Digitization - what does it mean for public sector organizations?

Season 4: Smart City and Smart Country Cases

Ainars Bemberis
Country Manager, SAP Latvia

PUBLIC

THE BEST RUN SAP


Transform
Data in Actions
Customer Experience
Workforce Engagement

US

- New York Restaurant Inspections
- AI to support Improved, Safer Public Housing at Dallas

EU

- Social and Health Services in Kymenlaakso, Finland
- Detecting Invasive Species using Drone Images, Denmark
- Patient feedback at Basel University Hospital, Switzerland

Virtually Travelling Europe and US – Our Route Today

New York Restaurant Inspections

Quck facts:

Each year, the New York City Health Department inspects over 30,000 restaurants in an effort to improve the quality and safety of restaurants. These unannounced inspections result in over 100,000 violations ranging from employees not washing their hands to rodent infestation

NYC Restaurant Inspections

The Challenge

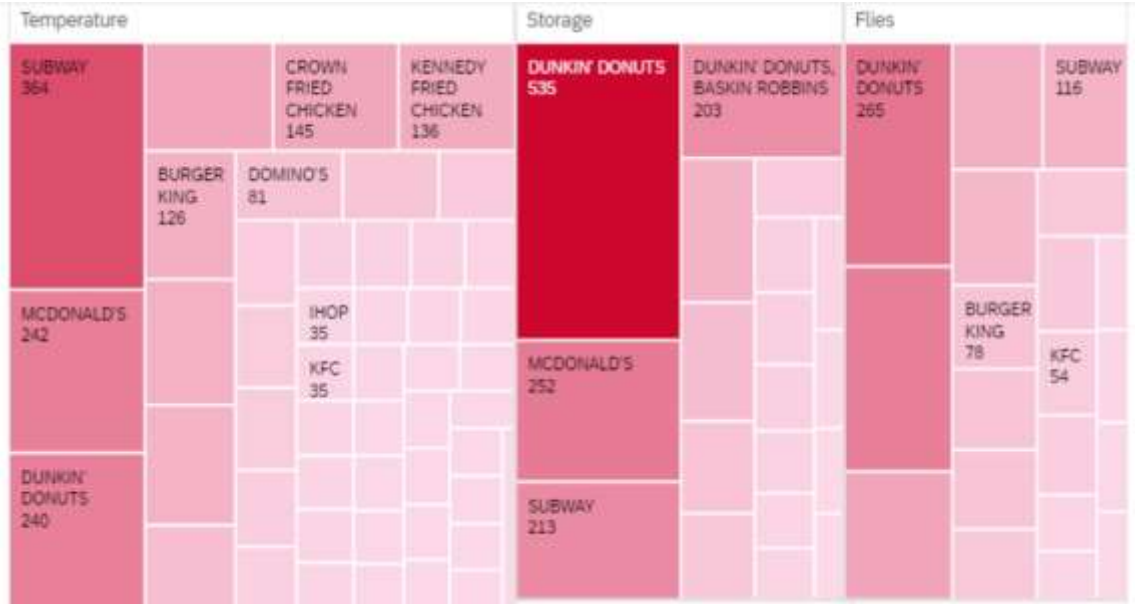
- NYC Health Department inspects over 30,000 restaurants p.a.
- unannounced inspections result in over 100,000 violations
- violations are assigned a certain number of points, which is then calculated to form an inspection score
- Raw data published in NYC Open Data for service transparency -

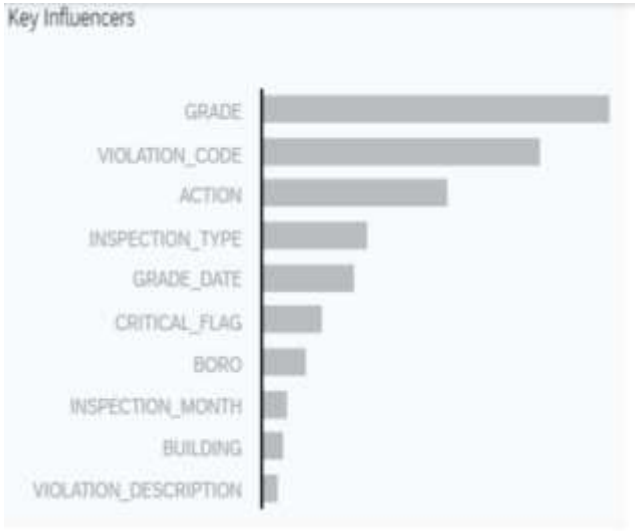
Issue

- raw data is useful but offer very little analytics and insights
- How to find most useful inspections?
- What are the main violations?
- What are critical violations?
- Are there patterns?

