

Challenges and opportunities of enterprise wide process automaton

@berndruecker



The common reality



Manual work
Ad-hoc problem
solving

Legacy Systems

Website

Core Banking
System

CRM System

Scoring System

Address Check

...

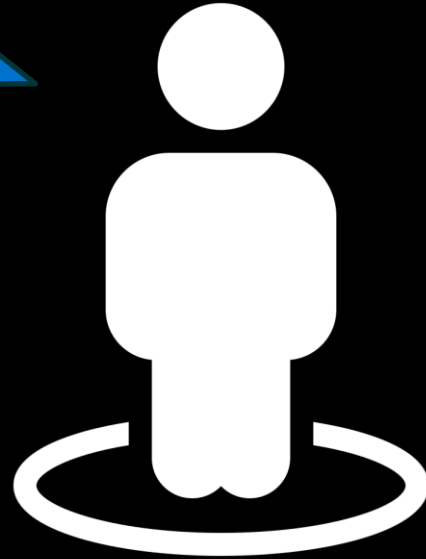
Point to point
integrations
(aka Spaghetti)



The customer doesn't care



Please open
a bank account
for me



Wow, that
was...

...slow 😞



Fintechs

New Work

Innovation

Amazon and the big techs

Cloud Transformation

Architecture Modernization

Business Model Changes

Market pressure

Digitalization

Cost Efficiency

Neobanks

Process orchestration

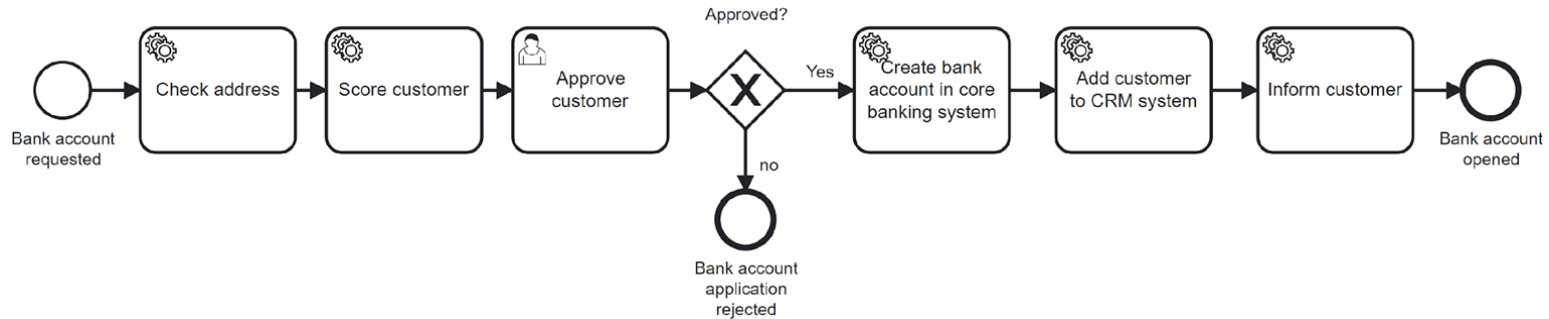
Fintechs
New Work
Innovation
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Cloud Transformation
Architecture Modernization
Business Model Changes
Market pressure
Digitalization
Cost Efficiency
Neobanks



Adding process orchestration

Clerks

Website



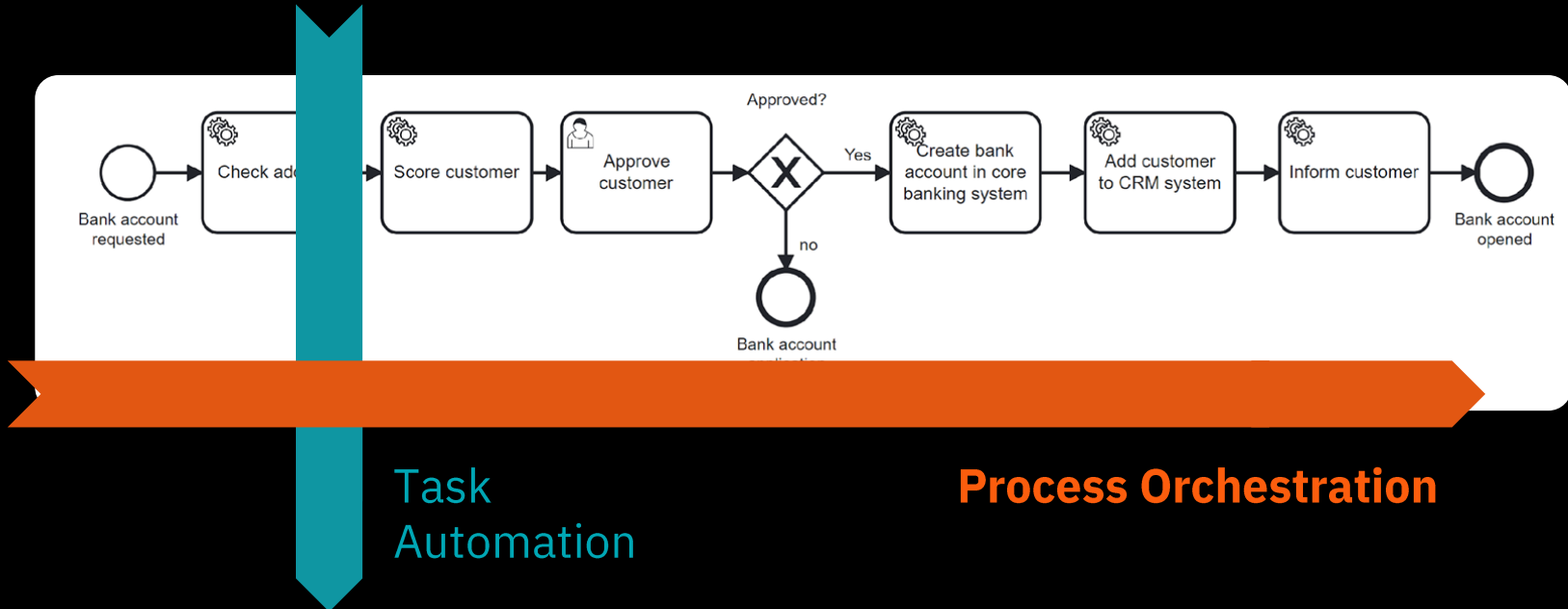
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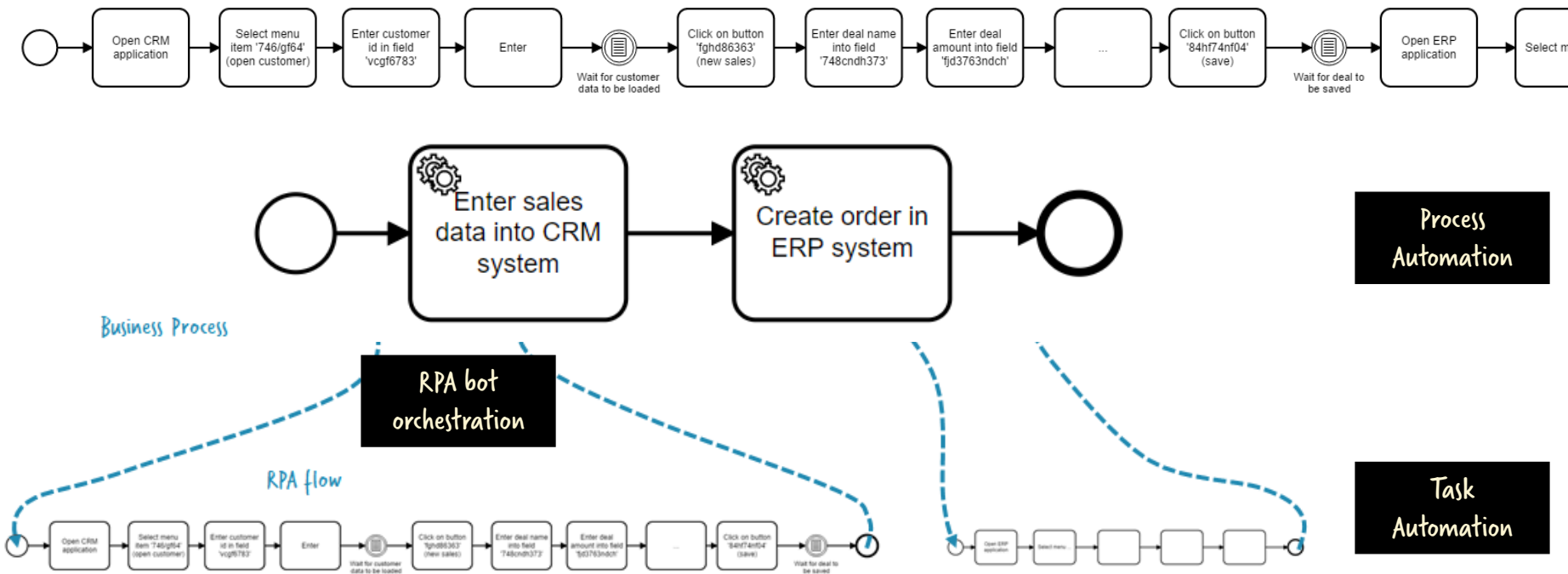
Process automation: Task automation vs. process orchestration



Robotic Process Automation RPA



Task vs. Process Automation



BOTS & PROCESS IMPROVEMENT AT THE SAME TIME?

