Powering Digital Transformation for Healthcare

Real-time, AI-driven, Actionable

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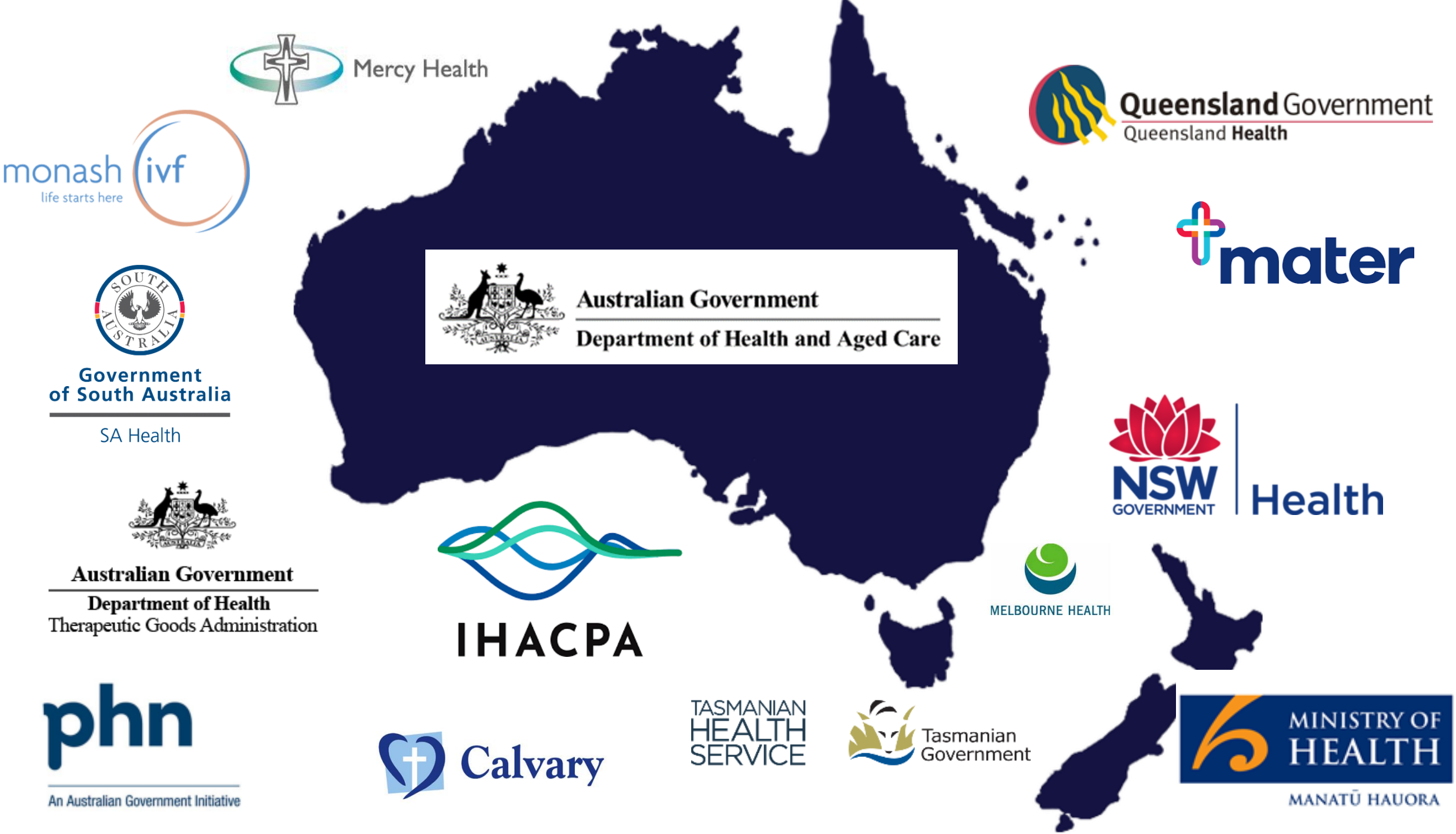
data
can
change the
world
ATLANTIC
OCEAN
INDIAN
OCEAN

>3,000 Healthcare Customers Globally

use Qlik to improve patient outcomes and experience, reduce costs, and optimize processes


Mercy Health
monash ivf
life starts here
Queensland Government
Queensland Health
mater
Australian Government
Department of Health and Aged Care
Government of South Australia
SA Health
NSW GOVERNMENT
Health
Australian Government
Department of Health
Therapeutic Goods Administration
IHACPA
MELBOURNE HEALTH
phn
An Australian Government Initiative
Calvary
TASMANIAN HEALTH SERVICE
Tasmanian Government
MINISTRY OF HEALTH
MANATŪ HAUORA

Market Forces Driving Change

Aging population

X 2.5

By 2066, it is projected that older people in Australia will make up between 21% and 23% of the total population

Increasing funding

>7%

Total healthcare expenditure is projected to increase faster than ever over the next 40 years, from 19% of total government spending in 2021−22 to 26% in 2060−61.

Adoption of new digital technologies

103%

increase between 2019 and 2021 of corporate funding for digital health. Only going to grow.

Tsunami of Information

73 days

Time it will take for today's healthcare information to double

Image source: https://www.logmore.com/post/history-of-supply-chain-management

What is required to navigate in the New Normal?

