



Lufthansa
Innovation Hub

The Airline Digital Index (ADiX)

Benchmarking the digital performance and maturity of airlines



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1.0 Introduction



1.1 Who we are

The Lufthansa Innovation Hub

We are experts in the Travel & Mobility Tech sector. Why? Because we have skin in the game. The Lufthansa Innovation Hub is the leading digitalization unit of the Lufthansa Group and connects the world's largest airline group with the Travel & Mobility Tech ecosystem worldwide. Our mission is to create and capture value beyond flying. To do this, we invest in startups, initiate partnerships between Lufthansa and startups, and most importantly, incubate new digital services and products ourselves. In our work, we always follow the credo "data beats opinion". We want to act on facts rather than beliefs. That's why exploring the Travel & Mobility Tech ecosystem is the crucial foundation on which all of the Lufthansa Innovation Hub's activities are built on. To learn more, visit the [\[LIH website →\]](#) or stop by our [\[Linkedin page →\]](#).

Research & Intelligence

This report has been created by the Lufthansa Innovation Hub's Research & Intelligence team. With colleagues located in Berlin and Singapore, our Research & Intelligence unit continuously screens relevant developments and trends across startup hotspots worldwide. Our mission is to provide unconventional, data-driven market intelligence on the most relevant trends in Travel & Mobility Tech and reveal the driving forces behind the radical shifts affecting our industry. Our insights are regularly shared on our dedicated market intelligence platform: [\[travelandmobility.tech →\]](#)

Why sharing this report

Our core belief is that innovation can no longer be accomplished through siloed initiatives. Travel can only become truly seamless if we work together across the industry – startups, tech giants, traditional travel operators, infrastructure providers, and regulators alike. Hence, this report is meant for all who work at the forefront of digital innovation in the airline context. With the Airline Digital Index (ADiX), we aim at setting a new benchmarking stand-

ard for measuring digitalization in the airline industry.

We publish these results in an attempt to drive forward the development of the entire aviation industry towards a more digital future. As the world's largest aviation group, we interpret Lufthansa's role as pivotal in shaping industry-wide digital innovation to create a more seamless traveler journey. We strive to do this in an honest, objective and transparent manner, calling out digital weaknesses where we see them and awarding best practices to inspire all others (incl. Lufthansa's competitors). Therefore, we publish ADiX metrics whether our parent company scores high or low.

We want to initiate discussions and joint efforts amongst the most relevant players. We want to empower decision-makers to make informed business calls on how to improve the traveler experience through digital innovation.

That's why we welcome any critical perspectives on our content and appreciate suggestions for analyses that you think are missing in the current debate. Please reach out via: [\[hello@travelandmobility.tech →\]](mailto:hello@travelandmobility.tech)

For more insights on Travel & Mobility Tech, subscribe to our newsletter and get bi-weekly updates on all relevant trends and news in our sector. [\[Sign up here →\]](#).

About the authors

This report has been created by Oswin Krüger Ruiz (Junior Intelligence Analyst) and Lennart Dobravsky (Director Research & Intelligence) at the Lufthansa Innovation Hub.



1.2

At a Glance

The Airline Digital Index (ADiX) quantifies the degree of digitalization of 26 major airlines in Europe and the Americas. The methodology developed constitutes a new way of conducting digital benchmarking between organizations in the aviation sector and beyond. This report includes the approach and final scores, as well as deep dives into the individual metrics used.

Digitalization is broad and touches on most aspects of an organization. It has an impact on strategy and culture just as much as on product and IT infrastructure. It requires a shift in mindset alongside a structured approach to adopt technological opportunities. Our approach breaks this complexity and broadness into more manageable components.

At a high level, the ADiX approach is two-pronged. It considers the customer-facing side (Digital Output) as well as internal capabilities (Digital Input) relevant to digital success. Input covers the fields of Organization and Strategy; Output encompasses Product and Engagement. A total of 38 metrics are aggregated into an index, providing a final score of digital maturity for each airline. The data for all metrics was collected between 2017 and 2019 depending

on the variable (see Overview of Metrics on pages 12 and 13).

Airlines are large organizations with very well-established processes, given the importance of safety. Everything is repeatedly tested before it can be rolled out. This puts the airline industry in a different position than more experimental markets like e-commerce or media. Nevertheless, digitalization and automation offer huge potential in the airline sector, and not least of all for improving safety.

