

# TNFL01

## Air Traffic and Air Transportation Flygtrafik och flygtransporter

lecturer: Christiane Schmidt

course webpage: <http://weber.itn.liu.se/~chrsc91/teaching/f19/tnfl01/>

- Lectures and self-study
- Assignments:
  - ◉ Individual/groups
  - ◉ Written report and oral presentation (presentation for one group per topic in general)
  - ◉ Written opposition
  - ◉ Evaluated
- Seminars for presentation
- Guest lectures
- Information on home page  
<http://weber.itn.liu.se/~chrsc91/teaching/f19/tnfl01/> or lisam class room
  - ➔ News
  - ➔ Slides (password-protected, password: **WrightBrothers1903**)
  - ➔ Course information
  - ➔ Homework sets
- Note: this class gives an overview over various topics related to air traffic, you will learn more details in later classes

- All alarms must be taken seriously – evacuate the buildings immediately
- Learn the difference between evacuation and burglary alarms! The alarm signals are recorded, you can find them at: <http://www.itn.liu.se/Studentering%25C3%25A5ng/hur-later-larmsignalerna?l=sv>
- Evacuation plans – alternative evacuation routes and assembly points
- In the event of evacuation – always leave by the nearest evacuation route, do not use elevators, and help the disabled
- Fire-hydrants och fire-extinguishers – function and location
- ITNs Resource persons (R) and their role. R normally wear a yellow reflective jacket
- Do not block emergency exits, fire-hydrants or fire extinguishers
- Do not return to evacuated buildings until the go-ahead has been given by the rescue team organizer

- *New course book since 2018: The Global Airline Industry*, edited by Peter Belobaba, et al., John Wiley & Sons, Incorporated, 2015. Online version available from LiU library. Linked from the course webpage.
- Possible further reading: **TGAI - Chapter xx**
  - Olle Åkerlind och Håkan Örtlund, "The ABZ of Flight Operations". Can be bought at Bokakademin or via <http://www.flightproc.com/>
  - Ahmed Abdelghany och Khaled Abdelghany, "Introduction to airline management", from *Modeling applications in the airline industry*. Linked from the course webpage.
  - Lindh A, Andersson T, Värbrand P and Yuan D, "Airport Logistics – Integration of ATM and ground processes". Linked from the course webpage.

- Per topic one student group will be **responsible**: I will mark their report and give all students access to my comments, and the students need to present their work.
- Each student group needs to write a report on each homework set, only their opponents will evaluate and critique their work, based on my comments for the responsible student group.
- The responsible opposition group needs to write an opposition until the presentation and act as an opponent at the presentation.
- All other opposition groups need to submit their opposition report one day after the presentation.
- This pattern for all except first homework set.
- Group sign-up here: <https://docs.google.com/spreadsheets/d/1xoFe8rjbru5RT9WS9n-W5P8wm2zXhc5EoFx7jVdpPNU/edit?usp=sharing> (please do sign up until August 27, with full name of all group members)

<http://weber.itn.liu.se/~chrsc91/teaching/f19/tnf01/overview-on-homework-sets.pdf>