"Digital Business Agility"

Hyperawareness: Detect and monitor changes in your business environment

Informed Decision Making: make the best decision possible in any given situation

Fast Execution: carry out its plans quickly and effectively

Source: https://www.imd.org/research-knowledge/articles/the-digital-business-agility-imperative/

Healthcare Response

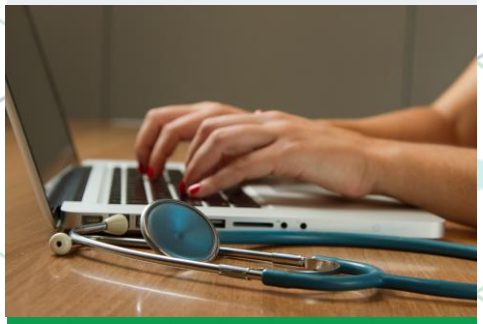
Organizations must be data-driven to improve agility to respond

TRADITIONAL BUSINESS INTELLIGENCE	DATA-DRIVEN & AGILE ORGANIZATION
x Insights delivered in **standalone dashboards and reports**	✓ **Analytical applications** embedded in business processes
x Mostly **historical view** of business data	✓ **Forward looking intelligence** from real-time data to prescribe actions in response to business moments and events
x Reliant on **brittle, preconfigured data infrastructure** that provides batched business-ready data for analytics	✓ Establishes an **agile, flexible, and intelligent analytics data pipelines and architecture**
x **Designed to inform**, not compel action	✓ Designed to trigger **immediate actions**

Business Strategies

Driving Healthcare transformation

Financial Resilience	Increased Agility	Enhanced Control	Improved Accuracy	Strategic Insights
Accelerate use of Artificial Intelligence to improve financial resilience	Automate real-time action for actuals vs. plan variances for increased agility	Collaborate with LOB for optimizing service delivery, quality, and operations	Streamline predictive analytics for more accurate, real-time information	Reimagine how your org uses data to be strategic and action-driven



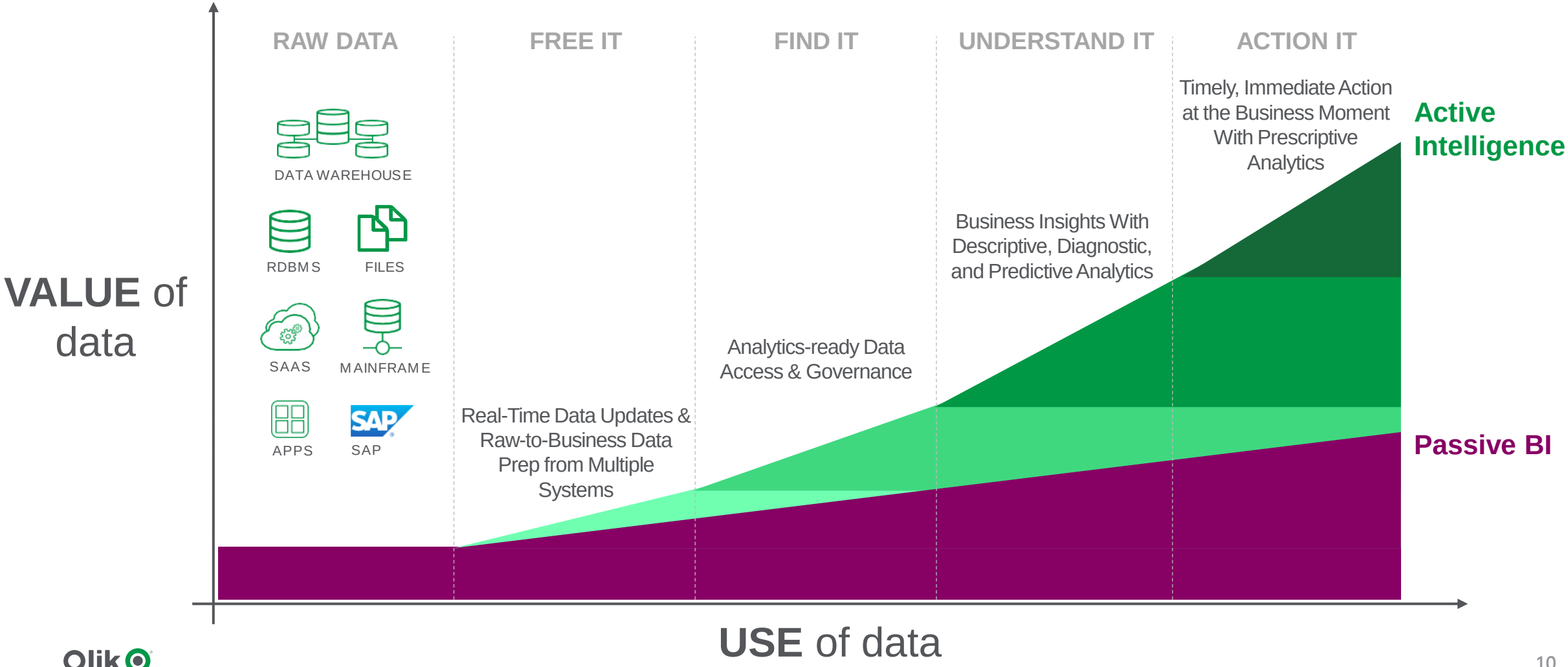
Business Use Cases

Data-Driven Care and Operations

Financial Resilience	Increased Agility	Enhanced Control	Improved Accuracy	Strategic Insights
Patient Costing	Command Center	Virtual Hospitals / Care	Clinical Quality & Variation	NWAU / Activity Forecasting
CFO Dashboard	Workforce Productivity	Reduce Readmission / Patient Experience	Predictive Readmissions	Value Based Care Performance

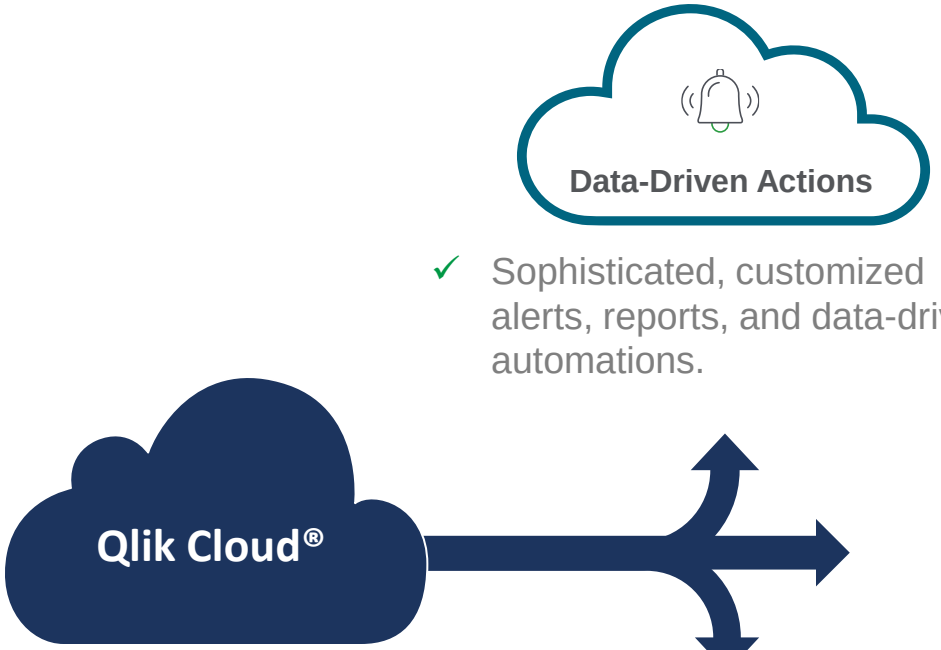
Analytics built to be Actionable

Now your data can move in stride with your care



Going Beyond the Dashboard

Three major advantages



✓ Sophisticated, customized alerts, reports, and data-driven automations.