Tracking the progress towards unlocking the value in digitalization is challenging. We decided to develop the Airline Digital Index (ADiX) exactly because of this difficulty. The ADiX quantifiably measures digitalization amongst a selected group of airlines, providing some clarity and comparability regarding carriers' readiness to prepare for the digital future.

2.0 Methodology



2.1 Airline Selection

Airlines were selected based on geography, language, and relevance. The choice of the 26 major airlines was also grounded on size, measured via passenger numbers and fleet size. We narrowed down the complexity of the task by first focusing on airlines in Europe and the Americas only. Airlines from other regions of the world were not taken into account because of difficulties in keeping the metrics consistent, partly due to linguistic reasons.



**Air Lingus/Air Canada/
Air France/Alaska/
American Airlines/
Austrian Airlines/
British Airways/
Brussel Airlines/Delta/
EasyJet/Eurowings /
Iberia/JetBlue/KLM/
Latam/Lufthansa/
Norwegian/Ryanair/
SAS/Southwest/
Swiss/TAP Portugal/
Turkish Airlines/United/
Vueling/WizzAir**

Quantitative

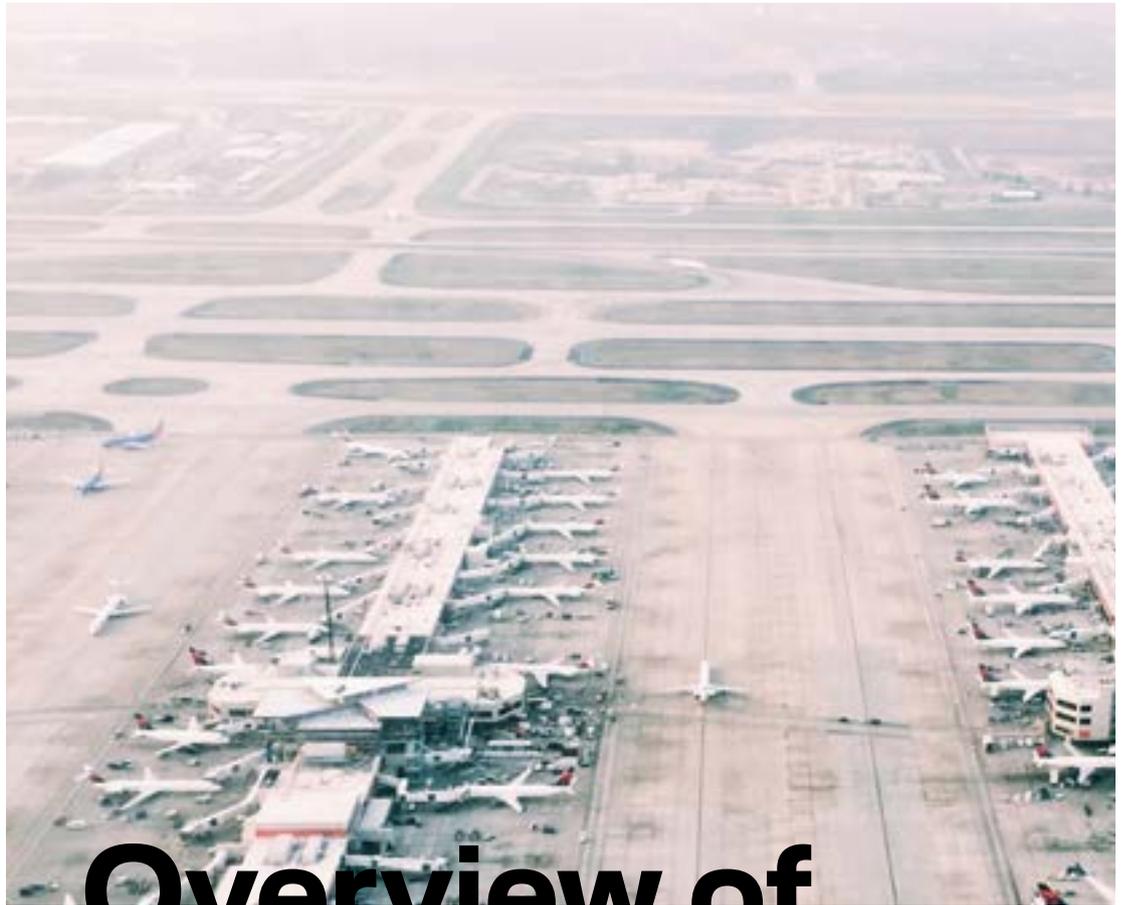
no qualitative variables

Insightful

indicative of digital maturity or digital capabilities

Accessible

data collectable across the chosen airlines



2.3

Overview of Metrics

Digital Organization

Category	Metric	Definition	Timeframe	Source
Digital Talent	Digital Workforce	Share of employees on LinkedIn working in IT / Digital	As of Jan 19	LinkedIn
	Digital Recruiting	Share of vacancies for IT / Digital	As of Dec 18	Company Website
	Digital Leadership Recruiting	Share of management vacancies for IT / Digital	As of Dec 18	Company Website
	Digital Management	Share of management or above on LinkedIn working in IT / Digital	As of Jan 19	LinkedIn
