KPI

Annual Report 2022

ACDM GERMANY

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Content

1 Management Summary

Einleitung

Introduction

This report covers a set of general Key Performance Indicators (KPIs) that were deemed by the Editorial Board to be comparable among the A-CDM airports Munich, Frankfurt, Düsseldorf, Berlin, Stuttgart, and Hamburg.

The KPIs contained within this report serve to continuously monitor the A-CDM process and usually portray only individual parts of the overall process.

The KPIs allow a measurement of A-CDM effects and steering of the process. They are the basis for local reporting at the individual airports. The KPIs were defined using input from EUROCONTROL's A-CDM Implementation Manual, experiences of the local German Airport CDM airports, as well as local and future necessities.

The report is intended to provide a general overview of KPI trends at the A-CDM airports, as well as serve as basis for decisions regarding adjustments to or steering of the A-CDM process.

This report describes the experiences, measurements and results of the calendar year 2022. It utilises regular evaluations and measurements on a monthly basis, the conclusions that are drawn address points that were mutually agreed by *ACDM Germany* which are reflected in the KPI Concept.

This year's issue of the Report contains two new KPIs: TOBT Prognosis and TOBT Timeliness.

Summary of Results and Tendencies

Over the first three months of the year 2022 traffic numbers initially retreated or stagnated due to high infection rates of the SARS-CoV-2 Omicron variant virus. However, the positive trend in traffic that began in summer 2021 recommenced during the summer season 2022, bringing with it increases of up to 50% compared to the same months of the previous year. German hub airports reached up to 80% of 2019 traffic numbers towards the end of 2022, with slightly lower recovery rates at smaller airports.

Airlines and their partners at airports reduced capacities during the Covid pandemic's lockdown phases and were unable to rebuild them in line with the surge in traffic demand. At some airports this led to problems in turnaround processes and to a shift of demand during peak hours.

It became clear that flight demand and available resources for its turnaround need to be well-balanced in order to reach a high quality of TOBT prognosis. The latter is essential for target time calculations as well as for planning and stability of all related processes. This was not achieved during the summer months; reliable TOBT predictions were no longer possible during peak periods.

Staff shortages, exacerbated by airspace limitations due to the Russia-Ukraine war, led to a high number of airspace regulations and heavy CTOT volatility. As some members of a flight's ground handling staff are required to remain with a flight until it actually goes off-block, ATFM delay in general as well as CTOT volatility each disturb turnaround processes because these staff members cannot be utilized as planned for subsequent tasks.

Some indicators in this report show that these influences and interdependencies have managed to weaken the positive effect A-CDM is supposed to have on plannability and stability of airport processes.

2 German Harmonisation Initiative A-CDM Germany

2.1 European A-CDM Concept

Airport Collaborative Decision Making (A-CDM) is the operational approach (idea/concept/process) to achieving an optimal turnaround process at airports. A-CDM covers the period from EOBT -3 h until take-off. It is a continuous process beginning with processing of the ATC flight plan, via landing of the inbound flight, the turnaround process on the ground, to departure.

By exchanging estimated landing and take-off times between the A-CDM airports and Network Management Operations Centre (NMOC), airports can be further integrated into the European ATM Network EATMN.

A-CDM improves operational collaboration between the partners:

- Airport Operator,
- Aircraft Operators,
- Handling Agencies,
- Ground Handling Agencies,
- Air Navigation Service Provider, and
- European Air Traffic Flow Management (NMOC).

A-CDM in Germany is based upon the European A-CDM spirit, the Community Specification of A-CDM, as well as recommendations by the German Harmonisation Initiative *A-CDM Germany*.

A-CDM aims to optimise utilisation of available capacity and operational resources at airports and within European airspace through high-quality target times and efficiency increases in the individual steps of the turnaround process.

2.2 German Harmonisation Initiative for A-CDM

European A-CDM fundamentally relies on Community Specification EN 303212. However, development of A-CDM in Germany has shown a need of harmonisation to a level of detail that is beyond the Specification's scope.
The A-CDM partners recognised this need and founded the German Harmonisation Initiative *A-CDM Germany*. Collaboration within the Initiative is determined by a Letter of Intent that was signed by all partners.

Partners within *A-CDM Germany* are currently:

- Deutsche Flugsicherung (DFS)
- Munich Airport (FMG)
- Frankfurt Airport (Fraport)
- Berlin Airport (FBB)
- Düsseldorf Airport (FDG)
- Stuttgart Airport (FSG)
- Hamburg Airport (FHG)
- Leipzig/Halle Airport (FLHG)

Leipzig/Halle Airport has commenced an Airport CDM project and is therefore already a member of *A-CDM Germany*, however implementation has not been completed yet. Therefore, Leipzig/Halle is not shown in the following chapters.

A-CDM Germany's goals are, among others:

- Exchange of information and best practices between the various A-CDM airports,

- Common understanding of A-CDM in Germany and common representation towards international partners (Eurocontrol, EU, ICAO, IATA)
- Harmonisation in the interest of partners and customers (“one face to the customer”)
- Best Practices developed within *A-CDM Germany* can be provided to other European A-CDM projects and working groups to advance harmonisation.

Creation and coordination of harmonised procedures and documentations are achieved within *A-CDM Germany's* working groups and regular harmonisation meetings.

3 Purpose of the Report

This document shows A-CDM KPIs that are generally comparable across A-CDM airports in Germany. KPIs fit for inclusion in this report were selected by a working group with participation of all A-CDM airports as well as DFS. The group also defined required data to be gathered and calculation rules.

This report is not intended to replace local KPIs, nor does it pre-empt local KPI reporting routines. It is designed as a baseline to which local KPI concepts and reports can add additional indicators or even measure the same KPIs using different criteria.

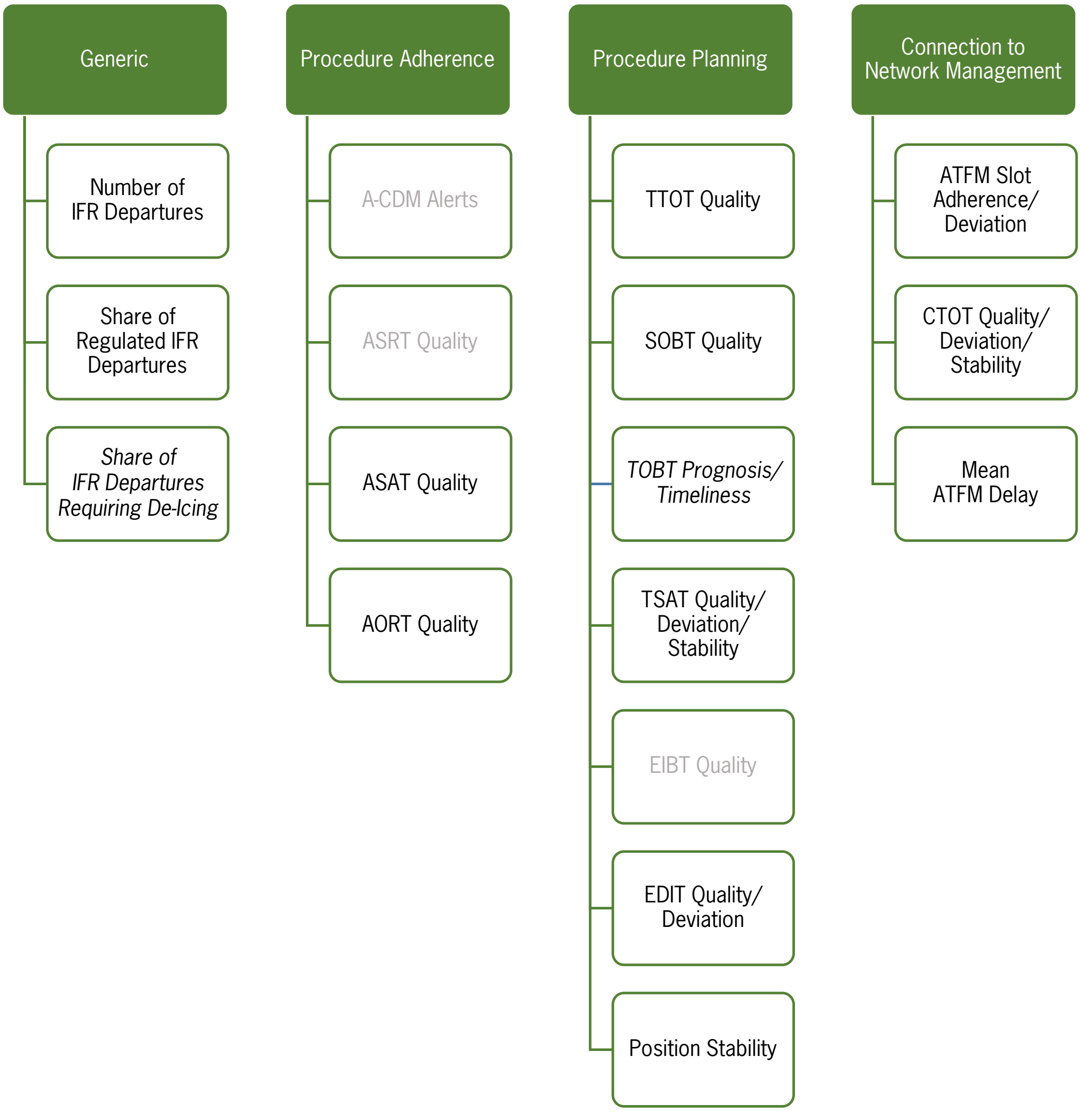
The common reporting that serves as basis for the KPIs contained within this report provide A-CDM airports with the opportunity of highlighting changes and developments, recognising potential for improvements, and developing harmonised A-CDM subprocesses.

Further details regarding the A-CDM process and its specifics at the individual airports are described within the local A-CDM procedure descriptions and publications.

4 Results

In order to achieve the local operational and network benefits associated with A-CDM, the quality of target times and process adherence are essential. For this reason, commonly available indicators from the following categories were selected:

- Generic Traffic Numbers
- Procedure Adherence of A-CDM Partners
- Procedure Planning
- Connection to Network Management



The KPIs coloured in light grey are not yet part of this report as the necessary historic data is not yet available at all German A-CDM airports. As soon as this changes, they will be included in a subsequent Annual KPI Report.

