Ensuring the availability of healthcare services during and after Covid-19

by auditing of existing processes and using data to locate process improvements potential

Māris Svilāns, CEO, Infotrust

m.svilans@theinfotrust.com

Polling Question 1

What are the key opportunities you see with data analytics?

👏 Improve governance, e.g. more healthcare operations transparency

👍 Easier access to healthcare information and data
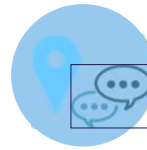
❤️ Improved Patient services

🎉 Better quality of work e.g. better personal decision making

Disruption in healthcare

Political
- Increased regulation & compliance
- Increased pressure to do more with less and improve population healthcare management

Social
- "Lifestyle illness" – diabetes, heart disease, etc
- Shifting demographics – aging populations
- Demand for consistent care
- Greater visibility of patient experience / satisfaction

Economic
- Massive pressure to decrease costs
- Rising costs of Covid-19 pandemic
- Rising cost of drugs and treatment
- More competition, even in public health systems

Technology
- Move to digitization of health records
- Increased concern of patient confidentiality / data security and GDPR (EU).

Common challenges in healthcare

- Demand - changes e.g. ageing pop

- Covid-19 pandemic

- Risk/priority - safety/prevention

- Rising costs e.g. pharma

- Capacity/capability/productivity

- Staff wellbeing/retention

- Accountability/transparency/outcomes

- Collaboration

- Digitalisation/cyber security / GDPR

High spend

High waste
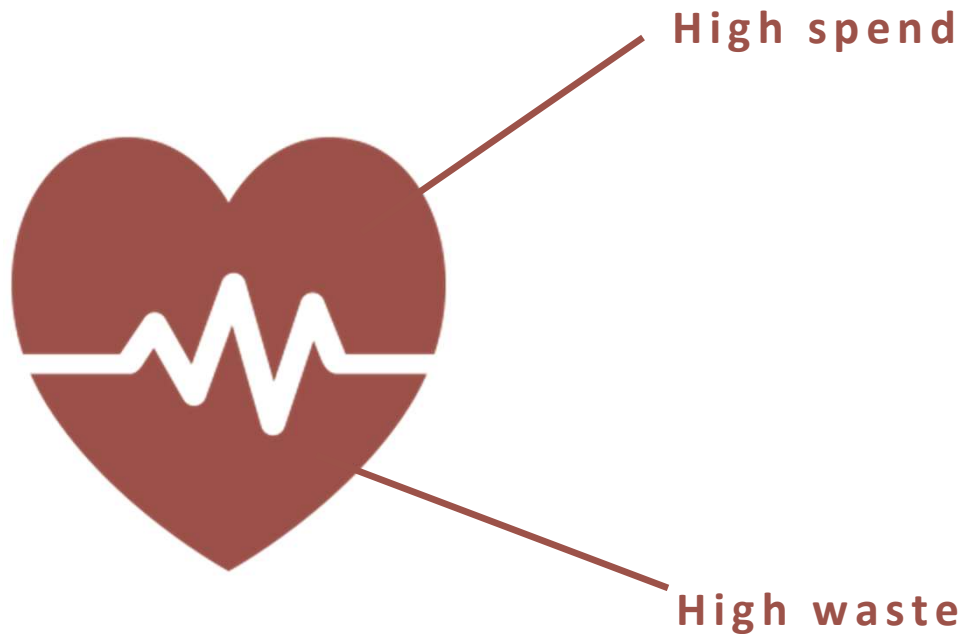
Our challenge - availability of healthcare services