Asset Light	Asset Intensity (inverted)	Revenue / Fixed Assets (PPE)	2017/18	Pitchbook

Digital Strategy

Category	Metric	Definition	Timeframe	Source
Digital Equity Story	Digital Narrative	Share of media mentions with keywords “digital” or “innovation”	Average 2018	Quid
	Tech Media Mentions	Share of mentions in specialized tech media	Average 2018	Quid
	Digital Reporting	Number of mentions of “digital” in annual report	2017/18	Annual Reports
Digital Investing	Venture Capital	Number of VC investments in startups to date	As of Jan 19	LIH
	Digital /Tech Investing	Share of investments / M&A in tech companies	As of Dec 18	Pitchbook
Digital Initiatives	Digital Lab	Years since founding of external digital / innovation unit	As of Dec 18	LIH
	Digital R&D	Share of patents with digital keywords	As of Jan 19	Quid


Digital Product

Category	Metric	Definition	Timeframe	Source
App Usability	App Release Cycles	The average number of days between new mobile app updates on both iOS and Google Play	Average 18	App Annie
	App Rating	Average app rating on iOS and Google Play	As of Jan 19	App Annie
	App Reviews	Cumulative favorable app reviews	Average 2018	App Annie
	Usage Frequency	Average number of sessions per user	Average 2018	App Annie
	Session Length	Average session duration	Average 18	App Annie
Web Usability	Online Booking Ease	Clicks to book a domestic flight online up to checkout	As of Dec 18	LIH
	Online Check-in Ease	Clicks to check-in for a domestic flight	As of Dec 18	AirlineCheckins
	Screens to book a flight	Number of screens seen until booking process is complete	As of Jan 19	LIH
Web	Website Loading Speed	Desktop website loading speed	As of Feb 19	Google Lighthouse
Responsiveness	Mobile Website Speed	Mobile website loading speed	As of Feb 19	Google Lighthouse
Connectivity	In-flight WiFi connectivity	Share of fleet with WiFi installed / public commitment to install	As of Feb 19	LIH

