outsystems

Self-service Data

Democratizing data access

Data @ OutSystems

“To make OutSystems a data-driven company”

- Tools, Talent & Stack
- Enablement & Ecosystem
- Enterprise Readiness

outsystems

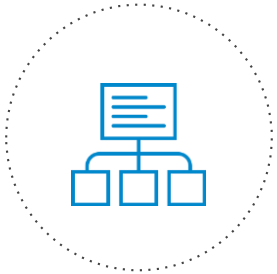
52
Countries

22
Industries

245+
Global Partners

210+
Community Members

OutSystems is the #1 low-code platform for building enterprise-grade apps incredibly fast



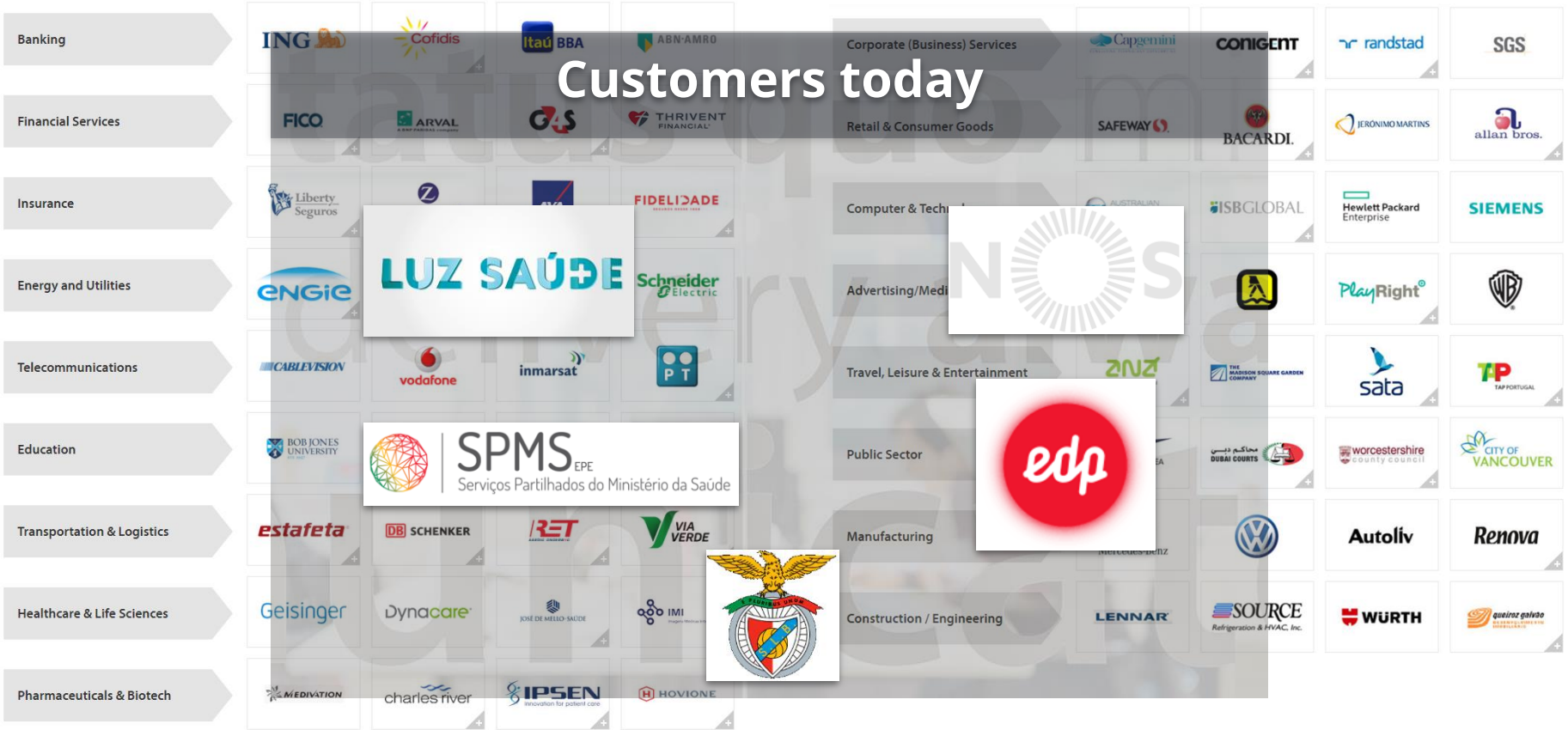
Visual Full-Stack Development

Full Life-Cycle Management

Deploy to Any Device

outsystems

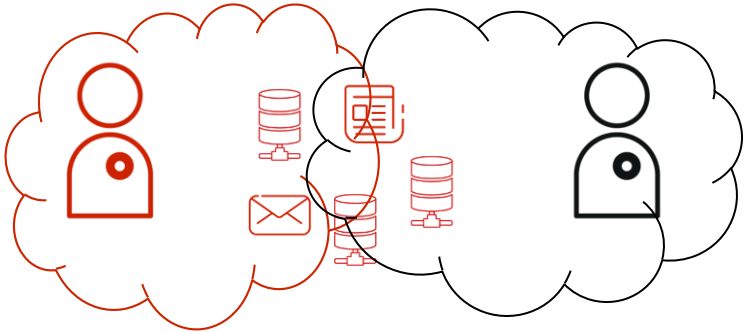
Customers who trust OutSystems



outsystems

Data Strategy: how it began

"OutSystemers" are naturally data hungry, technically savvy and with a "get the job done" mentality



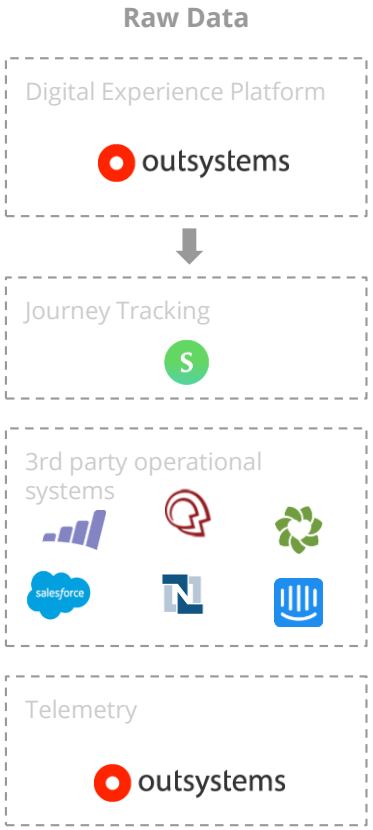
Which led to an assortment of different analytical solutions and tools

The Data Strategy Initiative was a result of the growing realization that, to ensure the best insights could be extracted from existing and future data, a standardized definition of **metrics**, **processes** and **stack** was necessary.

Data Strategy - Design Principles

1. **Data lake approach**
   - Able to query structured and semi-structured data
2. **Promote user adoption and autonomy**
   - SQL-like query capabilities and support for external BI and Data Science tools
3. **Point-in-time data analysis**
   - Data pruning and archiving without compromising point-in-time analysis
4. **Easy insight creation**
   - Drag and drop interface, using existing templates
5. **Enterprise grade data models**
   - Centralized and secured analytical models

