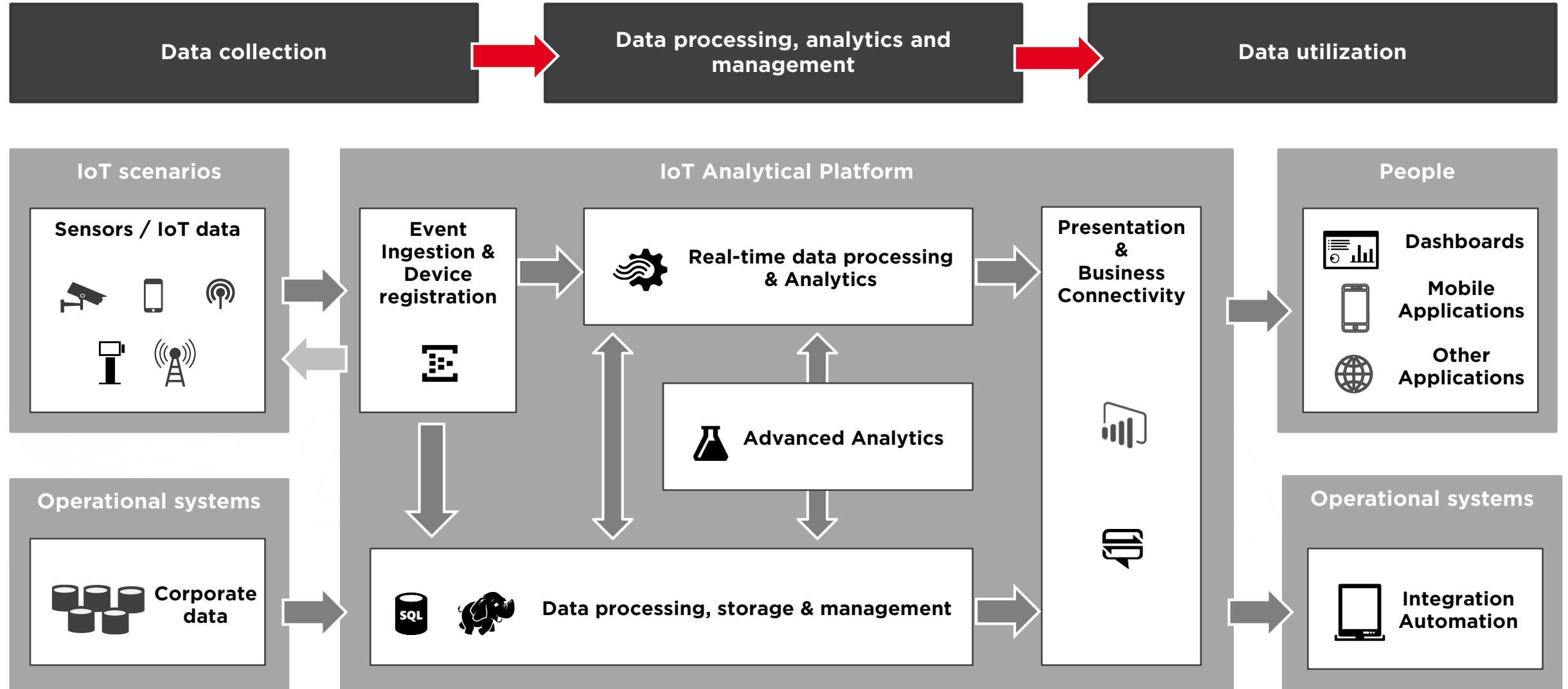




**ADA STRA**

# Monitoring & Tracking

Returnable packaging monitoring





# Returnable Packaging Assets Tracking and Shipment Monitoring

Smart pallet

Returnable packaging monitoring

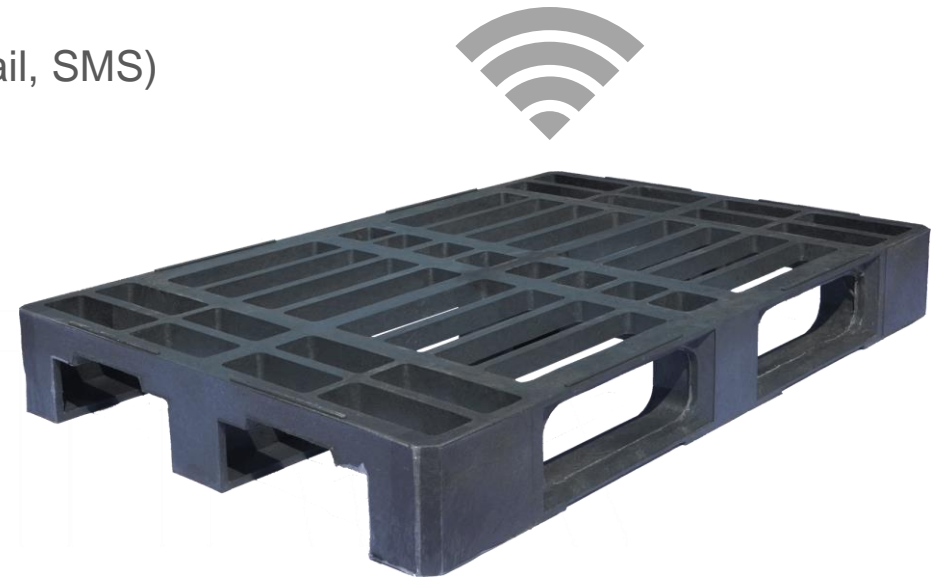
The “Smart pallet” solution makes possible to obtain useful information about reusable packaging material (Containers, pallets, totes, bins, ULDs...) manipulation.

Based on the information you can:

- **respond** operatively to pre-defined events (notifications - e-mail, SMS)
- **evaluate** the use of pallets visible in dashboards

Possibilities of using the solution for Smart Pallets:

- Detection of improper **pallet handling**
- Pallet **localization**
- Ambient temperature **monitoring**

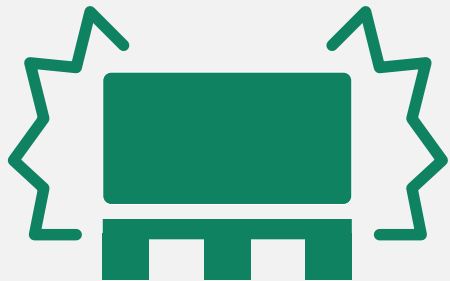


- ✓ Reducing the cost of purchasing new pallets and maintaining existing pallets.
- ✓ Reduction of losses associated with damaging the pallet or transported goods due to improper pallet handling.
- ✓ Reduction of losses associated with non-compliance transport or storage temperature of goods.
