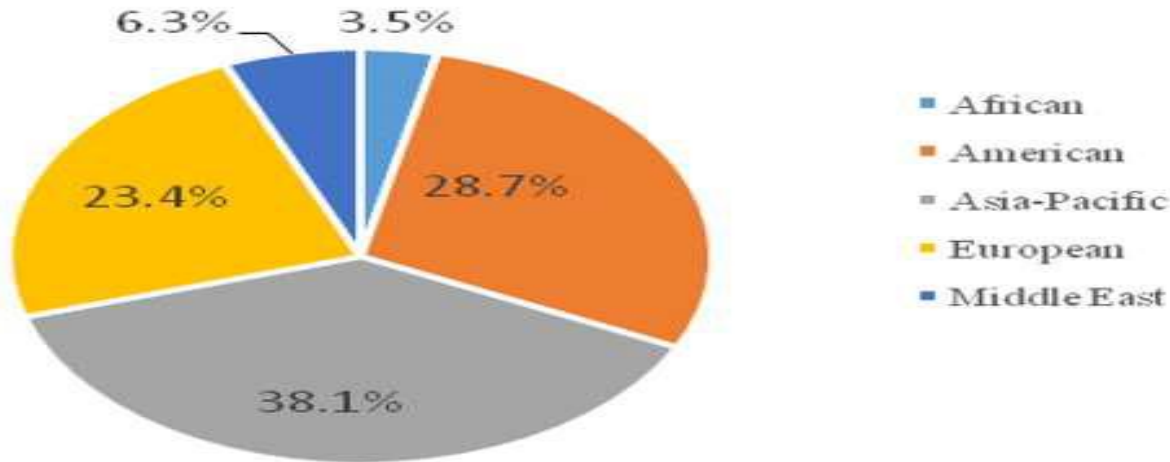


Source: (WTCF) World Tourism Council Federation (2018) Report Berlin

Rapid growth in global tourism investment

As shown in figure 2.7 below, the global tourism investment grew by **4.1%**. The tourism investment includes the inputs of the industries directly related to tourism. Tourism investment in *Asia-Pacific* was the largest (38.1%) and the growth rate was the fastest than that of the other computing regions in the globe.

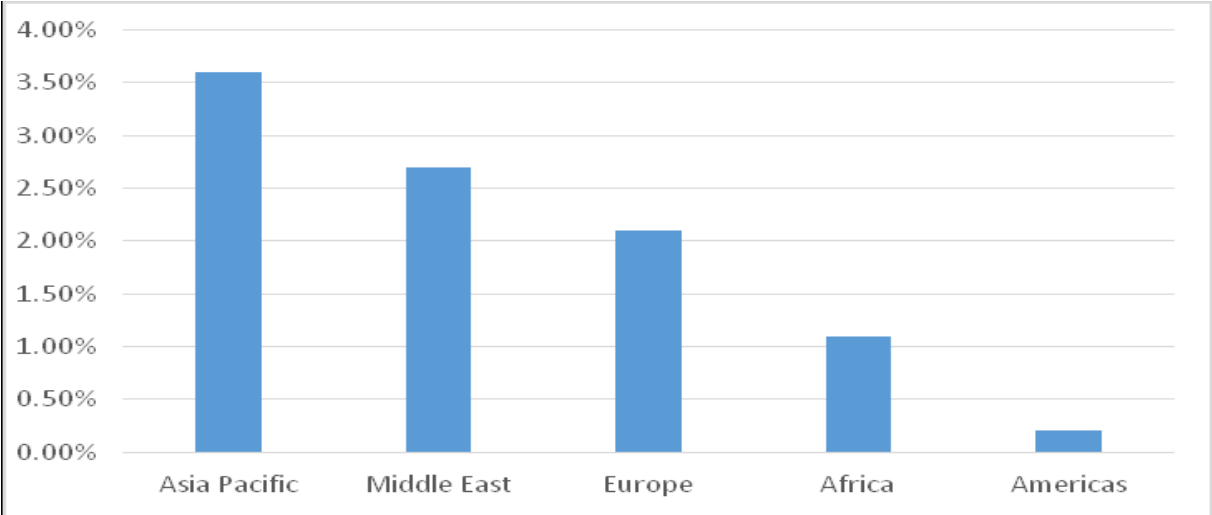
Figure 2.7 Tourism investment percentages of five great regions (2017)



Source: (WTCF) World Tourism Council Federation (2018) Report Berlin

As shown in figure 2.8 following the next page below, the global annual average tourism investments growth rates indicated from the highest regions to the lowest region and Asian pacific ranked greater percent (3.5%) and America below (0.5%) respectively.

Figure 2.8 Annual average tourism investment growth rates of the five great regions (2008-2017)



Source: (WTCF) World Tourism Council Federation (2018) Report Berlin

2.7 Promoting Ethiopian Tourism to the World

The Ethiopian Ministry of Culture and Tourism's (F.D.R.E. Ministry of Culture and Tourism, 2016) mission is "to study, preserve, develop and promote the cultural wealth and national tourism attractions of the nations, nationalities and people of Ethiopia and to build the positive images of Ethiopia with a view to adding a sustainable socio-economic and political values with popular and stakeholder's participation". It further details its vision of making Ethiopia one of the top five tourist destinations in Africa by 2020.

According to Ethiopian Ministry of culture and tourism MOCT, (2015) evaluation report Addis Ababa as the national capital, it remains the economic, political and administrative hub of Ethiopia is home to 118 diplomatic missions accredited to both the government of Ethiopia, the African Union (AU) and the Economic Commission for Africa (UNECA). In the last 50 years, the city has gained international significance as the headquarter of the African Union (AU), United Nation (UN) Economic Commission for Africa (UN-ECA) and a regional office for several international organizations including UNDP, UNESCO and the European Economic Commission (EEC). Ethiopia is endowed with rich cultural and abundant natural resources and the land where mankind, coffee, and the Blue Nile trace their roots. It is a land of remarkable features. It is also a country of different ethnic groups with their own unique languages, cultures, and traditions (MOCT 2016). Activities have been carried out for promoting Ethiopian tourism; in every destination (route) where ET provide its service has its ticket are decorated with posters and brochures of beautiful and eye catching tourist destination of Ethiopia that were designed by Tourism commission of Ethiopia now currently turned to be Ministry of Culture and Tourism (MOCT). This contribution of Ethiopian airline to Ethiopian tourism is starting from Derg Period. And recently revised pictures, magazines, cultural foods, videos, audios, CD publication and other advertising materials prepared in Corporate Promotion department of Ethiopian airlines.

2.8 Ethiopian Airlines Business Centers

Air transport provides a worldwide network and has become a global industry more than 58 million jobs and US\$2.4 trillion of the world GDP are directly supported by the air travel industry (Airbus). Many stakeholders are involved as part of the air transport supply chain such as aircraft manufacturers, airlines, airports (including airport operators), ground services, air navigation services, but also other institutions and organizations, including tourism and other affiliated industries (Ethiopian Airlines Factsheet March, 2018).

Ethiopian is currently implementing a 15-year strategic plan called Vision 2025 that will see it become the leading aviation group in Africa with seven business centers: Ethiopian Domestic and Regional Airline; Ethiopian International Passenger Airline; Ethiopian Cargo; Ethiopian MRO; Ethiopian Aviation Academy; Ethiopian In-flight Catering Services; and Ethiopian Ground Service. Ethiopian is a multi-award winning airline registering an average growth of 25% in the past seven years (Ibid).

2.8.1 Ethiopian Aviation Academy (EAA)

It is the largest and the most modern aviation academy in Africa recognized as ICAO regional Training Center of Excellence. To train aviation professionals from classrooms to simulator training, EAA offers industry standard training for pilots, aircraft technicians; cabin attendants and ground services staff both for initial and recurrent students. The Leadership & Career Development Center is training thousands in Management and Leadership Skills (Ethiopian Airlines Factsheet March, 2018).

2.8.2 Ethiopian aircraft Manufacture, Repair, and Overhaul (MRO)

The service provider was established in 1957 as the largest MRO service in Africa and serves Africa and the Middle East, and are exempted completely from customs and countervailing duties it employs over 2,800 employees. The facility is fully equipped with Hangars, Engine and Component Maintenance workshops with all equipment needed to repair/ overhaul aircraft, engines and components (Ibid).

2.8.3 Ethiopian Cargo and Logistics services (ECLS)

These are the largest cargo network operators in Africa. Currently With its dedicated 6 - Boeing 777-200LR and 2 - Boeing 757-260 freighters, the airline serve 44 cargo destinations in Africa, the Gulf, the Middle East, Asia, Europe and North Americas with an average daily uplift of over 650 tons on top of the belly hold capacity with a daily uplift of over 200 tons. With this, it has achieved the highest aircraft daily utilization of over 17 hours on its B777FS. Ethiopia is perfectly situated in the center of the emerging economies contributing its part to the growth trade and tourism partnership between countries as well as between continents (Ibid).

2.8.4 Ethiopian Ground Service

Ethiopian Ground Services provide full ground handling services including but not limited to passenger, ramp, baggage, operational support, cargo, charter and lounge services that are necessary to handle arrival and departure processes of airlines in Addis Ababa and domestic airports with modern ground support equipment, highly trained and committed staff. Cloud Nine: Combined services of First and Business Classes. Cloud Nine has the space, comfort and style that make flying with Ethiopian a pleasure. Frequent Flyer Program: Sheba Miles awards Ethiopian frequent flyers with award tickets, upgrades to business class, access to all Star Alliance member airline executive lounges, additional free baggage allowance and many other privileges for their accumulated mileages. A new Platinum tier level has been introduced

as of January 2017 in addition to the Gold, Silver and Blue tier. The Platinum tier level offers extra benefits to frequent flyers that accrue 75,000 status miles or 60 qualifying segments within one calendar year, Jan 1st –Dec 31st within the validity period of two years, in addition to the remaining months in the qualification year (Ethiopian Airlines Factsheet- March, 2018).

2.8.5 Ethiopian catering service (ECS)

The new catering facilities expansion built with an investment of US\$ 15 million. Inaugurated on October 29, 2016, Ethiopian In-Flight catering facility has a capacity to produce 100,000 meals a day, up from the current 45,000. The facilities are modern and fully equipped to deal with such a high demand. Good food is important to our discerning customers. Ethiopian In-Flight Catering is dedicated to delivering high quality service and part of that is delivering high quality food. The new menus give customers the choice of local Injera, a vegan option, and a variety of world cuisines, from Chinese and Indian to Italian. However, this study is focused on exploring predominantly on the in-flight catering service within the passenger air transport, which is in direct relation with the tourism industry; therefore, military, cargo, agrarian and general aviation industries remain beyond the scope of the study (Ibid).

2.9 Service Process in In-Flight Catering

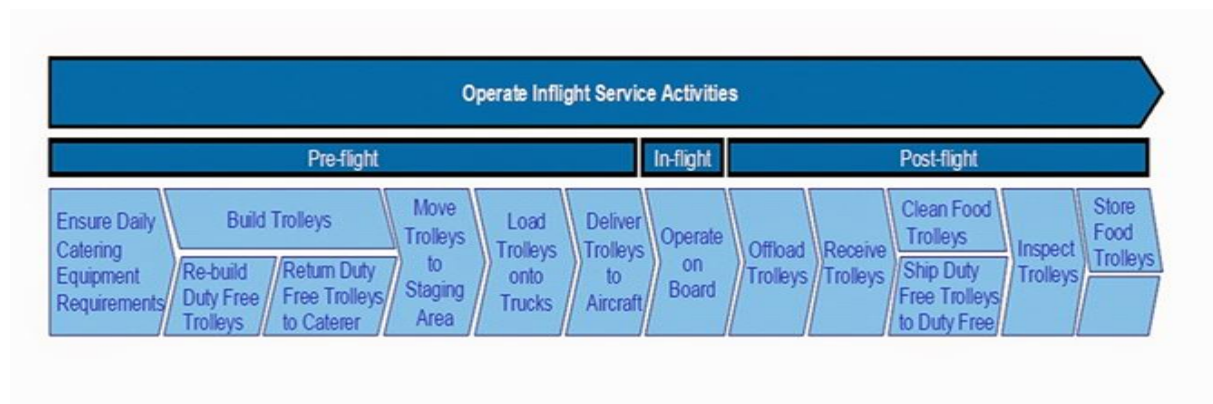
According (Grothues, U. 2006) the work of the Flight Catering can be broadly divided into two halves: The cooking of food and its packaging and loading. The responsibility of the caterer ends after the food is handed over to the crew on board. As per the trend of the consumption and the rotation to be served, the purchase ordering sheet is filled up. With the help of proper software it reaches on line to the purchase manager. The ingredients are ordered for and duly checked at the receiving. Segregation of the stores is done. Bottled and tinned products, rice, cereals, oil etc. are sent to the store room. The vegetables are washed and sent to the veg prep area. All the items needing frozen storage is sent to the appropriate deep freezer. Egg, cheese etc. are sent to refrigerated storage. The kitchen can pick up the things as

per the requirement from the store through on –line requisition. The receiving brings to the knowledge of the kitchen immediately any kind of short supply. The store maintains a par stock of approximately one week’s consumption.