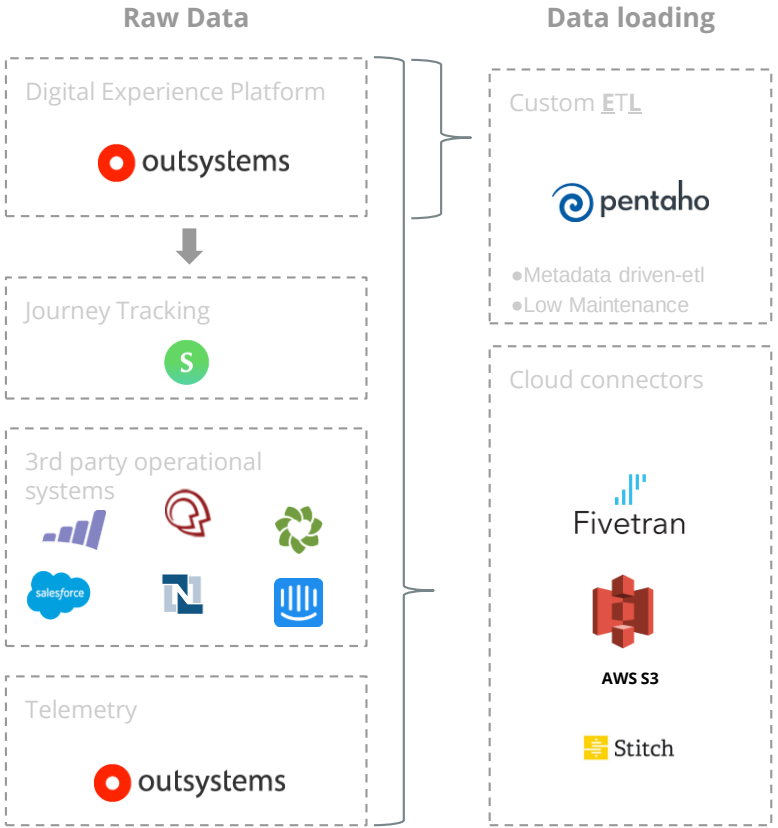
Data Platform



- Structured data from Digital Applications
  - SQL Server
  - Oracle
- Segment tracks the user's journey
  - JSON semi-structured data
- SaaS tools with API access
  - Marketo, Salesforce, Intercom, Zendesk, Netsuite, etc.
- OutSystems Telemetry data tracks the developer's journey
  - JSON semi-structured data

outsystems

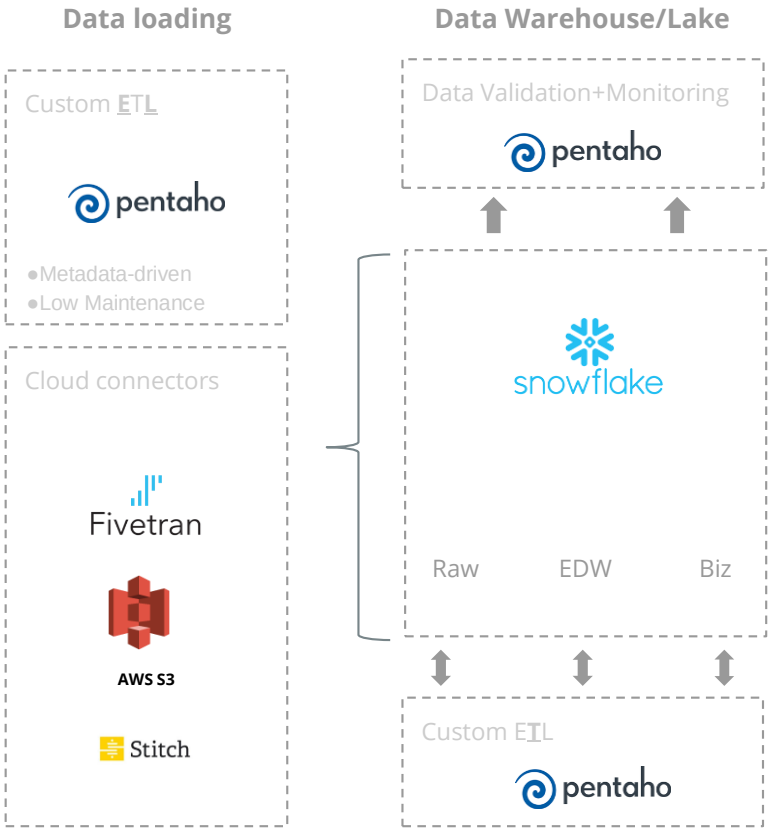
Data Platform



- Data is Extracted and Loaded into the Data Lake:
  - Verbatim copy of operational data
  - Data freshness target for analytics is **1** day
- Fivetran and Stitch connect automatically to:
  - Databases and
  - SaaS (most) via direct connector
- Pentaho is used when no SaaS are allowed:
  - for security reasons or
  - when cost and/or performance is an issue
- AWS S3-based pipelines are used for the Telemetry

