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Turnaround Integration in Trajectory And Network

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EXECUTIVE SUMMARY

This deliverable presents the report on stakeholders' needs workshop, based on the results of the first workshop that was held in the scope of TITAN in Brussels on the 17th March.

The objective of this workshop was two folded: presenting the project to the community and collecting the stakeholders' needs. All the actors who would be affected by the implementation of the new TITAN concept were invited in order to capture their daily concerns and needs.

Findings coming out from the workshop showed that the initial objectives were achieved and the issues raised will be the basis for further work in the project.

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1. INTRODUCTION

1.1 Purpose

TITAN will aim at raising common awareness during the turnaround process of the impact of each stakeholder's performance in the global process performance and stressing the importance of making the conditions of transfer of responsibility among actors much more detailed and explicit.

In order to ensure the widest possible scope of feedback from the different stakeholders involved in the turnaround process, TITAN will organise a number of workshops during the project to present and obtain feedback from them.

The 1st workshop has the objective of presenting the project to the community and collecting the stakeholders' needs. The aim of this workshop is to gather all the actors who will be affected by the implementation of the new concept and to fully understand their concerns and needs in order to consider them when developing the TITAN concept.

The present deliverable, D7.7, presents the report on stakeholders' needs workshop, based on the results of the first workshop that was held in the scope of TITAN. This deliverable provides input to the task 1.2, dealing with stakeholders' needs.

1.2 Intended Audience

This document is public and may be distributed freely, both within and outside the TITAN consortium.

1.3 Associated Documentation

[1] TITAN_WP7_INE_PPT_02_v0.1_Workshop presentations

1.4 Abbreviations and Acronyms

ANSP	Air Navigation Service Provider
APOC	Airport Operations Centre
ATC	Air Traffic Control
ATCO	Air Traffic Controller
CDM	Collaborative Decision Making
DCS	Departure Control System
ETA	Estimated Time Arrival
ETD	Estimated Time Departure
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
NM	Nautical Mile
SLA	Service Level Agreement
SWIM	System Wide Information Management



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TBO Trajectory Based Operations

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2. WORKSHOP

2.1 Objectives

The main objectives of this workshop are to:

- Present the TITAN project and the Consortium to the attendees;
- Detect stakeholders' problems, needs and gaps during the turnaround process; and
- Share experiences among stakeholders in order to identify possible solutions to the previously discussed problems.

This workshop is expected to be a brainstorming session, from which TITAN consortium could get feedback. Therefore, the workshop is led by facilitators so as to get profit from stakeholders' experience, but always favouring a free and enriching dialogue.

This workshop is to address to the main affected actors in the turnaround process: airlines, airports, ground handlings and ANSPs. The attendance of the three first groups is of special value as the last one is represented by AENA within TITAN Consortium.

During the turnaround process the individual performance of involved stakeholders is important, but coordination of the actions among them has a fundamental influence on the final result. This workshop will provide attendees with a better understanding of the point of view of other stakeholders, an improvement of information sharing level between them, an identification of current inefficiencies and a definition of possible solutions to the current problems.

2.2 Planning

The 1st TITAN Workshop was held in the Pullman Brussels Airport Hotel, in Brussels, the 17th March 2010.

Brussels was chosen as the best location to hold the workshop with the aim of facilitating the assistance of the main stakeholders, since many of them are based there, in order to reduce travel cost. Besides, the location of the Pullman Brussels Airport Hotel facilitates the access for the attendees, avoiding city traffic jam and decreasing the travel time to/from the airport.

The planned agenda was:

TIME	TOPIC	RESPONSIBLE
1. Introduction		
10:30	Welcome	INE
10:40	Presentation of the TITAN project	INE
11:00	Presentation of SESAR related projects	SJU
11:15	Presentation of the Analysis of the current situation.	SLO
2. Stakeholders' needs		
11:45	Outline workshop methodology	INE
12:00	Detection of stakeholders' problems/needs (teamwork).	All
13:00	Lunch	
14:15	Presentation of the main problems/needs detected.	INE
14:30	Solutions proposals (teamwork).	All
15:15	Coffee break	
15:45	Presentation of the proposed solutions.	INE
3. Conclusions		
16:30	End of the Workshop	INE

Table 1: Workshop agenda

2.3 Conduct

Following the agenda initially planned and shown in Table 1, the workshop was conducted as described hereafter:

2.3.1 Introduction session

After welcoming the participants for their attendance, TITAN project was presented¹ by the Project Coordinator to the audience together with the goals of the workshop. The main objective was to

¹ For Workshop presentations see [1]

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gather all the stakeholders who will be affected by the implementation of the new turnaround concept and to fully understand their concerns and needs in order to consider them when developing the TITAN concept.