✓ Automate and integrate across analytics, other SaaS silos, and the end-to-end business

✓ Augmented experiences that upskill and provide deeper insights and data-driven decisions

Command Centre

Predicting and Managing Demand and Patient Flow

continuous

- Census and Demand is being **monitored** real-time, **continuously** updated with patient scheduling and EMR data and Ambulance systems.

9:15

- The AutoML is **running models trained** from Ambulance arrival and historical ED data to **finer predict** patient demand and bed usage.

9:35

- **Predictive** dashboards show influencers like weekday, time of day, weather, age, specialty, and more - **delivered** to the management and Demand Mgt / Patient Flow teams.

9:45

- Team members receive **alerts** of patients that are scheduled to arrive requiring admission to proactively manage bed availability.

10:00

Patient Flow team takes **action** with a button in the app by **triggering events:**

- Send reminder msgs re discharges on wards
- Block beds on outlier wards for admissions
- Waiting for what updates

BUSINESS OUTCOMES

↑ETP

↑Agility

↑Patient Care

↑Confidence

↓Time

Alert → **Predict** → **Report** → **Prescribe** → **Act** → **Business Value**

Command Centre: Predicting & Managing Demand

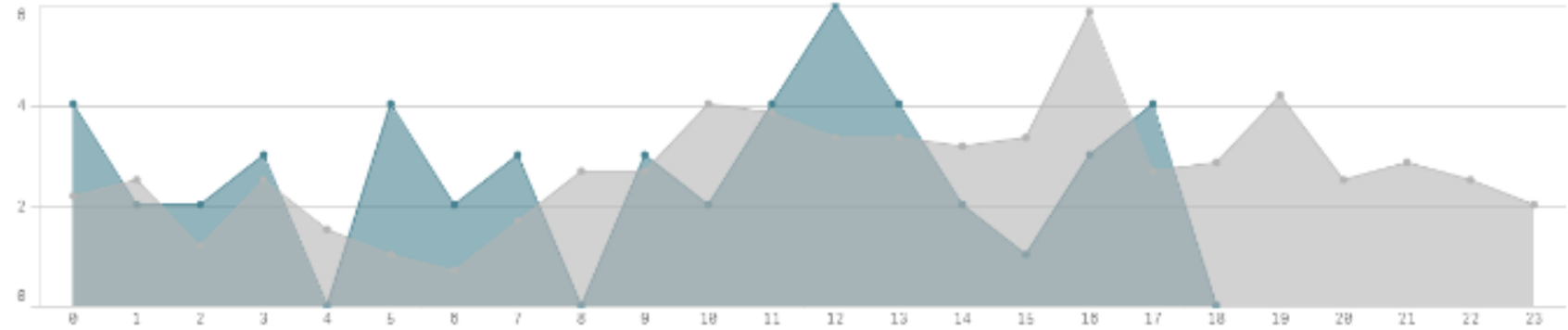
Flow Into ED

Ambulances

Select Site: FGH | RLI | WGH

AMBULANCES INCOMING	NEXT AMBULANCE ETA	AMBULANCE ARRIVALS	AMBULANCES WAITING	AMBULANCES IN HANDOVER
3	1 MINUTES	4 ▲ 2 vs. prediction IN PAST 60 MINS	1	0

AMBULANCE ARRIVALS BY HOUR

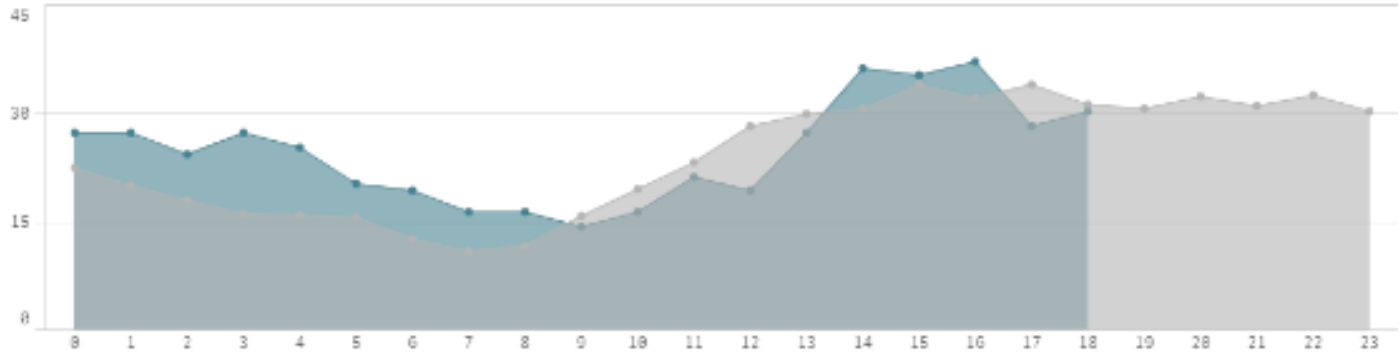


Emergency Department

ARRIVALS	WAITING FOR TRIAGE	WAITING TO BE SEEN	AVERAGE WAITING TIME
13 ▲ 5 vs. prediction IN PAST 60 MINS	4	9	51 ▼ 15 vs. prediction MINUTES

MAJORS PERFORMANCE	MINORS PERFORMANCE	12 HOUR DEPT WAITS	12 HOUR TROLLEY WAITS
– vs. prediction	100% ▲ 8.8% vs. prediction	0	0

NET OCCUPANCY BY HOUR



Predicting Patient no shows

Can improve revenue and physician productivity

continuous

- Operations is being **monitored** real-time, **continuously** updated with patient scheduling and EMR data and Laboratory systems.