4.1 Generic

4.1.1 Number of IFR Departures

Description
Number of IFR departures within the calendar year as well as the previous calendar year and 2019 reference values

Goal
Show the amount and trend of traffic

Charts

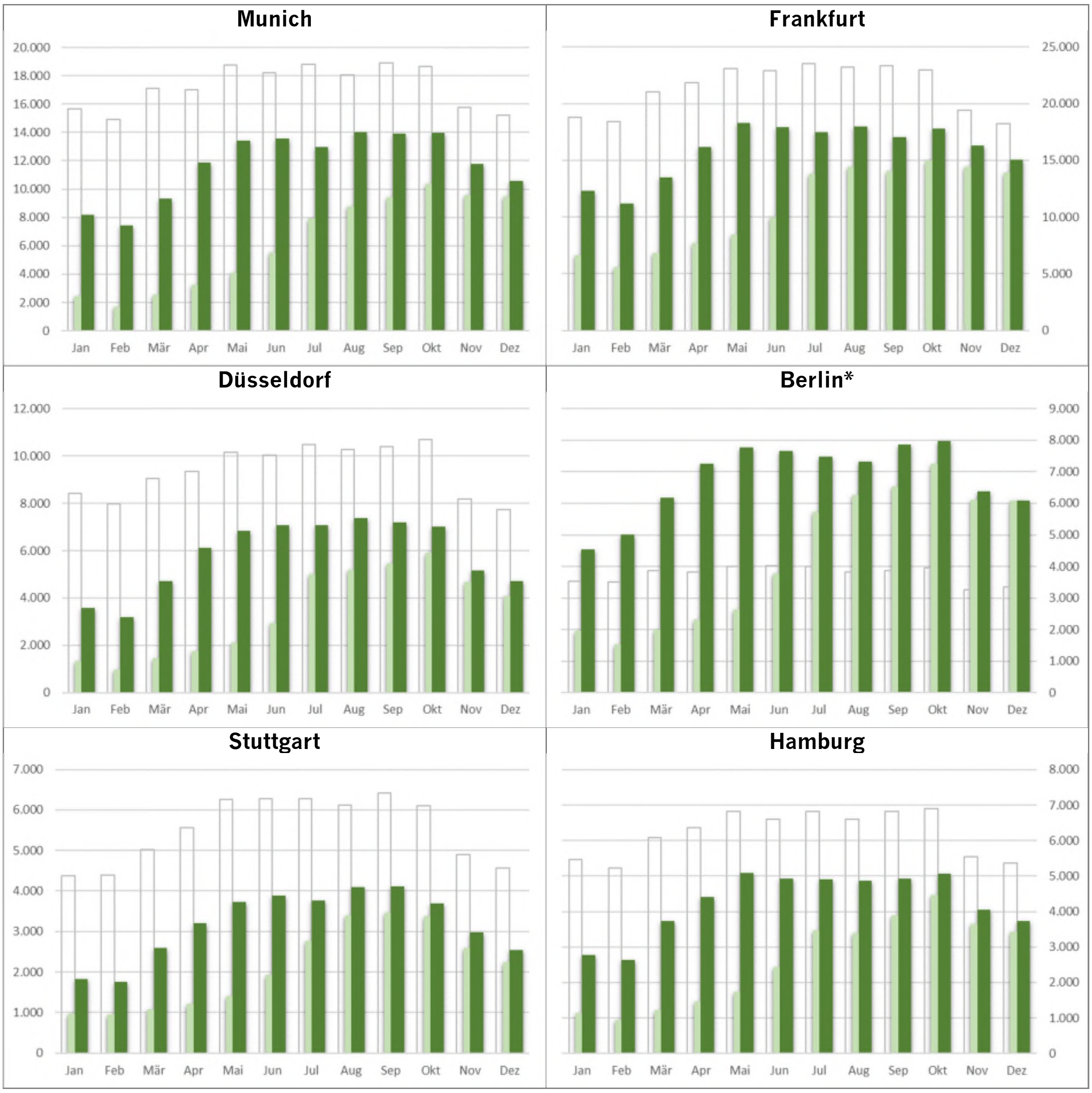


Fig. 1: Number of IFR departures, previous year (light green) and 2019 (white)

Conclusion

During the first quarter of 2022, the Omicron variant of the SARS-CoV-2 virus led to a strong increase in infections. However, the experience in dealing with the coronavirus that was gained during previous years helped to limit the dampening effect this had on traffic demand. Even though flight numbers initially retreated or stagnated compared to the last months of 2021, they resumed their decisive recovery from the beginning of the summer period with growth rates of up to 50% compared to the same months of 2021. During the second half of 2022, growth rates slowed a bit. Hub airports achieved the equivalent of 80% of 2019 traffic levels, smaller airports slightly less.

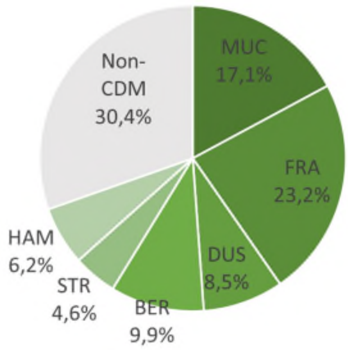


Fig. 2: Share of total departures originating from A-CDM airports in Germany

The six German A-CDM airports' share of total IFR departures in the year 2022 was 69,6% which is slightly higher than before the Covid pandemic.

4.1.2 Share of Regulated IFR Departures

Description
Share of IFR departures with ATFM slot (CTOT), in %

Goal
Illustrate the monthly share of IFR departures that were subject to an air traffic flow measure by NMOC.

Charts

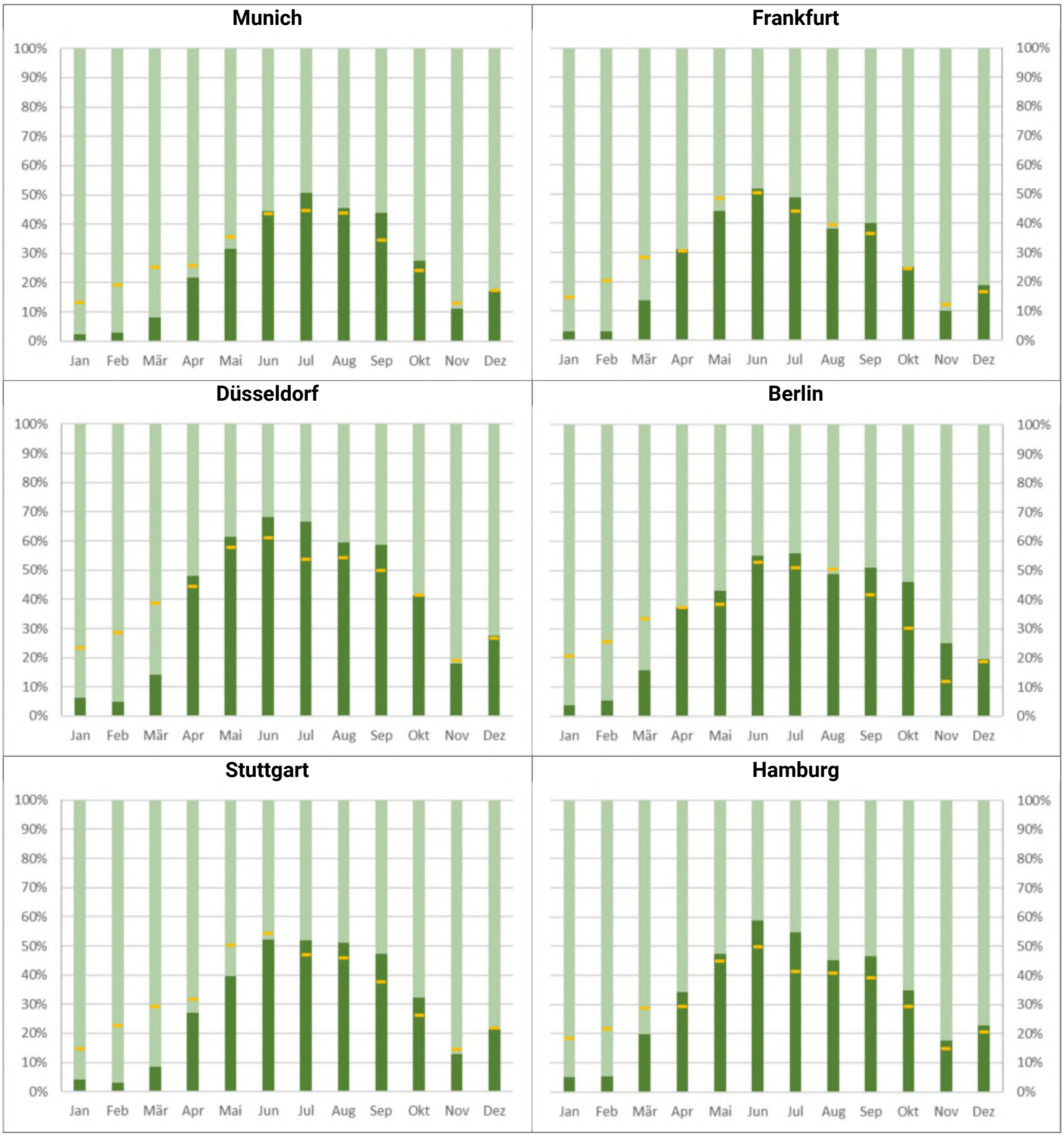


Fig. 3: Share of unregulated (light green) and regulated (dark green) IFR departures, and 2019 share (yellow)

Conclusion

Although European traffic numbers during the summer months remained at roughly 90% of 2019 levels, the share of regulated flights was already higher than during summer 2019. This was due to resource shortages at ANSPs and airports as well as airspace closures because of the Russia-Ukraine war. The high number of regulated flights, combined with heavy CTOT volatility (see section 4.4.2) exacerbated the resource-related problems at airports. ATFM delay of one flight translates into longer engagement times of ground handling staff, which was already affected by severe lack of suitably qualified personnel. This results in unplanned knock-on delays for other flights.

4.1.3 Share of IFR Departures Requiring De-Icing

Description
Share of IFR departures that required aircraft de-icing, in %

Goal
This KPI serves only as context information for other KPIs, e.g. TSAT Quality.

