

**“Impact of technology on aviation”**



**Submitted By**

Ms. Zunaira Hassan

ID # 13005001046

DEPARTMENT OF AVIATION

INSTITUTE OF APPLIED SCIENCES

**UNIVERSITY OF MANAGEMENT AND TECHNOLOGY (UMT)**

**2017**

# **“Impact of Technology on Aviation”**



## **Submitted By**

Ms. Zunaira Hassan

I.D # 13005001046

BS Aviation Management

A Thesis, Partial Fulfilment of the Requirements for the Degree of BS

Aviation management,

Institute of Applied Sciences

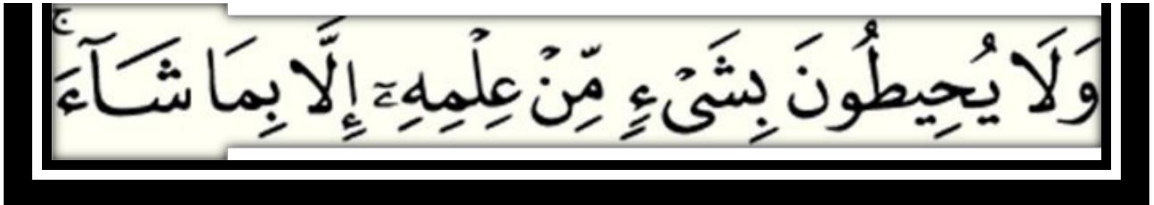
**University of Management and Technology (UMT)**

**Lahore**

**2017**



In the name of Allah the most beneficent the most merciful



*“And Students can’t encompass any thing from His knowledge, but to extend He wills”*

[2:255]

This dissertation is submitted to the Institute of Aviation Studies, University of the  
Management and technology, for the fulfilment of the requirement of BS (HONS)

Degree in Aviation Studies

## **Dedication**

This piece of work is dedicated to ALLAH's beloved Prophet Hazrat Muhammad ﷺ who has been sent as the source to enlighten and distinct the right from the wrong and who was sent as the source of light in the dark world of ignorance. The research work was started with a humble intention to follow his Sunnah of making some contribution in the society and nation and to redirect the wrong towards the right.

The researcher also devoted this work to her parents –

“You are a ray of sunshine in my life” ...!!

## **Declaration by the Candidate**

In accordance with the regulations for presenting my research thesis work as per requirement of the BS (HONS) degree, entitled “Aviation Management”. I hereby, declare that this dissertation is entirely my own original work and that it has not been submitted to obtain any degree at this university or at any other university.

Zunaira Hassan

Institute of Aviation Studies,

University of the Management and technology, Lahore.

## Certificate of Approval

This is to certify that the research work described in this thesis sounds to be the original work of the author and has been carried out under my direct supervision. I have personally gone through all the data, results, and materials reported in the manuscript and certify their authenticity. I am of the opinion that the material included in this thesis has not been used in part or full in any thesis already submitted or in the process of submission in partial/complete fulfilment of the award of any other degree from any other institution. I also certify that the thesis has been prepared under my supervision according to the prescribed format and I recommend the dissertation for the award of BS (Hons). Degree through the official procedures of the University.

---

Head of Department

Imran Sayed

---

Supervisor

Nawaz Gill

Assistant Professor,

Institute of Aviation Studies,

University of the Management and technology Lahore.

## Acknowledgement

ALHAMDULILLAH!!! With the name of ALLAH, The most merciful and the most beneficent I feel very sincere gratitude to My ALLAH Almighty without His blessings I could never be able to do anything in my Life. Then His Prophet ﷺ who has been an inspiration to do something to enlighten the darkness of the world.

Firstly, I feel humbly indebted to my family, my Parents Mr. Hassan Ashraf and Mrs. Kishwer Hassan whose prayers and blessings have been my strength. I feel very sincere gratitude to my sister Ms. Iqra Hassan and younger brother Mr. Ibtihaj Hassan without them nothing could be have been possible as they have been my greatest motivation and inspiration.