Biggest issue – long queues on the appointment with doctors

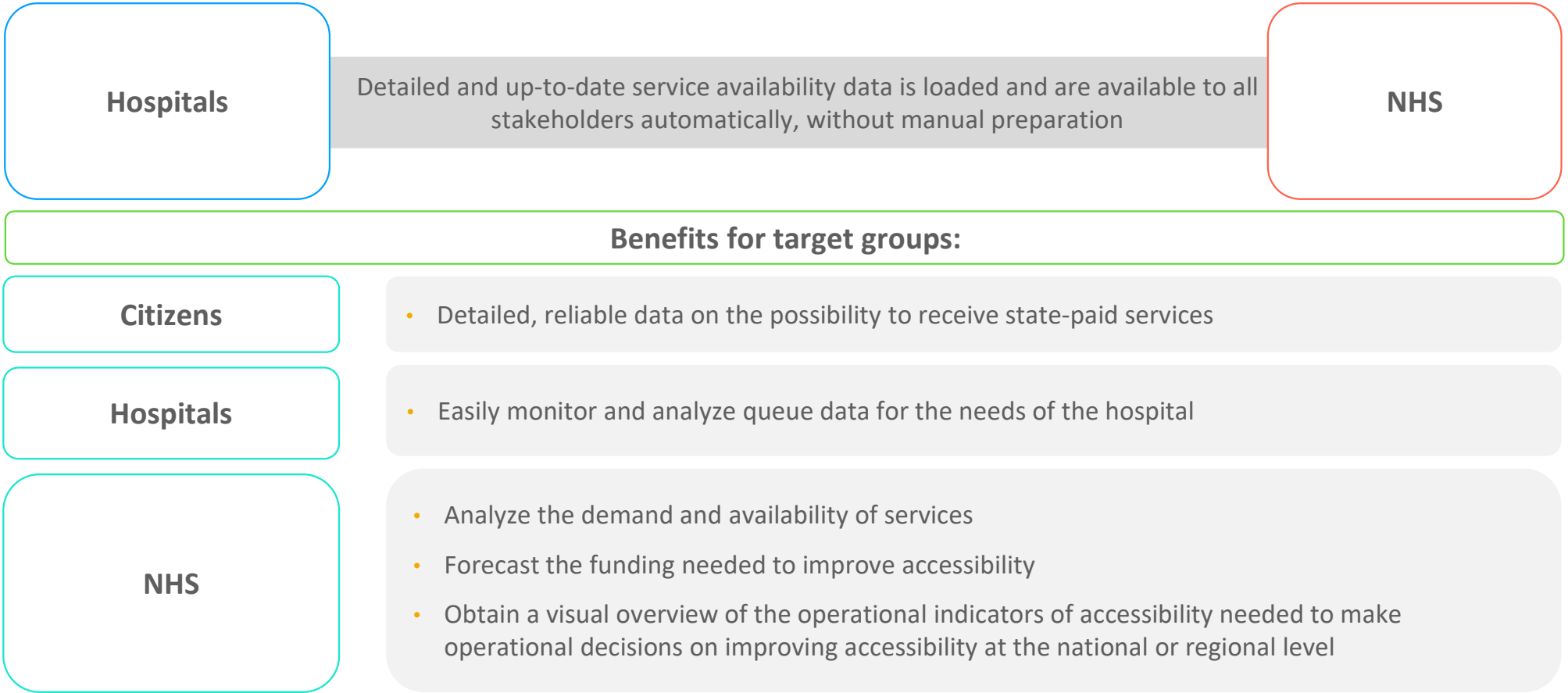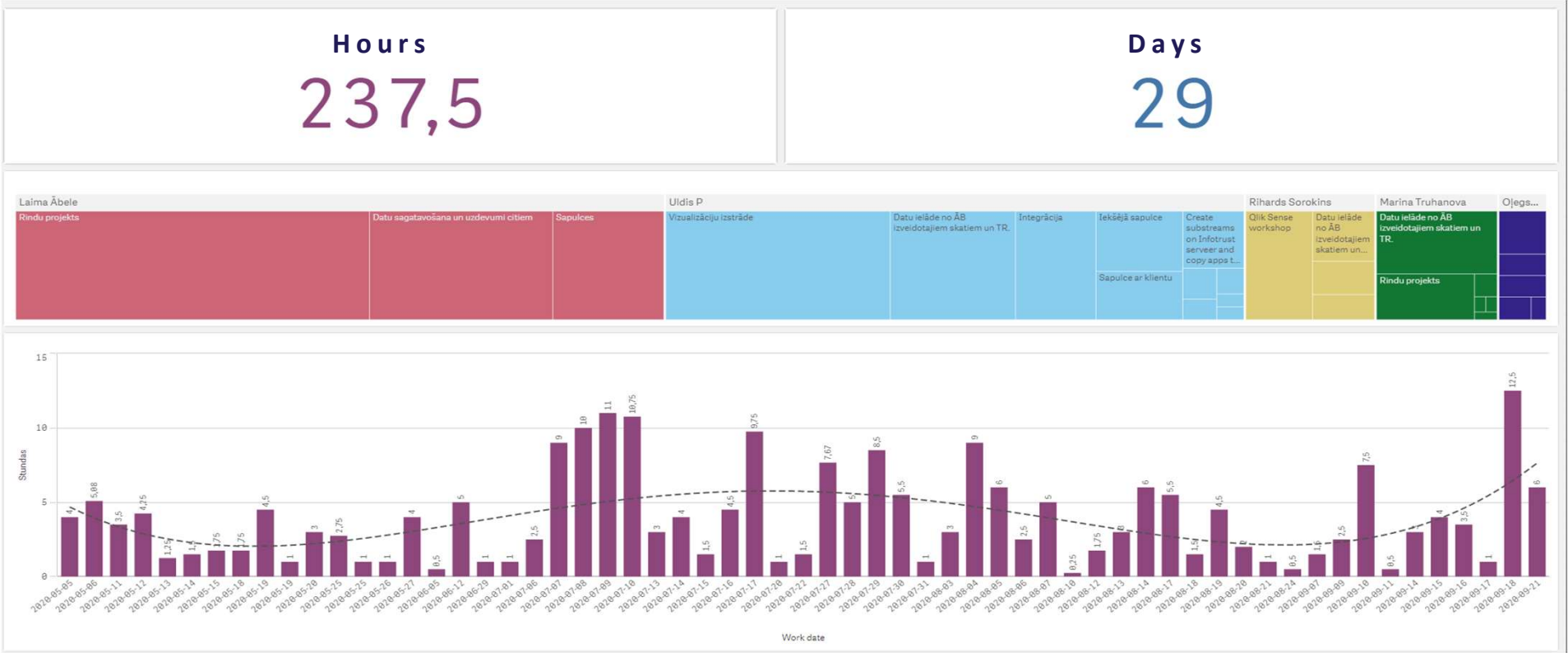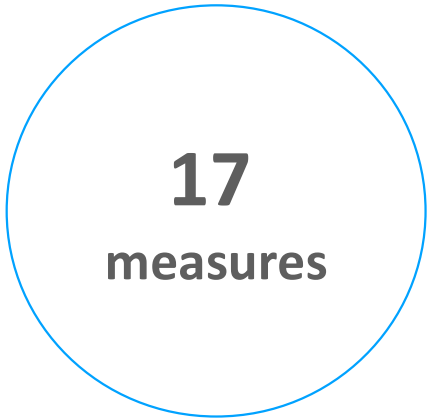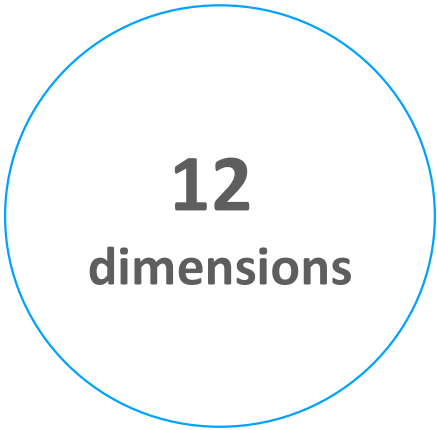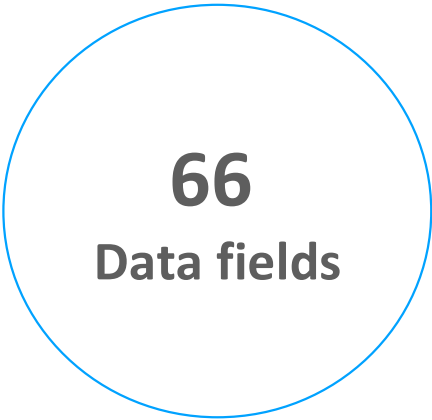| Citizens	Hospitals	National healthcare service (NHS)
• At least a 30-day delay for information on state-paid services available to residents • Several calls to NHS related to information about queues, including data reliability complaints • Number of services reduced due to Covid-19 situation	• Manually provided data for the nearest available appointment date • Data preparation is time consuming • Each hospital interprets the data to be provided differently	• Manual process, compiles and publishes data submitted by hospitals • Data are published with a lag • Insufficient data detail for the analysis of service availability at the national and regional level • There are different approaches to data provision by healthcare institutions • 21% of calls received by NHS are related to queues for government-paid services * (2020)

