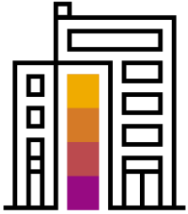




SAP® Innovation Awards 2020 Entry Pitch Deck

Intelligent Fleet Assistant

TPG & Wipro



Company Information

Headquarters Geneva, Switzerland

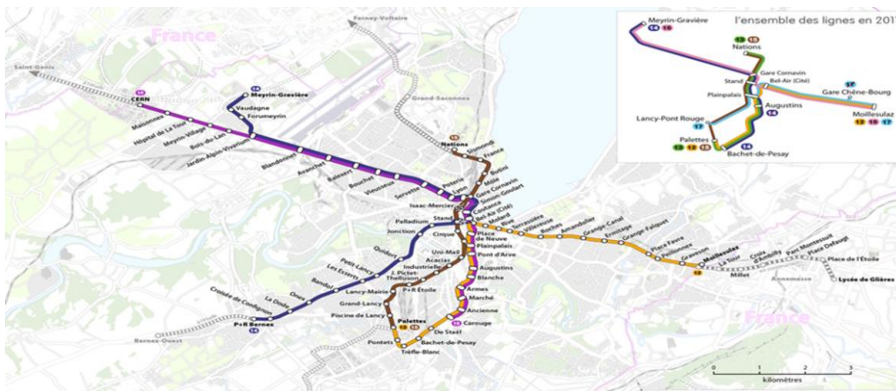
Industry Public Transport

Web site <https://www.tpg.ch/fr>

The TPG operates trams, trolleybuses and buses for the Canton of Geneva

The **Geneva trolleybus system** forms part of the public transport network in Geneva, Switzerland. It is the second largest trolley bus system in Switzerland. It operates trolleys like vanhool, Hess etc.

The **Geneva tramway network** is a network of tramways forming the core element of the public transport system in Geneva, Switzerland. It is operated by *Transports Publics Genevois* (TPG), and is supplemented by the Geneva trolleybus system and numerous motor bus lines. It operates trams like Tango, outlook etc.



Intelligent Fleet Assistant

TPG



TPG has embarked on its digital initiative by leveraging power of machine learning to optimize its fleet management process. We are delighted with the expected possibilities and what the future holds for us.

Business Analyst,

TPG

David Boccard

Challenge

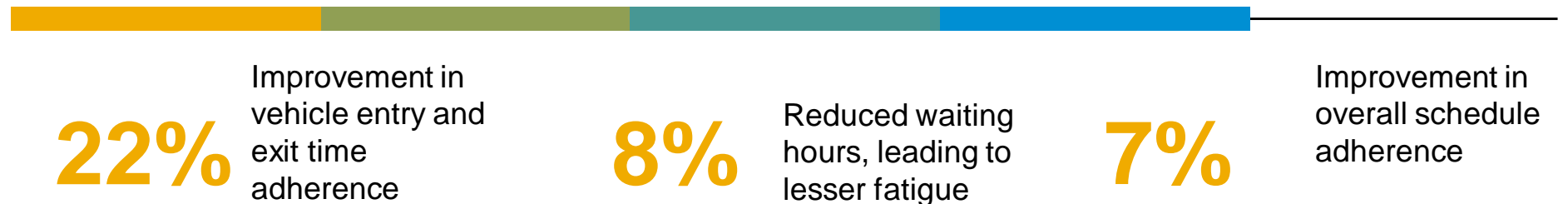
Current process of Fleet Parking & Maintenance is completely manual. As a result, during peak hours, vehicles start queuing up on the gate waiting to be allocated the bay. This leads to unnecessary clogging, time loss, increased safety risk and fatigue levels of the drivers

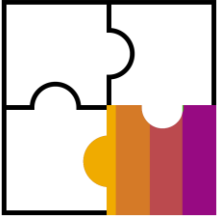
Solution

Wipro proposes to use an AI/ML solution which leverages the historical data and provide the cognitive assistance to parking staff to make informed decisions. Its to improve the schedule adherence and efficient planning

Outcome

An intelligent assistant available at fingertips of the parking manager to promptly check on right parking bay for the waiting vehicle





Participating Partner Information



Wipro Ltd.