8:00

- The AutoML is **running models trained** from your own scheduling historical data to **finer predict** appointment cancellations.

9:35

- **Predictive** dashboards show influencers like weekday, time of day, service category, booked Dr. and more - **delivered** to the management and scheduling team.

10:00

- Team members receive **alerts** of patients that are at risk to cancel in the upcoming week.
- The analytics offer reasons on why, making it **explainable.**

3:30

Scheduling team takes **action** with a button in the app by **triggering events:**

- Send reminder emails
- Ask appointments to verify insurance
- Re-book with new recent requests

BUSINESS OUTCOMES

↑Profitability

↑Agility

↑Patient Care

↑Confidence

↓Time

Alert → Predict → Report → Prescribe → Act → Business Value

Hospital Encounter Mgt - No Shows

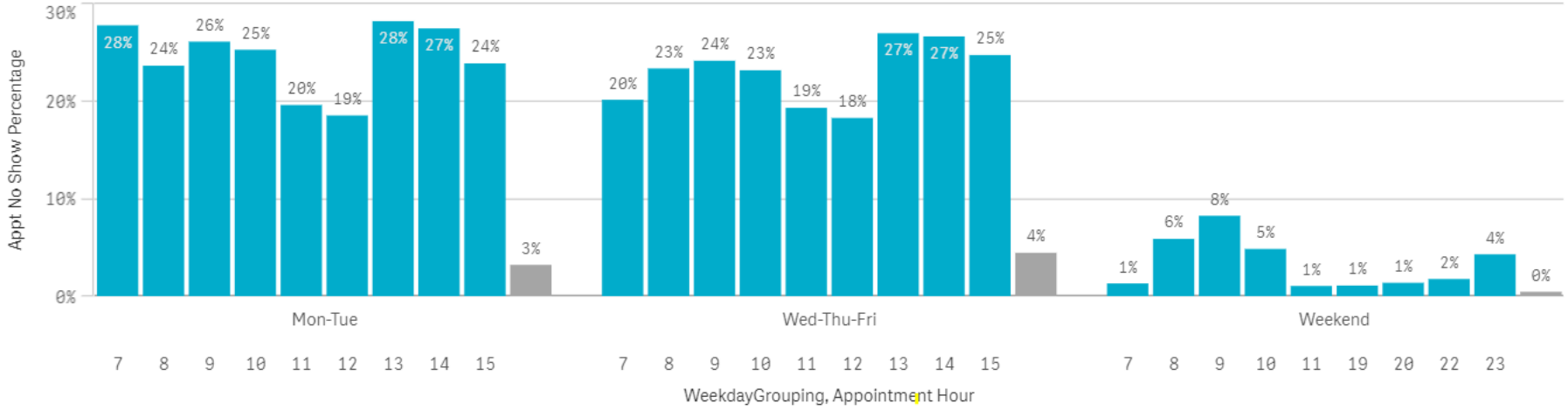
No Shows by Weekday Time

No Shows

21.8%

Qlik Encounters

Year	Qu...	Mo...	Date	Loc	Dept	Specialty	Pat ID	MRN	Appt. Status	Prov Type	Provider	Prov Abbr	Wkdy Grouping	Week Day	Account Fin Cl...



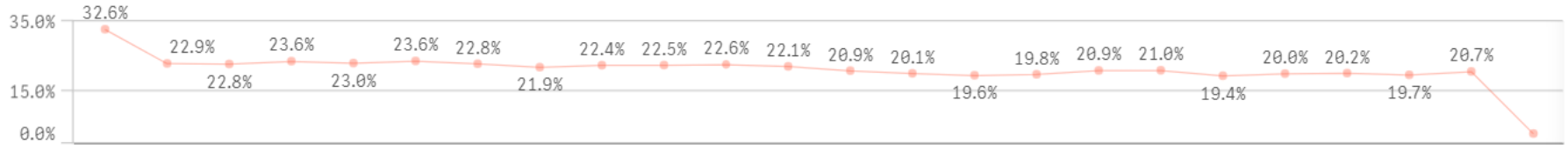
No Shows % by Insurance Type

WeekdayGrouping

Appointment Hour

	Appt No Show Percentage
6	2.7%
7	27.8%
8	23.6%
9	26.1%
10	25.3%
11	19.6%
12	18.5%
13	28.2%
14	27.5%
15	23.9%
16	10.0%

No Shows Trending



Predicting Readmissions

Modern and Fluid business processes

continuous

- Admission, Discharge, and Transfer (ADT) data being **monitored** in real-time and **continuously** integrated into Systems.

8:00

- AutoML updates **predicted** risk factors and comorbidities across **influencers** procedure, age, medical history, etc. Model also **predicts** likely **readmission date**

8:05

- **Alert** is sent for an unexpected readmission from recent patient.
- Models **identify possible pathways** and cadence for discharge follow ups.

12:30

- **Report** is automatically sent to team(s) offering insights of recent **trends** and **predicted forecasts** of readmissions and risk levels.

