



Healthcare Data Analytics for better care and cash flow



14 years in Healthcare,
30 years in BI & Data Science



700
employees



Customers in **37** countries,
including Fortune 500 companies

ScienceSoft is an international IT company, an expert in **design**,
development and **delivery** of healthcare IT solutions

Companies That Use Our Software

Healthcare

Baxter

 **CONWORX**
Competence in Healthcare

MDxHealth


PerkinElmer

 **CHIRON**
HEALTH

HEALTH
GROUP
- det starter med viden


saratoga bridges

Other industries

IBM

ebay

rh Robert Half

 **RBC**
Royal Bank

Leo Burnett

 **NASA JPL**



Hospitals



Medical device manufacturers



Laboratories



SaaS providers



Healthcare R&D centers
and institutions



Pharmaceutical companies



Insurance companies

1

Reporting to CMS
and complying with value-based care model



2

Defining
profitability of different patient segments



3

Finding and fixing
problems in internal clinical processes



4

Identifying
best practices of facilities, doctors and nurses



5

Predicting and
eliminating patient satisfaction gaps



What to Analyze



Outcomes



Patient-generated health data (PGHD)



Costs



Internal processes



Finance

Performance-based outcomes measures



Length of hospital stay, time to return to work, readmissions, mortality, etc.



Patient-reported outcomes measures

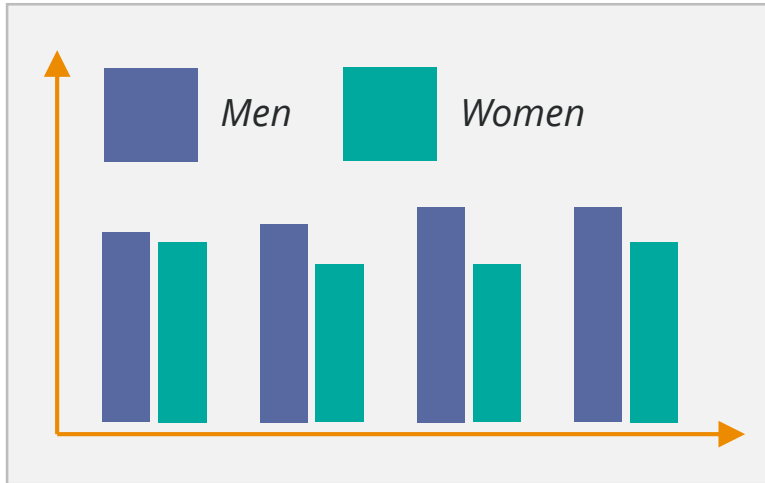
Quality of life, health status, patient satisfaction and experience, pain, etc.

Data sources:

- ◆ EHR / EMR
- ◆ ADT
- ◆ Department-specific systems
- ◆ Chronic disease management / population health management

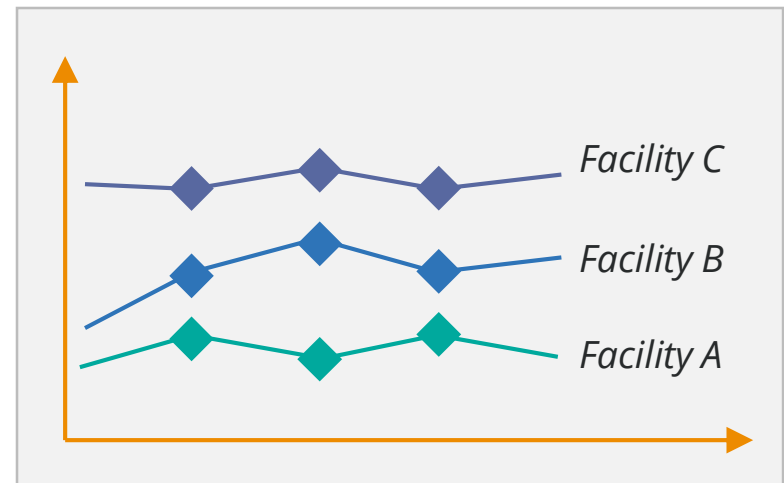
Measure sources:

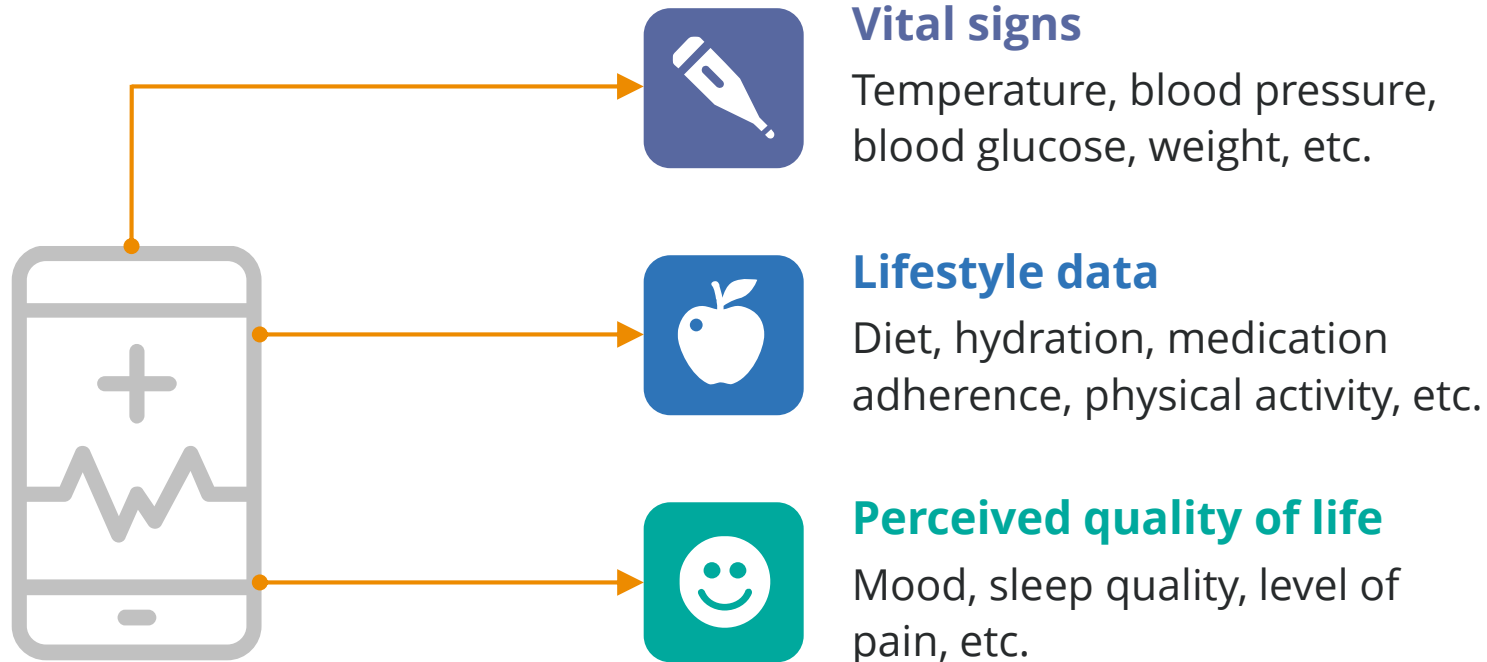
- ◆ National standards (CMS, AHRQ, NQF, etc.)
 - ◆ Internally developed measures
 - ◆ Custom measures developed together with ScienceSoft
-



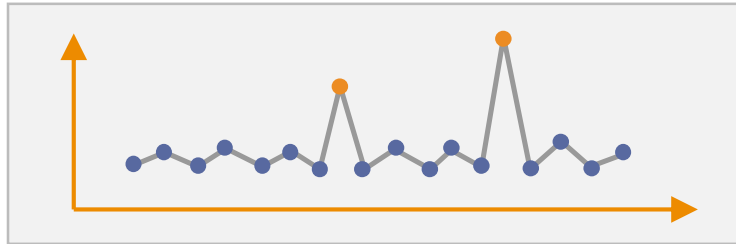
Outcome variations based on **demographic factors** (gender, age, income level, lifestyle)

Outcome variations based on a **health organization's internal factors** (a specific physician, treatment, facility)



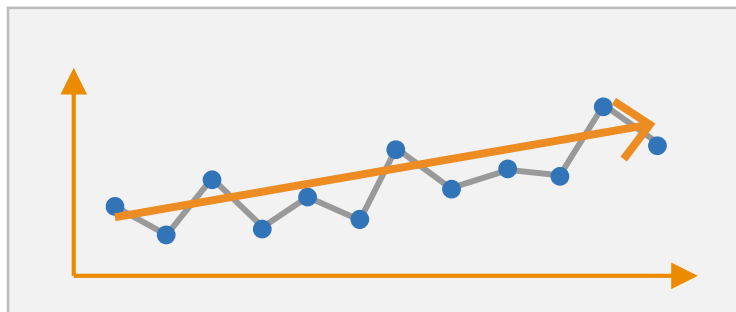
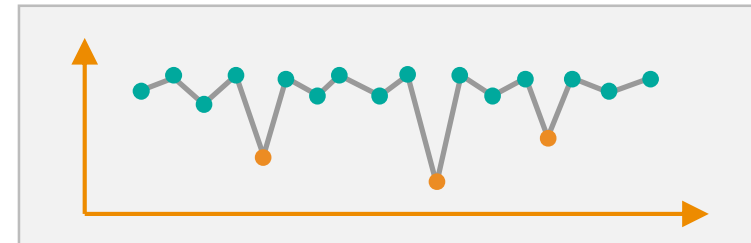


