



Boost your Customer Service with Machine Learning & AI

Milena Mathes, CRM Project Manager, Robert Bosch GmbH
Karthik Sj, Director of Product, SAP

Session ID ASUG82209

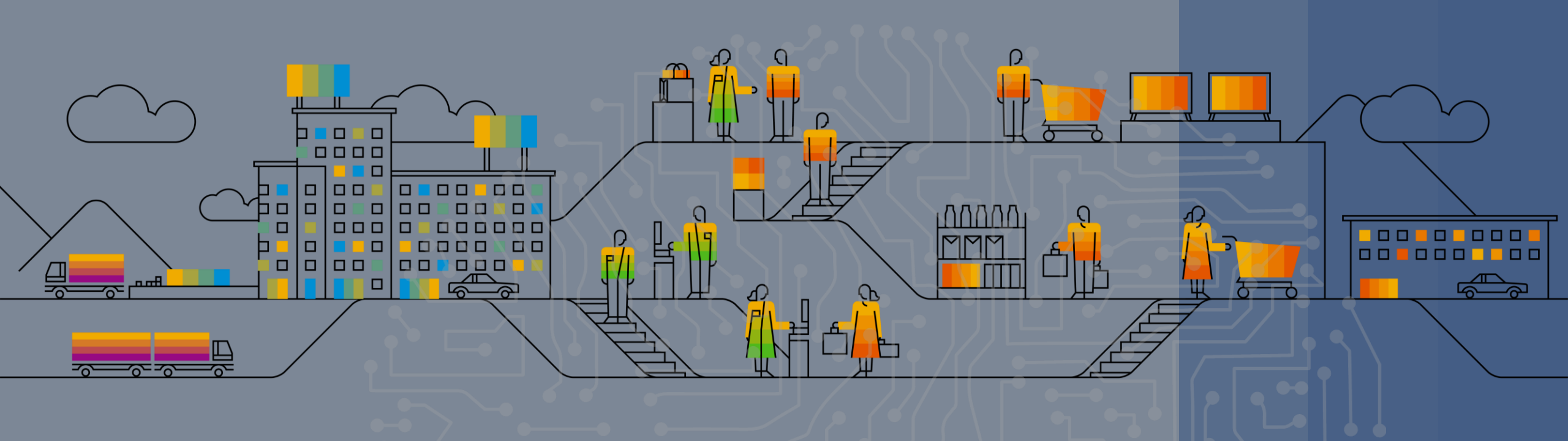
About the Speakers

Milena Mathes

- Program Mgr & Technical Lead for SAP Sales & Service Cloud
- Based out of Germany
- [fun fact] – Surprise!

Karthik Sj

- Director of Product, SAP
- Based out of Palo Alto, USA - 13 years in SAP
- New Dad – Expert Swaddler



