



Celonis Workshop

*Turning Data into Value -
Intelligent Process Analytics and Actions*

Anh Ngo
Academic Alliance Manager

FAU Nürnberg
10 November 2021

Video conferencing **Netiquette**



Please **turn on** your cameras for a more personal atmosphere! 😊



Please keep your audio **muted** as general setting!



If you have questions you can **raise your hand** and unmute when the moderator asks you to. You can also pose questions in the **chat** anytime.



You will receive **all slides** afterwards.

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Ngoc Anh Ngo

**Academic Alliance Manager, APAC
Lead
Celonis**
n.ngo@celonis.com

Hi, we're Celonis.

We turn processes into
**extraordinary experiences for
everyone.**

We're pioneers in **Process Mining** and have created a new Ai-driven, enterprise-grade, and cloud-based software category: **The Execution Management System**.

We are a **software decacorn**
with a company valuation of

11B+ US\$

100+%

growth YoY

2,000+

enterprise deployments

\$150M+

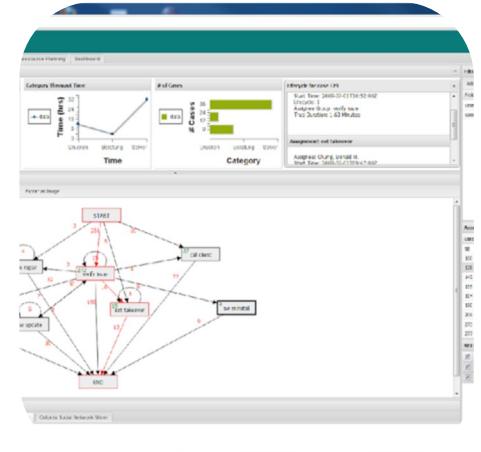
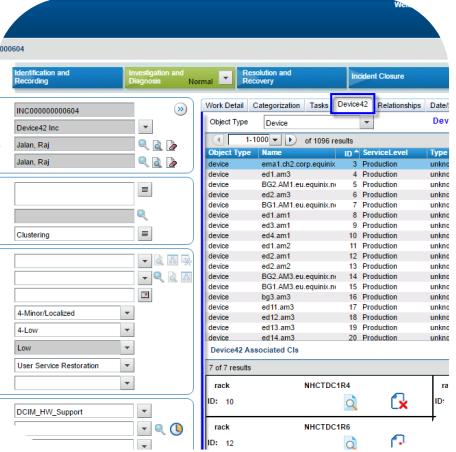
in ARR

1,500+

employees

How it started...

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The Customer

IT Help Desk of
Bayerischer
Rundfunk

The Problem

Slow and
inefficient
processes

The Team

Three student
consultants from
Academy Consult e.V.

The Solution

The first enterprise
software for Process
Mining

Cross-Industry Customer Base

Manufacturing

3M ABB

AO Smith BOSCH

DANAHER Georgia-Pacific

Honeywell MAHLE

molex® SIEMENS

High Tech

CISCO

APPLIED MATERIALS

DELL INGRAM paloalto

SAP servicenow.

Uber

Telco

Deutsche Telekom

américa móvil

COMCAST swisscom

vodafone

Consumer, Retail, Wholesale

ABInBev

The Coca-Cola Company

Heineken Keurig Dr Pepper Kimberly-Clark

Johnson-Johnson L'ORÉAL

MARS MediaMarktSaturn

Unilever Whirlpool

Pharma & Chemicals

AstraZeneca gsk

Chemours

FRESENIUS AkzoNobel

DOW AMGEN

NOVARTIS Roche

ThermoFisher SCIENTIFIC

Financial Services & Insurance

Aflac.

ABN-AMRO

apg Citi THE HARTFORD

ING UniCredit

USAA

Oil, Gas, & Energy

bp

CHART

DTE GAZPROM

Lubrizol MURPHY OIL CORPORATION

Schlumberger

Aerospace & Defense

AIRBUS

BAE SYSTEMS

NAVY

LOCKHEED MARTIN

Lufthansa

United Technologies

Celonis Partner Landscape



1,500+

Consultancies registered on the
Celonis Digital Consulting Platform

50k+

Celonis certified professional

500+

Partner universities



Chapter 1

The Digital Process World

Chapter 2

The Process Challenge

Chapter 3

Technology Overview

Chapter 4

Live Demo & Exercises

Chapter 5

Questions & Answers



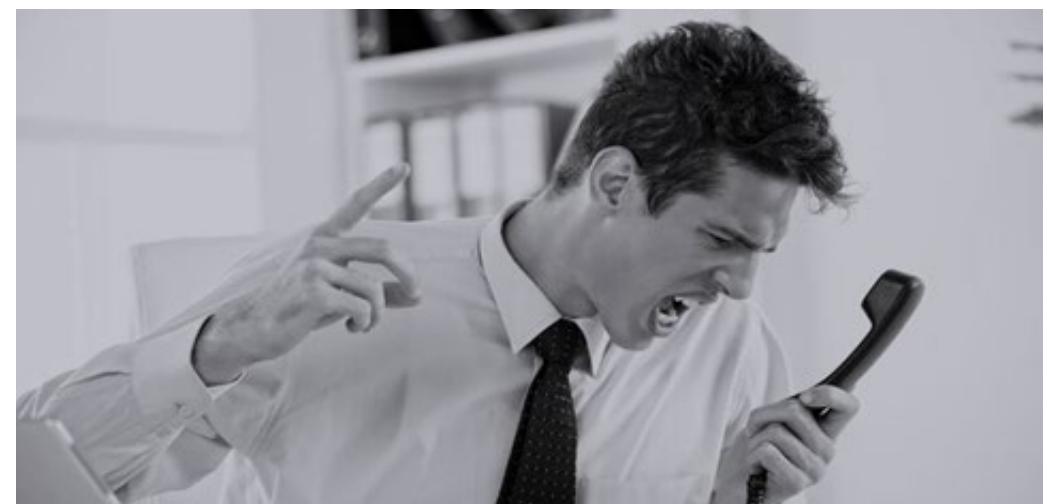
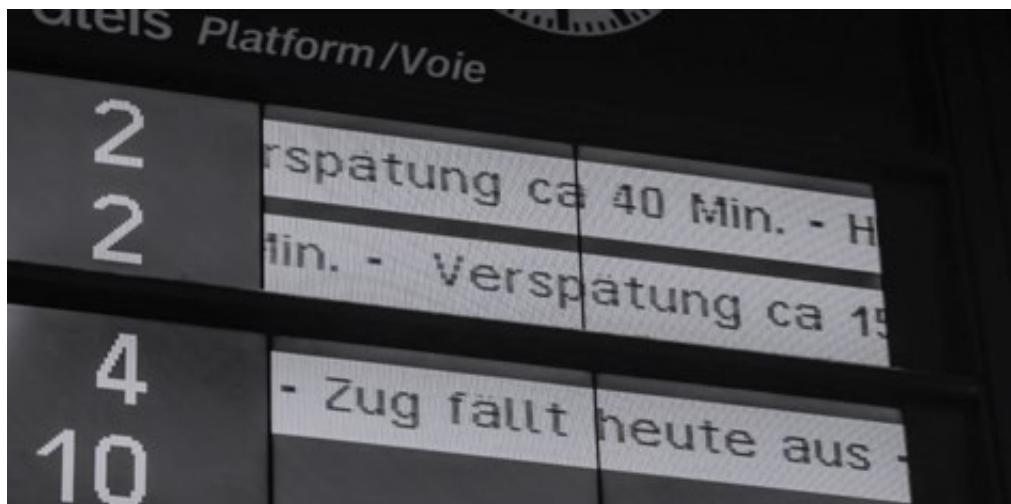
Chapter 1.