Afterwards SJU gave an overview of the main activities they will perform regarding turnaround and what kind of input they would like to receive from TITAN in order to cover the identified gaps of their programme.

To finish this first session, the definition and analysis of the current situation was presented, that includes the description of the current development of the turnaround process, the analysis of the different services included (duration, sequence, actors involved...) and the identification of potential bottlenecks. The aim was to present the participants not only the ongoing work in the project but also to provide an initial turnaround model to start the discussion.

2.3.2 Methodology

The working method during the workshop and the poster on the wall (see Annex 2) were presented to the audience.

The teamwork discussions were based on the poster, which is a time diagram bar (see Figure 3) representing the turnaround process plus the external factors that have an influence on it: baggage processes, cargo processes, crew procedures, check-in, gate allocation, security processes, technical problems and transit. Other processes may be identified during the workshop by the attendees.

Some bars have associated an aircraft icon (see Figure 1) in a green or red circle over a coloured square. The colour of the square establishes a link between the activities in which it is depicted: the process with the green circle can not start till the one with the red circle and the same coloured square has finished. For instance, till service galleys process is not over, passengers can not start the boarding.




Figure 1: Poster aircraft icons

2.3.3 Stakeholders' needs/problems session

Once the attendees were introduced to the TITAN project and the ongoing work, they took part in the workshop in an active way.

During this 1st part of the workshop attendees were distributed in four working groups, defined according to the actors involved in the turnaround process: airline, airport, ANSP and ground handlers. Attendees were assigned to one or other group depending on their expertise, or, in case of the TITAN partners, they chose the stakeholder group following their knowledge and preferences.

Each group had an associated colour: airline-green, airport-pink, ANSP-orange and ground handlers-yellow. Groups were led by facilitators, with the goal of driving the discussion and favouring the dialogue among partners. Facilitators were:

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- Airline: Steve Zerkowitz, from Blusky;
- Airport: Nicolás Suárez, from CRIDA;
- ANSP: Laura Serrano, from INECO;
- Ground handlers: Francisco Fernández de Liger, from SJU WP6 leader deputy.

Groups per stakeholder:

Airport	ANSP	Handling	Airline
Nicolás Suárez (facilitator)	Laura Serrano (facilitator)	Francisco Fernández de Liger (facilitator)	Steve Zerkowitz (facilitator)
Robert Piers	Sara Peces	Ana Sáez	Sebastian Kellner
Javier García	Sara Luis	Philip de Coninck	Vicente Bordon
Olivier Mongenie	Alicia Grech	Clive Croome	David Esteban
Alan Marsden	Stefano Porfini	Aleria Lizariturry	Lukasz Michalik
Bruno Desart		Susana Bravo	Albert Coenen
Johan Blom		Noémi Kral	Mathew Bray
Martin Schipper		Ian Crook	Andreas Schindlinger
Henk Hesselink			Daniel Zerkowitz
Henrik Bagewitz			

Table 2: Attendees distribution in needs/problems session

The four groups discussed during one hour about the main problems, needs and gaps they face during the turnaround process from two different points of view: during their individual performance and during the coordination of the actions among all of the involved actors in the process. They wrote down their ideas in post-its with the colour of their own group, so as to make an easy association between the ideas and the teamwork that has stressed them. These post-its were put on the poster, near the related activity or service.

During this session not only problems, but also requests, proposals and solutions were proposed.

2.3.3.1 Airport Group

The following subjects were discussed in this group and captured in the pink post-its:

- Lack of standardisation of resources, which are not always interoperable;
- Information sharing between stakeholders involved in the turnaround process, always looking at confidentiality issues;
- The turnaround process should go from In-block to Off-block;
- The airport should be defined as the focal point for interaction regarding activities and processes and sharing information;
- Provide the right environment to perform handling;
- Passenger, aircraft, cargo... have an influence on the turnaround process;



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- Extended handling view, taking into account other processes, such as de-icing;
- Economic aspects:
 - Who benefits from an efficient handling?
 - Who pays for the environment?
 - Conflicting business models/objectives
- Predictability of efficiency of security process;
- Traceability of passengers in terminal;
- Predictability and efficiency regarding turnaround process planning;
- Strong impact on predictability and efficiency of remote de-icing.