outsystems

Data Platform

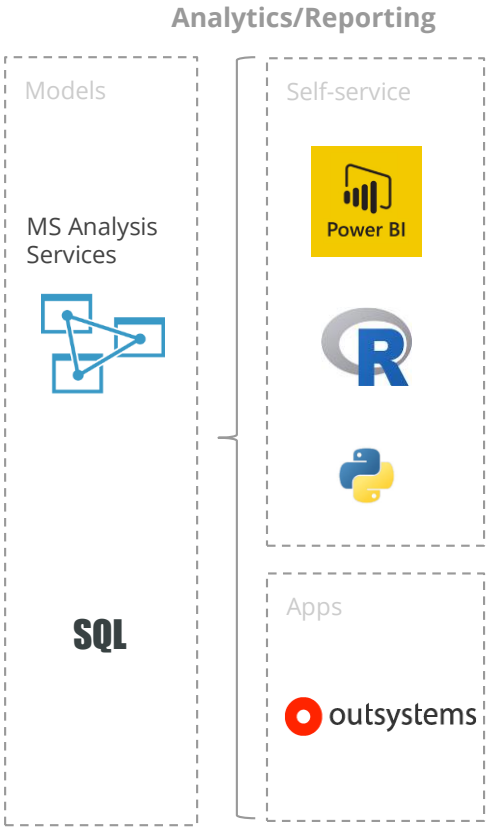


- Our Data Lake is on Snowflake:
  - Raw: copy of operational data
  - Enterprise Data Warehouses: analytical data models
  - Biz: direct consumption
- Pentaho transforms data to analytical-ready formats
- Data Validation and continuous monitoring is done via a custom Pentaho-based product
  - Business and Technical validation rules
  - Controlling via Power BI
  - Notifications via Slack

