



SAP
Innovation
Awards 2019



SAP Innovation Awards 2019 Entry Pitch Deck

Highly automated loading meter handling using AI and IOT
laser devices

Camelot ITLab GmbH

THE BEST RUN



Highly automated loading meter handling by using AI and IOT laser devices

Camelot ITLab GmbH

“Quote”

"High capacity utilization in transport logistics to ensure delivery reliability, gained additional focus beside cost and CO2 reduction, due to current capacity restrictions on the market.

New innovative technologies enable us to further digitize end-to-end processes, in order to achieve more stable and reliable planning results and improve loading utilization."

Andreas Gmür, Partner

Challenge

Limited freight capacities and the need for costs and utilization optimization are increasingly gaining importance. Loading meter is often used to freight space planning, reservation and billing. During planning the most accurate loading meter would save costs and avoid freight space shortage. In execution measuring the actual loading meter would avoid complains in billing but execution should not be delayed.

Solution

AI is used to determine the expected capacity needs as planned loading meters in complicated cases like mixed pallets missing master data etc. Laser based systems capture the current capacity consumption as actual loading meter "on the fly" while un/loading. Enhancements in SAP TM integrate the data to a smoothly running process.

Outcome

Establishing a highly automated process for handling planned and actual capacities. Full integration in freight space reservation, charge calculation and incident management. Customer benefit: Optimized costs due to higher utilization of transport capacities and less workload for employees

Lower freight costs and lower freight costs

higher degree of automation and higher reliability towards customers and carriers

No manual effort in the determination of plan loading meters



Business Challenge & Objectives

System supported process to handle loading meters

SAP TM has no standard to support loading meters as end-to-end process.

Freight space reservation:

Booking too much loading meters is a waste of money. Booking too less loading meters puts a complete delivery at risk. But calculation the right loading meter is hard in many cases such like mixed pallets, insufficient master data, goods that bulge out etc.

Charge calculation and complain management:

In case of complains regarding charged loading meters companies often have no hard evidence that their data is correct. Or they have manual effort to measure and log the loading meters for each shipment.

1. Establishing a process to cover all requirements regarding loading meter handling.
2. Enhance the Standard TM System to support such a process
3. Usage of SAP Leonardo as AI base to automate the planed loading meter determination
4. Usage of IOT laser devices to automate the actual loading meter calculation
5. Use data for continues ai improvements and reporting



Project / Use Case Details

In order to calculate the expected cost advantage, it is necessary to determine the plan loading meters and the actual loading meters for a certain period of time.

These values are divided into two groups.

Group1: plan loading meter \geq actual loading meter

Group2: plan loading meter $<$ actual loading meter

After a brief prototyping, the expected AI based improvement can be determined.

With this value, the group1 and the freight cost rates can be determined in which amount the freight costs can be lowered.

The impact of Group2 requires further preparation as improvements in addition to costs also affect the delivery service level.

The laser-based determination of the actual loading meter serves on the one hand to improve the quality of the data and on the other to calculate the freight costs correctly.

In order to be able to estimate the improvement to be expected from the project, it is necessary to evaluate the carrier complaints due to incorrect loading meters. This form of complaint will no longer occur after the go live.

Thus, the costs of the process as well as the costs incurred by the carrier incorrectly submitted complaints.



Benefits and Outcomes

Business / Social

- Lower process costs
- Higher service level towards customers
- Higher reliability towards customers and carriers