AI in SAP Service Cloud

Transforming the Customer Experience

May 2019

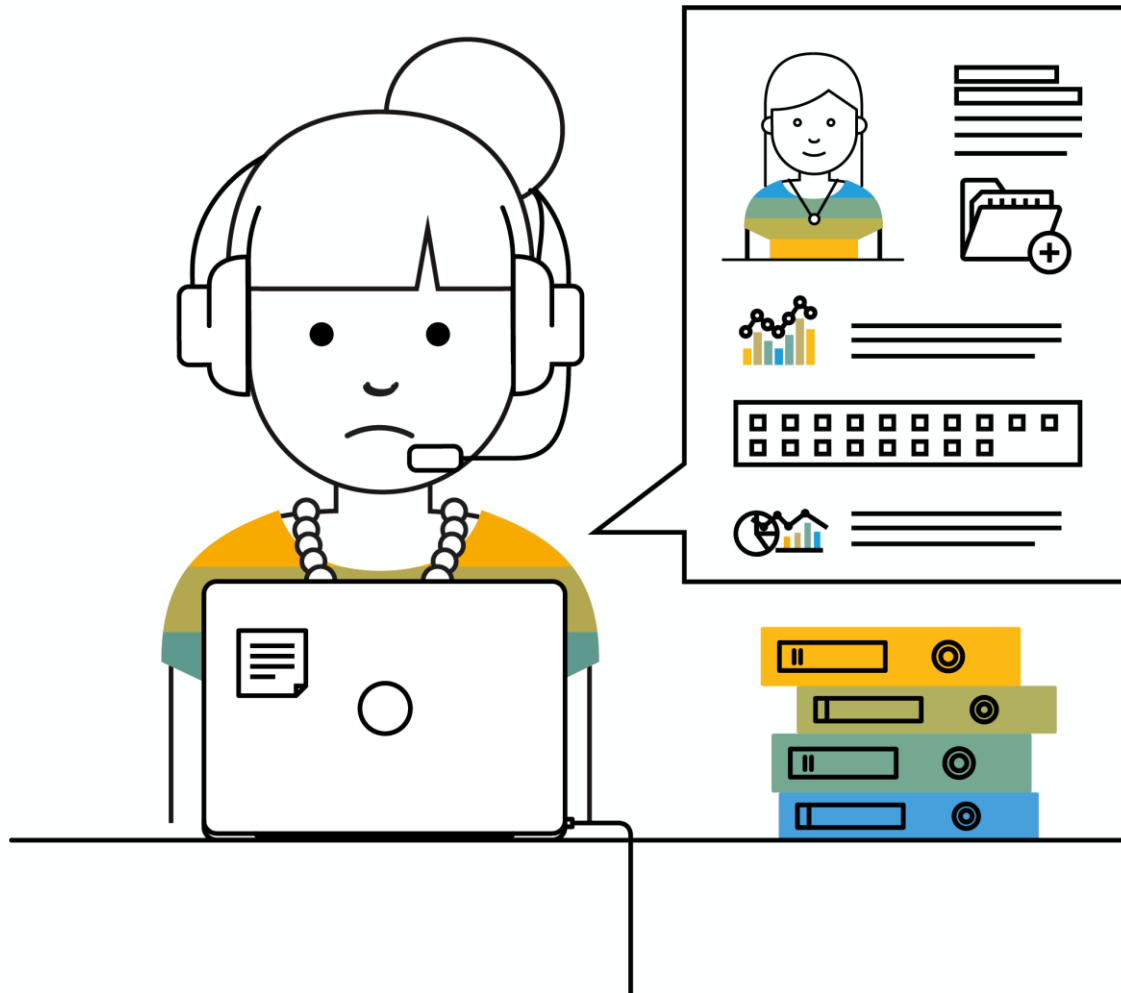
EXTERNAL

What we'll cover..

- **Intelligent Service – The Opportunity to Transform your Customer Experience**
 - **AI Use-cases** in SAP Service Cloud
 - **Deep Dive** – How does it really work?
 - **Customer Adoption** Summary
- **Intelligent Service Case Study: Bosch Smart Homes**
- **Key Learnings & Takeaways from Implementations**