12:50

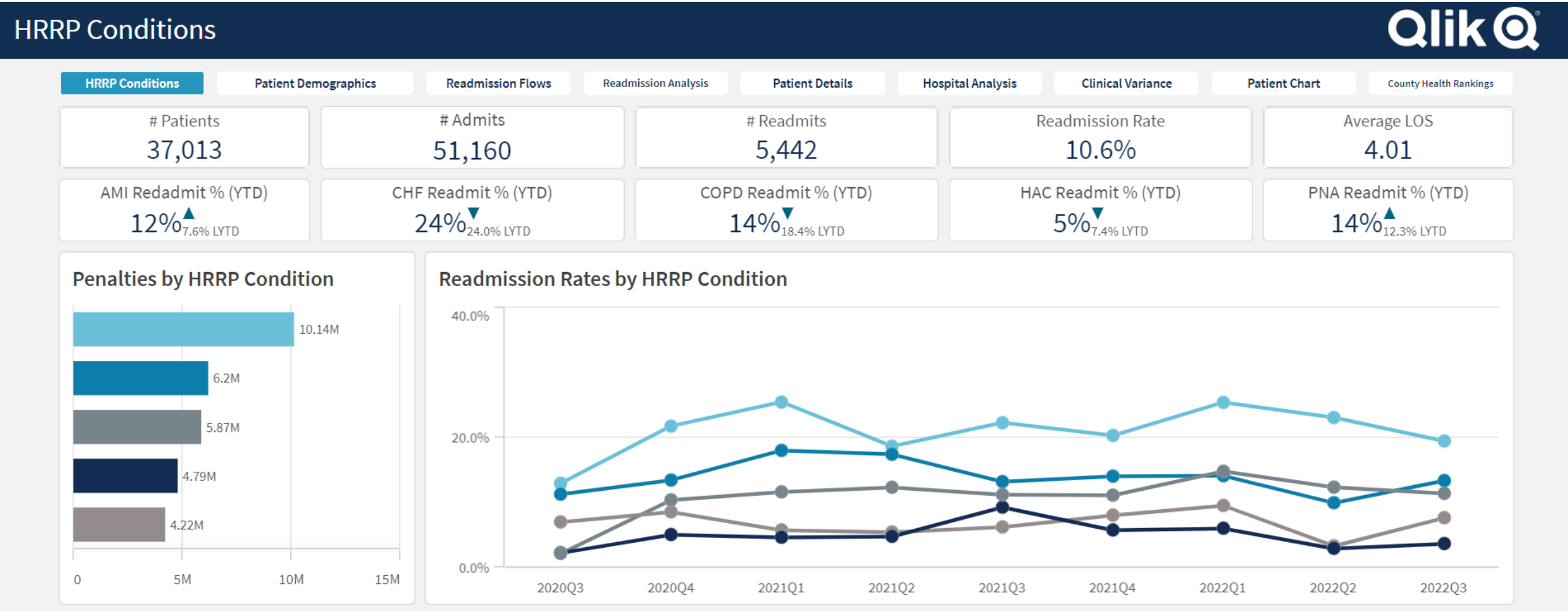
- ML model **suggests** follow up channels inside of the **Daily Readmissions report**.
- **Automated** workflow enables caregivers to update telehealth follow-ups and PCP appointments.

BUSINESS OUTCOMES

- ↑ **Quality of Care**
- ↑ **Budget Saved**
- ↑ **Agility**
- ↓ **Readmissions**
- ↓ **Risk**

Real-time → **Predict & Alert** → **Prescribe** → **Collaborate** → **Act** → **Business Value**

Hospital Readmissions – Link here



Diabetes Management

Can improve physical performance on the fly

continuous

- Operations is being **monitored** real-time, **continuously** updated with **automated** data **integration** with EMR and Laboratory Systems.

8:00

- Dr. Davis logs in to see patient conditions to check for today's appointments. Elevated Hypertension, Pre-Diabetes, etc**.**

9:35

- Sammy, previously Pre-Diabetic, comes in looking a little overweight and looks un-healthy. Doctor Davis orders A1C lab tests.

10:00

- Sammy goes to the LabsRUS Lab for the A1C test.

5:50

- Dr. Davis gets an Alert from Red from Qlik Sense. Sammy's A1C was 9.6 and **prescribes** Jardiance.
- Qlik Application automation adds Sammy to Diabetes Registry.

