

Analytics in OutSystems

Using OutSystems + Cloud Services for
Enterprise Analytics



Joao Melo (MVP)

Head of Products @ Hubway Connect
Principal Tech Lead @ PhoenixDX



Ossama Ghanem (MVP)

Senior Tech Lead @ PhoenixDX





one



Joao Melo

Brazilian, based in Sydney
Software industry for 20 years
OutSystems since v8
A product guy with a techie heart



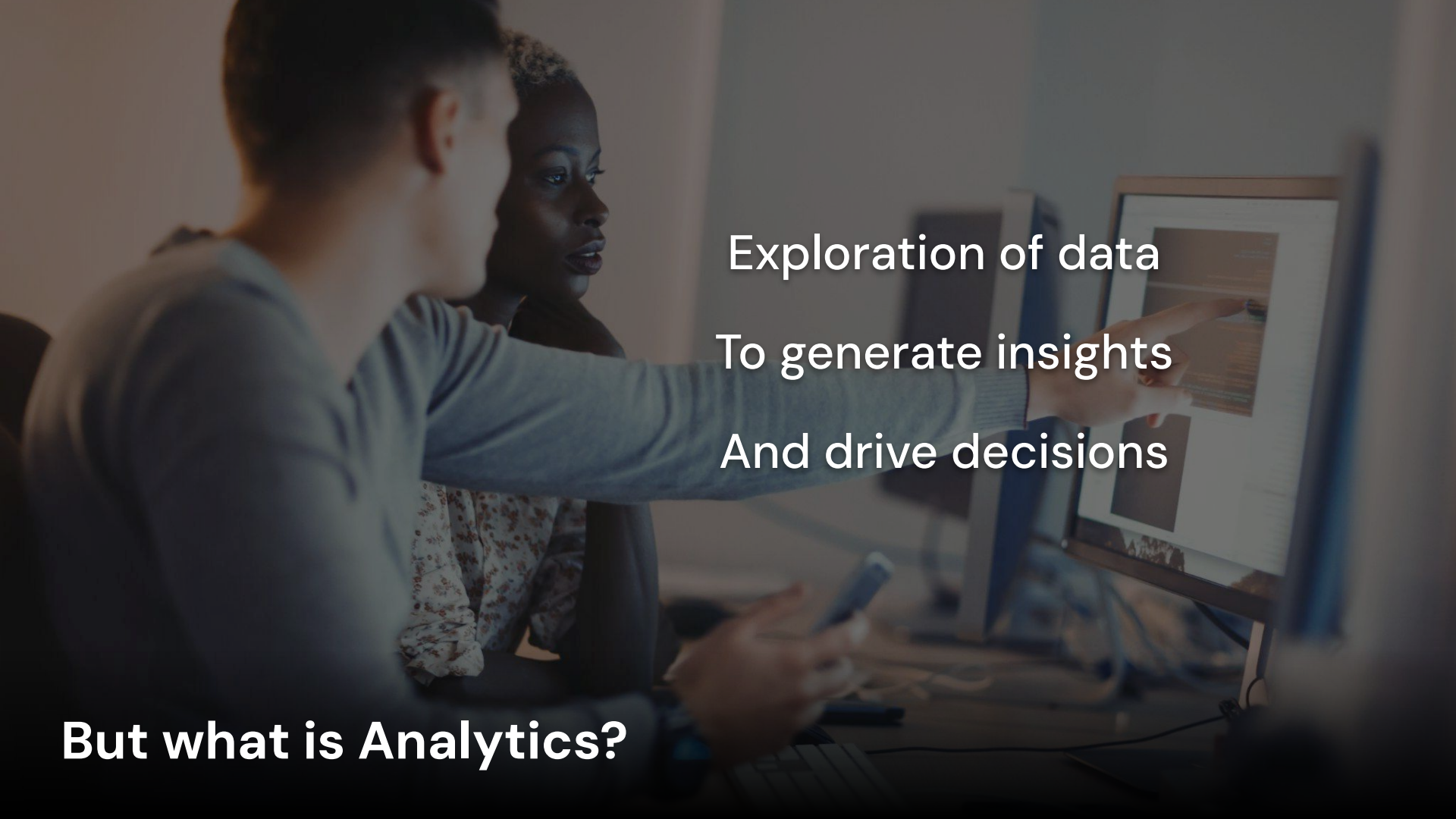
Ossama Ghanem

Lebanese, based in Sydney
Software industry for 8 years
OutSystems since v8
Low code advocate since day 1



“Information is the oil of the 21st century, and analytics is the combustion engine.”

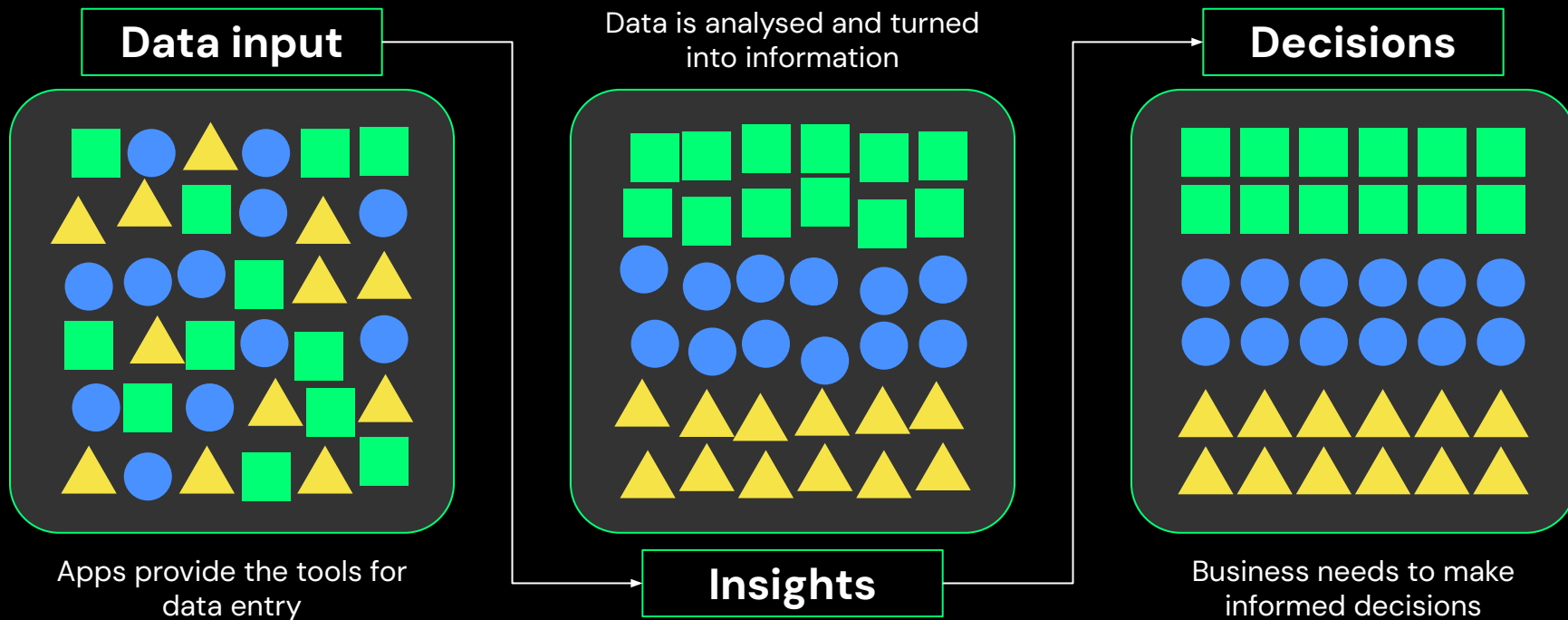
- *Peter Sondergaard, senior vice president, Gartner.*

A man and a woman are sitting at a desk, looking at a computer monitor. The man is pointing at the screen with his right hand. The woman is looking at the screen with a focused expression. The screen displays a data visualization, possibly a dashboard or a report. The background is slightly blurred, showing other computer monitors and office equipment.

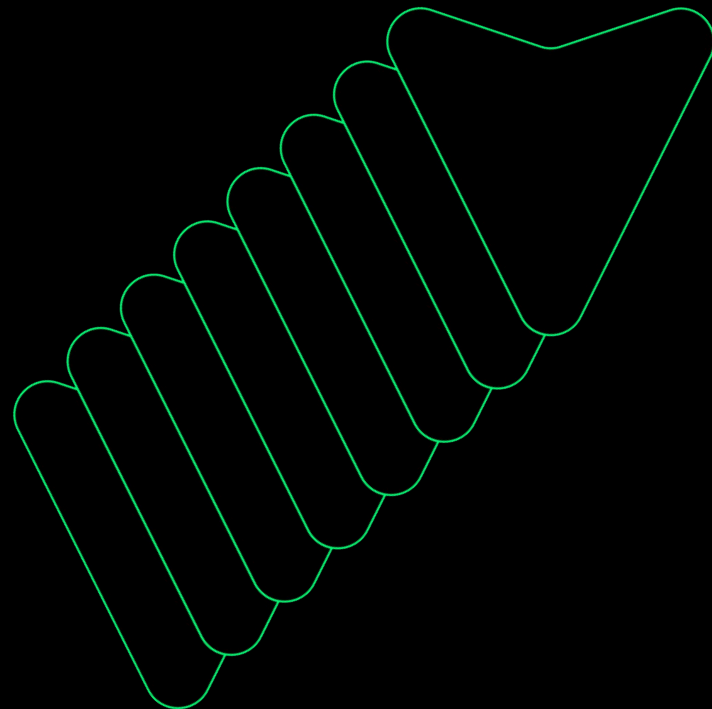
Exploration of data
To generate insights
And drive decisions

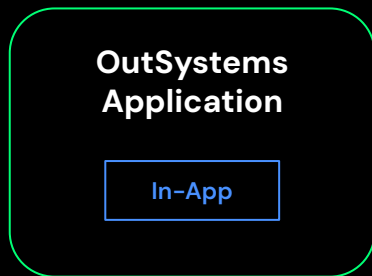
But what is Analytics?