OUR AUTOMATION JOURNEY
@ DEUTSCHE TELEKOM SERVICE

Marco Einacker
Christoph Anzer

Bonn | 08.10.2020



CAMUNDA
CON
LIVE

Powered by Zoom

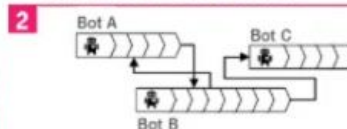
3: FROM FRONTEND AUTOMATION TO BACKEND AUTOMATION

Manual process



Short time-to-market results in "quick & dirty" process design
→ Complex processes including workarounds

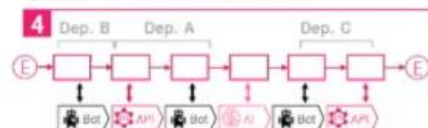
RPA / Frontend Automation



Robotic process automation imitates the human way of working
→ Complex "Spaghetti Bot" automation

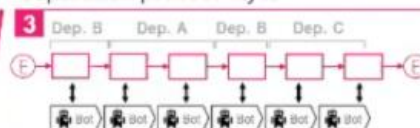
"Spaghetti bot automation"

Backend Automation



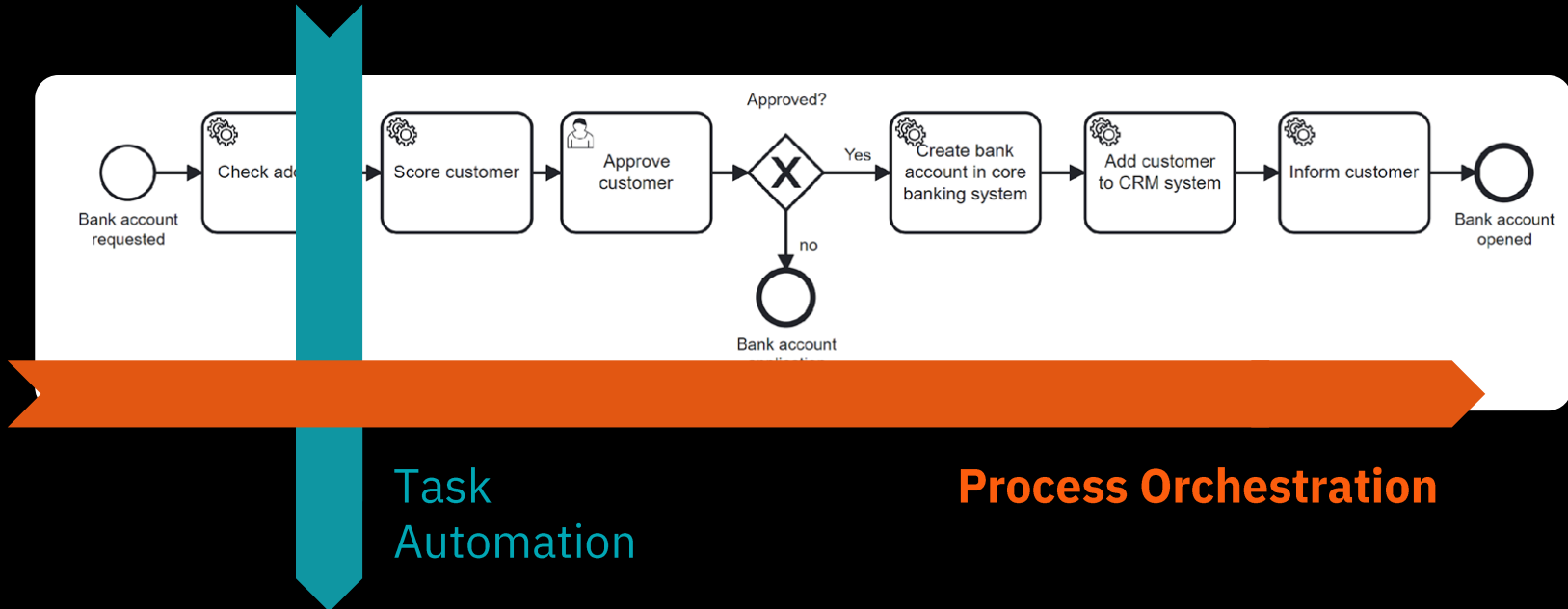
Shift from Bots (**Front-End**) to APIs (**Back-End**) and other technologies better fit for purpose
→ Enlarged scope for automation + higher efficiency

Separation process layer



Separation of **Process Layer** (Bot Orchestration) and **Bot Layer**
→ Increased process transparency and optimization

Process automation: Task automation vs. process orchestration



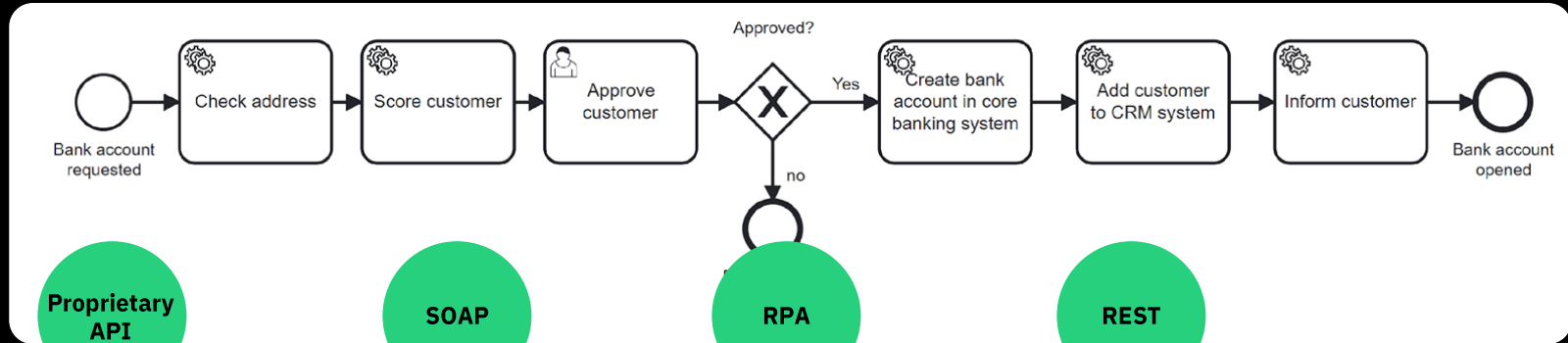
Integrating diverse endpoints

Clerks

User
Interface

Messaging

Website



Proprietary
API

SOAP

RPA

REST

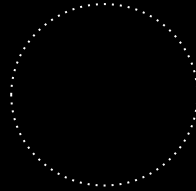
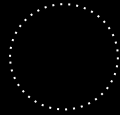
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Integrating diverse endpoints

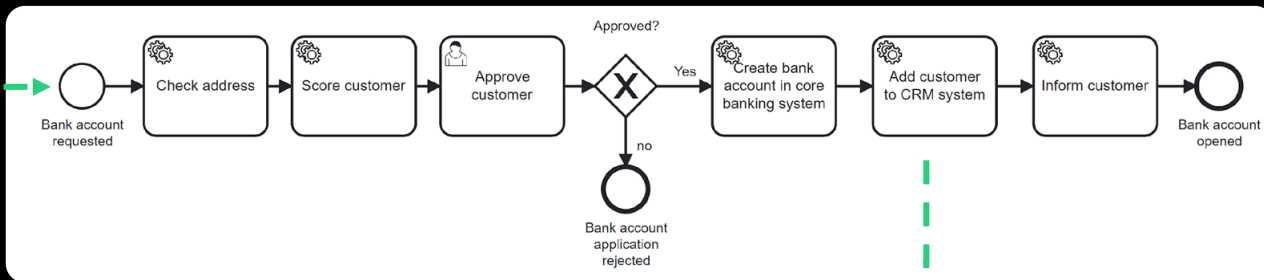


No problem!
Just code
in Spring
Boot!

```
@PutMapping("/customer")
public ResponseEntity<CustomerOnboardingResponse> onboardCustomer(ServerWebExchange exchange) {
    HashMap<String, Object> variables = new HashMap<>();
    variables.put("automaticProcessing", true);
    variables.put("someInput", "yeah");

    client.newCreateInstanceCommand() //
        .bpmnProcessId("customer-onboarding") //
        .latestVersion() //
        .variables(variables) //
        .send().join();
    return ResponseEntity.status(HttpStatus.ACCEPTED).build();
}
```

Your code to provide a REST endpoint



Your code to implement the REST call

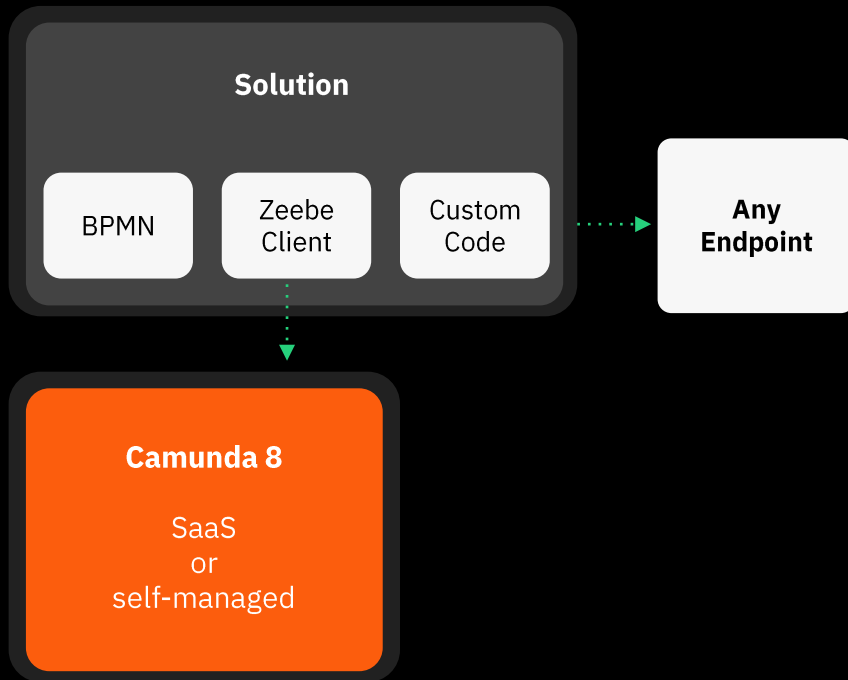
```
@ZeebeWorker(type = "addCustomerToCrm", autoComplete = true)
public void addCustomerToCrmViaREST(final ActivatedJob job) throws IOException {
    String request = "someData";
    restTemplate.put(ENDPOINT_CRM, request);
}
```

Example

[https://github.com/berndruecker/
customer-onboarding-camunda-8-springboot/](https://github.com/berndruecker/customer-onboarding-camunda-8-springboot/)



Solution architecture example



Supports any programming language

- Clients for Java, C#, NodeJS, Go, ... available
- Natively integrates into your stack

Runs anywhere

- Available as a SaaS service
- Manage it yourself (in your own cloud, your datacenter, your laptop)

About Camunda



2008

Founded



350+

Employees Globally



100,000+

Community Members



Globallyremote



500+

Enterprise Customers



190+

Countries with people
using Camunda

Camunda at scale (e.g. at Goldman Sachs)



Camunda Adoption in the Firm through our Platforms

GS Uses Camunda Platform and Camunda 8 to Provide Workflow Solutions to the Whole Firm