- ✓ Higher efficiency of pallet utilization, improved control and delivery planning, reduction of pallet misuse.
- ✓ Ensure quality assurance of goods during transit.



## Detection of improper pallet handling

- Aim is to detect the handling of the pallet, which may damage the pallet or the transported goods.
- An accelerometer is used for detection, which allows to detect the following events:
  - Shock
  - Tilt



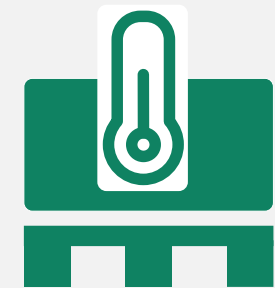
## Pallet localization

- Goal is to monitor:
  - where the pallets are located
  - pallet movement over time
  - leaving / entering a defined area
- Location of the pallet allows:
  - Detect the accumulation of pallets
  - Monitor the movement of the pallet between logistics centers and control the delivery time.
  - Identify the presence of the pallet in known areas.
  - Detect cases where the pallet is completely outside the intended area.



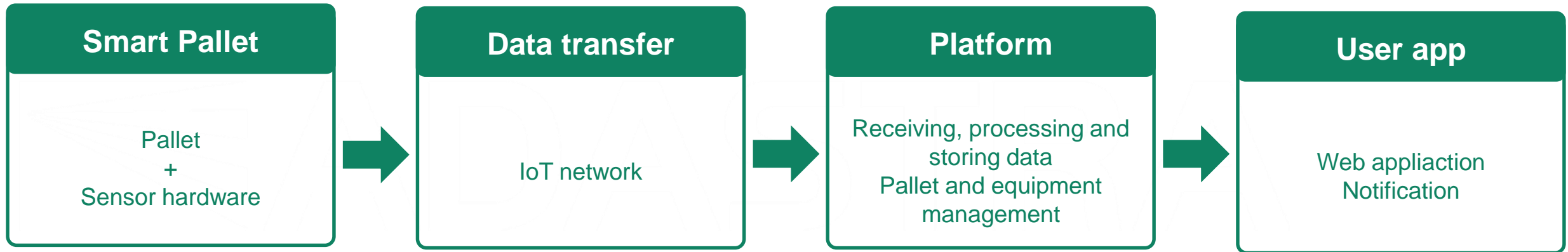
## Ambient temperature monitoring

- Aim is to control storage and transport conditions.
- By measuring the temperature, it is possible to find out temperature conditions and warn if the temperature is outside the required threshold.