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- Data sources:**
- ◆ Patient mobile application
 - ◆ Patient portal
-



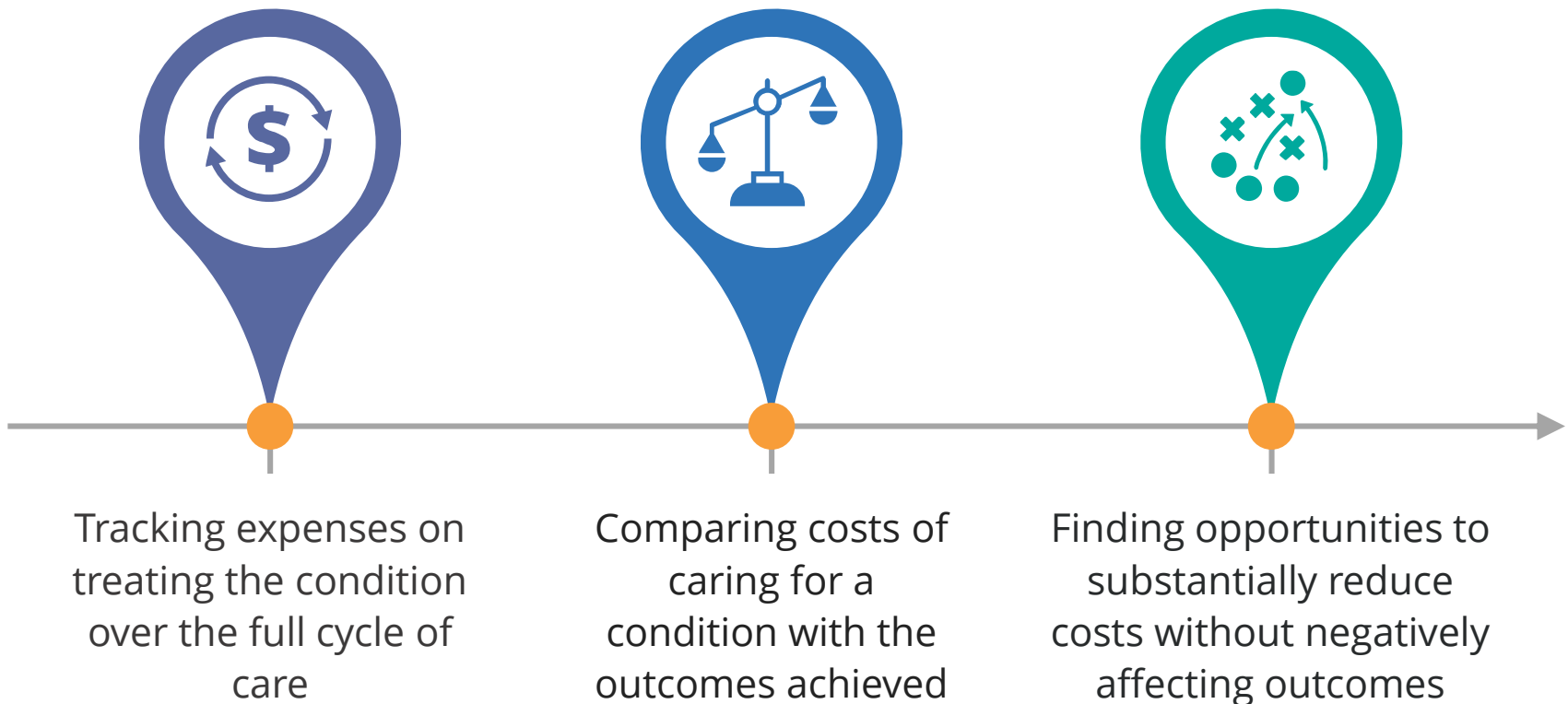
▶ **Abnormally high or low** blood glucose levels (for diabetes patients)