Zeebe Inventory						
#	CLIENT	ID	ENV	LAYOUT	VERSION	HEALTH
5	CDE	cde-ctrl-cluster1	UAT3	smu04	1.2.4	●●●●●●●●
6	CTRL	ctrl-dev-cluster1	DEV1	smu01	1.2.4	●●●●●●●●
7	CWM	cwm-dev-cluster2	DEV2	smu01	1.2.4	●●●●●●●●
8	CWM	cwm-dev-cluster3	DEV3	smu01	1.2.4	●●●●●●●●
9	GR	gr-dev-cluster2	DEV2	smu01	1.2.4	●●●●●●●●
10	ICORRM	icorrm-dev-cluster1	DEV1	smu01	1.2.4	●●●●●●●●
11	LEX	lex-dev-cluster1	DEV1	smu01	1.2.4	●●●●●●●●
12	LEX	lex-prod-cluster2	PROD2	leg06	1.2.4	●●●●●●●●
13	PRC-METICS	prc-metis-dev-cluster1	DEV1	smu01	1.2.4	●●●●●●●●

300
Camunda BPMN
engines deployed

30
Camunda 8
clusters in Dev

6500
BPMN models
deployed

65K
Unique Users
per year

6 Million
Manual Task
weekly

15 Teams
Exploring Camu
(non prod)

TODO

5,000+ tech and industries business use cases

500+ customers globally



Financial Services	BNP PARIBAS	Desjardins	HALKBANK	ING	NATIONAL BANK OF CANADA	NatWest	Santander	TRUIST
Insurance	AXA	First American	GENERALI	hannover re	R+V	SwissLife	talanx.	visana
Telecom	BT	NOKIA	O ₂	orange	swisscom	T	TELSTRA	vodafone
Logistics	AIRBUS	DB	KUEHNE+NAGEL	BNSF LOGISTICS	Lufthansa	OTR SOLUTIONS	SBB CFF	TRANSPORT Exchange Group
Software	amdocs	ATLASSIAN	AUTODESK	First Data	Gainsight	intuit	opentext™	SENTINEL
Manufacturing	BMW	Duni	FUJITSU	Mercedes-Benz	Panasonic	PORSCHE	SIEMENS	zymergen
Public Sector	Belastingdienst	EDF ENERGY	European Union flag	Home Office	Ministry of Justice	MÜNCHEN	swissgrid	U.S. Department of Veterans Affairs
Other Industries	24 FITNESS	BACARDI LIMITED	DECATHLON	priceline	TOTAL	UNIVERSAL MUSIC GROUP	VIACOM	zalando



How to
accelerate
solution
creation?



Camunda Adoption in the Firm through our Platforms

GS Uses Camunda Platform and Camunda 8 to Provide Workflow Solutions to the Whole Firm

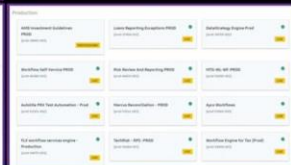


Zeebe Inventory

#	CLIENT	ID	ENV	LAYOUT	VERSION	HEALTH
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7	CWM	cwm-dev-cluster2	DEV2	smu01	1.2.4	8 6 1 C 0
8	CWM	cwm-dev-cluster3	DEV3	smu01	1.2.4	8 6 1 C 0
9	GR	gr-dev-cluster2	DEV2	smu01	1.2.4	8 6 1 C 0
10	ICOMM	icomm-dev-cluster1	DEV1	smu01	1.2.4	8 6 1 C 0
11	LEX	lex-dev-cluster1	DEV1	smu01	1.2.4	8 6 1 C 0
12	LEX	lex-perf-cluster2	PERF2	large0	1.2.4	8 6 1 C 0
13	PAYMENTS	payments-dev-cluster1	DEV1	smu01	1.2.4	8 6 1 C 0

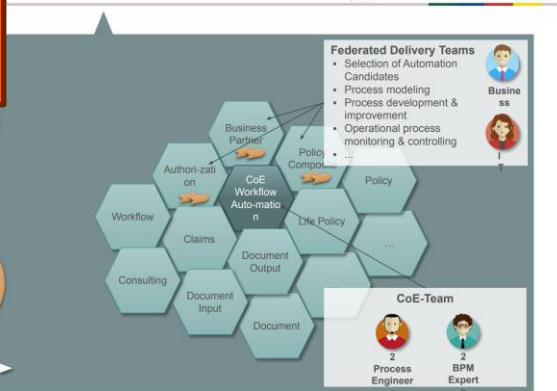
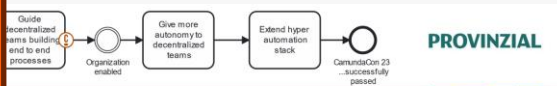
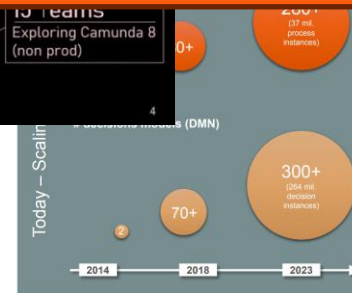
300
Camunda BPMN
engines deployed

6500
BPMN models
deployed

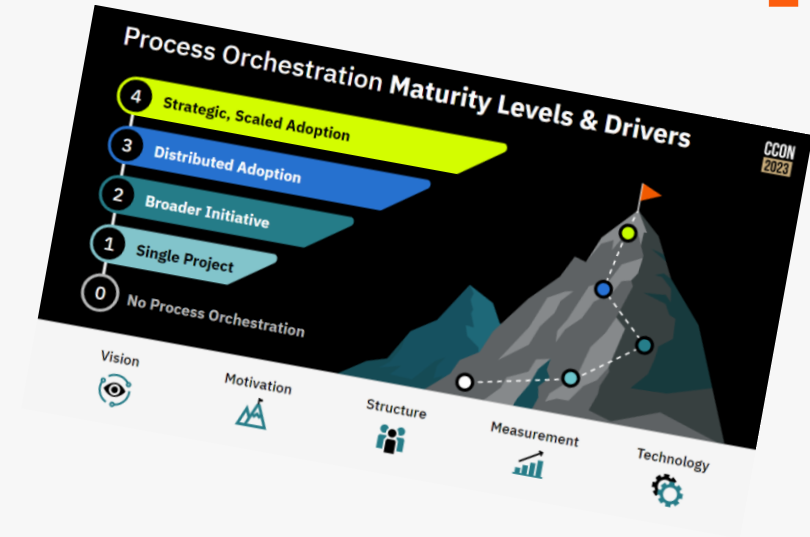
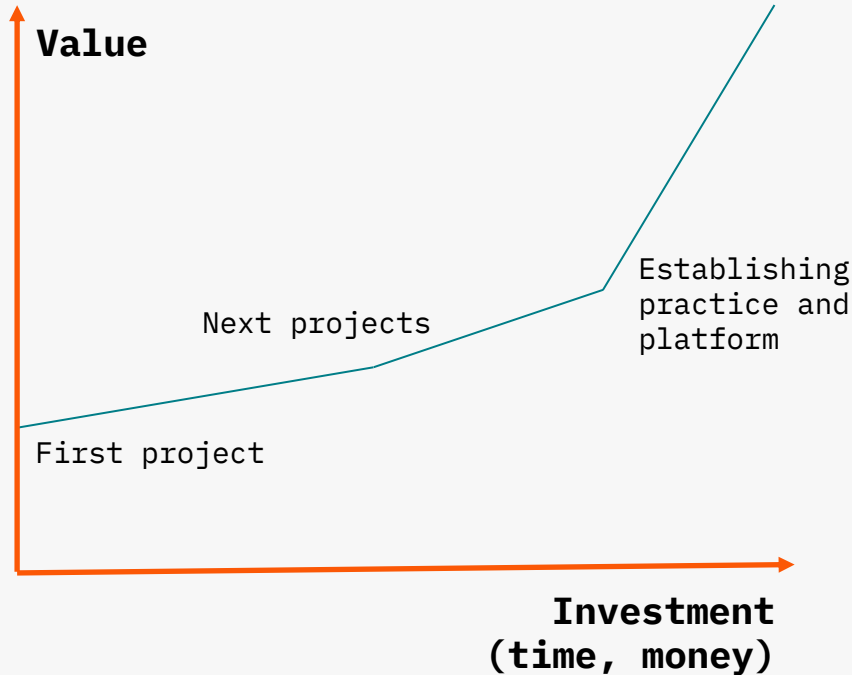


GS
Provinzial (Ccon NYC)
Societe General?

10 Teams
Exploring Camunda 8
(non prod)



Broad-scale adoption



Reusable building blocks



CAMUNDA Platform Who We Are Contact Us Search all product Q

Marketplace | All Products Q

All Applications

58 Results

Sort By Relevance

Filters

Clear Filters

Categories

- ☐ Cloud Computing Services
- ☐ Automation Services
- ☐ External Data Services
- ☐ Enterprise Applications
- ☐ Collaboration Tools
- ☐ Content Management

OpenAI Connector

Leverage ChatGPT and OpenAI's Moderation API in your business processes.

Creator: Camunda

AWS Lambda Connector

Invoke AWS Lambda functions as part of orchestrated business processes.

Creator: Camunda

GraphQL Connector

Simplify GraphQL queries and optimize process performance.