	Opponent for	Homework 1	Homework 2	Homework 3	Homework 4	Homework 5	Homework 6	Homework 7
Homework set published on		21.08. <i>Individually, that is, NOT in groups</i>	28.08.	11.09.	16.09.	26.09.	1.10.	8.10.
Group A	Group B	Submission: 3.09. Presentation: 13.09.	Submission: 12.09. Feedback: 16.09. Presentation: 17.09. Opposition report: 18.09.	Submission: 19.09. Opposition report and be opponent: 20.09.	Submission: 25.09. Opposition report: 28.09.	Submission: 3.10. Opposition report: 5.10.	Submission: 9.10. Opposition report: 12.10.	Submission: 15.10. Opposition report: 18.10.
Group B	Group C	Submission: 3.09. Presentation: 13.09.	Submission: 16.09. Opposition report: 18.09.	Submission: 17.09. Feedback: 19.09. Presentation: 20.09. Opposition report: 21.09.	Submission: 25.09. Opposition report and be opponent: 27.09.	Submission: 3.10. Opposition report: 5.10.	Submission: 9.10. Opposition report: 12.10.	Submission: 15.10. Opposition report: 18.10.
Group C	Group D	Submission: 3.09. Presentation: 13.09.	Submission: 16.09. Opposition report: 18.09.	Submission: 19.09. Opposition report: 21.09.	Submission: 23.09. Feedback: 25.09. Presentation: 27.09. Opposition report: 28.09.	Submission: 3.10. Opposition report and be opponent: 4.10.	Submission: 9.10. Opposition report: 12.10.	Submission: 15.10. Opposition report: 18.10.
Group D	Group E	Submission: 3.09. Presentation: 13.09.	Submission: 16.09. Opposition report: 18.09.	Submission: 19.09. Opposition report: 21.09.	Submission: 25.09. Opposition report: 28.09.	Submission: 2.10. Feedback: 3.10. Presentation: 4.10. Opposition report: 5.10.	Submission: 9.10. Opposition report and be opponent: 11.10.	Submission: 15.10. Opposition report: 18.10.
Group E	Group F	Submission: 3.09. Presentation: 13.09.	Submission: 16.09. Opposition report: 18.09.	Submission: 19.09. Opposition report: 21.09.	Submission: 25.09. Opposition report: 28.09.	Submission: 3.10. Opposition report: 5.10.	Submission: 7.10. Feedback: 9.10. Presentation: 11.10. Opposition report: 12.10.	Submission: 15.10. Opposition report and be opponent: 17.10.
Group F	Group A	Submission: 3.09. Presentation: 13.09.	Submission: 16.09. Opposition report and be opponent: 17.09.	Submission: 19.09. Opposition report: 21.09.	Submission: 25.09. Opposition report: 28.09.	Submission: 3.10. Opposition report: 5.10.	Submission: 9.10. Opposition report: 12.10.	Submission: 14.10. Feedback: 15.10. Presentation: 17.10. Opposition report: 18.10.

## TNFL01, fall 2019

- The deadline for the responsible group is marked for each homework set

Week #	Monday	Tuesday	Wednesday	Thursday	Friday
34			21.08., 15-17 introduction		
			New HW1		
35			28.08., 10-12 + 13-15 topic 1, Tatiana Polishchuk		
			New HW2		
36			Submission HW1		6.9., 10-12 guest lecture, Marcus Öberg, Pontarius AB
37		10.9., 13-15 guest lecture	11.9., 13-17 topic 2	Submission HW2	14.9., 10-12 + 13-15 seminar + questions
			New HW3		ALL presentation HW1
38	16.9., 13-17 topic 3 Feedback HW2 New HW4	17.9. 10-12 seminar Presentation HW2 17.9. 13-17 guest lecture, Olle Kättström, LFV		Feedback HW3	20.9., 10-12 seminar Presentation HW3
39	Submission HW4	24.9., 13-15 guest lecture, Ingo Staack, LiU	Feedback HW4	26.9. 13-15 topic 4	27.9. 10-12 seminar
		24.9., 17-19 topic 4		New HW5	Presentation HW4
40	30.09., 17-19 topic 5	1.10., 13-15 guest lecture, Magnus Molitor, Transportstyrelsen	Submission HW5	Feedback HW5	4.10., 13-15 seminar + questions
		1.10., 15-17 topic 5 New HW6			Presentation HW5
41	7.10., 17-19 topic 6	8.10., 10-12 topic 6	Feedback HW6		11.10., 10-12 guest lecture, Max Isberg, SAS RM
		8.10., 13-15 guest lecture, Jean-Marie Skoglund, Transportstyrelsen			11.10., 13-15 guest lecture Reidar Svedahl
		8.10., 15-17 guest			