2.3.3.2 ANSP Group

The following subjects were discussed in this group and captured in the orange post-its:

- The non availability of handling equipment when planned causes delays;
- Currently there are penalties in case of delays, so responsible actors do not notify possible delays in advance. A “blameless culture” should be promoted;
- Some aircraft ask for pushback clearance before ready in order to get earlier slots;
- There is a lack of information (and therefore stakeholders' coordination) in case of delays.
If some activity is not following the planning, it should be known as soon as possible. An estimated delay time would further help planning;
- As gate allocation and changes of gate could have influence in the turnaround process, should this be considered part of the turnaround process or an external factor?
- Turnaround process finishes when aircraft starts pushback procedure;
- Need of improving and sharing meteorological forecasts among stakeholders well in advance.

2.3.3.3 Handling Group

The following subjects were discussed in this group and captured in the yellow post-its:

- Looking at passenger processes, boarding is a bottleneck;
- The proliferation in the number of DCS² (per airline) reduces the flexibility and the possibility to react to staff shortages for Handling Agents. The interoperability of DCS may help to avoid that;
- Unexpected security issues could cause delays, i.e. baggage checks or baggage download if passengers do not appear at the gate;
- Stand allocation could be a problem if airport doesn't share the information and crews are in the wrong stand (because of the last minute change of stand);

² DCS: Departure Control System. It is used to do Passengers' check-in.



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- Handling agents are not always informed of last minutes changes in the stand allocated to an aircraft (often between landing and taxi-in) and pilots have to inform them;
- Wrong information provided to crew busses (especially when stand changes happen) cause delays in the arrival of the crews to their assigned aircraft, mainly in hubs;
- Some social issues, like deregulations and minimum wages, lead to hire low qualified personnel. This also causes high staff rotation levels, which makes training complicated even if done properly;
- If the company operates in its hub, usually they have to wait for passengers;
- There are some special procedures with deportees, disabled passengers, etc, that could take long time for the turnaround. Affected handling agents are often informed at the last minute;
- Duration of refuelling depends on the airport procedures and turnaround time. If refuelling with passengers is not allowed onboard some short turnarounds cannot be achieved, and some delays cannot be recovered during the turnaround;
- The role of representatives is being put to question by airlines and Handling Agents, so most representation companies are facing pressure and struggling to survive, which often makes them to be over-diligent, interfering in the turnaround process;
- There could be problems with the equipment selected by handling agents if they are not correctly informed about technical failures of the aircrafts by the airline (doors not working properly, blocked sliding carpets in the belly, etc);
- Commercial issues:
 - Some commercial issues like price pressure, entails less training and decreased quality. It is related to staff hiring, rotation and training;
 - The fact that many airlines impose Service Level Agreements (SLAs) with malus clauses leads to extra pressure on the handling agent that often leads to delay occultation, lack of communication of turnaround problems, etc.
- Flight dispatchers are the “soul” of the turnaround and in most cases the responsible of an efficient and timely Turnaround. This process/role is missing³ in the shown description of the turnaround process;
- Information sharing between handling agents, cargo, load, special passengers is necessary in order to carry out turnaround on time;
- A standard format for the information to be shared should be defined by someone (ICAO/IATA), but it requires an economic investment;
- With a good predictability on arrival (time of arrival, taxi times, gate allocation) there will be less changes affecting the turnaround and problems due to last minute changes could be assumed;

³ Flight Dispatchers are Handling Agent's employees in charge of the turnaround coordination (Passenger Services/Ramp Coordination, Liaison with fuel suppliers, Contact with the crew, Load Sheet Production, Loading Instructions to loading team, cleaning coordination and control, pushbacks and other means requests).