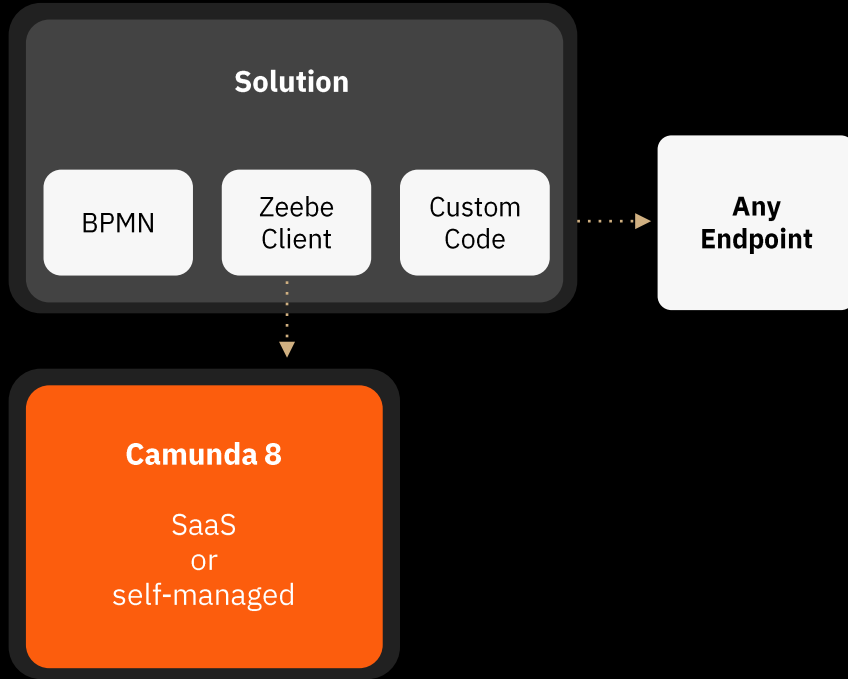
Creator: Camunda

Catalog of
**business
capabilities**
made available
to the
**orchestration
layer**

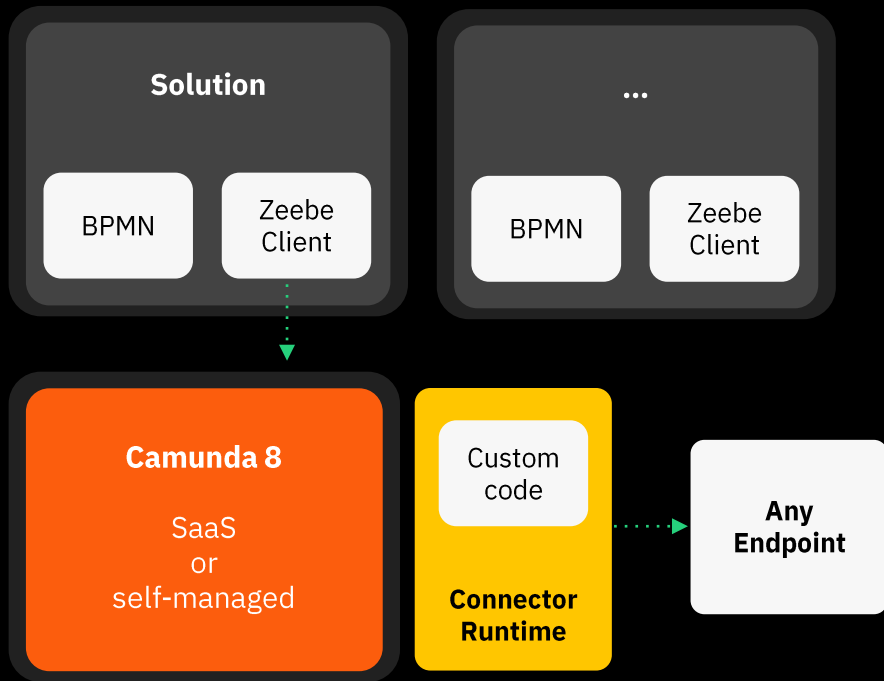
Demo



Solution architecture example



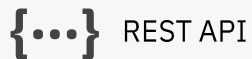
Solution architecture example



Runs anywhere

- Multiple connector runtime options, including SaaS, self-managed, co-located, and local installations

Out-of-the-box Connectors



REST API



Kafka Producer



GitLab



GitHub



SendGrid



Amazon SQS



OpenAI



Asana



Slack



AWS Lambda



Camunda
Operate



Google Maps



Microsoft Teams



Amazon SNS



MessageBird



UiPath



Google Drive



RabbitMQ



Twilio



Microsoft Power
Automate



Automation
Anywhere



GraphQL



EasyPost

... and more



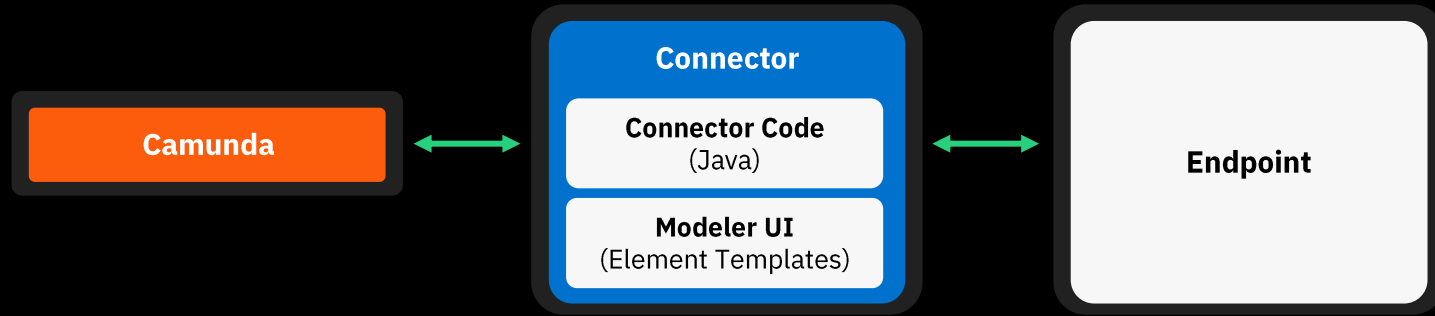
Low-code?

Low-code as an accelerator



Dial-in low-code as much as you need

What's a Connector?



```

@OutboundConnector(
    type = "io.camunda:http-json:1", inputVariables = {"method", ...},
)
public class HttpJsonFunction implements OutboundConnectorFunction {

    public Object execute(final OutboundConnectorContext context) throws Exception {
        final var json = ;
        final var request = createRequest(context);
        return httpService.executeConnectorRequest(request);
    }
}

```



```

{
  "name": "REST Connector",
  "properties": [
    {
      "type": "Hidden",
      "value": "io.camunda:http-json:1",
      "binding": {
        "type": "zeebe:taskDefinition:type"
      }
    },
    {
      "id": "method",
      "label": "REST Method",
      "group": "endpoint",
      "type": "Dropdown",
      "value": "get",
      "choices": [

```

REST CONNECTOR
Make a request

General

Template Applied

Authentication

Type
None

Choose the authentication type. Select 'None' if no authentication is necessary

HTTP Endpoint

Method
GET

URL
Must not be empty.

Query Parameters

Map of query parameters to add to the request URL

HTTP Headers

Map of HTTP headers to add to the request

Connect Timeout

Connection Timeout
20

Protocol



R

REST CONNECTOR
Make a request

General

• >

Template

Applied ▾

>

Authentication

• ▾

Type

None ▾

Choose the authentication type. Select 'None' if no authentication is necessary

HTTP Endpoint

• ▾

Method

GET ▾

URL ⓘ

Must not be empty.

Query Parameters ⓘ

=

Map of query parameters to add to the request URL

HTTP Headers ⓘ

=

Map of HTTP headers to add to the request

Connect Timeout

20

Java &
JSON

Protocol > Generic > Specific Connectors



REST CONNECTOR Make a request

General

Template **Applied**

Authentication

Type
None

Choose the authentication type. Select 'None' if no authentication is necessary

HTTP Endpoint

Method
GET

URL

Must not be empty.

Query Parameters

Map of query parameters to add to the request URL

HTTP Headers

Map of HTTP headers to add to the request

Connect Timeout

Connection Timeout
20

Java &
JSON

SENDGRID OUTBOUND CONNECTOR Save as

General

Template **Applied**

Authentication

SendGrid API key *fx*

SendGrid API key must not be empty.

Sender

Name *fx*

Name must not be empty.

Email address *fx*

Email address must not be empty.

Receiver

Name *fx*

Name must not be empty.

Email address *fx*

Email address must not be empty.

Compose email

Simple (no dynamic template)

Subject *fx*

Subject must not be empty.

Content type *fx*

text/plain

JSON

SEND EMAIL Save as

General

Template **Applied**

Compose email

Recipient Name *fx*

Recipient Name must not be empty.

Recipient Email address *fx*

Recipient Email address must not be empty.

Subject *fx*

Subject must not be empty.

Body (plain text) *fx*

Body (plain text) must not be empty.

JSON

A sad story

A sad story

Business

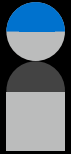
IT

We need to
automate
X

But we need
to automate,
let's do some
shaky low
code solution

Oh – not a big
priority, please
come back in 6
months

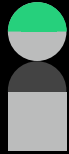
Diversity of roles



**Business
Person**



**Citizen
Developer**



**Consultant
or
Power User**



**Bot
Developer**



**Low-code
Developer**



**Junior
Developer**

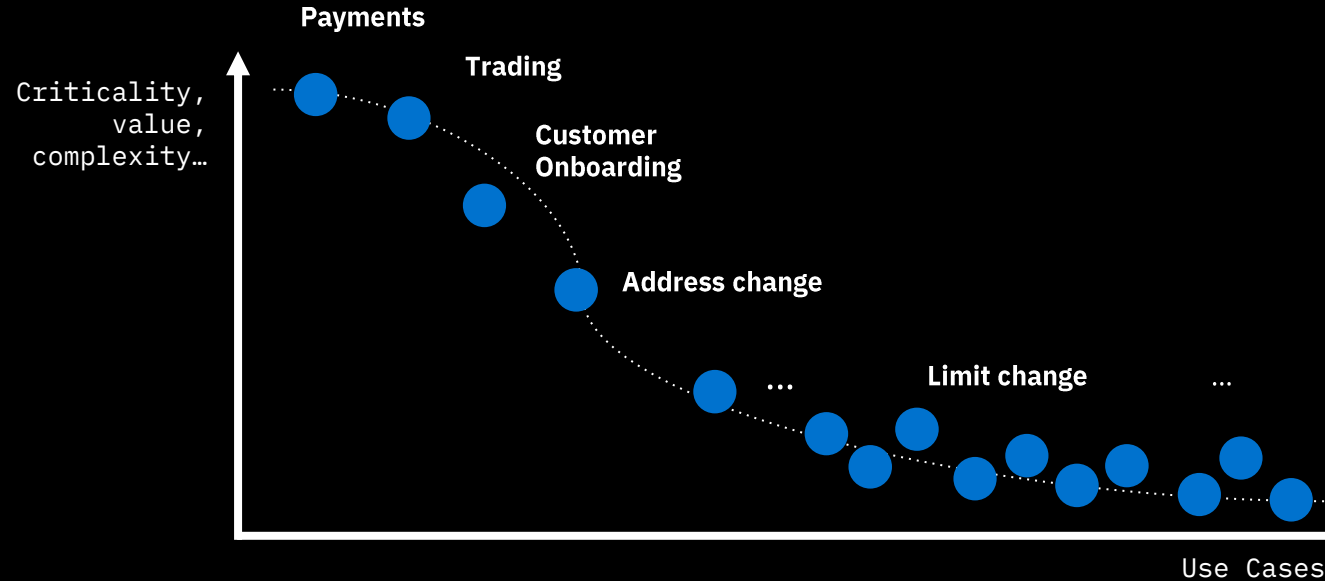


**Senior
Developer**



**Principal
Developer**

Process != process



Categorize your use case



Green

Do it yourself

- simple
- local automations with little criticality
- no governance or quality assurance