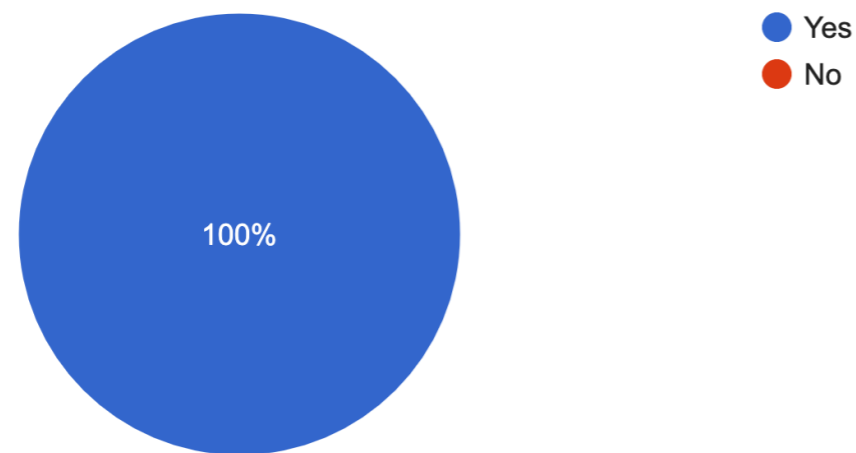
		lecture			seminar + questions
		New HW7			Presentation HW6
42	Submission HW7	15.10., 13-15 guest lecture, Daniel Skoglund, Swedavia Feedback HW7		17.10., 10-12 seminar + questions	
					Presentation HW7

Lecturer (if not noted otherwise): Christiane Schmidt, Spetsen 6212

- Common glossary for the lecture
- <https://docs.google.com/document/d/12rh0ycPXS98zxmtuPyjx77jv3wL6q6q494IvEsZ8YL8/edit?usp=sharing>
- Per lecture circa two students
- Until two weeks after lecture
- Add abbreviations and new vocabulary
- In alphabetical order
- Something to look-up words for all participants

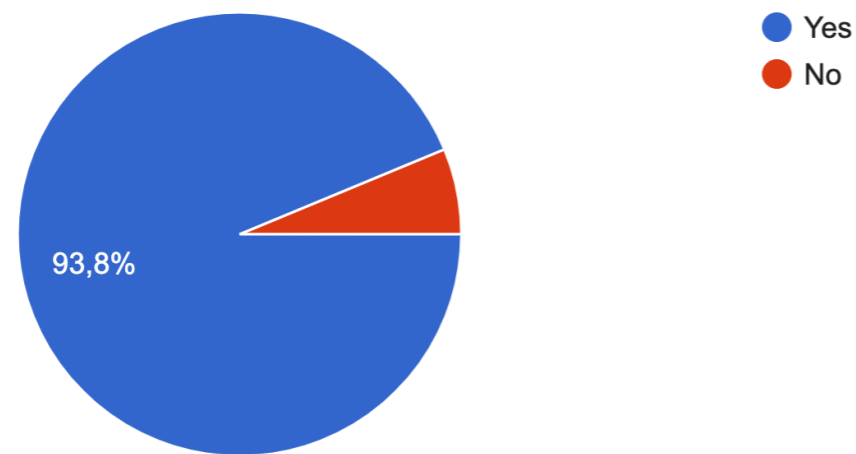
Having the additional homework sets (new instead of old) was helpful for learning the course content.

16 Antworten



Having the additional homework sets (new instead of old) was helpful for the course's intended learning outcomes.

