



# JavaCro20

Haj'mo razvijati mikroservise? A šta sad?

Goran Jelen – JavaCro konferencija 2020.

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**MAKING  
IDEAS  
HAPPEN**

## Goran Jelen

- › Voditelj razvoja u Infoartu
  - › Vodim razvoj PayDo aplikacije
  - › Vodim razvoj hrvatskog SMS-parking sustava, te drugih SMS usluga
- › Konzultant u Sunhill Technologies
  - › Volkswagen tvrtka – IT razvoj
  - › Dio sam Payment tima
- › Prije Infoarta:
  - › Ericsson
  - › Degordian
- › Radim doktorat na FER-u u domeni električnih vozila



## 30 godina poslovanja

- › Projektiranje, razvoj, implementacija i održavanje složenih poslovnih informacijskih sustava
- › Dugoročni i uspješni projekti
- › Inovativna i pouzdana rješenja

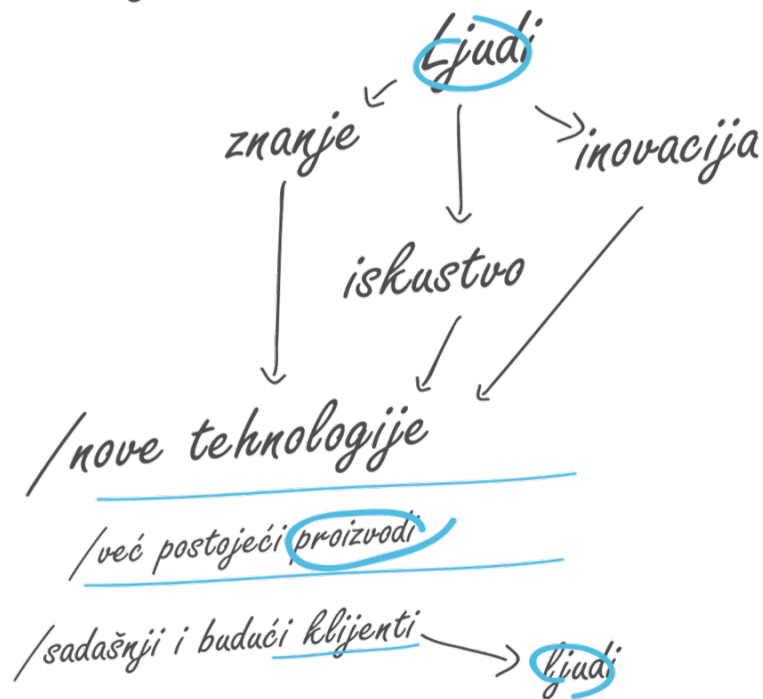
## Znanje

- › Iskusan tim od **50 stručnjaka** educiranih i certificiranih za najveće projektne izazove

## Reference

- › Veliki transakcijski i upravljački sustavi koji dnevno generiraju više desetina milijuna transakcija
- › Hrvatska, Njemačka, Slovenija, BiH, Srbija, Austrija, Nizozemska

Tko je Infoart?



Što ću pričati

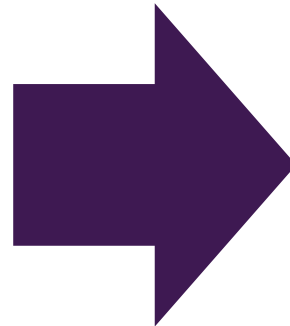
# Monolit

Međuzavisni servisi

Usko povezani

Nisu ponovno iskoristivi

Centralizirano



# Mikroservisi

Neovisni servisi

Manje povezani

Ponovno iskoristivi

Decentralizirano

# Naš slučaj

## Ukratko

- > Klijent:
  - > Sunhill Technologies – Volkswagen Group
- > Sustav:
  - > Plaćanje uličnog i van-uličnog parkinga
  - > Punjenje električnih vozila
  - > Naplata cestarina
  - > Javni prijevoz
- > Gdje:
  - > Njemačka, Kanada, Španjolska, Italija, Austrija, Portugal, Nizozemska, ...
- > Kako:
  - > Java EE
  - > Oracle baza
  - > Application Development Framework (ADF)
  - > JDeveloper
  - > Weblogic

### Adapteri

Garaže, javni prijevoz, autoceste, mobilne operatere

### Sučelja

API za aplikacije i portale (po usluzi), vanjske partnere, ...

### Korisnici

Ne-registrirani, registrirani, privatni, poslovni, podaci o korisnicima, upravljanje ....