IT

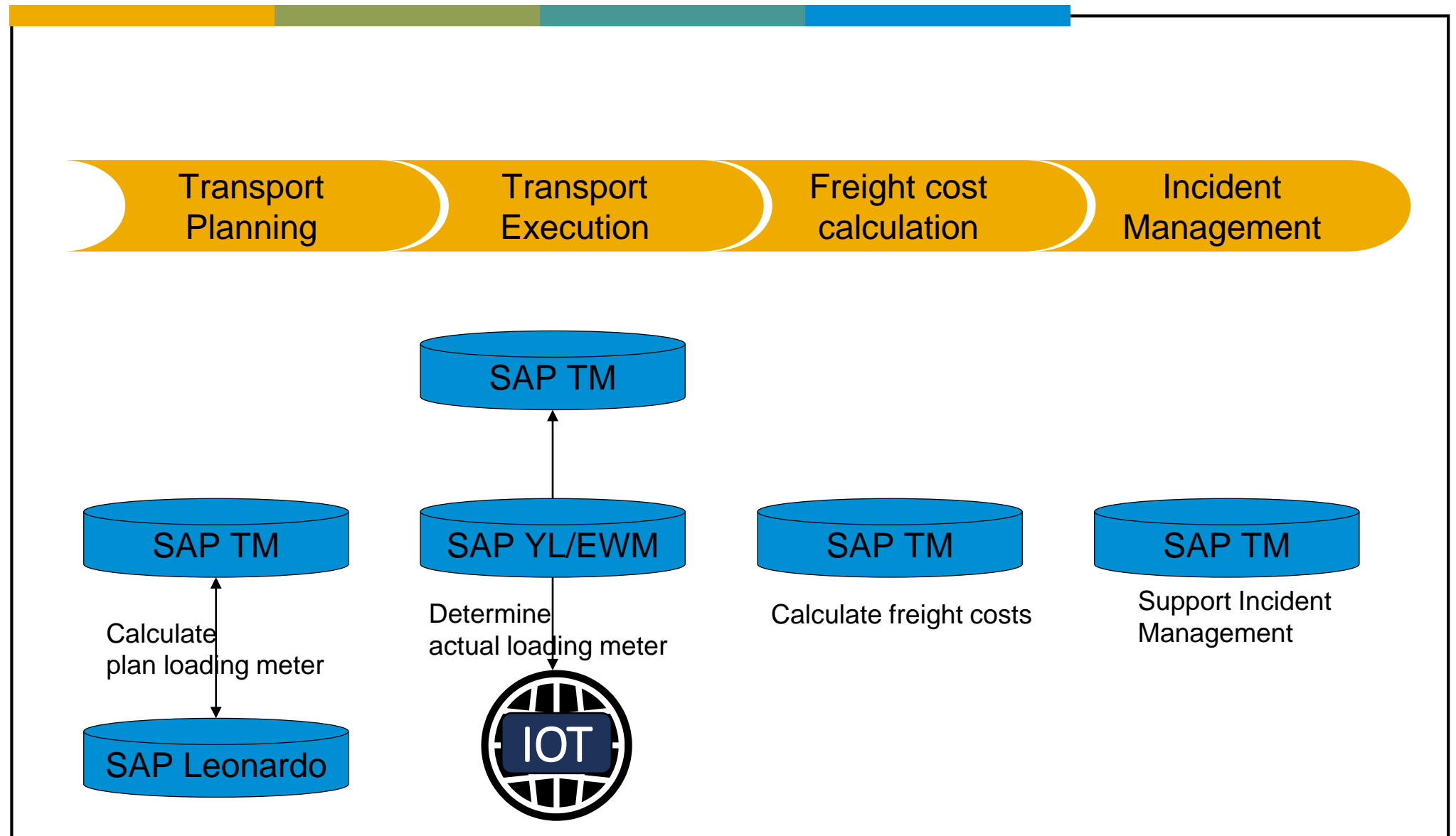
- higher degree of automation
- Faster processing
- More accurate data

Human Empowerment

- No more manual effort in the determination of plan loading meters.
- No more manual effort in the determination of actual loading meters
- Less effort in the processing of complaints



Architecture





Deployment

Date of Deployment or POC: POC: 05.12.2018

Number of live users: 0

SAP Technologies Used:

SAP TM	Basic system for logistic processes
SAP Leonardo	Usage of AI services
SAP YL/EWM	Triggering IOT (LaserScan) interface

Server Processor:

Linux Distribution:



Emerging Technologies and Use Cases

The following Emerging Technologies and use-cases are part of the project and describe the contribution

	Technology or Use Case	Yes/No	Contribution to Project
1.	Machine Learning / Artificial Intelligence	YES	Calculation of planed loading meter
2.	IoT	YES	Determination of actual loading meter
3.	3D printing		
4.	Blockchain	Optional	If requested laser scan data can become immutable by using blockchain.
5.	API Economy / Integrate the Intelligent Enterprise		
6.	Cloud Native / Event Based Architectures		
7.	Extending the digital core with SAP CP / ABAP in SAP CP		
8.	SAP Leonardo Application (extending SAP application, using Industry Innovation Kits or result of Design Thinking workshop)	YES	Hub for AI services

CAMELOT's long-lasting relationship with SAP for more than 20 years as innovation partner, global implementation partner and SAP customer can be described as a 360° relationship



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