Charts

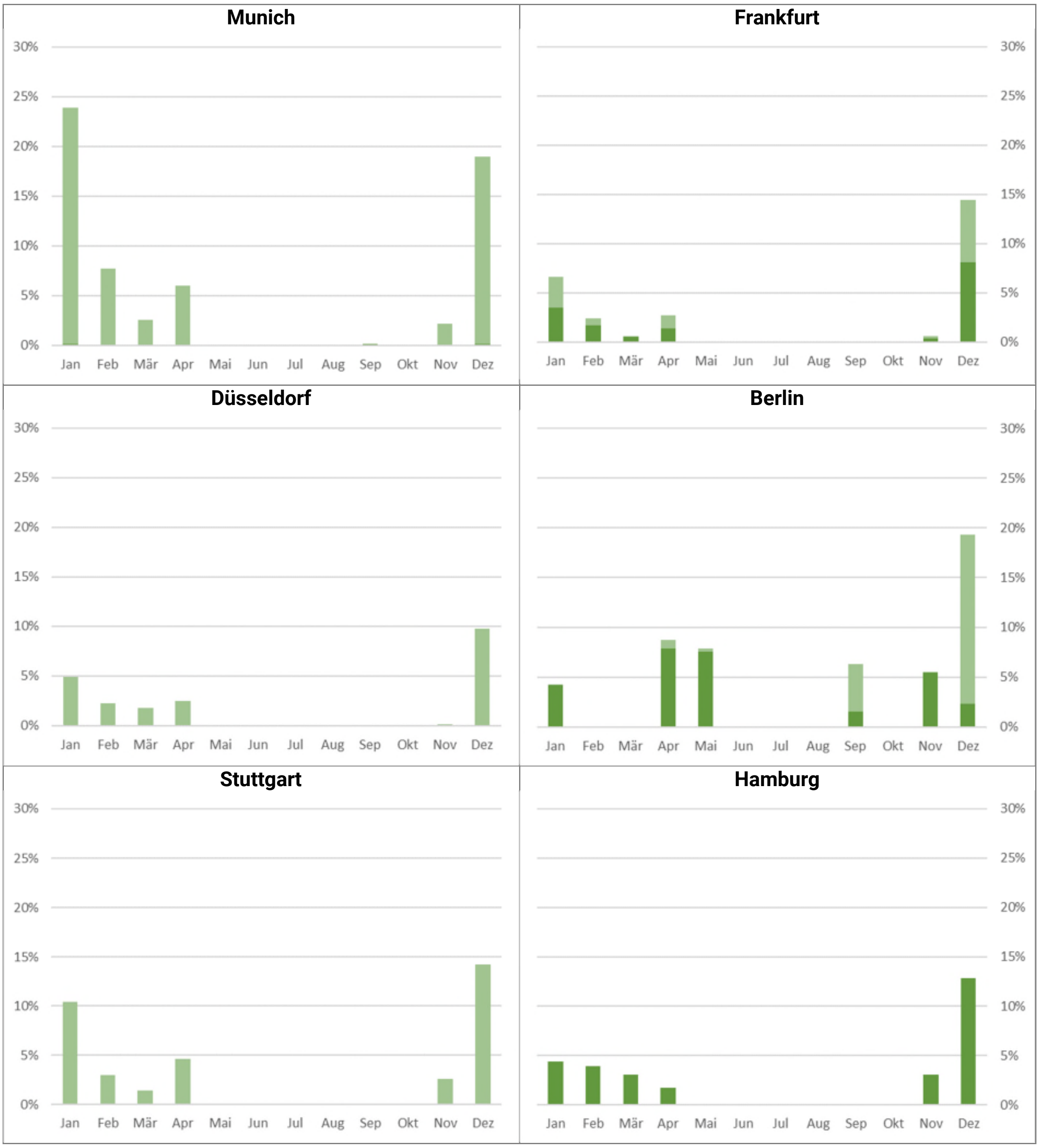


Fig. 4: Share of IFR departures requiring aircraft de-icing on stand (dark green) and remotely (light green)

Most airports only do remote de-icing, i.e. on designated de-icing areas. In this case, de-icing takes place after TSAT.
In the case of on-stand de-icing the flights are de-iced on their parking stands, i.e. after TOBT but before TSAT. Planned de-icing begin and duration are included in the TSAT calculation.

4.2 Procedure Adherence

4.2.1 ASAT Quality

Description
Share of IFR departures that received start-up approval (ASAT) within TSAT ± 5 min via radio, in %

Goal
Measure procedure adherence of Air Traffic Control (Tower)

Charts

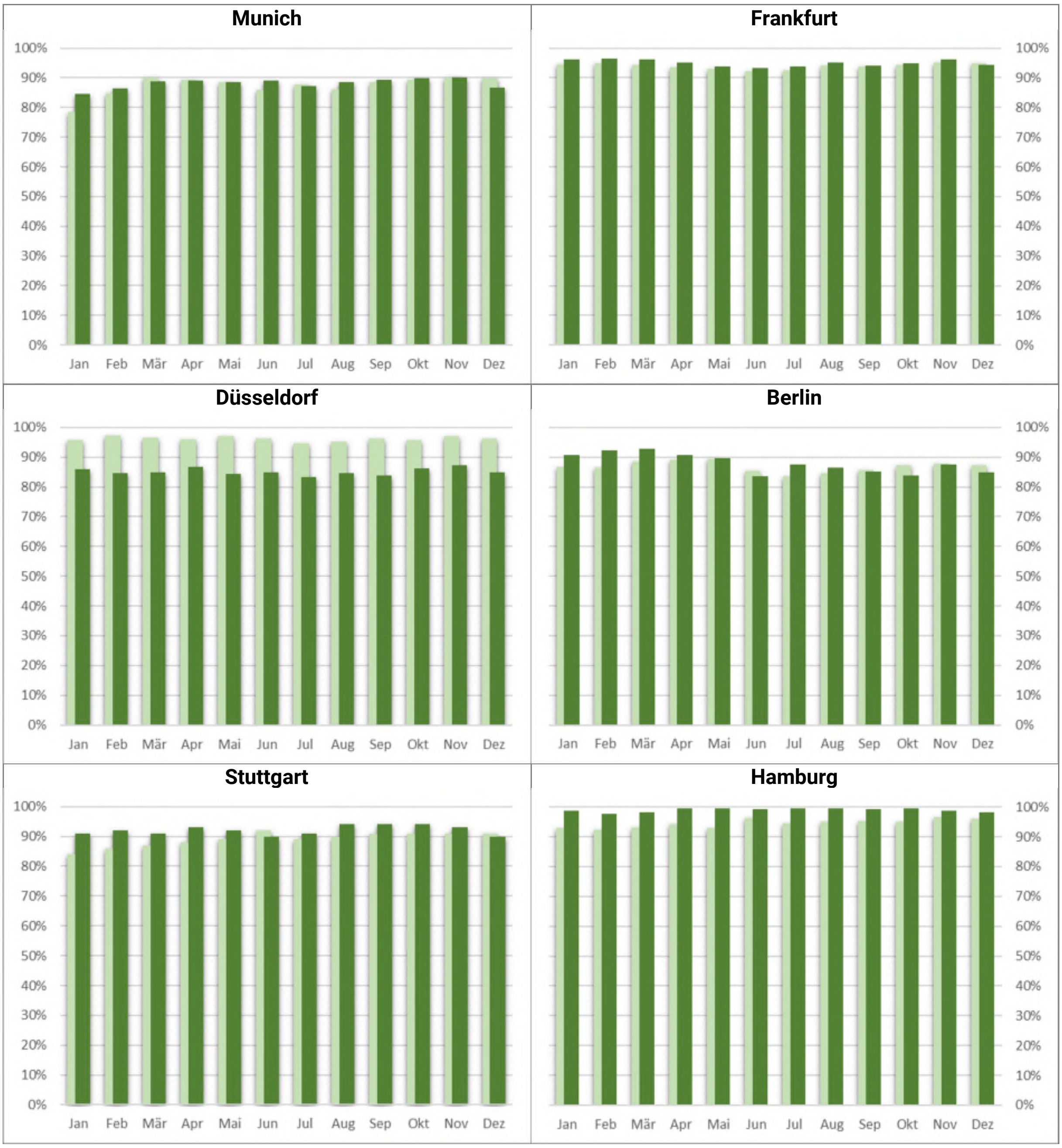


Fig. 5: Share of IFR departures that received start-up approval within TSAT ± 5 min via radio, compared to 2019 (light green)

Conclusion
Most airports show an ASAT quality above that of 2019.

Düsseldorf Airport shows a continuously lower ASAT quality during 2022 than during 2019. During the previous year, the local A-CDM team had commenced measures to strengthen procedure adherence which however did not achieve the desired result, likely due to the numerous problems affecting overall turnaround. These problems may have encouraged looser procedure adherence to avoid further penalizing the affected flights.

4.2.2 AORT Quality

Description
Share of IFR departures that asked for their off-block clearance (AORT) within the window of ASAT + 5 min (start-up via radio) or TSAT ± 5 min (start-up via datalink), in %

Goal
Measure procedure adherence of the Flight Crew

Charts

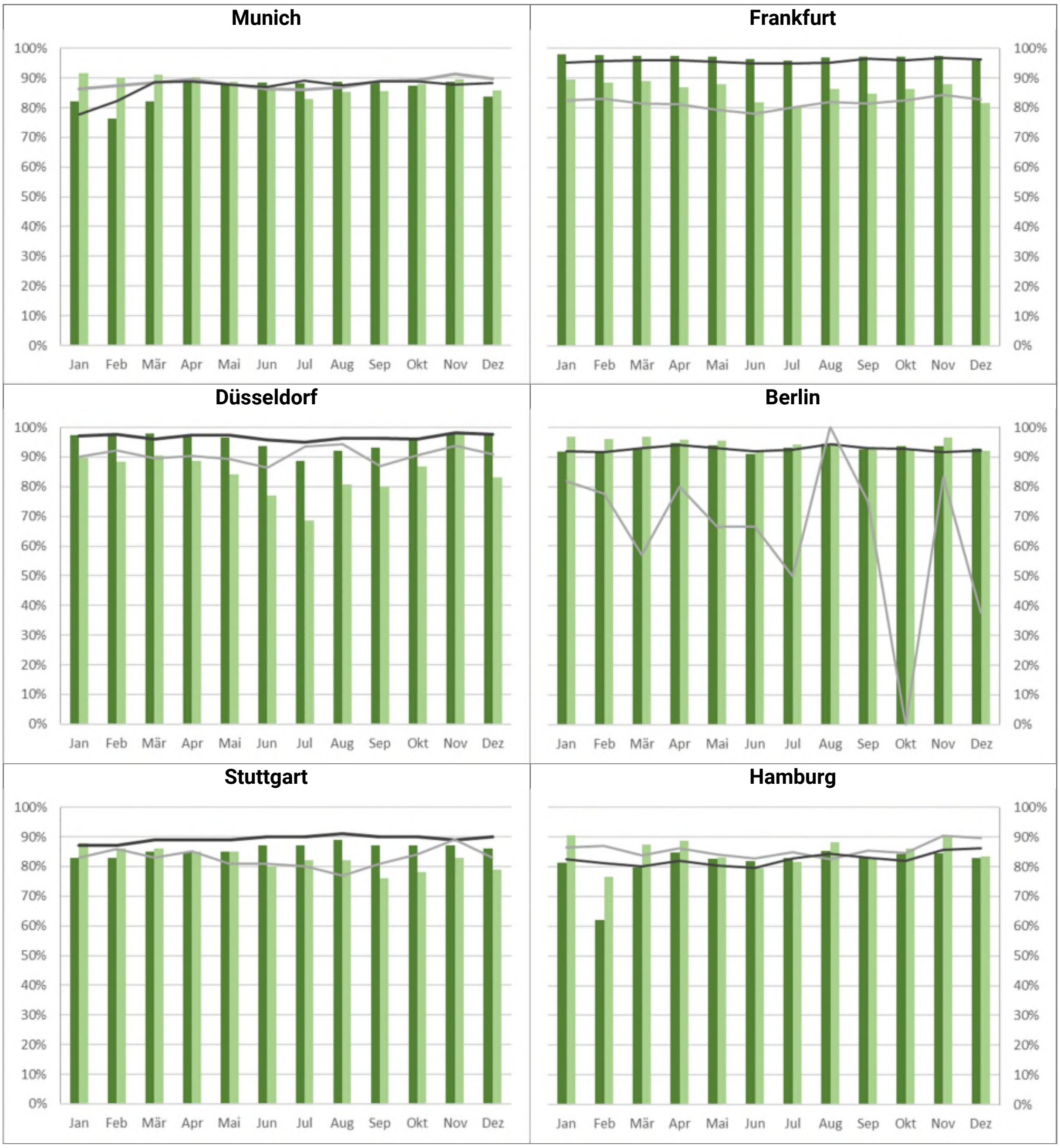


Fig. 6: Share of IFR departures with conformant AORT (green) compared to 2019 (grey), radio in darker shade, datalink in lighter shade