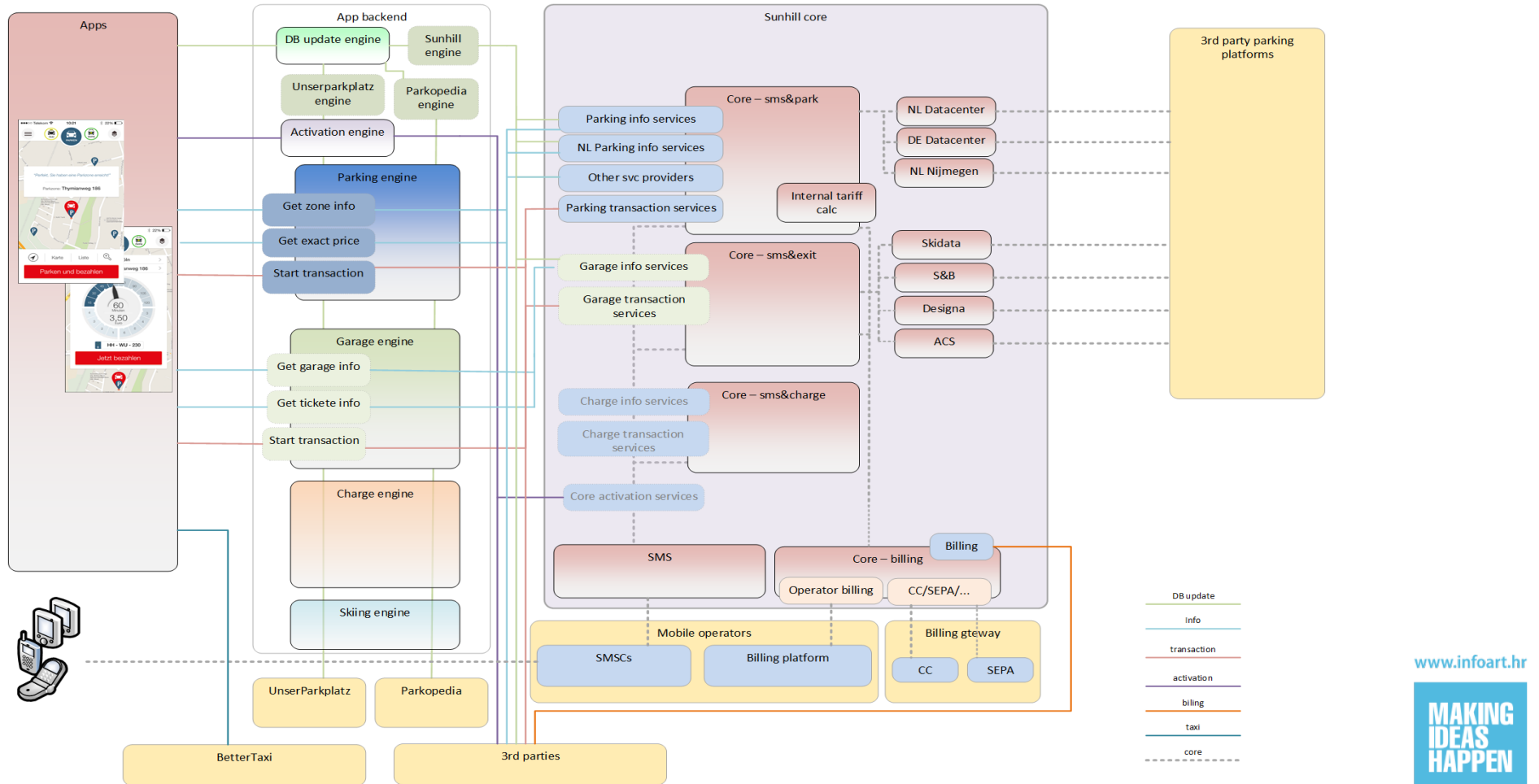
### Transakcijski sustav

Lista transakcija; Transakcija – sadrži sve potrebne informacije; Radi inicijalizaciju i potvrdu/otkazivanje transakcije

### Sustav naplate

Naplata usluge; Provedba platnih transakcija; Direct carrier billing; Wirecard i FSPay (Visa, Mastercard, SEPA, PayPal), ...

# Platforma 2011



# Naš slučaj

## Razvoj

- > SCM: Mercurial
- > Java EE
- > Oracle baza
- > Application Development Framework (ADF)
- > JDeveloper
- > Weblogic

**ORACLE**<sup>®</sup>  
**ADF**

**ORACLE**<sup>®</sup> **12<sup>c</sup>**  
FUSION MIDDLEWARE  
WEBLOGIC SERVER

**ORACLE**<sup>®</sup>  
**D A T A B A S E**



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# Naš slučaj

## Održavanje i deploy

- › Nema CI/CD
- › Krenuli s Jenkins-om i Nexus-om

Dear Lord



Baby Jesus





# Naš slučaj

Timovi

**ONE TEAM / ONE GOAL**

Treba promjena

A šta sad?

Haj'mo razvijati mikroservise



Microservices

A šta sad?



# Što su to mikroservisi

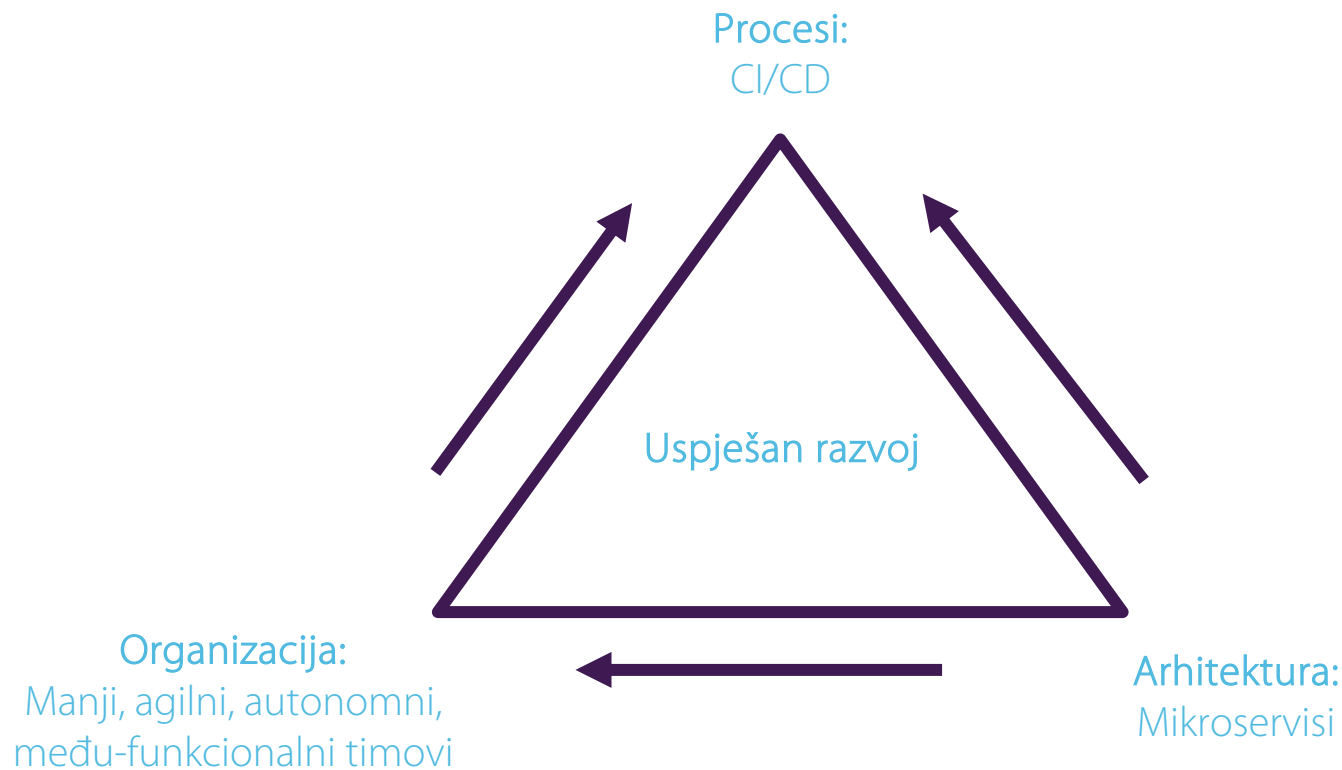
„Microservices are an architectural and organizational approach to software development where software is composed of small independent services that communicate over well-defined APIs. These services are owned by small, self-contained teams.”, **Amazon**