Citizen Developer



Yellow

Guided

- medium complexity
- medium criticality
- some governance required
- some guidance necessary



Anything in between



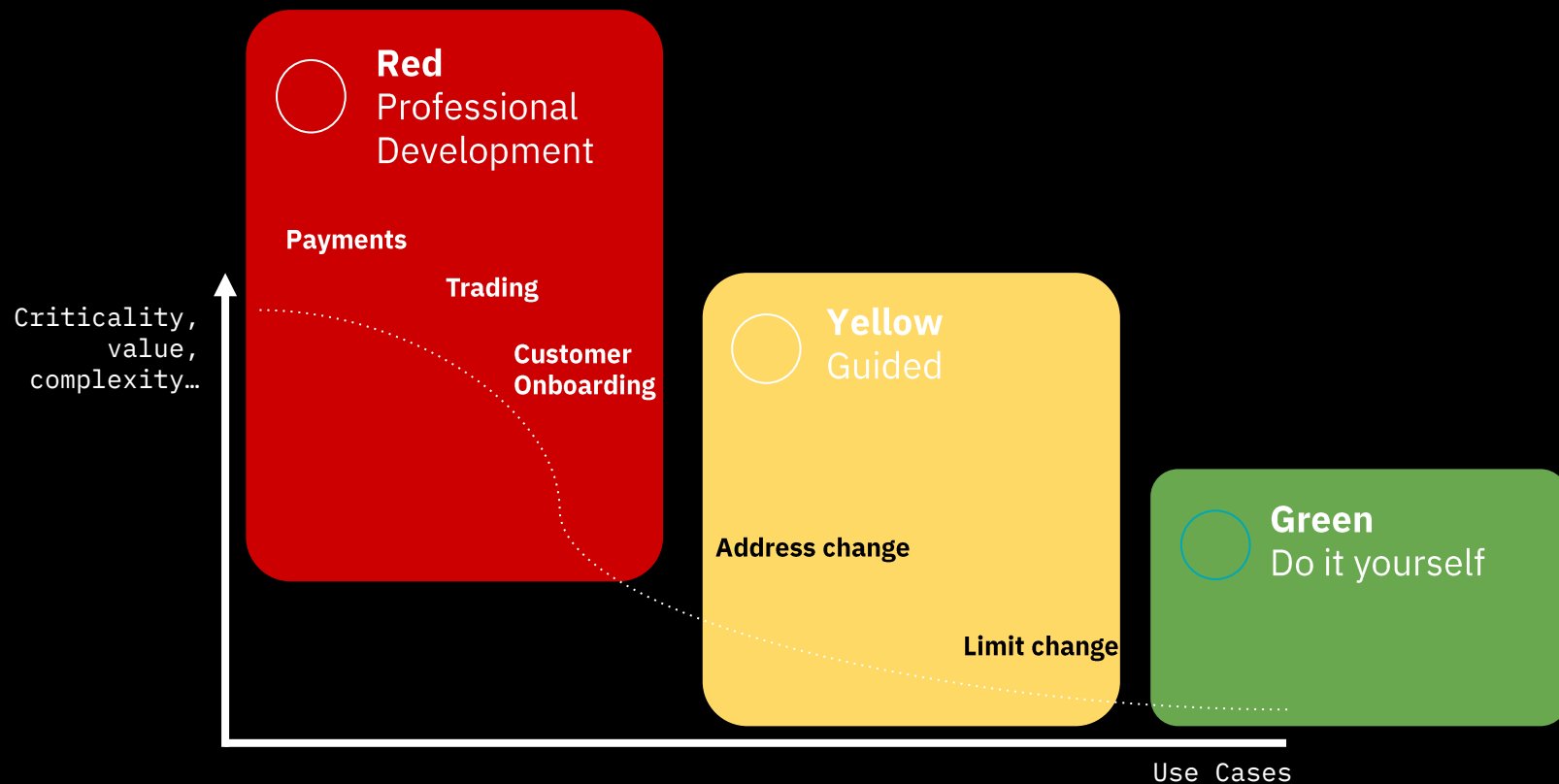
Red

Professional Development

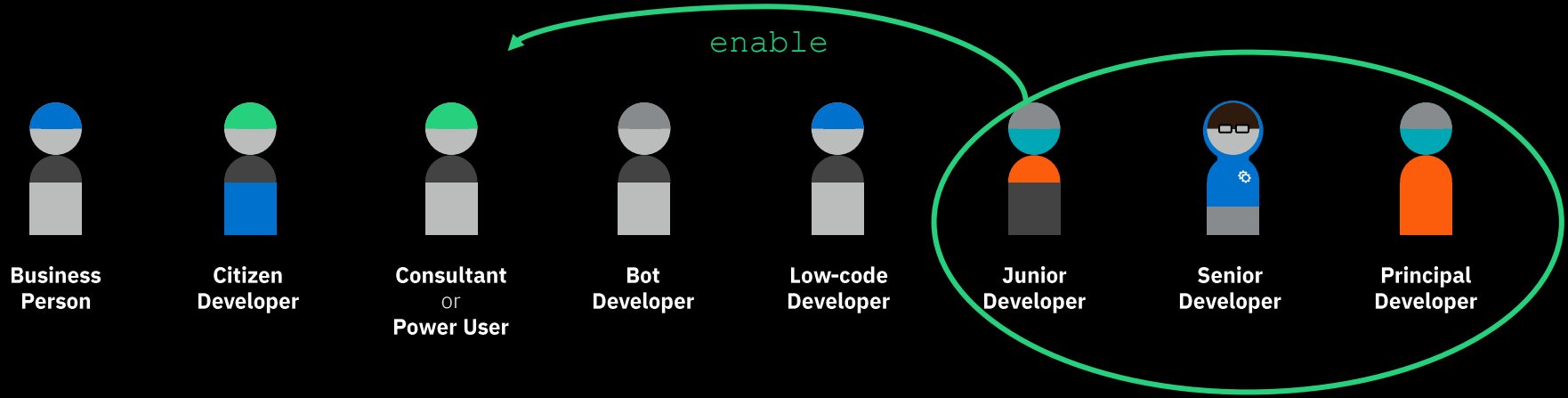
- high complexity
- high criticality
- compliance and regulatory requirements
- version control
- automated testing
- CI / CD



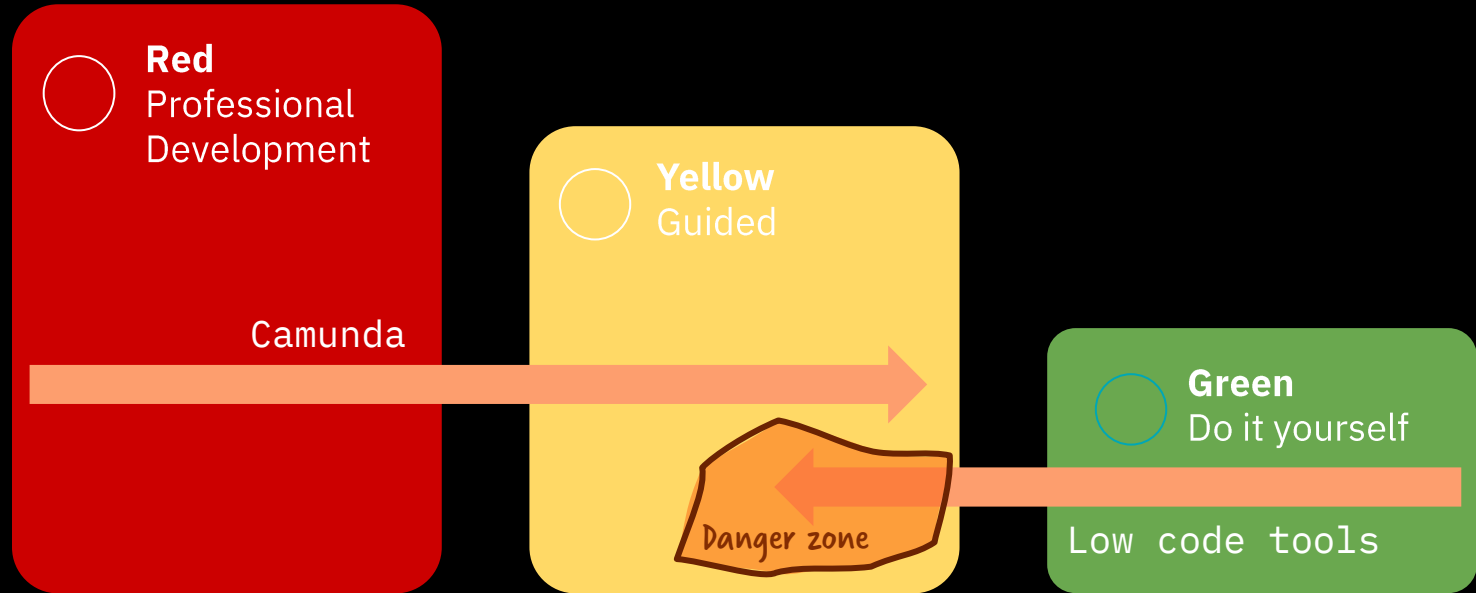
Professional Developer



Enabling more roles to participate



Avoid the danger zone around tool harmonization



Camunda 8



Horizontally
scalable, resilient
technology (Zeebe)