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2.3.3.4 Airline Group

The following subjects were discussed in this group and captured in the green post-its:

- Airport should look for best source of information of flight movement in the TMA:
 - ATC radar;
 - Airline;
 - Do not penalize any airline.
- Legal issues are a very common bottleneck. Regarding the available information stakeholders could share: who is the data owner? Are there more than one owner? Who may change what data?
- The turnaround process should take into account those activities that start earlier than the handling activities, since there are processes related to the turnaround that begin earlier than landing;
- CDM mentality must progress;
- There is a lack of data sharing. Even if this information is available partners do not take profit from it to optimize their processes. This mentality should be changed;
- Handling agents do not notify problems that may cause delays because they want to avoid penalties;
- Readdress the procedures around delayed passengers and the need to offload their baggage: since 100% of hold baggage is now screened, a lot of departure delays could be eliminated if baggage did not have to be unloaded in case the corresponding passenger was not present;
- Last minute changes in the gate allocation may cause delays:
 - There must be an agreed cut-off time after which a gate may not be changed. This is needed to ensure last minute rush from one place to the other;
 - Information on any circumstance that impacts gate allocation must be shared so that everyone may make timely arrangements, alternative solutions, etc.
- The responsibility for on time performance of the de-icing operation is usually not clear. De-icers must accept that they have an impact on the schedule and must adjust their operation to ensure that this impact is predictable and is reduced to the minimum.
- Airlines should establish the ETD of their flight as they prefer: 10:00, 10:02, and 10:05.

Instead of current planning, where sometimes 20 or more aircraft are scheduled for the same time, it is proposed to schedule those departures with a two minutes stagger. The times would be agreed by the airlines. This would provide ATC with a kind of pre-departure sequence.

2.3.4 Identification of possible solutions session

During the 2nd part of the workshop each facilitator presented to the audience the main points discussed in their group during the previous session. Afterwards, attendees were distributed in four mixed groups, ensuring that representatives of all stakeholders were present in each one. A facilitator was designated in each team to drop ideas in order to start the discussions and to guide them. Then mixed groups discussed during one hour about possible solutions to the problems

stressed during the 1st part of the workshop in a collaborative environment. They were free to discuss the problems they found the most relevant. They wrote down their solutions in post-its and placed them in the poster near the problems they would solve.

Mixed groups:

Group 1	Group 2	Group 3	Group 4
Laura Serrano (facilitator)	Nicolás Suárez (facilitator)	Francisco Fernández de Liger (facilitator)	Steve Zerkowitz (facilitator)
Robert Piers	Javier García	Sara Luis	Daniel Zerkowitz
Bruno Desart	Aleria Lizariturry	Olivier Mongenie	Ana Sáez
Alicia Grech	Sara Peces	Johan Blom	Alan Marsden
Philip de Coninck	Henrik Bagewitz	Susana Bravo	Martin Schipper
Clive Croome	Noémi Kral	David Esteban	Ian Crook
Sebastian Kellner	Vicente Bordon	Lukasz Michalik	Henk Hesselink
Mathew Bray		Andreas Schindlinger	Albert Coenen

Table 3: Attendees distribution in solutions session

The proposed solutions in mixed groups were:

- There are two different proposals to define the end of the turnaround process:
 - When aircraft requests push-back clearance; or
 - When the turnaround process is out of the hands of the handling agent: when the Flight Dispatcher makes the “Thumbs UP” sign to the crew when pushback is finished⁴.
- Outsized bags in boarding gate may cause delays. A possible solution is the implementation of security process gate limits for handbags;
- Information sharing:
 - SWIM⁵ implementation;
 - Agree what to do with data and do it;
 - Need to define the information to be shared;
 - Create information security processes;
 - Register/sharing information from security;
 - Centralized system to manage information (ETA/ETD);
 - Access to all interested actors at the right time;
 - Basic information for handling: aircraft type, where does it come from? Specially for cargo there is a need of having the right information;

⁴ If de-icing process (remote or on-stand) is needed, the scenario may change.

⁵ The level of SWIM concept implementation should be defined.



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- Ground handling is efficient if their processes are known in SWIM;
- Send aircraft malfunctions as a standard procedure from airline;
- Create win-win culture for information sharing, partnership;
- Empathy culture: do not be afraid to share, do not be afraid to use what is shared, trust in other partners;
- Talk a common language;
- Awareness campaigns involving all stakeholders;
- TITAN approach should be based on the trajectory which drives the processes and the actors involved;
- Create passenger flows that passengers can live with but need to adapt;
- Need to educate the stakeholders, specially the new staff, if not already done. This education must include the basic concepts as well as information on the new elements;
- In daily operations, the APOC (or if there is no APOC the operational personnel of the partners themselves) executes the strategic decisions in their operational decision making process and checks the effectiveness of the decisions;

It is proposed to define a "code of conduct" following CDM advice, what means a set of procedures and information to be shared. A feedback loop is needed to ensure that strategic decisions are properly modulated on the basis of everyday practical experience;