The solution for "Smart Pallets" consists of the following components:

- Pallet is equipped with a device containing sensor for collecting the necessary data.
- IoT network for data transfer from the device to the "Smart Pallets" platform.
- The platform for "Smart Pallets", which ensures the receipt, processing and storage of data.
- User applications for data access.





# Web appliaction



Chytré palety  
Powered by ADAstra

 MARTIN HOT

**Palety** 84

**Notifikace** 196

**Lokace** 14

**Uživatelé** 21

### Počet palet podle typu palety

Typ palety	Počet palet	% Palet
EP 08	32	38.1 %
EP 08 PD	12	14.29 %
EP 07	9	10.71 %
CP 114	9	10.71 %
IP 10	8	9.52 %
IP 12	5	5.95 %
neuvedeno	9	10.71 %

### Počet palet podle pohybu za 7 dní

Pohyb	Počet palet	% Palet
Nepohybuje se	63	75 %
Pohybuje se málo	8	9.52 %
Pohybuje se středně	12	14.29 %
Pohybuje se hodně	1	1.19 %

### Počet palet podle teplotních výkyvů za 7 dní

Teplotní výkyv	Počet palet	% Palet
Vůbec	73	86.9 %
Málo	10	11.9 %
Středně	0	0 %
Hodně	1	1.19 %

### Počet palet podle otřesu za 7 dní

Otřesy	Počet palet	% Palet
Vůbec	81	96.43 %
Málo	3	3.57 %
Středně	0	0 %
Hodně	0	0 %

### Notifikace

10. 9. 2020 7:39	Příliš vysoká teplota Sensor 1F2379A: 25 °C
10. 9. 2020 7:39	Příliš vysoká teplota Sensor 1F237B0: 24 °C
10. 9. 2020 1:24	Příliš vysoká teplota SimplePack4 1F24DBE @ Lukas: 24 °C

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Chytré palety  
Powered by ADAstra