Conclusion
AORT quality is shown only for flights' final off-block requests that resulted in off-block clearance. Denied off-block requests, for instance after exceeding ASAT time tolerance, are not considered.

Most airports show a similar AORT quality compared to 2019.

Düsseldorf Airport displays a significantly lower AORT quality especially during the summer months. In line with ASAT quality, this indicates an intentionally generous handling of off-block requests to avoid further delays to already disturbed flights.

4.3 Procedure Planning

4.3.1 TTOT Quality

Description
Progression of the difference between current E/TOBT + current EXOT to ATOT (in minutes), in 5-minute intervals from 120 minutes prior ATOT.

Goal
Determination of TTOT prediction quality as reported to the Network Manager for unregulated flights.

Charts

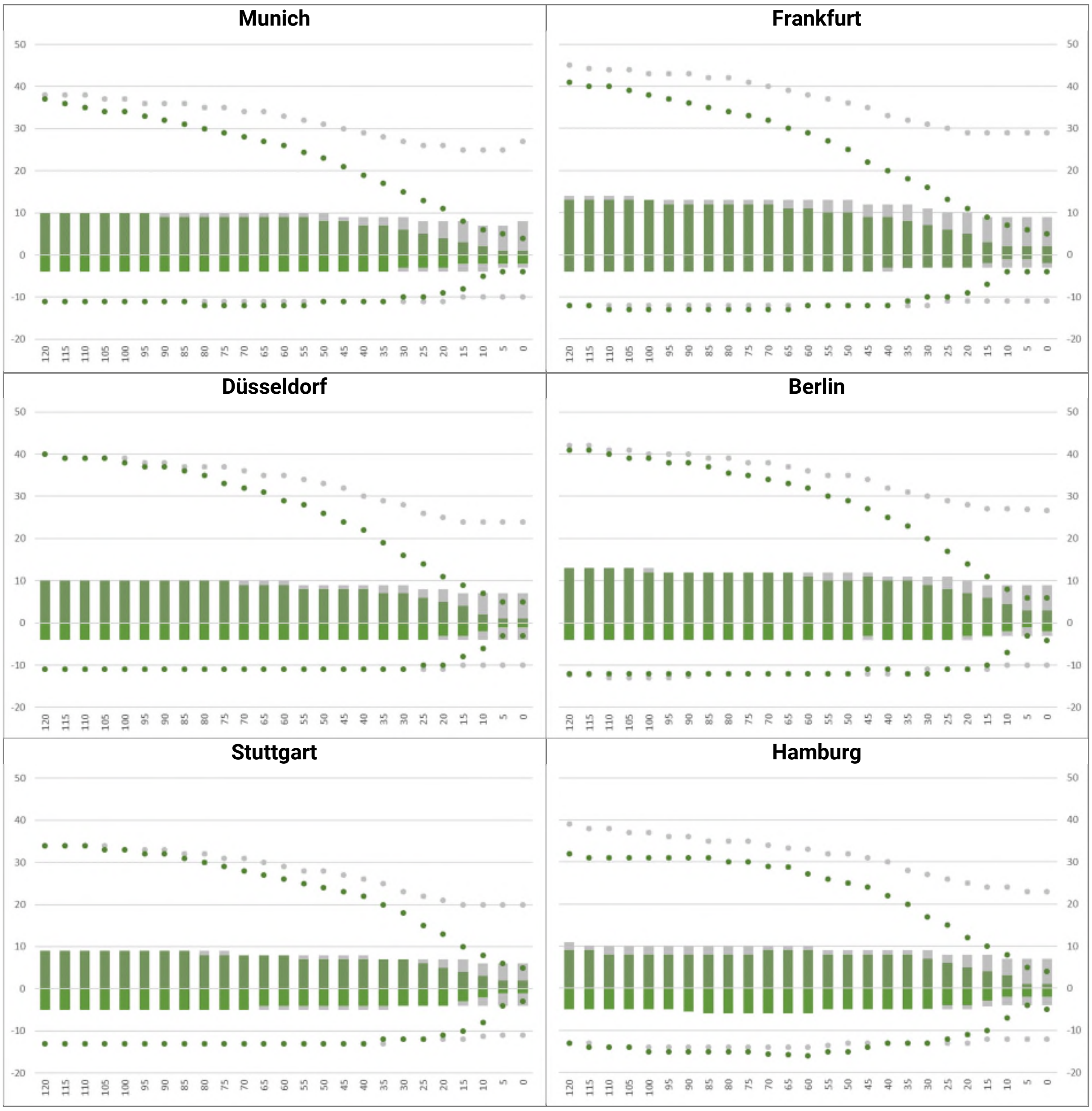


Fig. 7: Median (columns) and 90th percentile (dots) differences between E/TTOT and ATOT in minutes with a given lead time in minutes prior ATOT, split by flights with E/TTOT < ATOT (positive Y values) and E/TTOT > ATOT (negative Y values). ETOT in grey, TTOT in green.

Conclusion

Generally, every flight has a predicted take-off time based upon the ATC FPL's EOBT (ETOT). A-CDM airports additionally provide a prediction based upon the locally updated TOBT and the current departure capacity (TTOT). Both values are available to the Network Manager.

The above charts show that predictions based on local A-CDM data have a lower deviation from actual take-off times than those based on ATC FPLs only. From 90 to 50 minutes before departure, this improved quality is most pronounced because both TOBT and TSAT process are factored in at this stage.

Improved take-off predictions allow a more accurate traffic prognosis for the purpose of Air Traffic Flow Management and a more efficient use of airspace capacity.

4.3.2 SOBT Quality

Description
Monthly share of flights whose first EOBT provided in an ATC flight plan is equal to the SOBT agreed with the Airport Coordinator, in %

Goal
Difference between seasonal planning vs. first planning on the day of operations

Charts

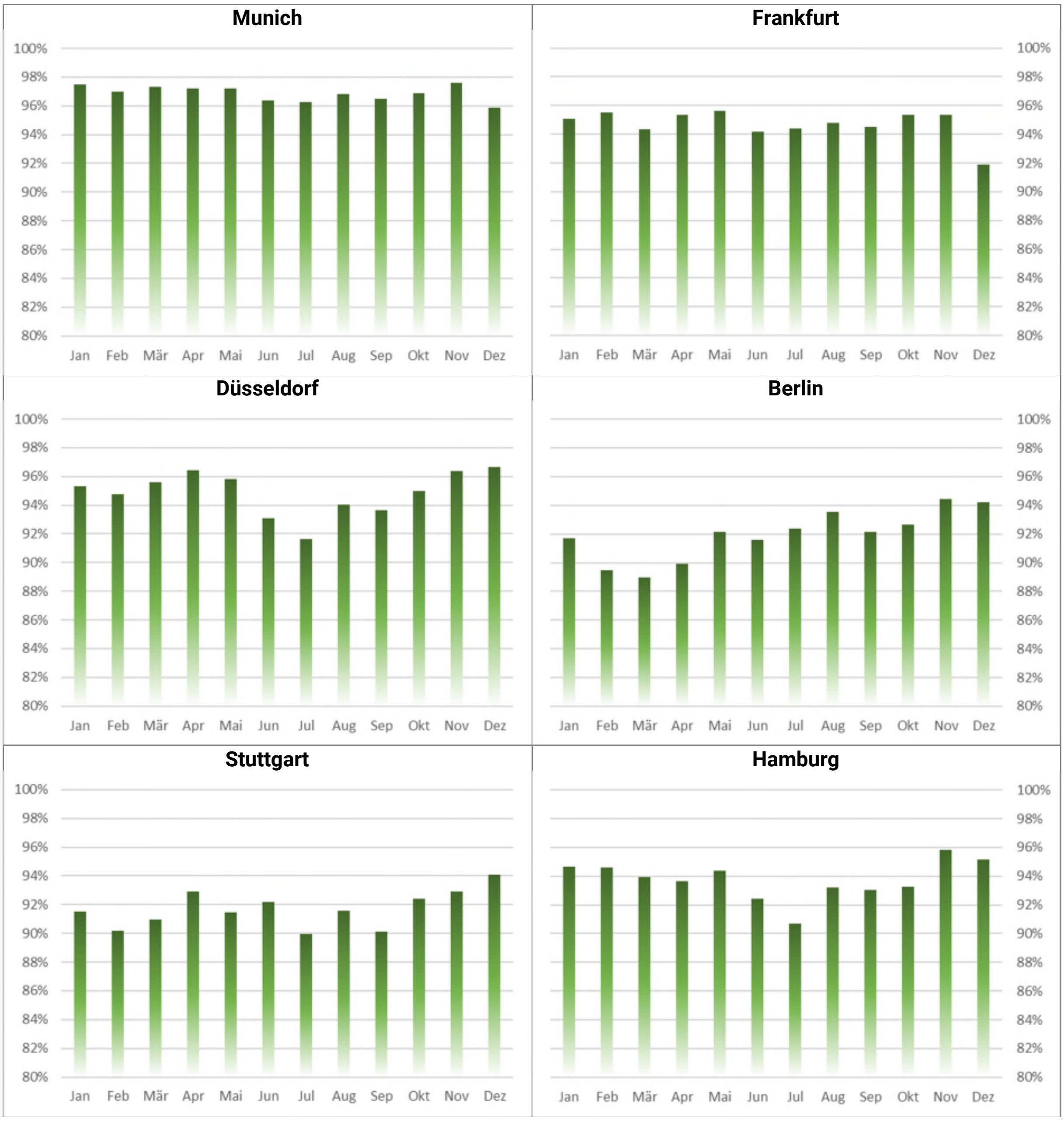


Fig. 8: Monthly share of IFR departures where first EOBT = SOBT

Conclusion
A high SOBT quality shows reliability of the strategic planning processes (seasonal planning) compared to the actual flight intention as expressed by the ATC flight plan. Significant differences between flight planning and slot coordination are being monitored and investigated by the German Airport Coordinator's Slot Performance Monitoring.