Challenges in Delivering an Exceptional Customer Experience

A Contact Center Perspective



**High volume of incoming engagements
across multiple channels**

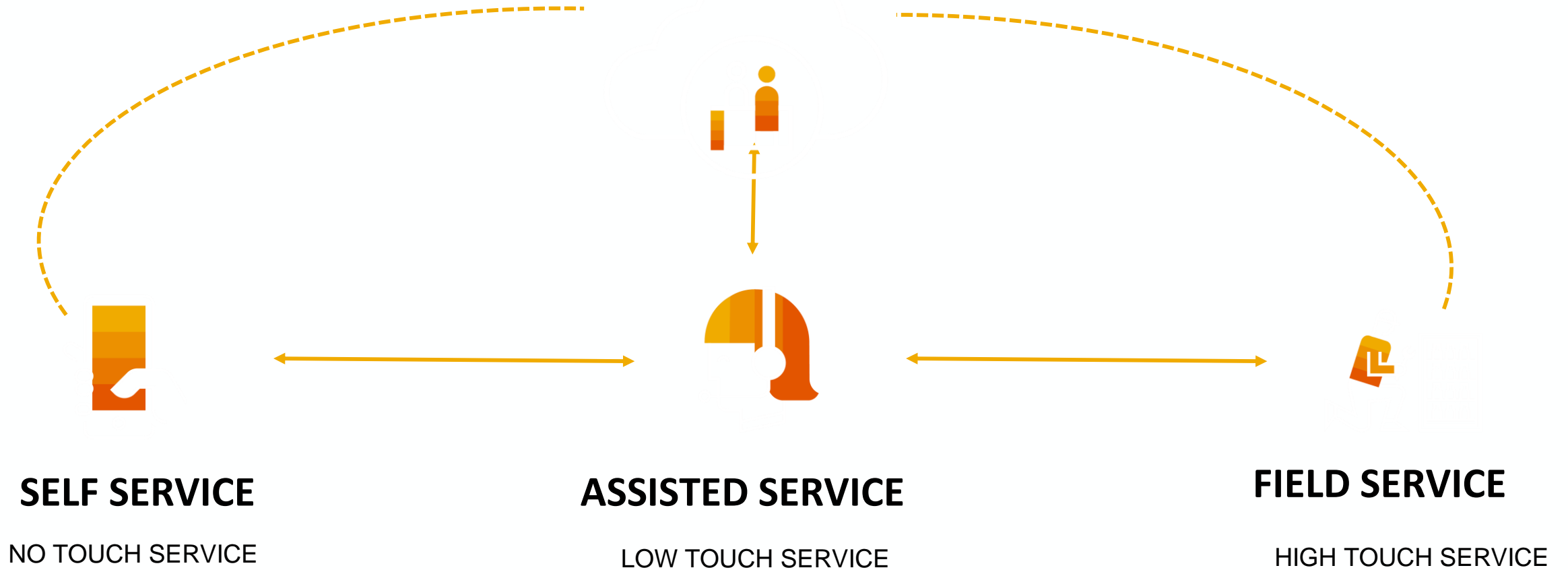


**Data silos resulting in lack of visibility into
customer 360**



**Multiple disjoint service apps resulting in
broken customer engagement**

AI is Transforming Service



SAP Service Cloud: Fully Embedded AI Capability Matrix



Ticket Intelligence



Solution Intelligence



Account/Customer Intelligence



Field Service Intelligence

Ticket Categorization	Language, Sentiment & Entity Extraction	Answer Recommendations	Account & Contact Matching	Service Parts Recommendation
Similar Tickets	Priority Prediction	Recommended KB Articles	Product Recommendations for Up-sell & Cross-Sell	Technician Skills Matching
Intelligent Routing	Estimated Time to Completion	Related KB Articles	Customer Satisfaction Score Prediction	Predictive Scheduling
Intelligent Tagging	Ticket Translation	E-Mail Template Recommendations	Account Health Score Prediction	Route Optimization
...

ML Business Solutions

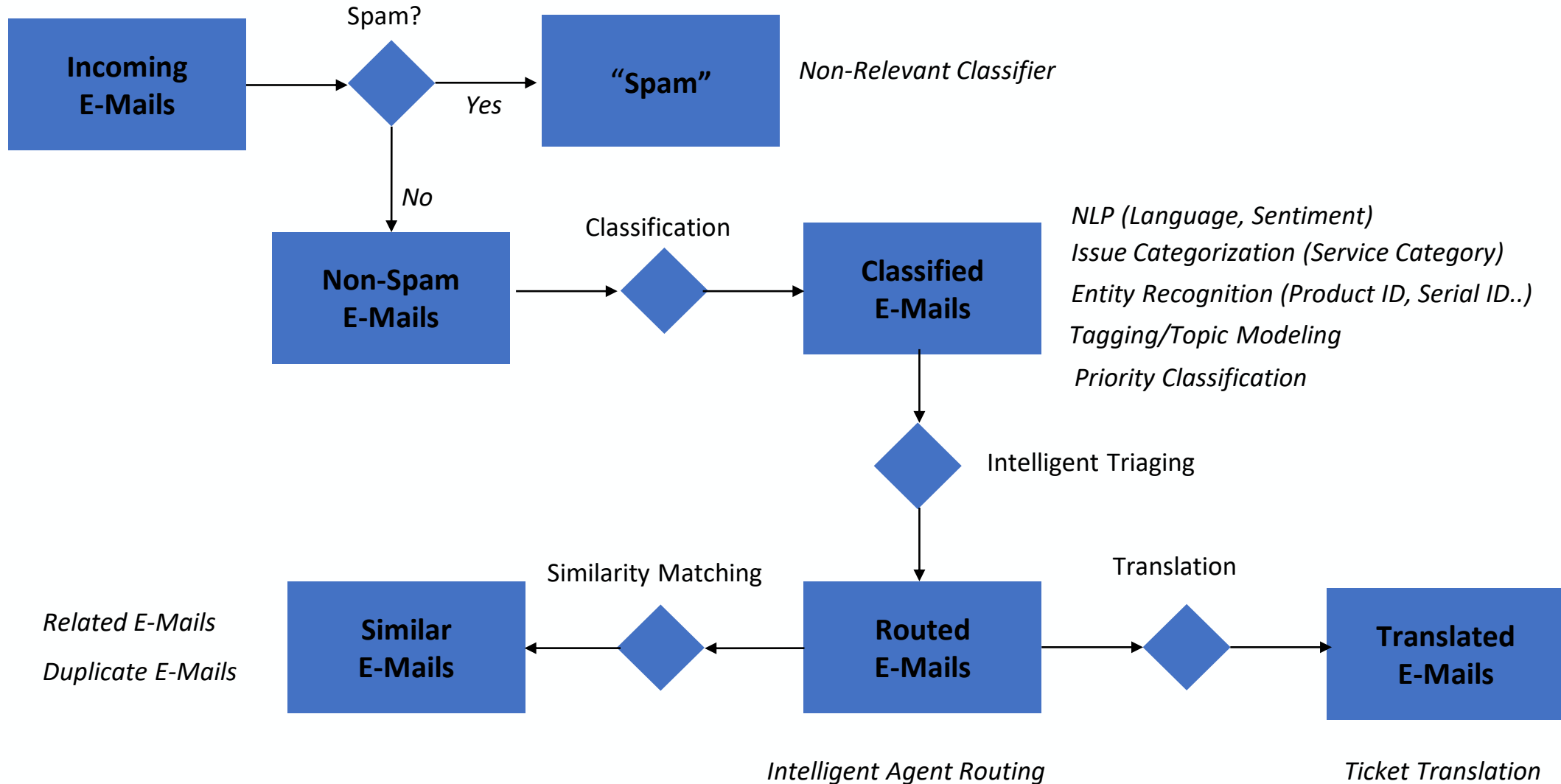
ML Building Blocks (NLP, Speech to Text, Translation ...)