 MARTIN HOT

### Palety

Číslo

**Typ palety**

EP 08

EP 08 PD

EP 07

CP 114

IP 10

IP 12

neuvédno

**Barva**

červená

modrá

zelená

šedá

neuvédno

**Velikost**

malá

střední

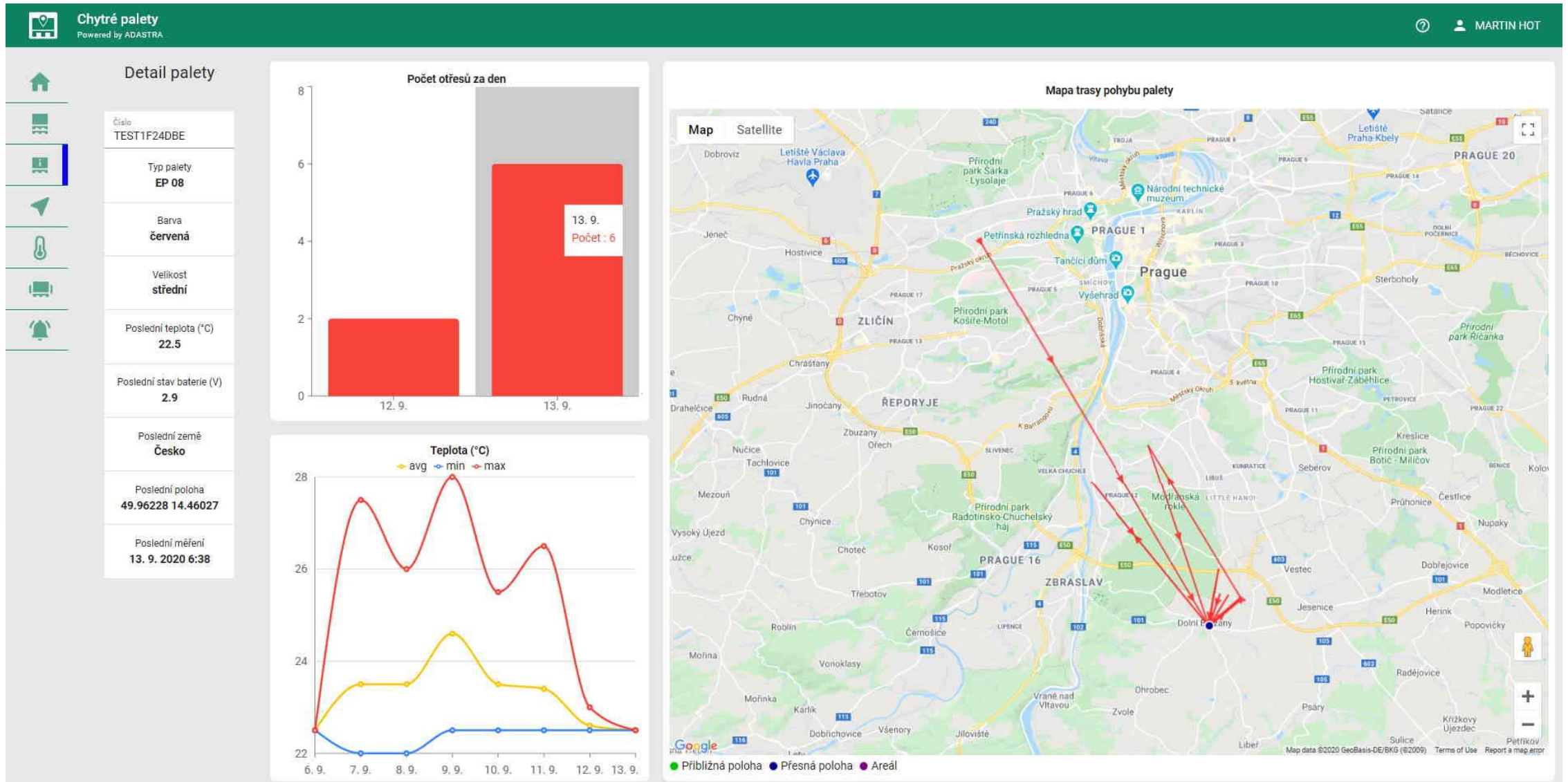
velká

neuvédno

### Seznam palet s naměřenými daty za posledních 7 dní

↓ Číslo	↑ Typ palety	↑ Barva	↑ Velikost	↑ Teplota (aktuální)	↑ Teplota (min)	↑ Teplota (avg)	↑ Teplota (max)	↑ Ořřesy	↑ Náklony	↑ Stav baterie	↑ Poslední měření
XL1F24DC1	EP 08	červená	střední								-
XL1F24DC0	EP 08	červená	střední	23.0	22.5	23.9	28.5	1	0	3.5	13. 9. 2020 7:53
TEST1F24DBF	EP 08	červená	střední								-
TEST1F24DBE	EP 08	červená	střední	22.5	22.0	23.6	28.0	1	0	2.9	13. 9. 2020 6:38
TEST1F24DBD	EP 08	červená	střední	40.5	5.0	19.3	43.0	0	0	3.0	13. 9. 2020 14:58
TEST1F24DBC	EP 08	červená	střední								-
TEST1F24DBB	EP 08	červená	střední	23.5	23.5	24.4	71.5	0	0	3.0	13. 9. 2020 3:31
POC1F24EEF	EP 08	zelená	velká	25.0	22.0	24.5	86.5	0	25	3.5	13. 9. 2020 11:05
POC1F24EEE	EP 08	zelená	velká	24.0	22.0	24.7	86.5	0	3	3.5	13. 9. 2020 15:12
POC1F237B3	EP 08	zelená	velká	24.0	22.0	25.1	86.5	0	4	3.0	13. 9. 2020 11:04
POC1F237B2	EP 08	zelená	velká	24.0	22.0	24.8	86.5	0	5	3.0	13. 9. 2020 15:12
POC1F237B0	EP 08	zelená	velká	24.0	22.0	23.8	27.0	0	13	3.0	13. 9. 2020 15:12
POC1F237A6	EP 08	zelená	velká	23.0	22.0	24.2	86.5	0	0	3.0	13. 9. 2020 11:49
POC1F237A5	EP 08	zelená	velká	25.0	24.0	29.3	86.5	0	12	3.0	13. 9. 2020 11:32
POC1F2379E	EP 08	červená	střední	23.0	21.0	23.7	28.0	0	13		13. 9. 2020 13:42
POC1F2379C	EP 08	zelená	velká	23.0	22.0	27.7	86.5	0	11	3.0	13. 9. 2020 9:25
POC1F2379B	EP 08	červená	střední	24.0	21.0	24.7	28.0	0	17		13. 9. 2020 16:02
POC1F2379A	EP 08	zelená	velká	25.0	23.0	26.4	86.5	0	19	3.0	13. 9. 2020 11:36
POC1F23793	EP 08	zelená	velká								-
Paleta060	EP 08 PD	neuvédno	neuvédno								-
Paleta059	EP 07	neuvédno	neuvédno								-
Paleta058	IP 12	neuvédno	neuvédno								-
Paleta057	IP 12	neuvédno	neuvédno								-
Paleta056	IP 10	neuvédno	neuvédno								-
Paleta055	EP 08 PD	zelená	neuvédno								-
Paleta054	EP 07	neuvédno	neuvédno								-
Paleta053	EP 08 PD	neuvédno	neuvédno								-