Goals of the project

Hospitals — Detailed and up-to-date service availability data is loaded and are available to all stakeholders automatically, without manual preparation — **NHS**

Benefits for target groups:

Citizens
- Detailed, reliable data on the possibility to receive state-paid services

Hospitals
- Easily monitor and analyze queue data for the needs of the hospital

NHS
- Analyze the demand and availability of services
- Forecast the funding needed to improve accessibility
- Obtain a visual overview of the operational indicators of accessibility needed to make operational decisions on improving accessibility at the national or regional level

Project scope was delivered in 29-man days

Project data scope

66
Data fields

12
dimensions

17
measures

Some initial observations

Rise in phone consultations – April 2020, first Covid wave

Remote (phone) consultations

973
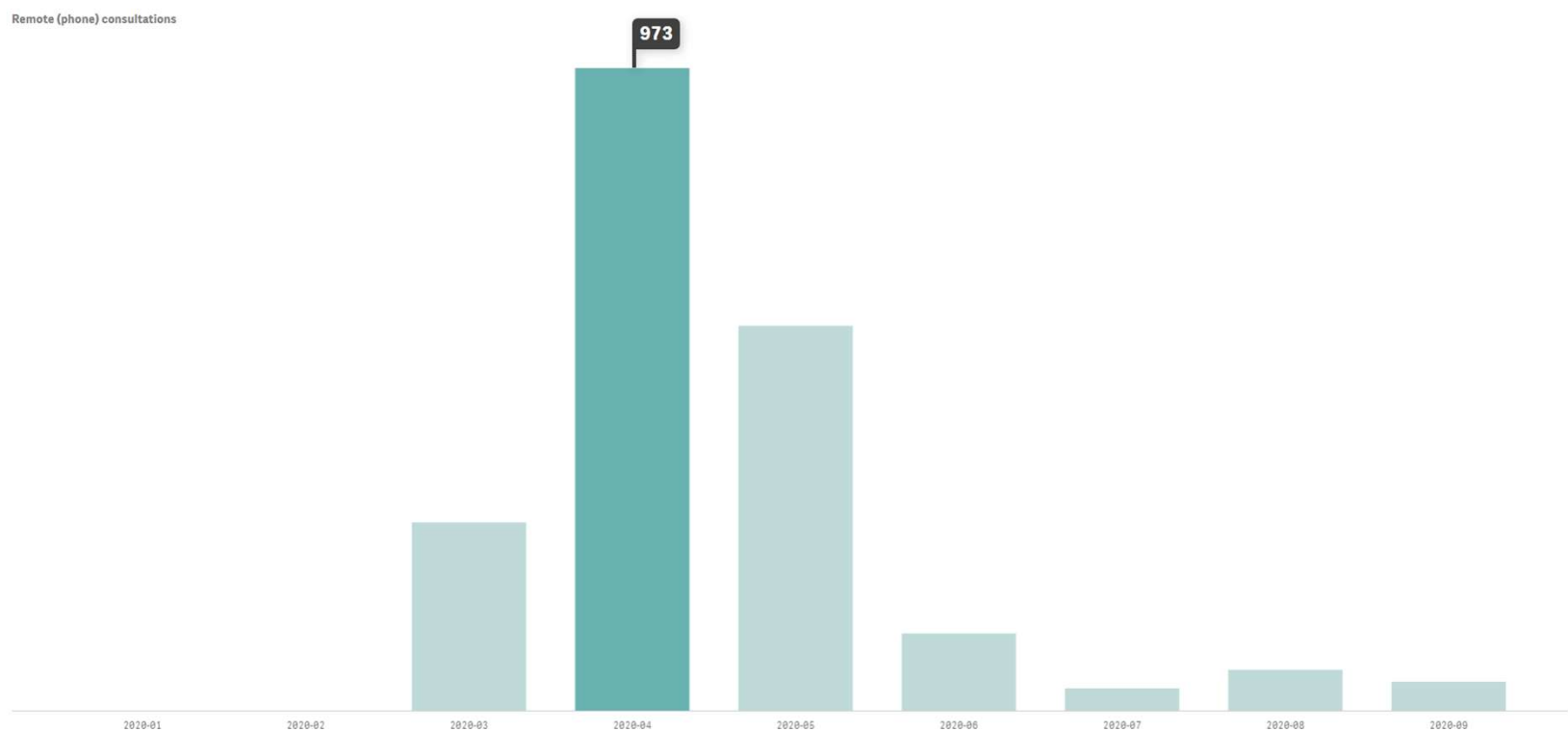
Hidden costs of hospital call center – deleted appointments

Just for one hospital and for one specialty
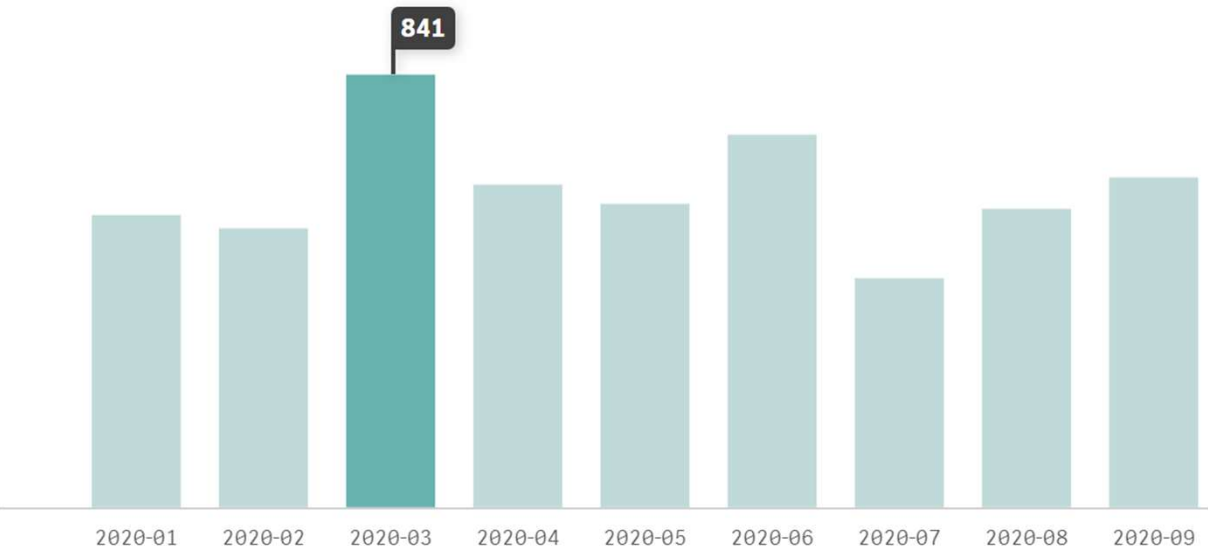
4,6 FTEs for just one hospital

Number of calls	Length of call, min	Number of specialities	Total call time, hours
800	2	30	800