The Digital Process World

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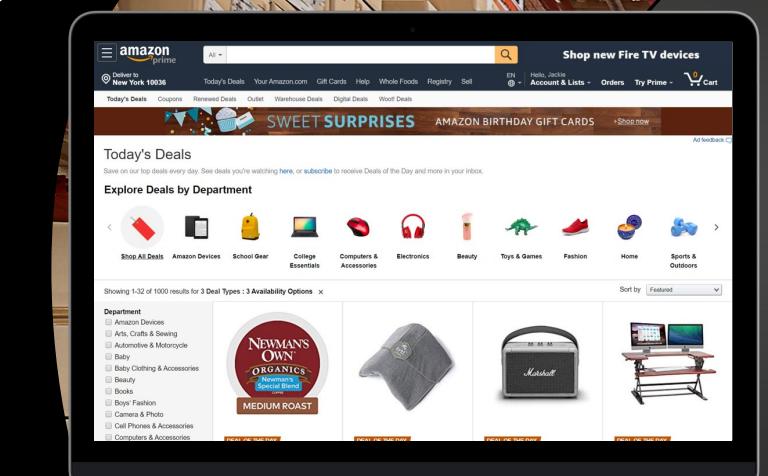
What was your worst customer experience in the last month?

Processes are the **engine** behind every customer experience.



Process Excellence

is crucial for successful businesses



"The world is filled with product companies...
Amazon is a process company."

The New Yorker
"Is Amazon Unstoppable?"
October 10, 2019



Chapter 2.

The Process Challenge

Companies spend billions on enterprise software to digitize processes ...