- There are risks in all projects that need to be managed. At the same time, in CDM we need to manage also the experience of the partners and bring them into a well coordinated framework;
- Local CDM groups should be identified in all airports as the primary point of contact;
- De-icing process takes a non planned time that delays the end of the turnaround process. The integration of de-icing process into the management of the ground trajectory can help to reduce the time;
- Last minute gate allocation changes usually means a delay in the turnaround process. A minimum time or distance (about 20 minutes/10NM) before aircraft lands should be established to avoid this delay;
- The use of a gate allocation tool which optimize selected parameters, may reduce costs and time;
- Turnaround milestones should be clearly defined and be available to everyone. They are some already available (16 of them) in the CDM implementation guide by EUROCONTROL;
- The use of only one standard interface, where all the information is directly integrated, may help the stakeholders. The way to proceed will depend on the SWIM implementation assumed;
- Optimize the use of the current available resources;
- Flexibility and predictability balance;
- Establish clear procedures about how to work when a problem raises: communication airline-ground handling;

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- The use of incentive policies instead of penalties may help;
- Promote the idea of “star flights” (prioritization of flights within an airline);
- Investigate the possibility to eliminate the rules that forbid baggage to travel alone (when the passenger did not make his/her way to the gate) if and only if the passenger and baggage come from a “secure” origin (and therefore have been already inspected);
- Disabled, wheel chair users and so on must be known well in advance so that nobody has to wait for the wheelchair or an escort as such;
- If boarding by bus, place notice in the boarding card so as these passengers arrive earlier to the boarding gate. But then it should be defined the procedure in case of the aircraft was at first planned for the bridge and then gets a remote stand.

If passengers can be motivated to proceed to the gate earlier, some of the delays can be eliminated.

2.3.5 Conclusions session

The results were summed up and presented to the attendees by the facilitators for further comments and discussions.

Finally, the stakeholders were invited to continue their participation in TITAN through the Stakeholders' Group who will be set up with representatives of as many turnaround actors as possible. If part of this group, they will be contacted frequently in order to inform them of the main achievements of the project and/or to get their feedback on specific issues. This group will be kept throughout the project.



3. ANALYSIS OF RESULTS

The collected material during the workshop is analysed and consolidated in this section. The purpose of the consolidation is to analyse all the individual comments so that some conclusions could be derived regarding common interests and main discrepancies between the different stakeholders. Also the open issues will be identified to address them later on in the project, mainly through WP1.2, Stakeholders' needs.

3.1 Agreements

It was widely agreed the need of a **CDM mentality** and therefore the need of **sharing information**. This CDM attitude proposal comes from the current situation, in which inefficiencies and delays are mainly due to the lack of sharing updated information. This involves the need of defining common and standardised language and systems (or at least interoperable). The main question here is who should define this standard as it requires an economic investment.

Sharing information would have benefits on:

- Common situational awareness;
- Predictability and resources efficiency;
- Better reaction to unexpected and not planned situations (e.g. handling equipment not available, change of allocated gate, meteorological conditions, unexpected security issues, technical failures of aircraft, passengers that require special procedures such as deportees or disabled passengers). If some activity is not following the planning, it should be known by all involved stakeholders as soon as possible. In this way, an estimated delay time would be added to the previous planning.

About gate allocation, it was agreed the need for stability after a decision has been made. For example, the aircraft operators prefer not to have changes to the allocated stand in the last 20 minutes or 10 NM before the landing.


Regarding this point it was agreed that **legal issues** constitutes an important bottleneck and it raised several questions: data ownership, quality of data, confidentiality aspects, cultural changes when starting to share information and final decision maker.

To fully implement this new mentality it was agreed that penalties should be avoided for those identified as sources of delay. So promotion of a blameless culture is understood as a key point in which using **incentive policies** instead of penalties may help.

Finally, regarding staff hiring, rotation and training: **educate** seems to be one of the key issues to implement successfully this CDM mentality.

There is a common concern regarding passengers' processes, especially the **boarding procedure** which is considered an important bottleneck during the turnaround. Although passengers arrive to the airport in advance, it is felt that they are not always on time at the boarding gate. Some measure to trace passengers in the terminal is the creation of flows which passengers could live with but need to adapt. Also it was advised to readdress the procedures around delayed passengers and the need to offload their baggage: it was proposed to investigate the possibility to eliminate the rules that forbid baggage to travel alone, if and only if the passenger and the baggage come from a secure origin (and therefore have been already inspected).