Low code
accelerators



Red
Professional
Development

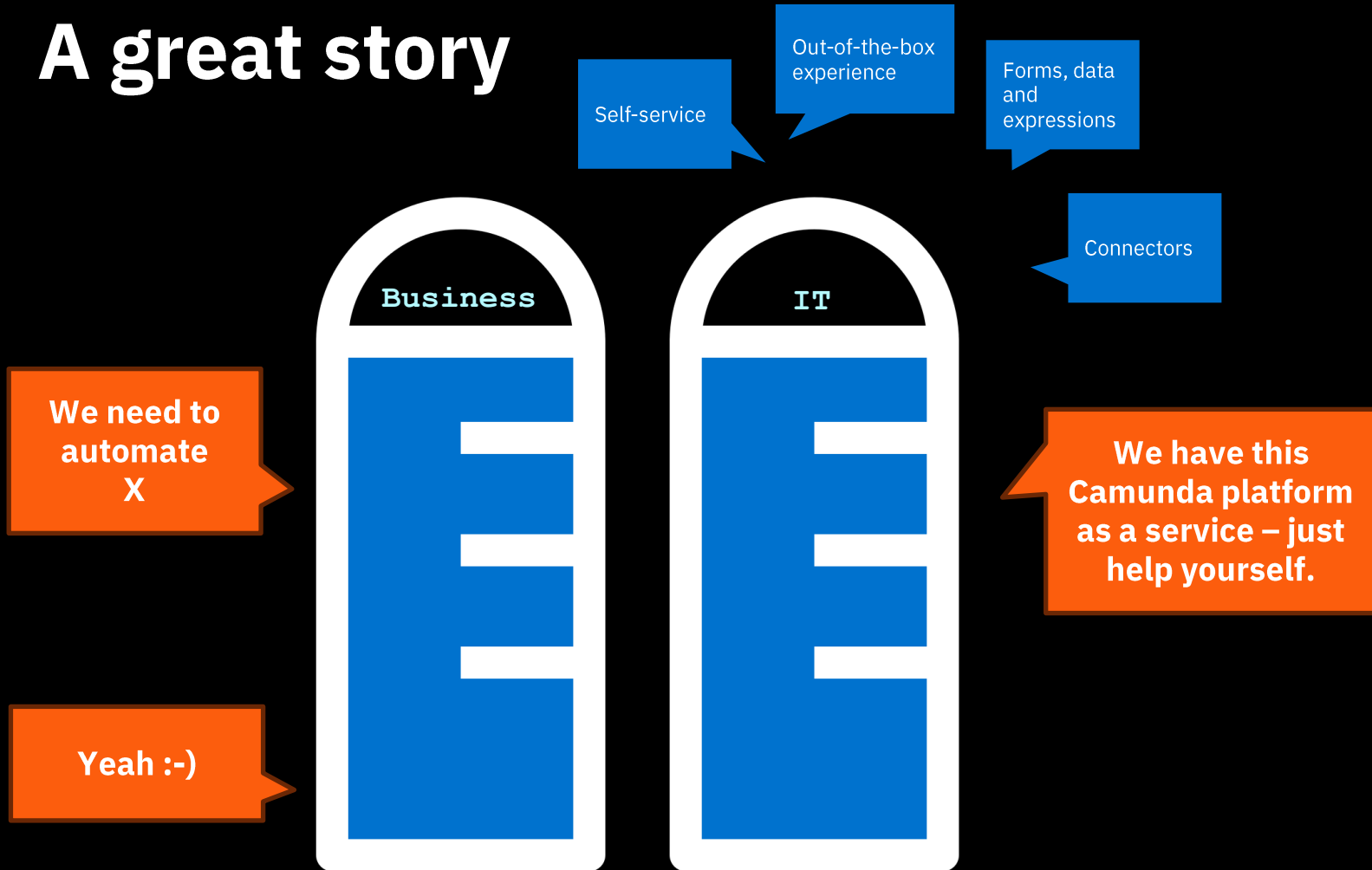


Yellow
Guided



Green
Do it yourself

A great story

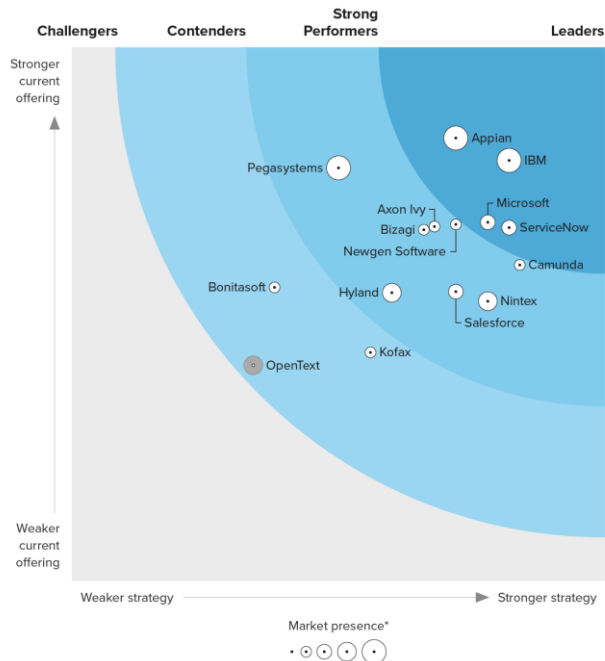


Camunda Recognized as A Strong Performer



The Forrester Wave™

Digital Process Automation Software, Q4 2023



Highest possible scores for the following criteria:



End-to-end orchestration



Data-driven automation



Vision



Innovation



Adoption

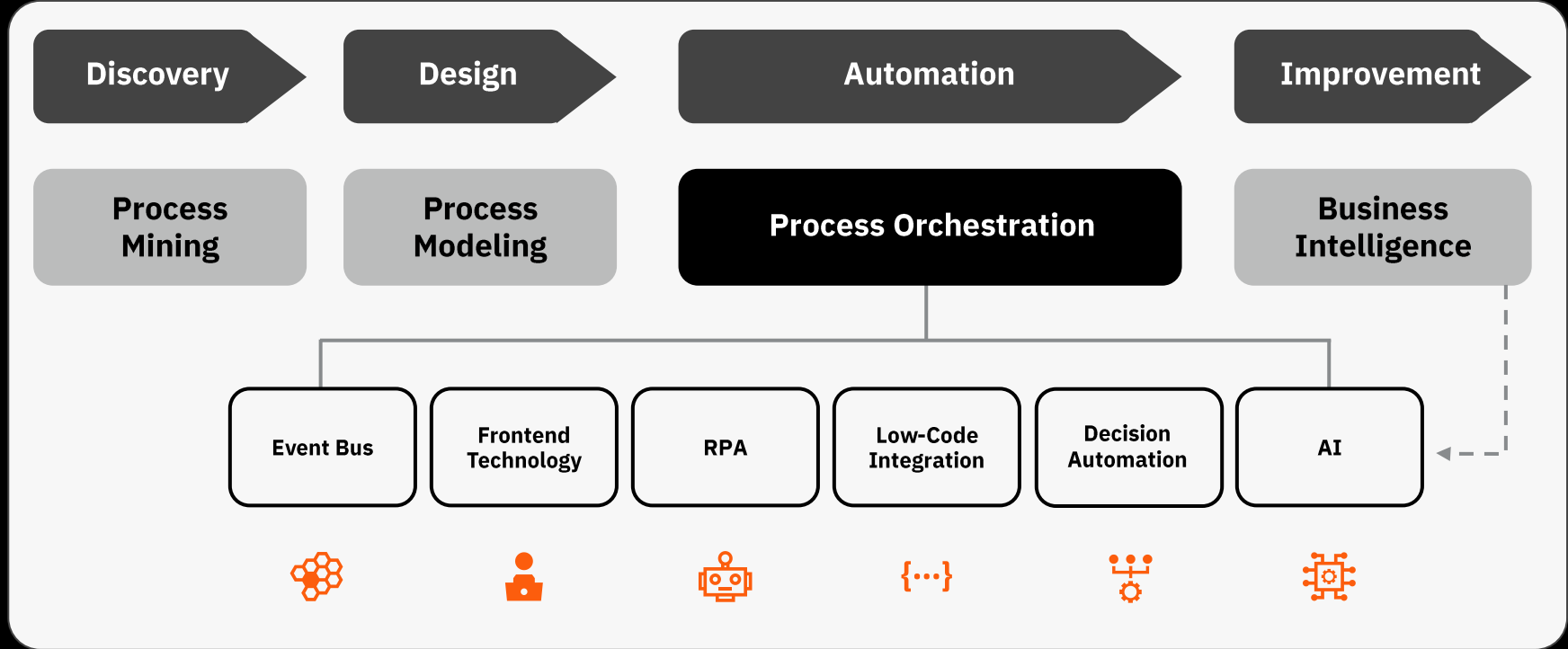


Pricing flexibility and transparency

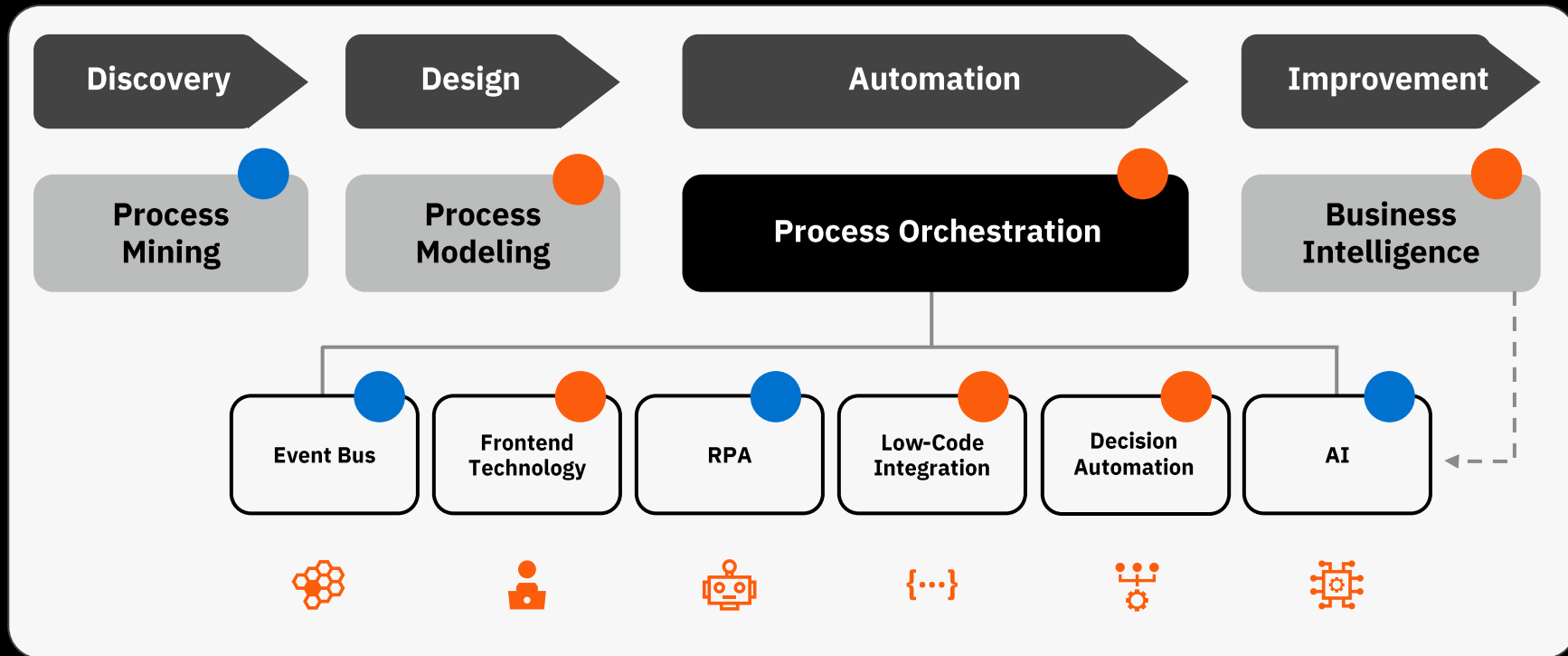
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Hyperautomation Tech Stack