SAP ML Platform (MLF, PA, 3rd Party)

SAP Datahub

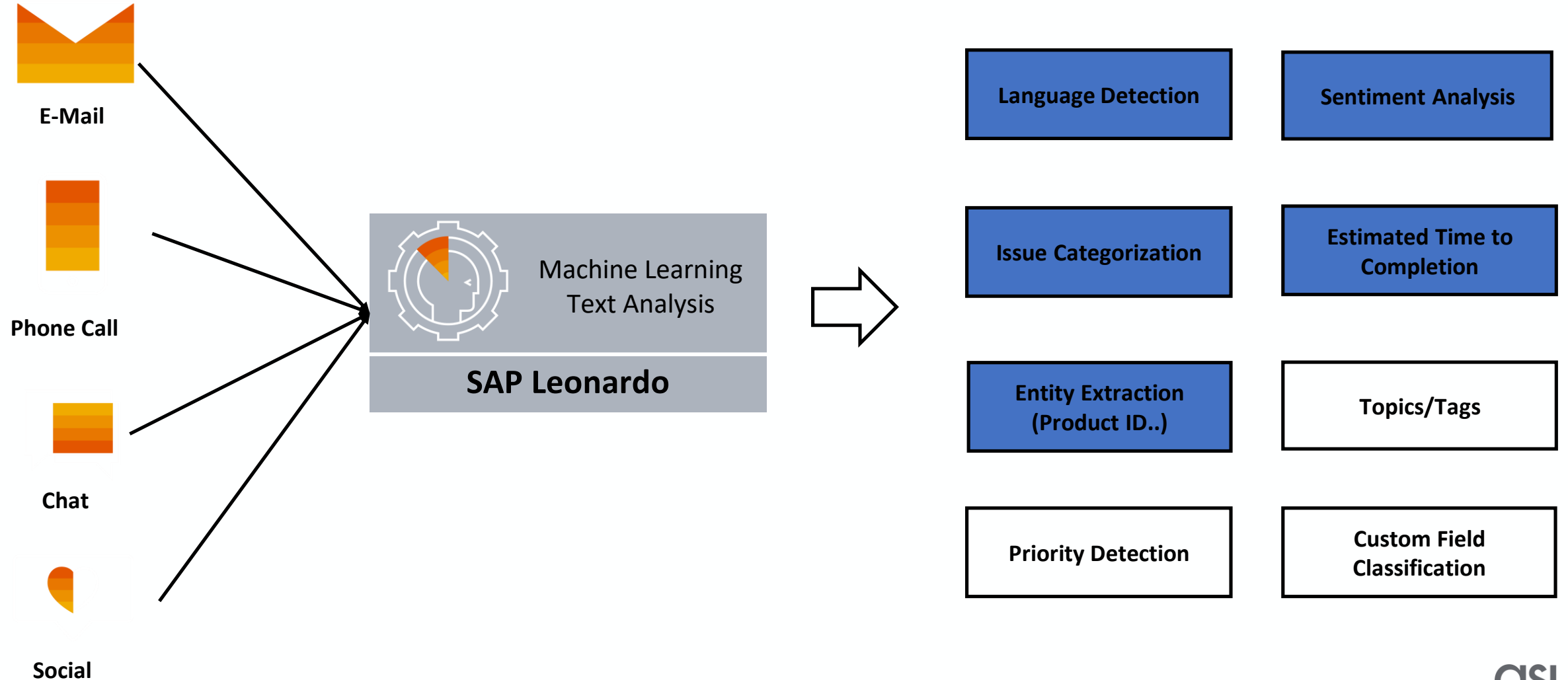


High Level Ticket Intelligence Process Flow



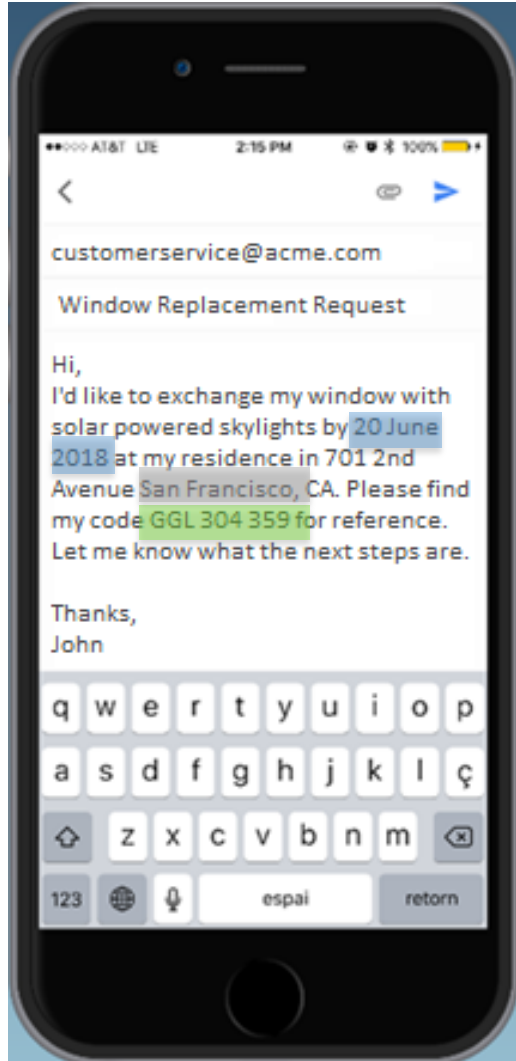
Ticket Intelligence Classifies and Predicts Key Attributes