Digital Mean

- Visualization of war data in SAP Analytic Cloud
- Use raw data to learn, understand and predict





ML to predict violations and impact of certain aspect to the restaurant‘s grade eg type of inspection, historic grade, violation, …

Virtually Travelling Europe and US – Our Route Today

AI to support Improved, Safer Public Housing at Dallas

You Need to Know

- Public and subsidized housing has long suffered from a myriad of systemic problems—including many apartments in need of repairs, overworked housing inspectors, and budgetary restraints—and it doesn't seem to be getting any better.
- Can Digital technologies help?

AI to support Improved, Safer Public Housing

The Challenge

- Public housing suffers from systemic problems—many apartments in need of repairs, overworked housing inspectors, and budgetary restraints
- properties may only get inspected once in every 24 months

Response

More effective and efficient inspection - innovative virtual assistant solution to

- streamline functions within local housing authorities,
- improving inspector accountability, and
- optimizing route schedules

Achievements

- No-shows reduced to less than one percent
- Twenty percent savings on housing authority fuel & travel costs
- Better engagement with landlords and clients
- Video based inspections to reduce risks

90%

Reduce inspection wait time

30%

Fuel savings

30%

increase of inspector productivity

"We're able to inspect more properties and, instead of being overtaxed, our inspectors can be more proactive with clients, which helps us manage healthier, safer places to live."

Troy Broussard, CEO Dallas Housing Authority

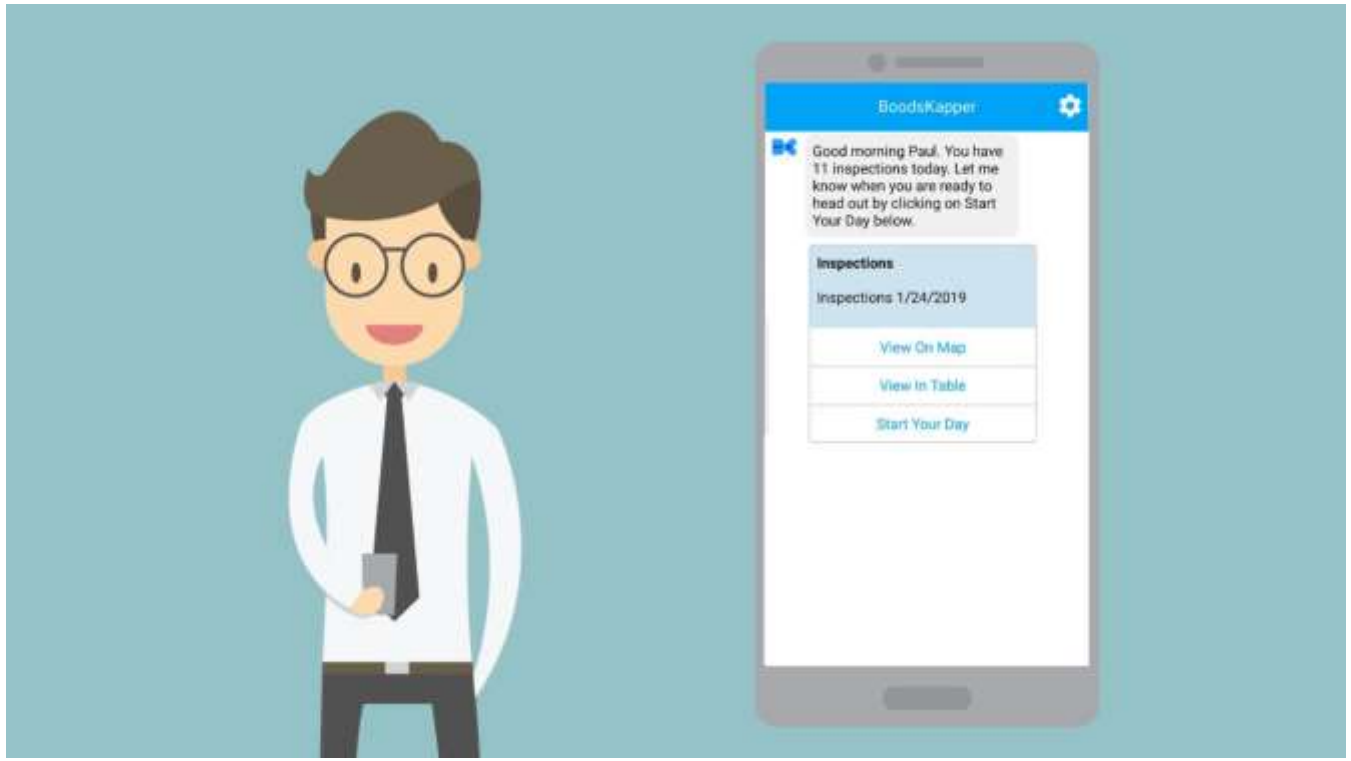
"With our new software, initial inspections are done on the same day and annual inspections are done within the same month."