Best of Breed



The big(ger) picture



Value chain
(e.g. Customer Acquisition)



End-to-end
process orchestration
(e.g. account opening)



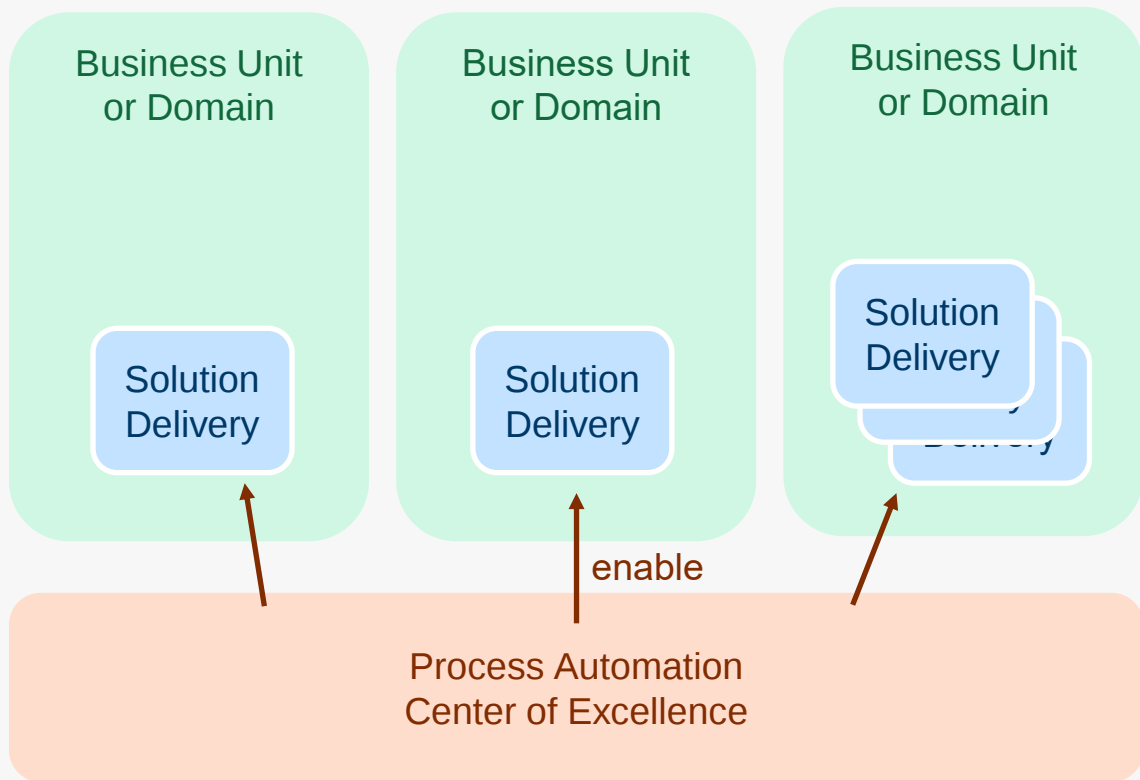
Business capabilities
provided via APIs
(e.g. fraud check)



Technical capabilities and
platforms
(e.g. event streaming, RPA,
process orchestration)

Center of excellence /
Community of practice

Center of excellence



CAMUNDA



The
center of
excellence (CoE)
playbook

Part of the
process orchestration
adoption framework



<https://camunda.com/process-orchestration/automation-center-of-excellence/>

Centralization vs. autonomy?

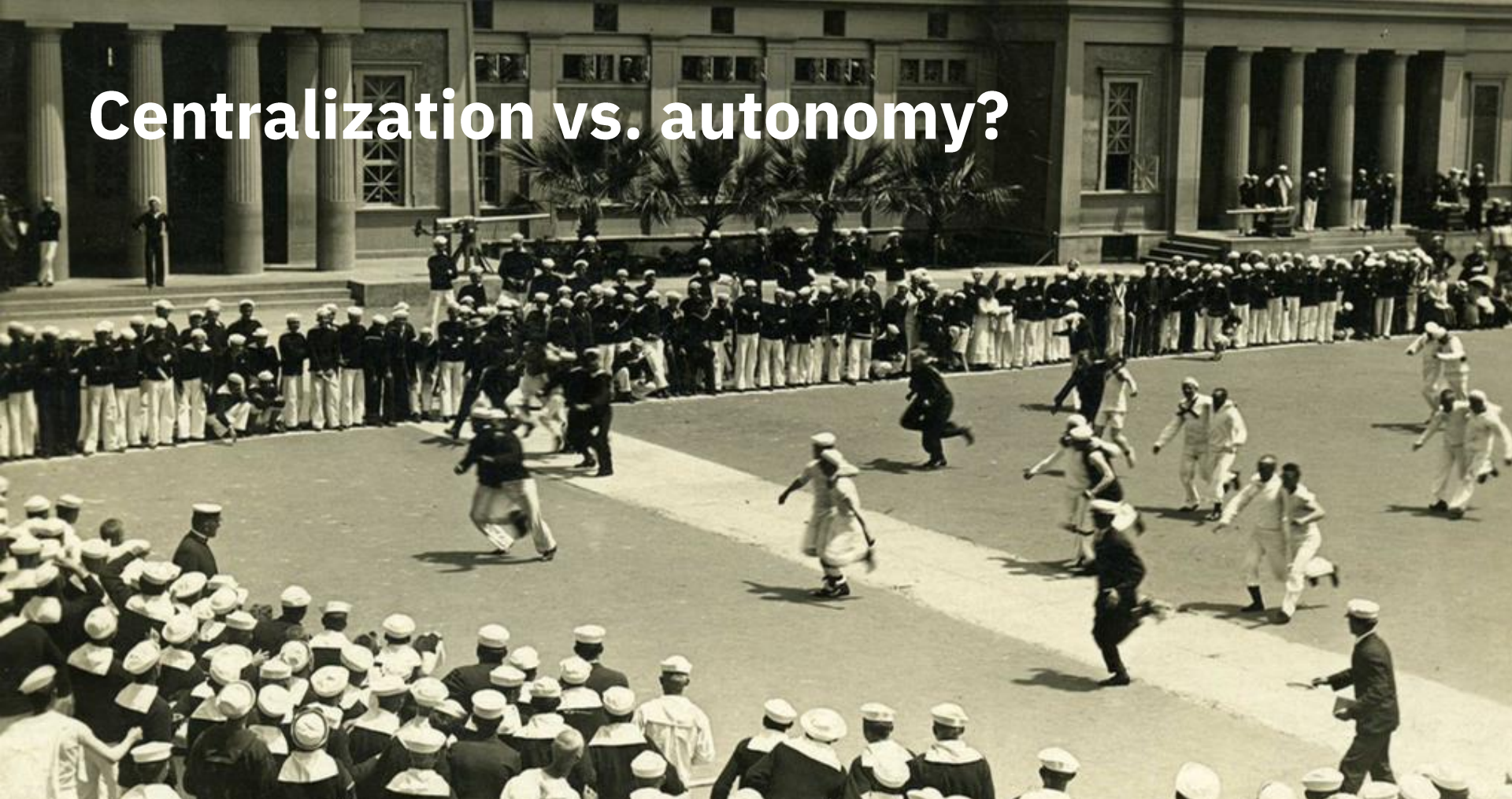
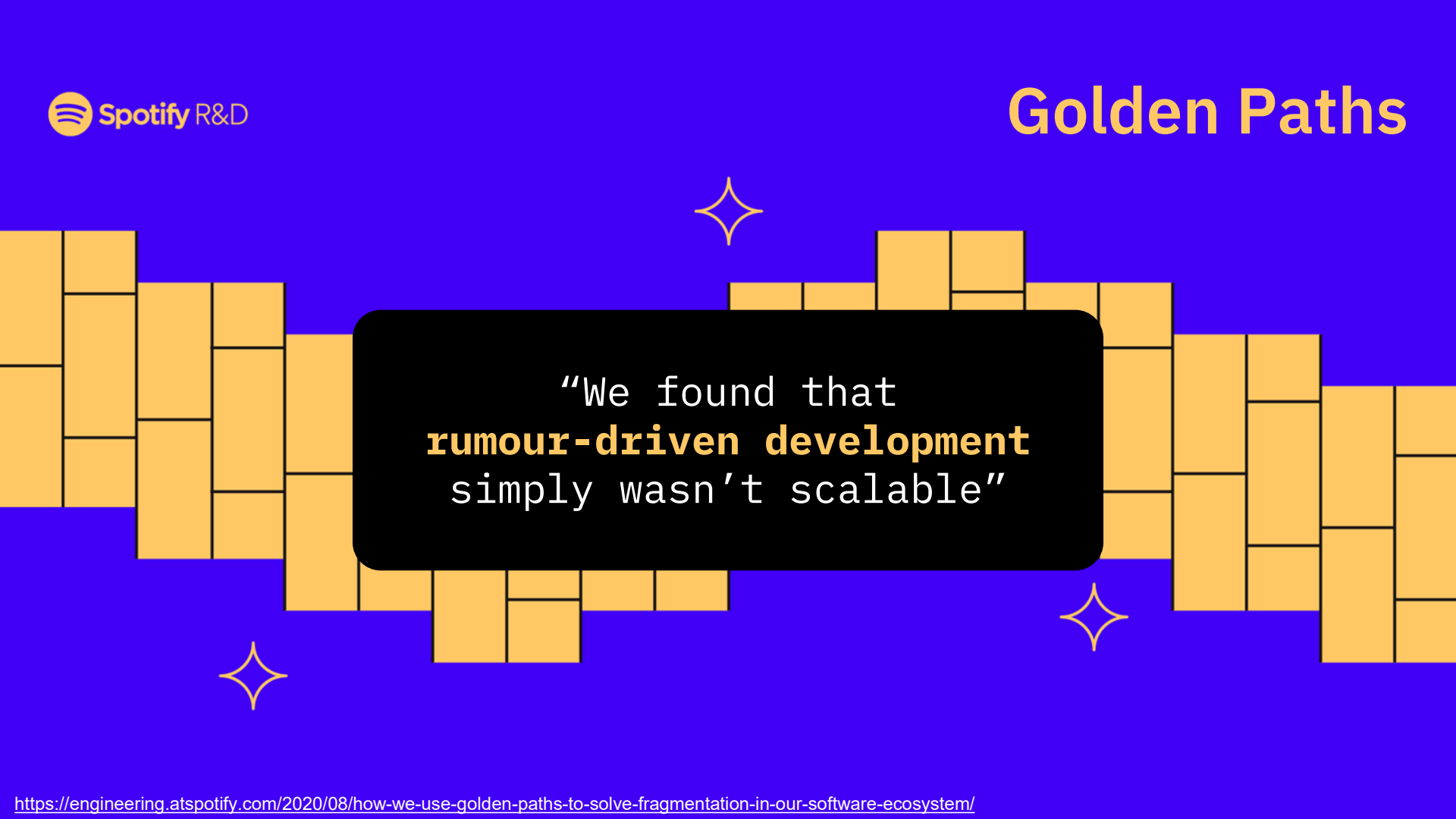