BUSINESS OUTCOMES

↑Agility

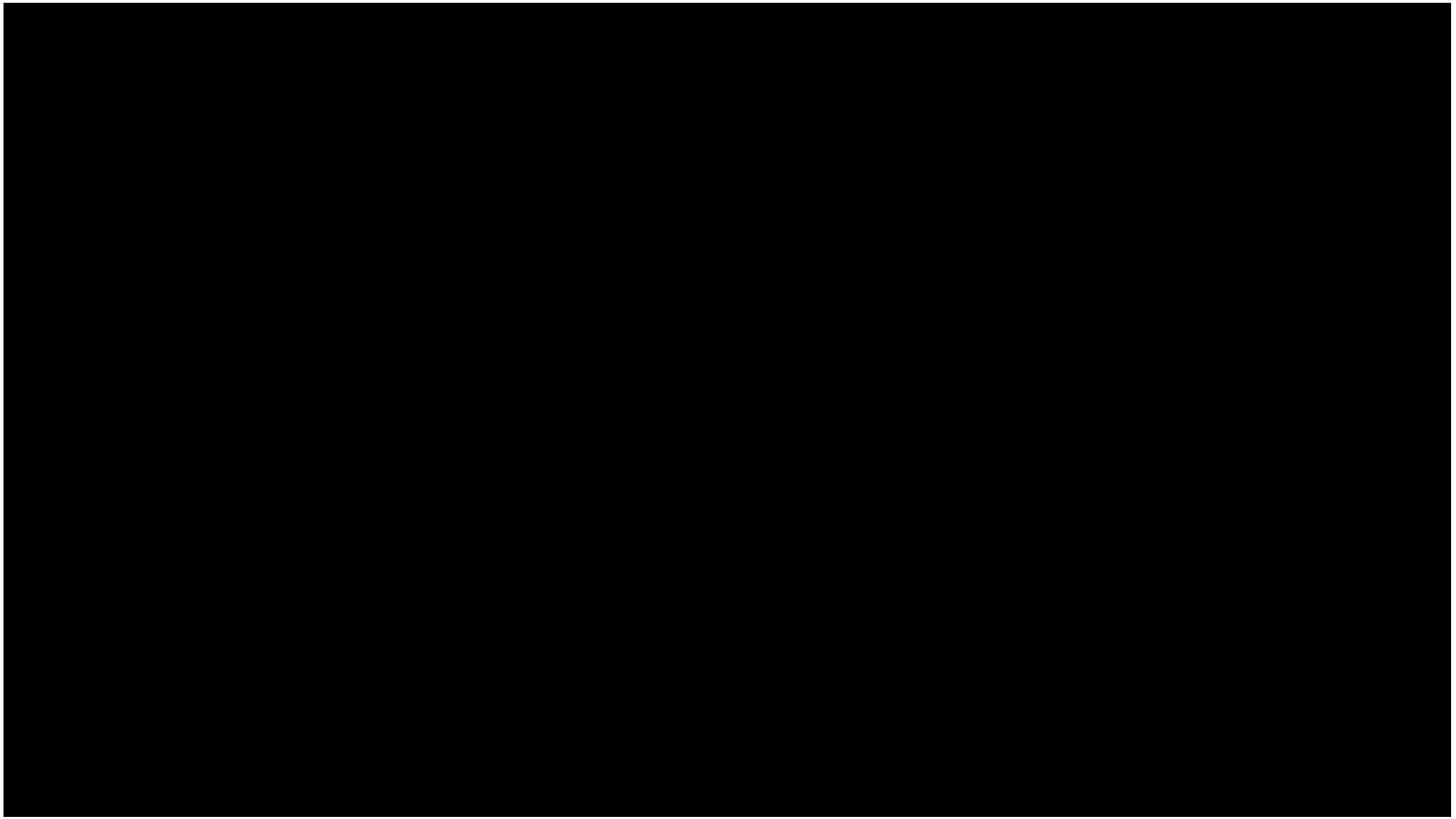
↑Patient Care

↑Confidence

↓Time

Alert — **Predict** — **Report** — **Prescribe** — **Act** — **Business Value**

Qlik Cloud in Action



Why Now?

Why Now?

Powering Digital Transformation through data utilization

STATUS QUO

Limited Use of Your Business Data
- Limited and slow access to business data in SAP, Oracle, IBM, Salesforce, and other systems
- Limited use leads to impersonalized customer experiences, inefficient supply-chains, inaccurate financial reporting, unhappy employees, etc.

Inefficient Analytics Data Pipelines
- Manual ETL scripting for data replication, and orchestration

Higher Total Cost of Ownership (TCO)
- 15-35% of TCO can be on-premise infrastructure costs
- Resources to procure, deploy, manage, update, and monitor the hardware, OS, security, backup, etc.
- Oversized capacity to meet peak usage requirements
- Data center operating costs: lease/rent, utilities, security

QLIK CLOUD

Immediate Business Action, Not Just Insights in a Dashboard
- Alerts, App Automation, etc. that compel immediate action

Increased Adoption of Data Analytics
- Alerts, Insight Advisory Chat, and other capabilities that ease adoption

10x Increased Use of Your Business Data
- Increased use of business data for data-driven decisions
- Become more of a strategic partner to other lines of business
- Potential to improve business KPIs: resources on financial reporting, days sales outstanding, profit margins (via cost controls), shareholder metrics like ROA

90+% Faster / More Efficient Analytics Data Pipelines
- Modern data integration low-code solution to automate data pipelines
- More efficient and scalable data integration with Change Data Capture
- Business agility with hourly or more frequent data updates instead of overnight

25-40% Lower Total Cost of Ownership (TCO)
- Reduce, redeploy or retire infrastructure servers and supporting resources
- Cloud elastic scaling for peak workloads
- Reduce data center facilities and facilities management costs

Potential benefits from Qlik value engineering customer discussions, data, and analyses, or 3rd party studies with Qlik customers; not a guarantee of benefits