4.3.3 TOBT Prognosis and Timeliness

TOBT Prognosis

Description
Difference of TOBT and its input time. A score of 100% is granted if the difference is at least 10 minutes. Lower differences result in a linear score reduction which reaches 0% if the difference is 5 minutes or less.

Goal
Scoring the amount of foresight that goes into TOBT updates

Charts

Fig. 9: Average Prognosis score of all TOBT updates per month compared to the same month in the previous year (light green) and 2019 (white).

TOBT Timeliness

Description
Difference of current TOBT and input time of a new TOBT. A score of 100% is granted if the difference is at least 10 minutes. Lower differences result in a linear score reduction which reaches 0% if the difference is 5 minutes or less.

Goal
Scoring how close to the existing TOBT an update is provided

Charts

Fig. 10: Average Timeliness score of all TOBT updates per month compared to the same month in the previous year (light green) and 2019 (white).

Conclusion
At most airports, TOBT Timeliness is lower compared to 2021 and even more so compared to 2019.

Generally, the duration of a turnaround can be predicted more easily the more balanced demand and available resources are. This balance usually leads to a more predictable progress of the turnaround process, hence relatively accurate TOBTs can already be provided early on.

Especially during the summer of 2022, however, severe staff shortages disrupted many turnaround subprocesses, so the latter did not proceed predictably. Additionally, TOBT handlers were frequently lacking information about the current state of the subprocesses, so TOBTs were only updated when the previous TOBT had already passed. Even known process disruptions were slow to translate into new TOBTs due to staff shortages at the handlers themselves.

Another exacerbating factor were frequent CTOT updates. Some members of the ground handling team are required to remain with an aircraft until AOBT and are therefore not available for other aircraft in the meantime. If CTOT and, consequently, TSAT of a flight change frequently, this period of added staff unavailability becomes increasingly harder to predict which makes other flights' TOBT planning more difficult if the same staffing resources are required.

At Hamburg Airport, however, the increase in TOBT Timeliness continued in 2022. This is due to updates of automatic TOBT until AIBT of the connected inbound flight in case no manual TOBT was made available already by the TOBT handler. These early TOBT updates increase the TOBT Timeliness score.

4.3.4 TSAT Quality, Deviation and Stability

TSAT Quality

Description
Monthly share of last TSATs that were equal to TOBT, in %

Goal
Operational adherence to planning on the day of operations.

Charts

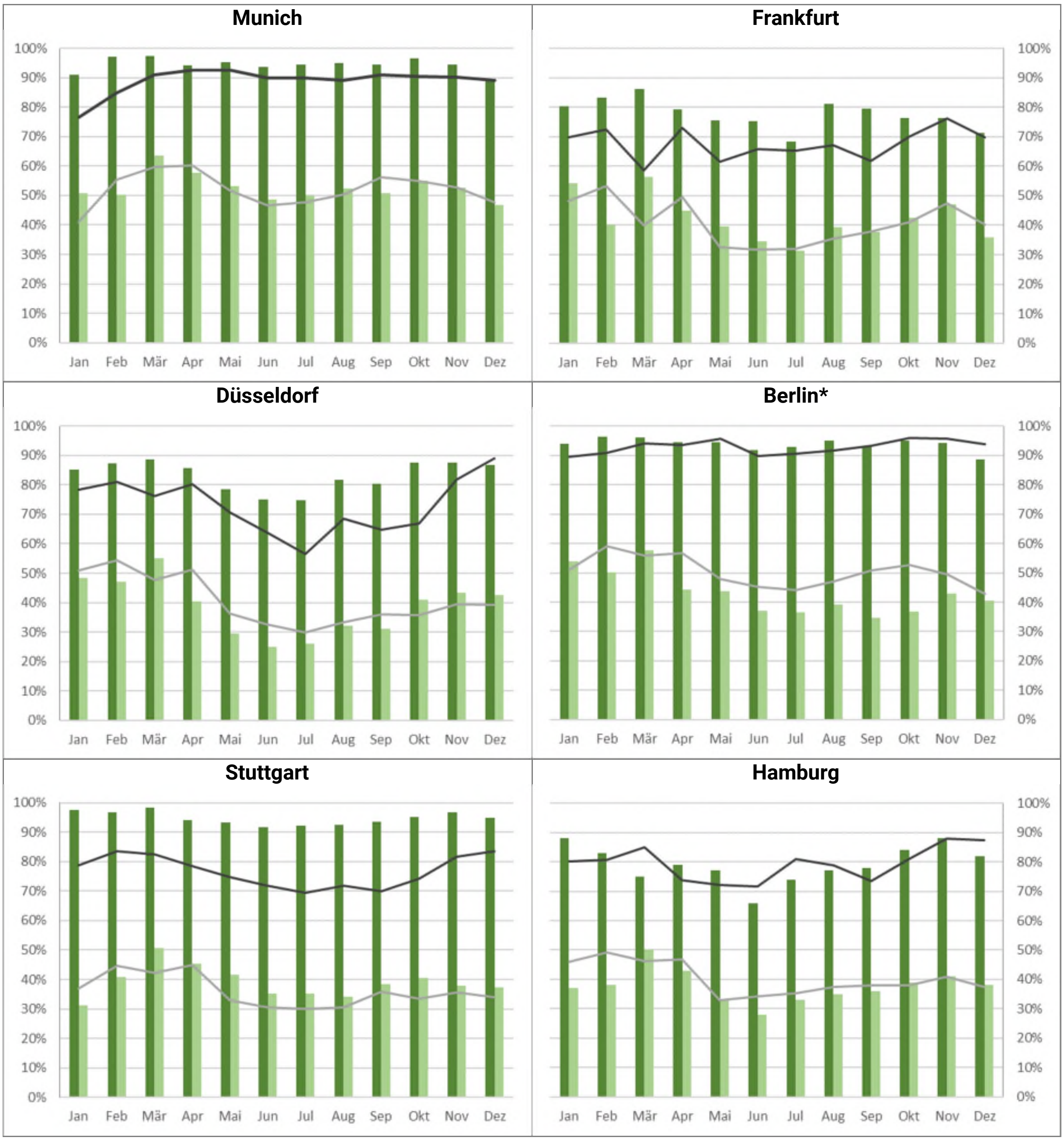


Fig. 11: Share of regulated and unregulated IFR departures (green) vs. 2019 (grey) where last TSAT = TOBT. Non-regulated flights in darker shade, regulated lighter.

TSAT Deviation

Description
Monthly mean deviation of TOBT and last TSAT, in minutes

Goal
Show mean deviation of planning on day of operations versus actual operations

Charts

Fig. 12: Mean deviation of last TSAT and TOBT in minutes (green) vs. 2019 (grey). Non-regulated flights in darker shade, regulated lighter.

TSAT Stability

Description

Number of TSAT changes from first publication (TOBT – 40 min) for non-regulated and regulated flights

Goal

Measuring TSAT stability

Charts

Fig. 13: Mean number of TSAT changes per regulated (light green) and non-regulated (dark green) flight and month without first TSAT, including deletions

Conclusion
For unregulated flights, a low TSAT quality shows that local capacity constraints have caused delays. For regulated flights, TSAT generally follows CTOT and therefore correlates more with ATFM delay.

All airports show only small local TSAT Deviations for unregulated flights. Overall, due to the many CTOT updates regulated flights had lower TSAT Stability than unregulated flights. Numbers at highly utilized airports, however, show a decreasing TSAT Stability with more updates even for unregulated flights. This is due to CTOT updates destabilizing the pre-departure sequence in general when departure intervals are completely full due to high demand.

4.3.5 EDIT Quality and Deviation

EDIT Quality

Description
Monthly share of IFR departures with on-stand de-icing or remote de-icing whose EDIT was within ADIT ±3 min, in %

Goal
Verify the reliability of estimated de-icing duration as input parameter for A-CDM