1 < > 2 3 4 >



### Chytré palety

Powered by ADASTRA

MARTIN HOT

#### Poloha

Číslo

Období

Od: 6. 9. 2020

Do: 13. 9. 2020

Typ palety

- EP 08
- EP 08 PD
- EP 07
- CP 114
- IP 10
- IP 12
- neuvedeno

Barva

- červená
- modrá
- zelená
- šedá
- neuvedeno

Velikost

- malá

Pohyb	Počet palet	% Palet
Nepohybuje se	70	76.92 %
Pohybuje se málo	8	8.79 %
Pohybuje se středně	12	13.19 %
Pohybuje se hodně	1	1.1 %

Map Satellite

● Přibližná poloha ● Přesná poloha ● Areál

● Poloha ○ Trasa

Chytré palety  
Powered by ADAstra
 

 MARTIN HOT

**Poloha**

Číslo

**Období**

Od: 25. 6. 2020

Do: 2. 7. 2020

**Typ palety**

EP 08

EP 08 PD

EP 07

CP 114

IP 10

IP 12

neuvědno

**Barva**

červená

modrá

zelená

šedá

neuvědno

**Velikost**

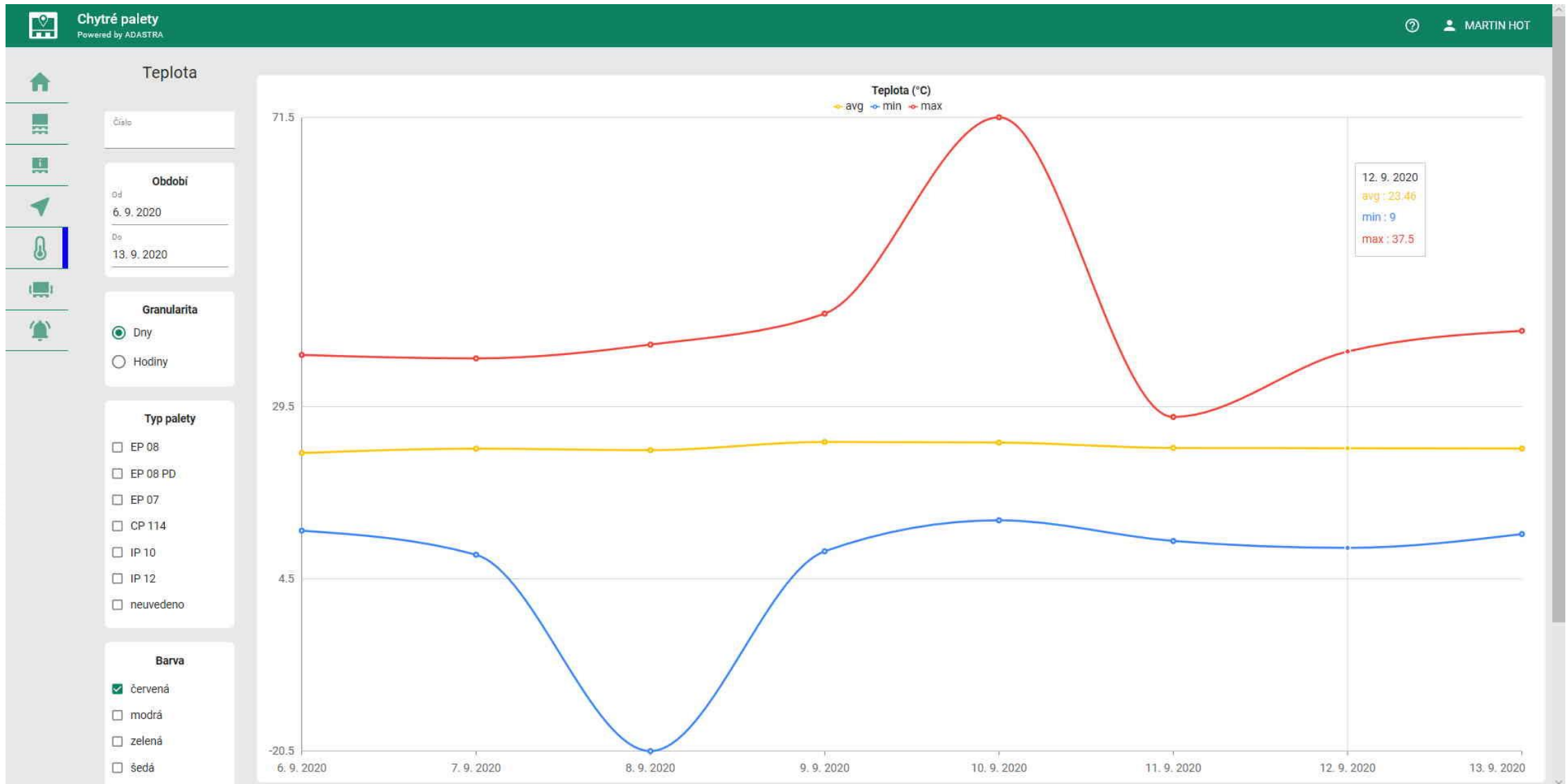
malá

Pohyb	Počet palet	% Palet
Nepohybuje se	80	87.91 %
Pohybuje se málo	1	1.1 %
Pohybuje se středně	1	1.1 %
Pohybuje se hodně	9	9.89 %

Map Satellite

● Přibližná poloha ● Přesná poloha ● Areál

○ Poloha ● Trasa





**//ADASTRA**

# Key References

Our clients

## Banking



Equa bank



## Finance



## Manufacturing/Retail



Mountfield

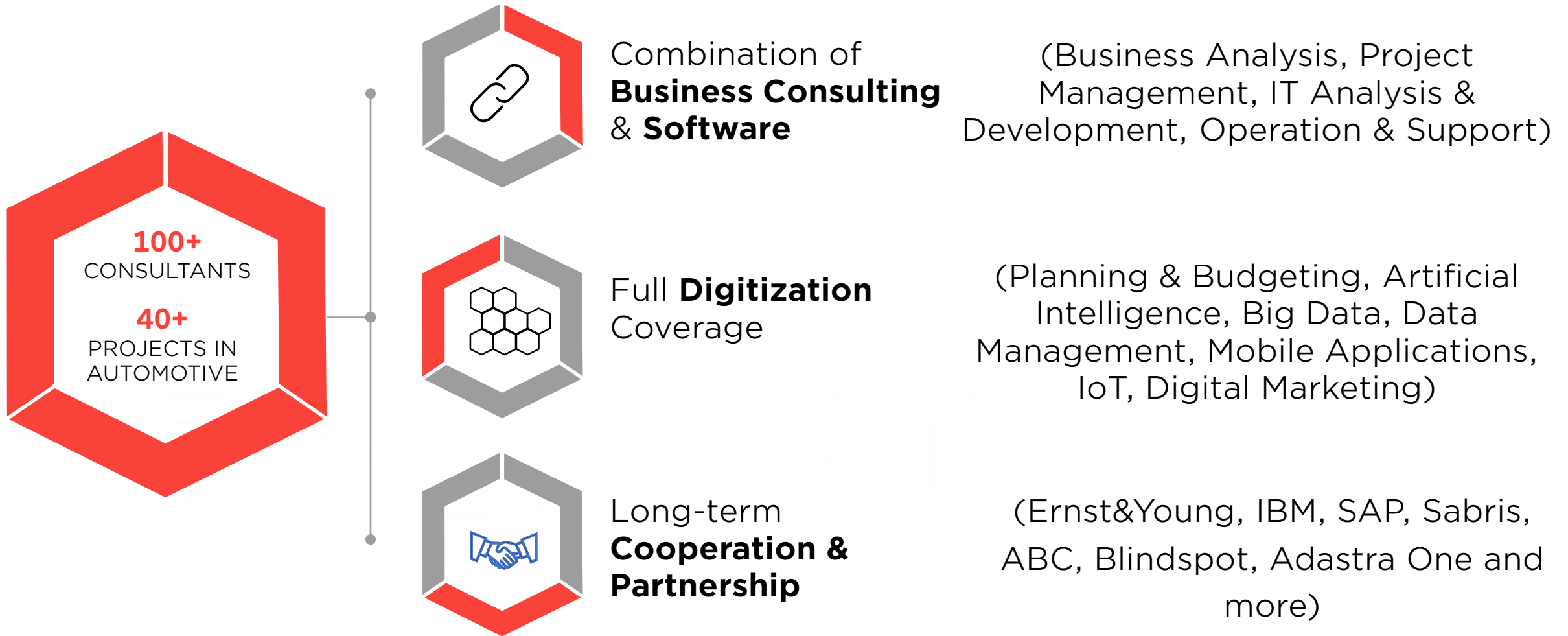
## Government



## Telecoms/Utilities







Automotive

Operational



**Client**

Large manufacturer



**Goal**

Decrease the amount of "air" in shipping containers by loading them more efficiently