„A single service that's built to accommodate an application feature.”, **Google**

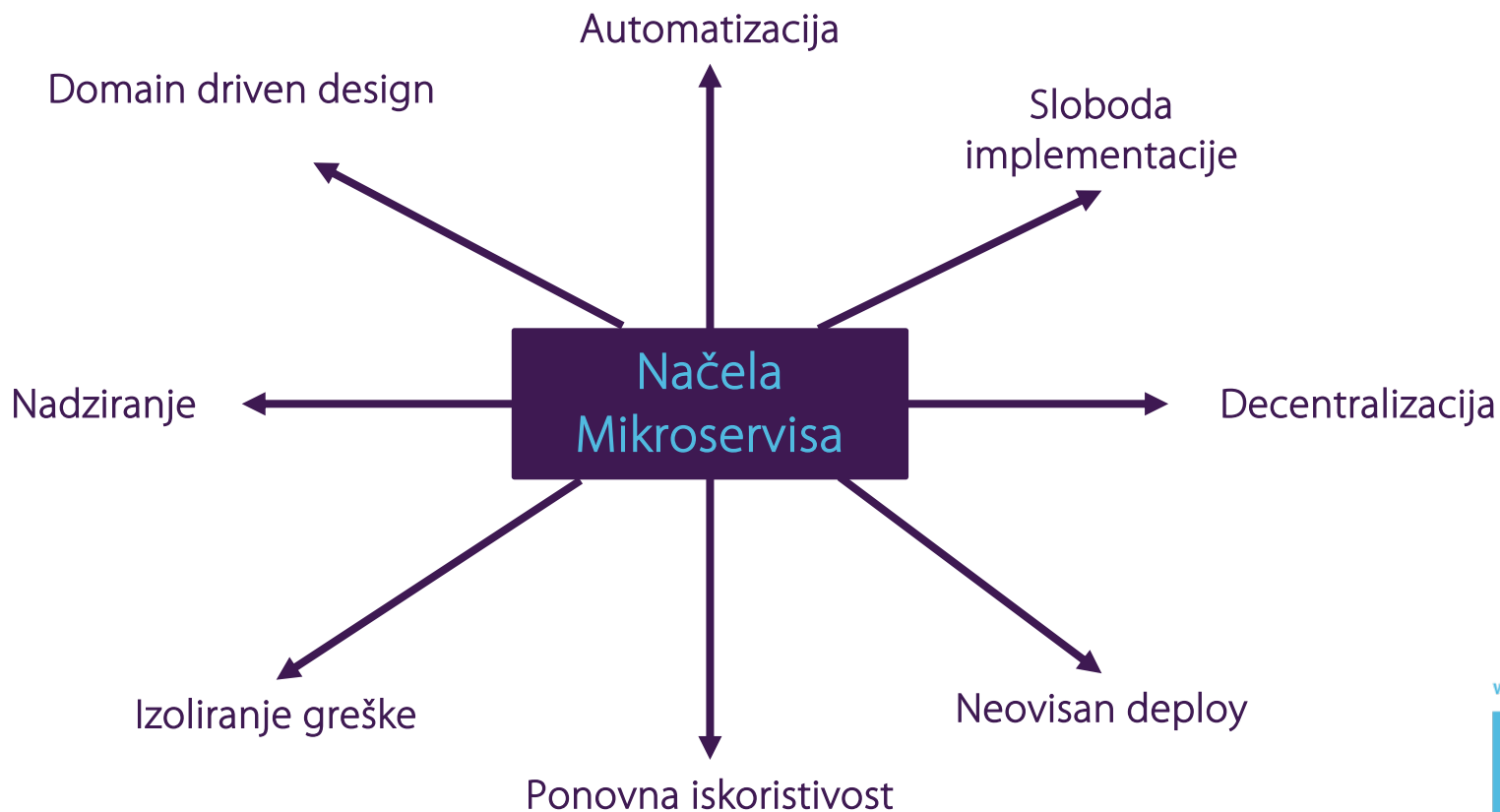
„Microservice, at its simplest, is a practice of developing isolated, independent service based on business logics and can communicate each other through message oriented architecture.”, **Facebook**

„Small **autonomous** services that **work together**, modelled around a **business domain**”,  
**Sam Newman**