Later

outsystems

Data Platform

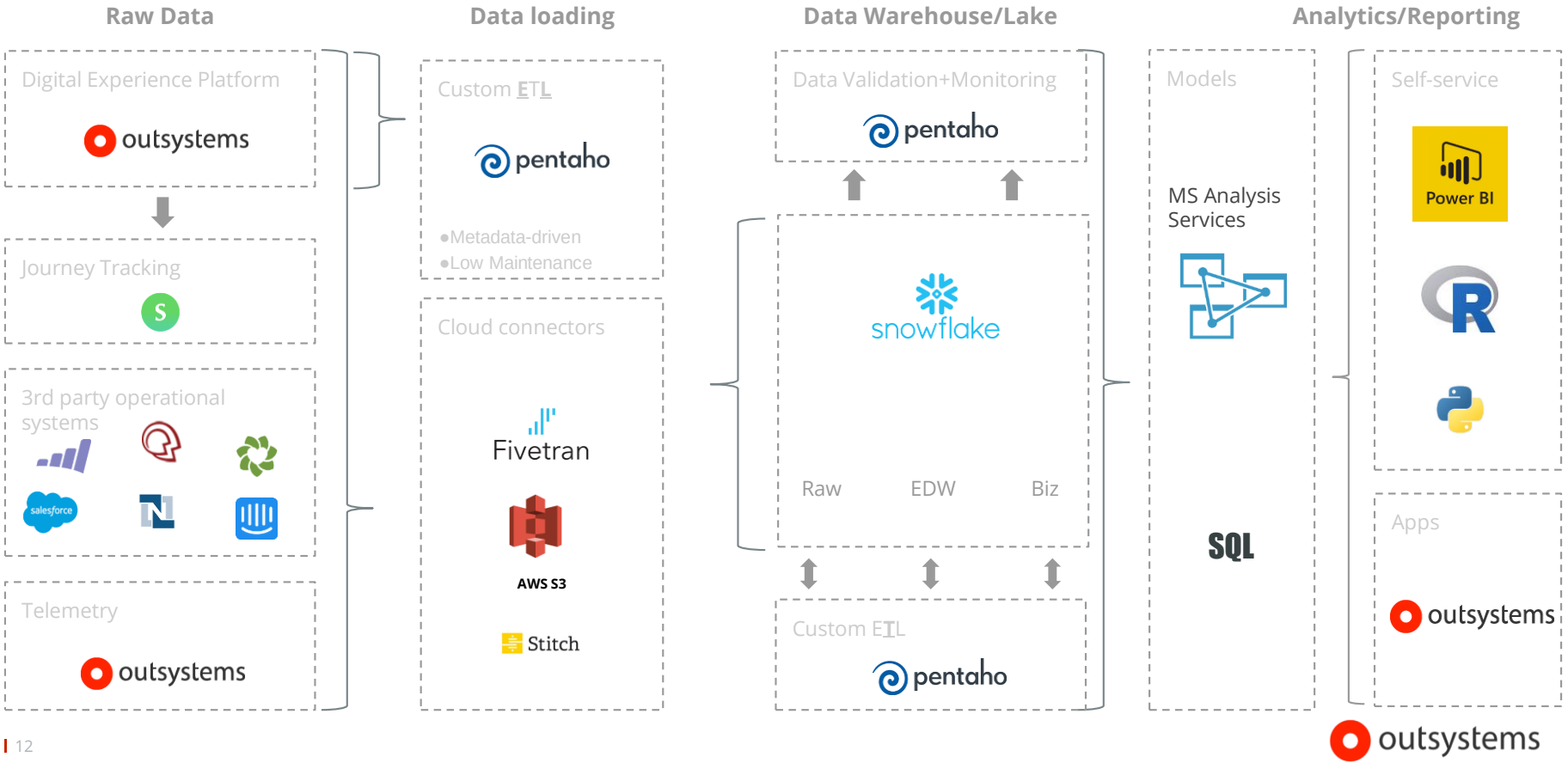


- For direct raw and non-modelled data access:
  - SQL (ODBC, JDBC)
  - Python and R connectors
- Analysis Services is used to centralize all data models:
  - Models are accessed via Power BI
  - R dashboards can also connect via OLAPR
  - Data security and versioning is ensured
- Power BI Premium service hosts Dashboards/Reports:
  - Pro users can publish online content
  - Free users can read it

Later

outsystems

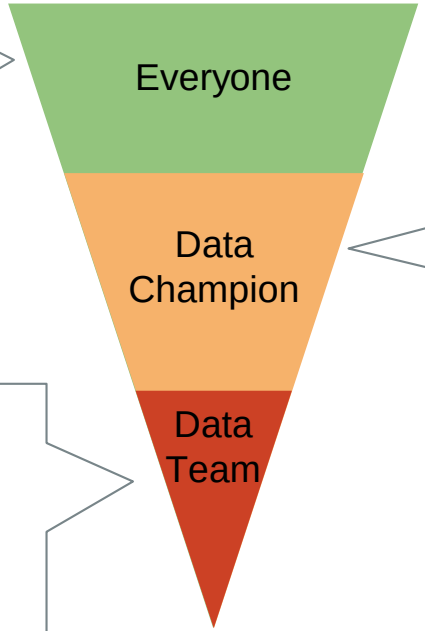
Data Platform



Power BI usage model

Power BI Free:

- Power BI Desktop for **local reports**
- Read access for **online reports**



Pro License adds write access:

- Can **publish** online reports
- Manages sharing

Data Team:

- Data sets, models and samples
- **Certify** data insights
- **Custom visualizations**
- **Data Science models**

Onboarding program

Our Enablement Program is data driven

Simple training program for new employees:

1. What are **OKRs**
2. How to measure the **company** and **my performance** metrics

Power BI DIAD (optional) and:

1. How to extract a data sample
2. Creating simple data flows for self-service
3. Rules for new data sources
4. Examples of good/bad data probes

Internship program:

1. To get a deeper understanding on best practices and methodologies, the Data Team accepts **interns**
2. Interns become data advocates once reunited with their teams

Data Policy

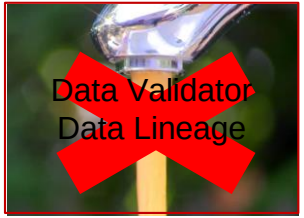
A document that provides information on:

1. How to secure your data
2. Templates for data generators and data probes
3. Hardware and software limits, best practices