The food is then processed keeping in view the production schedule. At every processing point, temperature control is kept. Ultimately after the food is prepared, except certain items, they are blast (chilled) and sent to the holding areas from where they are portioned out in the Dish out area as per the KOT received. Weight specifications and the presentation, if any must be strictly adhered to here. After portioning, the food is again sent to the holding area. These are loaded onto different trolleys. The operations take care of the food from here. There are different colored tags which help in easy identification as to which material, be it raw or processed belongs to which day of the week. The operations double check and then the airliner representative seals the trolleys. These are then loaded onto the high loaders which take the food away to the aircraft. In every area there are area Standard Operation Procedures (SOPs) which are to be followed and the area Critical Control Point (CCP) to be strictly maintained from the process of HACCAP analysis (Jones, P., 2007).

As shown in figure 2.9 following below indicate how the in-flight catering service process operate their day to day activities that begin from before (post flight) to ensure daily catering equipment requirements, during flight to operate onboard service and finally after (post flight) to clean food trolley and inspect the trolley.

Figure 2.9 In-flight catering Service Process



Source: Flight catering Jones, P., (2007)

2.10 Ethiopian in-flight catering services

Ethiopian Airlines Inflight Catering, the largest single in-flight catering facility in Africa, has won Outstanding Food Service by a Carrier in Africa award on PAX International Readership Awards 2017 held in Hamburg, Germany, on Wednesday 5th April 2017. Ethiopian in-flight catering is one of the seven strategic business units (SBU) under Ethiopian Aviation Group. The catering unit is built in 1968 on a 3260 square meters of land and expanded in 1986 to accommodate the growing operational needs of Ethiopian Airlines. Currently Ethiopian is renovating the previous building to work in conjunction with the newly inaugurated ultramodern catering facility built in 2016 on 11,500 square meters. In total it has more than 800 employees who produce 45,000 meals per day for passengers travelling on average more than 120 flights/ day. As part of its 15-year growth plan, dubbed Vision 2025, Ethiopian Airlines established Ethiopian Catering as one of its seven strategic business units in 2011. VIP and Charter flights which often shuttle to and from the Addis Ababa Hub are prominent customers of the catering unit (Ethiopian Airlines Factsheet March, 2018). The Catering unit is strictly guided by HACCP policies and procedures which promote a high level of quality management for the safe production and handling process of all catering services. In line with the ETHIOPIAN's vision, the catering unit is newly structured and organized as a strategic

business unit (SBU) consisting of seven sections including the department of In-flight catering Quality Management System & Safety Management System, Food production, Operations , Procurement and supply chain, HR development & Finance- Catering , Route catering and Catering facility maintenance. Ethiopian airline in-flight catering services provide Food & beverage services to VVIP, commercial flights, charter flights and private jets, Business Class Lounge, Supply of in-flight catering service items, Belly-galley service, Halal kitchen service, Customers Portfolio, Trans Nation Airways (TNA), National Airways, Turkish Airlines and Air China (Ethiopian Airlines Factsheet March,2018).

2.11 Pattern and Trends of Ethiopian Airline in Transporting Tourists Domestically and Internationally

2.11.1 Domestic Destination

The domestic air transport in Ethiopia starts when the first scheduled flight of Ethiopian airlines took place to Cairo via Asmara in Douglas C-47 sky train on 8th April 1946 from Addis Ababa. Following the successful inaugural flight to Cairo via Asmara, a regular weekly service was established. Following that a domestic service to Jimma has proceeded. As the demand for air transport service necessitated new systems of airport in the country, ECAA built three new international airports in Addis Ababa (Bole), Dire Dawa and Asmara, as well as one domestic airport at Jimma with a loan of 50 million USD from the US government in 1961. These airports began to provide full-fledged airport and air navigation services required by modern jet aircrafts (Abraham, et al, 1979).

Table 2.8 Ethiopian airlines Domestic Network

Domestic Destinations				
Addis Ababa	Axum	Gambella	Jijiga	Lalibela
Arba Minch	Bahirdar	Gode	Jimma	Mekele
Assosa	DembiDolo	Gonder	Kebri Dahar	Semera
Awassa	Dire Dawa	Humera	Kombolcha	Shere

Source: (Ethiopian Airlines Factsheet March, 2018).

2.11.2 International Destination

The motto of Ethiopian airline is Bringing Africa Together as a continent; Ethiopian has created more links through its vast African network to 55 cities and more than 100 international passenger and cargo destinations, with daily and more flights, with a minimum layover in Addis Ababa. As a veteran African carrier, Ethiopian has positioned vast Intra-Africa network better than any Airline (CorporateCommunication@ethiopianairlines.com)

Table 2.9 Ethiopian airlines Global Network

More than 100 Global Network in Five Continents				
Africa	Americas	Europe	Asia	Middle East
Abuja, Accra and Antananarivo	Aires	Brussels Dublin	Ahmedabad Bangalore Bangkok	Bahrain Beirut
Bamako, Blantyre, Brazzaville and	Buenos	Frankfurt Istanbul	Beijing Chengdu	Dammam Dubai Dubai/Almaktoum
Bujumbura, Comoros, Conakry, Contonou	Los- Angeles	Liege	Chennai Delhi	Doha Jeddah
Cairo, Dakar, Dar-es-Salaam, Djibouti,	New York	London Madrid	Guangzhou Hanoi	Kuwait Madinah
Douala, Durban, Enugu, Gaborone and	Sao Paulo	Milan		Muscat Sharjah
Goma, Harare and Hargeisa Johannesburg,	Toronto		Hong Kong Kuala	Tel Aviv
Juba Kaduna, Kano, Khartoum, Kigali, Kilimanjaro and Kinshasa Lagos, Libreville, Lilongwe, Lome, Luanda, Lubumbashi, And Lusaka Malabo, Maputo and Mombasa, Nairobi, Ndola, Niamey and N'Djamena Ouagadougou, Seychelles, Victoria Falls Windhoek, Yaounde, Zanzibar	Washington	Oslo Paris Stockholm Rome Vienna Zaragoza	Lumpur Manila Mumbai Narita- Tokyo Riyadh Seoul Shanghai Singapore	

Source Ethiopian Airlines Fact sheet (March, 2018)

The following below table 2.10 shows the list of airlines in different regions in the world which are code share partners of Ethiopian airlines who have worked in collaboration for their common interest in a global networked web for the provision of online passenger general information about global airlines overall operation.

Table 2.10 Ethiopian airlines Share Partner

Code Share Partners				
Aegean Airlines	All Nippon Airways	ELAL Israel Airlines	Rwanda Air	Turkish Airlines
Air Canada	Asian Airlines	Kuwait Airways	Scandinavian Airlines	United Airlines
Air China	ASKY Airline	LAME, Mozambique Airlines	Shenzhen Airlines	Azul, Brazilian Airlines
Air Europa	Austrian Airlines	Lufthansa	Singapore Airlines	
Air India	Avianca Brazil	Malaysian Air	South African Air	
Air Namibia	Egypt Air	Oman Air	TAP Portugal Air	

Source: Ethiopian Airlines Fact sheet (March, 2018)

The below listed airlines and airways on table 2.11 are core members and associated carriers of star alliance members who are connected online with global network for better collaboration each other. The star alliances remain more revenue-driven, focused on the gains to be made from joint marketing to customers and opportunities for world-wide outsourcing deals, to enable members to keep their own legacy systems and cut down on the costs associated with a complete systems overhaul to get more passengers online (O'Toole and Gill, 2000). Therefore, ET has been one of the star alliance members among the world since 2011 to date.

Table 2.11 Star Alliance Members

Star Alliance Member Carriers			
Aegean Airlines	Austrian	Ethiopian Airlines	South African Airways
Air Canada	Avianca	Eva Airways	Swiss
Air China	Avianca In Brazil	Lot Polish Airlines	TAP Portugal
Air India	Brussels Airlines	Lufthansa	Thai Airways
Air New Zealand	Copa Airlines	Scandinavian Airlines	Turkish Airlines
All Nippon Airways	Croatia Airlines	Shenzhen Airlines	United Airlines

Source: Ethiopian Airlines Fact sheet (March, 2018)

2.12 Contribution of Air Transport for the Growth of Tourism Sector

In recent centuries, the rise of the tourism industry highlights how important it is for humans to travel. More recently, nobody doubts that the development of tourism is a necessity. Nowadays there are more than 1.1 billion tourist arrivals per year, and the expectations are that they will grow by 3.3% a year to reach a total of 1.8 billion arrivals in 2030 (UNWTO, 2012). Tourism industry contributes about 9.8% to the total world gross domestic product, and the number of total jobs it creates exceeded 284 million for the global economy in 2015 (WTTC, 2016). Almost since its creation, aviation has been indispensable for the tourism industry

Air transport is one of the essential components of tourism. While tourism constitutes one of the most profitable scale lines for transport undertaking and may in future be the only offering scope for growth (Abiy Tamiru, 2003).

Air transport has contributed strong expansion of business on tourist destinations and thereby it plays a major role in determining the growth and diversity of tourism globally. Therefore, over 40% of international tourists now travel by air, compared from 35% in 1990, including business travelers, as well as those on leisure trips or visiting friends and relatives. However, according to the WTTC estimates that foreign visitors accounted for just fewer than 25% of the overall tourism spending around the world are supported by creating over 6.7 million direct jobs in tourism through spending of foreign visitors arriving by air. The following are the direct, indirect and induced employment contributions of air transport, taking into account both the importance of overseas visitors for tourism spending and the importance of air travel for overseas visitor:

2.12.1 Direct jobs:

The direct contribution of airline in-flight catering on industries such as hotels, restaurants, visitor attractions, local transport; car rental, etc. are categorized under direct jobs. For the provision of tour and travel services, airlines and other operators purchase a wide range of

products (goods and services) from manufacturing and service industries which in turn depend on inputs from numerous suppliers. But it doesn't include air transport industry jobs rather it contribute to the direct related tourism industries (Yared Aschale 2007).

2.12.2 Indirect jobs:

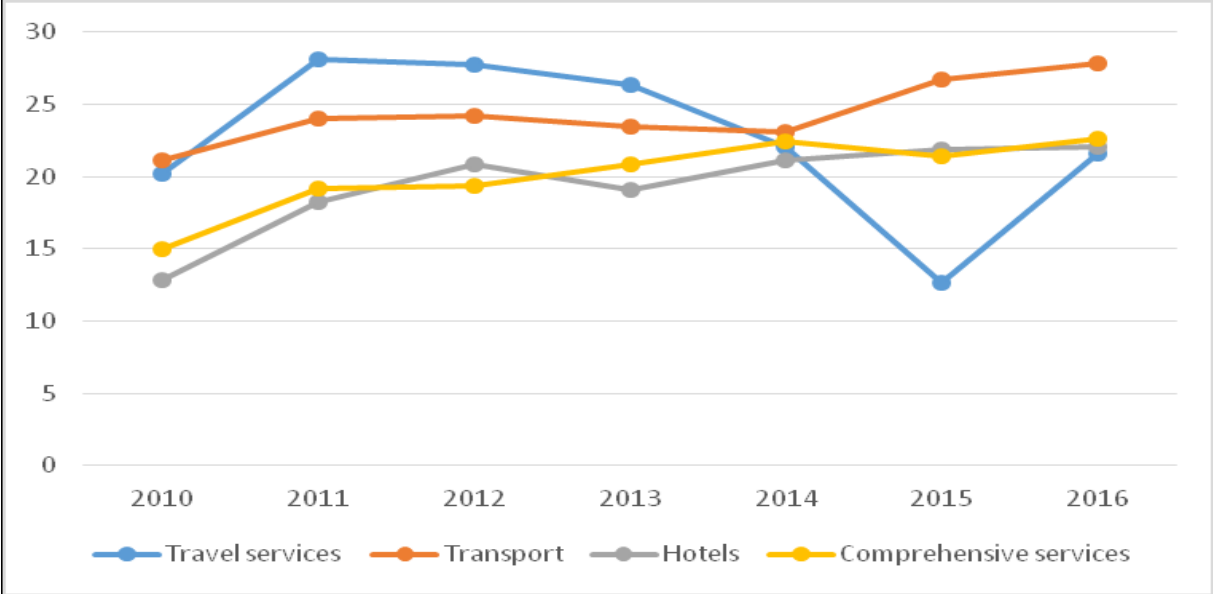
The economic opportunity of airline in-flight catering by creating 5.7 million indirect jobs in tourism and some other similar industries supplying the tourism industry are supported by visitors arriving by air (UNWTO, 2012).

2.12.3 Dynamics/Induced:

These dynamic tourism jobs opportunities in other parts of the economy, through employees spending their earnings on other goods and services total of air transport's spin-off effect: The combination of direct, indirect and induced tourism jobs increase a total of 15.5 million jobs worldwide from the spending of foreign visitors traveling by air, contributing an estimated US\$ 300 billion per year to world GDP. Tourism accounts for higher in the national income for money under developed countries. For Ethiopia tourism accounts for even higher foreign exchange earnings and this earning is increasing from time to time especially after the end of the civil war. Most European tourists are highly interested investing Ethiopia. Air and road are the major means of transport being used in Ethiopia. These modes of transport play a great role in moving people and freight within and out of the country. All this mode of transport, the most important used by tourists within and to Ethiopian is air service infrastructure. The Ethiopian airlines, the only air transport service organization in the country, are the most important mode of transport in promoting tourism in Ethiopia (Yared Aschale 2007).

The following below figure 2.10 shows the Comparison of the operating profit margins of the sub-industry of the listed tourism companies from (2010-2016) and the travel service companies were operated high growth profit margin of the sub-industry from (2010-2013) but not retained throughout the comparison period. However, the transport service sector operated high growth profit margin from (2014-2016)

Figure 2.10 Comparison of the operating profit margins of the sub-industry of the listed tourism companies (2010-2016)



Data source: Wind Data

2.13 The contributions and challenges of airline inflight catering while providing services to domestic and international markets

Globally, the aviation sector is expanding, as well as the tourism industry. Since both sectors are inherently connected, their common future relies on their common interest. “The tourism sector is both a vector and a victim of climate change and we are fully committed to contribute to reach the objectives set by the Paris Agreement,” said UNWTO Secretary-General in 2016.