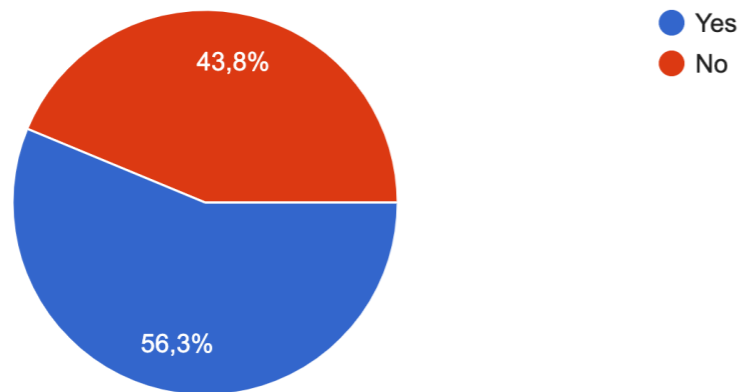
16 Antworten





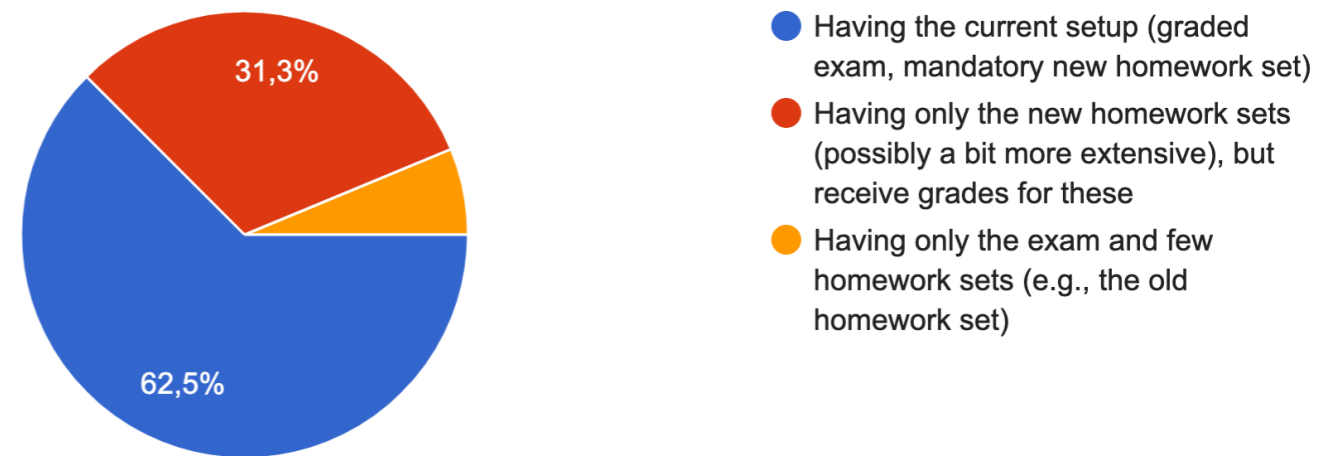
I would appreciate having the new homework sets if the number of credits for the "inlämningsuppgifter" is increased, e.g., to 3-4 of the 6 course credits

16 Antworten



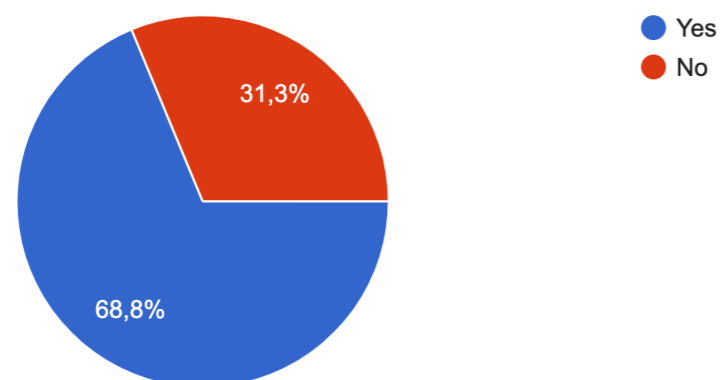
When looking at the final exam and the homework sets, I would prefer

16 Antworten



I would appreciate having the new homework sets even if the number of credits for the "inlämningsuppgifter" is not increased (2hp).

16 Antworten



# This course - and me...



Taxi, NYC, May 2017

# This course - and me...



## Communication:

- When I'm direct, there is no intention to be rude
- Paraphrasing a Finnish colleague: "I'm a Finn, so I can be blunt, but no offense is meant unless stated otherwise"
- I do say when something is not correct or the like—the intention is not to be mean, but to give you the necessary starting point to learn.
- That also includes that I don't necessarily perceive something as critique from your side, which for you it clearly is, as "the average Swedish person" is way less direct than me ;)
- Let's both consider that in communication

# This course - and me...



Taxi, NYC, May 2017

## Course:

- In general, as a lecturer I'm here to give you a base for learning, I expect you to be self-reliant (self-study, search for sources, access to content).
- I happily answer questions when you come by my office.
- I also happily answer questions during the lecture, or via email (mailing list).
- Important prerequisite: You must be able to say what is unclear.

For the first homework set we will split the group:

- Group 1: Everyone with a green paper
- Group 2: Everyone with a pink paper
- Group 3: Everyone with an orange paper
- Idea:
  - You learn some background information.
  - You start writing directly.
  - You get training and feedback on presentation.

Pick topics on a FCFS basis here: [https://docs.google.com/spreadsheets/d/1cv8QtpQLZYNr\\_pLpiWStOAzO\\_mxQ\\_H51sU\\_7gFXVYGl/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1cv8QtpQLZYNr_pLpiWStOAzO_mxQ_H51sU_7gFXVYGl/edit?usp=sharing) (sign up in column H with full name)

At <http://aviation-safety.net/statistics/worst/worst.php?list=worstcoll> 100 of the worst plane crashes (in terms of number of fatal casualties) of all times are listed.