Bejoy Narayana, Boodskapper CEO

AI to support Improved, Safer Public Housing

AI & machine learning analyze data from inspectors to

- improve inspection schedules & reduce travel time
- Improves inspector accountability - solution randomizes inspectors' routes, dramatically reducing the chances that the same inspector sees the same property twice
- analyze social media content to see what users and residents are saying about their apartments and landlords



"We optimize the inspection routes with SAP HANA. If there are 16 inspectors going to a total of 160 places a day, there are millions of possible routes. Everyone is going to different places every day, but their driving time is also down because we optimize routes…"

Bejoy Narayana, Boodskapper CEO

Virtually Travelling Europe and US – Our Route Today

Social and Health Services in Kymenlaakso, Finland

Good to Know

Kymenlaakso (Kymsote)
is a joint municipality authority of the Kymenlaakso region, and is comprised of six municipalities: Kouvola, Kotka, Hamina, Pyhtää, Miehikkälä and Virolahti.
Kymsote employs 5,700 professionals in various fields, serving 167,000 inhabitants of the region.

Social and Health Services in Kymenlaakso

Kymsote
Social and Health Services in Kymenlaakso

Kymsote

produces health services, family and social welfare services, and services for senior citizens that promote health and everyday wellbeing and functioning

Ambition

- effective preventive actions require knowledge about our customers and share data among all relevant providers – and relevant data protection
- Health and welfare organizer need to know what is needed and what the current combination of services he/she is – and derive new combinations out of this

Digital Mean

- Kymsote‘s strategy is based on modern platforms for increased customer engagement
- Kymsote choose SAP C4HANA components to cover client data, & service and product offerings