Waiting time for the appointment

Green corridor vs standard process
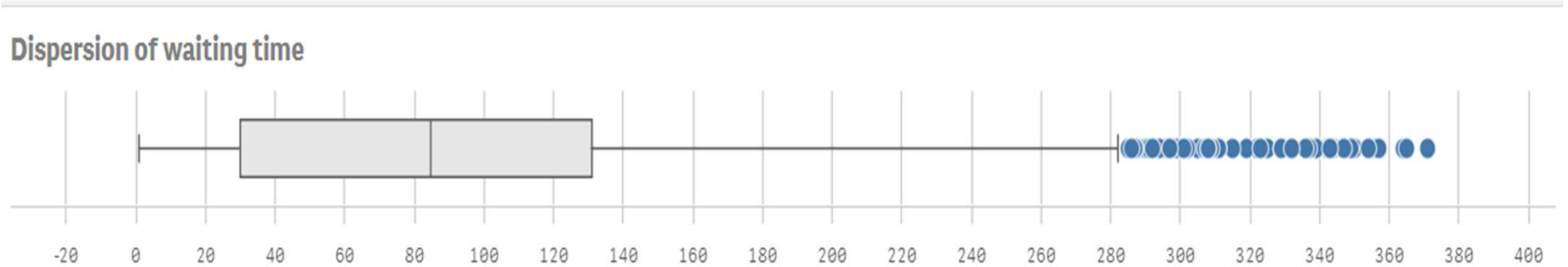
Green corridor (days)

6,8 12,5%

over 10 days

First visit (days)
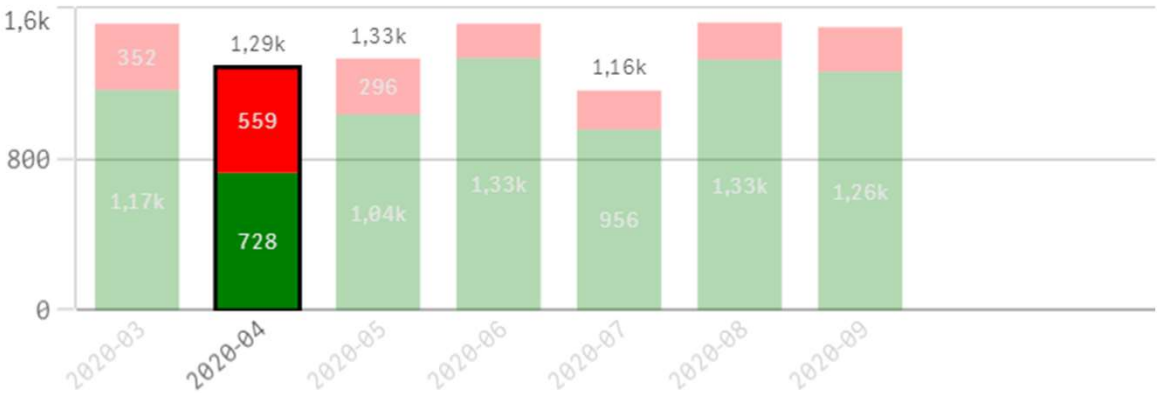
62,0 51,9%

Over 60 days

Dispersion of waiting time

Some very extreme values – sometimes data quality issues
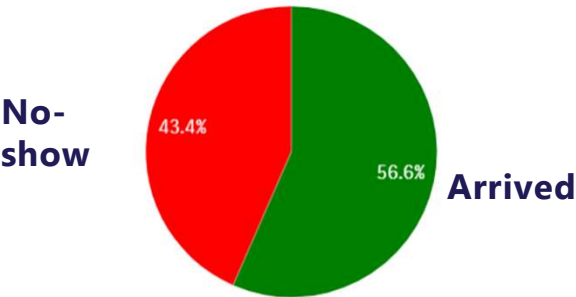

Dispersion of waiting time

First Covid-19 Wave had most impact on no-shows

Due to canceling of some services

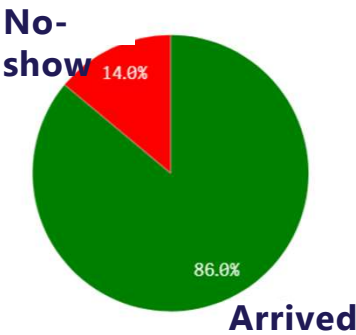Distribution of patients by enrollment performance by periods

Distribution of patients by enrollment performance

No-show by appointment type (excluding Covid-19 wave)

Doctor

Distribution of patients by enrollment performance

No-show 14.0%

86.0% **Arrived**

Call center

Distribution of patients by enrollment performance

No-show 15.6%

84.4% **Arrived**
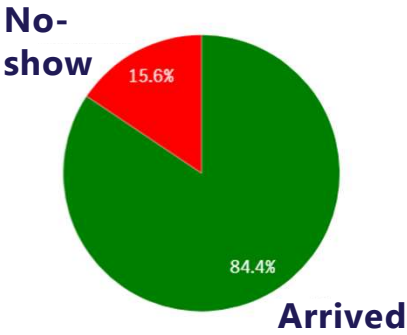
E-appointment

Distribution of patients by enrollment performance

No-show 10.3%

89.7% **Arrived**
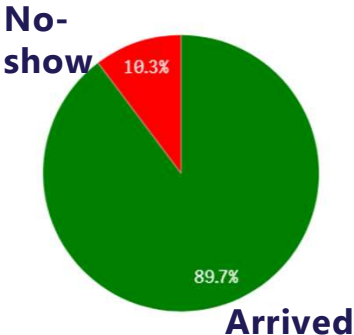
Idle time is at least 14% of wasted capacity