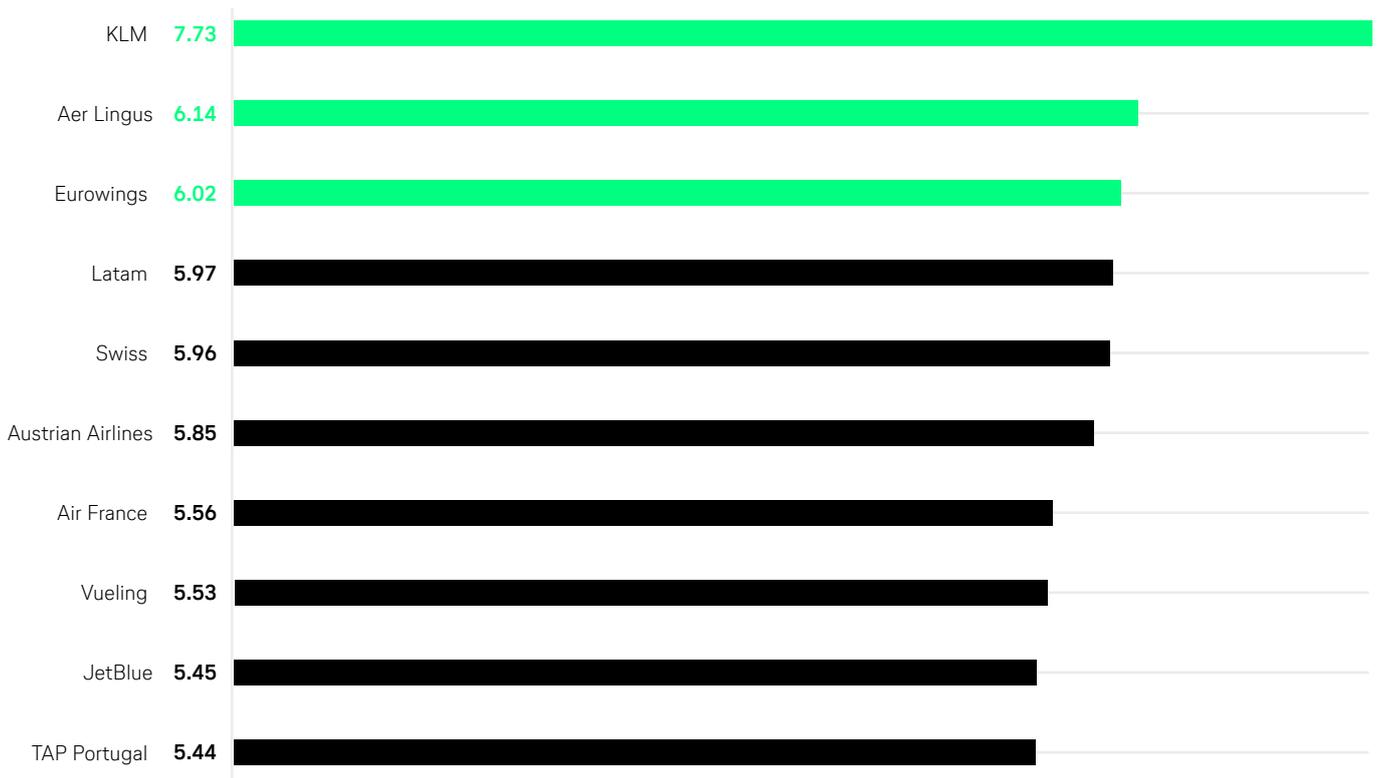

Digital Engagement

Category	Metric	Definition	Timeframe	Source
Mobile Engagement	App Adoption	App downloads / 1000 passengers	Average 2018	App Annie
	App Usage	Avg. monthly active users / 1000 passengers	Average 2018	App Annie
	App Stickiness	Daily active users / monthly active users	Average 2018	App Annie
	Open Rate	Share of install base that opened the app in 2018	Average 2018	App Annie
SEO	Local Web Visibility	Sistrix Sichtbarkeitsindex (Home Market)	As of Jan 19	Sistrix
	Global Web Visibility	Sistrix Sichtbarkeitsindex (Global Avg)	As of Jan 19	Sistrix
	Local Keyword Visibility	Keywords for which domain appears in top-10 results local	As of Jan 19	Sistrix
	Global Keyword Visibility	Keywords for which domain appears in top-10 results global	As of Jan 19	Sistrix
Web Engagement	Bounce Rate	Bounce Rate Inverted	Nov-Jan 19	SimilarWeb
	Web Adoption	Average monthly traffic / passengers	Nov-Jan 19	SimilarWeb
Social Media	Facebook	FB likes / 1000 passengers	As of Dec 18	Facebook
	LinkedIn	LinkedIn followers / 1000 passengers	As of Dec 18	LinkedIn
	Instagram	Instagram followers / 1000 passengers	As of Dec 18	Instagram
	Twitter	Twitter followers / 1000 passengers	As of Dec 18	Twitter
	Social Media Traffic	Share of website traffic from social media (FB, Youtube, etc.)	Nov-Jan 19	SimilarWeb

3.2 Digital Workforce



Top 10 airlines with the most Digital Workforce
Share of workforce on LinkedIn with digital / IT related job titles in %



Source: Lufthansa Innovation Hub, LinkedIn

Definition

Share of employees (on LinkedIn) that work in either technology or digital-related fields.

Interpretation

We identified tech-focused employees by screening all available LinkedIn profiles of the major 26 Western airlines and checking for a large number of keywords relating to IT and digital (i.e. online, UX/UI, data, etc.) to find the share of those with tech-related jobs.

We would like to congratulate KLM, Aer Lingus and Eurowings for being leaders in employing the most digital talent throughout their organizations.

Digital employees as a signal of digitalization?