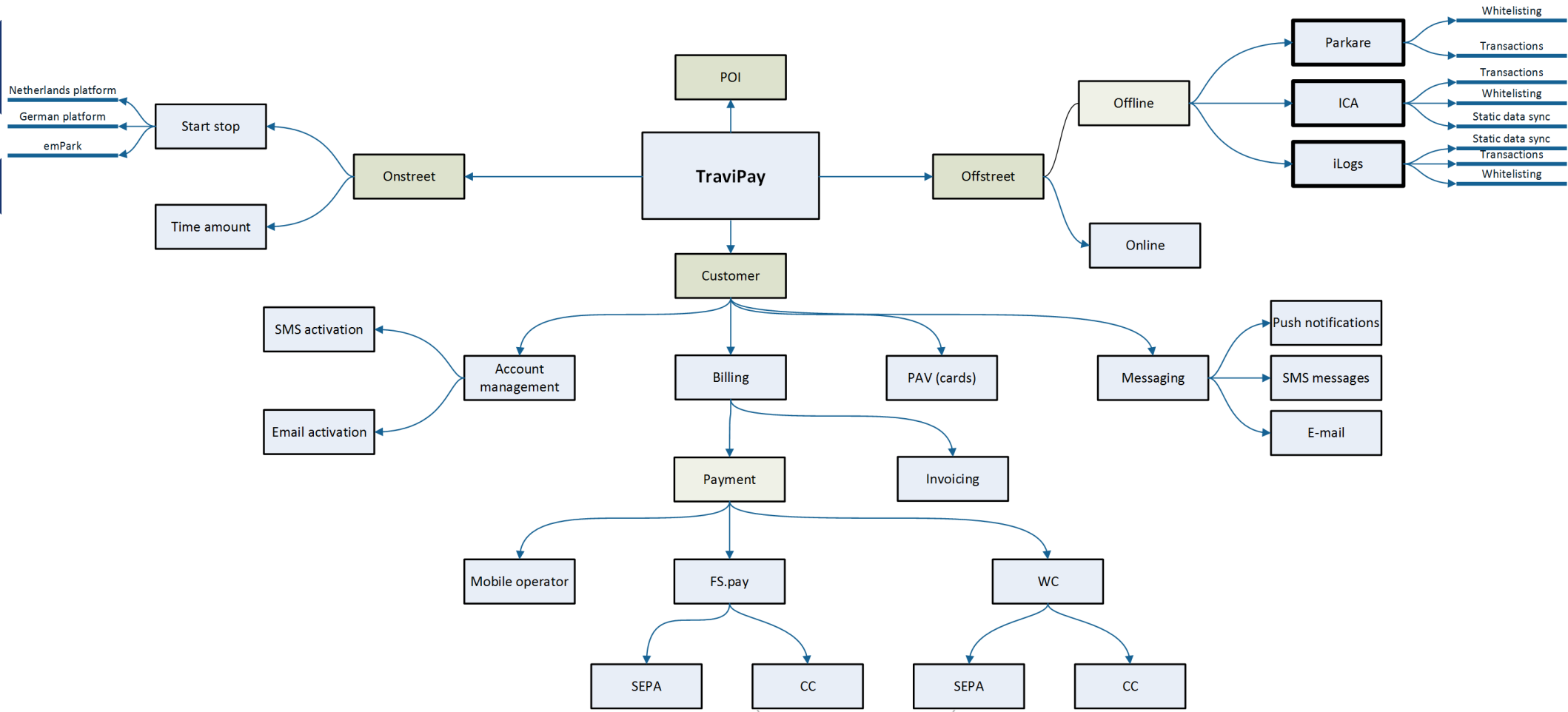
# Koji nam je cilj



# Koja načela želimo



# Identificiraj domene



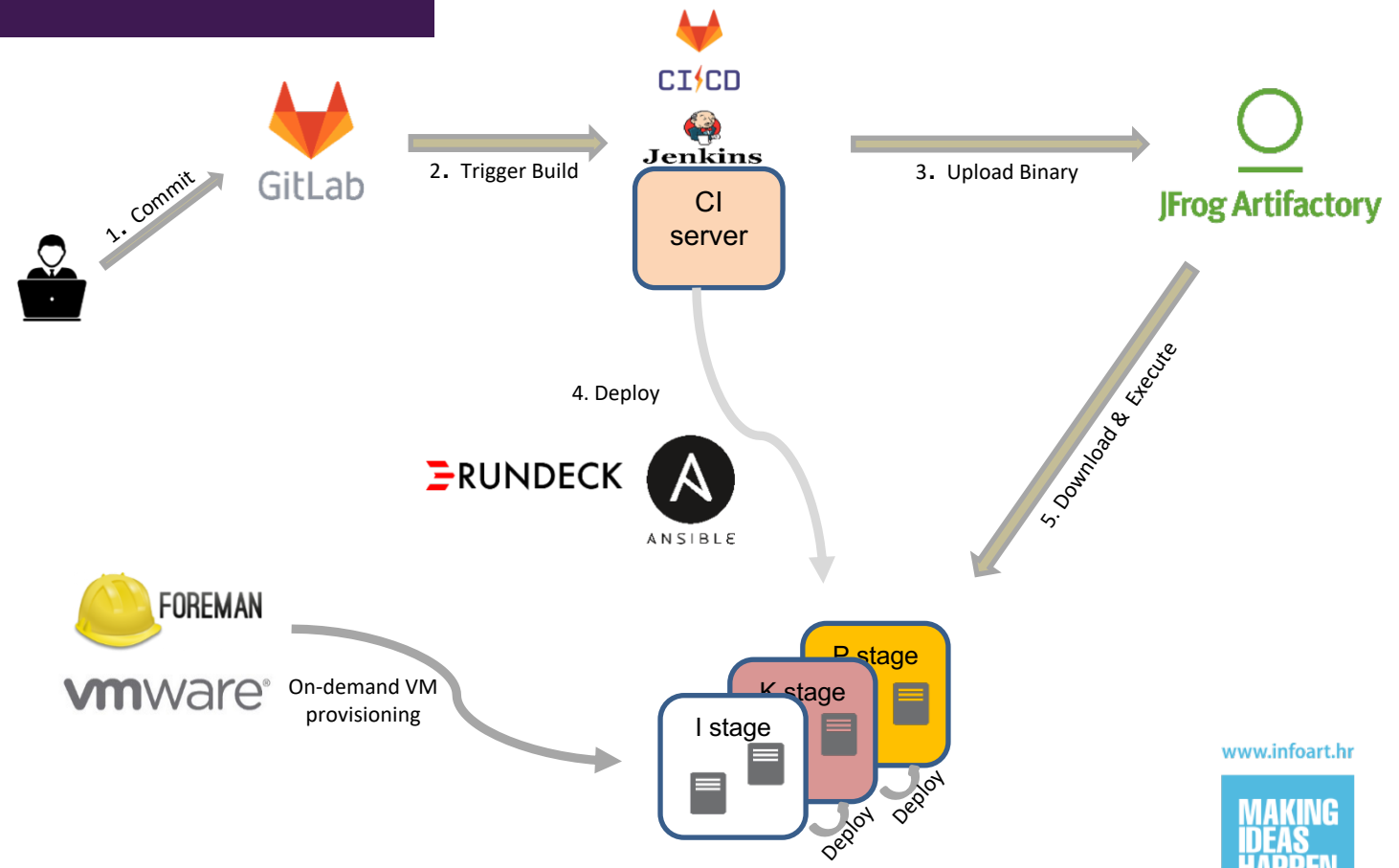
# CI/CD

★ Automatizacija

★ Neovisni deploy

## Ukratko

- > Gitlab
- > Maven
- > Jenkins, Gitlab CI
- > Jfrog
- > Python, Karate
- > Docker, Ansible





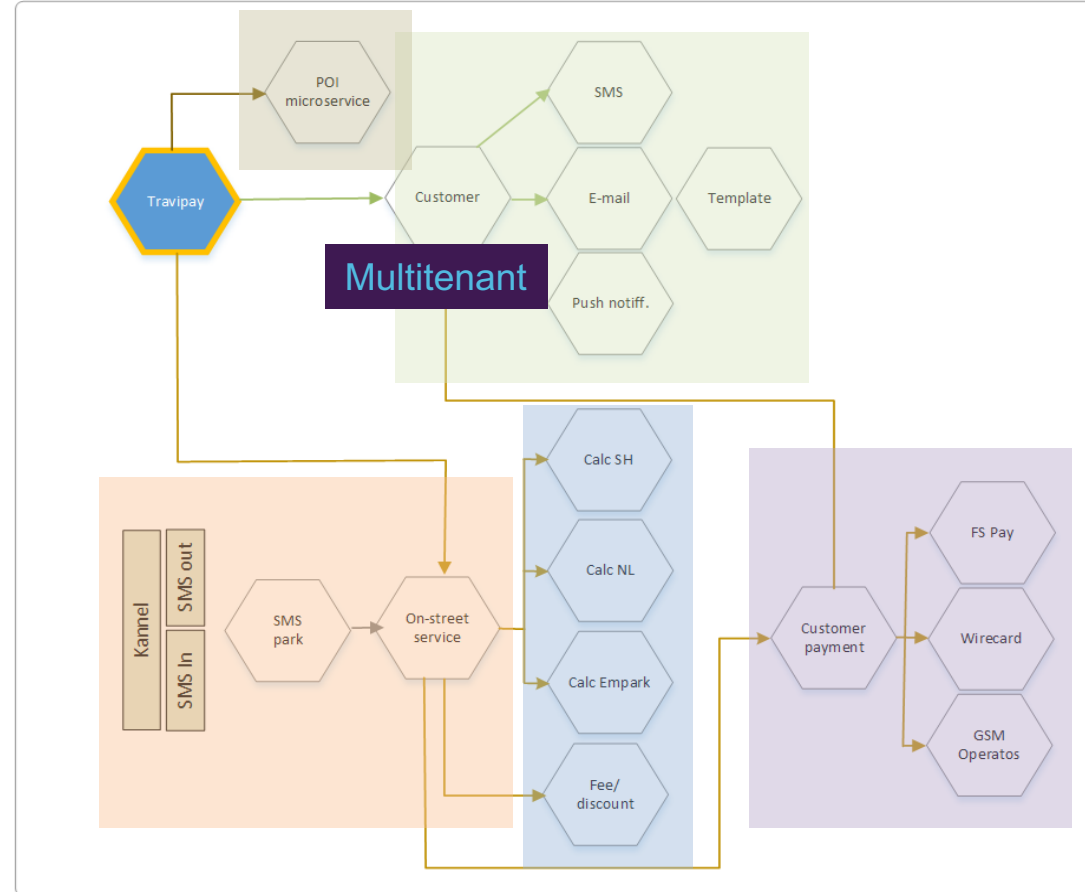
# Razvoj

★ Sloboda implementacije

★ Ponovna iskoristivost

## Microservisi

- › Dropwizard
  - › Uskoro Spring Boot
- › Python, Java 8 - ove godine na Java 11
- › Hibernate
  - › Neki vrte još ADF
- › Oracle baza
  - › Trenutno jedna baza (shared data)



# Prati



★ Izoliranje grešaka

★ Nadziranje

## Alati

### > Grafana

- > Brojimo 200, 400, 500 odgovore servisa
- > Node exporter plugin (CPU, load, network traffic)
- > Custom metrics (Dropwizard metrike)
- > Zauzeće memorije po servisu

### > Centreon

- > Alarms
- > Healthchecks

### > Splunk

### > Hystrix

The screenshot shows a Splunk search interface with a table of events. The table has columns for 'Time' and 'Event'. The events are from 2019-12-03 at 14:48:21, 14:48:20, and 14:48:20 PM. The events include debug messages for /authorize, PUT requests, and /capture. Below the table, there is a large graphic for Hystrix, featuring a stylized bear logo and the text 'HYSTRIX DEFEND YOUR APP'. The Hystrix logo is a black bear with a white face and a black outline, surrounded by a sunburst effect. The text 'HYSTRIX' is in a large, bold, black font, and 'DEFEND YOUR APP' is in a smaller, bold, black font below it.