508

**enterprise applications
on average per company**

\$431B

**total spend on enterprise
software globally**

2/3

**of CEOs say digital
strategy is a top priority**

Mainframe

PC

ERP/CRM/Core

LoB Apps

Cloud /Mobile Apps



'70s



'80s



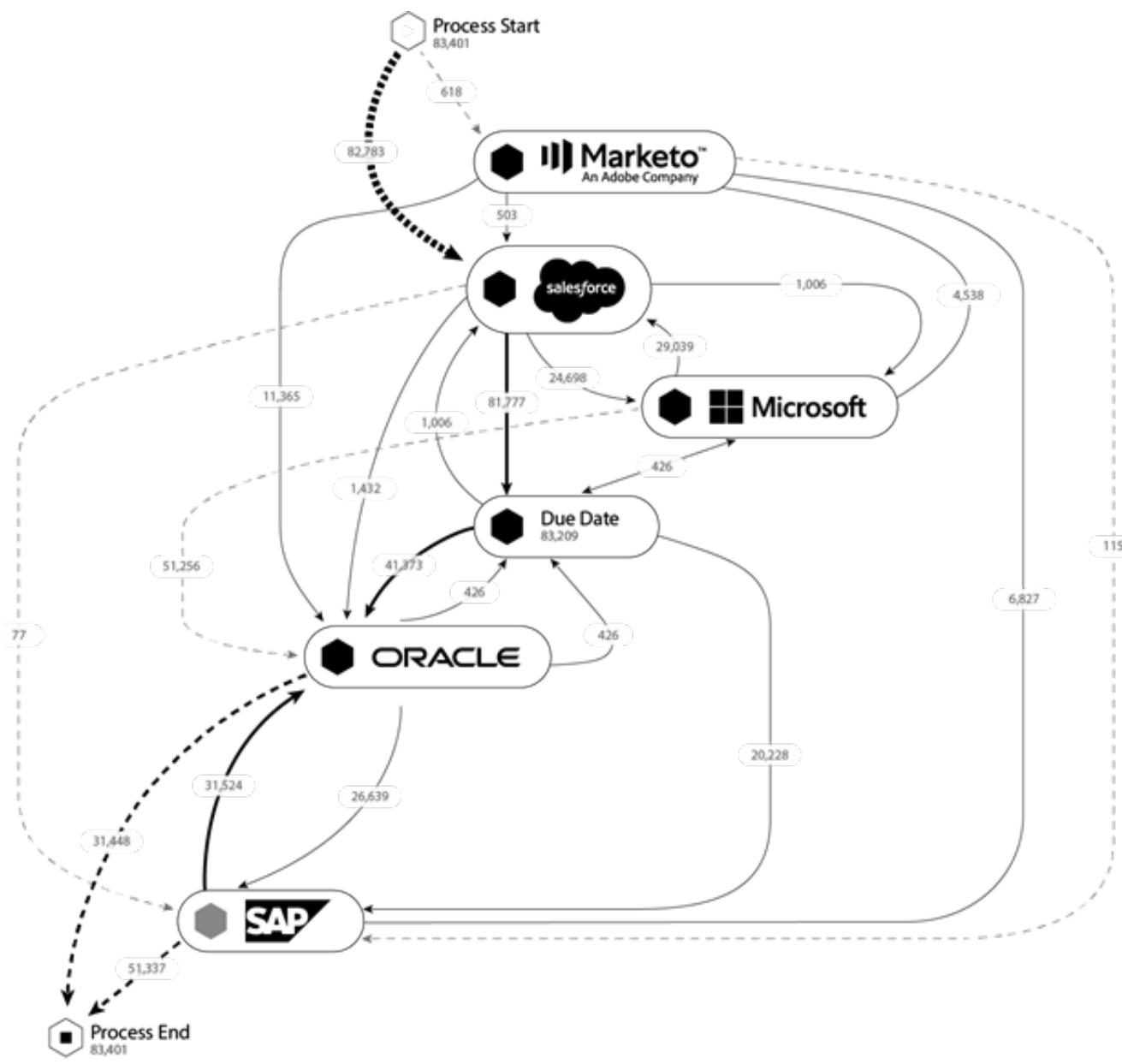
'90s



'00s



'10s



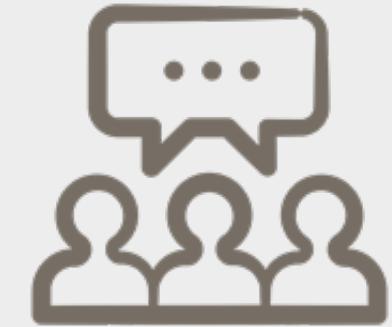
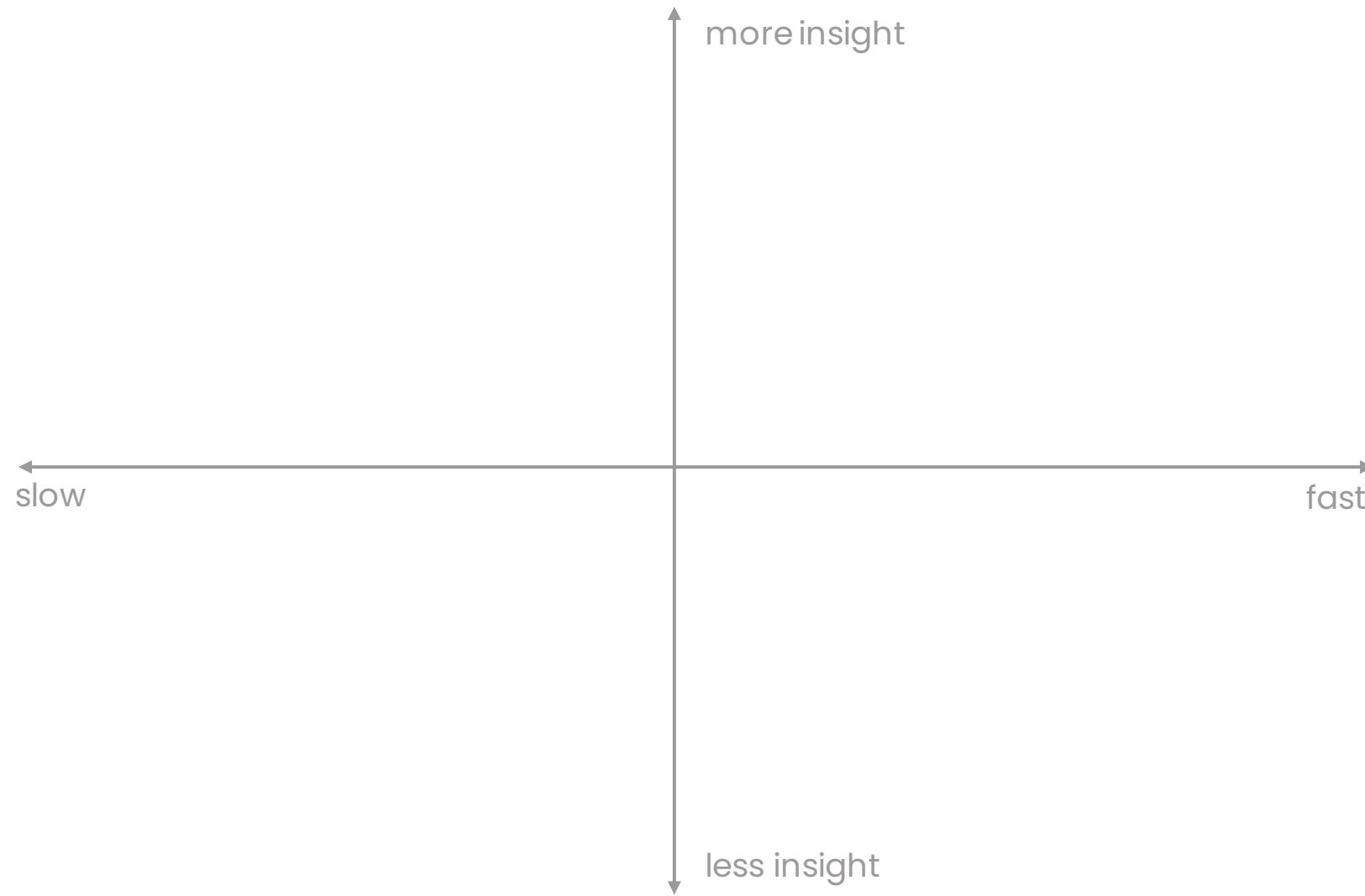
Processes are forced to run across a rigid and fragmented technology landscape

resulting in execution gaps

Execution gap = Gap between a company's aspiration - their goals and business objectives - and what they can actually achieve in reality.

HOW DO YOU GET INSIGHTS INTO BUSINESS PROCESSES?