Taleb Rifai (UNWTO, 2016), thus pointing out that the sustainable future is the only option for survival and development.

Wittmer and Bieger (2011) depicted the air transport system in a classic supply and demand format to present the air transport supply chain has been upgraded to that model to explore it as the visible and invisible sides of the industry from the customer’s perspective.

1. The supply side encompasses all aviation actors’ airlines, airports, aircraft manufacturers, and ground operators but also regulators and air alliances, which are organizations not directly

involved in transportation, but who contribute significantly to the smooth operation of the industry (Saraniemi and Kylaenen, 2011).

2. The demand perspective takes the view of the customers, considering them not as pure passengers, but differentiated according to their motivation for travel business or personal. Additionally, travel organizers (tour operators) and intermediaries (travel agencies) have been included for their intermediary connection between the air transport industry and the customers. It is the Market which unifies the Supply and Demand actors and makes the balance between them. Both parties bear the impact of the external factors, including political, economic, ecological, environmental, social and technological systems. The most prominent contribution of this model is in presenting the demand perspective, i.e. both the passengers and the major players from the tourism industry, i.e. Tour operators and travel agents. Another insight of the model concerns the external environment factors (the so called PESTEL factors Political, Economic, Socio-cultural, Technological, Environmental, and Legal) and their impact on the air transport operations (Saraniemi and Kylaenen, 2011).

2.13.1 Key Contribution of the Ethiopian Airline In-Flight Catering Market

Around 3.5 billion passengers used air transport for their business and tourism trips in 2015, and this number surpassed by 6.4% over the previous year (ICAO, 2016). Over half of the world's 1.1 billion tourists (54%) currently arrive to their destinations by air (UNWTO, 2012). More than 27 000 commercial aircraft, belonging to around 1400 commercial airlines, serve more than 52 000 routes around the world (ATAG, 2016). Around 10 million passengers per day use air transport services and a total of 627 million jobs are thus supported (ATAG, 2016). Those impressive numbers make air transport a major contributor to global economic prosperity, and in particular, to the global tourism industry. Aviation is vital to the social, cultural and economic fabric of every country. It is up to civil aviation authorities to ensure their air transport industry is healthy and well-managed.

The International Air Transport Association's (IATA, 2018) recent study on the importance of air transport and tourism to Ethiopia revealed that the sustained prioritization of air transport,

connectivity and tourism as a strategic asset would support an additional 900,000 jobs and at least USD 9.3 billion of GDP by 2037.

The IATA, (2018) economic report, which was presented in Addis Ababa, identified air transport and tourism as significant economic enablers. Air transport and foreign tourists arriving by air currently support 5.7% of the nation's GDP valued at USD4.2 billion and about 1.1 million jobs. If current trends persist, Ethiopia's air transport market will expand by 226% over the next 20 years, with annual passenger journeys increasing from 7.2 million in 2017 to 23.5 million a year by 2037. As a result, growth in tourism shares synergies with growth in transport, and vice versa (Duval, 2007).

The table 2.12 following the next page below shows how much the Ethiopian airlines transport is significant to transport high growth number of passengers, its incredible high growth in the number of air crafts, and its high growth number both in domestic and international routes that rely on the full services of its in-flight catering business unit, which contribute a lot through creating job opportunity both the private and government suppliers, aggravate the economic activity of tourism through promoting tourism resources and image building. Therefore, the higher on the number of passengers, aircrafts and destinations makes the ET in-flight catering unit to have more capacity in its overall operation and as a result it acts as significant economic enablers on the country GDP and attracts FDI Ethiopian Airlines Fact sheet, (2018).

Table 2.12 Ethiopian Airlines operational trends in Figures, 2007- 2017

Parameters	2007/8	2008/9	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Aircraft	35	36	46	54	54	60	69	78	79	89
Destination	52	56	60	65	68	73	82	84	88	95
Passenger number	2,504,646	2,812,337	3,146,911	3,731,321	4,644,425	5,224,717	5,918,364	6,353,059	7,595,057	8,761,101
Cargo Tonnage	72,758	100,764	134,166	160,129	180,808	174,446	186,336	236,772	266,223	338,646
Revenue in USD	978,657,432	1,159,037,528	1,278,451,942	1,509,870,849	1,925,715,226	2,079,202,141	2,399,031,251	2,418,121,516	2,531,461,736	2,713,445,732
Profit in USD	53,995,775	127,680,621	123,602,407	75,137,351	41,809,292	110,931,687	162,112,536	172,661,302	284,982,557	232,817,309
Infrastructure value in USD							1,380,138,927	2,017,683,129	2,432,683,129	7,745,183,129
Employees	4,896	5,075	5,555	6,129	6,557	7,390	8,066	8,977	10,227	11,284
Graduate Trainees	3,021	6,532	6,517	6,695	15,543	7,891	9,736	11,268	18,181	15,350
ASK	12,342,519	13,400,246	14,831,553	18,395,312	22,393,783	25,728,092	30,169,529	32,398,720	39,910,011	45,163,539

Source; Ethiopian Airlines Fact sheet (March, 2018)

"In aviation, Ethiopian Airline in-flight Catering service unit is preparing meals for global airlines. They are responsible for adapting the production of industrial kitchen to the world of aviation peculiarities. Therefore, the internal organizational hierarchy plays a key role, since the integration of all its resources benefits the reach of global competitiveness, as the internal guidelines of a company (Ethiopian Airlines Factsheet March, 2018).

2.13.1.1 Political Opportunity

Political stability is the primary concern of aviation industry as a whole especially for aviation industry peace, security, in contrast to safety, is much more dedicated to protecting air transportation against any kind of criminal and terroristic impact. In other words, the focus is not on the technical aspects of aircrafts, but rather on procedures and operations during the pre-in-flight catering service process, while on-board service and within the airport. Therefore, as the in-flight catering has direct contact to passengers on their pre-flight, during flight and post flight operation enables the political aspects safe, secured and free from fear movement through co-pilots cabin crews (Schmitt and Gollnick, 2016).

According to (Schmitt and Gollnick, 2016) the main areas of political security enable the movement of passengers concerns before onboard service and during in-flight catering service include:

2.13.1.1.1 Controlling Access to Secure Air Operations Areas

The aviation security measures have passed through tremendous detailed examination and implemented enormous improvement (the introduction of packages of measures during Pre-boarding, e.g. full-body scanning, and restrictions on taking liquids, aerosols and gels on.

2.13.1.1.2 Screening Passengers and Carry-On Luggage

Enhancing the efforts to prevent terrorism in aviation, affect passengers' personal space and human rights. Politically stable environment have attracted the attention of international investors leading to a significant influx of (FDI) Foreign Direct Investment.

2.13.1.1.3 Screening Checked Baggage and Cargo,

The regulation of civil aviation with a focus on safety, security, airspace policy, economic regulation, efficiency, sustainability, consumer and environment protection and certification in handling Dangerous Goods Regulation (DGR) and shipments.

2.13.1.1.4 Aircraft Protection.

For each of them there is a detailed procedure sequence using detection systems for identifying and preventing potential threats to security. Then, the security issues provoked impressive reflection worldwide, making governments and institutions mobilize and unify their efforts towards the single goal of prevention of similar attacks.

2.13.1.2 Economic Opportunity

A new study envisions the in-flight catering market to create opportunity of more than US\$ 9.5 Bn by the end of 2026 (Tatiana Rokou, 2019). Economic opportunity shows the nexus between the airline in-flight catering and economic growth of the country. In other words, an

attempt is made to show the roles and contributions of the airline catering on the different sectors of the economy which include the transport sector, tourism sector, employment and other sectors and hence on the economic growth of the country. Following the historical development of civil aviation, the end of WWII marked a period of intense development. The growth in the civil commercial aircraft market went in parallel with the expansion of the tourism industry. It is difficult to say which one of the industries were the primary drivers, because their development is so entangled that we cannot distinguish the individual contribution of either of the industries. With the maturity of mass tourism and the deregulation in the 1970s, came the need for bigger and more efficient aircraft and the introduction of jet planes. Later on, with the invasion of low-cost carriers (LCCs), mid-sized aircraft (120-150 passengers) received more attention for being more efficient and suitable for the point-to-point system. Supersonic aircraft also started a new age in the evolution of aviation, offering much faster travel for passengers. Although their development slowed down, when the Concorde exited the scene (2003), new achievements in this direction are to be expected IATA, (2018). The full economic impact of airline catering industries cannot be assessed without taking into account the indirect and induced impacts involving other related industries. **Indirect impacts** involve the transactions with related suppliers along the production chains. **Induced impacts** cover successive rounds of increased household spending that result from the direct and indirect impacts. In addition, an impact assessment may also include the off-airport expenditure of air transport users (passengers and freight forwarders) and related employment, which are referred to as **catalytic impacts**. These levels of economic activity can be viewed as having a cascading effect on the global economy.

In general, contribution of economic opportunity in air transport has three-fold aspects as follows:

2.13.1.2.1 Direct Opportunity

This contribution indicates employment and enterprise opportunity for those working in the tourism sector. For the provision of air travel and freight services, airlines in-flight catering purchase a wide range of products (goods and services) from manufacturing and service

industries which in turn depend on inputs from numerous suppliers. Consumer demand for travel services and products is spurring global economic growth, creating millions of new jobs in hospitality industry in hotels, restaurants, destinations, local transport services; car rentals, and travel agents. But it doesn't include air transport industry jobs.

2.13.1.2.2 Indirect Opportunity

This contribution indicates employment and enterprise opportunity for those in other sectors that supply tourism. Therefore over 5.7 million indirect jobs in tourism and similar industries supplying the tourism industry are supported by visitors arriving by air. Domestic and foreign economic growth (principally GDP) import cover ratio, and overall favorable business environment real interest rates, air fares, trade and exchange rates, and market maturity. Travel and tourism is a massive global employer with a significant contribution to global GDP. Building tourism supply capacities, stimulating entrepreneurship, and attracting investment are its priority economic impact and taxes. Airline catering industry support and benefit from these efforts to the advances in air transport as well as to growing wealth in industrialized and emerging countries plus the influence of globalization. The multiplier effects of airline catering can be calculated as a ratio of the sum of catalytic, indirect plus induced demand effects to the direct demand effects in terms of output and employment

2.13.1.2.3 Dynamics/ Induced Opportunity

There are multiplier effects with other industries, supplying either intermediate inputs or consumer products or employment and income generated in the economy of the in-flight catering by the spending of incomes by the direct and indirect employees. Ethiopian Airlines is the major contributor to the economy of the nation contributing 4.1 percent of the GDP according to the International Air transport authority. This contribution indicates the effect on the economy and society more generally. Both the direct and indirect tourism contribution of airline in-flight catering creating jobs in other parts of the economy, through employees spending their earnings on other goods and services on the total of air transport's spin-off effect based on its increasing solid economic growth, strategic geographic positioning

increased foreign direct investment (FDI), For some countries, it is the leading industry and the foundation on which future prosperity is built sustainable growth for airlines, aviation partners, economies to understand key aspects of the industry's revenues and expenses and to promote financial sustainability well on the growth factor of GDP, ease of doing business in the country and significant population, significant domestic investment and access money supply and air transport constitutes an additional factor of induced demand in favor of tourism (Vellas, 2000).

2.13.1.3 Environmental Opportunity

Properly dealing with environmental issues is aviation's license to grow. It is an ever-developing field with new regulations and self-imposed industry targets that takes environmental responsibility very seriously. Its uplift of fuel is increasing to service more flights so it's down to you to figure out a raft of environmental initiatives that keeps the airline's carbon footprint at the same level, and perhaps even reduces it. Air Navigation Service Providers find themselves in a challenging environment with issues such as the maintenance of safety, cost pressures, regulatory compliance and an increasing need to collaborate with related stakeholders to operate seamlessly, all demanding attention. Airline transport has contributed a lot for the expansion of tourist destinations and thereby it plays a vital role in determining the scale and diversity of tourism globally. The performance of ET is ahead of almost all other sectors in the country (Wittmer and Vespermann, 2011).

2.13.1.4 Social trends Opportunity

Strategic partnerships with airlines to create take-off opportunities for in-flight catering service providers and the majority of the players in the in-flight catering market are putting efforts to improve the in-flight experience of the travelers in order to sustain in this highly dynamic industry. Global players are focusing on geographic expansion, majorly in emerging market. To address the diversified customer preferences across the globe, airline is engaging in partnerships with the in-flight catering leading brands. To counter the continuous growing passenger expectations, the collaborations between airlines and in-flight catering brands

enables offering variety of meals along with consistent quality. These collaborations ensure win-win situation i.e. helps in improving the served food quality and also reduces the cost of in-flight catering service. This trend of collaboration between airlines and in-flight catering service provider is being extensively followed in the market. This is anticipated to escalate the business of both i.e. airlines and catering players and thereby driving the growth of in-flight catering market.