Analytics



How to do Analytics on top of OutSystems?





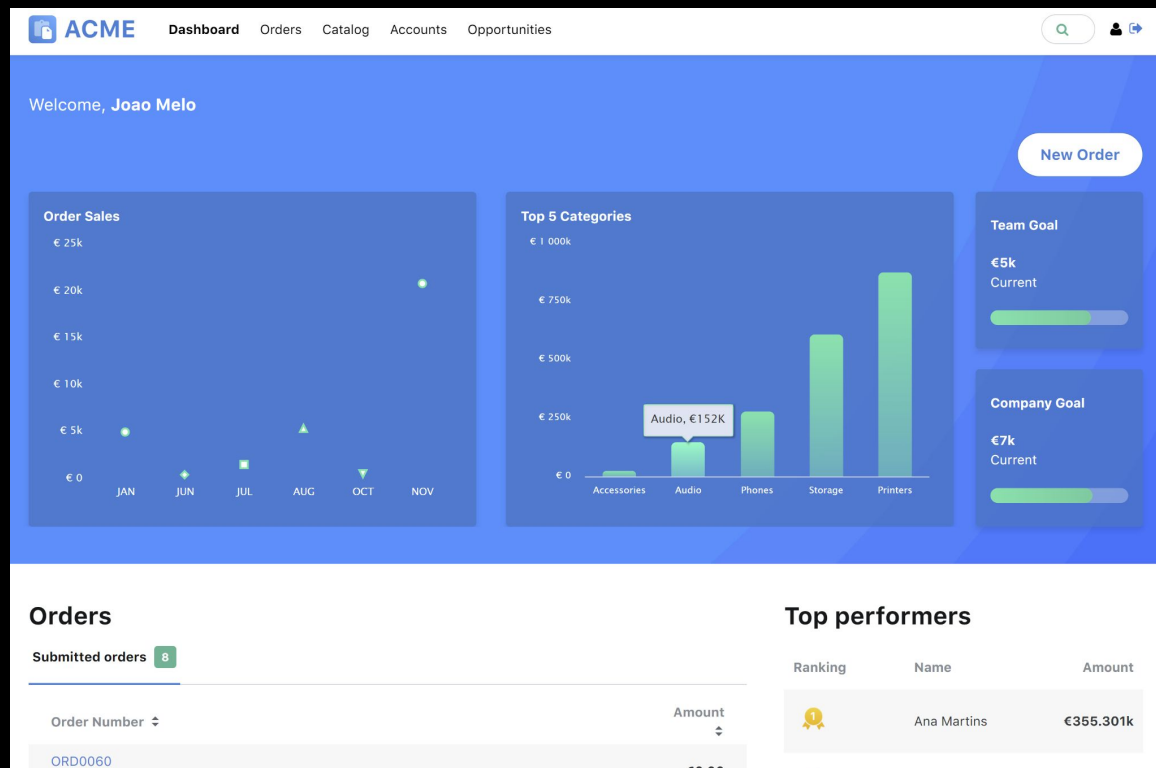
Design 1

In-App reports

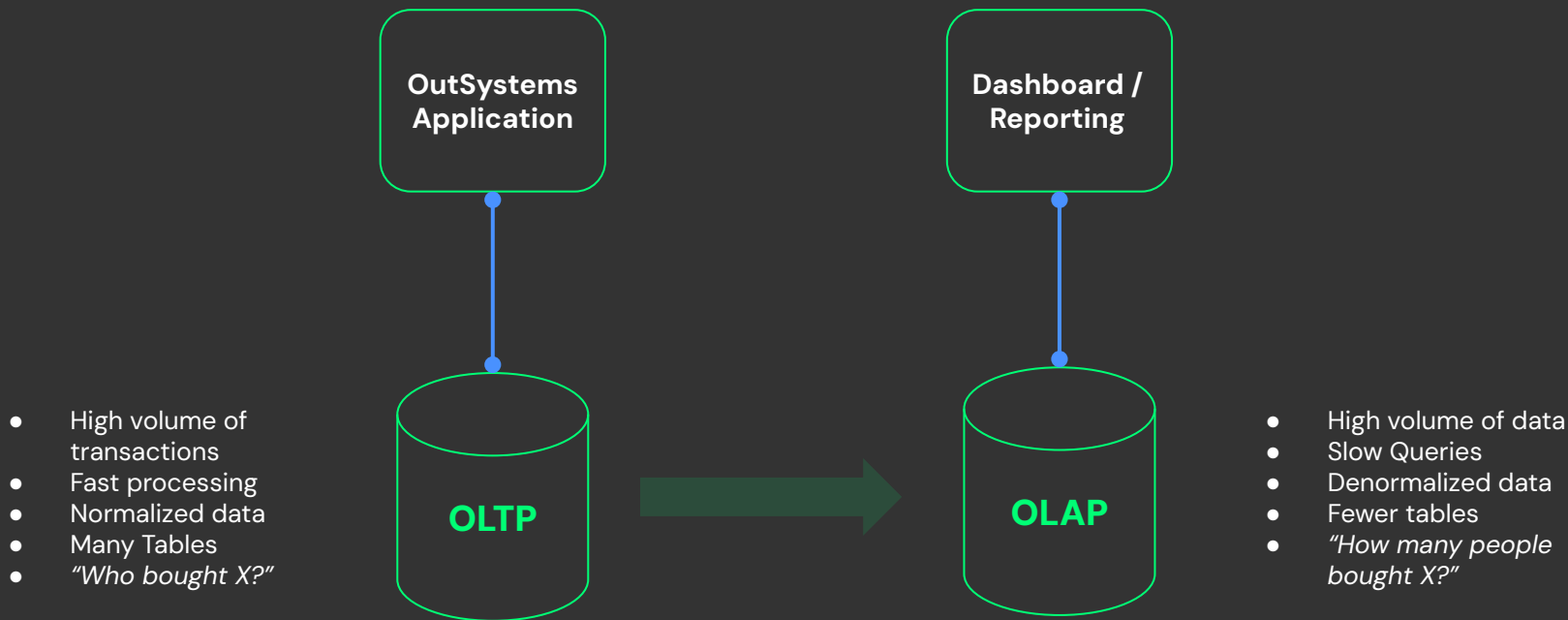
- ☐ Good for simple operational reports
- ☐ Performance impact in runtime
- ☐ High cost of dev cycle
- ☐ Business needs end up stuck in backlog
- ☐ No exploration

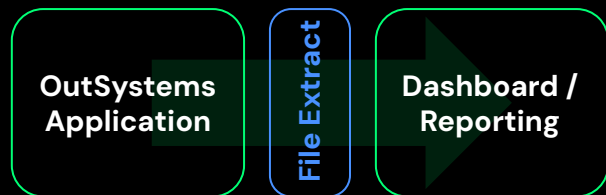
In App Report Example

one



When it comes to Enterprise...





Design 2

File extracts

- Some exploration
- Can leverage reporting tools
- Prone to errors
- Reliance on dev cycle to evolve
- Manual operation
- Up to users to figure out data structures



Design 3

Staging with automated extraction

- Data loading automated
- Leverages analytics tooling
- Powerful exploration
- Mashup with other data sources
- Still reliant on dev cycle to evolve

Data extraction with OutSystems

A) Direct DB



Backdoor to Prod data



Hard to govern



Physical table names

B) Custom API



Authorization at the source

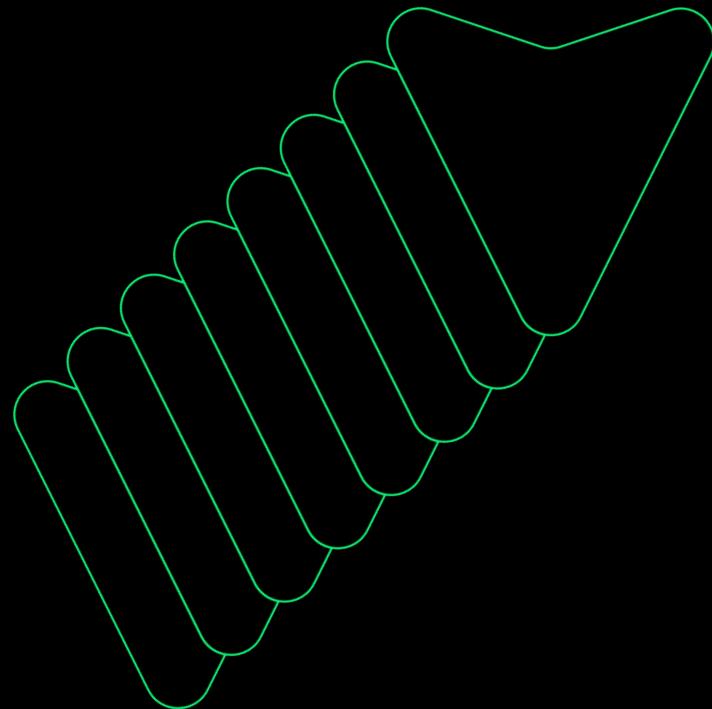


Some governance



Reliant on dev cycle

**But what would ideal
look like?**



Ideal solution for Enterprise Analytics SHOULD provide:

- ☐ Overall good **experience**
- ☐ Low cost + fast **dev cycle**
- ☐ Data **governance**
- ☐ **Secure** data access
- ☐ **Automated** data **extraction**
- ☐ Analytics **owned by analysts**
- ☐ **Exploration** / visualization



But...