360

Degrees

Social and Health Services in Kymenlaakso

Kymsote
Social and Health Services in Kymenlaakso

Requirements

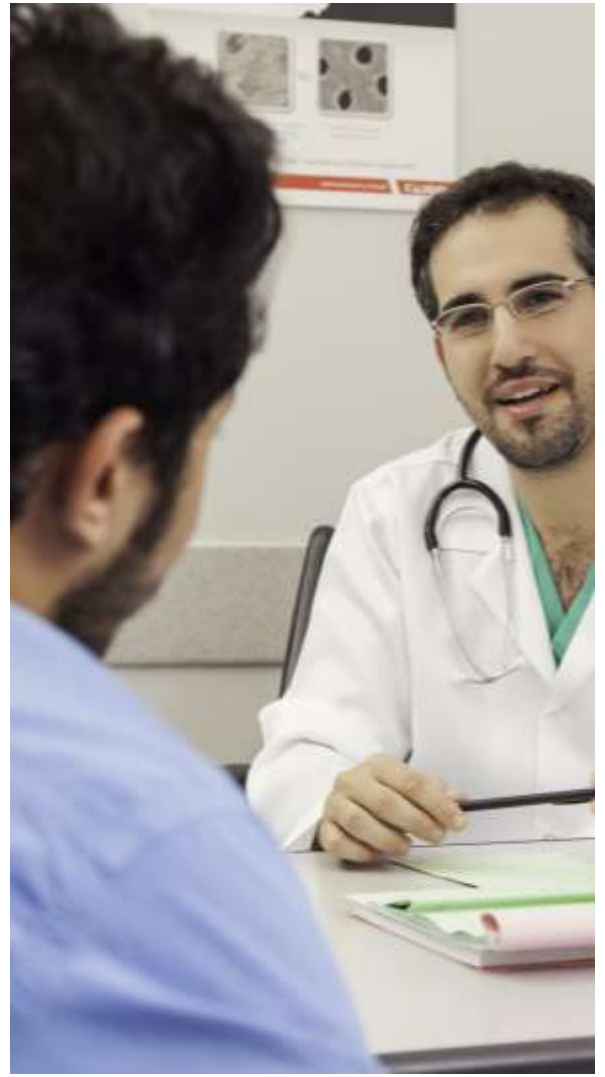
- Professionals need information of services provided for the client
- Professionals need a common understanding on history and recent activities before meeting
- Professionls and clients need to agree and forge a common plan on transparent and shared information
- Kymsote choose SAP C4HANA components to cover client data, & service and product offerings
- Professionals should not need to handle a big number of different solutions

Enables…

- shared common views with clients
- A (realistic) chance to create a common understanding and concensus with customers
- Professionals / organizers to manage service providers, to control their service quality and performance

… by Introducing the Platform

- single platform for professionals
- Built in capabilities for customer segmentation, and other e- commerce functionalities needed to increase customer engagement
- scalable platform, will be connected to all needed systems (e.g. core system, financial management system, etc.),
- high performance and very high availability



Virtually Travelling Europe and US – Our Route Today

Automate the process of detecting Invasive Species using Drone Images – Denmark

92% accuracy detecting Giant Hogweed (overall)

18 % of the Hogweed on the labelling images were not detected

Only approximately **10%** false positives

Detecting Invasive Species using Drone Images

Mission and Challenge

- Heracleum mantegazzianum (Giant Hogweed) is highly toxic plant from Western Caucasus.
- It has spread across Central and Western Europe (and North America)
- Landowners are obliged to eradicate it, due to its toxicity and invasive nature.
- Finding and removing Giant Hogweed across large areas of land is a very cumbersome and expensive manual process.

Digital Response

The goal of this project is to automate the process of detecting Giant Hogweed and to support the removal of this plant by exploiting new technologies such as drones and image recognition/detection using neural networks and Deep Learning.

The key objective is detection rates better and faster than those by humans

Benefits and Outcomes

Business / Social

- overall results very promising
- validation accuracy on 92% when we validate on images coming from the same project (area / municipality).
- Developped algorithms can detect Giant Hogweed at a more than fair level
- still too many false positives – needs to be addressed in a future phase
- main issue is the current level of data quality

IT Department

- “Flexible Data Processing Platform” combining Hadoop and SAP HANA
- Highly effective and leveraging the different characteristics of each technology stack
- Hadoop stack was utlized to process unstructured image data with machine learning algorithms
- SAP HANA was used as the database and application platform delivering performance and stability not easily achieved with Hadoop alone

Human Empowerment

- Free up time (and resources) of the Biologists, Landowners and other people required to detect invasive species by using Deep Learning and Neural Networks
- modern UIs and applications
- streamline the removal process of instances of the invasive species
- detect patterns of the existence of the invasive species
- improve the management of the overall eradication process

Virtually Travelling Europe and US – Our Route Today

Patient feedback at Basel University Hospital, Switzerland

„With the central management of patient feedback we have taken a sustainable step towards increasing patient satisfaction.”
Thomas Wyss,
Head Digitalization & ICT Administrative Services,
Universitätsspital Basel