An extended handling view should also be provided following most stakeholders' thoughts. This will imply to take into account other processes such as **de-icing**. This activity has an impact on the

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schedule but the responsibility for on time performance of its operation is usually not clear. This practice should disappear in the future ensuring that de-icing impact is predictable and reduced to the minimum.

3.2 Discrepancies

The definition of the **starting and ending** events of the **turnaround** process was not agreed, but there were many proposals:

- Starting point:
 - In-block;
 - Earlier than the beginning of handling activities. But how long in advance was not discussed;
- End point:
 - Off-block;
 - Aircraft requests push-back clearance or departure clearance, if de-icing is needed;
 - Aircraft finishes the push-back and the Flight Dispatcher makes the "Thumbs UP" sign.

To save this discrepancy it was suggested to consider different definitions of the turnaround depending on the stakeholders' view. The TITAN approach should be based on the trajectory bringing together all the processes and the actors involved in them. The traditional "silo" approach results in separate viewpoints for airline, airport, handling agent and ATC while in the Trajectory Based Operations (TBO) view, active processes and involved actors are checked in each part of the trajectory. A system described in this way will have total transparency and a shared view of the trajectory and its needs and problems.

3.3 Non-verbal issues

Non-verbal issues should be understood as those messages that were sent and received wordless during the meeting. In this case, only the communication through an object such as the workshop poster (see Figure 1) will be analysed. Likewise, post-its have non-verbal elements such as where they were placed or which problems were the most addressed.

The first remark is related to the number of post-its used during the workshop: 50 were coloured (problems/needs) while 34 were white or light blue (proposed solutions). The main conclusion that can be drawn up is that it is easier to work in teams with similar background and dealing with the same part of operation (1st session) than in mixed groups with different working procedures and interests (2nd session).

If looking at the place where the coloured post-its were stuck, the following conclusions could be drawn up:

- Few problems were related to the turnaround process while most needs were joined to some external factor. Stakeholders are more worried about the impact of these boundary factors rather than on the process itself:
 - The external factor that constituted the main stakeholders' source of concern is gate allocation. However cargo and baggage processes and transit were not addressed due either to the limited time of discussion or the lack of interest from the attendees.



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Also flight dispatching and airline representative were missed as external factors or actors by the attendees;