How can
we close
this gap?

one

	Experience	Low dev	Governance	Secure	Auto extract	Owner	Exploration
Design 1 – In-App reports	✗	✗	✓	✓	✗	✗	✗
Design 2 – File extracts	✗	✗	✗	✗	✗	✓	✓
Design 3.A – Extraction with DB connection	✗	✗	✗	✗	✓	✓	✓
Design 3.B – Extraction with custom built APIs	✗	✗	✓	✓	✓	✓	✓
Design 4 – Extraction through data connector	✓	✓	✓	✓	✓	✓	✓

But...

How can
we close
this gap?

one

Design 1 – In-App reports

Design 2 – File extracts

Design 3.A – Extraction with DB connection

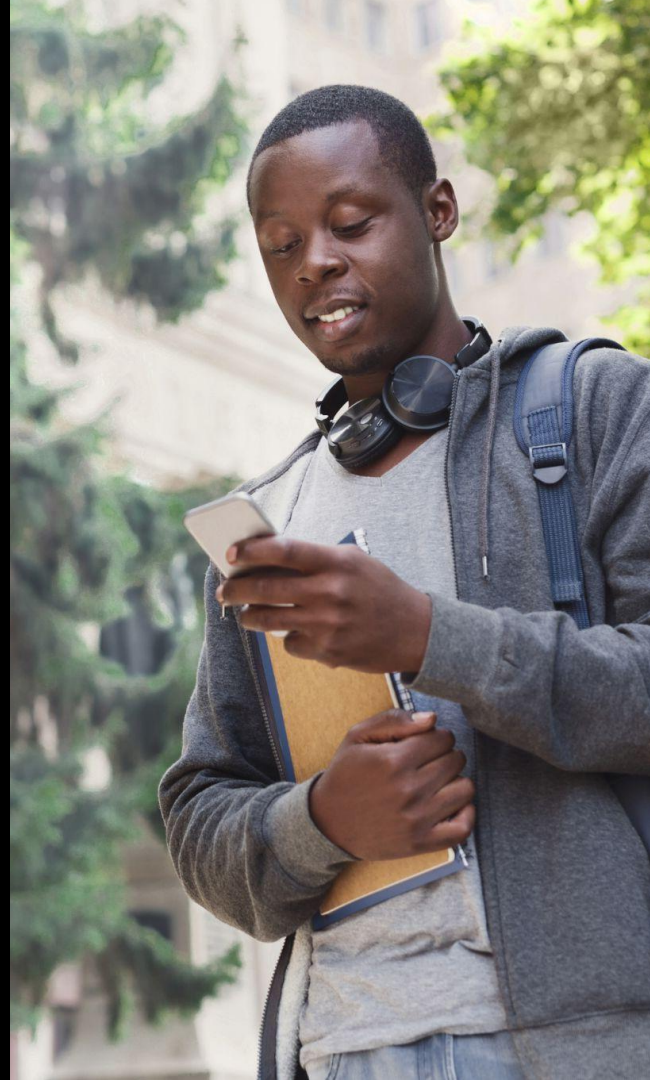
Design 3.B – Extraction with custom built APIs

Design 4 – Extraction through data connector

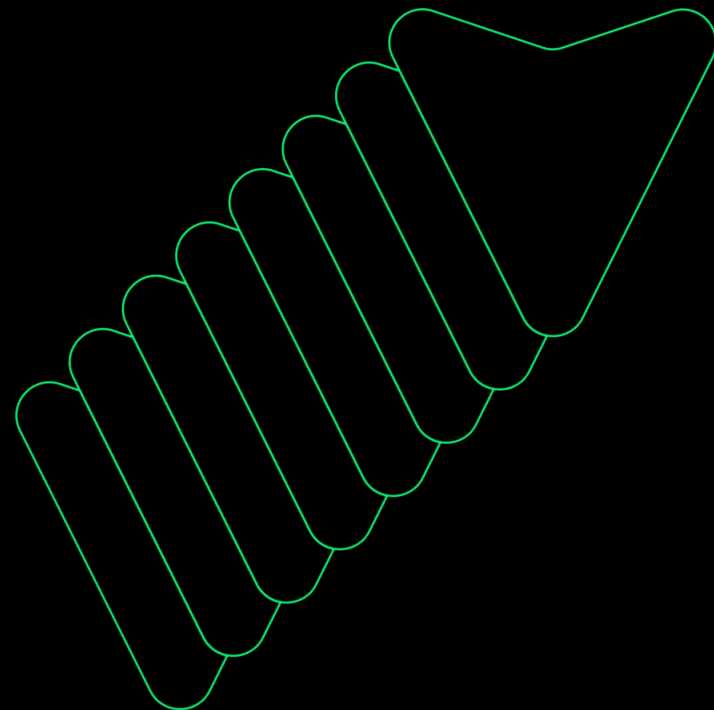
Experience	Low dev	Governance	Secure	Auto extract	Owner	Exploration

Extraction through data connector

- Experience ☒ Overall good **experience**
- Low dev ☒ Low cost + fast **dev cycle**
- Governance ☒ Data **governance**
- Secure ☒ **Secure** data access
- Auto extract ☒ **Automated** data **extraction**
- Owner ☒ Analytics **owned by analysts**
- Exploration ☒ **Exploration** / visualization



The data source layer



MuleSoft Composer for Salesforce

salesforce

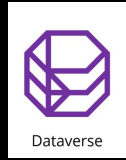


and more!



Additional connectors rolling out monthly

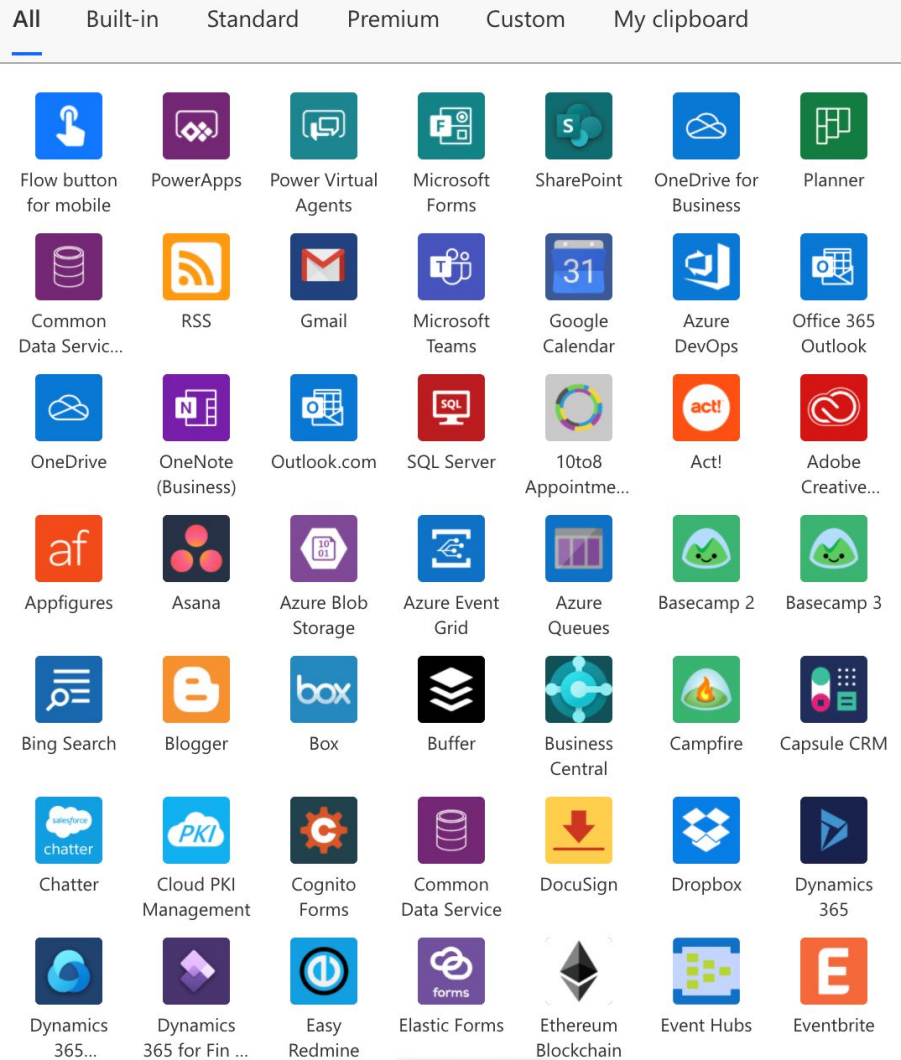
MS Dataverse



Business apps (Dynamics, Office, etc.)

Popular platforms (for Power Apps, Analytics, etc.)