The relationship between food and tourism has progressed from “traditional hospitality, cuisine and gastronomy” to the development of the innovative concept of “food tourism” (Jones & Jenkins, 2002, p. 115), also referred to as “culinary”, “gastronomic” or “gourmet” tourism (Okumus et al., 2007, p. 19). Today, food is an integral part of the overall tourism experience, in addition to it being a prime motivation for travel (Hall, Mitchell, & Sharples, 2003). Developments in transport have a noteworthy impact on people’s mobility and tourism demand (Duval, 2007). Jobs are the bedrock of both economic and social development and growth drives development. By leveraging labor, individuals and households have a sustainable pathway out of poverty. The ET in-flight catering service has a significant contribution to the community level which helps to promote Cultural and Religious Diets, Local Characteristics, Ethiopian-Style Catering and creating effective sectorial policies for infrastructure, employment, trade investment, education, quality standards, cultural and pro poor results and a growing urban population and Developing People-Oriented Service with Focus on Tourists (DPOSFT). “Ethiopia’s continued prioritization of air transport along with the four government interventions IATA is proposing, will help the country’s air transport and tourism market achieve the 226% forecast growth and in doing so, unlock even greater socio-economic opportunities for the country,”

2.13.1.5 Technological Opportunity

Innovation in food coupled with technology integration to be prominent trends for In-flight Catering Market to enhance the in-flight experience through in-flight catering service, the prominent players are adopting digitally enabled services like use of smart phone for food &

beverage ordering. Few airlines operating globally also allow passengers to place order via in-flight entertainment systems. Moreover, some of the airlines are serving regional/ continental meal in order to satisfy the native cravings for the onboard passengers. The word of mouth advertising of such trends can certainly contribute in the growth of in-flight catering market.

Study of air transport infrastructure cannot be comprehensive without Air Traffic Management (ATM, Air traffic control (ATC), Air navigation services (ANS) and Safety and Security service. Some authors consider them as separate entities of the air transport system (Schmitt and Gollnick, 2016); however, as they are physically positioned within the airport and are an integral component of the ground infrastructure, and allocate them as sub-divisions of the airport structure. Therefore, ATM and Safety and Security issues are elaborated below. The sector itself is considered be the most technologically advanced since its foundation and during its historical evolution. Computerization has penetrated all aspects of aviation making it currently impossible to operate without technology. From the very beginning of the air transport supply chain, aircraft production and equipment, to the last element in the chain, customer sales, distribution and in-flight catering services technologies not only facilitate the process, but are intended to perform more complicated and intelligent tasks, aiming at the continuous improvement and efficiency of the sector. Regarding passenger service (check-in procedures, customs, border crossing, luggage handling and all the miscellaneous non-aviation services provided), airports and airlines actually have contradictory interests (Schmitt and Gollnick, 2016).

In general, contribution of technology in air transport has four-fold aspects:

2.13.1.5.1 Aircraft technology

This technology is concerning on the mechanical, automatic and electronic equipment of the aircraft. The newest technologies have significantly lower CO₂ emissions, because of the continuous increase in travel demand and consequently the increase in the number of flights, air pollution escalates (ICAO, Aircraft Engine Emissions).

2.13.1.5.2 Navigation

In order to improve the state-run governance of the air navigation infrastructure ineffectiveness of ATC, many organizations like, (ICAO, EUROCONTROL – the ATM body of the EU - <http://www.eurocontrol.int>, CANSO - Civil Air Navigation System Organization - <https://www.canso.org/about-canso>) and institutions appeal for a profound new approach in order to provide safer, more efficient and environmentally responsive performance. There are some attempts such as, (SESAR in Europe and Next Gen in the USA) to create such a unified system, but most of the countries still lack interest in such initiatives (ATAG, 2013).satellite-based and other technologies used in the air navigation services; including the innovations made for global coverage Other important technical elements of ATC include *flight and weather information systems*, which provide pilots and controllers with up-to-date weather conditions information (Hansman and Odoni, 2009). The whole system operates under the comprehensive and strict Standard of Operation procedures and rules, set by the ICAO and recognized worldwide (ICAO, 1984).

2.13.1.5.3 Airport technology

Recently, aircraft technology has been revolutionized, with brand new equipment enabling precisely-defined paths without relying on ground-based radio-navigation signals – e.g. the Required Navigation Performance, which is a satellite-based system (ATAG, 2013). Consequently, the current communication and navigation systems seem outdated and ineffective (Urfer and Weinert, 2011). All facilities dealing with ground operations for both airline handling and traffic/passenger management, including automated services. Finally, the political environment and air regulations further imply the growing need for a totally new paradigm of air traffic management. Any aircraft crossing a national boundary currently causes certain workload for the ATC. “A fragmented airspace is an inefficient airspace” (ATAG, 2013). Creating a single, unified legal and standards framework, which would have to be recognized by every country on Earth, would enable the separate ground stations to work in a global environment, thus having a full vision and strategy on a global scale. In their report

on the topic, (ATAG, 2013) propose two major ways to be considered, in order to enhance the efficiency of the ATM system. Furthermore it developed with the inclusion of smart technologies like biometrics, and deeper airline involvement in the security issues. Airline Traffic Control (ATC) plays an essential role in the operations of every airline (Hansman and Odoni, 2009). ATC is in charge for the taxi-out, take-off, landing and taxi-in procedures of every single flight to and from an airport. The ultimate goal of ATC is to ensure the safe and efficient flow of air traffic.

2.13.1.5.4 Airline operation systems

The development of technology has enabled firms to redesign their processes and to manage through outsourcing. distribution and market-based technologies – mainly concerning airlines regarding their internal systems, distribution channels (GDS, CRS), internet-based direct sales, NDC of IATA, mobile applications, etc. In addition, the aircraft cabin incorporates an increasing amount of new electronic services for passengers like entertainment systems and cabin management systems (Schmitt and Gollnick, 2016). The overall digitalization and the myriad of devices further diversify on-board services. It also provides better management information, thereby helping to monitor costs more effectively. The development of IT-enabling technologies, notably the internet Passengers want more control over their journey, prefer to check-in via their smart phone, more passengers prefer to book their trip an application 24% north Asia and 14% in Middle East, 46% passengers prefer to use biometric identification instead of paper passport. Bio metric technology is favored to speed up airport process baggage tracking is in a high demand, time is of the essence for passengers, on board Wi-Fi is becoming a must, Another specific feature of ATC is that it is currently almost an entirely human-centered process, in which flight crew and ground controllers communicate on navigation issues (Hansman and Odoni, 2009). Given the latest technological advancements, some of the activities would eventually become fully or partially robotized (ICAO, 2011). At key points the local overload creates delays, resulting in airport congestion, which is also caused by capacity constraints and inefficient ATC management (Hansman and Odoni, 2009). Using technology such as blast-chillers or methods such as cook-chill and cook freeze in

ground operations was regarded as crucial to the industry, and essential to reducing preparation time as well as permitting the use of technology in the air that occupies the minimum of space and operates most effectively. In this respect, then, the demands of technology and its effective use could be viewed as caterers' first priority. Certain mathematical models have been utilized in order to calibrate the operations (Gurtner, Cook, Graham and Cristobal, 2016).

2.13.1.6 Legal Opportunity

"The Ethiopian Government's recognition of air transport as a key driver of the country's economic growth has paid significant dividends. Economic, political and regulatory reforms, aimed at energizing and transforming the economy from a state-led to market-based growth, with stimulants such as the recently-introduced "Visa on Arrival" process, are bolstering Ethiopia's importance as a as a major East African air transport hub," said Raphael Kuuchi, IATA's Special Envoy to Africa on Aero political Affairs. .Creating a single, unified legal and standards framework, which would have to be recognized by every country on Earth, would enable the separate ground stations to work in a global environment, thus having a full vision and strategy on a global scale. In their report on the topic, (ATAG, 2013) propose two major ways to be considered, in order to enhance the efficiency of the ATM system. Furthermore it developed with the inclusion of smart technologies like biometrics, and deeper airline involvement in the security issues. In terms of benefits for tourism, Shakoori and Mirtalebi Aghdam (2014) confirm the positive effect of air transport liberalization mainly regarding the increased number of inbound tourists and amount of expenditure. They conclude that the more liberal air policy is, the bigger probability to convert this destination into an international hub, and in their study they focused on Dubai, UAE. On the other side,

Dobruszkes et al. (2016) have claimed that the relationship between tourism and liberalized markets is quite challenging from the methodological point of view. They advocate for more empirical evidence, implemented in a methodologically precise manner, in order to support the largely accepted idea of aviation-tourism positive correlation.

2.13.2 Key Challenges for the Ethiopian In-Flight Catering Market

As the in-flight catering service industry is operating its service on modern globalize competitive and fast highly changing world to satisfy the demand and needs of its passengers exposed to probably different issues and challenges both by the public sector and the individual enterprises that will significantly affect the whole industry. Such scanning is usually organized under six main headings: political forces, economic factors, social trends, technological change, environmental concern and legal factors. These forces inevitably cause an industry to change and adapt over time. Typically, companies scan the environment in order to identify factors that may affect them in the future in order to develop new policies and new products and services. Moreover, the current corona virus becomes a huge challenge for almost all operations of the airline. According to the United Nations Economic Commission for Africa (UNECA, 2020) Ethiopian airlines, May loses up to 560 million dollar if the current spread of corona virus out break continues.

2.13.2.1 Political challenge

The need to adopt more sustainable forms of development is high on the political agenda. Governments around the world have reacted to the need to prevent certain types of unsustainable activity, but it has become increasingly clear that the issues of global environmental change cannot be tackled as isolated phenomena, nor can they be resolved by regulatory provision alone. Sustainable development will be achieved only if the private sector is a part of the solution. There is an insufficient state-run governance of the air navigation infrastructure towards a liberalized, commercially oriented service provider (ATAG, 2013). Air transport definitely supports tourism and the movement of people, but it could be vulnerable to political instabilities and geopolitical crises, where crucial power shifts to political players. An example comes from Turkey that was prone to conflict and instability and the tough political conditions there were from (2009-2013), or the numerous terrorist attacks in Western Europe, preventing people from travelling. There has been an incident with an unruly passenger on one of your flights fall in passenger traffic. Flight passenger numbers are only now getting back to pre-9/11 numbers and immediately following 9/11, 'cold war' and

the Iraq War in 2002/3 many tour operators cut their overall holiday capacity. The airline is registered and took off from one country, it is due to land on another continent and the incident happened over international waters. What does the law say about this? Aviation struggles under a mountain of regulation, not always in favor of your business. Rules are applied at a national, regional, and global level. This complex and fragmented system involving a number of different agencies has to be understood and incorporated into the day-to-day running of the business. IATA Training in Law and Regulations leverages the association's in-depth global knowledge and provides regulators and legal staff with the tools to manage the regulatory process. Air travel in the world had, more or less, returned to pre-9/11 levels by the end of 2004. A decrease in air traffic numbers in 2001 and 2002 was due mainly to 9/11, the second Iraq war, acts of terrorism, geopolitical tensions face falling passenger numbers, added security costs, falls in their share prices and increased insurance premiums, and thousands of job cuts in adjusting their losses. Catering and ground services, filed for bankruptcy.

2.13.2.2 Economic challenge

Inefficient Airline Traffic Control (ATC) is directly connected with additional fuel usage and environmental pollution by both emissions and noise. Also, some estimation of the expenses on behalf of air transport security questions the overall cost-efficiency of the system (Gillen and Morrison, 2015). The thorough security checks require significant funds, usually coming from state institutions, hence from the citizens, which raises the dilemma whether all people need to pay for the services provided only to a certain number of citizens who travel by air. Pressure on costs and increased competition has led flight catering companies to re-think their business model. Airlines find it hard to make money as competition, regulation, and infrastructure and myriad other challenges squeeze revenue and bolster costs. Escalating oil prices (and so transport costs) and changing trends amongst holiday makers, although the market began to recover in late 2003. The returning confidence levels of passengers in 2003 and 2004 was also enhanced by the increased availability and use of low-cost airlines (including some charter airlines) as well as increased competition between tour operators

offering package holidays (Ibid). It is worth noting, however, that sales of air package holidays were still significantly down by the end of 2004 (approximately 6% in value terms) (Ibid). The challenge for caterers is that the products are the property of the individual airlines served by the caterer. Products belonging to one airline cannot be used for another, even if the two airlines use identical products.

2.13.2.3 Environmental challenge

Inefficient Airline Traffic Control (ATC) is directly connected with additional fuel usage and environmental pollution by both emissions and noise. According to the last report from the Intergovernmental Panel on Climate Change (IPCC), aviation is responsible for 2% of global warming if all anthropogenic emissions are taken into consideration (IPCC, 1999). Airplanes and environmental issues in which the level of aircraft carbon emissions is discussed (Edwards, Dixon-Hardy and Wadud, 2016; Vieira and Bravo, 2016) and is an intensely disputed topic especially for tourism (Pereira, Ribeiro and Filimonau, 2017; Cokorilo, 2016; Christensen, 2016). Another area encompasses aircraft fuel consumption, the level of noise pollution (Grampella, Martini, Scotti and Zambon, 2016) and creating substitutes for the kerosene/fossil fuels (Schmidt, Paul, Cole and Ploetner, 2016). Complex chemical and physical reactions caused by the emissions of the more of 100 000 flights per day worldwide. The most commonly featured are *air pollution*, caused by emissions of greenhouse gases like CO₂, NO_x, etc.; *noise levels*; and various *ground activities* that cause negative environmental and social impacts. *Air pollution* occurs in the upper levels of the atmosphere, where the emissions have a different impact depending on the altitude and on the climate conditions. The main cause of emissions are the aircraft engines using fossil fuels, which burn out and release CO₂, NO_x and water vapor. As a result, the first two gases might modify the chemical balance, thus warming the atmosphere, whereas water vapor forms condensation trails (or contrails), which further contribute to warming the Earth's surface. Adverse weather conditions, SARS, Recent incidental events around the world, including, the COVID-19 (CORONA VIRUS) pandemic disease, and escalating oil prices (and so transport costs) and

changing trends amongst holiday makers are all also having effects on the on the in-flight catering service directly and indirectly.