System Design and Integration



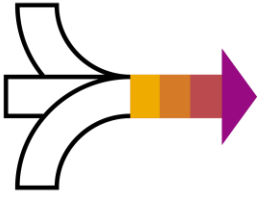
We are excited to be part of this digital initiative with TPG. This is a significant step in shaping up of TPG's overall roadmap towards being an Intelligent Enterprise that is bound to positively impact daily lives of its employees and citizens.

Sundararaman Sankaranarayanan,

General Manager and Head of Wipro SAP Digital Practice

Email: sundararaman.sankaranarayanan@wipro.com





Business Challenges and Objectives

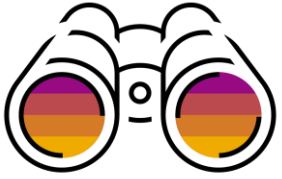
Following are some critical challenges

- Productivity - current parking allocation mechanisms being manual in nature as a result, scalability is a big challenge.
- Customer Experience - non-compliance on most days to existing fleet schedule due to dynamic changes leading to unhappy citizens
- Schedule non adherence - frequent re-entry causing delay in work schedule
- Safety – every additional vehicle movement within parking, increases safety risk

Following are the threefold key objectives of the pilot -

- Improvement of more than 15% over current parking process
- Scalable, real time calculation (and recalculation) of parking spaces and exit schedule
- Improvement of quality of work life for drivers and fleet management employees





Project or Use Case Details

Following are the project details -

- A constraint based, deep learning Machine Learning model to be developed
 - Model to consider constraints like shape & size of the buses, next day exit timings, scheduled and emergency maintenance
 - Model to consider real time feed of allotted parking bays
 - Should allow for flexibility of recalculation
 - For specific maintenance types such as maintenance on bus chassis etc., specific bays only can be considered

- A Conversational app will be provided to the depot manager for ease of use of ML model
 - App to consider bus registration number as input, to suggest appropriate bay number
 - App to provide opportunity to manually update the bay number

- A Fiori app will also be provided as an alternate access mechanism to the conversational app. This app will allow for manual inputs. In addition, will also show the real time view of current depot (reserved and available parking bays)



Benefits and Outcomes

Business or Social

- 15% improvement over current parking process
- Better experience for the citizens of Geneva due to improvement in overall schedule adherence
- Reduction in driving and vehicle costs

IT

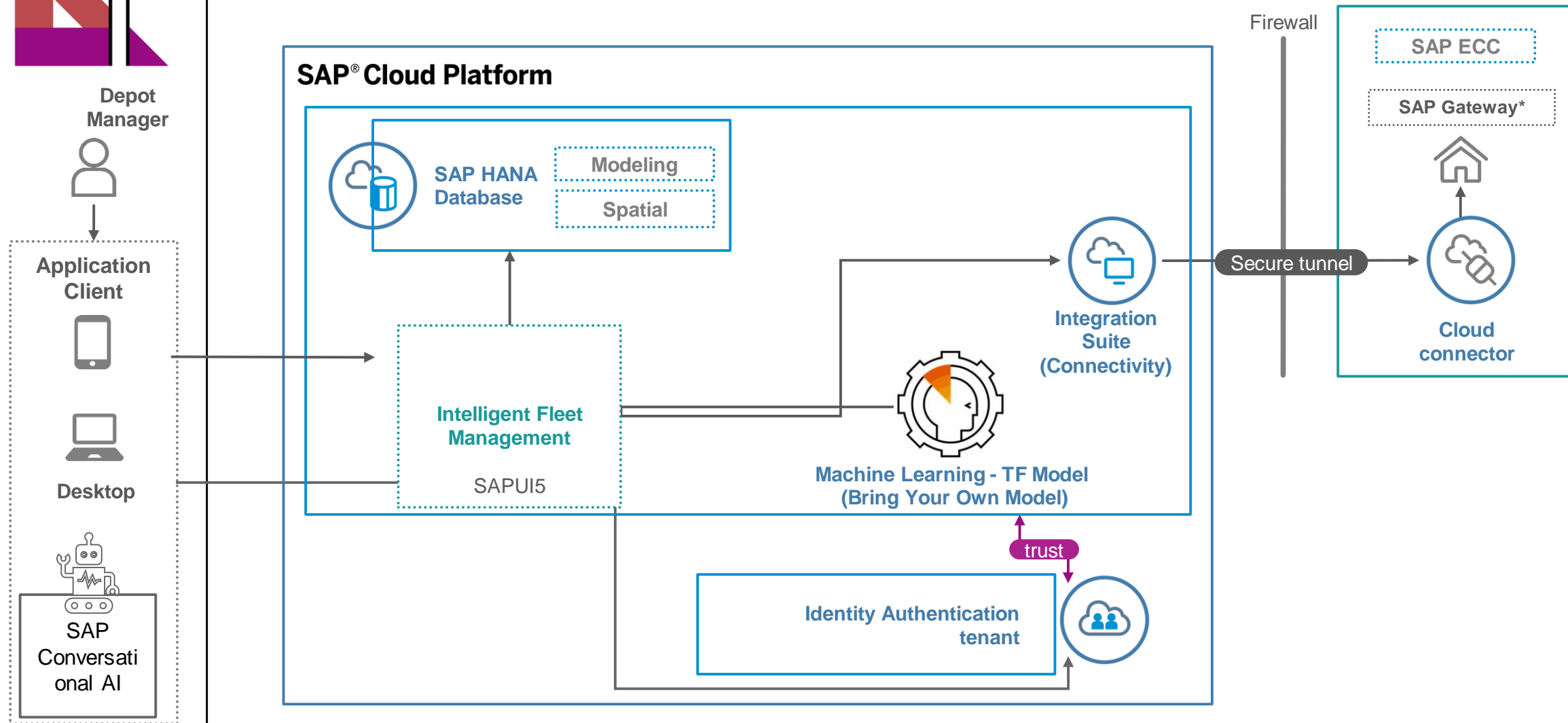
- Simplified developer experience
- Seamless connectivity to backend SAP systems to capture maintenance data