Analytics & Interoperability



OutSystems Forge

Connectors to popular
platforms

Consumption only

None focused on data exposure

Dev cycle accelerator / Not plug
& play

The screenshot displays the OutSystems Forge interface. At the top, the navigation bar includes the OutSystems Community logo and links for Training, Documentation, Forums, Forge (highlighted), Get Involved, and Downloads. A search bar at the top center contains the text 'connector', with a 'Search' button to its right. Below the search bar, the results are displayed in a grid. On the left side, there are filters for 'COMPATIBLE WITH' (OutSystems 11, OutSystems 10), 'TYPE' (All, Mobile, Reactive, Service, Traditional web, Business solution), 'CURATION' (Trusted, OutSystems supported), and 'CATEGORY' (Apps, Integrations, Device capabilities, User interface, Functional libraries & utilities, Development tools, Demos & samples). The main area shows 230 results for 'connector'. The results are sorted by 'Most relevant'. The first row of results includes: Amazon Kinesis Video Streams Connector (5 stars, 25 downloads), UiPath Orchestrator Cloud Connector (0 stars, 107 downloads), and Zendesk Connector (5 stars, 248 downloads). The second row includes: Azure LUIS Connector (2 stars, 720 downloads), Facebook Connector (12 stars, 1496 downloads), and LinkedIn Connector (5 stars, 676 downloads). The third row includes: OutSystems Workato Connector (5 stars, 720 downloads), Salesforce Connector (19 stars, 1496 downloads), and Twitter Connector (5 stars, 676 downloads).

outsystems
Community

Training ▾ Documentation ▾ Forums Forge Get Involved ▾ Downloads

Q connector Search

COMPATIBLE WITH ▴

- ☐ OutSystems 11
- ☐ OutSystems 10

TYPE ▴

- ☒ All
- ☐ Mobile 📱
- ☐ Reactive 🔄
- ☐ Service 🔄
- ☐ Traditional web 🖥️
- ☐ Business solution 🏢

CURATION ⓘ ▴

- ☐ Trusted ✅
- ☐ OutSystems supported 🛡️

CATEGORY ⓘ ▴

- ☐ Apps ▾
- ☐ Integrations ▾
- ☐ Device capabilities ▾
- ☐ User interface ▾
- ☐ Functional libraries & utilities ▾
- ☐ Development tools ▾
- ☐ Demos & samples ▾

230 results for "connector" x Clear filters

Sort by: Most relevant ▾

Amazon Kinesis Video Streams Connector
Securely stream media from connected devices to AWS with the Amazon Kinesis Video Streams
★★★★★ 6
👤 25

UiPath Orchestrator Cloud Connector
This OutSystems connector simplifies the utilization of key APIs in UiPath Orchestrator (cloud version).
★ ★ ★ ★ ★ 0
👤 107

Zendesk Connector
Zendesk Connector allows your OutSystems Applications to use and extend Zendesk.
★★★★★ 6
👤 248

Azure LUIS Connector
Use the Azure LUIS connector to provide your apps with capabilities of extracting information from text. The
★★★★★ 2
👤 720

Facebook Connector
Facebook Connector allows your OutSystems Applications to use the Facebook REST API to obtain posts
★★★★★ 12
👤 1496

LinkedIn Connector
LinkedIn Connector allows your OutSystems Applications to use LinkedIn REST API to collect
★★★★★ 5
👤 676

OutSystems Workato Connector
The OutSystems Workato Connector allows you to take full advantage of the Workato platform without any custom
★★★★★ 5

Salesforce Connector
The Salesforce Connector gives you instant access to the Salesforce.com services for quick integration with your
★★★★★ 19

Twitter Connector
Twitter Connector allows your OutSystems Applications to use the Twitter REST API to obtain tweets and
★★★★★ 5

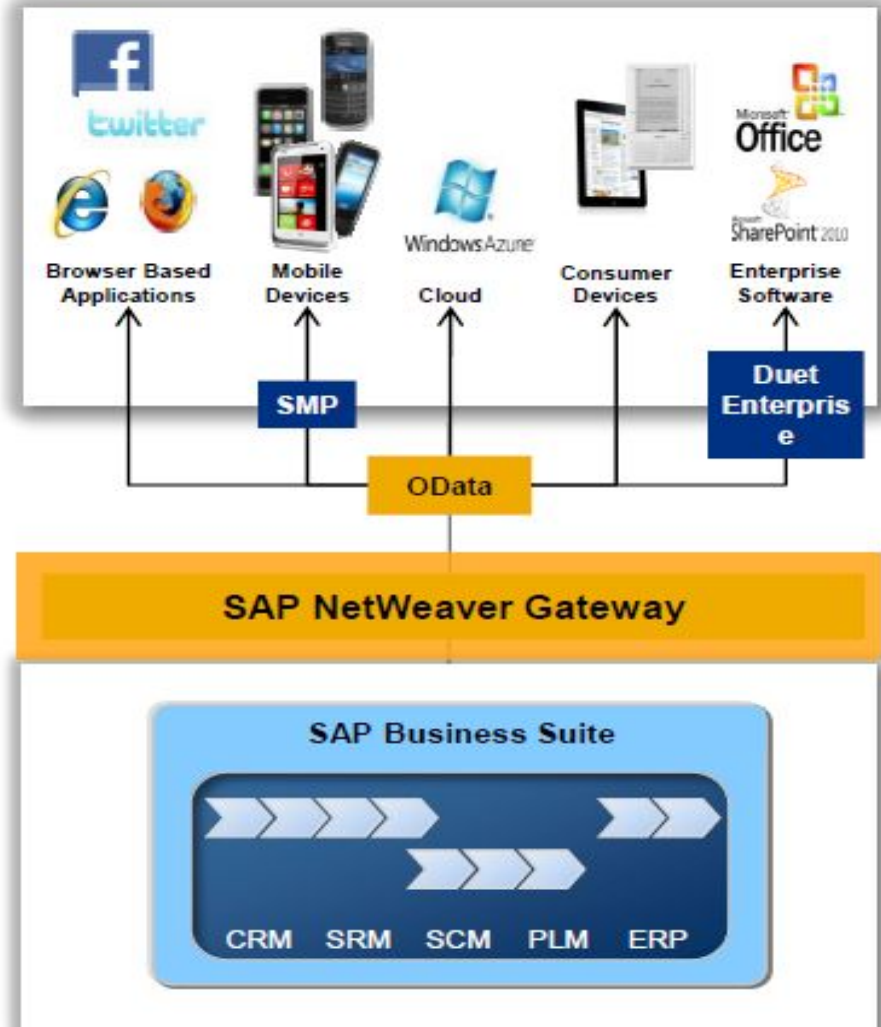
SAP Data Gateway

Centralized data exposure

Enterprise-grade governance

Standard protocol (OData)

Analytics & Interoperability



What is OData?

[Blog](#)[Developers ▾](#)[Tools ▾](#)[Ecosystem](#)[Getting Involved](#)

OData - the best way to REST

An open protocol to allow the creation and consumption of **queryable** and **interoperable RESTful APIs** in a **simple** and **standard** way.

OData Example

RESTfull APIs

Data representation protocol / Semantic layer

Reads

(select, search, sort, pagination)

Writes

(create / Update / Delete)

Associations

(join, nesting)

Requesting Entity Collections

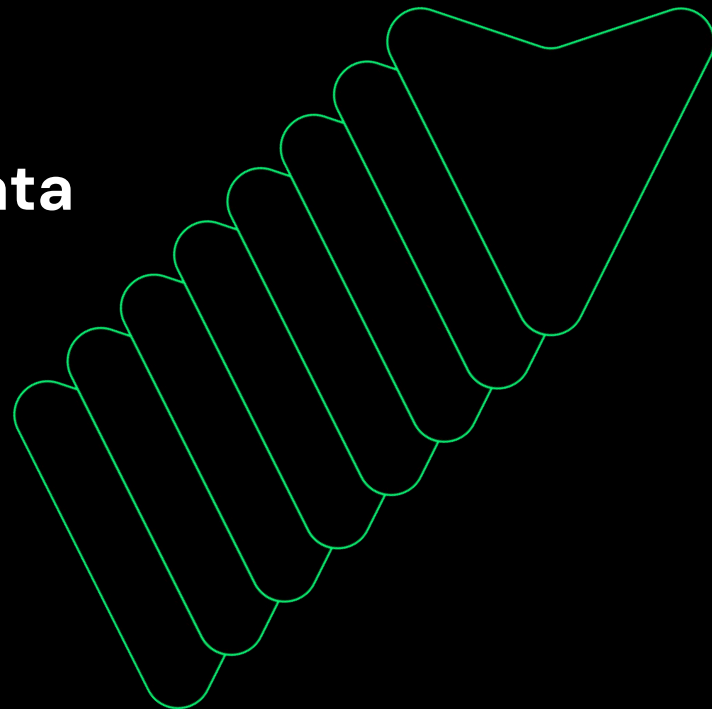
The request below returns the the collection of Person *People*.