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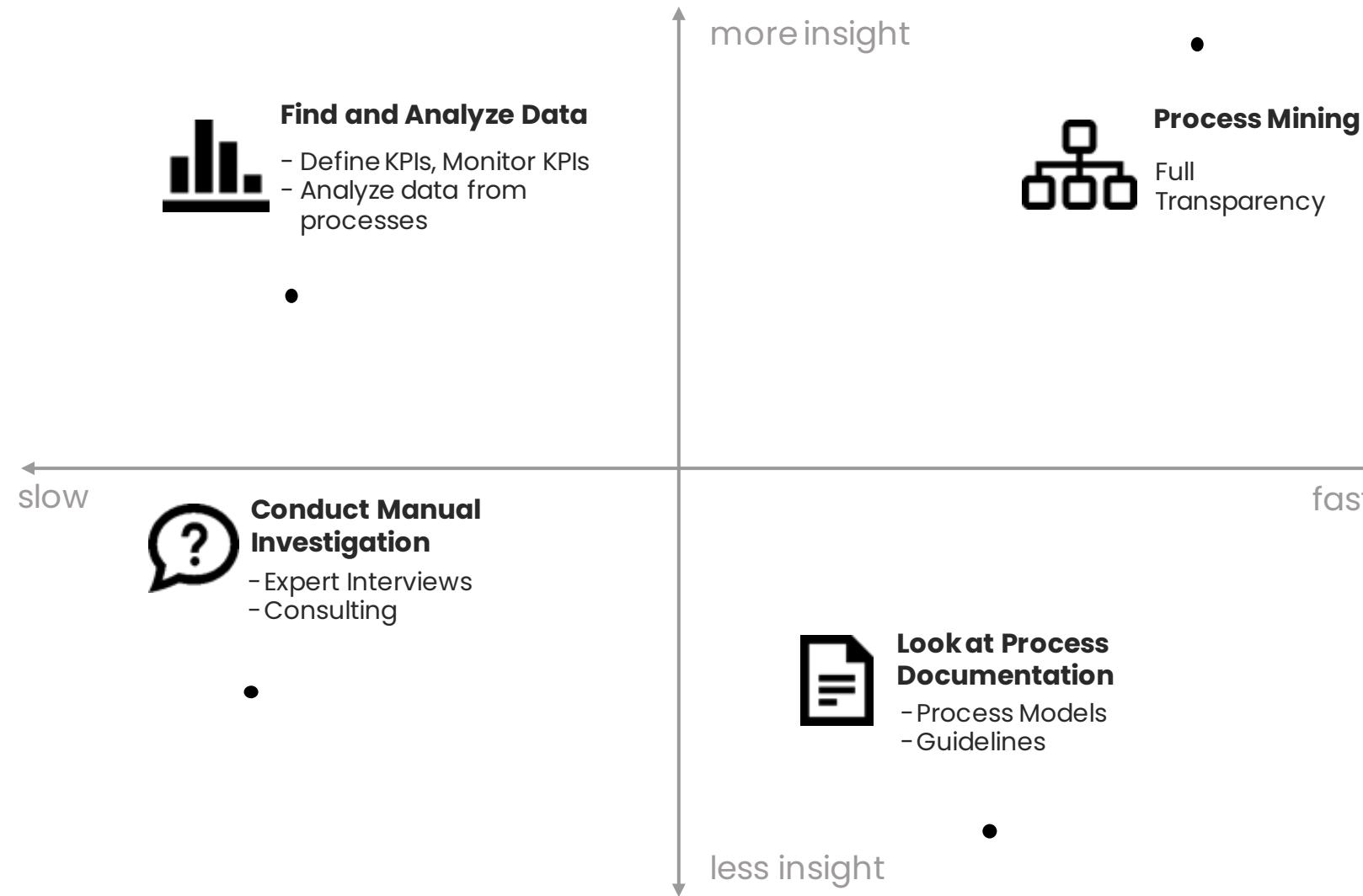
HOW DO YOU GET INSIGHTS INTO BUSINESS PROCESSES?

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HOW DO YOU GET INSIGHTS INTO BUSINESS PROCESSES?

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**Time for a change:
Switch on the lights!**

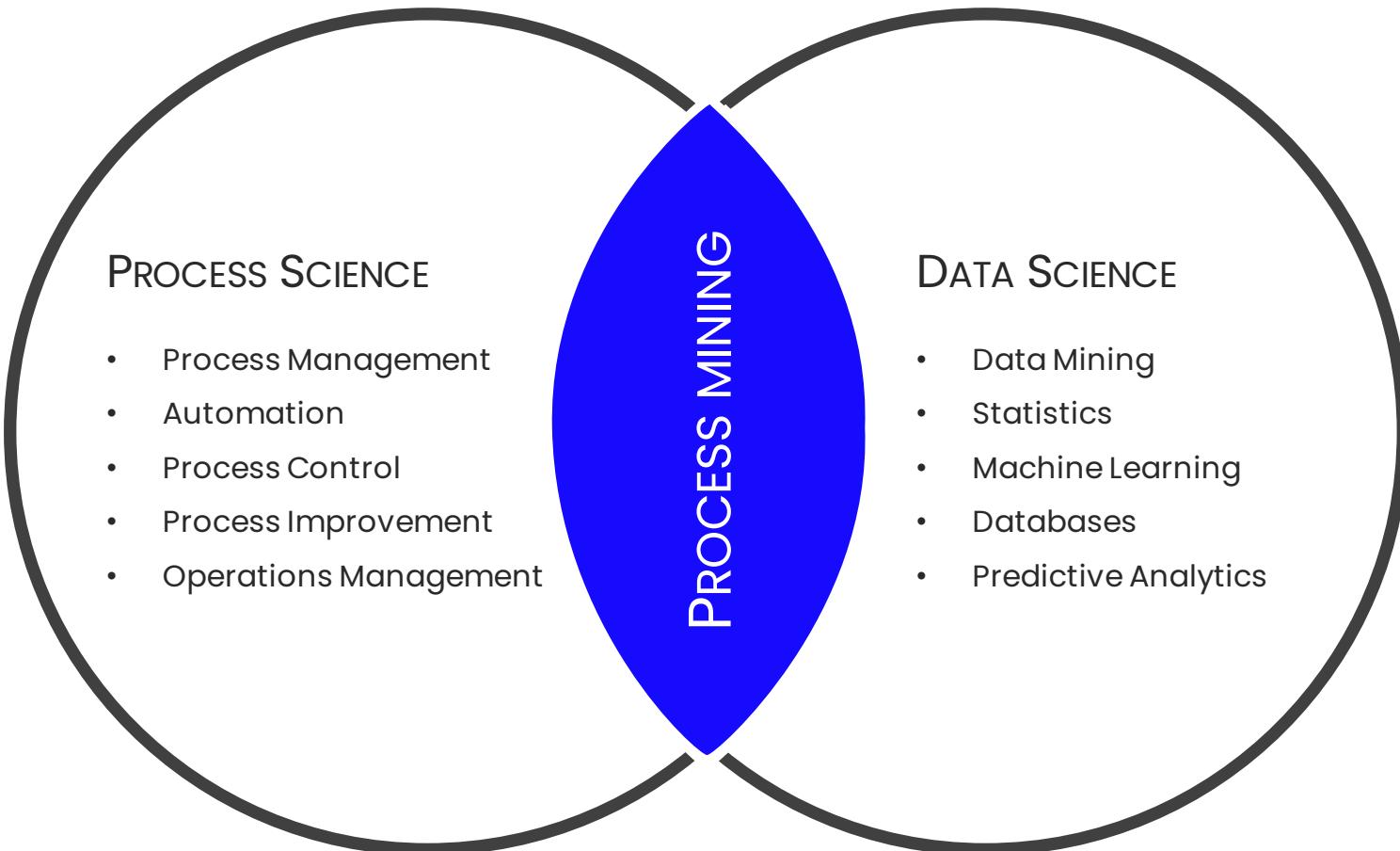




Chapter 3.