Secondly, my sincere appreciation goes to my supervisor Mr. Nawaz Gill, who took time out of her busy schedule to guide me. Their supervision, careful reading and constructive comments were valuable. Her timely and efficient contribution helped me to shape the thesis into its final form. I wish to express gratitude to the Institute of Aviation Studies, its leadership and the staff for providing with an academic base, which has enabled to take up this challenging research study.

I am also indebted to my colleagues at the University of Management and technology. Special thanks, a tribute and appreciation to all those friends and fellows, especially Bushra Rafique for helping me, others names do not appear here, but they have contributed to the successful completion of this study. Special thanks to the people who one way or the other have participated in the completion of this dissertation.

May ALLAH Subhana Wa Ta'ala, bless all of us and guide us to the right path.

(Ameen)

## Table of content

Introduction .....	1
1. Technology.....	1
2. Flight.....	3
3. History of aviation .....	3
3.1 Early beginnings .....	3
3.2 Lighter than air .....	3
3.3. Heavier than air .....	4
3.4. General aviation .....	5
3.5. Military aviation .....	6
Impact of technology on aviation.....	6
4.1. Some of the following technology that are accelerating that are introducing at airport .....	13
4.2. The Empowered Passenger.....	16
4.3. Terminal Layout .....	17
4.4. Information Sharing and Alerts .....	17
4.5. Improved Amenities .....	19
4.6. Three Benefits for RFID Use in Airports.....	20
4.7. Improved security .....	22
4.8. ATM and operational Security .....	22

4.9. European .....	22
4.10. Key partners - avionics security .....	23
4.11. New generation aircraft .....	23
4.12. Tokenizing Frequent Flyer Programs .....	26
4.13. Session of Drones.....	27
4.14. Enlarged Reality.....	28
4.15. AI (Chat bots).....	30
4.16. Airline New Distribution Capability.....	30
4.17. Indoor situating frameworks (Beacons innovation).....	30
4.18. Trends Transforming Airlines .....	31
4.19. Information science.....	35
4.20. Biometric-empowered self-benefit.....	36
4.21. Traveler strengthening.....	38
4.22. Time to lose weight of aircraft.....	41
4.23. Airbus envisions in-flight stimulation in 2050.....	42
4.24. Making planes trickier.....	44
5. Past condition.....	49
6. Aircraft Performance Improvement Trend.....	52
7. Drivers of Aircraft Technology .....	52
8. Social Driver Pubic Demand.....	58

9. A Pathway to Sustainable Aviation.....	61
10. The positive motivators.....	66
11. Enhancing the proficiency of airplane terminal Check-In with new advances.....	66
12. Adjusting THE FUTURE.....	70
13. Air route .....	70
14. Slope Technology to Prevent Incursions.....	71
15. Illuminate Ground Star .....	72
16. Exiles VMAT Devices .....	73
17. I.D. Framework's AvRamp .....	73
18. Air berlin Technique's Camera-guided Parking System .....	74
19. Streaming Systems .....	75
20. Truck-mounted runway rubber evacuation framework .....	76
21. Rates of rubber removal .....	76
22. High and ultra-high-weight water flying technology .....	77
23. Vritra International.....	77
24. Modular airport seats .....	78
25. Measured tandem seating frameworks .....	78
26. Waiting area seating frameworks.....	78
27. Customized airport seats .....	79
28. Building a Safer Airport.....	79

28.1. BROADCAST TOWER .....	80
28.2. COCKPIT DIGITAL MAPS .....	80
28.3. HIGH-FREQUENCY RADAR .....	80
28.4. RUNWAY STATUS LIGHTS.....	80
29. Benefits OF technology for airport.....	80
30. Conclusion.....	80
31. Recommendations.....	81
References.....	83

# **IMPACT OF TECHNOLOGY ON AVIATION**

## **Introduction**

### **1. Technology**

Technology ("exploration of art", from Greek , techne, "workmanship, ability, tricky of hand"; and , - logia is the congregation of systems, abilities, techniques and processes consumed as a part of the formation of products or managements or in the accomplishment of goals, for example, rational inspection. Modernization can be the information of systems, processes, and so onwards, or it can be entrenched in machines which can be worked without certain learning of their workings.