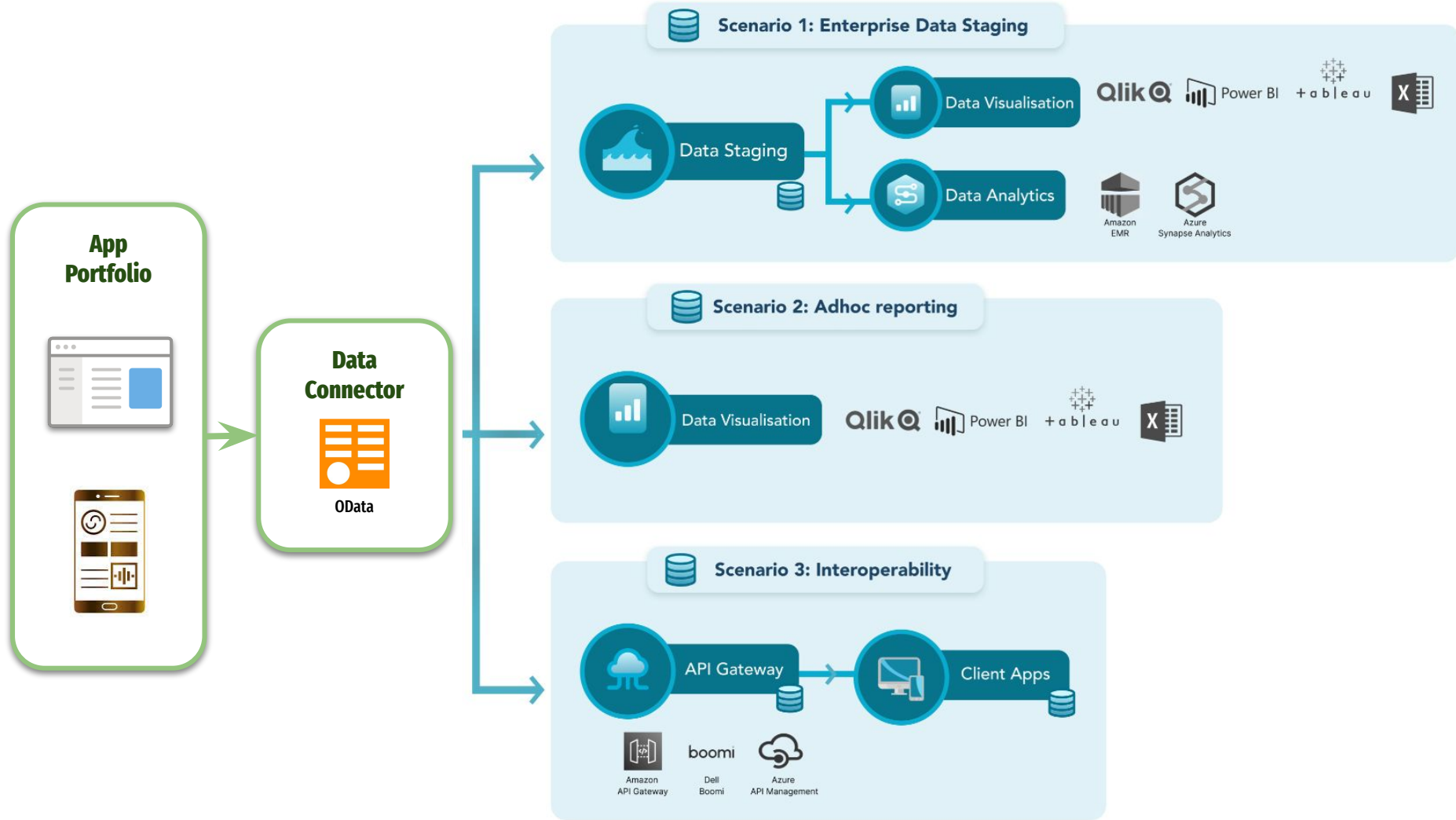
`GET serviceRoot/People`


Response Payload

```
{
  "@odata.context": "serviceRoot/$metadata#People",
  "@odata.nextLink": "serviceRoot/People?%24skiptoken=8",
  "value": [
    {
      "@odata.id": "serviceRoot/People('russellwhyte')",
      "@odata.etag": "W/\"08D1694BD49A0F11\"",
      "@odata.editLink": "serviceRoot/People('russellwhyte')",
      "UserName": "russellwhyte",
      "FirstName": "Russell",
      "LastName": "Whyte",
      "Emails": [
        "Russell@example.com",
        "Russell@contoso.com"
      ],
      "AddressInfo": [
        {
          "Address": "187 Suffolk Ln.",
          "City": {
            "CountryRegion": "United States",
            "Name": "Boise",
            "Region": "ID"
          }
        }
      ],
      "Gender": "Male",
      "Concurrency": 635404796846280400
    },
  ],
}
```




**What if we build a no-code data
connector for OutSystems?**






 **ACME**


Dashboard **Orders** Catalog Accounts Opportunities

Orders

New Order

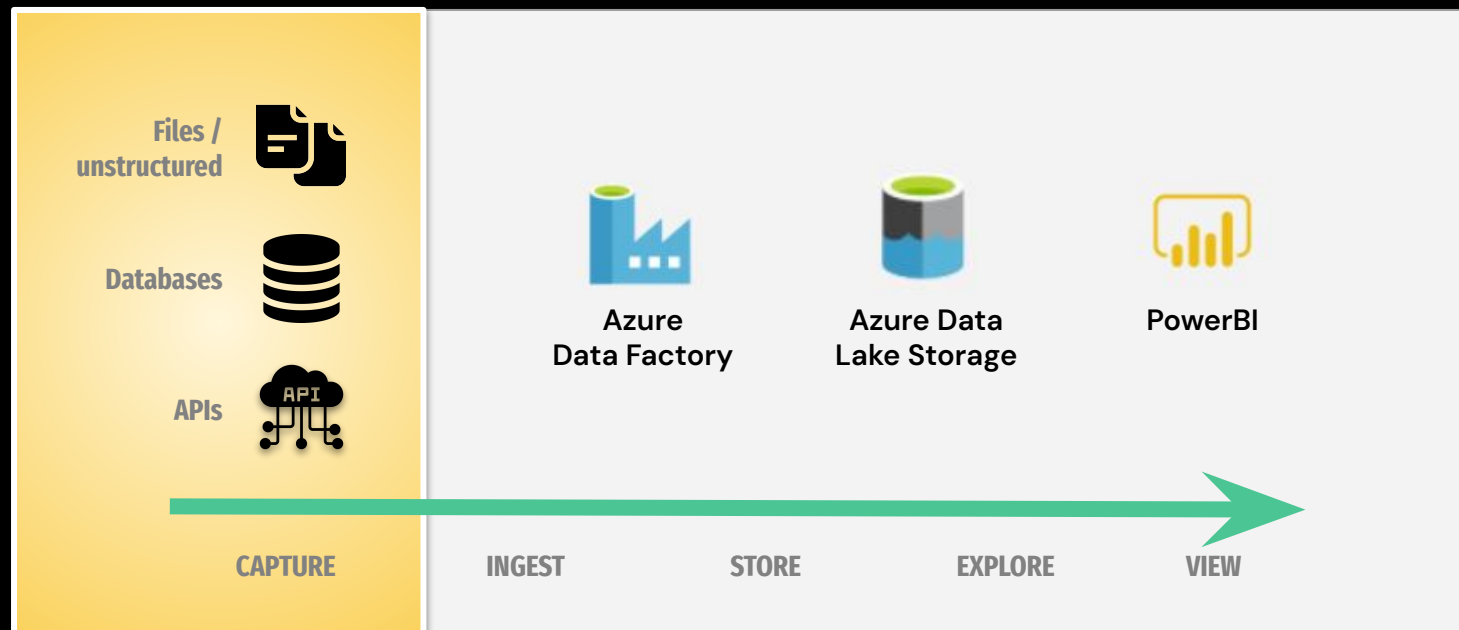
 Type order number or company name

All Employees 

Amount €0.00 €20,000.00

All Draft Submitted Approved & Closed

Number	Company	Total Amount	Order Date	Required On	Created by	State
ORD0001	Business fluence	€938.47	5 Jun 2020	1 Jun 2020	Ana Martins	Submitted
ORD0002	Business fluence	€1,166.24	7 Jun 2020	2 Jun 2020	Ana Martins	Draft
ORD0003	Business fluence	€4,296.10	5 Jun 2020	1 Jun 2020	Ana Martins	Submitted
ORD0004	Business fluence	€761.97	9 Apr 2020	1 Apr 2020	Manuel Luis	Submitted
ORD0005	Business fluence	€2,527.77	23 Jan 2020	1 Jan 2020	Ana Martins	Submitted
ORD0006	Business fluence	€59.97	31 Jan 2020	22 Jan 2020	Ana Martins	Submitted



Demo Time

Demo Time

What did we use in the demo?

OData Connector

Expose data source
through Hubway Connect

Lakehouse

Store the data across
multiple stages

Data flow / Pipeline

Extract data from the
source

Power Query

Transform (merge, expand,
remove / rename columns,
change type) and;
Load transformed data into
Lakehouse