2.13.2.4 Social trends challenge

In-flight catering presented a unique set of challenges for the cooks and crew serving the food. In some airline literature and in nearly all interviews with respondents, the general logistics of technology and their impact on in-flight food was regarded as the most significant constraint facing caterers, particularly in respect of what may broadly be termed the hygiene and contamination aspects of in-flight catering. Passengers Pre-order Food Using Mobile Apps and Mobile-Based Ordering Takes Off Technology Integration for Efficient Procurement and Logistics Management. There are still voices claiming that the strict procedures during the pre-boarding process cause stress, unease and discomfort (Skorupski and Uchronski, 2016). Consumer complaints associated with transport, menu, and dish design, airline adverse weather variability, natural disasters and aircraft technical problems, international air traffic control, uncertain passenger numbers and demand for special diets for religious, ethnical or medical reasons. Airlines are responsible for the design of onboard service. This is affected by:- the time of flight, length of flight, point of embarkation and disembarkation, nationality or ethnicity of passengers, seat class (economy, business or first), budget allowed by the airline, price of food, seasonality of food, cost of labor to make a food item, time required to serve the food, number of flight attendants available to serve food, time needed to consume food, ability of meal to be consumed in a small place on a plane, the time and effort needed to clear an item, the needs and desires of the passengers, Odors that may penetrate the cabin, Space Constraints versus Customer Preferences Lack of Hygiene & Safety satisfying customers' demands.

2.13.2.5 Technological challenge

Airlines Still, have a number of challenges to meet (e.g. sensing technologies, decision-making and the incorporation of artificial intelligence, but also external issues regarding regulation and legal basis, as well as air traffic management involvement) before being

launched for regular use in passenger transport (Yu and Zhang, 2015). Like geographic positioning satellite systems (GPS) and computer navigation.

As technology has become more advanced, those safety regulations are still evolving and they are continuously amended. In general, the regulations cover safety precautions on the ground (including the runway, ground communications and airport areas) and in-flight operations (concerning mainly procedures followed and decisions made by the flight crew). A special focus is made on the human-dependent situations during the flight. The flight crew passes regular training in simulations of critical situations only when their ability to make proper decisions and adequate reactions are excelled (Boksberger, 2011). Aviation safety has a crucial influence on both air transport and tourism industries. The tremendous efforts of all stakeholders involved prove their sincere support for and desire to contribute to this field. Nowadays, new challenges emerge, like cyber security weaknesses and threats (EASA, 2016), which deserve additional attention and totally innovative approach to overcome them. The evening wave of traffic at a busy hub airport has just begun but the weather is closing in and delays and diversions seem inevitable.

2.13.2.6 Legal Challenge

The regulatory framework of aviation is not restricted only to institutions and legal regulations. The legal environment of air transport depends also on the local economic and political conditions, i.e. government policy, excessive bureaucracy, overregulation, corruption, dishonesty in dealing with public contracts, lack of transparency, etc. (Itani, O'Connell and Mason, 2014). Air transport definitely supports tourism and the movement of people, but it could be vulnerable to political instabilities and geopolitical crises, where crucial power shifts to political players. A fresh example comes from Turkey and the tough political conditions there were, or the numerous terrorist attacks in Western Europe, preventing people from travelling. The impact of aviation regulation on tourism industry is huge, and it is most evident after deregulation and its effects on tourism in different destinations and regions. Because of the trans-border movement of tourists, air transport agreements have to adhere to each

country's state and visa regulations but also to international air agreements. Therefore, air transport national, bilateral and multilateral agreements are closely entangled with the tourism legislation.

2.14 Strategies to Overcome Challenges in Ethiopian In-Flight Catering Market

2.14.1 Advance Technology

1. Change the technology and install new operational structures that will impact the interaction between the flight crew and the ground service providers.

2. Shift the current state-run governance of the air navigation infrastructure towards a liberalized, commercially oriented service provider (ATAG, 2013).

2.14.2 Develop Proper Planning Process

The airline planning process logically considers the technical and functional aspects of the airline business. In this regard, airline planning encompasses all aspects of their operation, i.e. *fleet planning, route planning and schedule development* (Belobaba, 2009a).

Schmitt and Gollnick (2016) have proposed a chronological line of all activities the following next below (See Figure 2.13.) connected to flight planning, but hardly any airline may implement such a strict sequence of the planning process. Nonetheless, essentially, the performed activities are the same for all airlines.

Table 2.13 Strategies to Overcome Challenges

Long-term planning(-10 years)	Detailed planning (-1 year)	Operational planning (-6 months)	Tactical planning (-7 days to Day of flight)
New market development Traffic rights Aircraft acquisitions	Aircraft selection Detailed scheduling Slot allocation Frequencies	Route planning, Policy and marketing Ticket sales Yield control	Detailed route planning Accurate slot selection Accurate aircraft allocation

Source: Time horizons of flight planning Schmitt and Gollnick (2016)

2.14 Relationship between Ethiopian In-Flight Catering Service Industry and Tourism

In order to analyze the relationship between air transport and tourism, it is important to evaluate the role the transport system, particularly aviation, plays in the tourist destination. The transport system is an integral part of the tourist destination and definitely influences tourism industry development. However until now, this impact has been only detected (Spasojevic, et al, 2017) and lacks a systematic approach which would eventually reveal any hidden interactions and processes between the two systems and their components and stakeholders.

Transport and tourism have always been inherently connected. Moving from one point to another has pushed a man to create vehicles and mechanisms, thus enhancing the human civilization. For ages, people have been travelling with different motives and for different purposes, such as nomadic movements, military invasions, pilgrimages, and finally for business and leisure reasons. A transport system is a vital part of any economy, providing opportunities for the movement of materials, goods and people from one place to another. It is often likened to the “circulatory system” of the economy. At the same time, the different modes of transport have enabled people to travel and exchange products and ideas, thus driving the whole progress on. The evolution of the transport system has been going on in parallel with human economic, social and cultural development. Air transport is inherently connected with tourism, providing ground for its development. Undoubtedly both industries develop in parallel, and any events taking place in either of them have an impact on the other. The historical evolution of both sectors reveals this dramatic interdependence. The demand for transport derives from people’s desire to go somewhere in order to be engaged in spatially constrained activities (including leisure and business tourism), and conversely, transport accessibility determines, to a great extent, the demand for a tourism destination (Graham *et al.*, 2008). Thus, these two sectors of the economy are structurally interdependent (Papatheodorou and Zenelis, 2013). In this regard, exploring the historical development of aviation would shed light on the parallel evolution of the tourism industry and would reveal some of the connections between them, together with the reasons behind them. Air transport evolution could be explored from several aspects, depending on the focus of the study technical,

operational, marketing, and legal, etc... . The facts and events, however, are so entangled and interdependent that sometimes it is difficult to estimate which is the primary cause and which is the consequence. Moreover, most of them happen almost simultaneously or in a very short period of time. Usually, the development of air transport is traced in reference to:

- I. Aircraft characteristics (design, engines, ability for long range distance, speed and maneuverability, aircraft materials),
- II. Aircraft safety (especially important to promote passenger transport),
- III. Air transport operations, especially Air Traffic Control,
- IV. The development of civil transport operation – airlines and airports,
- V. Regulation and standardization of the sector, including chronology of legal acts, conventions, treaties, and establishment of relevant institutions.

If we consider all of them, we will need an entirely new study to address all details along the evolution. In order to reveal the most important facts of aviation history, and still adhere to the primary purpose of the study to examine the correlation between air transport and tourism industry and compile the essential moments of air transport evolution and show in parallel how they influenced (directly or indirectly) the tourism development. Another approach is to examine the historical development of the air transport industry in several stages, outlining the main phases of the technological and political organization of the sector (Wittmer and Bieger, 2011). However, the periods are chosen according to authors' subjective perception of air transport's historical cycles which again depend on the specific aspect referred to the aviation evolutionary stages as suggested by Wittmer and Bieger (2011): Technical development 1783–1929, Political development 1929–1944, Development of quality and cost 1945–1973, Networks, alliances and low-cost operations 1974–1990 and New perspectives – customer value 1991–2010 were the development.

The overview of the historical development proves the inherent connection of tourism and aviation, but also calls for a more detailed examination of the operation of the air transport players in order to identify first the links between them and then the consequent interaction

with the other industries and it is to be done in the in-flight catering unit which examine the on board feeding system as it is one of the central elements of an in-flight catering unit endorsed by (IFCA, 2003). Ethiopian In-Flight Catering Service Industry has strong correlations between Air transport, tourism and destination management, the two constructs are different from the user's point of view Tekabe Sintayehu (2016).

2.15 Empirical Studies on the contribution and challenges of in-flight catering service

Almost since its creation, aviation has been indispensable for the tourism industry (ATAG, 2016). The International Air Transport Association's (IATA,2019) latest study on the importance of air transport and tourism to Ethiopia revealed that the sustained prioritization of air transport, connectivity and tourism as a strategic asset would support an additional 900,000 jobs and at least USD 9.3 billion of GDP by 2037.

Tekabe Sintayehu (2016) conducted a study on identifying the challenges and prospects of Ethiopian tourism industry and found that lack of promotion, lack of physical infrastructure (road, transportation system, network facility, availability of hotel accommodations especially tourist site), misperceptions the images of Ethiopia, shortage of human trained power are challenges of Ethiopian tourism industry.

Njoya (2013) conducted a study in Ethiopia, Kenya and South Africa on Air transport and destination performance. The researcher Divides literature on both Tourism and Aviation into several categories aviation regimes, LCC, charter airlines, transportation costs, airport structure, accessibility, and concluded as air transport contributed a lot for tourism sectors especially in the destination area full filling all the PESTEL sectors.

Kaberry and Congdon (2007) conducted a research in Europe on LCC in Social benefits of LCC impacts on airlines, airports High employment, high number of jobs created, increased intra-EU connectivity, increased connections with Central and Eastern Europe, stimulate tourism, decrease seasonality, influence lifestyle choices for VFR, opening of peripheral regions of EU.

Regmi (2009) investigated the Relationship between tourism and aviation, Factors influencing this relationship, and significant impact of aviation on tourism in the case of Nepal air, and concluded that more than 80% of the tourists to Nepal arrive by air contributed a lot on the country economy largely.

Some researchers studied about the overall operation of Ethiopian airline in Ethiopia. For example Gashaw (2011) conducted a study on Assessment of Service Quality and Customer Satisfaction in *Ethiopian Airlines* using SERVQUAL model. Another study conducted by Liliya Tadesse, (2016) on Impact of Service Quality on Customer Satisfaction in *Ethiopian Airlines* Aviation Industry. Emnet Hailegabriel (2011) contribution of Ethiopian airlines for the growth and development of Ethiopian tourism However, all the study are focused on passenger satisfaction and even Emnet Hailegabriel (2011) has emphasized only on the contribution by missing the challenges and lack limited focus on the airline various section especially, the contribution and challenges of the central element of airline in-flight catering service unit as a single unit for the development of tourism (IFCA's, 2003 Education Committee).