By looking at Text from your Support Interactions



Tagging, Priority and Custom Field Classification is planned for 1908/1911

Ticket Intelligence Classification Example

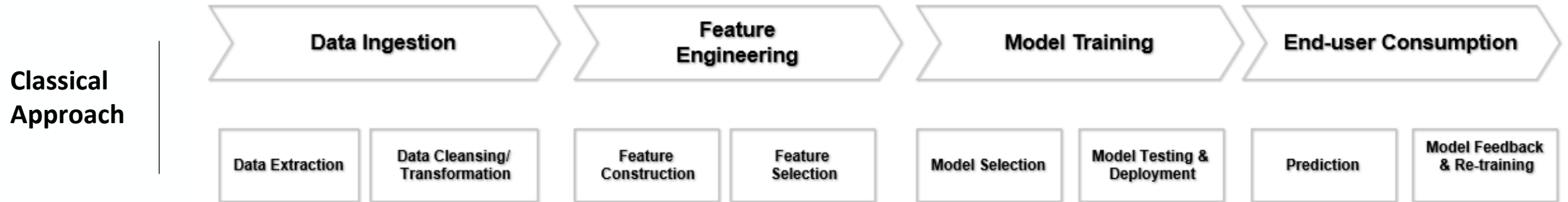


Category:	Post-Purchase	Ticket Categorization
	Replacement	
	Skylights	
Language:	EN	NLP Classification
Sentiment:	Neutral	
Entities:		
Product ID:	GGL 304 359	
Date:	20 June 2018	
Location:	San Francisco	
Priority:	Urgent	
Est. Time to Completion:	4-5 days	

- Uses a custom built Deep learning - character level based Convolutional Neural Network (CNN) classifier for ticket categorization
- Detects languages automatically from incoming text
- Predicts customer sentiment using NLP and deep learning techniques.
- Extract Golden entities automatically with ability to train Custom entities
- Predicts Ticket Priority & Estimated Time to Completion based on past examples
- Supports Classification of tickets in multiple languages

Why Choose SAP Leonardo?