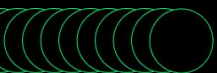
Data Factory

Govern and orchestrate
data flows and storage

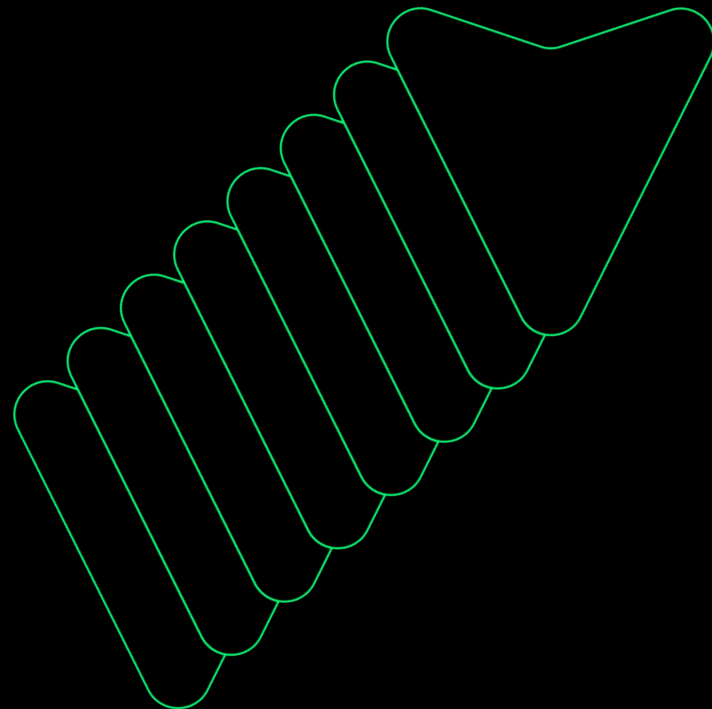
PowerBI

Display processed
information in dashboards /
reports

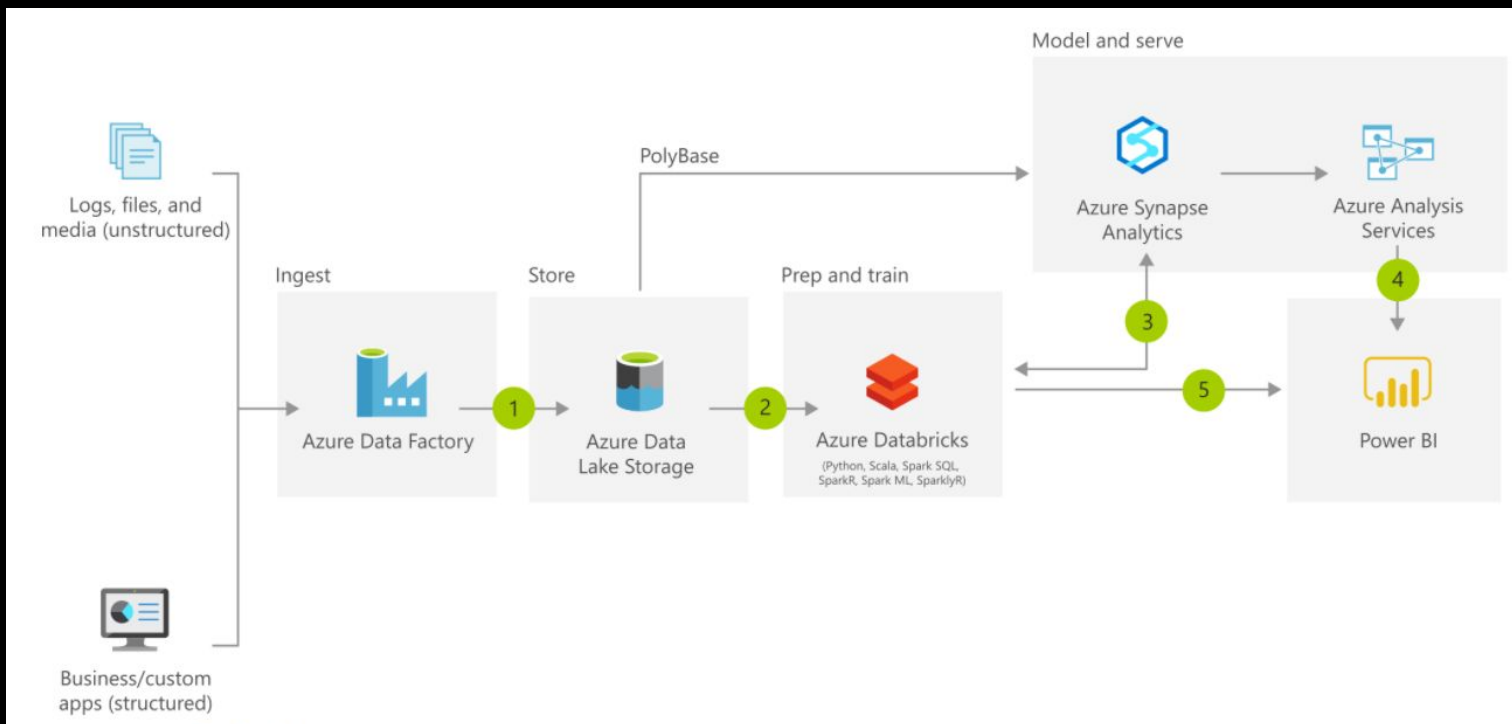
Q&A



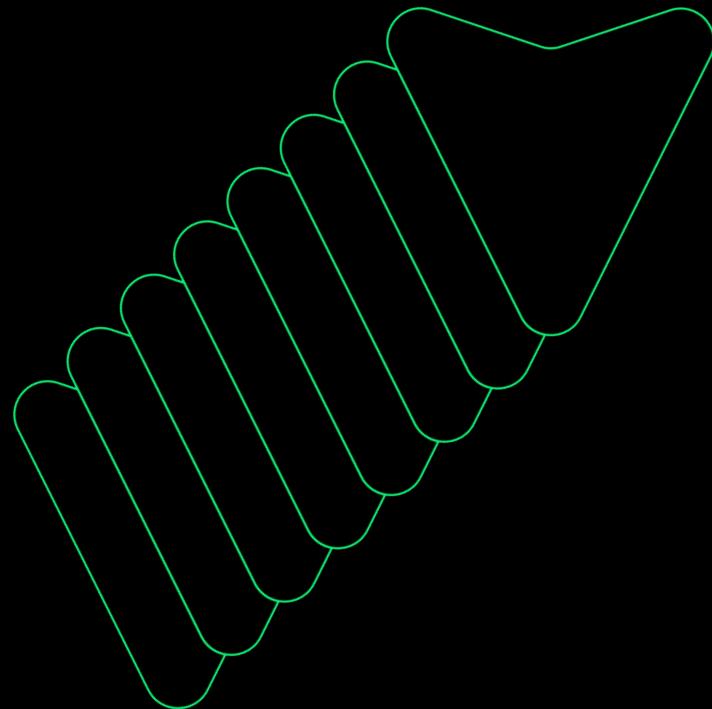
**Can one combine it with
ML / AI?**



Microsoft Data Services with Machine Learning



**What about other
Cloud Platforms
(AWS, Google)?**



AWS Data Services

EXTRACT



AWS Glue



AWS Step
Function



Amazon S3

LOAD



Amazon
Redshift

TRANSFORM



AWS Glue
DataBrew



AWS
Data Pipeline

VISUALIZE / EXPLORE



Amazon
QuickSight



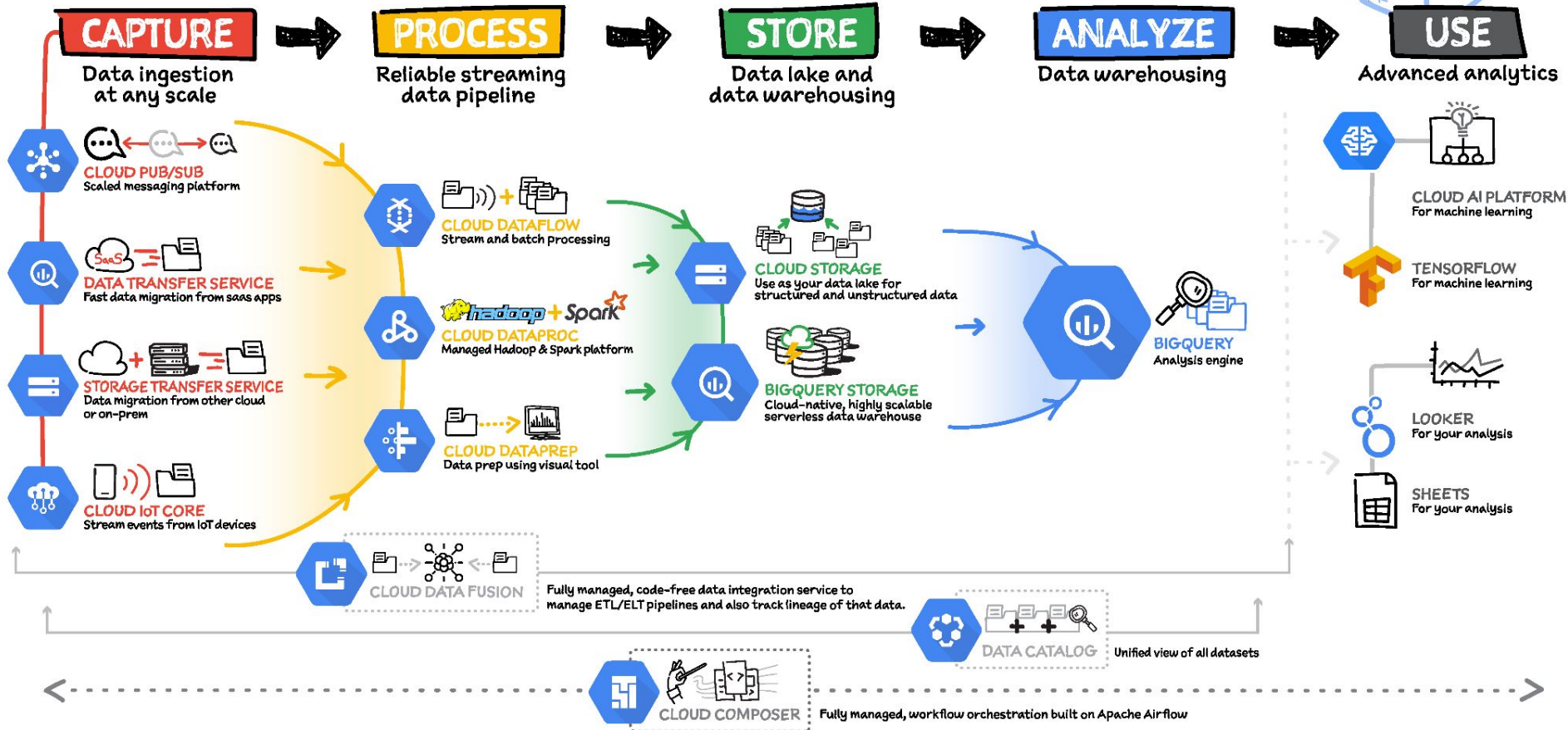
Amazon
Athena



@PVERGADIA
THECLOUDGIRL.DEV
8.13.2020

#GCPsketchnote

How to build a scalable DATA ANALYTICS PIPELINE



Data Analytics Tooling

Ingestion / Transformation



Staging / Data Warehouse



Visualization / Exploration





Microsoft Fabric

The data platform for the era of AI



Data
Factory



Synapse Data
Engineering



Synapse Data
Science



Synapse Data
Warehousing



Synapse Real
Time Analytics



Power BI

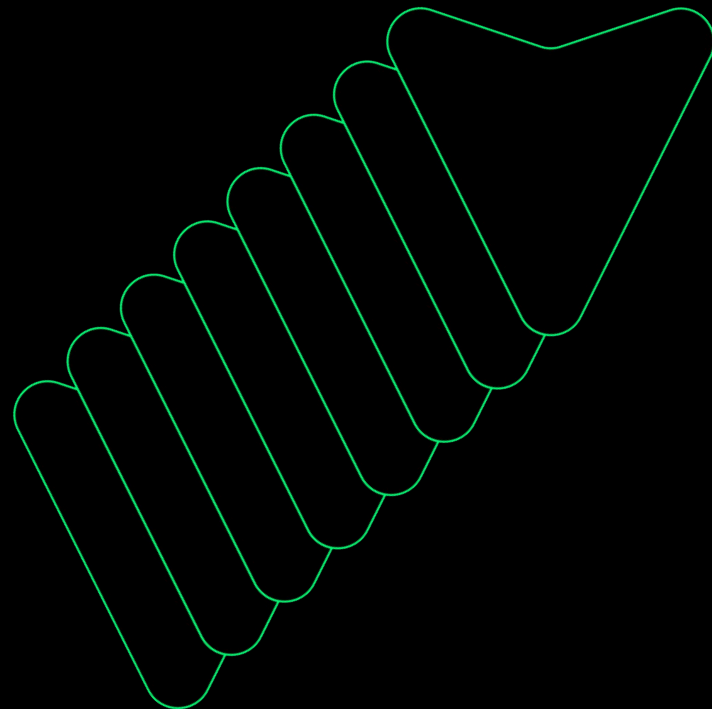


Data
Activator



OneLake

Can OData APIs be used for interoperability?



OData

SQL

```
GET service/People
```

Simple List

```
GET service/People(1)?$select=FirstName,DOB
```

Fetch a record

```
GET service/People?$filter=FirstName eq 'Joao'
```

Filter Where

```
GET service/People?$top=10&$skip=10
```

Pagination

```
GET service/People?$expand=Country,Gender
```