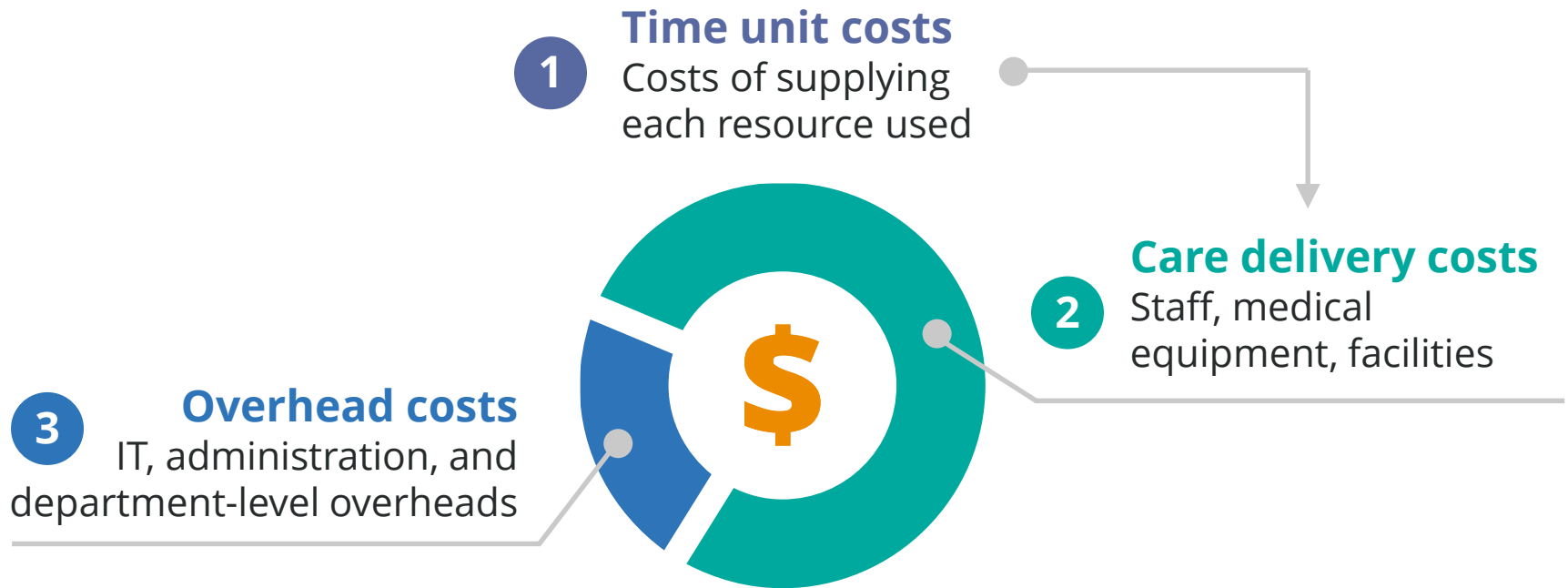
◀ **Significant** SpO2 level changes (for COPD patients)



▶ **Overall trends** in patients' nutrition, hydration, temperature, weight, blood pressure, etc.

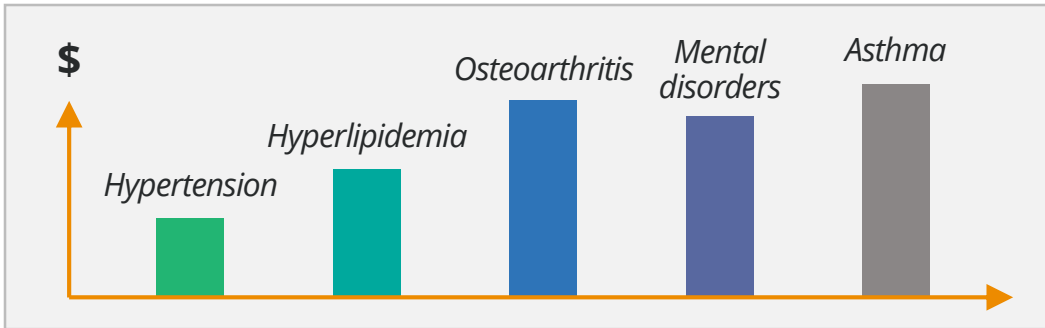
To determine the real cost of health care, caregivers must measure **costs for the episode**, not for departments, services, or line items





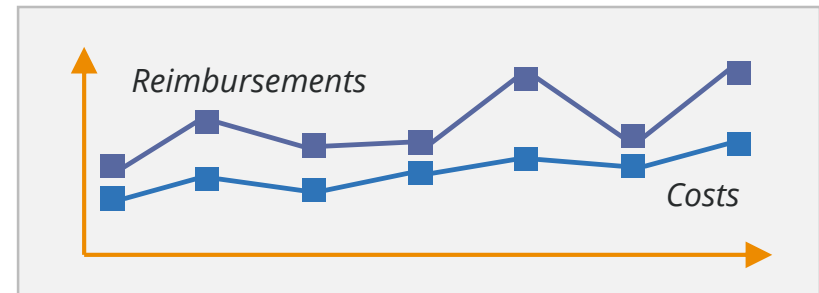
Data sources:

- ◆ EHR / EMR
- ◆ LIS
- ◆ RIS
- ◆ Department-specific systems
- ◆ Accounting system / ERP

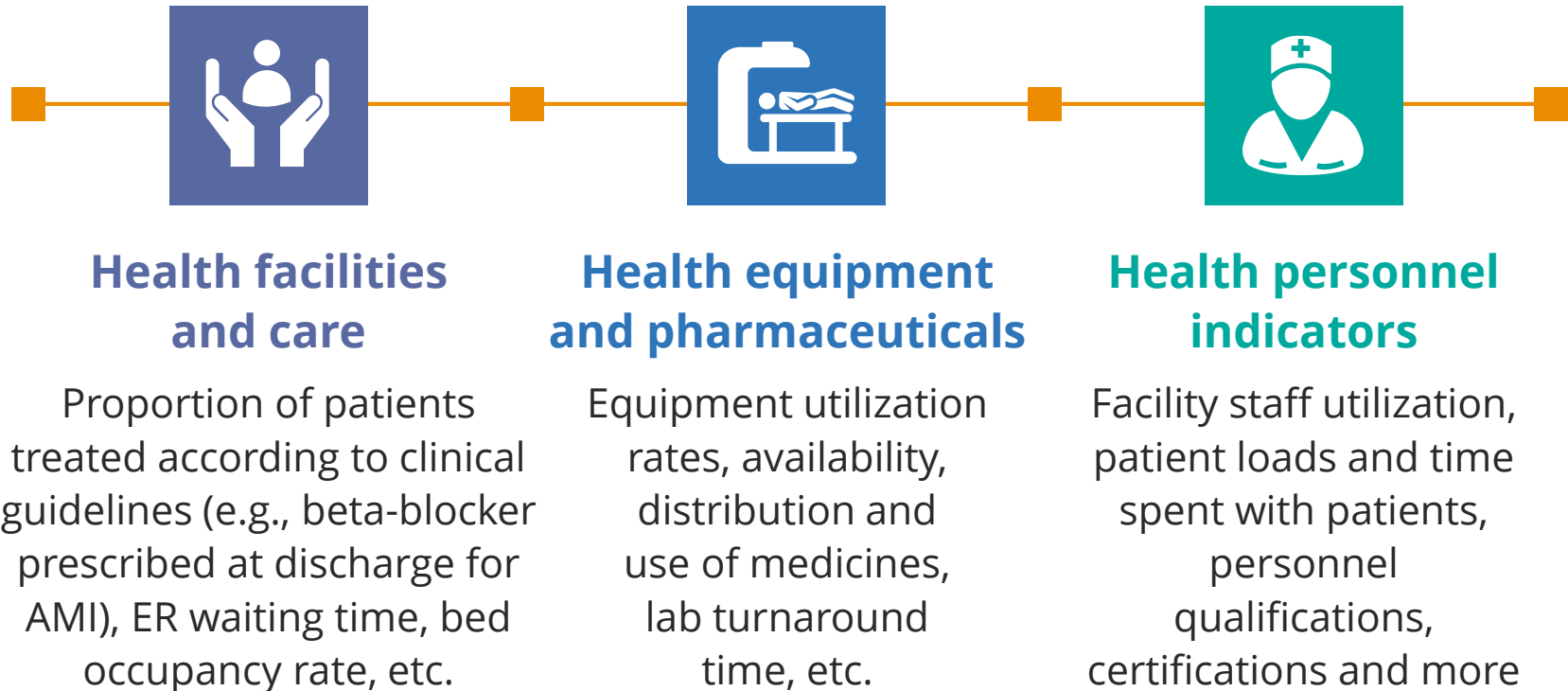


Variations of expenses for treating **specific conditions**, supported with data on each patient