Automates Machine Learning workflow without having to hire Data Scientists

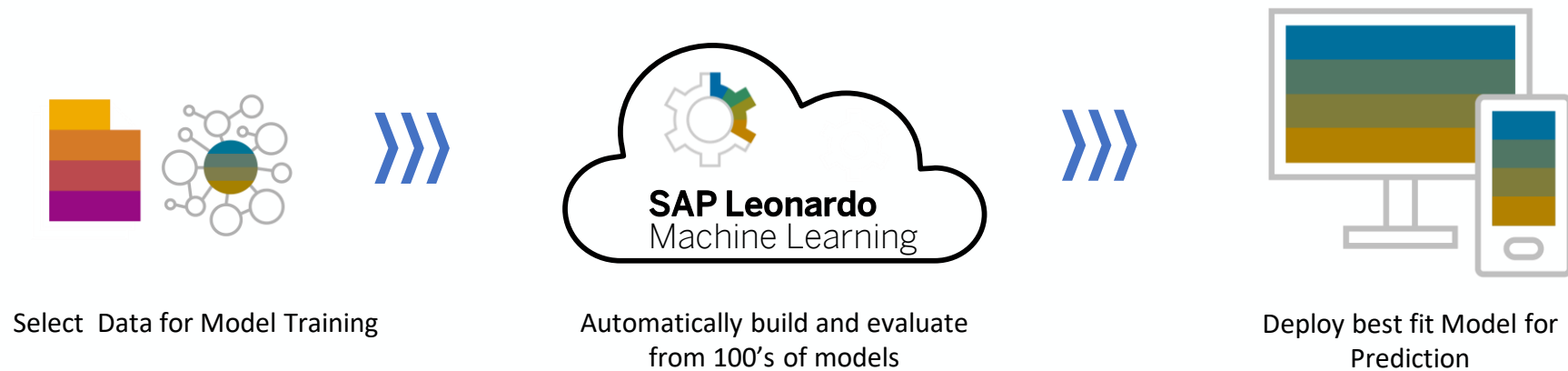


Fully Automated & Integrated AI Service

Deploy Models in Hours not weeks

Seamless Embed AI in your Application

SAP Automated Approach



AI in Service Cloud Product Roadmap

Powered by SAP Leonardo

SUBJECT TO CHANGE

	1905	1908	1911	2002
Service	<ul style="list-style-type: none">- NLP Classification - Language & Entity Extraction – Product ID	<ul style="list-style-type: none">- NLP Classification – Sentiment Analysis- Ticket Priority Prediction- E-Mail Template Recommendation- Ticket Translation	<ul style="list-style-type: none">- KB Recommended Articles & KB related Articles (using MindTouch)- Topic Modeling/Tagging- Intelligent Routing- Duplicate Tickets- ML/NLP based Search	<ul style="list-style-type: none">- Answer Recommendations- Spam/Irrelevant E-Mail Classifier- Voice-Text Transcription- Next Best Action Prediction
Platform	<ul style="list-style-type: none">- Multiple DC Support- Model Training & Prediction Time Optimization	<ul style="list-style-type: none">- Model Consumption & Model Readiness Report enhancements	<ul style="list-style-type: none">- Model Performance & Testing enhancements- Data Exploration Views	<ul style="list-style-type: none">- Custom Label Prediction- Model Extension

Customer Adoption Summary



Summary of Intelligent Service Cloud Adoption

Increased Automation frees up time of your service agents

Number of AI Assisted Tickets

6M*

Average Ticket Automation

70%

Average Time Saved/Agent

40 minutes

* Expected Annual numbers

BASF & SAP New Strategic Partnership

Together we create chemistry for a sustainable future



BASF

The Chemical Company



CuRT IS AWESOME

BASF
We create chemistry

#WeLoveWater

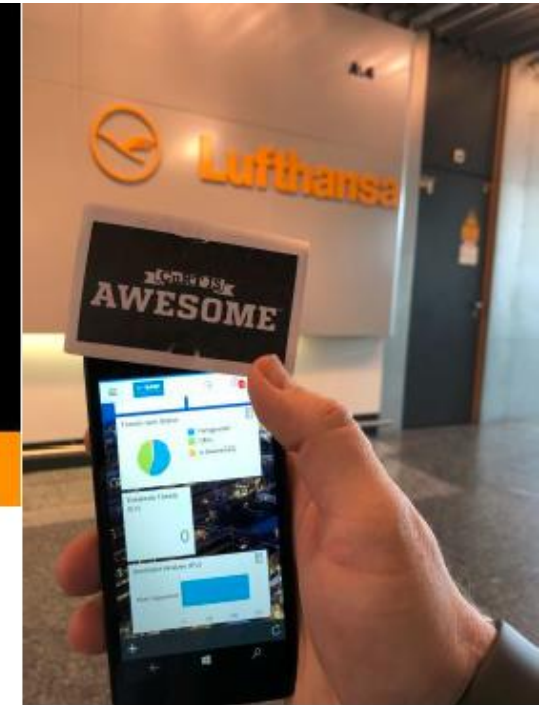
BASF Water Chemicals
Follow us on LinkedIn

Dear CuRT,

We all are happy, that it finally just took 10 weeks for you to join this wonderful team of people. I have no doubt, that you are the best choice for the challenges ahead.

I hope you like your name? CRT or “**C**ustomer **R**equest **T**racking” was way too technical.

You are a virtual colleague of us and therefor you deserve a proper name. It's funny that many people think you are the CEO, isn't it? **In case you're not sure what your job will be, let me summarize:** It is so easy these days to open a new channel to communicate



CuRT IS AWESOME



Business Value Drivers

Key Business Challenges

- High volume of incoming tickets across channels
- Siloed customer support in channels
- Limited standardization & compliance
- Manual classification of tickets leads to high response & resolution times
- High cost of service incurred in engaging with low-complexity tickets

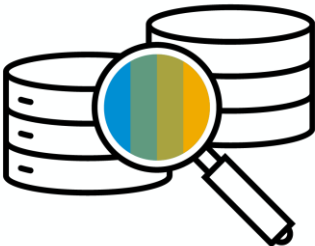
Key Value Drivers

Value Driver*	Improvement Potential		Value from Potential	
	Conservative	Best Case	Conservative	Best Case
Reduce Cost of Service	20%	30%	\$3M	\$5M
Improve Customer Satisfaction (CSAT)	10%	20%	\$1M	\$2M

*Values are illustrative

Key Aspects of a Machine Learning Project

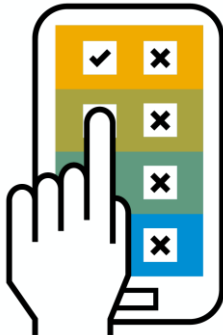
1 Data Exploration



Understanding Baseline Metrics

- Opportunity to Close metrics – Win rate, Win/Loss analysis etc.
- Service Ticket metrics – Ticket count distribution by categories, Ticket Volume trend etc.
- Benchmarking to peers, anomaly detection, data quality detection, business process customization

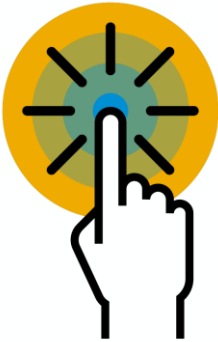
2 Readiness Check



Understanding ML Maturity

- Business Process adoption maturity or organization
- Adherence to company specific sales and service process discipline
- Uncovering bias and bad data quality before deploying ML