Join

Thank You



Joao Melo (MVP)

Head of Products @ Hubway Connect
Principal Tech Lead @ PhoenixDX

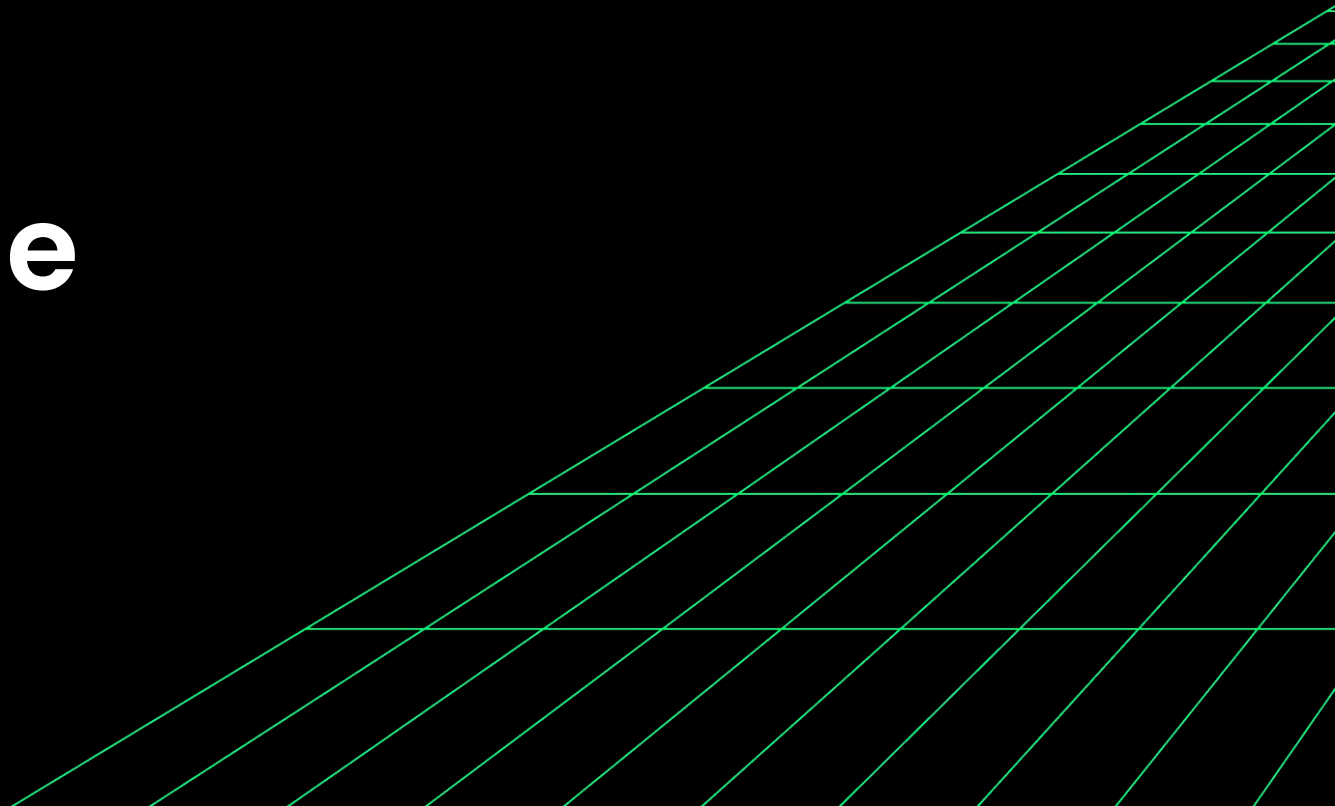


Ossama Ghanem (MVP)

Senior Tech Lead @ PhoenixDX



Template

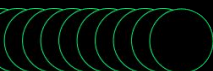


Welcome to the ONE Conference Slide Template

Here you'll find all the template styles and layouts necessary to build a great presentation. But before you start, please check our guidelines page.

Short Titles are Cool let's keep two lines

And that's why we have subtitles, to create
hierarchy, split information



Speaker Name

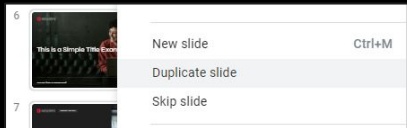
Speaker Role @ Company Name



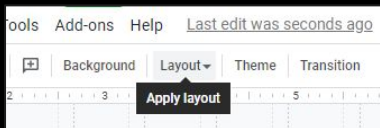
How to use layouts

There are 3 ways to access our template layouts:

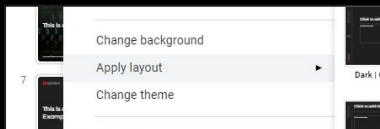
1. Duplicate any of the available slide examples. Just right click, and choose Duplicate slide



2. On the top menu there's an option called Layout, available only when you're not selecting any object. This allows you to select different slide layouts.



3. The same menu is accessible when you right click a slide thumbnail.



How to apply text

Our brand fonts for the decks are:

DM Sans for Titles

DM Sans for body text

The following is a list of all the styles our brand uses, applied hierarchically.

TAGS & LABELS

Heading
Subheading 1

Subheading 2

SUBHEADING 3

Body text size 1

Body text size 2

Body text size 3

Our templates are built with this in mind. Please respect our styles and guidelines.