Relationships between **costs and reimbursements** covering certain periods

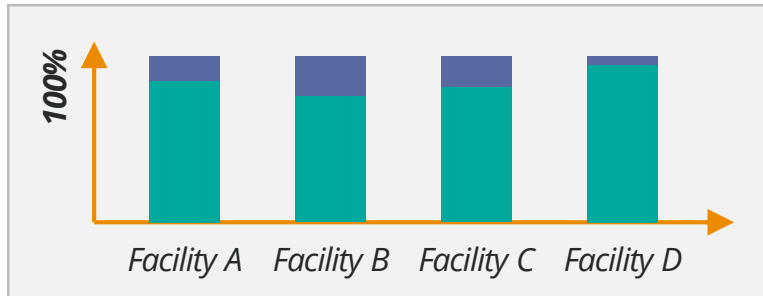


Relationships between **costs and outcomes** covering certain periods



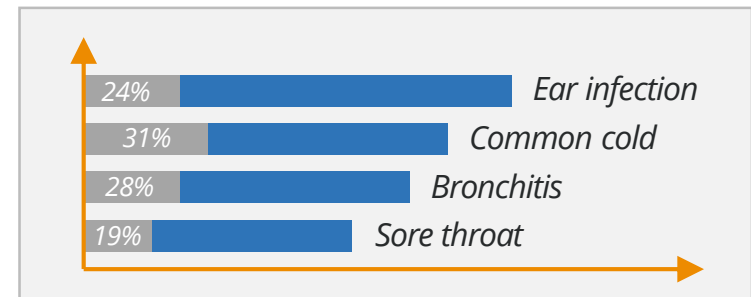
Data sources:

- ◆ PMS
- ◆ EHR / EMR
- ◆ LIS
- ◆ RIS
- ◆ Workforce management system
- ◆ Department-specific systems

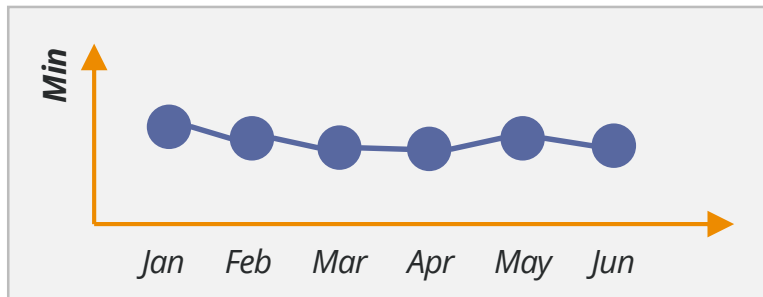


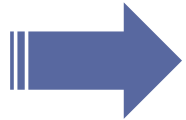
▶ **Proportion of patients** with diabetes given **regular foot care** (by specific facilities)

Unnecessary use of antibiotics (by specific physicians, diseases, facilities)



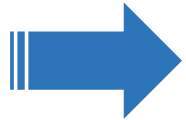
▶ **Median time to transfer to another facility** for acute coronary intervention





Profitability indicators

Total margin, cash flow margin, return on equity, operating margin



Liquidity indicators

Current ratio, days cash on hand, net days revenue in accounts receivable



Capital structure indicators

Equity financing, debt service coverage, long-term debt to capitalization

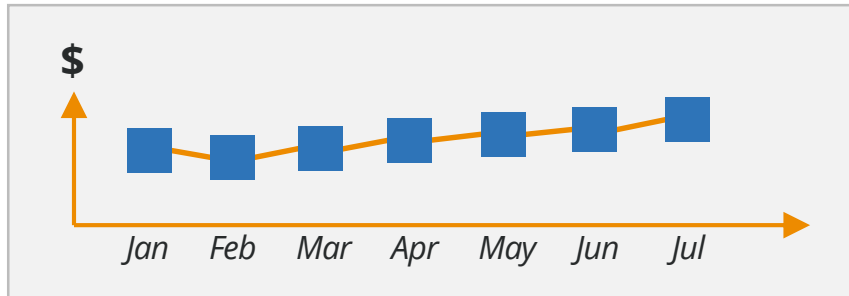


Revenue indicators

Outpatient revenues to total revenues, hospital Medicare outpatient cost to charge, Medicare acute inpatient cost per day, etc.

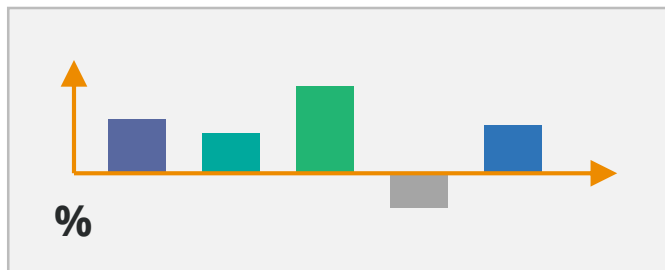
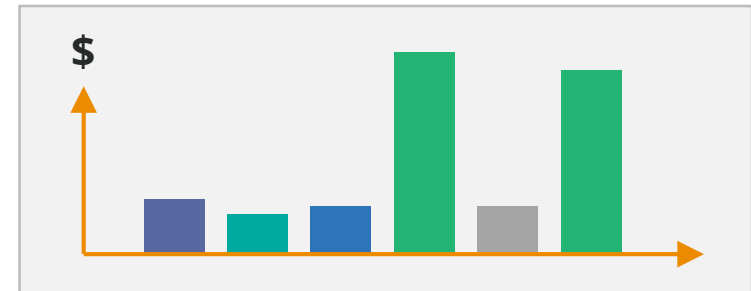
Data sources:

- ◆ ERP or FMS
 - ◆ Revenue Cycle Management
-



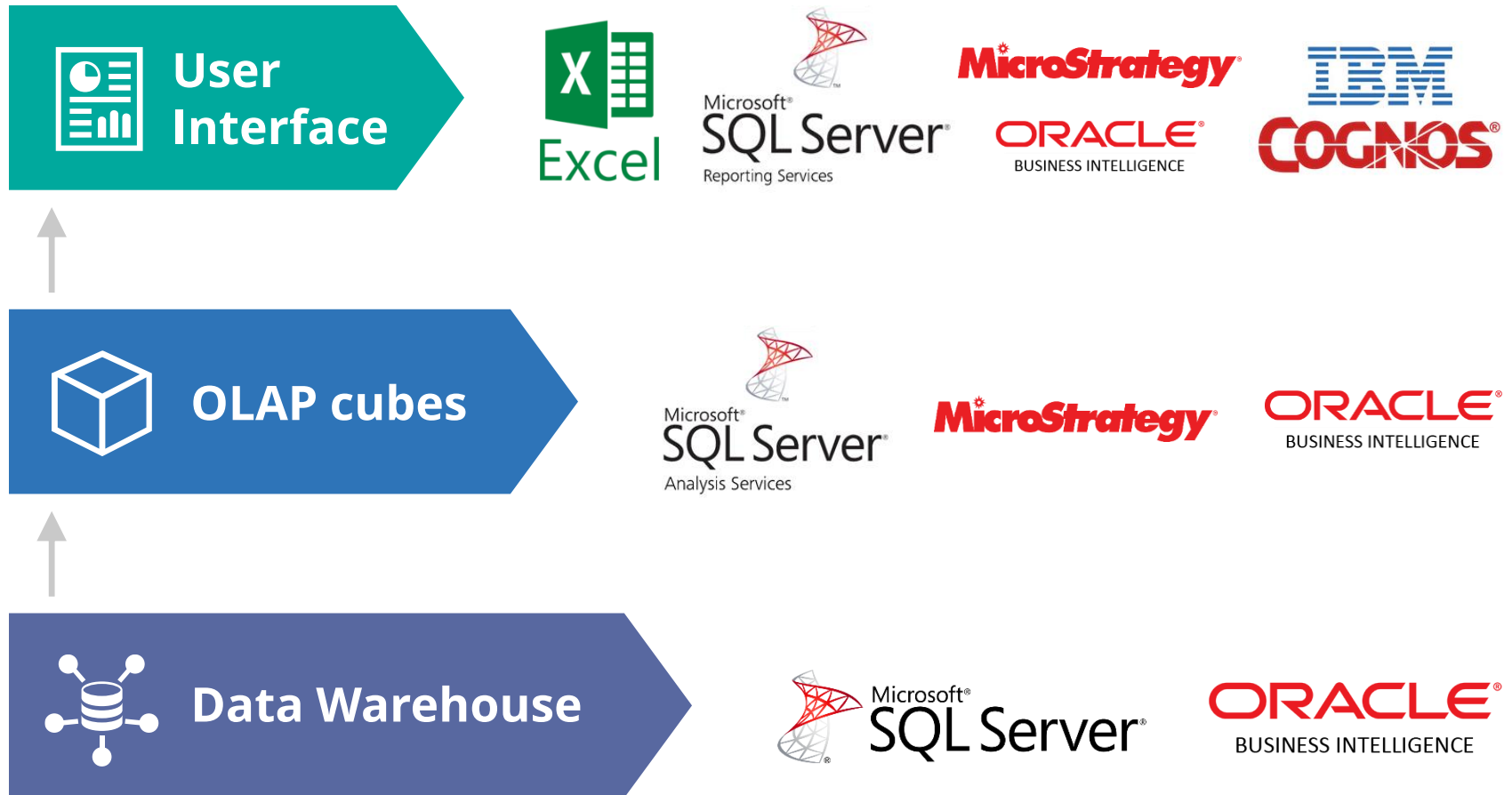
▶ Actual cash flow

Outstanding payments by specific payers (departments, facilities, diseases)



▶ Actual **ROI** by **types of investments** (new facilities, medical equipment, such as CT or MRI, etc.)