Charts

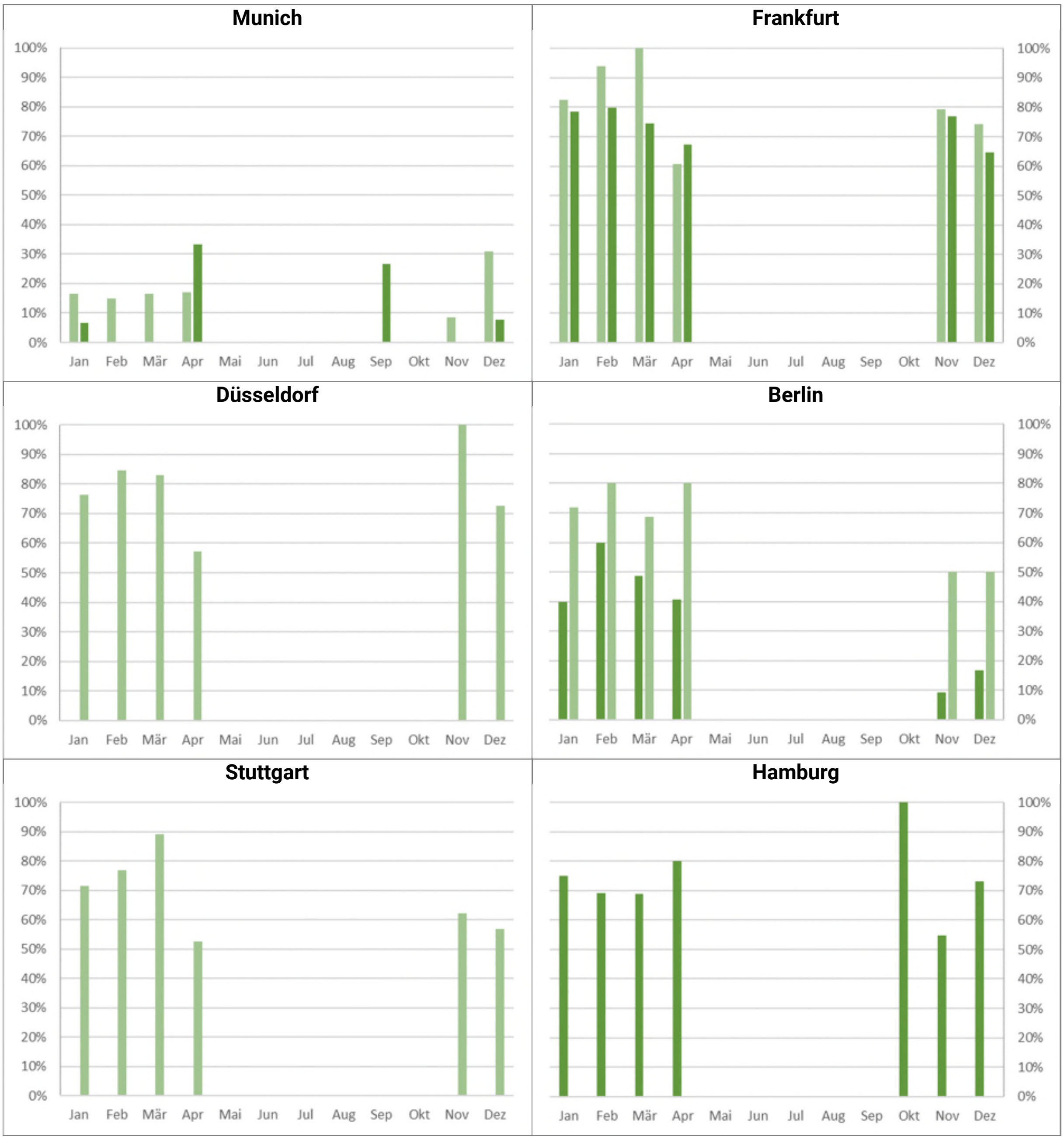


Fig. 14: Percentage of flights with remote (light green) and on-stand de-icing (dark green) where EDIT = ADIT±3 min

EDIT Deviation

Description
Monthly mean deviation of ADIT and EDIT for IFR departures with on-stand de-icing or remote de-icing in minutes per de-iced flight and airport, in minutes

Goal
Verify the accuracy of estimated de-icing duration as input parameter for A-CDM

Charts

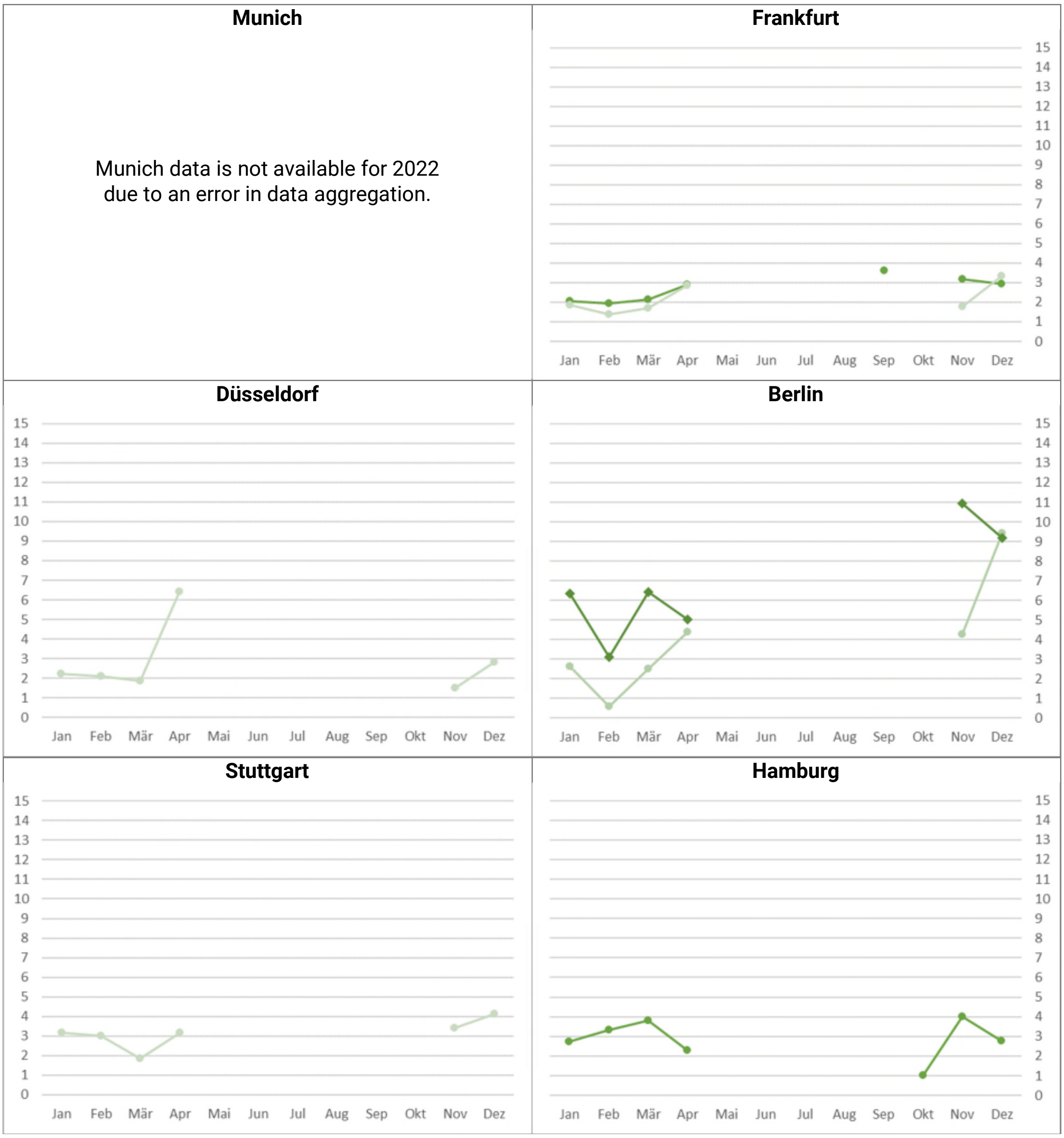


Fig. 15: Mean deviation in minutes of EDIT and ADIT for on-stand (dark green) and remote de-icing (light green)

Conclusion
EDIT quality for remote de-icing is generally higher as the process itself is less prone to disturbances and, therefore, easier to plan. On-stand de-icing performance depends on the location of the parking stand and activities on neighbouring areas which makes accurate EDIT predictions more difficult.

4.3.6 Position Stability

Description
Share of IFR arrivals for whom no position change had to be effected from ALDT-10 min until AIBT, in %

Goal
Determine the number of short-term position changes at the airport in relation to ELDT and ALDT. Indicates the reliability of positioning information for process planning.

Charts

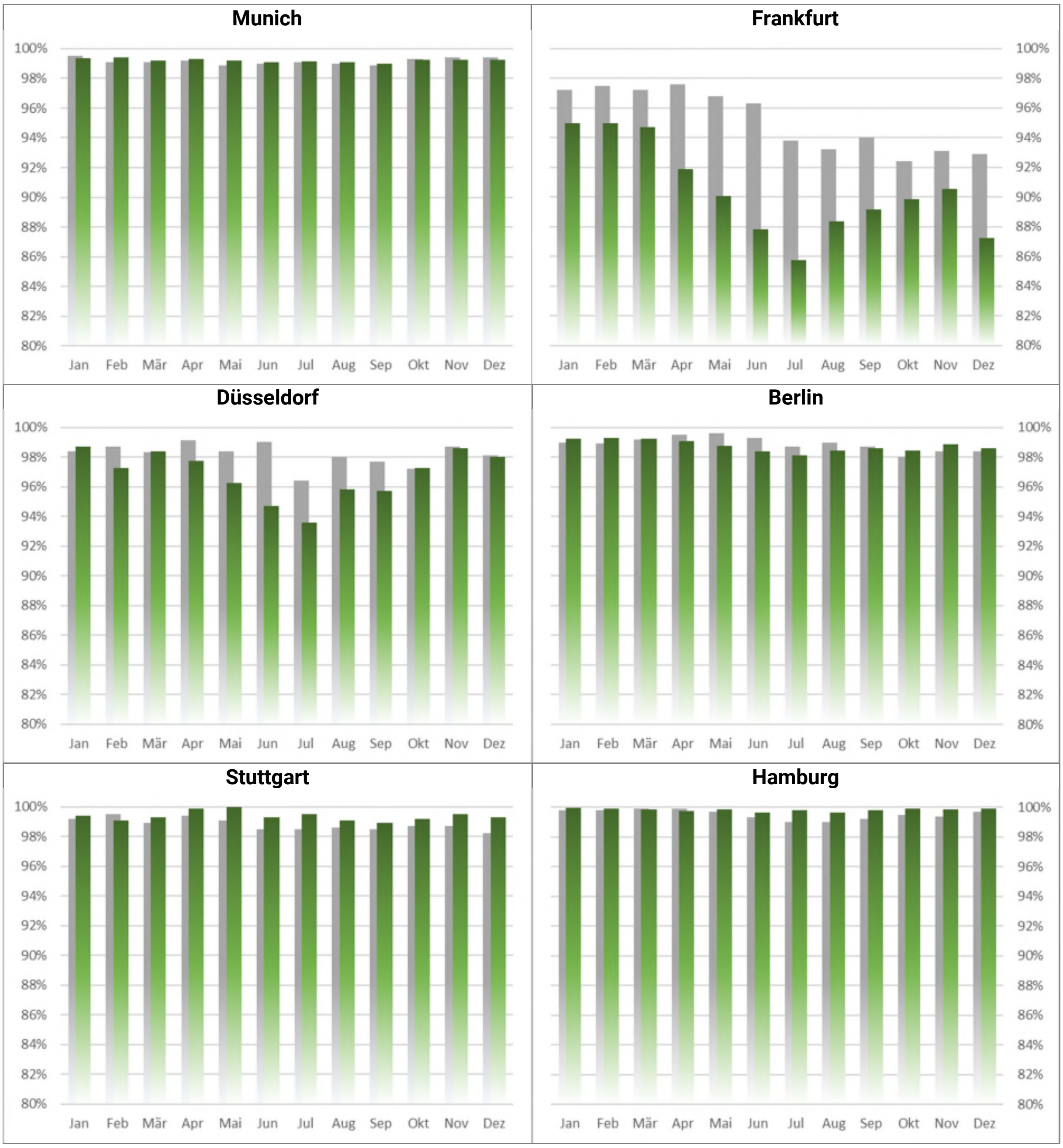


Fig. 16: Share of flights where no short-term position change was necessary, compared to previous year (grey)

Conclusion
At Frankfurt and Düsseldorf Airports, the effect of the disrupted turnaround processes also showed in Position Stability. Low TOBT Quality meant that gate-and-stand planners were unable to reliably assess when parking positions would be vacated so more arrivals had to be repositioned.