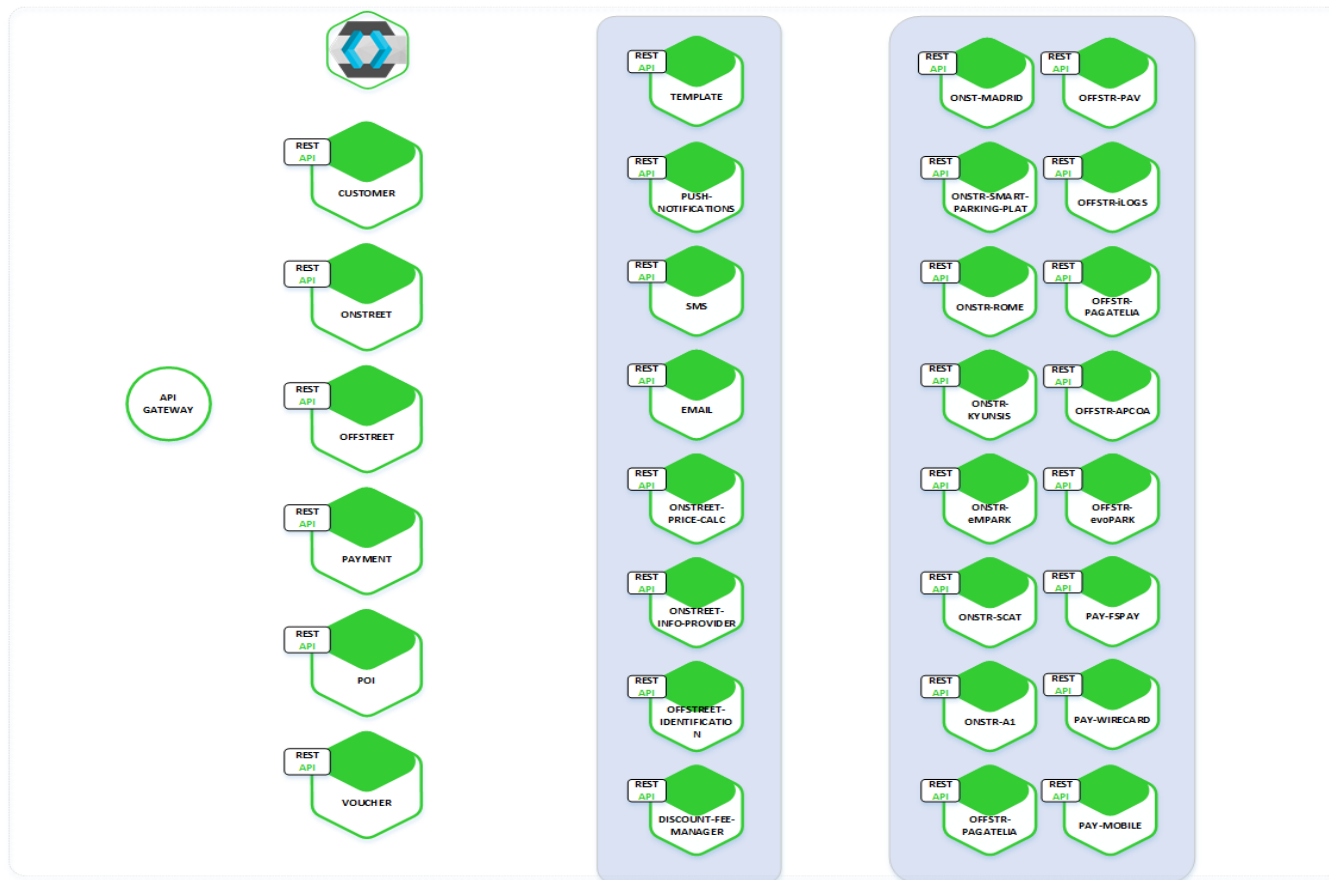
| i | Time                      | Event  |
|---|---------------------------|--|
| > | 12/3/19<br>2:48:21.678 PM | [DEBUG] [2019-12-03 14:48:21,678][CRID:70ebea26-16e4-4e6d-abea-2616e48e6dc0][LRID:baba9473-2b7d-4b58-...]<br>/authorize<br>42899 < 200<br>42899 < Content-Type: application/json;charset=UTF-8<br>42899 < Correlate-Request-Id: 70ebea26-16e4-4e6d-abea-2616e48e6dc0<br>42899 < Global-Transaction-Id: 56470e81-13dd-444c-92a6-9ed546daa6c7  |
| > | 12/3/19<br>2:48:20.034 PM | [DEBUG] [2019-12-03 14:48:20,034][CRID:70ebea26-16e4-4e6d-abea-2616e48e6dc0][LRID:baba9473-2b7d-4b58-...]<br>42966 > PUT https://www.europe.fspay.de/web-api/payment/authorize<br>42966 > Accept: application/json<br>42966 > Accept-Language: de<br>42966 > Content-Type: application/json<br><a href="#">Show all 9 lines</a><br>host = applin11.prd.nbg6.sh.loc   index = pstage-reqresp   source = service-payment-fspay-application   sou |
| > | 12/3/19<br>2:48:20.023 PM | [DEBUG] [2019-12-03 14:48:20,023][CRID:9123e36e-2edb-4137-a3e3-6e2edbd1376b][LRID:dca211e4-e3ba-48a-...]<br>/capture<br>42898 < 200<br>42898 < Content-Type: application/json;charset=UTF-8<br>42898 < Correlate-Request-Id: 9123e36e-2edb-4137-a3e3-6e2edbd1376b  |