Your task is to choose one of these crashes and discuss the procedures, routines and technology of the air traffic system, using the chosen crash as a starting point. Possible questions you could discuss:

How did the crash happen? Why did it happen? Which person/s (if any) acted incorrect? Which technology (if any) failed? How could the crash have been avoided? Which lessons can one learn from the crash? Which changes in routines, technology etc. resulted from the crash? Could the same type of crash happen today?

You can look for further necessary information. Please remember to be critical of your sources.

The assignment should be handled separately (that is, each person works on her/his own) and reported as a short memo, maximal 2 pages. No two persons in the class are allowed to choose the same plane crash, thus, your choice of crash must be approved by the supervisor.

At <http://www.techrepublic.com/article/12-drone-disasters-that-show-why-the-faa-hates-drones/> 12 drone accidents are listed.

Your task is to choose one of these crashes and discuss the procedures, routines and technology of the UTM system, using the chosen crash as a starting point. Possible questions you could discuss:

How did the crash happen? Why did it happen? Which person/s (if any) acted incorrect? Which technology (if any) failed? How could the crash have been avoided? Which lessons can one learn from the crash? Which changes in routines, technology etc. resulted from the crash? Could the same typ of crash happen today?

You have to look for further necessary information. Please remember to be critical of your sources.

The assignment should be handled separately (that is, each person works on her/his own) and reported as a short memo, maximal 2 pages. No two persons in the class are allowed to chose the same drone crash, thus, your choice of crash must be approved by the supervisor.

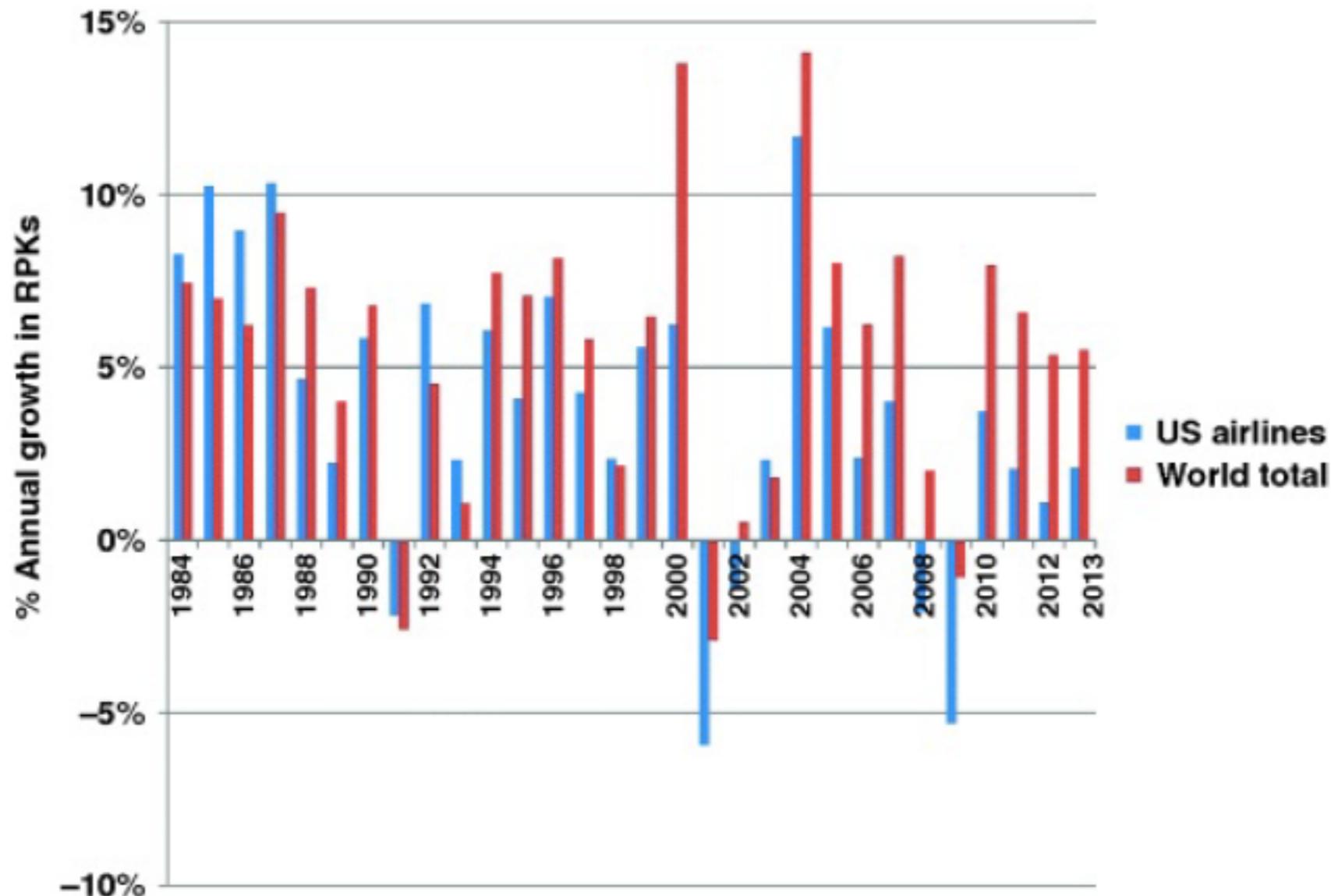
Your task is to choose one of the largest airlines and discuss the airline's history: How did the airline start? Was it government-owned? What is the business model? Was it always the same? What does the airline focus on? Where there any large changes in the airline's history? If so, what caused them? Did they solve the problem that initiated the change?