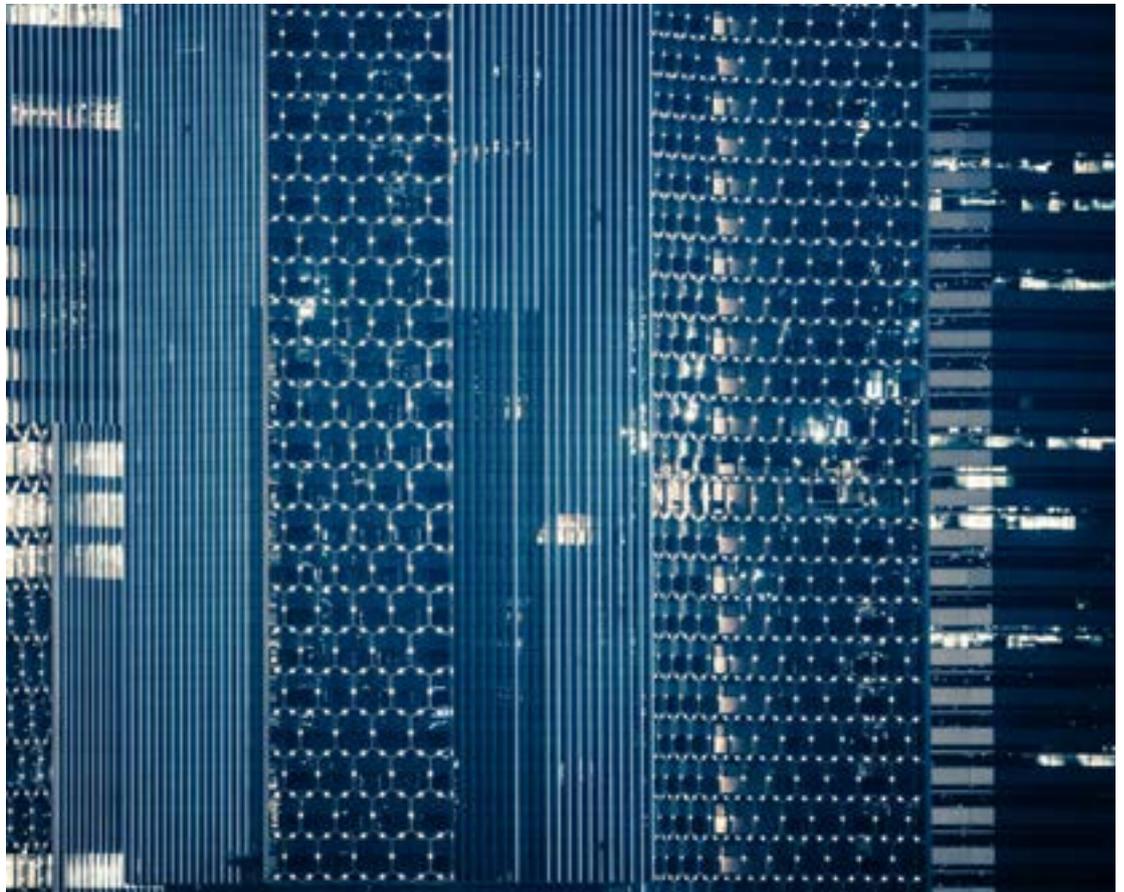
Having a large share of tech and digital employees can be taken as a strong signal that an airline has numerous digital projects in place which require the deployment of this talent. As employing tech people is expensive, we can infer that airlines are getting value out of their digital talent and, by proxy, out of their digital initiatives.

Being able to attract and keep this digital talent is equally important. This indicates that the respective airline is offering the right environment to satisfy its tech people (culture, IT infrastructure, challenging mission, etc.) and laying the foundation for driving digital innovation forward in the long run. A counter-argument could be that many organizations work

heavily with external IT providers, meaning their share of employees in digital/IT is low despite many projects being deployed. Yet, working with external providers still requires in-house digital talent to select, manage, and successfully complete the right projects. Furthermore, deciding to bring more tech talent in-house implies that companies consider digital innovation a core capability that needs to be leveraged with full control.

Disclaimer

This metric is limited by the fact that it only looks at the workforce registered on LinkedIn, a platform that does not hold complete information about all employees of a given organization. Furthermore, LinkedIn's popularity might differ across countries which we didn't incorporate in our estimations.



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