# Gdje smo danas

## PLATFORM SERVICES

## SUPPORTING SERVICES

## INTEGRATION SERVICES



Mikroservisi

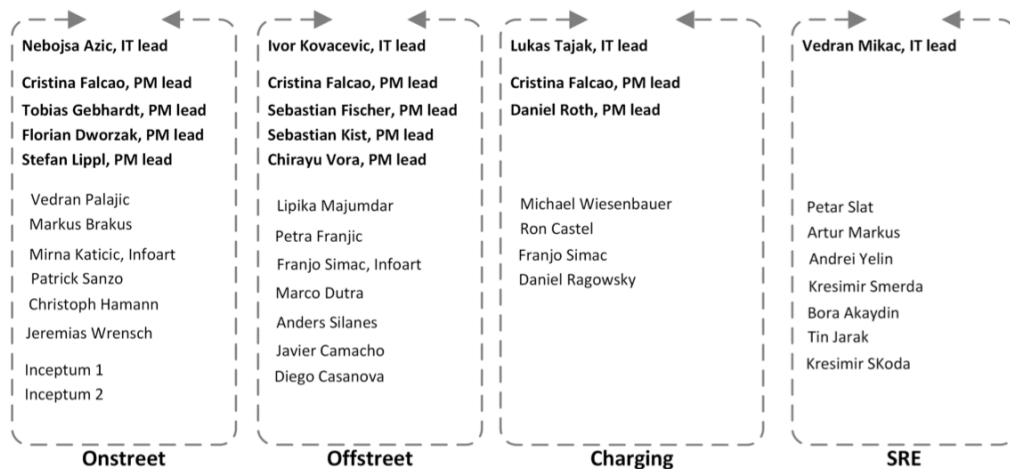
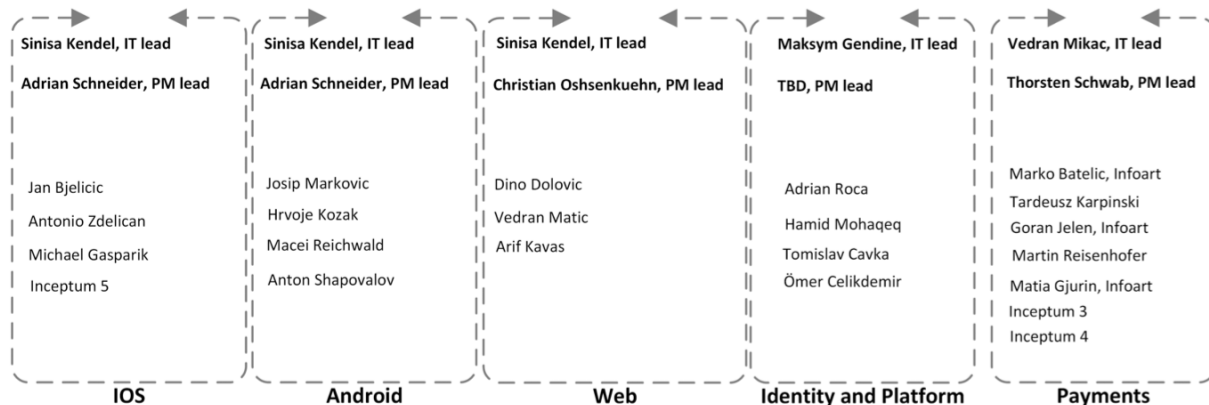
Ponovna iskoristivost