14.2%
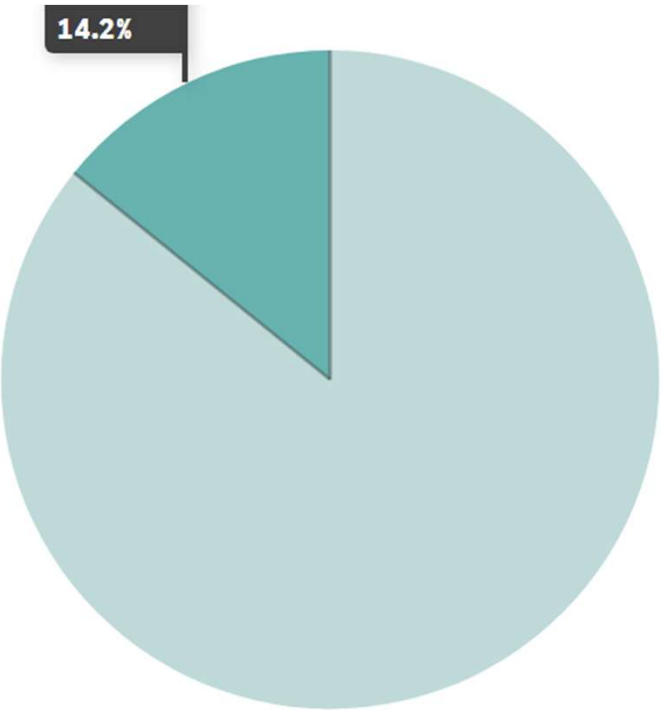
What-if we could gain 14% back?

Just one hospital and one specialty selected – results are outstanding!

| Avarage of working h per month	Increase of capacity (%)	Additional doctors	Change of waiting time (days)	Change of number of patient per ...
35:06	14	1,54	-12,76	125

Doctor 🔍
Year-month 🔍

Values

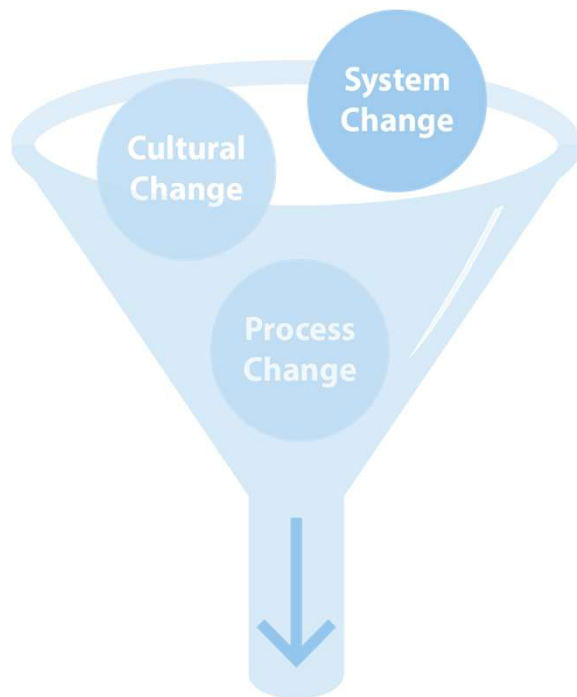|	Days	Working hours	What-if hours	Available number of appointments	What-if number of appointments	Avg doctor working days	Appointments per day	Patients	Visited	No show-up	Not came(%)	Avg waiting time (days)	What-if waiting time (days)
Total/Average	281	1158:24	1320:34	2681	3 056	41,9	41,9	2118	1850	268	12,7%	103,1	90,5
⊕ 01015110662	25	127:00	144:46	507	578	20,3	7,9	337	324	13	3,9%	72,8	63,9
⊕ 05078610806	30	106:00	120:50	212	242	7,1	3,3	132	96	36	27,3%	117,7	103,2
⊕ 07078213703	23	148:00	168:43	339	386	14,7	5,3	317	288	29	9,1%	71,5	62,7
⊕ 19017810916	21	112:00	127:40	224	255	10,7	3,5	227	213	14	6,2%	89,6	78,6
⊕ 22127511965	45	165:24	188:33	330	376	7,3	5,2	274	229	45	16,4%	197,5	173,2
⊕ 23075710632	24	80:30	91:46	192	219	8,0	3,0	187	169	18	9,6%	73,0	64,0
⊕ 26028611715	23	35:30	40:28	71	81	3,1	1,1	47	0	47	100,0%	100,8	88,4
⊕ 26064810607	11	35:00	39:54	36	41	3,3	0,6	35	26	9	25,7%	6,4	5,6
⊕ 28035210628	42	157:00	178:58	386	440	9,2	6,0	301	266	35	11,6%	112,0	98,2
⊕ 29128010419	37	192:00	218:52	384	438	10,4	6,0	261	239	22	8,4%	111,0	97,3