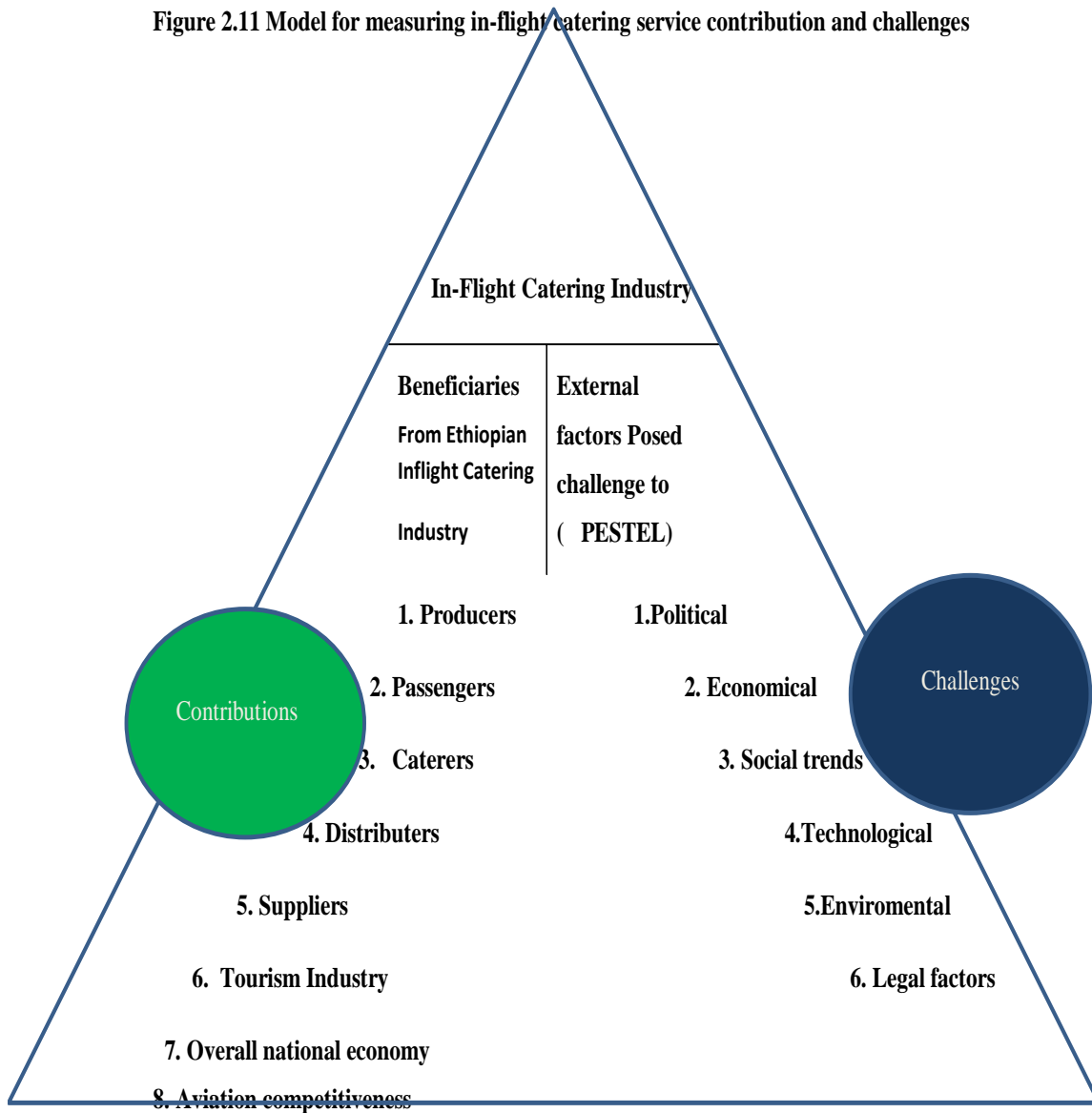
The contribution of air transport to tourism development has been mentioned in multiple studies and books concerning solely air transport (O'Connell and Williams, 2011; Belobaba, Odoni and Barnhart, 2009; Schmitt and Golnick, 2016; Doganis, 2006; Wittmer, Bieger and Mueller, 2011; Peoples, 2014) or the tourism industry (Goeldner and Ritchie, 2007; Page, 2009). Although some of them (e.g. Duval, 2007; Graham, Papatheodorou and Forsyth, 2008; Page, 2009) tackle the link between the two industries, the perspective is usually general and at the macro level, or they explore only general impacts. Surprisingly, the relationship between air transport and tourism at the destination level is often overlooked (Prideaux, 2000; Lew and McKercher, 2005). Transport and tourism studies previously published lack deeper analysis of the connections between the SBU (Sub Business Unit) of the two industries in order to outline more specifically the particular airlines in-flight catering service contribution and challenges for tourism development. A conceptual framework, encompassing all common elements of both industries and considering the complex relationships between Ethiopian airline in-flight

catering unit and tourism is still missing. Therefore, in light of the above reasoning, the above mentioned studies have more gaps on the theoretical and practical aspects of the in-flight catering industry as an independent and enteral element for the aviation industry the main purpose of the current study is to elaborate on the contribution and challenges between the Ethiopian airline in-flight catering unit and tourism industry, providing the perspective from sub business unit level, i.e. the micro level.

2.16 Conceptual Framework

Based on the review of previous research, the following model was generated. The framework used in this study is adapted from research model (Bonetti et al., 2006). This model comprised three distinct dimensions, namely in-flight catering service, contribution, and challenges. Coding and registration models will be used to overcome the extraction of content problems of the existing confirmed methods. Based on the document review and interview, the conceptual framework of the study is formulated by taking into consideration the PESTEL contribution of Ethiopian airline in-flight catering service industry *stakeholders* both the internal and external beneficiaries. The conceptual framework of the study delineated the contribution and challenges of Ethiopian airlines in-flight catering service unit for the development of sustainable tourism. Beneficiaries from Ethiopian airline in-flight catering service unit contribution comprise of (producers, passengers, caterers, suppliers, distributors, and tourism industry). On the other hand, the challenges encompass external factors that posed challenges on external factors PESTEL (Political, Economic, Socio-cultural, Technological, Environmental and Legal) investigation tools. A conceptual framework is a system of illustrating the literatures in short and it shows the relationship factors among variables. Thus, the conceptual framework of this study shows the challenges and contribution of Ethiopian airline in-flight catering service unit. Ethiopian airline in-flight catering service unit would contribute to sustainable tourism development through economic, socio-cultural, promotion, image building, and introduction of Ethiopian tourism resources, and it also contribute a lot on the overall national economy and aviation competitiveness through generating hard currency. The variables are included to the framework indicated next page in Figure 2.12 below.

Figure 2.11 Model for measuring in-flight catering service contribution and challenges



Research Model (Adopted from Bonetti et al.,

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Statement of Research Philosophy

This study was focused on Aviation Industry in the context of globalization and in particular, issues on Ethiopian Airlines with an important goal of the study by applying epistemology, which was concerned with how to generate knowledge. Some principles of positivism as below; Positivism philosophy which is Scientific method of testing hypotheses (Bryman & Bell, 2003) and Saunders et al., (2009). The researcher will use to get knowledge about reality (Observable, measurable facts, Value-free, neutral and independent) of what will be studied.

3.2. Research Approach

This study has applied a qualitative method and the data gathered through interview and review of secondary data source. It investigated the contribution and challenges of Ethiopian Airlines inflight catering service on tourism development. The inclusion criteria for the research subjects to conduct interview was taken from experienced in in-flight catering service or airline companies for at least 10 years; and experienced in hospitality and tourism sectors and their Current job that is associated with airline meals. The researcher has conducted interview with 5 subjects, four of them are internal beneficiaries including suppliers, passengers, producers, and distributors in airline in-flight catering service and also from the tourism industry (external beneficiaries).

3.3. Research Design

According to McDaniel and Gates (1999), a research design is a plan for a study that provides specification of procedures to be followed by the researcher to achieve the research objective and to test the hypotheses. This study was descriptive in nature as it was aimed to describe the contribution and challenges of Ethiopian Airlines inflight catering service on Ethiopian tourism development. This study gathered data from both primary and secondary sources

3.4. Population and description of the study area

According to Suki (2005), population refers to a group of people, variables, ideas or other common characteristics. The target population was defined all the concerned bodies of privates, governments and internal and external stakeholders of Ethiopian airlines in-flight catering services benefiteres directly, indirectly and dynamics for their span and survive of their organization.

3.5. Sampling techniques

There are two types of sampling techniques namely probability and non-probability sampling. The non-probability sampling evidences that elements of the population do not have a known chance of being selected as a subject (Sekaran, 2003). Based on purposive sampling method, the researcher has chosen respondents from Ethiopian airline in-flight catering service internal beneficiaries (passengers, producers, airlines and distributors) and external beneficiaries MoCT (Ministry of Culture and Tourism) and local suppliers.

3.6. Sample Size

After the identification of the target population, a relevant sampling design was used to determine a suitable sample size. This was a crucial factor in determining the results of the study as it was influenced by several factors including cost, time and availability of resources. For the present study, the researcher has specified 9 sample or stakeholders of the inflight catering sector and tourism sector. Sample populations were among the beneficiaries of Ethiopian Airlines in-flight catering service 5 from Ethiopian in-flight catering service unit, 2 from Ministry of culture and tourism 2 from suppliers.

3.7. Data collection method and instrument

3.7.1. Data Collection Methods

The necessary data for this study were collected from primary and secondary sources. The researcher has collected data via interview and review of secondary sources.

3.7.1.1 Interview

In order to collect the relevant data on the overall operation of ET airline in-flight catering unit for the study, therefore, the researcher has conducted 9 expert interviews both from government and private sectors such as, Ethiopian airlines in-flight catering unit with (in-flight catering operation manager, marketing manager and 3 human resource officers). And from the beneficiary side Ministry of Culture and Tourism (MoCT) with (Ministry of Culture and Tourism inspection director and the ministers advisors) and from 2 different Suppliers (owner and managers) of food and non-food items whom the researcher believed that they are concerned with the in-flight catering service facility over all operations.

3.7.1.1 Document Review

The researcher has reviewed secondary data from different sources such as Ethiopian Airlines archives, published and unpublished researches, books, brochures, magazines, reports and visitor's data from MoCT, Addis Ababa Culture, Arts and Tourism Bureau, statistical data from World Tourism Organization (WTO), overseas arrival and departure reports from the Department of Immigration and Nationality Affairs.

3.8. Data Analysis Procedures

According to Bryman (2012), data Analysis is the process through which data are organized. The process of data analysis begins after all data are collected. Both primary and secondary data were organized in the same manner and it was analyzed using qualitative method of analysis via categorizing ideas that emerge from grouping, group and compare similar or related pieces of information and coded blocks of text from different sources in to a single file or report.

3.8.1. Methods of Data Analysis

Following the expert interview session, this study has used interview transcripts to code the data for data analysis, and fully record the transcripts (word for word) according to the subjects' answers, and to perform content analysis. The analysis was undergo two evaluation

phases by the research advisor and other researchers who have adequate knowledge on qualitative research methods. For the procedures of text content analysis, this study used open coding, namely, the researcher started to read the transcript text, find out keywords, critical events or themes first, and highlighted them to clarify the items to be investigated in this study. Moreover, the thematic analysis proposed by Neuman (1997) was used to assist the researcher in coding and registration. The thematic analysis is initiated from specific themes, and the data and concepts concerning the research themes were categorized under each theme.

3.9. Data Quality Assurance

Unlike quantitative research approach which uses reliability, validity, and replication of the quality of data, qualitative researcher usually uses trustworthiness and authenticity. Result consistency is ridiculous in the qualitative study since human beings by nature are dynamic. Ensuring reliability in qualitative research, therefore, concerns whether the findings of a study can be trusted. Therefore, in this study, result quality has achieved on the basis of suggestions given by Bryman (2012). To assure the quality of the result, the researcher has attempted to reduce mistakes during data collection (interviewed the participants) and during data transcription, due attention was also given when data categorized into themes and topic given to each theme. In other words, the researcher in this context triangulated the evidence gained from a different source such as data collected from the interviews, documents.

3.10. Ethical Considerations

All the required ethical were taken in to account according to the research ethics. Prior to the actual data collection, interview was prepared by the researcher in consultation with the research advisor. First of all; the researcher has taken a support letter from Addis Ababa University, College of Development Studies so as to approach the Airline's Human Resource Manager and In-flight catering Operations Manager. After acquiring their consent, the researcher has conducted interview with the airline's marketing, production and catering managers respectively. The researcher has respected the cultural norms and knowledge of the research participants. Individual formal consent was obtained prior to interview. The researcher was tried not to take photography indiscriminately and tape records without

obtaining prior permission. Participants had the right to participate or not to participate. The respondent's information was kept confidential by the principal investigator. The recorded voice or notes taken during interviews were secretly kept by the researcher secretly. Finally, the researcher has tried to avoid any situation leading to physical and emotional harm to any of the participants.

CHAPTER FOUR

Data Presentation Analysis, and Interpretation

4.1 Overview view of data collection

The researcher has used interview and document review as the main sources of data collection. Interview was gathered from four major stakeholders with the aim of collecting data on; the airline's overall inflight catering operation, in-flight catering supply chain performance measures employed by the company, the contribution derived from effective delivery of Ethiopian airlines in-flight catering industry both to the company itself and the tourism industry and local suppliers too, as well as the key challenges of Ethiopian in-flight catering industry faced during its overall operation.

The previous chapter described the research methodology including the methods of data collection and this chapter presents the constituents of the data collection instruments and the research findings.

part one: - the first part of the interview guide contains 4 questions, both descriptive and multiple choice questions, regarding the overall operation at Ethiopian airlines in-flight catering and regarding to their views on various partner organizations of the co-operation/ contract with local and outsider importers and exporters, suppliers, caterers, distributors and etc..., These data were collected from both Ethiopian airlines in-flight catering operation manager and director.

Part two: The second part of the interview guide includes questions aimed to assess the contribution of Ethiopian Airlines for tourism and supply chain integration.

Third part: The third section of the interview aimed to gather data on the challenges facing Ethiopian Airlines inflight catering services.

Fourth part Moreover, secondary data were gathered from Ethiopian Airlines archives and fact sheets published indifferent years. Moreover, the researcher used and analyzed general

reports by international administration and regulatory organizations such as IATA and ICAO general report.

Table 4.1 General profile of research participants

No		Name of organization	Sectors	Section	Position
1.	Government	Ethiopian Airlines	Government	In-flight catering unit	In-flight catering Director,
				HR Department	(3) HRD officers
				Marketing and Promotion	Marketing director
2.	Government	Ministry of culture and tourism	Government	Tourist Service Inspection and Certification Bureau	MoCT Inspection and Certification Director
					Minister Advisor
3.	Private	Aster Bunna PLC	Private	Marketing and sales	Owners and Managers
4.		Arbaminch Fish processing company	Private	Marketing and sales	Owners and Managers

Source: from both private and government Informants/participants

After the qualitative in-depth interviews, this study used data transcripts to code the data for data analysis, fully recorded the transcripts word for word according to the subjects' answers, and performed content analysis. Two evaluation personnel who had studied qualitative research methods and understood encoding method communicated with the researcher to confirm the coding and registration models. For the procedures of text content analysis, this study used open coding, namely, the researcher started to read the transcript text, found out keywords, critical events or themes first, and highlighted them to clarify the items to be investigated in this study. The thematic analysis is initiated from specific themes, and the data and concepts concerning the research themes were categorized under three theme and procedures to capture and understand the contexts and complexity of the completed core coding data, and summarized and arranged them below as follows.