4.4 Network Management

4.4.1 ATFM Slot Adherence and Deviation

ATFM Slot Adherence

Description
Share of flights adhering or not adhering to Slot Tolerance Window prescribed by NM, in %

Goal
Measure procedure adherence of regulated flights. Nominally, ATOT should be within the Slot Tolerance Window (STW, usually CTOT -5/+10 min but may be extended in special conditions). Adjustment of the CTOT to the local TTOT within the A-CDM process improves ATFM slot adherence, pre-departure sequence and procedure adherence.
"Early" flights have an ATOT before STW begin, "late" flights have their ATOT after STW end.

Charts

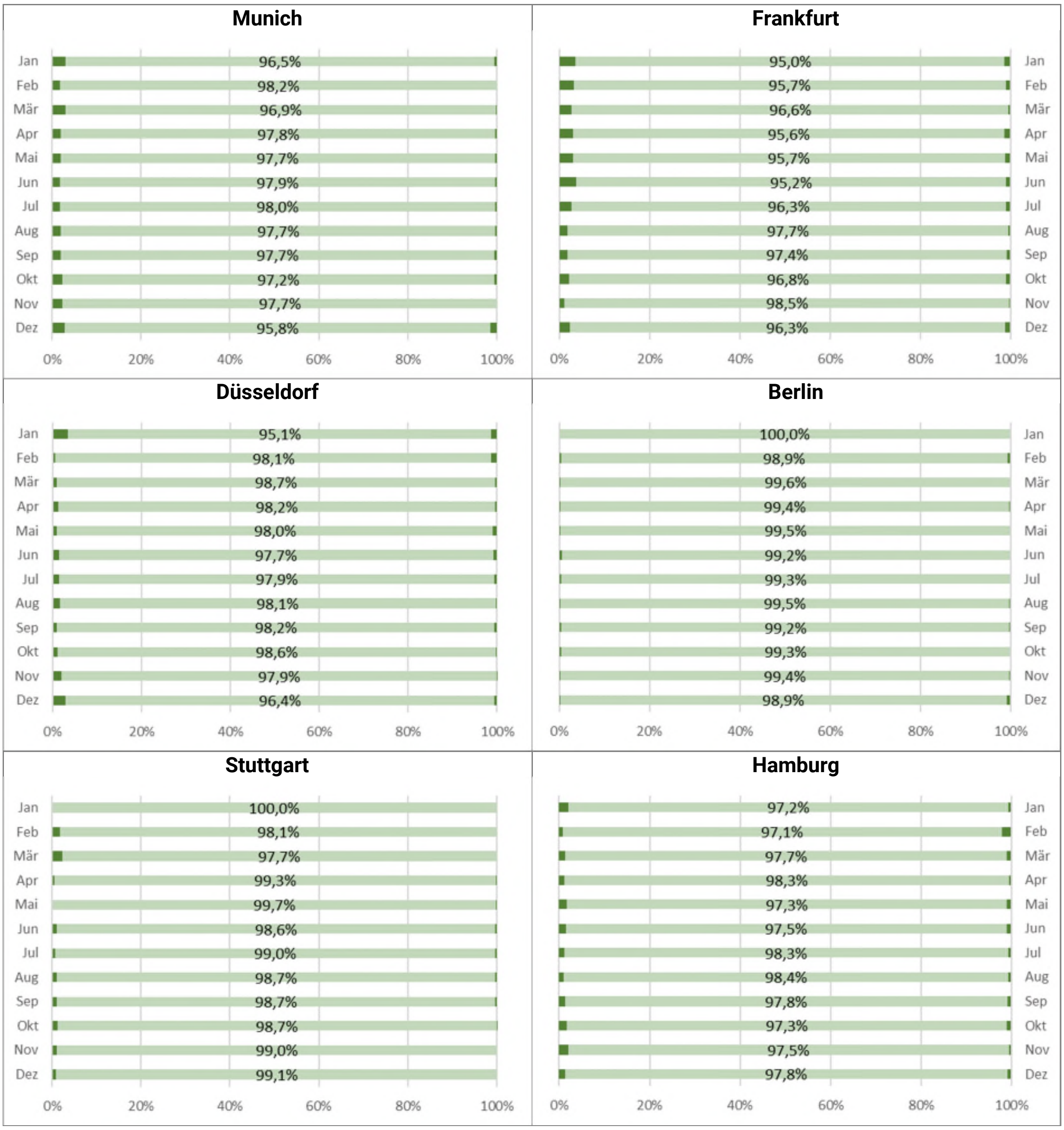


Fig. 1: Share of flights with ATOT before (dark green left), within (light green) and after (dark green right) STW

ATFM Slot Deviation

Description
Mean Deviation from the STW prescribed by NM, in minutes

Goal
Measure the level of slot deviations for regulated flights. This measurement counts only flights whose ATOT was outside of the Slot Tolerance Window and measures the time in minutes between ATOT and the nearest STW limit. “Early” flights have an ATOT before STW begin, “late” flights have their ATOT after STW end.

Charts

Fig. 2: Mean deviation in minutes of ATOT and STW for early (light green) and late (dark green) departures

Conclusion
Despite a higher share of regulated flights than in 2019, all airports achieved an even better ATFM Slot Adherence in 2022. Overall traffic demand was still lower than 2019, so this improvement was likely caused by fewer conflicts on taxi routes at the airports which might have made adherence to the ATFM slot more difficult operationally.

At Munich Airport data shows that during the winter months occasional difficulties arose in predicting de-icing times which caused some flights to depart after their respective slot tolerance windows.

Another significant observation is that during several months the average ATFM Slot Deviation for flights that departed too early is significantly higher than during previous years at the airports Berlin, Düsseldorf and Stuttgart. This deviation is caused by a low two-figure number of departures, each subject of considerable ATFM delay, where several late TOBT updates were observed. Measures intended to improve CTOTs, such as reporting the flights as ready to the Network Manager Operations Centre, proved ineffective. Especially at Berlin Airport available data for each flight indicates that those flights, likely already plagued by turnaround disruptions, received particularly lenient treatment during start-up and take-off long before CTOT in order to avoid further delays to them. These flights clearly show the significance of reliable TOBTs as basis for planning during periods of high airspace utilization.

4.4.2 CTOT Quality, Deviation and Stability

CTOT Quality

Description
Monthly percentage of IFR departures with CTOT = TTOT+≤5 min/+≤15 min/+>15 min at First CTOT, First TSAT Issue and AOBT

Goal
Measure suitability of network CTOT to the local A-CDM process over the progress of a turnaround

Charts

Fig. 3: Share of regulated IFR departures per month where CTOT is a maximum of 5 (dark green), 15 (green) or more than 15 minutes (light green) later than TTOT. First CTOT left, First TSAT Issue centre, AOBT right.

CTOT Deviation

Description
Mean monthly deviation CTOT-TTOT at First CTOT, First TSAT Issue and AOBT, in minutes

Goal
Measure suitability of network CTOT to the local A-CDM process over the progress of a turnaround

Charts

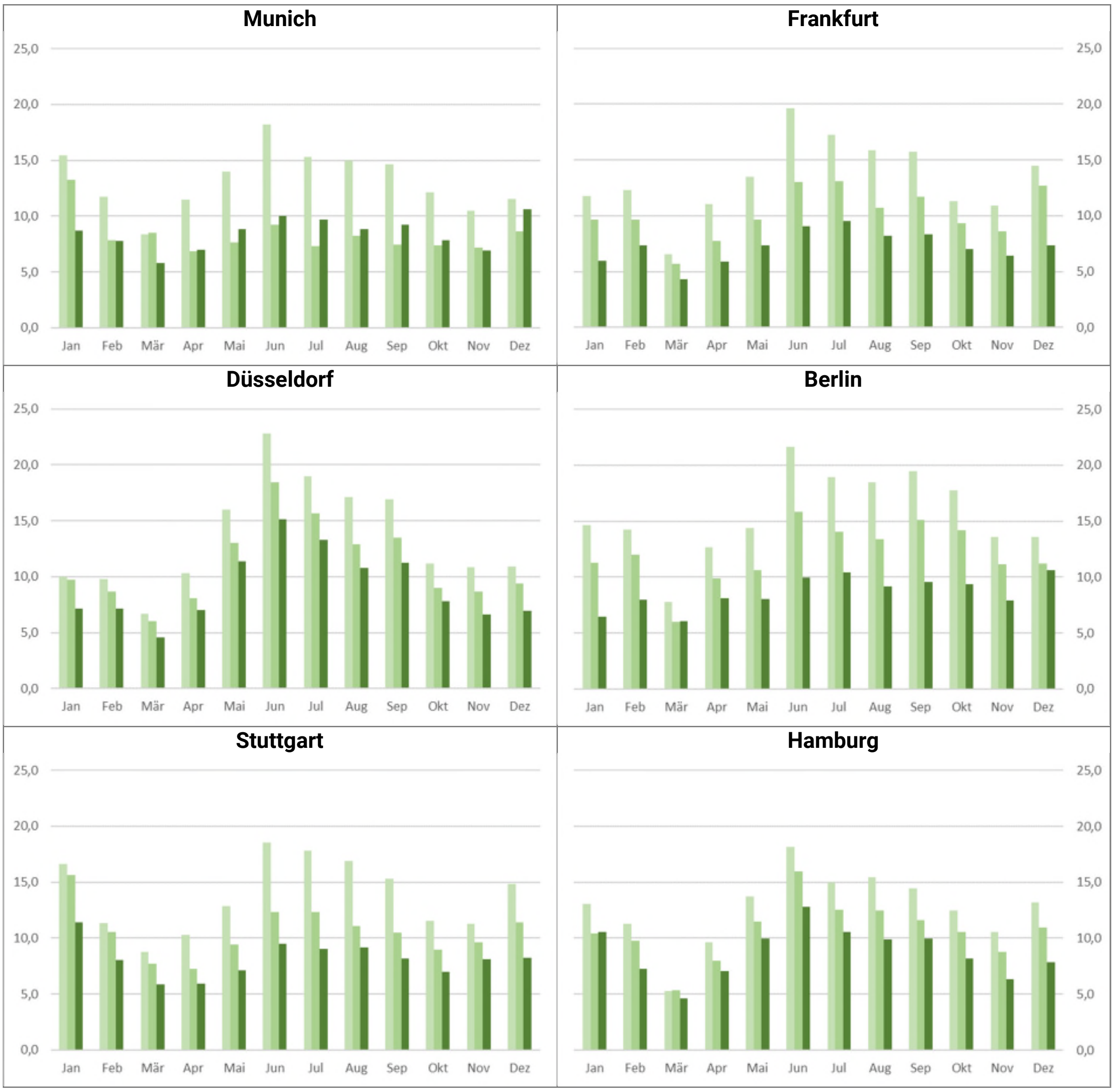


Fig. 4: Mean deviation CTOT-TTOT of regulated IFR departures 2021 at First CTOT (light green), First TSAT Issue (green) and AOBT (dark green)