Human Empowerment

- Depot managers empowered to manage parking traffic more efficiently
- Lesser stress on the depot manager during peak hours
- Improvement of driver satisfaction due to shorter time taken during parking



Architecture





Deployment

Deployment status POC

Date 31st Mar 2020

Number of users 5

SAP technologies used:

| | SAP product | Deployment status (live or proof of concept [POC]) | Contribution to project |
|---|--|---|---|
| 1 | SAP Cloud Platform | POC | Platform of innovation |
| 2 | SAP Leonardo Machine Learning Foundation | POC | Augments current human decision making |
| 3 | SAP Fiori | POC | Award winning SAP UI for a great User Experience |
| 4 | SAP Conversational AI | POC | Alternate voice enabled access for easier interaction |
| 5 | SAP Cloud Platform Integration Suite | Live | Connectivity to on-premise systems |

If you have used one of the services or support offerings from SAP Digital Business Services during the implementation or deployment phase, please select with ☒ one or more of the following offerings:

☐ SAP MaxAttention™

☐ SAP ActiveAttention™

☐ SAP Advanced Deployment

☐ SAP Value Assurance

☐ SAP Model Company

☐ Others:

☐ SAP Innovation Services

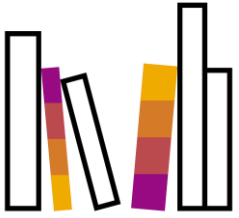
☐ SAP Innovative Business Solutions



Advanced Technologies

The following **advanced technologies** were part of the project.

| | Technology or use case | Yes or No | Contribution to project |
|---|----------------------------|-----------|---|
| 1 | 3D printing | | |
| 2 | Blockchain | | |
| 3 | Internet of Things (IoT) | | |
| 4 | Machine learning or AI | Yes | Augments current human decision making |
| 5 | Conversational AI | Yes | Alternate voice enabled access for easier interaction |
| 6 | Robotic process automation | | |
| 7 | Data anonymization | | |
| 8 | Augmented analytics | | |



Additional Information

The Intelligent Fleet Management solution is a first step towards digitalizing TPG's entire fleet operations. We are trying out the most complicated part which is the reliability of the machine learning model. Some of the future roadmap includes –

- Productionizing the current pilot – 2nd half 2020
- Automated parking teller machines at the Depot gate utilizing SAP Machine Learning to read registration number at the entry gate and automatically suggest parking bay – end of 2020
- Assisted driver app (requires device provisioning by TPG). This IOS native app to be built using SAP SDK, shall assist drivers with their daily schedules and updating vehicle information such as emergency maintenance – beginning of 2021
- Sensor based parking bays to automatically identify parking availability – first quarter 2021

This is a forward looking plan which is liable to be changed based on various internal & external constructs