4.2 The Overall operation of Ethiopian airlines in-flight catering unit

The Current Ethiopian in-flight catering overall operation unit has a philosophy of design-thinking approach, which is applied by pulling customers need and avail products not pushing the products to the customers led by the new director is restructured in a way to harmonize the operation between different sections. The new management belief is on engaging employees in every direction so that things are done by the employees themselves and with their own accord for different arrangement for domestic and international flights due to the flight duration, isolated Sector and Customer preference. The target markets are passengers from different corners of the world with different geographical, social and cultural background mainly categorized as international and domestic passengers, travelers and tourists all over the world. The current production capacity of the in-flight catering unit is 100,000 meals a day with 750-800 permanent, temporary and part time employees from this unit dispatch and transport section is responsible for the delivery of inflight catering services benchmarking other airlines like Emirates and Qatar for their best practice. Moreover, the catering unit potential with a little expansion with bakery facility and other legal requirements, would be supplying bread and other confectionary products to the society in Addis Ababa (ET airlines in-flight catering director).

Table 4.2 Ethiopian airlines in-flight catering unit structure

No	Structure of in-flight catering	Target Market	Employee	Training
1	Food production	❖ International Passengers	568 full time	Ethiopian Aviation academy
2	Procurement and supply chain			
3	Quality Management System & Safety Management System	❖ Domestic passengers		
4	Operations			
5	HR development & Finance- Catering	❖ Travelers, Tourists and visitors		
6	Route catering and Catering facility maintenance			

Source: Ethiopian in-flight catering HRD officers

4.3 The contribution of Ethiopian airlines for major stake holders/ suppliers

The in-flight catering unit's major stakeholders are domestic and international suppliers however; local suppliers have better manufacturing capacity for their convenience factor because they can be reached easily and with a lesser lead-time. Their supplying capacity is always insufficient compared to the unit's demand. On the other side international suppliers are more reliable but still have limitation on production lead-time and complexity in transporting the shipments to the unit's end. The catering unit's performance is always assessed by inflight products standard compliance section and the internal quality management system. Currently the unit is outshining other units by being exemplary in all performance dimensions (Employee engagement, new product design, facility renovations and automation projects). As the production unit demands manpower to produce meals in bulk, it creates jobs and playing a vital role on introducing the Ethiopian flavored products to the international community. The catering unit is the front liner on the image building activities by involving on social responsibility scenarios locally and by being outstanding inflight catering globally. Ethiopian Airlines would be in a position to invest more on catering unit in few months because the current warm ups clearly showed the management there is a fruit to peel through ROI (Return on investment).

4.4 The contribution of Ethiopian Airlines Inflight catering for tourism development

4.4.1. The economic contribution of ET inflight catering sector

Ethiopian Airline in-flight catering service adds vital value to the economy through generating hard currency, tax collection to the government, attracting FDI, accelerating the GDP of the country creating job opportunity to travel comprehensive services, online hotel booking to tour operators, taxi services to drivers association and both local and international suppliers, importers and others. However, from the above explanation the tourism sectors, local and international suppliers and importers are highly benefited from the overall operation than the airlines catering service unit. Ethiopian Airline in-flight catering service and subjects' interview content, which shows that each service sectors at least mentioned by two subjects.

Figure 4.1 below shows meanings of airline catering service. Accordingly interview content collected from Ministry of Culture and Tourism (MoCT) indicated that the contribution of Ethiopian airlines in-flight catering for the development of tourism is very vital and act as part and parcel of the tourism industry.

Data analysis procedures for all the study included both the internal and external basic variables (airlines in-flight catering and the tourism industry) However the external variables stick to tourism industry also includes: - (hotels, tour operators, travel agents and tour service).

As air transport is one and basic components of tourism by transporting more than 45% of tourists from their residence and provide an international services to transport tourists from their residence to the destination. Therefore, they do have positive relationships and unable to dismantle while we are talking about the development of tourism. And ET airlines in-flight catering is the first to contact travelers and tourists face to face by transporting and providing their in-flight catering service while they are traveling and the last to take the tourist after they have visited and return them back to their country.

4.4.2. Socio-cultural contribution (food, costume, dressing, smile, etc.) of ET inflight catering sector

The relationship between tourism and ET airlines in-flight catering service starts from the essence of accessibility. Basically the ET in-flight catering service provides various services for any kinds of passengers but when we come to the relationship between the tourism is the tourist who comes abroad for various activities using and consuming the overall service of the airlines catering service. It helps to transport passengers; creating situations where people can use their cultural resources to get attachment to an area and it also helps to protect & promote relevant local tourism resources/ products such as, indigenous believes practices, food, costume, smile, & traditions. It plays a major role in enabling the passengers and tourists to acquire a profound & extensive awareness about culture & history, which is expression of its identity, & hence encourages protection & preservation of the heritage. It helps for exchange of information & innovative methods depend on people's economic situation, transport, food

and education, expectations as well as other explained and unexplained factors that allows for a cultural experience, defines culture in terms of behaviors of humans in group, Land-interpretation, Encourages initiative and Sence of belonging (home) and Nature protection awareness. Therefore, these and other services and activities with attend to the intermediaries such as, tour operators, travel agents and tour services are part and parcel of the correlations. However, there have no collaboration between Ministry of culture and tourism (MoCT) and ET airline catering service to promote and to introduce our cultural and ethnic foods more than what is done solely by ET airlines. But Ministry of culture and tourism in some occasion try to promote cultural dressing, customs and cultural foods using some postures, brochures and magazines.

4.4.3. Image building

Ethiopian in-flight catering currently acts not only for the source of income rather it enables by taking social responsibility and providing an outstanding service to international and local customers through building good reputation and image in their day to day activities especially with the food production and marketing department. Eventually to develop the tourism industry private and government sectors acts as a key players for ET airlines in-flight catering should work together in collaboration to bring sustainable tourism development and create innovative imaginations.

The participants represent the main stakeholders in the nexus “Ethiopian in-flight catering industry and tourism industry”, i.e. the internal and external basic variables from each of the industry and the internal variables from in-flight catering service industry further classified as control variables and these includes:- passengers, caterers, producers, distributers and suppliers. Because in Ethiopian airlines, the functions of In-flight catering services are partially or fully performed by the in-flight catering unit itself but there are some local and international suppliers, caterers and distributers two of the suppliers have taken for this study for their high contribution on the development of Ethiopian tourism via introducing and promoting Ethiopian coffee and fish tourism. Accordingly from local suppliers Aster Bunna

PLC and Arbaminch fish processing company located along Addis Ababa bole sub city and at the Arbaminch SNNPR respectively.

4.4.3.1 Ethiopian airlines in-flight catering contribution to local suppliers

1. Aster Bunna which were one of the supplier of **Ethiopian airlines in-flight catering unit** and were established in 1998 with annual sales 281,480 USD (2017) created an opportunity for total employment 31 approximately for 5 years and their main products mix consists of light medium dark or customized roasted coffee beans and from coarse to super fine ground coffee with a production volume of 51 Tons (2017). The company particularly supplies their products mainly available in different types using automated facilities except packaging and these includes washed and unwashed coffees, grounded or whole bean coffee, multiple forms of blends, and customized grounding Ethiopian coffee for local consumption, mainly in Addis Ababa such as, the US embassy, Ethiopian Airlines, and well known hotels and restaurants in the country. Therefore, Aster Bunna played its own role for the development of tourism industry beyond the provision of their product mix through the packaging (promotional materials) to introduce and promote Ethiopian coffee tourism through Ethiopian airlines in-flight catering unit both to international and domestic destinations.

2. Arbaminch fish processing company were one of the suppliers of Ethiopian airlines in-flight catering unit and located in Arbaminch, SNNPRS in Ethiopia also benefited from Ethiopian airlines via supplying their main products and services to Ethiopian airlines in-flight catering unit. Arbaminch fish processing company was established in 2003 with an annual sales 111,112 USD in (2017) by creating total employment opportunity for 31 persons (including 12 part-time) supplied their products to Ethiopian airlines Sky Light Hotel which includes salmon, filleted and whole fish collected from fishery associations and fish retailers, different lakes and rivers (Lake Chamo, Abaya, Turekana and Omo river) in Ethiopia. Therefore the company has full potential to introduce their product and promote Ethiopian fishery Tourism for tourists, passengers, travelers and visitors on its own collection sites with equipped generators, dip refrigerators, containers, more than 3,600m² of land available for fish proccsin.

The table 4.3 following below shows how ET airline in-flight catering service unit provided contribution and posed challenges both to the airline catering itself as an internal beneficiaries such as,(airlines, passengers, caterers, producers, distributors) and all the external beneficiaries under the tourism industry i.e., (travel service, tour operators, travel agents, transport and other comprehensive services on the six basic external factors (PESTEL) which was taken as an external factors to be considered in ET in-flight catering service and subject interview content.

Table 4.3 Factors to be considered in Airline In-flight Catering service and Subjects' Interview Content

Subjects Design Factors		P E S T E L						P E S T E L					
		Contribution						Challenges					
	Airlines	✓	✓	✓	✓	✓	✓	×	×	×	✓	✓	×
ET In-flight catering Dimensions	Passengers	✓	✓	✓	✓	✓	✓	×	×	×	✓	✓	×
	Caterers	✓	✓	✓	✓	✓	✓	×	×	×	✓	✓	×
	Producers	✓	✓	✓	✓	✓	✓	×	×	×	✓	✓	×
	Distributers	✓	✓	✓	✓	✓	✓	×	×	×	✓	✓	×
	Suppliers	✓	✓	✓	✓	✓	✓	×	×	×	×	×	×
Tourism dimensions	Travel services	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	×
	Tour operators	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	×
	Travel agent	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	×
	Hotels	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	×
	Transport	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	×
	Comprehensive service	✓	✓	✓	✓	✓	✓	×	✓	✓	✓	✓	×

4.5 The contribution of Ethiopian airlines In-flight catering unit as an economic force

African and global trends Ethiopian airlines In-flight catering is a large contributor to worldwide economic activity, growing at a slightly faster pace than the world economy. Though there are important differences between countries, it is clear that Ethiopian airlines In-flight catering has a crucial role in supporting growth, development, and employment generation that are shaping tourism supply and demand as a context for Ethiopia's quest to become more competitive in the global tourism market place.

Ethiopia's growth miracle, coupled with its large population and significant land mass, has attracted the attention of many international companies. Over the last ten years, the country has achieved double-digit growth in real terms, averaging 10.6% per year, which is the first fastest in Africa aviation industry. These growth rates are also the fruit of ET airlines in-flight catering strong promotional tools to attract more tourists, passengers and travelers. Moreover, it motivates new investors to investment and informs that have seen the country entrench economic, social and political stability.

4.6 The following are summary of the economic contributions of ET inflight catering services:

- 1.** Ethiopian's airlines in-flight catering sector has the highest critical impact on tourist expenditure in aircrafts for the benefits of duty free shops and/or entertainments) food and beverages, relative to accommodation, excursions, and investment.
- 2.** Ethiopian's airlines in-flight catering supply to the tourism sector has a relatively high volume in the marketing aspects for introducing and promoting Ethiopian culture, customs, cultural foods and dressing.
- 3.** Comparing two major destinations services, such as domestic destinations in Addis Ababa and international destinations in different regions routes, it was found that roughly 45% of tourists are used air transport and expenditure in business tourism, leisure holiday and VFR in Addis and other main attraction aria of the country.

4. ET airlines in-flight catering industry acts as a major source of job opportunity attract investment and create opportunity for the comprehensive services of the tourism industry both for domestic and international community.

4.7 Challenges of Ethiopian Airlines in-flight catering services

4.7.1 Technological Challenges

The Ethiopian airlines in-flight catering as a global networked operation took passengers feedback on their in-flight catering service process that the passengers have faced post flight, during flight and post flight both in long-haul and short haul journey. However, the passengers are always asked to give feedback on every flight electronically to assess their level of satisfaction and mostly commented as their special meal order has missed. Moreover, Technologically ET in-flight catering mostly faced the following challenges:

- Pre-flight: manual outgoing items handover process with cabin crew
- During the flight: absence of location indicator like barcode scanner for crews to find loaded products easily.
- Post-flight: manual incoming items handover process with catering agent.

4.7.2 Environmental Challenges

Ethiopian in-flight catering unit faced mostly during flight is some products are not happened to be eco-friendly as on time performance is one of the major KPIs of the unit. However, currently the section is doing well by scoring above 98%. Ethiopian airlines in-flight catering unit future plan is to establish its own catering plant managed by its own professionals at the Ethiopian Hubs found in Africa with full support from the management on proposed projects and idea.

4.7.3. Promotion and marketing challenges

Despite the efforts of the Ethiopian in-flight catering unit the ministry of tourism and culture (MoCT) and the in organizing marketing campaign, more promotion is still needed and there is the need to enter new markets as the competitor airways. As Ethiopian airlines have done

more on the promotional activities currently however, it needs to find new ways and mechanism by coordinating with Ministry of Culture and Tourism.

4.7.4. Lack of integration with concerned government and local bodies in the tourism sectors

The Ethiopian airlines in-flight catering units lacks integration with tourism sectors as mostly mentioned by different scholars, academician's, practitioner's and others not only for this study subjects. Therefore Ethiopian airlines could be jointly working in collaboration with the tourism sectors for better achievement that it currently performed.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

The study tried to identify the contributions and challenges of Ethiopian airlines on the development of Ethiopian tourism by evaluating overall operational activities related to tourism service. Therefore, this study attempted to answer three basic questions: what is the current status of Ethiopian Airlines inflight catering services? What are the challenges facing the Ethiopian Airlines inflight catering sector? What is the contribution of Ethiopian airline in-flight catering industry for the development of tourism industry? In order to carry out the study, both primary and secondary data were collected. The primary data collected through an interview about the relationship between Ethiopian airline catering service industry and tourism as well as the huge potential of linkages and synergies among ET airline in-flight catering service unit and the tourism industries and how to develop a better integration between these sectors to promote Ethiopian tourism resources.