Data Reality:
Utilise data from Multiple Sources

**Sample data sources; not a complete list*

Medical Records

Finance

Workforce

Patient Experience

Data Warehouse

CRM

Supply Chain

salesforce

SAP

PHILIPS Epic

Allscripts

infor

ORACLE

TERADATA

Hadoop Clusters

IMO Intelligent Medical Objects

PHARMACY

KRONOS

CMS

Health

MEDITECH

IBM

TeleTracking

Google Big Query

workday

Cerner

CDC

MedAssets

PRESS GANEY

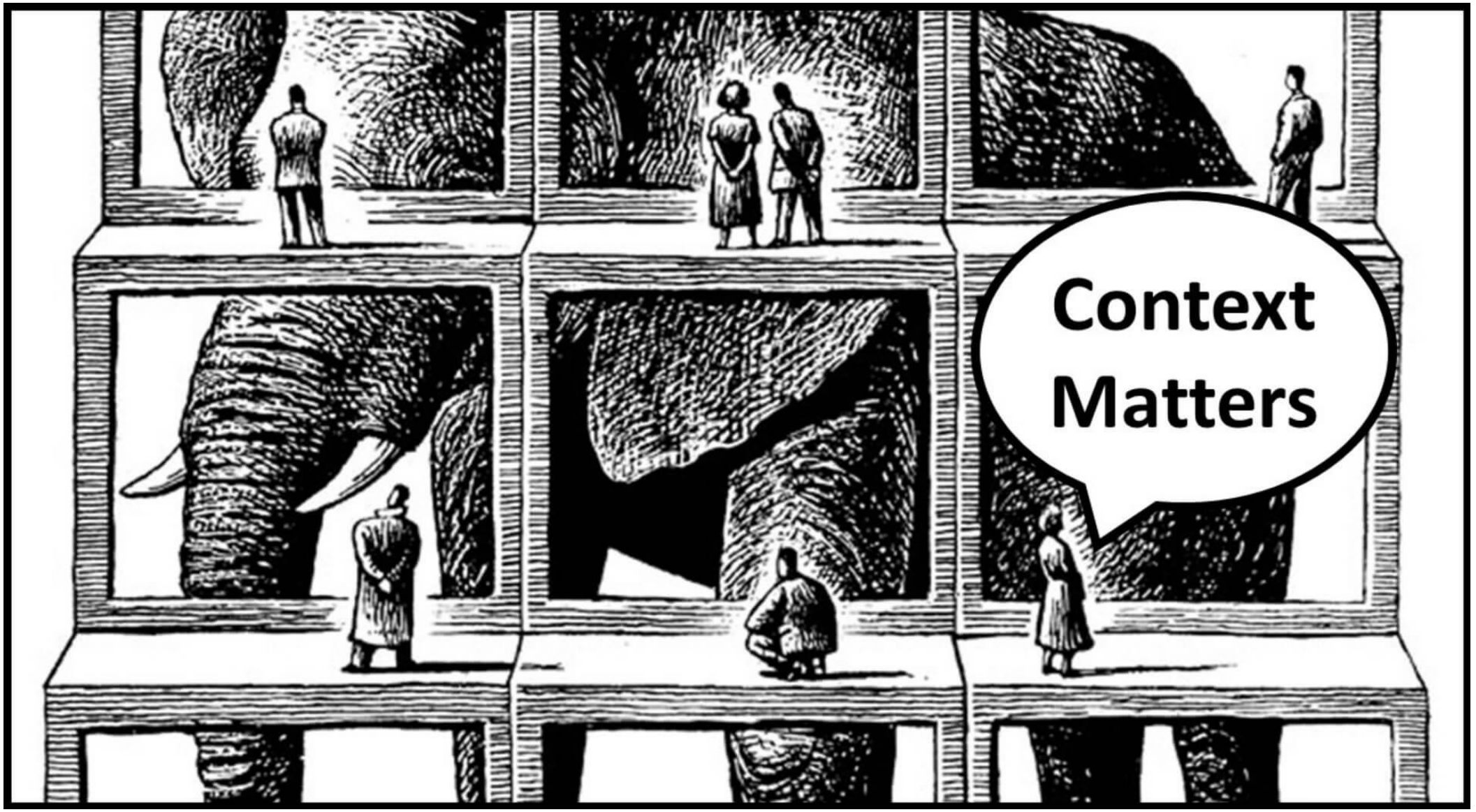
Qlik DataMarket

Australian Bureau of Statistics

PACS/RIS

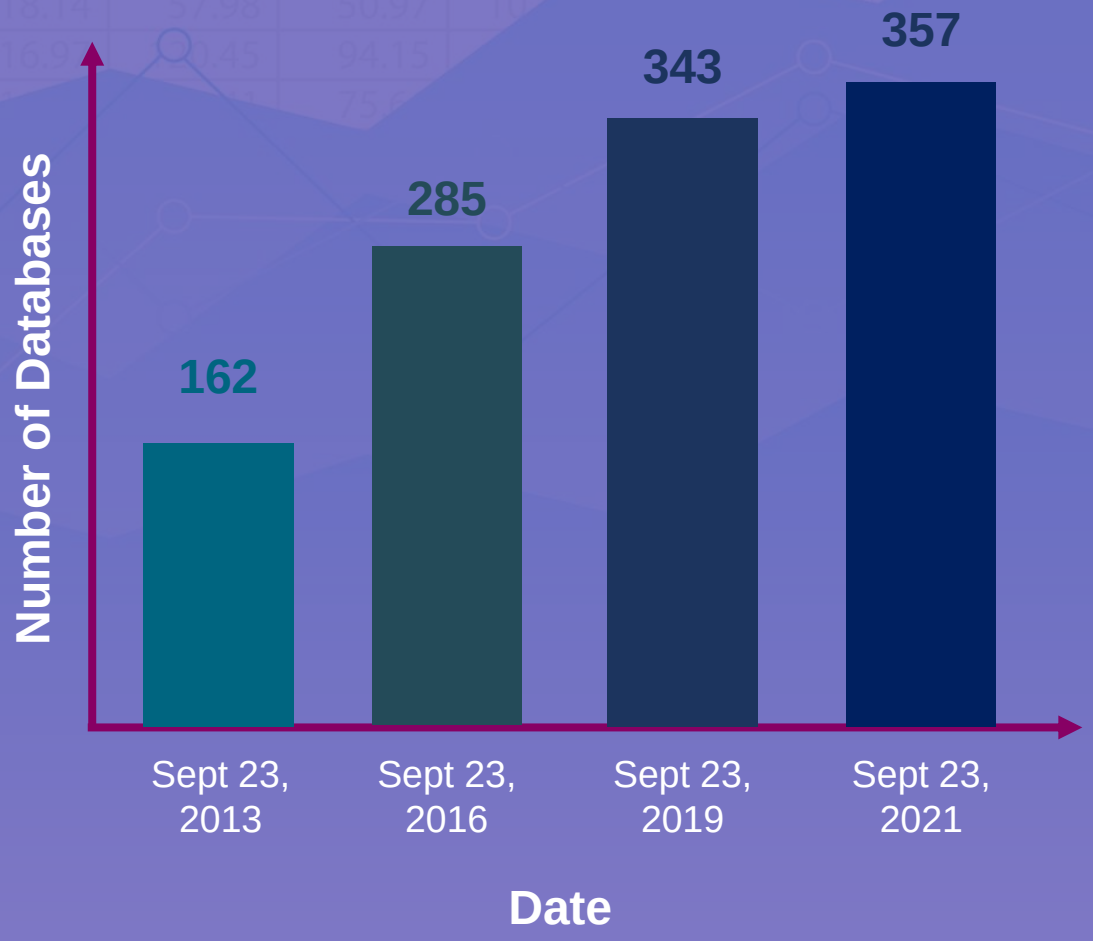
cloudera

Qlik


Context
Matters

Big data is just data. Next up? Wide data.