3 Model Activation



Ready-To-Train Models

- Turnkey model activation catered to LOB departments rather than data scientists
- Fully based on customer's data to avoid assumptions on business process and data quality
-

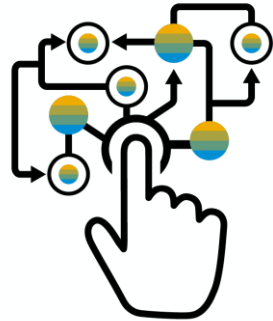
4 Model Explanation



Explainable AI to build trust

- Key factors that statistically influence targets
- White-box of ML models for business owners and data scientists to understand model metrics
-

5 Model Fine-tuning



Last Mile ML

- Optimizing model to reach business goals by reducing false positives and false negatives
- Additional feature engineering to improve model performance
- Avoid model overfitting and underfitting

TICKET INTELLIGENCE @ BOSCH SMART HOME

Agenda

- 1.C/4 HANA SAP Sales and Service Cloud at Bosch
- 2.About Smart Home
- 3.SAP Service Cloud Use Cases at Smart Home
- 4.Motivation for Ticket Intelligence
- 5.The setup of the proof of concept
- 6.The first results
- 7.Lessons Learned and outlook at Smart Home and Bosch
- 8.Q&A

C/4 HANA SAP Sales and Service Cloud at Bosch 2015 until today..





01.01.201
6



3 Locations

Stuttgart-Vaihingen (HQ), Lollar,
München-Grassbrunn



Connected



4 Countries

Bosch Smart Home System and Product Overview

Smoke Detector



Smart Plug



360° Indoor Camera



Motion Detector



Eyes Outdoor Camera



Twinguard



Radiator Thermostat



Door/Window Contact



Shutter control In-wall



Universal Switch Flex



Light control In-wall



Universal Switch



Twist Remote Control



OUR PARTNER:

Buderus

JUNKERS

BOSCH

PHILIPS

hue personal wireless lighting

amazon alexa



SAP Service Cloud Use Cases at Smart Home

Customer Care

- Customer inquires, claims, questions from end customer (individual customer)
- Incoming via phone or mail
- Analytics and KPI's
- Collecting Customer feedback to enhance product management

Motivation for Ticket Intelligence and proof of concept

Enhance Customer Care and user experience...



Reduce time of **admin tasks** of ticket processing



Shorten overall resolution **time**



Improve **quality** in customer care



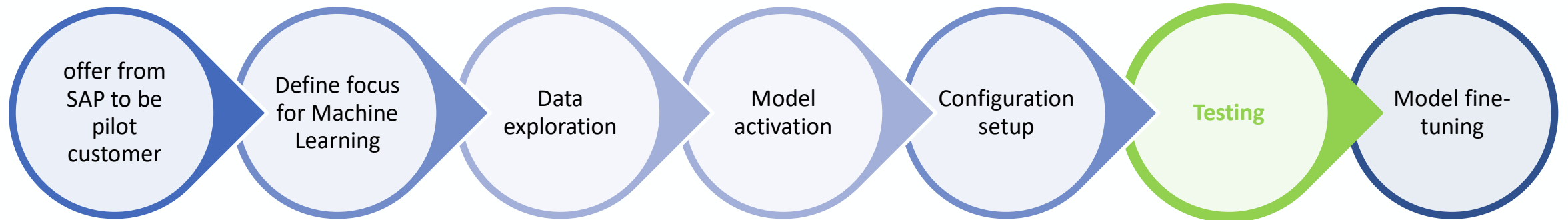
Better **standardized** categorization



Improved **customer service** and Customer Experience

Project Setup & Go-Live

3-6 Months..



- Products
- Product Administration
- Product Categories
- Registered Products
- Warranties
- Library
- Customer Merge
- Surveys
- Question Bank
- Related Attachments
- Monitor
- Import
- Export
- Templates
- Tickets**
- Templates
- Unassociated E-Mails
- Live Activity Center
- Ticket Hierarchy
- Feedback

DESCRIPTION

Problem mit ...

PRODUCT

Product	Description
-	-
Serial ID	Product ID
-	-

TIMELINE

Created On	Created By
11.09.2018 08:36	Technical User
Changed On	Changed By
12.09.2018 13:07	Technical User
Completion Due	Reported On
14.09.2018 17:36	11.09.2018 08:36
Completion	Reported By
-	Technical User

CUSTOMER

*Customer: [Redacted] E-Mail: [Redacted]

Phone: [Redacted] Customer ID: [Redacted]

*Document Language: -

CATEGORY

*Service Category: [Redacted]

*Incident Category: [Redacted]