Levels of Technical Implementation



The **advantages of enterprise-wide BI solutions** over analytical tools built into EHR, RCM and other systems:



Offering complete understanding of clinical, operational and financial processes



Finding cause-and-effect relationships between internal processes, quality of care and cash flows



Adapting to changing business needs (such as transition to a value-based care environment)

BI for 200 Healthcare Centers



Customer



200 US
healthcare
centers and
retirement
homes



Solution



System of 200 databases
for data management
and reporting on
medication inventory,
clinical services, patient
data, marketing activities
and others



Tools & Technologies



MS SQL Server, Transact-SQL, JReport

Health Monitoring Module for Caregivers



Customer



Solution



US assisted living organizations



A health monitoring module to automatically collect, store and analyze patients' vitals and test results, as well as send alerts on negative changes to a patient's condition

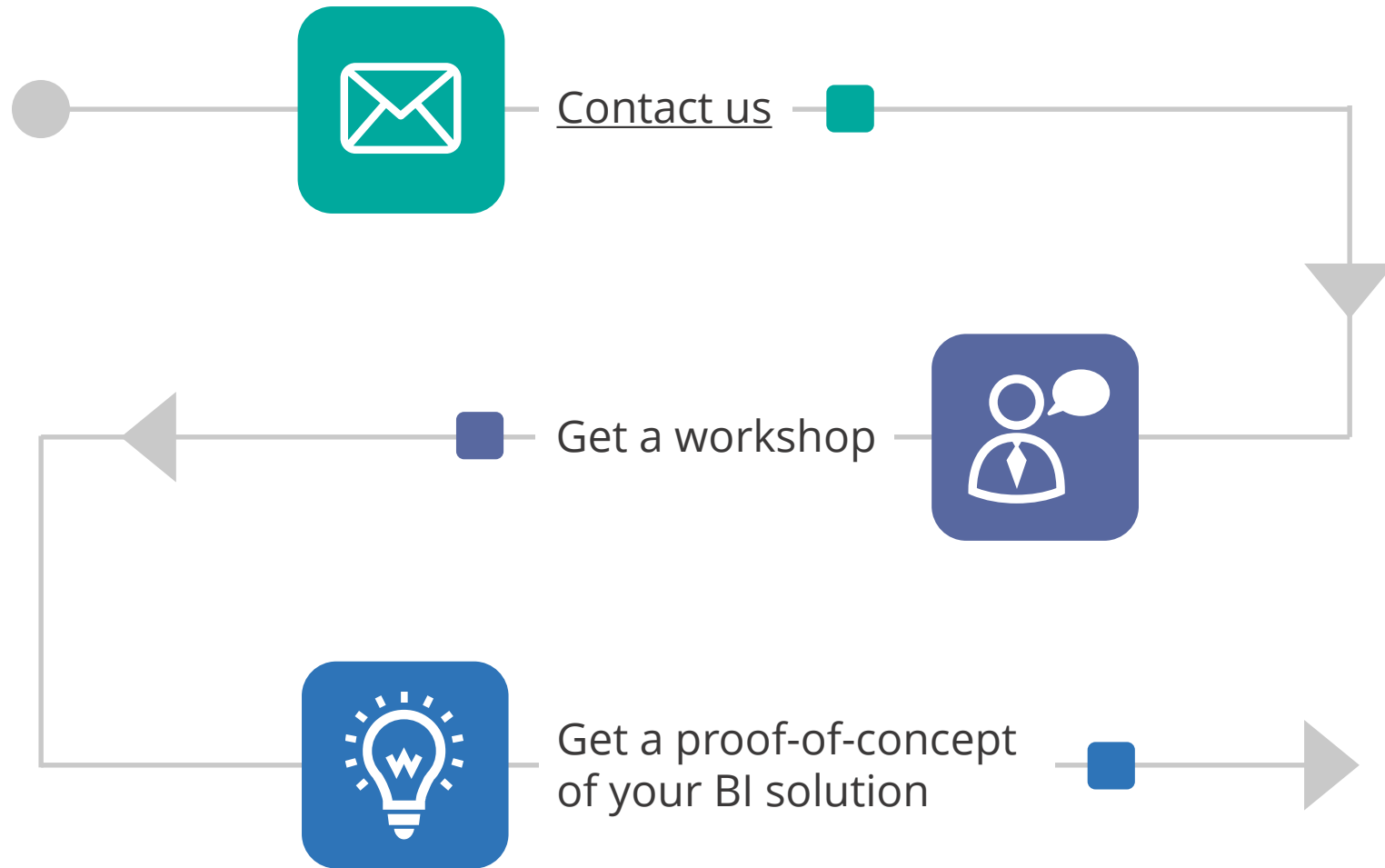


Tools & Technologies



Ext JS, Sass, Java, Spring, Hibernate, Apache Maven, Apache Tomcat, MS SQL Server





Let's Keep in Touch!

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