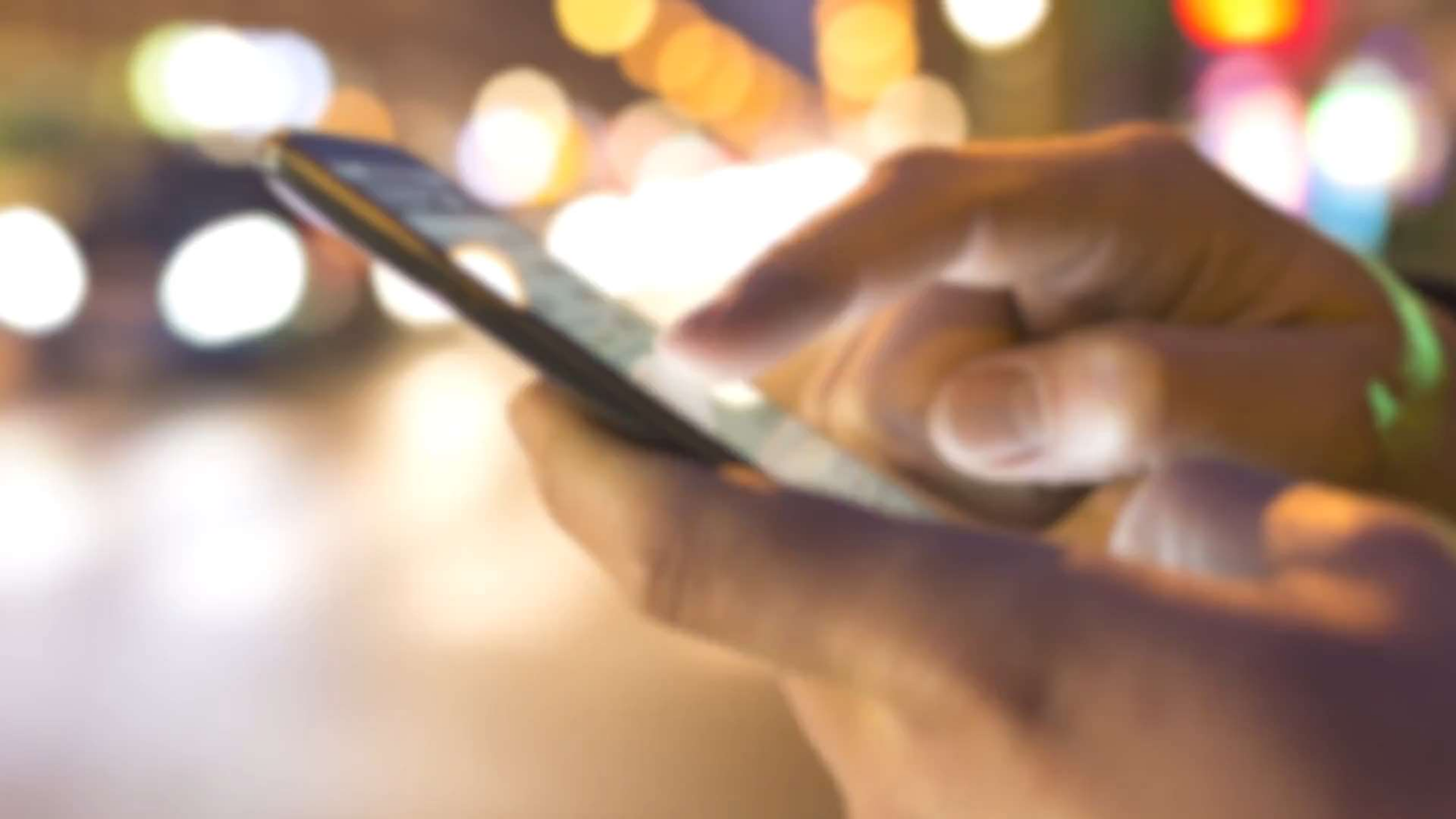
Patient feedback at Basel University Hospital

Organization

- The University Hospital Basel is one of the leading medical centers in Switzerland
- 7,000 employees