CTOT Stability

Description
Number of CTOT updates per IFR departure with CTOT

Goal
Measure CTOT stability

Charts

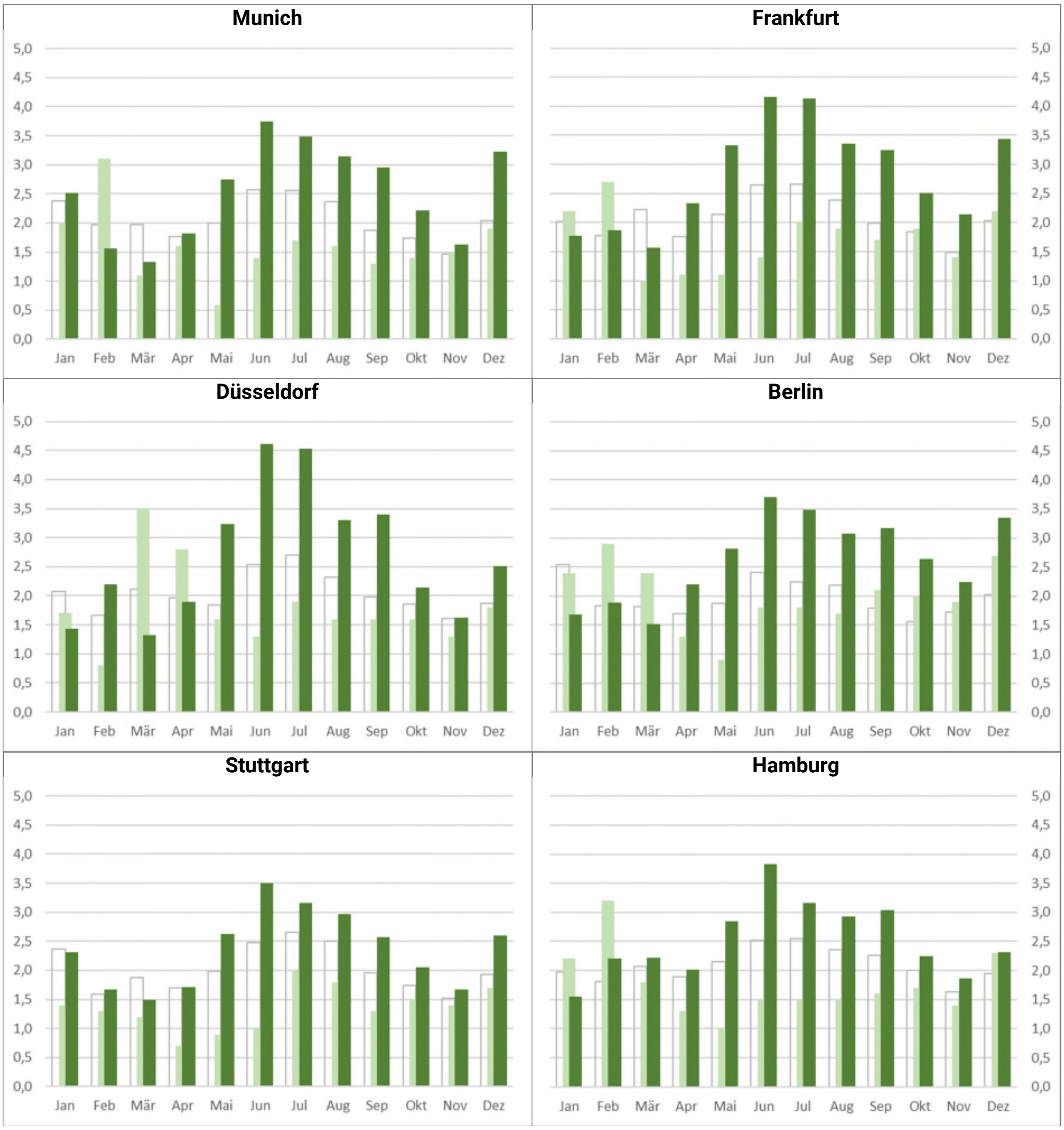


Fig. 5: Mean number of CTOT updates (without first CTOT) per flight and month, compared to previous year (light green) and 2019 (white)

Conclusion

The indicators CTOT Quality and Deviation show how well the network CTOTs fit to the earliest locally possible take-off times. It can be seen that over the course of the A-CDM process, the assigned CTOTs fit increasingly well to the local times. The first issued CTOTs usually translate into higher delay than later updates as the Network Manager's optimisation algorithm constantly attempts to find earlier CTOTs that fit better to the TOBT-based departure time. Early TOBT updates therefore raise the likelihood of lower ATFM delays.

Munich Airport data shows the effects of late TOBT updates. The respective regulations were unable to accommodate significant CTOT improvements in the short term, so the difference between CTOT and locally desired TTOT was larger again at AOBT than at First TSAT Issue.

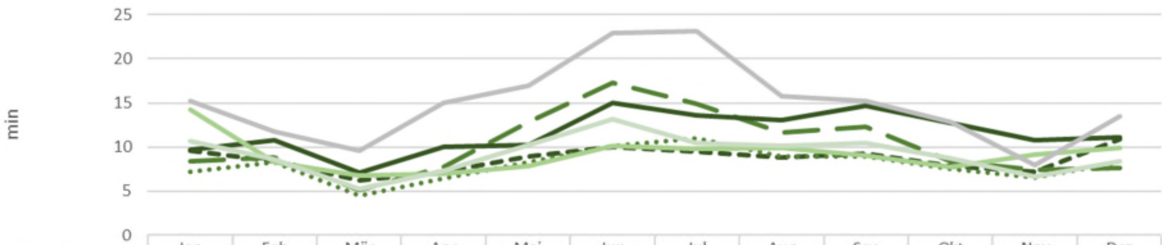
CTOT Stability indicates a clear increase in volatility during the summer months both compared to the previous year as well as 2019. Some flights received around 30 CTOT updates which severely hindered planning processes at the airport. This also had knock-on effects on unregulated departures as it became increasingly hard to predict when resources still bound to that aircraft until actual off-block would be available again for other turnarounds.

4.4.3 Average ATFM Delay

Description
Average ATFM delay per regulated departure, in minutes

Goal
Measure the average ATFM delay for regulated departures

Chart



	Jan	Feb	Mär	Apr	Mai	Jun	Jul	Aug	Sep	Okt	Nov	Dez
MUC	9,6	8,4	6,2	7,2	8,9	10,1	9,5	8,8	9,3	7,8	7,2	10,9
FRA	7,2	8,3	4,5	6,5	8,2	10,2	11,0	8,9	8,9	7,5	6,5	8,3
DUS	8,4	8,8	5,1	7,7	12,9	17,3	14,9	11,7	12,3	8,4	7,5	7,6
SXF/BER	9,7	10,8	7,1	10,1	10,2	14,9	13,6	13,1	14,7	12,7	10,7	11,1
STR	14,3	8,3	6,8	7,0	7,8	10,1	9,8	9,9	9,0	7,7	9,2	9,9
HAM	10,6	8,6	5,3	7,3	10,3	13,2	10,5	10,1	10,4	8,7	6,6	8,3
Non-CDM	15,2	11,8	9,5	15,0	17,0	22,9	23,1	15,8	15,3	12,9	7,9	13,5

Fig. 6: Average ATFM delay per airport in minutes

Conclusion
During the months with an overall higher share of regulated flights, all German Airport-CDM airports show a significantly lower ATFM delay per flight than non-CDM airports.

5 Outlook

At most airports, the year 2022 clearly showed that flight demand and available resources for its turnaround need to be well-balanced in order to reach a high quality of TOBT prognoses. The latter is essential for target time calculations as well as for planning and stability of all related processes.

What also became obvious was that network influences such as a large number of regulations and high CTOT volatility severely hindered the plannability of turnaround processes as well as early and accurate TOBT provision.

At some airports, these influences and interdependencies have managed to weaken the positive effect A-CDM is supposed to have on plannability and stability of airport processes.

Local reporting and performance monitoring of the A-CDM process have allowed to detect these circumstances early, thus enabling timely measures aimed at improving predictability of the turnaround process, e.g. fortification of resources, reductions in traffic demand or provision of additional information for TOBT handling. These were in support of achieving sufficient quality of TOBT and, thus, of A-CDM target times in general.

Traffic forecasts indicate that demand during peak times of 2023 will reach or even exceed pre-pandemic levels. The 2023 issue of this Annual KPI Report will therefore be able to highlight some indicators that give clues to how the implemented measures have affected process quality.

List of Abbreviations

	DESCRIPTION
ADIT	Actual De-Icing Time
AORT	Actual Off-Block Request Time
ASAT	Actual Start-Up Approval Time
ASRT	Actual Start-Up Request Time
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
ATOT	Actual Take-Off Time
CTOT	Calculated Take-Off Time
DCL	Datalink Clearance
EDIT	Estimated De-Icing Time
FPL	ATC Flight Plan
IFR	Instrument Flight Rules
NM	Network Manager
NMOC	Network Manager Operations Centre
SOBT	Scheduled Off-Block Time
STW	Slot Tolerance Window
TOBT	Target Off-Block Time
TSAT	Target Start-Up Approval Time

List of Sources

KAPITEL	KPI	QUELLE
4.1.1	Number of IFR Departures	NM ATFCM Monthly Summary per Airport
	Share A-CDM	DFS
4.1.2	Share of Regulated IFR Departures	NM ATFCM Monthly Summary per Airport
4.1.3	Share of IFR Departures Requiring De-Icing	Airports
4.2.1	ASAT Quality	Airports
4.2.2	AORT Quality	Airports
4.3.1	TTOT Quality	DFS
4.3.2	SOBT Quality	DFS
4.3.3	TOBT Prognosis and Timeliness	DFS
4.3.4	TSAT Quality, Deviation and Stability	DFS
4.3.5	EDIT Quality and Deviation	Airports
4.3.6	Position Stability	Airports
4.4.1	ATFM Slot Adherence and Deviation	NM ATFCM Monthly Slot Adherence, NM
4.4.2	CTOT Quality, Deviation and Stability	DFS
4.4.3	Mean ATFM Delay	NM ATFCM Monthly Summary per Airport