Please remember to be critical of your sources.

The assignment should be handled separately (that is, each person works on her/his own) and reported as a short memo, maximal 2 pages. No two persons in the class are allowed to chose the same airline, thus, your choice of airline must be approved by the supervisor.



TGAI - Chapter 1



**Figure 1.1** Annual RPK growth rates 1984–2013. (Data sources: Air Transport Association; ICAO)

RPK=revenue passenger kilometers (definition later)

TGAI - Chapter 1

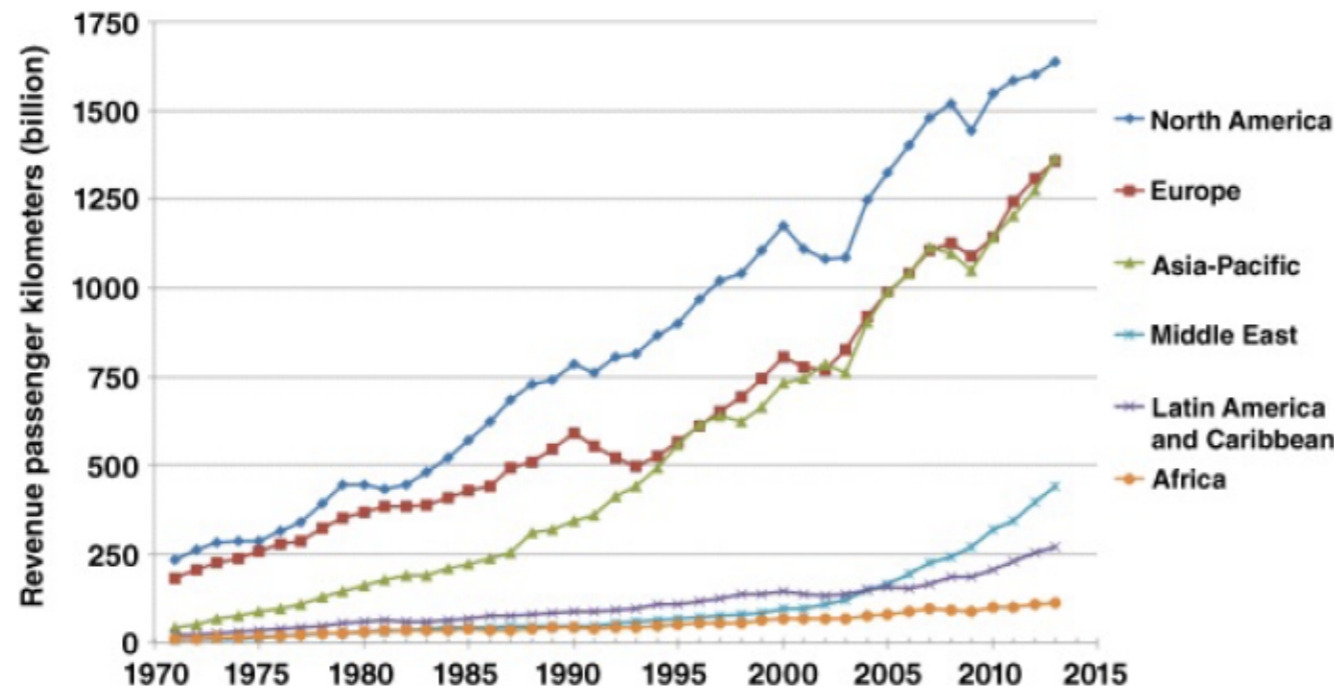


Figure 1.2 Growth of airline passenger traffic by world region. (Data sources: ICAO, 1971–2005; IATA, 2006–2013)

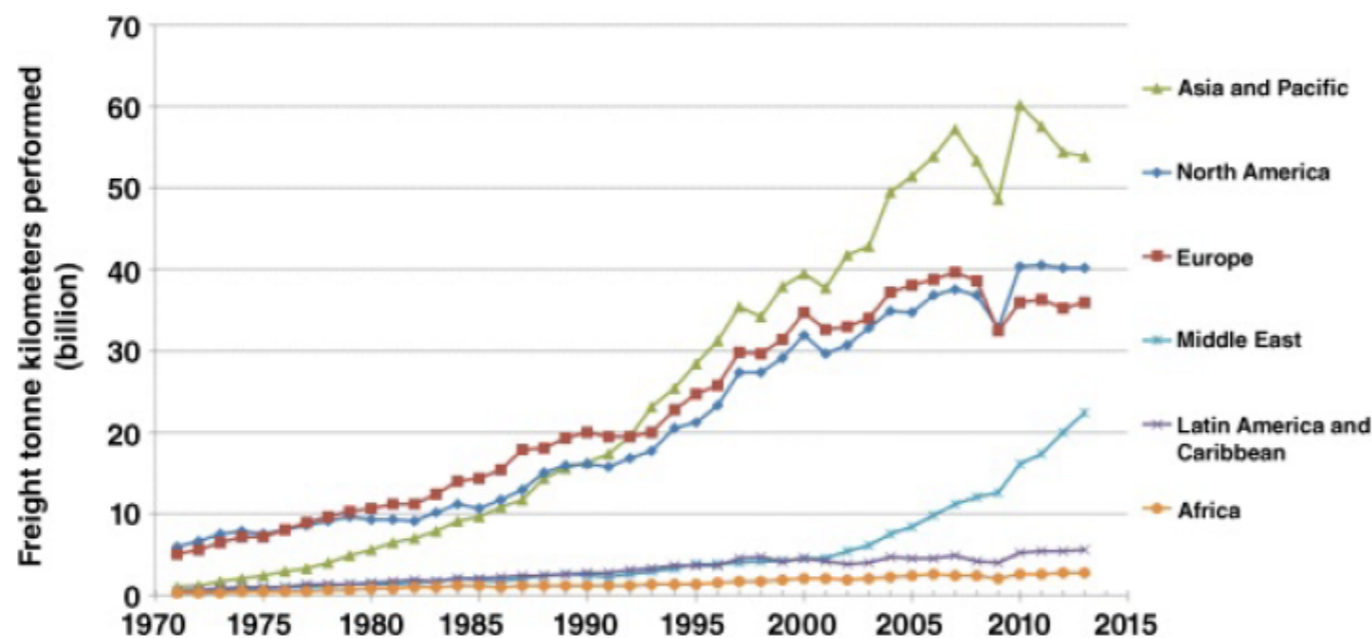
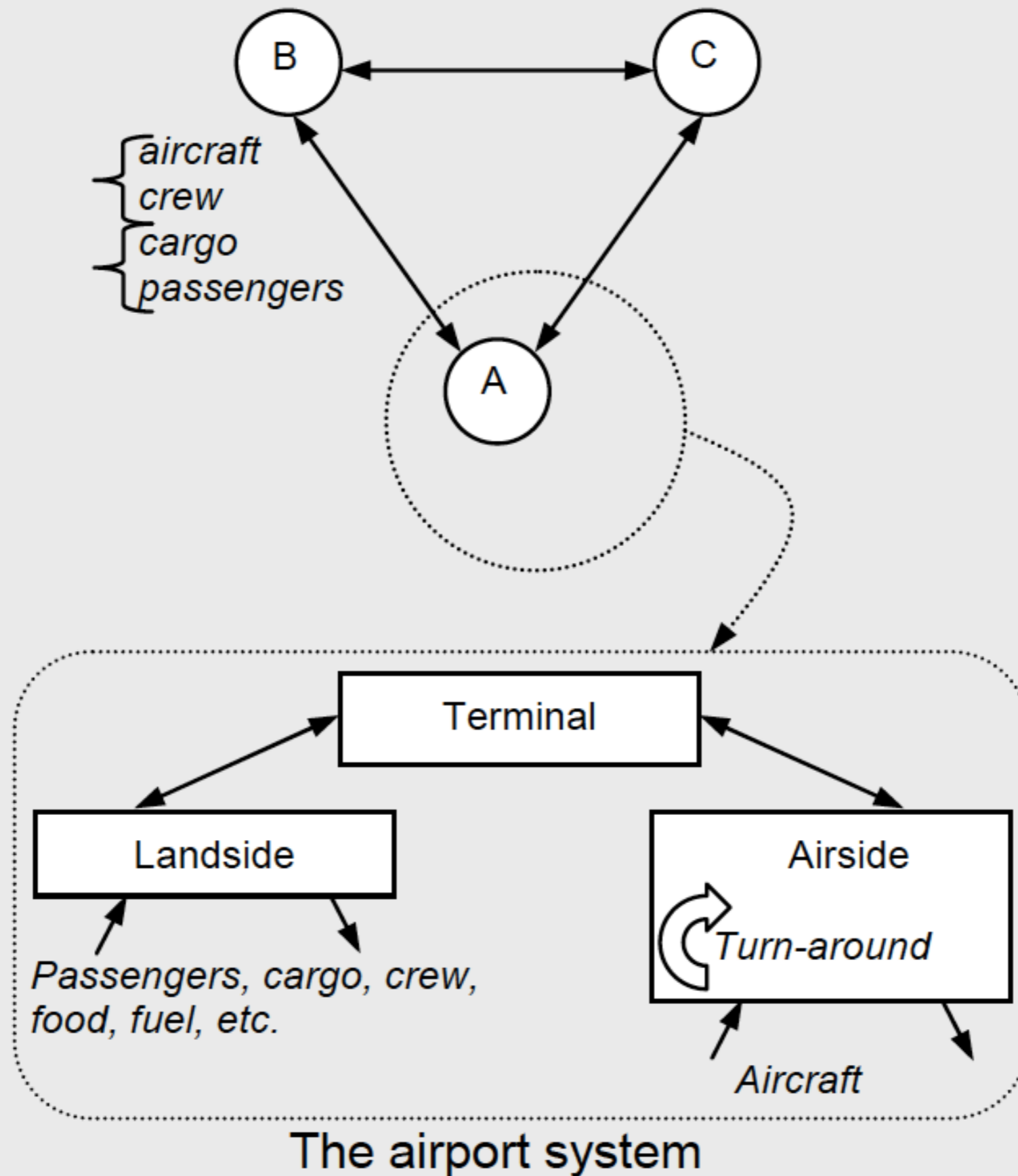


Figure 1.3 Growth of air freight volumes by world region. (Data sources: ICAO, 1971–2005; IATA, 2006–2013)

# The air transportation system



source: Lindh A, Andersson T, Värbrand P and Yuan D, "Airport Logistics – Integration of ATM and ground processes".

## ❖ Passengers/goods

- travel/itinerary
- planning of goods

## ❖ Airline

- time schedule, fleet, staff, seats/tickets, orientation, economies/finances

## ❖ Airport

- infrastructure, gate allocation, handling (check in, boarding, refueling, cleaning, etc.)

## ❖ ATM/ATC

- fleet planning, arrival manager (AMAN)/departure manager (DMAN), operational control

**Read TGAI Chapter 1**

**Answer online quiz: <http://www.quiz-maker.com/QMSOHP1>**

**homepage: <http://weber.itn.liu.se/~chrsc91/teaching/f19/tnfl01/index.html>**