**Action**

Prepared an optimization model considering cargo weight and dimensions, developed a tablet UI for the cargo loading team



**Results**

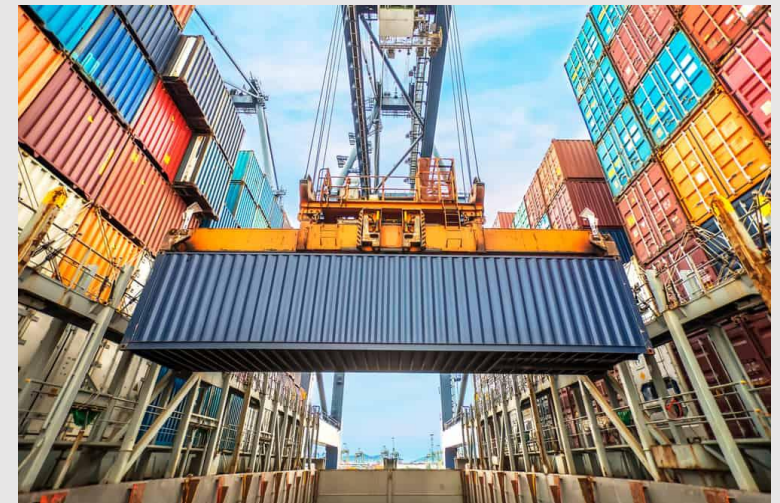
Increased cargo volume loaded



**Area**

Mathematical Optimization

**Increased avg. volume loaded by 5%, translating into hundreds of containers saved each year.**



# Optimization of FMCG delivery routes



FMCG      Operatioal



**Client**

Crocodile CR



**Goal**

Digitization of the logistics planning process. Optimization of existing delivery routes. Planning of new delivery routes in new regions.



**Action**

Development of custom logistics planning application build on an optimization engine. Ability of automated route planning with manual override.



**Results**

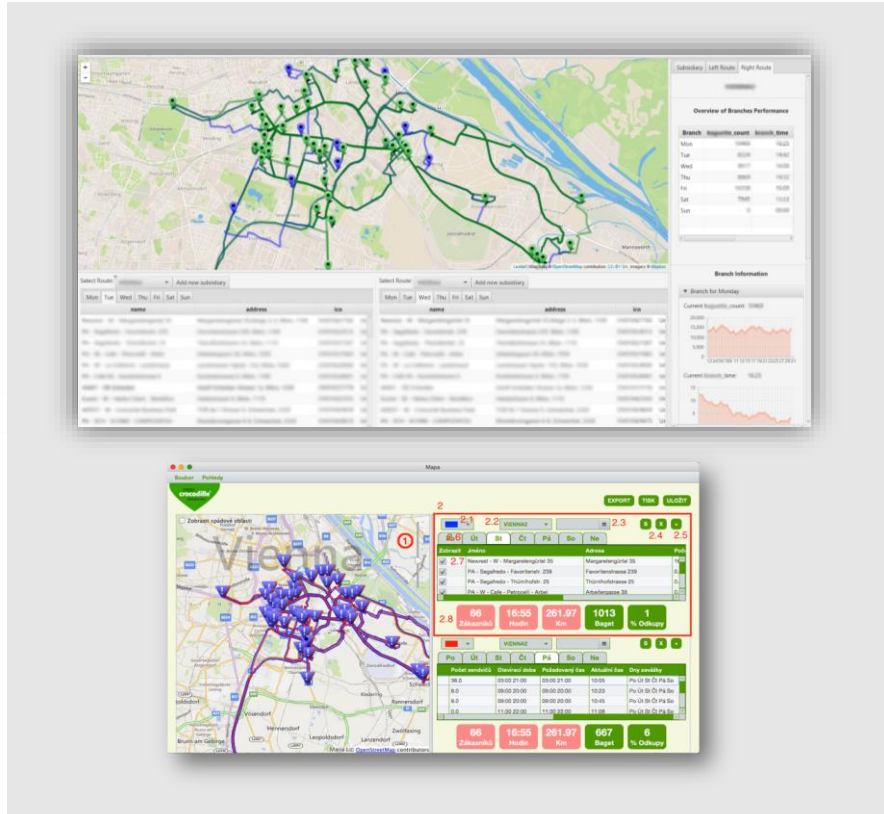
Redesign of the route planning process, digitization and standardization of company logistics planning. Optimization of routes resulted into 30% costs savings.