Technology Overview

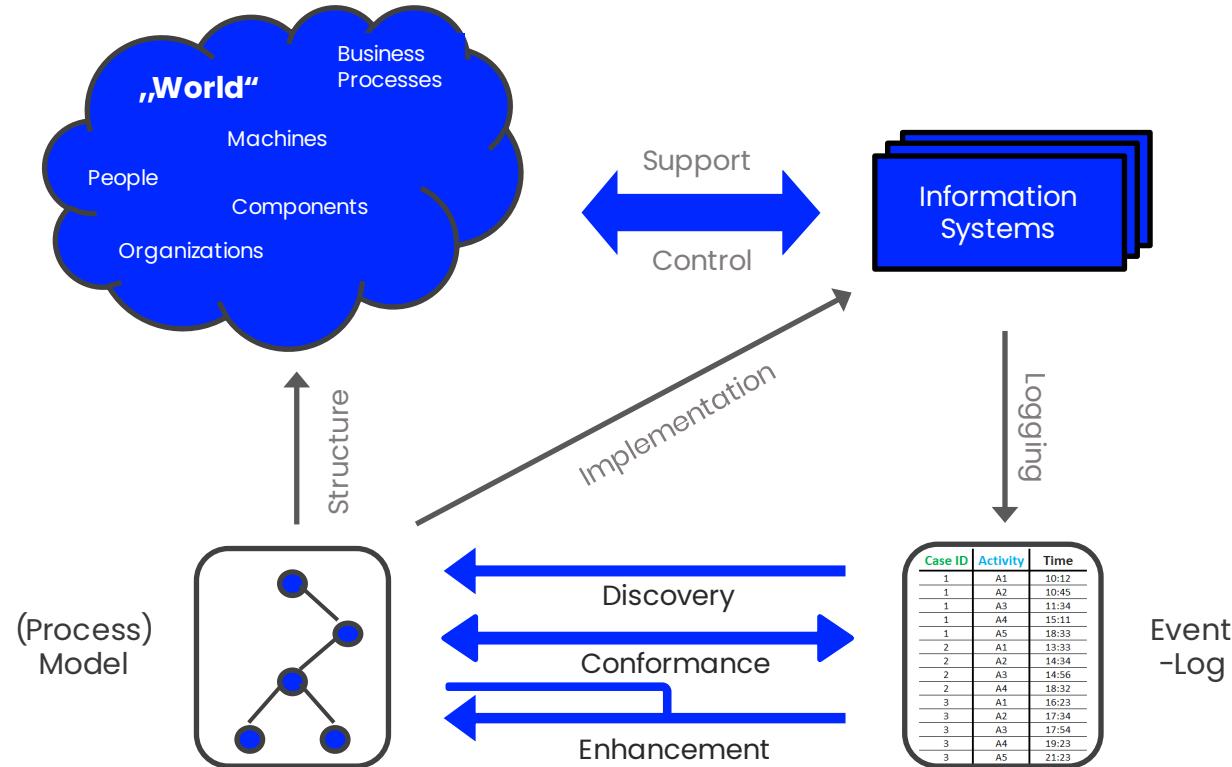
What is Process Mining?



Source: Based on van der Aalst (2016)

Research classification: Process mining lies at the intersection between **process science** and **data science**, bridging the gap between model-based process analytics and data-centered analytics.

Process Mining Technology



Process Mining is a data analytics technology to **reconstruct, analyze, and improve** business processes based on **log data** from transactional IT systems like SAP, Oracle, Salesforce, etc.

Event Logs

Event

Order No.	Activity	Time	User	Quantity
10001	Create purchase order	01-01-2009, 8:35 am	Sara Jones	1
10001	Print and send purchase order	03-01-2009, 12:13 am	Sara Jones	1
10001	Goods receipt	07-01-2009, 07:01 am	Pete Scott	1
10001	Scan invoice	09-01-2009, 2:00 pm	Sara Jones	1
10001	Book invoice	10-01-2009, 10:30 am	Carol Hope	1
10002	Create purchase requisition	02-02-2009, 1:17 pm	John Farmer	15
10002	Create purchase order	04-02-2009, 9:15 am	Sara Jones	15
10002	Print and send purchase order	07-02-2009, 4:41 pm	Sara Jones	15
10002	Goods receipt	27-02-2009, 6:53 am	Frank Miller	15
10002	Scan invoice	28-02-2009, 1:00 pm	Sara Jones	15
10002	Book invoice	13-03-2009, 11:59 am	Carol Hope	15
10003	Scan invoice	13-04-2009, 10:00 am	Sara Jones	23
10003	Create purchase order	17-04-2009, 3:47 pm	Sara Jones	23
10003	Print and send purchase order	17-04-2009, 5:30 pm	Carol Jope	23
10003	Goods receipt	27-04-2009, 4:23 pm	Pete Scott	23
10003	Book invoice	30-04-2009, 8:50 am	Sara Jones	23
...

Trace



Case ID Indicates which process instance the event belongs to. A case usually consists of multiple events.

Activity Describes the action that is captured by the event.

Timestamp Indicates the time when the event took place.

Trace A sequence of events, ordered by their timestamps, that belong to the same case.

Variant The traces of all the different cases with the same activity sequence.

Based on van der Aalst (2016)

An event log stores the data that is required for Process Mining. **At the minimum**, the event log covers **three columns**: case ID, activity name, timestamp. There may be other optional columns.



Chapter 4.

Demo & Exercises

Start right away!