Photo by born1945, available under [Creative Commons BY 2.0 license](#).



"We found that
rumour-driven development
simply wasn't scalable"



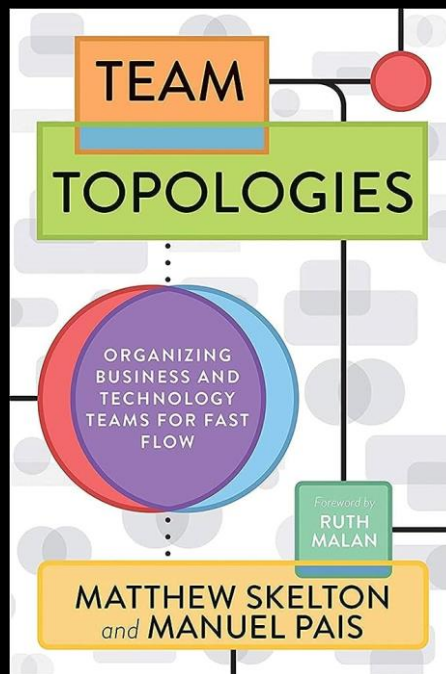
The Speed Paradox

At Spotify, we've always believed in the speed and ingenuity that comes from having autonomous development teams. But as we learned firsthand, the faster you grow, the more fragmented and complex your software ecosystem becomes. And then everything slows down again.

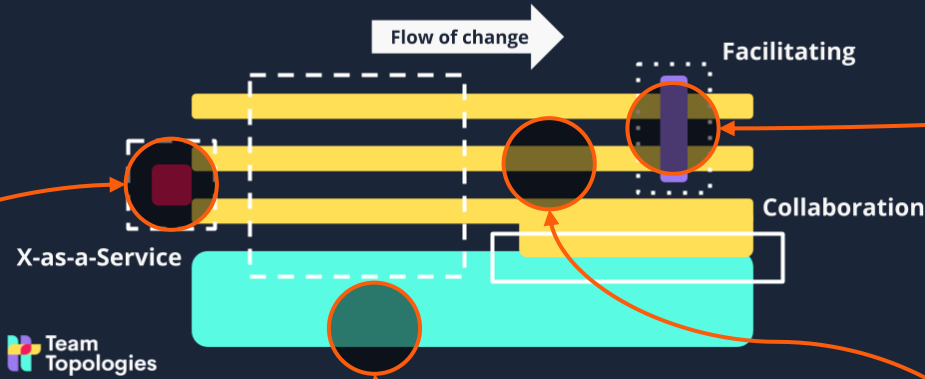


The Standards Paradox

By centralizing services and standardizing your tooling, Backstage streamlines your development environment from end to end. Instead of restricting autonomy, standardization frees your engineers from infrastructure complexity. So you can return to building and scaling, quickly and safely.



3 core interaction modes

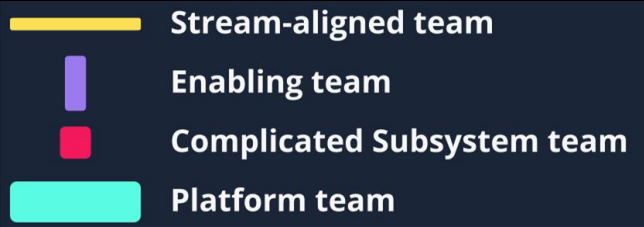
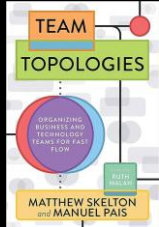


Center of Excellence

Fraud detection

**Camunda
+ X**

**Bank Account
Opening**



Reducing cognitive load



Intrinsic cognitive load

Fundamentals

("How to program with Java?")

Extraneous cognitive load

Environment

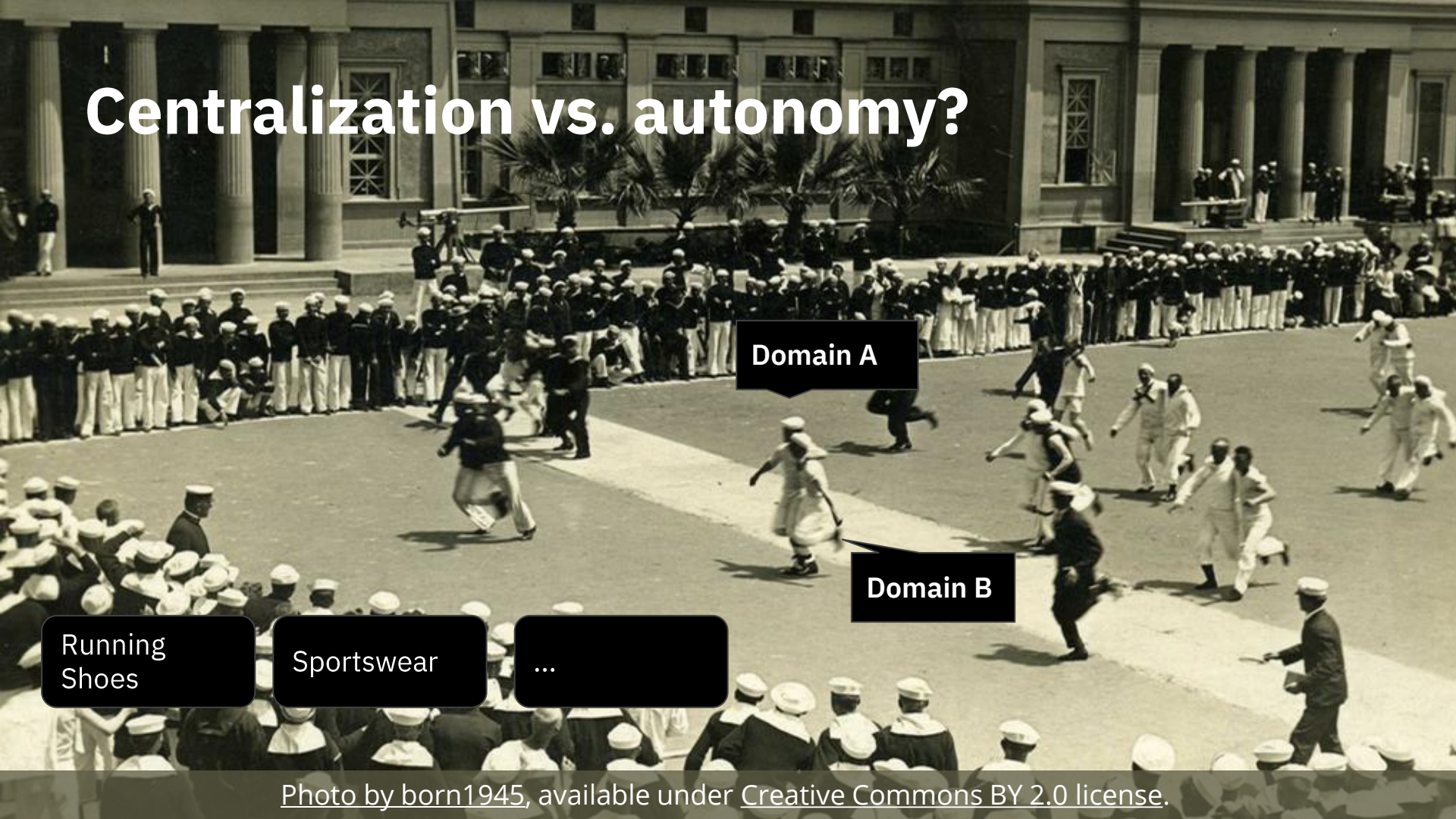
("How to deploy this?")

Germane cognitive load

The real task

("How to solve this business problem?")

Centralization vs. autonomy?



Domain A

Domain B

Running
Shoes

Sportswear

...

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End-to-end processes



Full autonomy of
isolated teams
doesn't give you good
end-to-end processes

Get started...



<https://github.com/berndruecker/customer-onboarding-camunda-8-springboot>

<https://camunda.com/blog/2023/12/pro-code-low-code-role-of-camunda/>

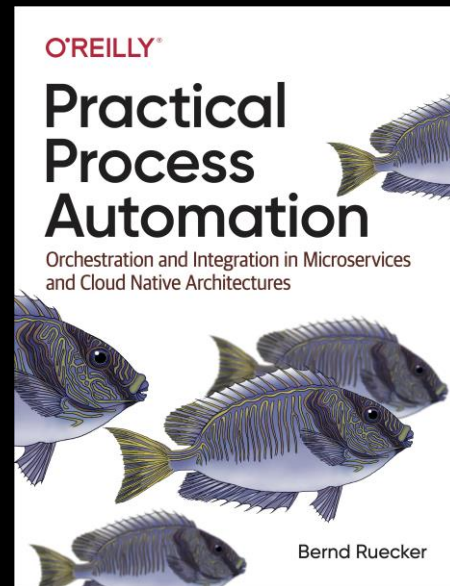
<https://camunda.com/process-orchestration/automation-center-of-excellence/>



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Thank you!