**Area**

Logistics, FMCG, optimization, route planning

**Enablement of business expansion.  
Saved up to 30% of travel costs.**



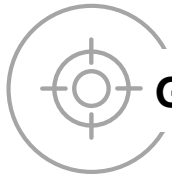
Manufacturing

Operational



**Client**

Barum Continental



**Goal**

Minimize the inter-warehouse transports required to collect all ordered items of a particular order dispatching



**Action**

Develop a new tire distribution algorithm and a web-based application which suggests where to store the produced items such that the future need of inter-warehouse transportation is minimized



**Results**

More orders can be dispatched from a single warehouse directly, limiting the inter-warehouse transportation to minimum.



**Area**

Warehouse operation optimization, Internal logistics planning

**More than 60% reduction of inter-warehouse transportation costs.**



Automotive

Operational



**Client**

Large manufacturer



**Goal**

Automation of process for planning of production which suffered by long planning cycles, errors and high operational costs.



**Action**

Customization and integration of Blindspot's Manufacturing Planning Solution enabled generation of capacity plan in minutes instead of days.



**Results**

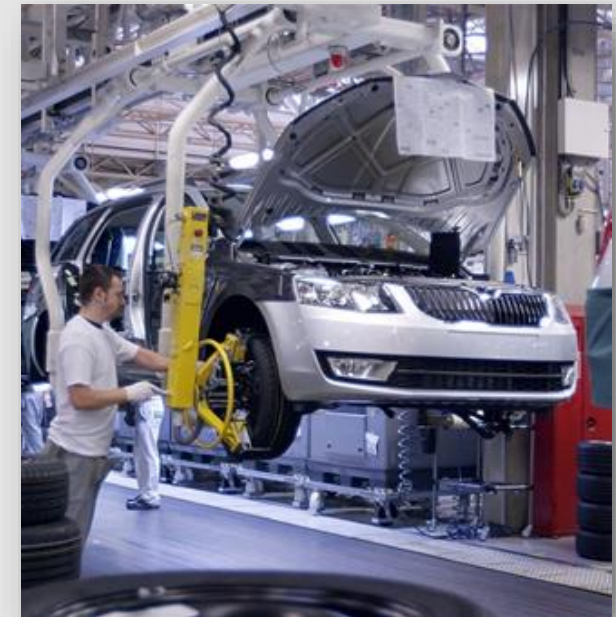
Scheduling process automated, done in minutes instead of days. Eradicated errors.



**Area**

Optimization, manufacturing planning, workforce orchestration, scheduling process automation

**Scheduling time decreased from days to minutes.**



Automotive

Proof of concept



**Client**

Large manufacturer



**Goal**

Decrease overall costs related to delivery of the goods from suppliers to the manufacturing plant.



**Action**

Customization and integration of Blindspot optimization platform TASP enabled planning of efficient transportation from various suppliers to manufacturing plant.



**Results**

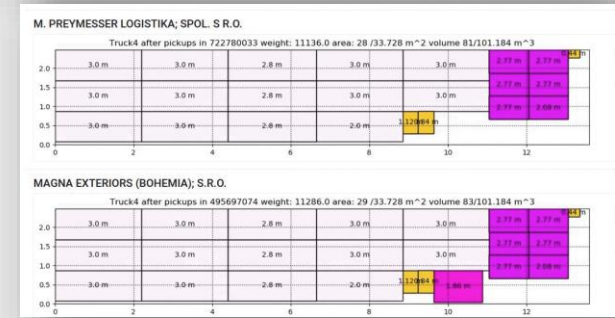
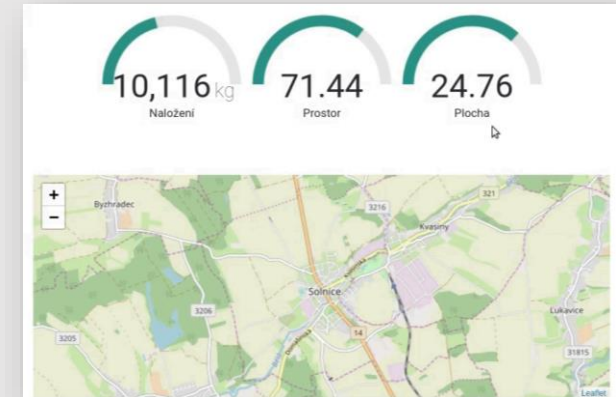
Decreased costs for shipment of products.



**Area**

Optimization, scheduling process automation

**Costs of shipment decreased by 20%.  
CO2 emissions reduced by 20%.**





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