Access Celonis in three steps

1. Register for free with your academic e-mail address.
2. Open the invitation e-mail and click the link.
3. Access your personal team and start exploring!



Execution Apps

Real Time
Data Ingestion

Process &
Task Mining

Planning &
Simulation

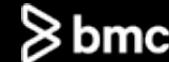
Visual & Daily
Management

Action
Flows

Celonis Execution
Management Platform



ORACLE®



snowflake®

servicenow

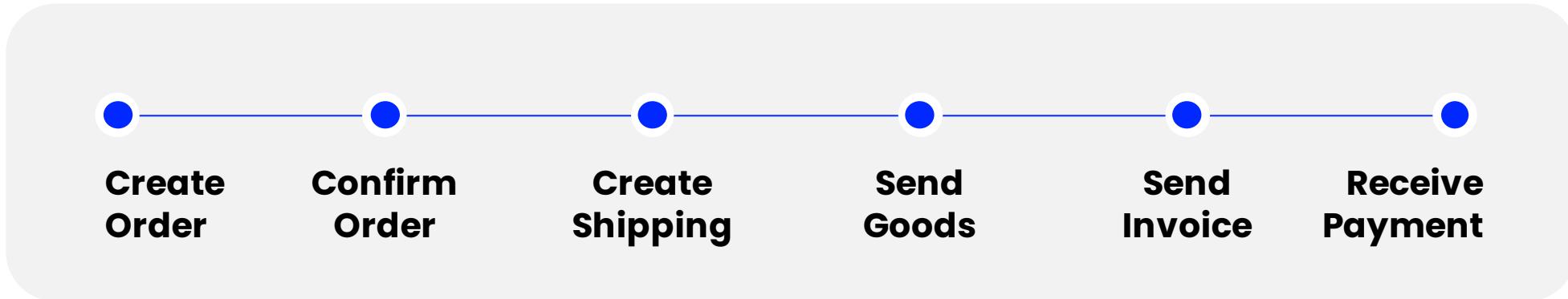


G Suite

Execution Management

Demo Process: Order-to-Cash

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Business Objectives	Revenue Increase	Working Capital Optimization	Labor Productivity	Customer Satisfaction	Risk Mitigation
Business Objectives	Revenue Increase	Working Capital Optimization	Labor Productivity	Customer Satisfaction	Risk Mitigation
Key Metrics	Conversion rate Rejection rate Return rate	Days Payable Outstanding	Cost per SO First-Time Right	OTIF Rate	# SoD Violations % Expired Contracts % Invoices with Errors

1. ANALYSIS OF PROCESS FLOW IN THE VARIANT EXPLORER

C

Please open the O2C process and navigate to the “**Process**” sheet. In this step, you will learn how to interpret the process graph and how to identify inefficiencies and bottlenecks. Please note that one or multiple answers might be correct.

YOUR TASKS

1. How many sales order (SO) items follow the second process variant?
 - a. 65,375
 - b. 156,792
 - c. 168,038
 - d. 418,778

2. What's the overall average throughput time (in days) for the happy path from process start to end?
 - a. 16
 - b. 11,8
 - c. 19
 - d. 36,6

3. Display the first 17 variants in the variant explorer. How does the 17th most common variant look like (use process animation)?
 - a. The route is changed.
 - b. The confirmed delivery date is changed.
 - c. The credit check is approved.
 - d. The order is cancelled and afterwards, a delivery document is created.

1. ANALYSIS OF PROCESS FLOW IN THE VARIANT EXPLORER - SOLUTIONS

C

Please open the O2C process and navigate to the “**Process**” sheet. In this step, you will learn how to interpret the process graph and how to identify inefficiencies and bottlenecks. Please note that one or multiple answers might be correct.

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PM in Application

Customer Examples

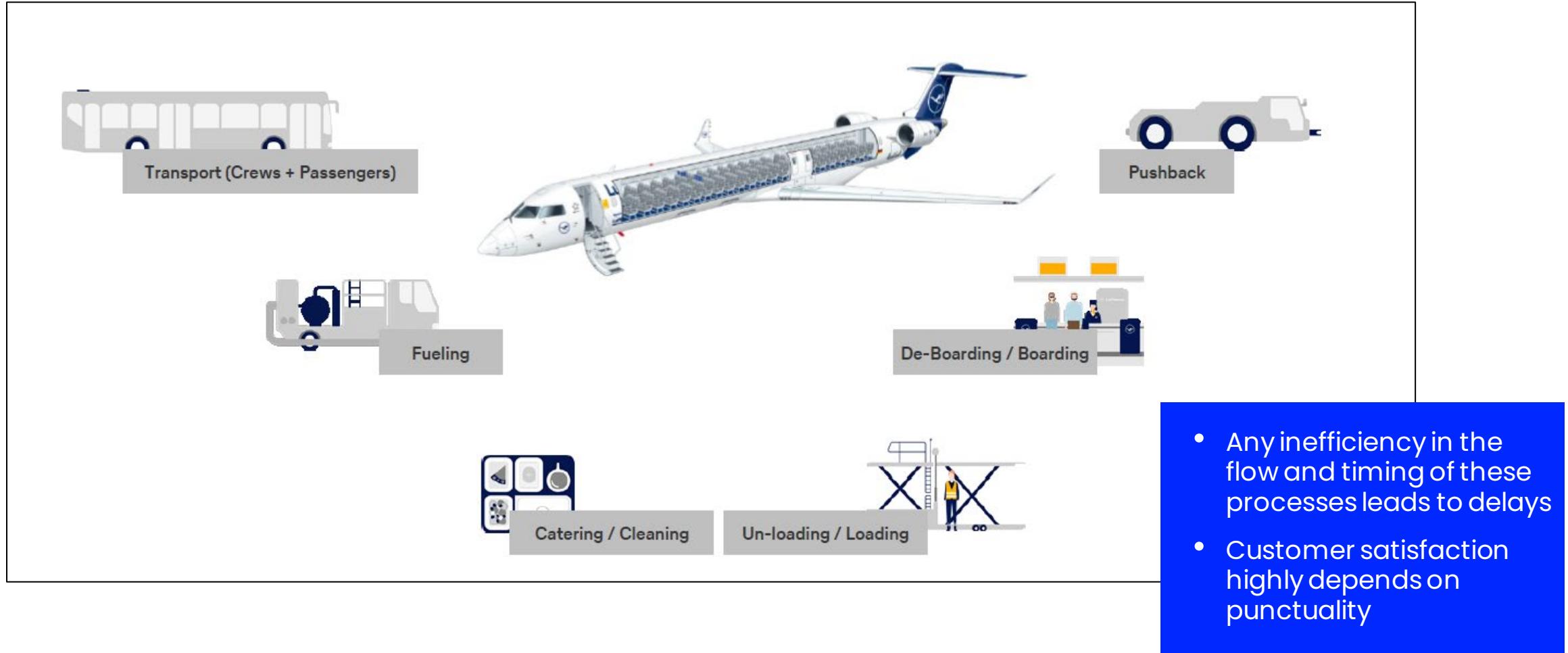


Lufthansa CityLine

- Full subsidiary of Lufthansa AG
- Flights to European capitals and regional cities
- HUBs at Munich and Frankfurt Airport
- 8 million passengers per year