Neovisni servisi

Decentralizirani sustav

Lako nadziranje

# Gdje smo danas



Manji timovi

Autonomni timovi

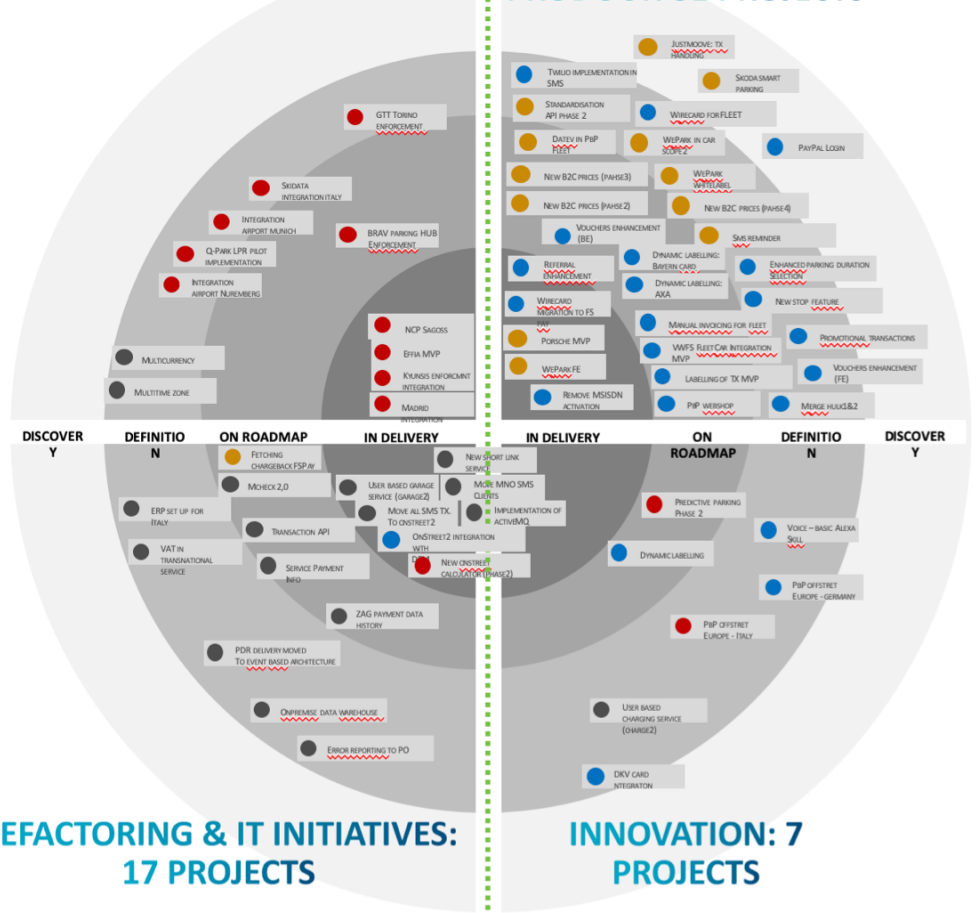
Agilni timovi

Među-funkcionalni timovi

# Gdje smo danas - 2019

**PROGRAMMES: 12 PROJECTS**

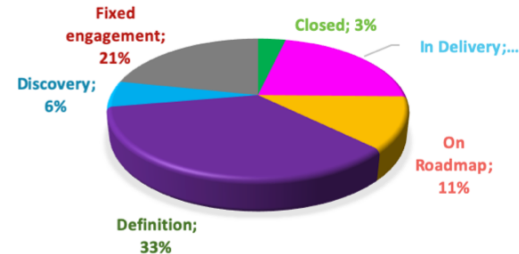
**PRODUCT: 31 PROJECTS**



**67 Projects in Product Radar for Q3 (+ 18 fixed engagement)**

Jako sretan menadžment

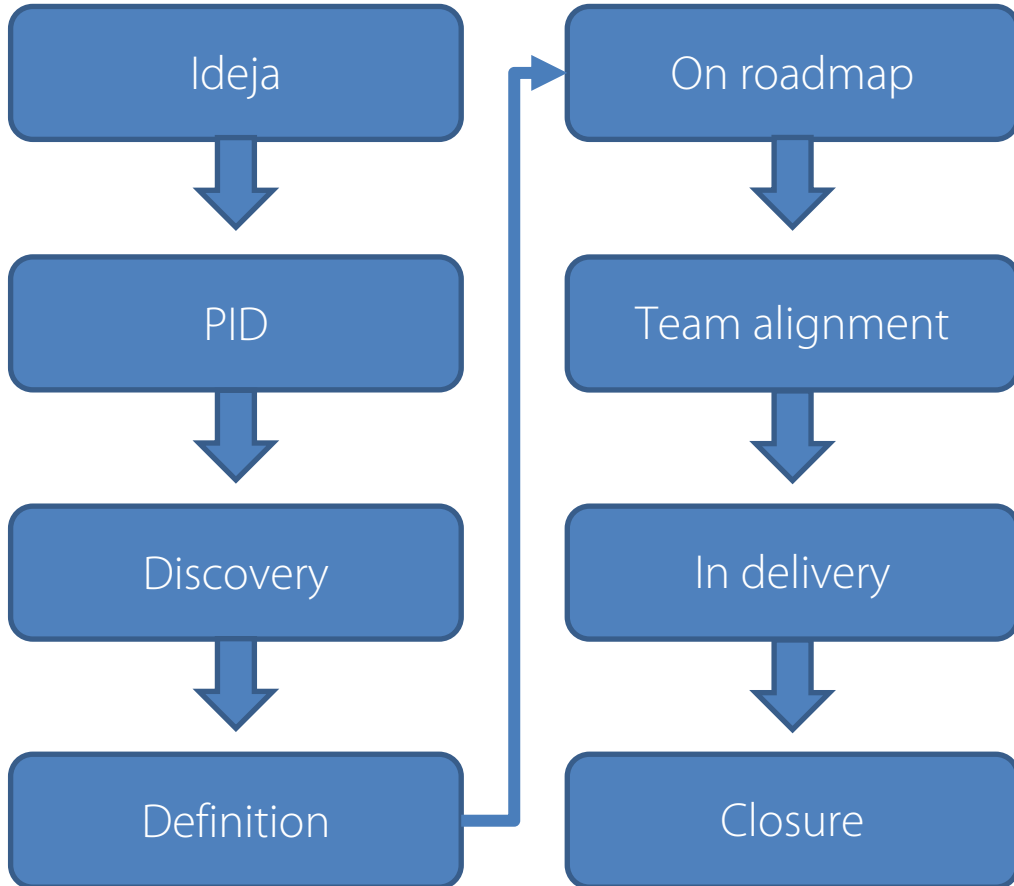
- COVERAGE
- USERS / TRANSACTIONS
- REVENUE
- CORE



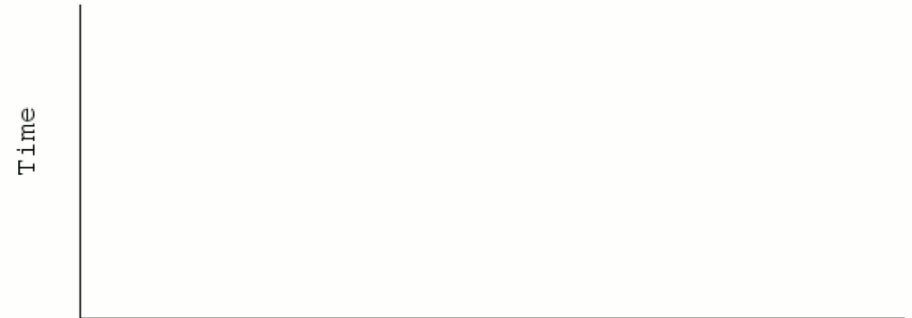
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# Gdje smo danas



**How long it takes to  
complete a task**



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Hvala!

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