Demonstration of the data analytics model
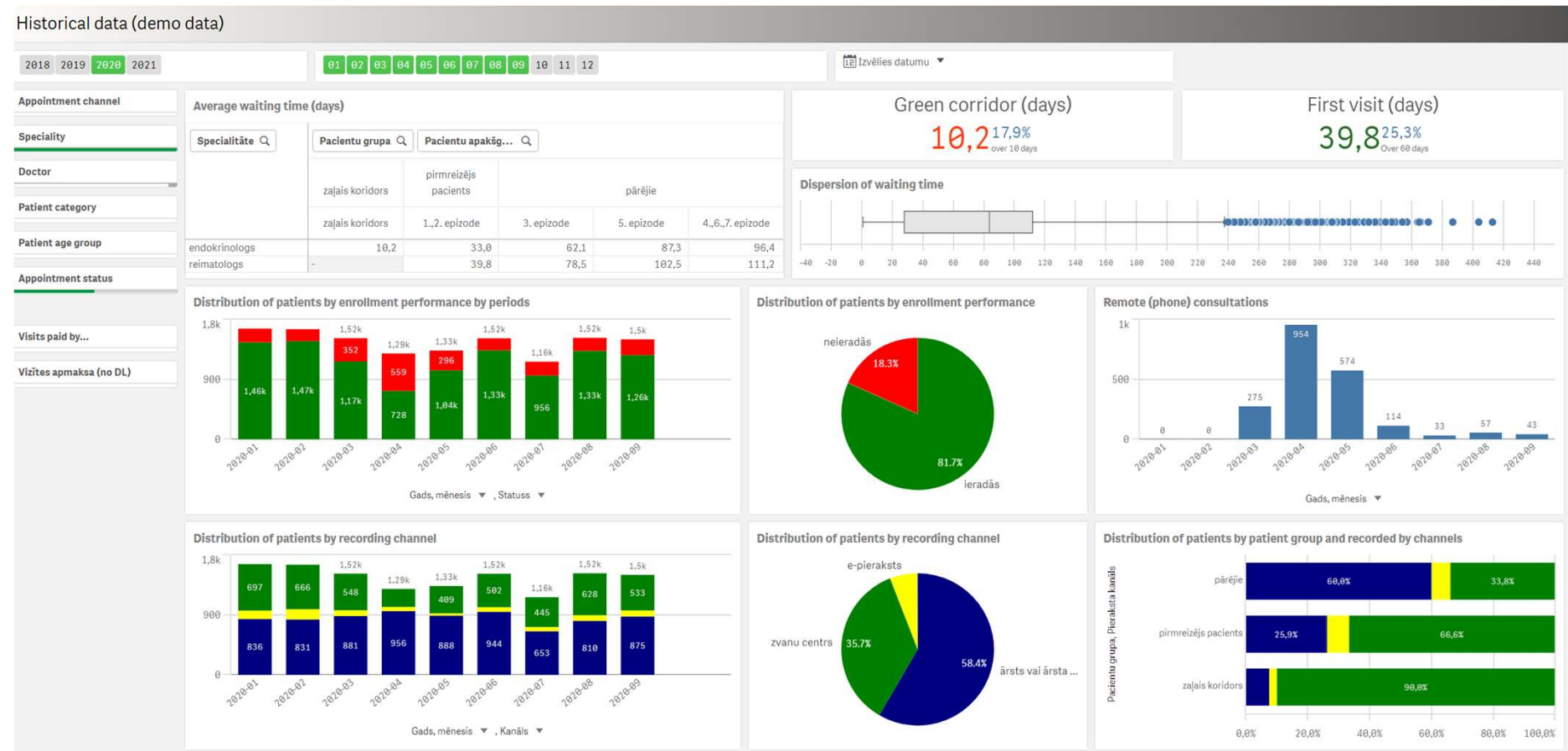
Conclusions for improvement potential

- **Improvement by 5%** of appointment efficiency trough e-appointment would deliver for one hospital the following savings:

    - Reduction of monthly costs per hospital in call center by 2 FTE

    - Increase of available doctors' time equal of hiring 1,5 FTE per specialty

- The e-appointment and process digitalization should be continued as preferred appointment channel which leads lowest no-shows

How data can be used to mitigate these challenges?

- **System change:**

  New organizational models and funding designed to incentivize and support improved care. For example: value-based reimbursement.

- **Cultural change:**

  Changing roles and responsibilities, effective team-work, staff and patient empowerment, greater transparency, and collaboration.

- **Process change:**

  Evidence-based redesign of core clinical, business, and other processes. It should incorporate innovation and an outcomes-based approach.

  All require more accurate, granular data for fact-based decisions

System Change

Cultural Change

Process Change

Healthcare transformation

Collaboration

| Hospitals | Detailed and up-to-date service availability data is loaded and are available to all stakeholders automatically, without manual preparation | NHS |

Cross-Agency Collaboration:

Sharing data across agency / department to see the whole story is extremely topical.

Being able to connect health data to police data to education data to welfare data to get an all-encompassing view of client interactions with each agency can lead to better identification and more proactive management of these same clients.

Open government data

Making collective smarter decisions

Open Government Data (OGD) is a philosophy- and increasingly a set of policies - that promotes transparency, accountability and value creation by making government data available to all.

Why Open data? Transparency.