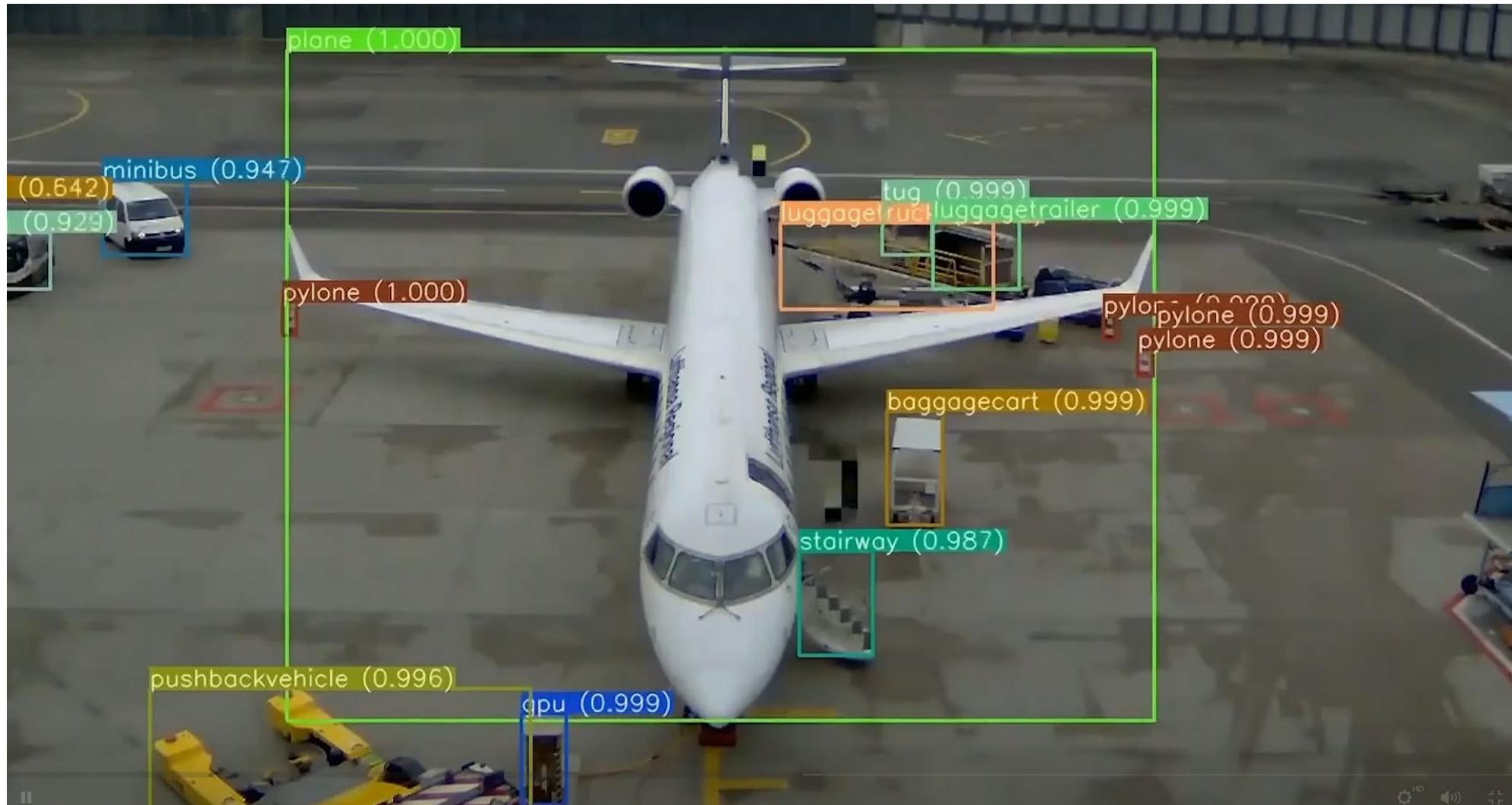
Ground Operations @ Lufthansa CityLine

c



AI-Activity Tracking @ Lufthansa CityLine

C



Process Mining @ Lufthansa CityLine

C

The image shows the Celonis Process Mining interface, specifically the Ground Operations Process for HUBs MUC and FRA.

Process Flow:

- Start loading (21,941) → First Boarding Bus arriving at Gate (14,846) (3 minutes)
- First Boarding Bus arriving at Gate (14,846) → Target: Start Boarding through gate (21,348) (4 minutes)
- Target: Start Boarding through gate (21,348) → Start boarding through gate (24,243) (3 minutes)
- Start boarding through gate (24,243) → Start boarding (24,094) (0 minutes)
- Start boarding (24,094) → End (40 minutes total duration)

Performance Metrics:

- A: Target of today's session: 93.8%
- B: PROMOTE-initiative: 42.2%
- C: Ground Ops process (I/I)
- D: (1) Identification | (2) Root-causes | (3) Countermeasures

Dashboard:

Ground Operations Dashboard: # Flights: 49,941, 15' Dep. Punctuality: 80%

Performance Overview: 15' Dep. Punctuality vs. # Flights - Trend over time

Month	Punctuality (%)
2019.07	74%
2019.08	79%
2019.09	80%
2019.10	81%
2019.11	88%

Subprocess punctuality:

- Cleaning: 82%
- Catering: 73%
- Fueling: 83%
- Loading: 48%

Focus on boarding process:

- Boarding at Gate: 75% (Gauge chart)
- Boarding at Aircraft: 90% (Gauge chart)



PROMOTE = PROcess Mining for Operational Excellence

- Initiative focusing on better punctuality and reliability
- Celonis is used to proactively monitor and control all grounding and maintenance processes

Results

- ✓ Less delays by eliminating first-flight process issues
- ✓ Improved ranking in OAG's punctuality report and higher customer satisfaction rating
- ✓ Improved maintenance and tool transfers to minimize long aircraft-on-ground times for faster takeoffs



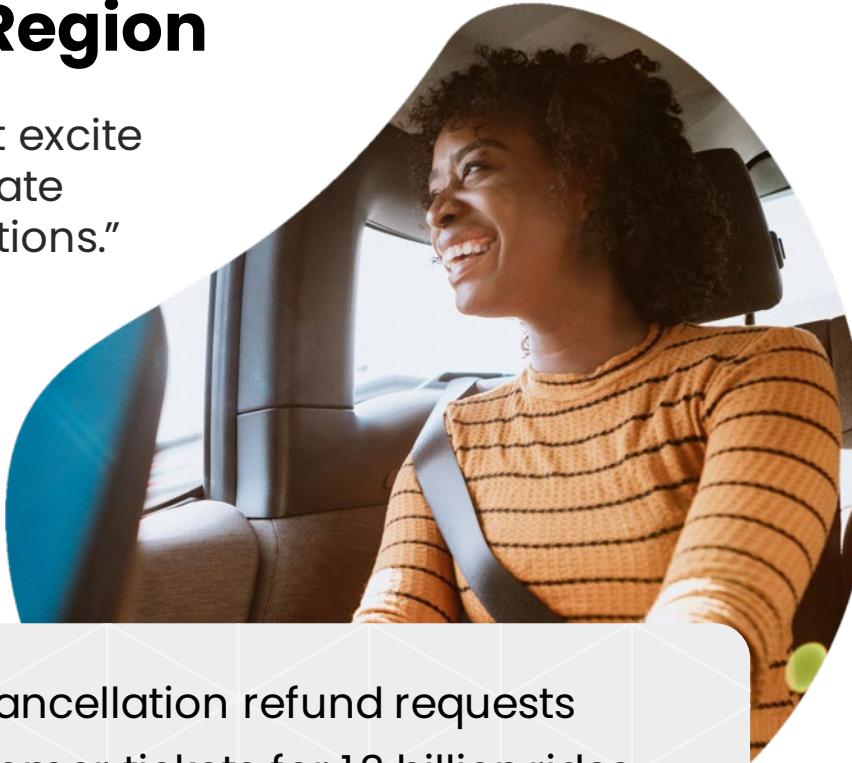
**Watch the full
story [here](#)**

Uber Delivers Stellar Customer Experiences Across Every Region

"We look at where we create moments that excite the customer, and how we can then replicate those across different processes and locations."

Martin Rowson

Head of Process Excellence, Uber



- Eliminated expensive investigations of cancellation refund requests
- Tracks and analyzes over 52 million customer tickets for 1.3 billion rides quarterly
- Increased customer satisfaction rating across all operating regions by decreasing ticket resolution times and benchmarking best practices



Industry

Travel & Transportation

Employees

22,000+

Processes

Customer Service

72M

Data Sets Reloaded
Per Day

Get certified!

Process Mining Fundamentals - Certification for Students

"I want to understand the theoretical fundamentals of Process Mining and how it is applied in industry."

What you will learn:

- Theoretical foundations of Process Mining
- Translate data into actionable insights
- Create and refinement of target-oriented analyses
- Applied Process Mining examples from various industries
- Realize and sustain business value identified with Celonis



Prerequisites:

- Business expertise
- No technical knowledge required

Skills Profile:

- Business
- Analytical
- SQL

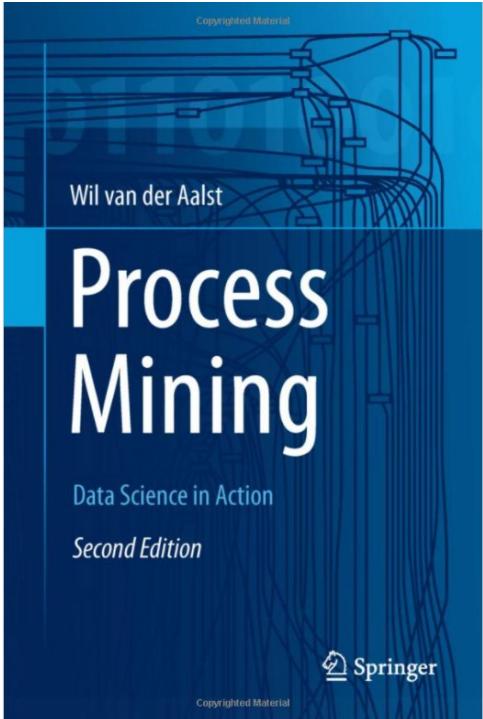
Time:

- 18 hours

Sign up here: <https://www.celonis.com/training>
(available again 10 Nov)

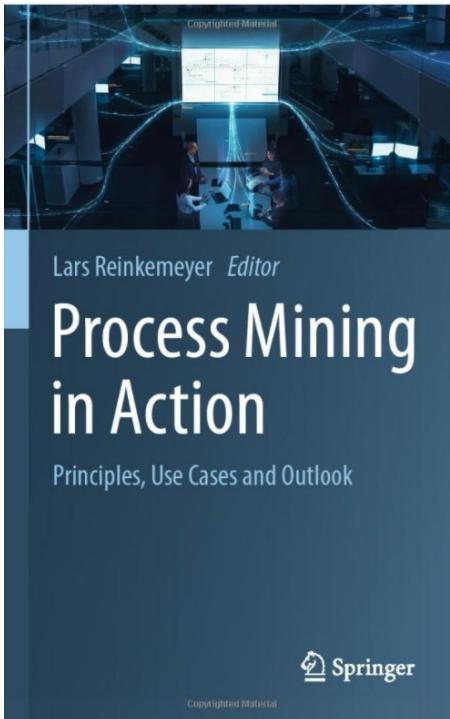
Literature

C



**„The Process
Mining Bible“**

[Link](#)



**„The use case
handbook“**

[Link](#)



**„The entry point for
your enterprise“**

[Link](#)



Ques

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