The ET airline in-flight catering service unit experience in providing and promoting tourism resources and products is a valuable example of an integrated approach with all tourism destinations. The aim of this study is to assess the overall operation of ET airline inflight catering unit and its contribution to support the tourism, government and private (suppliers, importers, exporters and other creative industries) which could be located in different geographical location and the challenges. In order to illustrate how to apply the suggested methodology, the study present and discuss several issues with informants on the above mentioned main and specific objectives with different marketing and human resource managers, directors, HR officers, from the government side including both Ethiopian airline and MoCT as well as owner managers from the private suppliers to facilitate the contribution and economic linkages of ET airline in-flight catering service unit among tourism sector, suppliers and other related industries. The crucial element distinguishing this study from other similar PESTEL models discussed in the empirical literature is the centrality of integration of

ET in-flight catering service providing contribution and posing challenges among different sectors as a key to fostering development of tourism. The PESTEL model approach identifies six elements examine the contribution and identify challenges of an ‘in-flight catering service’: (i) political; (ii) economical; (iii) social-cultural; (iv) technological; (v) environmental; and (v) legal factors.

5.2 Conclusion

From the research finding, it can be concluded that in-flight catering unit and MoCT have to develop good and strategic relationship to ensure better promotional usage and get inflight service support the tourism sectors and vice versa to get the required service whenever the airline faces difficult situation to promote tourism resource. Therefore the Ethiopian airline in-flight catering unit and tourism relationship would contribute important implications for image building, cultural foods, customs promotion development, destination planning and high hard currency flows and ultimately, contribution of the socio-cultural, environmental, economic and cultural effects on tourism. In this regard, each industry is analyzed separately outlining the important issues and relations.

The results and conclusions are quite intriguing and may serve well for the future collaboration between the MoCT and the Ethiopian airlines in-flight catering unit, but also as a starting point for the key players and stake holders to grant their contribution to the catering service for the relevant tourism development of Ethiopia. Still, the research is only descriptive at this stage and would benefit if enlarged and deepened in the future. Furthermore, the empirical study results validate to a high extent the conclusions from the initial destination analysis through the PESTEL model the nexus between airline transport and tourism Thus, the efficiency of the model as an analytical tool is proved, as well as the validity of the derived implications.

The main contribution of this research is to show the connection between Ethiopian airlines in-flight catering services and the tourism industry as well as the catering supply link chain within airline supplying, producing, delivering and servicing of airlines row materials, tools and equipment’s support organization and various ground and in-flight catering provision.

This particularly involves the application of the PESTEL Analysis in all its stages of investigation, depending on the relationship level, identifying key players for the catering supply chain operations and identifying what causes them, such as the link in the supply and demand, related to the achievement of the basic tool availability?

Generally, the PESTEL model is a powerful tool of analysis to investigate the contribution and challenges of Ethiopian airlines inflight catering overall operation on the entire economy of the country.

This research contributes to managerial insights as well as the theoretical implementation in the following aspects:

- ✓ Provide managerial implication with the physical measures and measurement solution by linking the PESTEL perception and Qualitative methodology to articulate the measurement and metrics for the study to assess the contribution and challenges of Ethiopian airlines in-flight catering supply chain process and to evaluate the performance in a systematic way of approach. The proposed PESTEL measurement framework facilitates the study with the effective and efficiency measurement system as a common decision-making tool to align the objectives of the company strategy.
- ✓ This research has been devoted to motivate researchers and practitioners to develop further in this area. This framework of contribution and challenges measurement for airline in-flight catering supply chain will be beneficial to researchers and corporate managers in identifying the opportunities for improvements in catering supply chain performance.

Contribution and challenges measurement in Ethiopian airlines in-flight catering supply chain is not much developed and implemented in Ethiopian airline. Thus, this research is unique in some extent and contributes to airline catering aviation industry especially ECS in-flight catering section which is one of the seven business units of the airlines. Finally, the nexus between air transport and tourism industry was deeply explored and illustrated with a real data.

5.3 Strategies to Overcome Challenges in Ethiopian In-Flight Catering Market

5.3.1 Advance Technology

- i. Change the technology and install new operational structures that will impact the interaction between the flight crew and the ground service providers.
- ii. Shift the current state-run governance of the air navigation infrastructure towards a liberalized, commercially oriented service provider (ATAG, 2013).

5.3.2 Develop Proper Planning Process

The airline planning process logically considers the technical and functional aspects of the airline business. In this regard, airline planning encompasses all aspects of their operation, i.e. *fleet planning, route planning* and *schedule development* (Belobaba, 2009a).

Schmitt and Gollnick (2016) propose a chronological line of all activities (See table 5.1) connected to flight planning, but hardly any airline may implement such a strict sequence of the planning process. Nonetheless, essentially, the performed activities are the same for all airlines.

Table 5.1 Strategies to overcome technological and environmental Challenges

Long-term planning (-10 years)	Detailed planning (-1 year)	Operational planning (-6 months)	Tactical planning (-7 days to Day of flight)
New market development Traffic rights Aircraft acquisitions	Aircraft selection Detailed scheduling Slot allocation Frequencies	Route planning, Policy and marketing Ticket sales Yield control	Detailed route planning Accurate slot selection Accurate aircraft allocation

Source: Time horizons of flight planning Schmitt and Gollnick (2016)

5.3 Recommendation

Based on the current practices of Ethiopian airlines in-flight catering supply chain service process, their contribution and challenges on the entire economy of the country specifically the tourism industry, and from the findings reached it is better to implement and used the

developed supply chain investigative measurement model (PESTEL). And if the company applies the new developed Catering supply chain contribution and challenges measurement model, the airlines will have effective in-flight catering service, internal and external customer satisfaction and other benefits that explained on the previous chapter and on the conclusion part in detail. In the same manner there are general recommendations that have high impact so as to minimize the airline in-flight catering challenges on the overall operations.

The following points are suggested:

5.3.1 To Ethiopian airlines In-flight catering unit

- ✓ Both the Ethiopian airlines inflight catering and the MoCT should recognize the need to cooperate in order to attract new airlines potential mass passengers worldwide.
- ✓ The Ethiopian in-flight catering needs to develop and implement its full capacity, effective performance and appropriate performance measures and metrics for in-flight catering supply chain based in the expertise of the research.
- ✓ Ethiopian In-flight catering has to be structured in hierarchy of metrics and measures in association with the key performance objectives and criteria to fit PESTEL and SWOT analysis
- ✓ Recognized Ethiopian In-flight catering three key performance modules (Strategically, Operational, Tactical) that level to fit PESTEL approached that used to represent the performance of In-flight catering supply chain.
- ✓ The key performance indicators of each PESTEL model has been defined the formulation on how to measure and evaluate the contributions and challenges with the priority weights that are qualitatively determined by pair-wise comparison method.
- ✓ There should be standard operating procedure and service level agreement for those core processes of each stake holders and should be revised continuously for improvement.
- ✓ Avoiding both environmental and technological challenges and strive for common goal so that the company will achieve its future target plan.

Ethiopian Airlines in-flight catering service industry is characterized by continuous extension in supply chain outsourcing due to the globalization strategy and technological advancements. Therefore, implementation of effective planning and advanced technology usage in airline stakeholder's organization supply chain emerge an essential tool to cope with these challenges. Beside the planning and advanced technology usage of airline in-flight catering industry supply chain is one of the critical topics for improvement of catering supply chain performance and global competitiveness.

5.3.2 To Ministry of Culture and Tourism

✓ In addition to the Ethiopian airlines in-flight catering unit free amenities and supplies (MoCT) Ministry of Culture and Tourism also offer some artifacts, souvenirs and traditional clothes for the betterment of the tourism sector.

✓ The ministry should recognize the need of Ethiopian airlines in-flight catering unit significance to introduce and promote Ethiopian cultural and traditional foods, customs, dressing and image building.

✓ The ministry should cooperate, collaborate and jointly work with Ethiopian airlines in-flight catering unit in order to attract new airlines potential mass passengers worldwide.

✓ The ministry should support, inspect and regulate Ethiopian airlines in-flight catering unit for the common interest.

5.3.3 To Local Suppliers

✓ Local suppliers should work integrate and friendly with Ethiopian airlines in-flight catering unit as per the (SOPs) standard operation procedures of the airlines.

✓ Local suppliers should attach their agro products process in the farm via videos, magazines, brochures and fliers to Ethiopian airlines for better promotional activities.

5.4 Suggestion for Further Research

In-flight catering Supply chain contributions and challenges measurement is the best concept that is fast gaining recognition in the aviation service organization. The research design in this study was focused on Ethiopian Airlines-in-flight catering section. However, an interview should be conducted to determine the overall catering supply chain operations and enforcement actions in the in-flight catering industry entire operation. Moreover, the airline

industry by its nature has a lot of environmental impact. As a general rule, the air transport system is based on major of the requirements, so multi criteria decision making tools, such as AHP, Fuzzy, DEA that can be used in order to develop and evaluate the overall performance of supply chain management as the supply chain management is an advanced and a possible idea that allow businesses to get know-how on their supply chain performance. This shows that there is a need to develop a model that reflects the impact of changes immediately though this impact would only reflect to the degree to which the criteria are important. Developed models must identify and include all the essential requirements for the aviation industry's overall supply chain management performance

- Model should measure effective and efficient management across all supply chain initiatives in the overall aviation industry supply chain.
- The model should be used to evaluate the performance of the organization and benchmark its performance both externally and internally for the ultimate goal of continuous improvement.
- Model should also be beneficial even with a business model or size.
- Further in-depth research also can be suggested on the development of evaluation approaches for the measures and metrics of tool in-flight catering supply chain, that includes uncertainty, agility, responsiveness, sustainability, organizational culture, and human resource attributes.

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Appendices



I. Interview with Ethiopian Airlines in-flight operations manager

Part 1: The current status of Ethiopian Airlines in-flight catering service operations

1. How do you describe the overall operation of Ethiopian Airlines' in-flight catering services?

1.1. Structure and management system?

1.2. Could you please describe the airline's (in-flight catering) service philosophy?

1.3. Who are the target markets?

1.4. Which departments or work units responsible for the delivery of in-flight catering services?

1.5. What is the current production capacity - daily, weekly, monthly, annually? Future potential?

1.6. Do you have a self-catering unit or do you outsource such services?

1.7. Who are the major stakeholders, both domestic and international, working in collaboration with Ethiopian airlines inflight catering industry?

1.8. How many people employed/ employment opportunity- directly and indirectly, permanent and temporary in-flight catering services?

1.9. Do you have a different arrangement of inflight catering services for domestic and international flights? Yes/No? Why?

1.10. Do you benchmark the airline's inflight catering operations? Any international standards to be followed?

Part 2: The challenges facing Ethiopian Airlines in-flight catering services

2. What are the challenges facing the overall operations of Ethiopian airlines in-flight catering sector during flight, preflight and post flight periods from the following perspectives, if existing?

2.1. Technologically?

2.2. Environmentally?

2.3. Legally?

2.4. Other challenges, if any?

3. How do you measure the performance of the airline's in-flight catering services? What are the key performance indicators (KPI)?

4. How often do you assess the performance of the airline's in-flight catering services?

5. How do you evaluate the current performance of the airline's in-flight catering services?

6. Do you have an evaluation system to assess passengers' level of satisfaction with Ethiopian Airlines' in-flight catering services? Yes/No? If yes,

6.1. How do you conduct the assessment?

6.2. How often do you conduct the assessment? _____

6.3. What are the most frequently mentioned in-flight catering services related problems raised by passengers?

7. How do you evaluate the collaboration among different stakeholders involved in Ethiopian Airlines' in-flight catering services? Do you have collaboration and partnership platforms? Are there any gaps?
-

Part 3: The link between Ethiopian Airlines in-flight catering services and tourism

8. How do you evaluate the contributions of Ethiopian airlines in-flight catering service for the development of Ethiopian tourism?

8.1. Creating employment opportunity- direct, indirect and induced?

8.2. Culturally- promoting local food, dressing?

8.3. Image building

8.4. Attracting new investment

8.5. Other, if any

Part 4: The way forward

9. What is the future plan of the airlines to enhance the airline's inflight catering services?
-

10. What is expected from different stakeholders (airline, suppliers, distributors, passengers, government, importer, exporters, etc.) to increase the contribution of inflight catering services for the development of Ethiopian tourism?

I. Interview with Ministry of Culture and Tourism (Standardization and Inspection Unit?)

1. How do you describe the contribution of Ethiopian Airline and its in-flight catering service for the development of Ethiopian tourism?
 2. How do you evaluate the relationship between Ethiopian airlines in-flight catering services and tourism industry?
-

3. How does the Ministry of Culture and Tourism (MoCT) work with Ethiopian Airlines to promote Ethiopian tourism, i.e., culture, food, dressing, etc.? Do you have such packages?
-

4. Do you inspect the operation of Ethiopian airlines in-flight catering services? Yes/No?
If yes,

- 4.1. What are the inspection parameters?
-

- 4.2. How often do you inspect?
-

- 4.3. What are the main inspection findings, if any?
-

5. What is expected from different stakeholders (airline, suppliers, distributors, passengers, government, importer, exporters, MoCT, etc) to increase the contribution of inflight catering services to develop Ethiopian tourism?
-

Thank you!

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