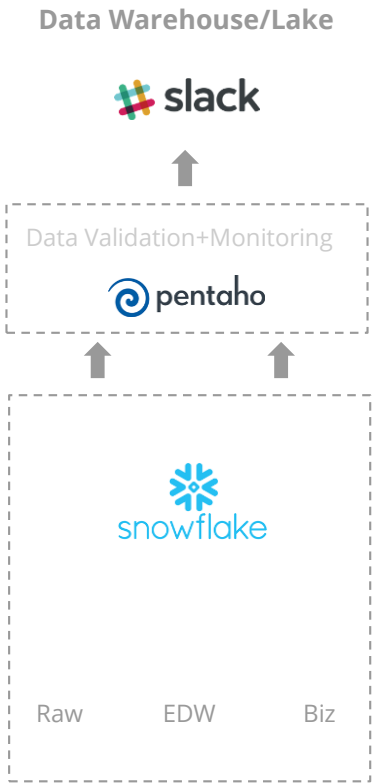
outsystems

Data Governance

Data Governance

Availability	Reliability	Security	Usability
Data needs to flow	Data needs to be clean	Data should be secured	Data fits each user's needs
 Data Monitoring Data Alarmistic	 Data Validator Data Lineage	 Data Lake & PowerBI security	 Analytics Hub Global Metrics Framework

Data Validation

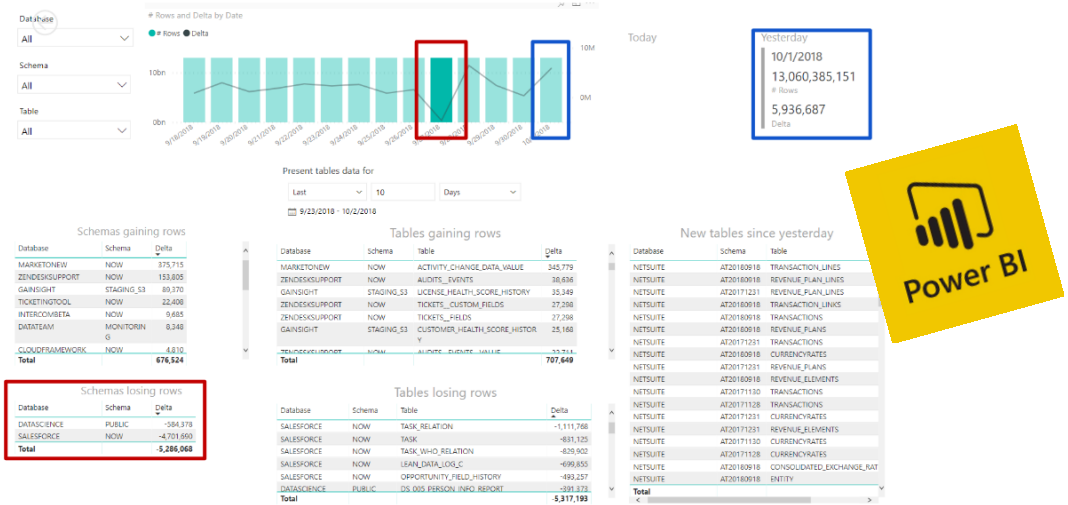


A set of “ETL” processes that run technical and business driven validation rules:

- Monitoring of data “black markets”
- Act on changes to operational systems
- Alert stakeholders when data problems (wrong, missing, delayed) happen

Information is displayed via Power BI.

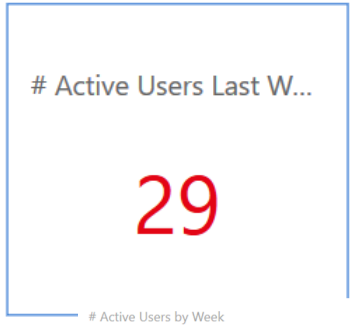
Slack notifications are triggered via webhooks with different severity levels



outsystems

Power BI Usage Monitor

We export the logs from Power BI to an Analysis Services model, to enable reporting on the platform