Achievements

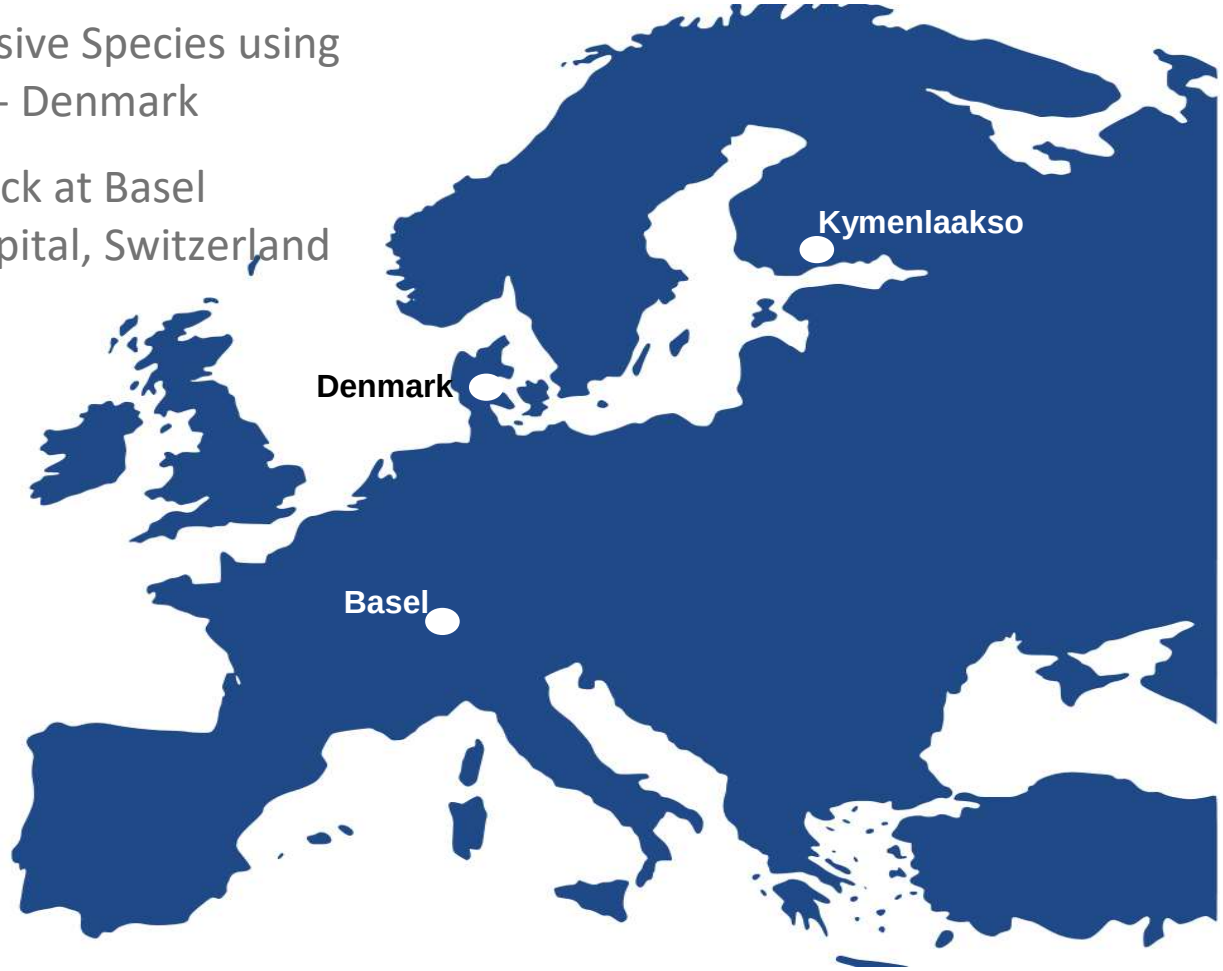
- Continuous improvement of clinical processes and patient satisfaction
- SAP Service Cloud as an important cornerstone for the digitalization of the patient feedback process
- Additional systems from the SAP Customer Experience Portfolio can be used to optimize the processes of referral management and general communication in the hospital



Virtually Travelling Europe and US

Today‘s stations was:

- New York Restaurant Inspections
- AI to support Improved, Safer Public Housing at Dallas
- Social and Health Services in Kymenlaakso, Finland
- Detecting Invasive Species using Drone Images - Denmark
- Patient feedback at Basel University Hospital, Switzerland




New technology
Is bringing new opportunities

Digitization - what does it mean for public sector organizations?

Season 4: Smart City and Smart Country Cases

Ainars Bemberis
Country Manager, SAP Latvia

PUBLIC

THE BEST RUN SAP