1. Releasing social and commercial value.
2. Participatory Governance.

COVID has accelerated the adoption of Open data for many government agencies when dealing with the pandemic responses.
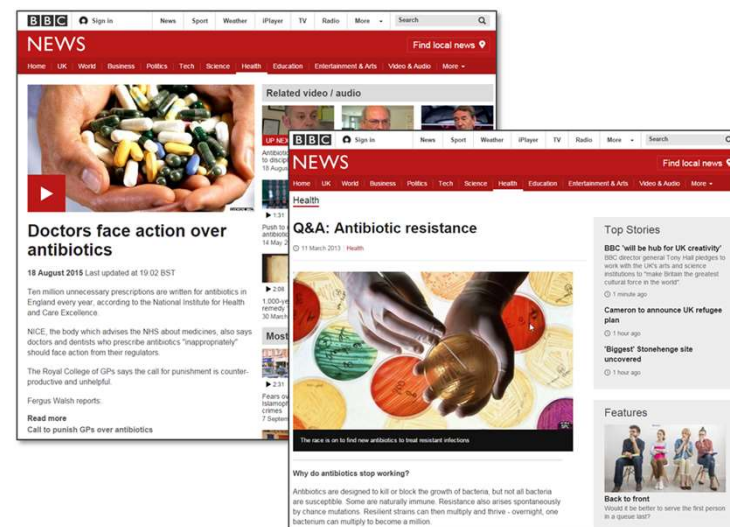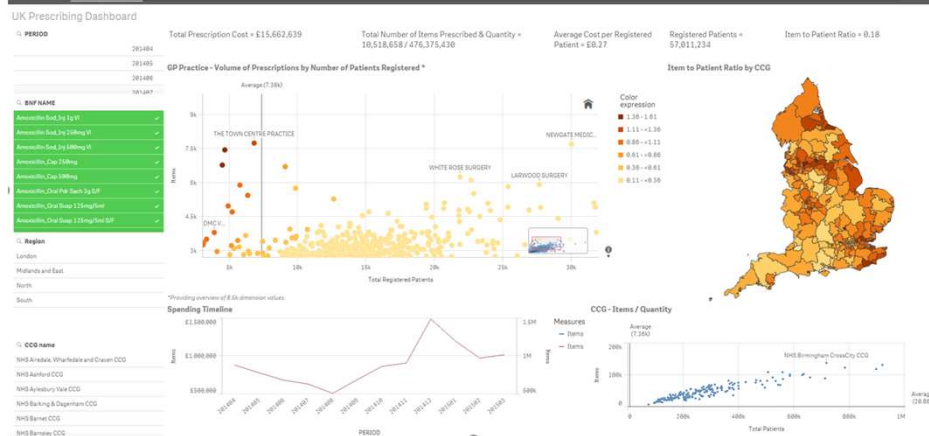
We have seen benefits for consumers through Open data initiatives like Open Banking, Open Energy

# Some examples of open data in healthcare

UK prescribing

- National news coverage on antibiotic over prescribing

- Open-data available to all - 13Gb / month

- £8Bn / $12Bn annual spend

Data analytics can help to deal with these challenges

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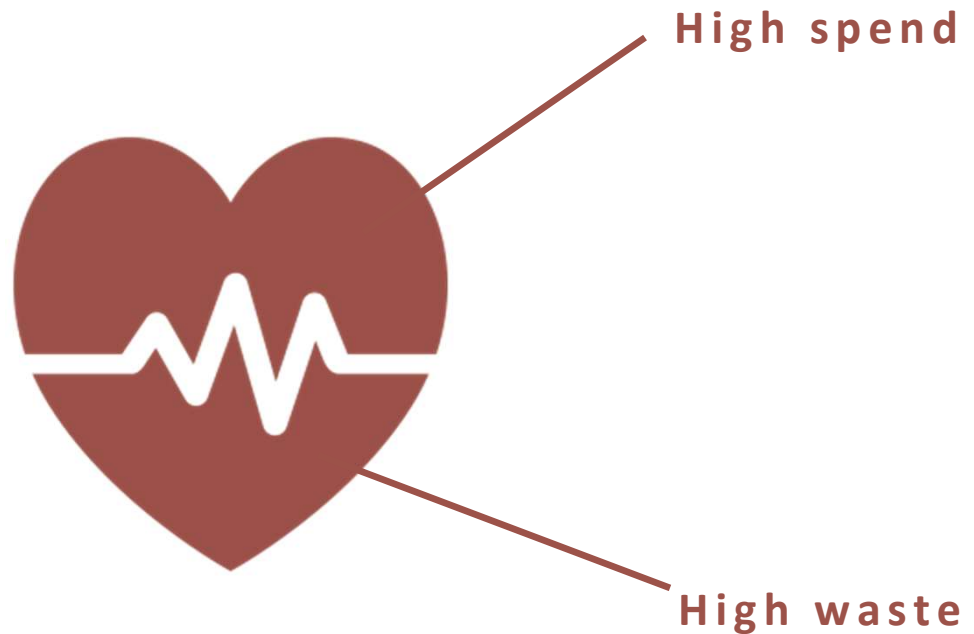
- Digitalisation/cyber security

Reduce spend

Decrease waste

Q&A

Contact :

Māris Svilāns

E-mail: m.svilans@theinfotrust.com or Linkedin