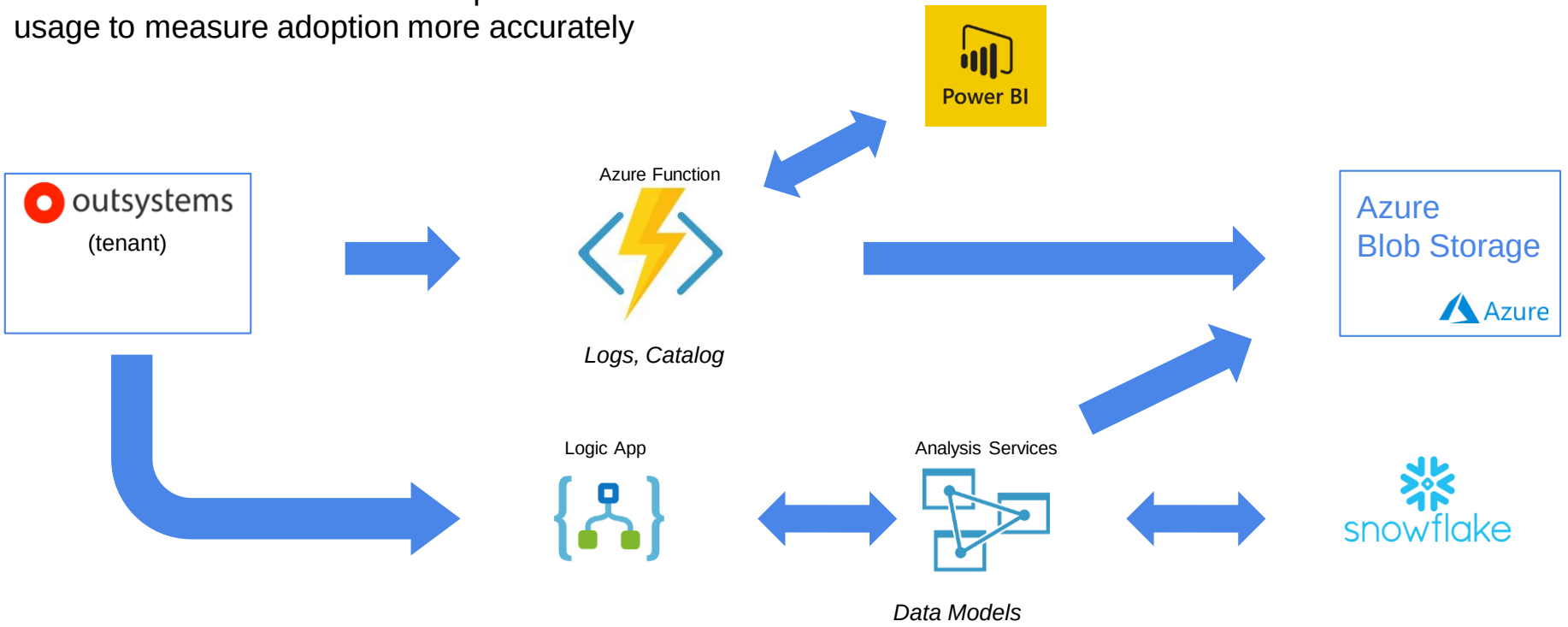
Metrics we focus on:

- #Weekly Active Users
- #Monthly active users
- #Workspaces
- Data Models in use
- Inactive users

outsystems

Power BI on Power BI

We decided to create our own reports on Power BI usage to measure adoption more accurately



Delivering Analytical Data Models

GTM	Marketing	Finance	People	CS
Go-to-Market (In Production)	In Production	Work in Progress	Work in Progress	Customer Success (planned)
• Salesforce • Training • Platform usage • Licensing	• Salesforce • Marketo	• Order Management • NetSuite	• OutPerform • Hiring • HRIS • Netsuite	• Salesforce • Netsuite • Customer Journey • C360

Start

1. Gather Business Questions
2. Verify Source Data

Implement

3. Create the ELT for the needed metrics
4. Document
5. Create/Update Tabular Model in Power BI

Validate

6. Evaluate your metric's value
7. Validation Engine

Deliver

8. Template Report (Power BI)
9. Comms

outsystems

Outputs

Power BI

Active Users
40 weekly
135 monthly
153 total

Training
105 trained
8 trainers

Shared Workspaces
27 Premium
45 Total

Data Governance

Data Validator
106 validations
17 processes

Data Monitoring
1 dashboard
3 alert channels

Data Lineage
100% GTM
metrics mapped to their sources

outsystems

Outcomes

All

- Decreased time-to-insight
- Faster report update
- Data Awareness

Finance

- Days saved in operational tasks
- Visibility on transaction details previously impossible

Marketing

- Single source of truth
- Unique view on campaign details


Thank you