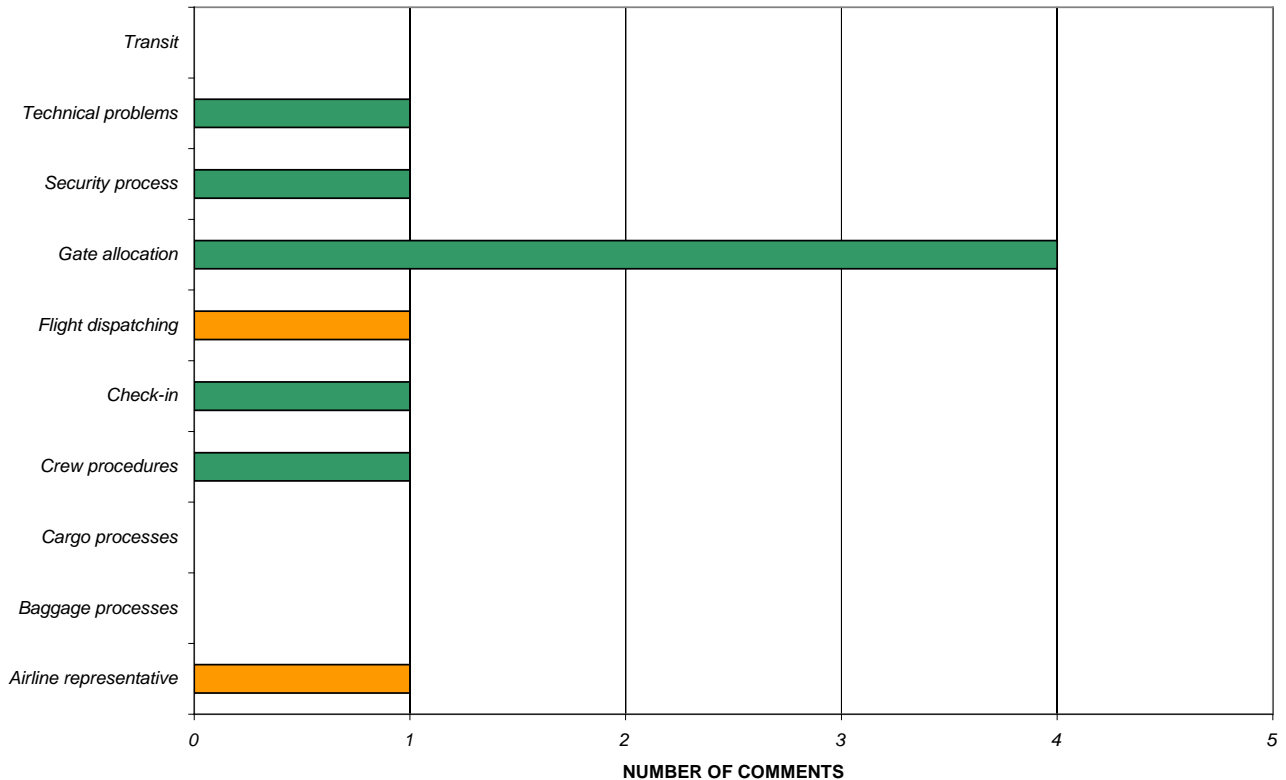



Figure 2: External factors to turnaround vs. number of comments

- Boarding and refuelling were the only turnaround processes that raised comments during the workshop;
- Stakeholders' concerns:
 - Airlines placed most of green post-its before the in-block event;
 - ANSPs put most of orange post-its around the off-block;
 - Airports allocated most of pink post-its besides the gate allocation paper;
 - Ground handlers stuck yellow post-its all along the poster.

This post-it allocation is in accordance with the turnaround definition provided by each stakeholder.

Regarding the place where the white/light blue post-its were placed it can be concluded that almost no solution was addressing a specific stakeholder's need. For those that were placed close to the problem they were trying to solve, most referred to information sharing, the implementation of CDM and gate allocation.


An important issue is that some problems were associated to different turnaround processes what prove the complementary stakeholders' view of the whole.

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3.4 Other subjects

Most of the new proposals entailed open issues that are identified hereafter and should be further investigated:

- The proposed solutions require an economic investment, but it is not defined who should pay for it;
- Regarding information sharing:
 - A way to collect information from all the actors involved in the process is required, but how to proceed with this information is not defined yet;
 - How long in advance the information is required from the stakeholders is also a question: the earlier the information is known, the less accurate times are.
- The provision of a kind of pre-departure sequence to ATC by the airlines. In to-day's environment, airlines schedule their flights at what their marketing department considers to be the best time (including the need to be shown as acceptable connections in reservation systems). This concept promotes the idea of scheduling flights within certain minute gaps, previously agreed by airlines, avoiding a number of aircraft being scheduled at the same time;
- The promotion of "star flights".

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4. SUMMARY OF FINDINGS

The main findings during the 1st TITAN workshop were:

- Information from other projects should also be used as input to TITAN (CDM, SWIM...);
- Needs and problems addressed are generally related to external factors rather than to the turnaround itself;
- From the external factors those related to the landside have an important impact on the punctuality of the boarding process;
- Although not included in the post-its, human personal relationships were a constant issue raised in all the teamwork groups;
- Similar needs came up in different processes of the turnaround, due to the fact that attendees face them from different perspectives depending on the effect those problems have on their daily activities;
- Most of the proposed solutions are not referred to specific needs;
- Each stakeholder has a different view on when the turnaround process starts and ends;
- The poster turned to be an efficient tool to conduct the workshop as it provided a user-friendly base to start discussions.



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ANNEX 1: List of Attendees

Consortium attendees:

Vicente Bordón
Mathew Bray
Susana Bravo
Ian Crook
David Esteban
Javier García
Alicia Grech
Sebastian Kellner
Noemí Kral
Sara Luís
Sara Peces
Robert Piers
Ana Sáez
Andreas Schindlinger
Laura Serrano
Nicolás Suárez
Álvaro Urech
Daniel Zerkowitz
Steve Zerkowitz

External Attendees:

Henrik Bagewitz
Johan Blom
Albert Coenen
Philip de Coninck
Clive Croome
Bruno Desart
Francisco Fernández de Liger
Henk Hesselink
Aleria Lizariturry
Alan Marsden
Lukasz Michalik Boldin



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Olivier Mongenie

Stefano Porfini

Martin Schipper



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ANNEX 2: Turnaround poster



Figure 3: Workshop poster