*Object Category: -

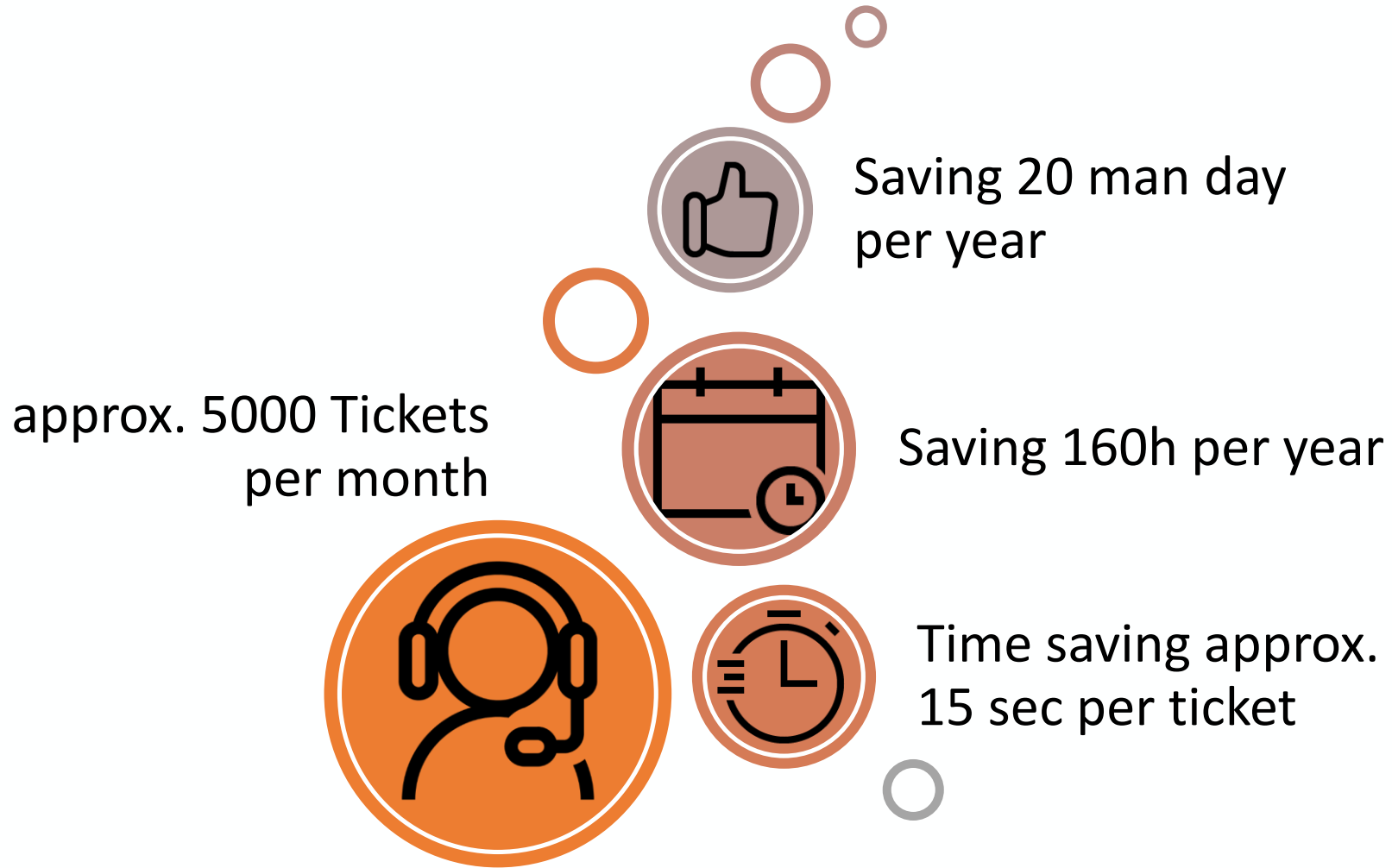
Cause Category: -

ADDITIONAL INFORMATION

- DETAILS**
- Subject
 - Problem [Redacted]
 - Priority
 - Major
 - Status
 - New
 - *Service and Support Team
 - 1st Level Support
 - Source
 - E-Mail
 - IsFeedback
 - No
 - E-Mail Survey
 -
 - Assigned to
 -
 - Main Ticket
 -
 - Feedback ID
 -
 - Country Org
 - DE
 - Solution Level
 - 1st Level Support

The current result

After 1 Month of Go-Live, a Realistic Example



Lessons Learned and Outlook

At Smart Home and other Bosch business units

- Overall satisfying results
- Some tickets couldn't be matched in the 1st test run as of accuracy of 62%
- From 1811 retraining will be done automatically
- Adopt automatic ticket routing based on automatically assigned categories
- Enhance Customer Care with Knowledge Base and Account Intelligence
- Further ML implementations at other Bosch business units
- Sales Intelligence

Take the Session Survey.

We want to hear from you! Be sure to complete the session evaluation on the SAPPHIRE NOW and ASUG Annual Conference mobile app.



Presentation Materials

Access the slides from 2019 ASUG Annual Conference here:

<http://info.asug.com/2019-ac-slides>

Q&A

For questions after this session, contact us at [email] and [email].

Let's Be Social.

Stay connected. Share your SAP experiences anytime, anywhere.

Join the ASUG conversation on social media: **@ASUG365 #ASUG**