How to apply color

Here are a few examples of color application for both dark and light backgrounds.

main colors



support colors



Abc

That's easy as 1, 2,3

main colors



support colors

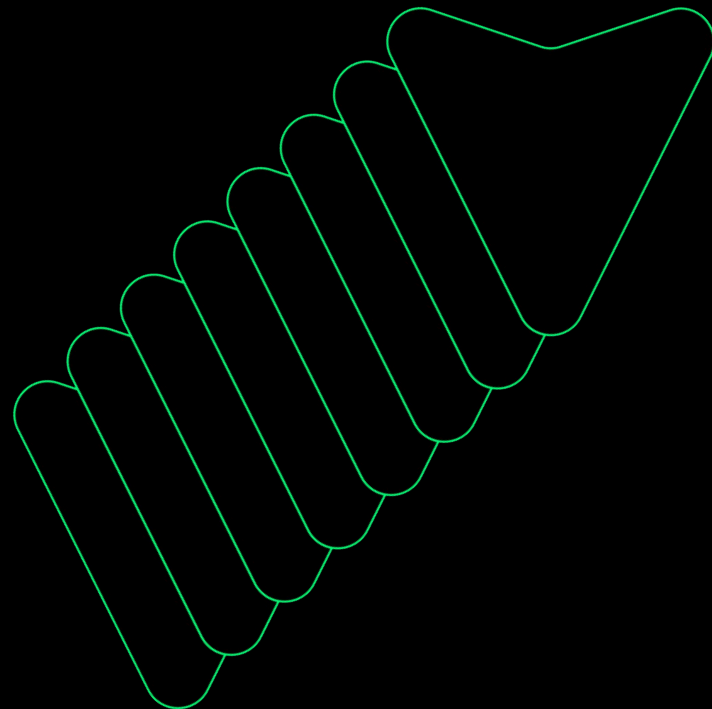


Abc

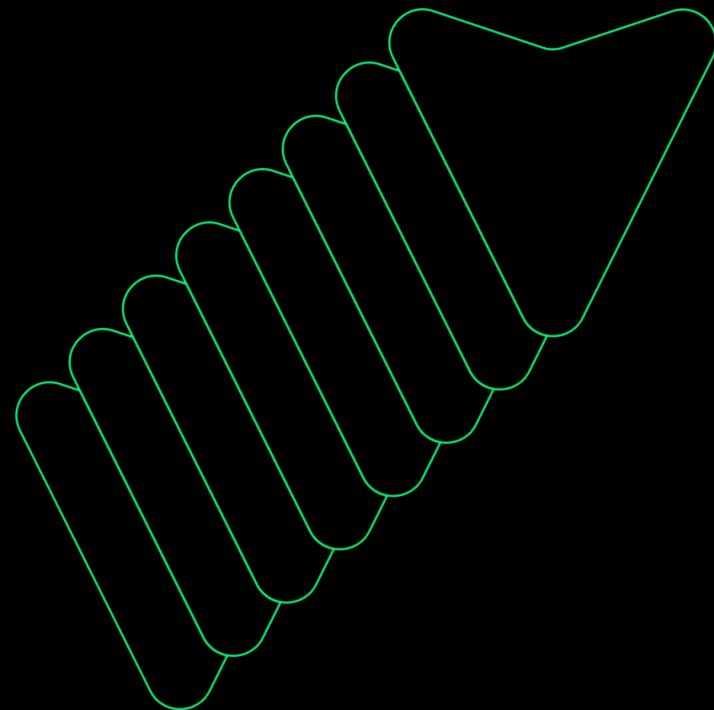
That's easy as 1, 2,3

Cover Slides

You can choose one of the following covers for your deck



Separator slides



Short Titles are Cool



If you ever wondered how content is written, this is it. Words are always there to express your thoughts, even when you don't know you're speaking.



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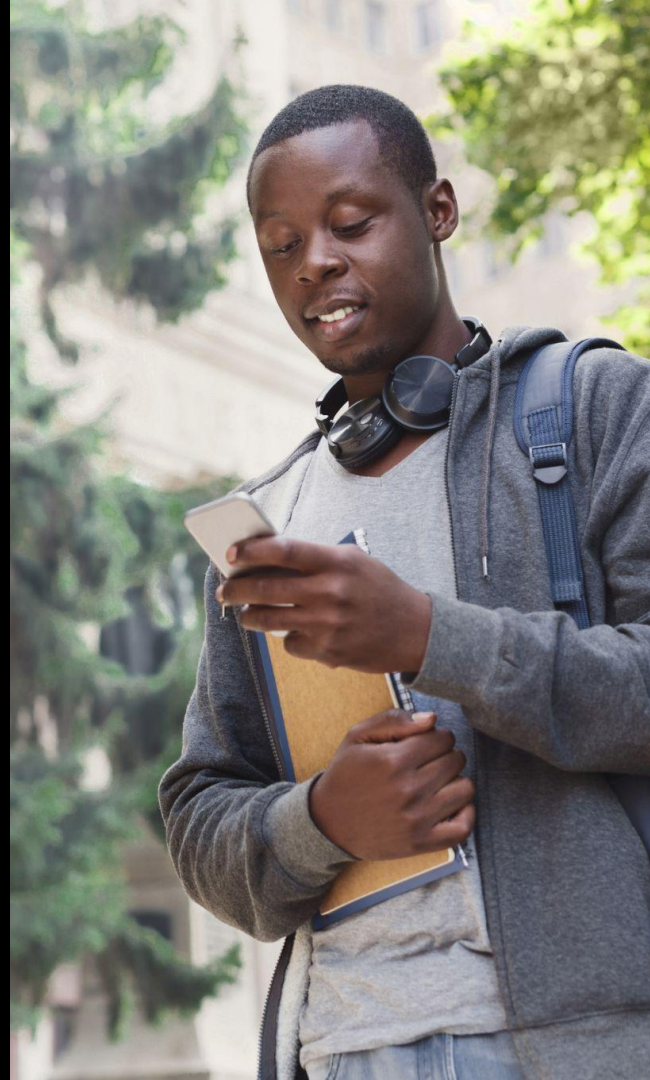


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If you ever wondered how content is written, this is it. Words are always there to express your thoughts, even when you don't know you're speaking. It's a bit like Joey Tribbiani from Friends, it takes a while to get there but when you get it... wow!

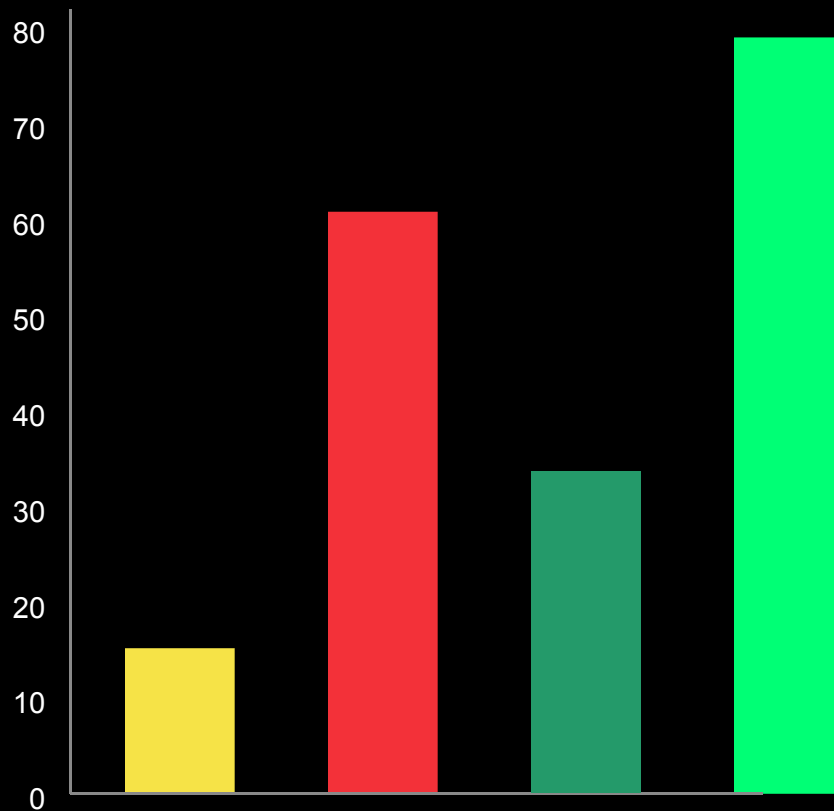




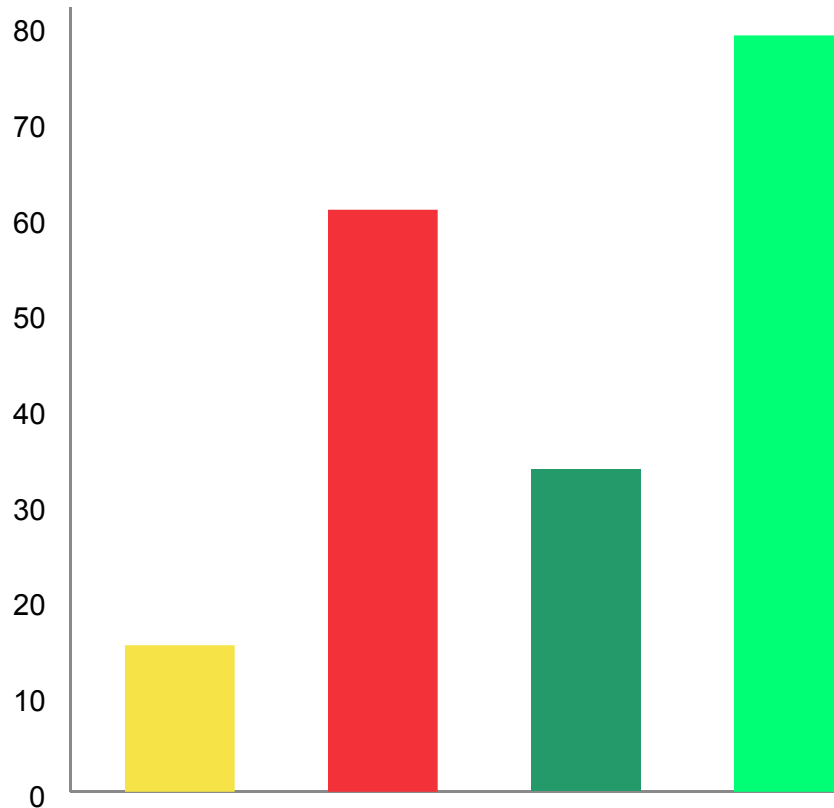
one

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**Short Titles are Cool but People
usually write much more**



If you ever wondered how content is written, this is it. Words are always there to express your thoughts, even when you don't know you're speaking. It's a bit like Joey Tribbiani from Friends, it takes a while to get there but when you get it...



Thank you slides