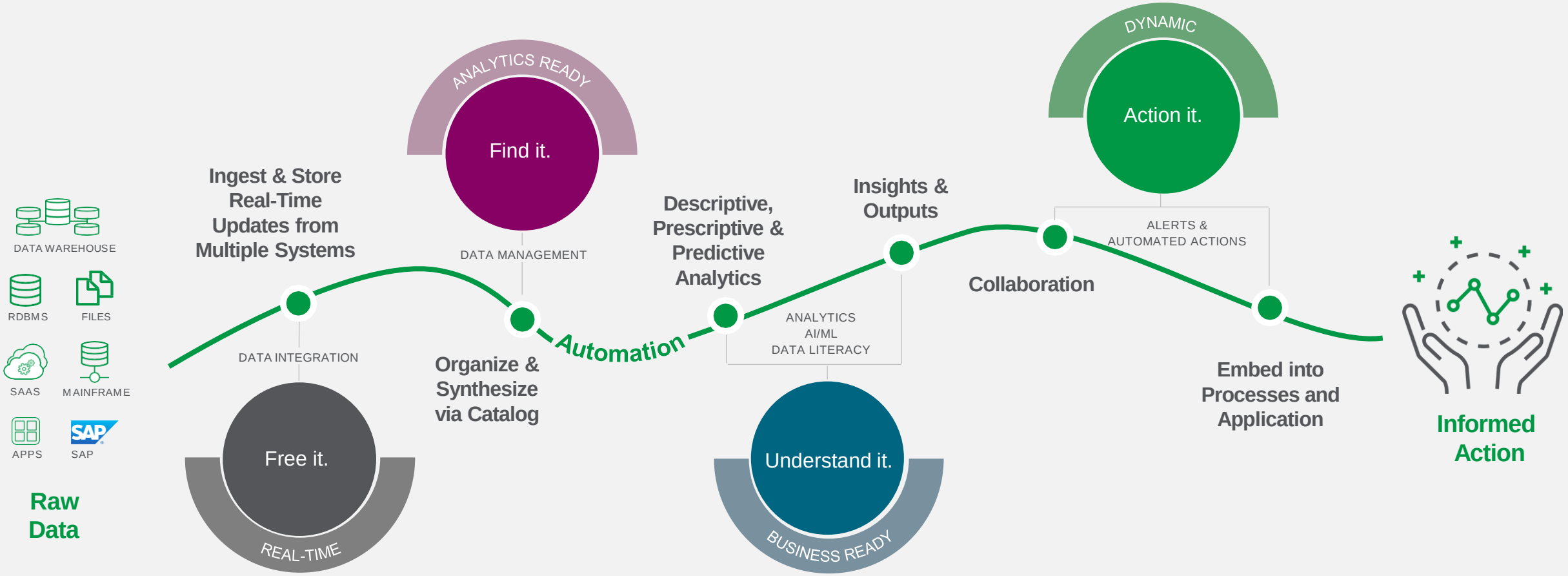
GARTNER PREDICTION: By 2025, 70% of organizations will be compelled to **shift** their focus from big data to **WIDE** data, providing more context for analytics and making AI less data hungry.



https://db-engines.com/en/ranking

Powering Digital Transformation

With a Modern Analytics Data Pipeline

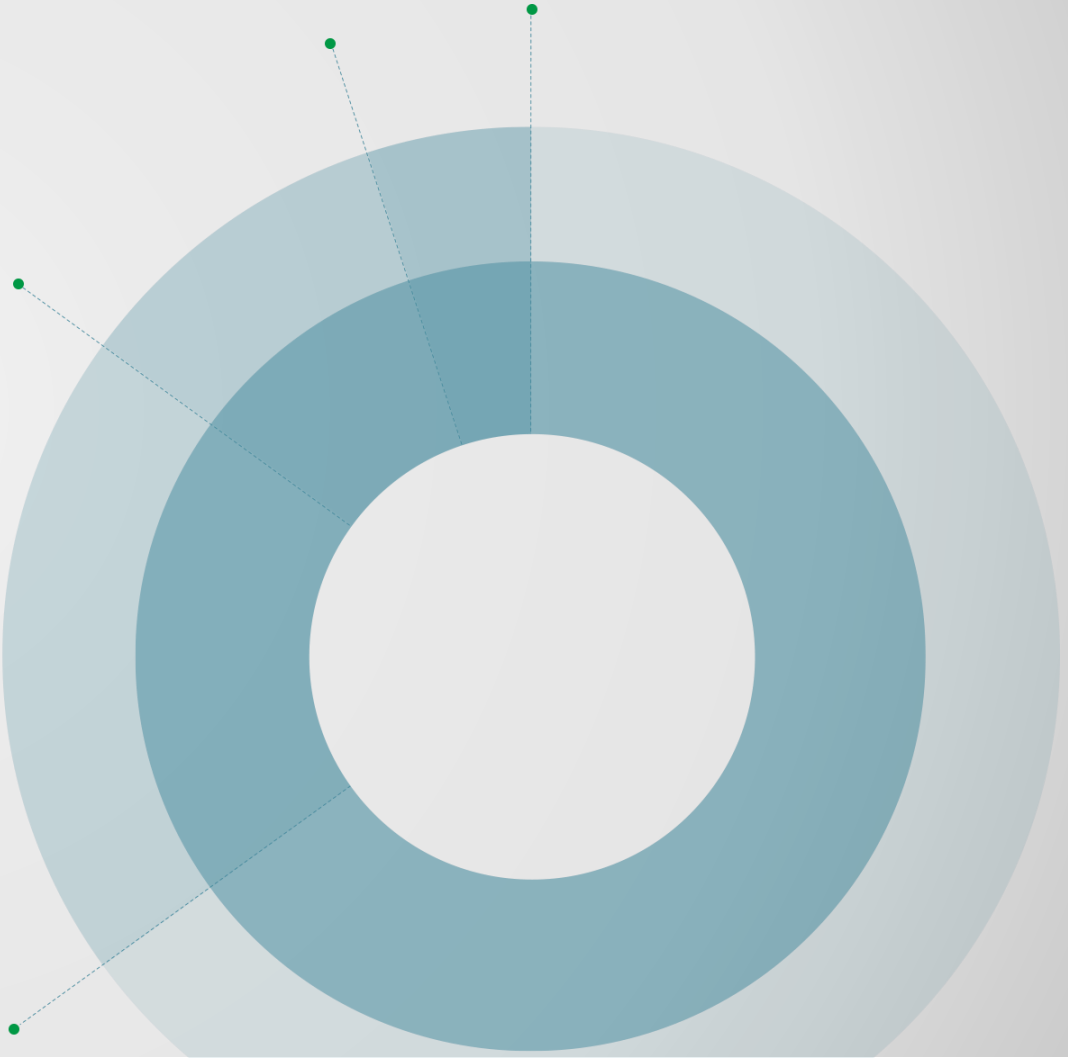


Real-time, up-to-date, trusted information transformed into informed action

Why is it so important?

15 X

more likely to use data,
when it's part of your workflow



Why this matters?

Diverse audience and user base

- Doctors, Health Professionals & Administrators – not just data scientists and analysts

Custom reporting is a pain

- All your data, in one spot

Simplified and Intuitive UX

- faster time to answers

Answer the next question

- Search like Google

Get a 360 data view of patient / claims / service / operations

- See the whole story that lives within your data

Data is only as valuable as your ability to act on it

Qlik®

TO BE CERTAIN.

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