

Deutsche Bank  
PW&CC Technology



# Enterprise Development with Angular 4+

@ Deutsche Bank

PWS Team





# What are we talking about?



# Three Things...

- Experience
- People
- A product, that was not meant to be a product



# A little introduction of ourselves...

We are



**Rene  
Kriest**

Head Development  
PWS



**Florian  
Kittel**

Lead Developer  
PWS



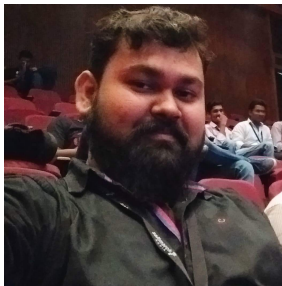
**Hessel  
Bearda**

Lead Developer  
PWS



**Alexander  
Kubias**

Lead Developer  
PWS



**Barnadeep  
Bhowmik**

Lead Developer  
PWS



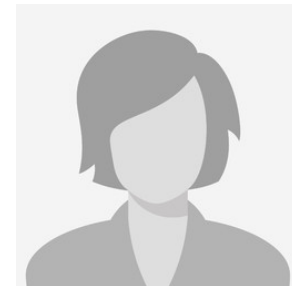
**Kevin  
Chwalek**

DevOps Architect  
PWS



**Ulrich  
Zeller**

Head Webpage Tools  
PCAM



**Beate  
Lagraff**

Art Director  
PCAM



**Digital Factory** – Deutsche Bank, Frankfurt | [flickr album](#) | CC BY-NC-ND 2.0



# Goal

Evolve the traditional bank  
to a technology company



## How to achieve the goal

- Development, IT, Finance, Legal and Compliance under one roof
- More than 400 people from 14 different countries working together
- Startup Culture meets Bank
- Agile approach to software development and uses Scrum
- Creating innovations based on latest technologies





# Example: digital account opening

Deutsche Bank

Konto eröffnen



Willkommen



Persönliche Daten



Rechtliches



Legitimieren



Aktivieren



ZinsMarkt

## Willkommen

Bitte wählen Sie aus

### Sind Sie bereits Kunde?

Um den ZinsMarkt nutzen zu können, benötigen Sie ein Verrechnungskonto bei der Deutschen Bank.



Nein, noch nicht



Ja, ich bin Kunde

### Haben Sie Fragen?

Sie erreichen uns rund um die Uhr.

(069) 910-10047



Rückruf



## Form fields

### Meldeadresse

Straße und Hausnummer

PLZ

Ort

Land  
Deutschland

### Kontakt

Mobilnummer  
+49

E-Mail

## Legal Information

### Bezug zu den USA

Ich wurde in den USA geboren. [?](#)

Ich besitze eine US-Staatsbürgerschaft.

### Steuerliche Ansässigkeit

Ich bin ausschließlich in Deutschland steuerlich ansässig. [?](#)

Ich bin in Deutschland und in den folgenden Ländern steuerlich ansässig.

Ich bin nicht in Deutschland, sondern nur in folgenden Ländern außerhalb Deutschlands steuerlich ansässig.

Angaben zum Common Reporting Standard (CRS) und dem Steuerumgebungsbekämpfungsgesetz (StUmgBG)

Hinweis: Jeder in Deutschland Steuerpflichtige muss gem. §154 AO seine dt. (Steuer-) Identifikationsnummer und bei Selbständigen - sofern vorhanden - auch seine Wirtschaftsidentifikationsnummer (WIN) / Umsatzsteueridentifikationsnummer (USt-ID) angeben. Die Bank wird bei Nichtangabe der Steuerkennziffern einen Abruf beim BZSt vornehmen bzw. den Kunden kontaktieren.



# Get to know each other ...

You are



## Who is...

... a developer or technology architect?

... an IT consultant?

... an IT student or a teacher?

... an IT enthusiast?



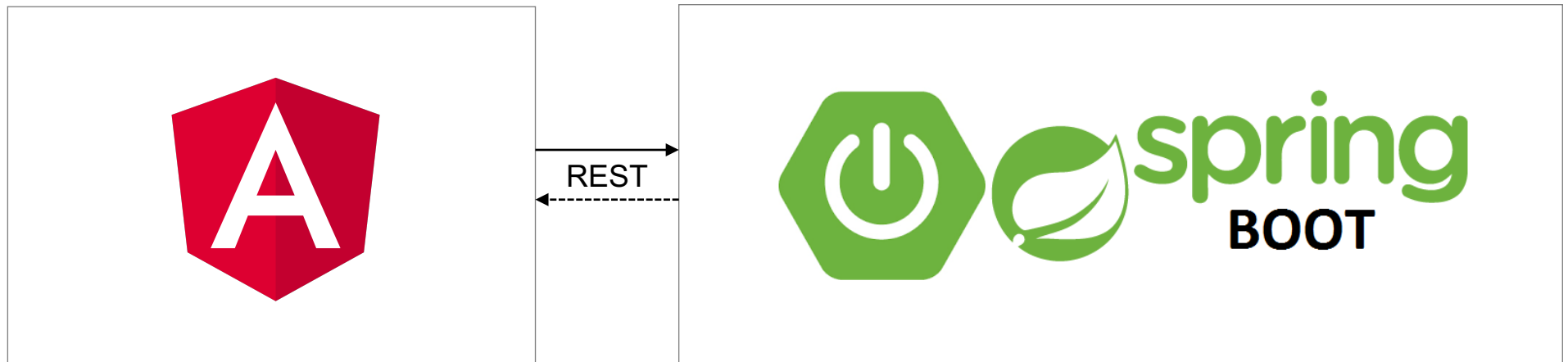
# Our techstack



## Divided in Frontend and Backend

Frontend

Backend





## Open Source



TypeScript



Sass





## Closed Source



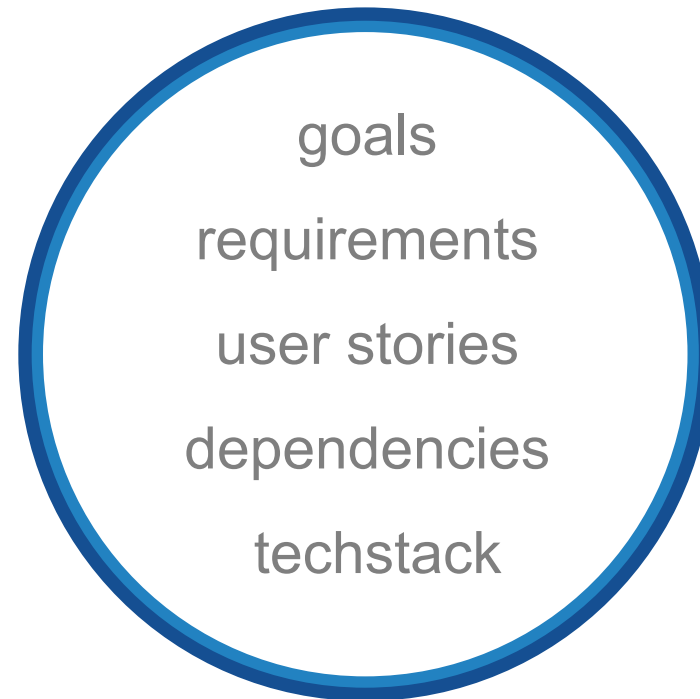




# The challenge



## **TEAM**



# The challenge



**TEAM 1**



**DEUTSCHE  
BANK**

**TEAM 2**



**NORISBANK\***

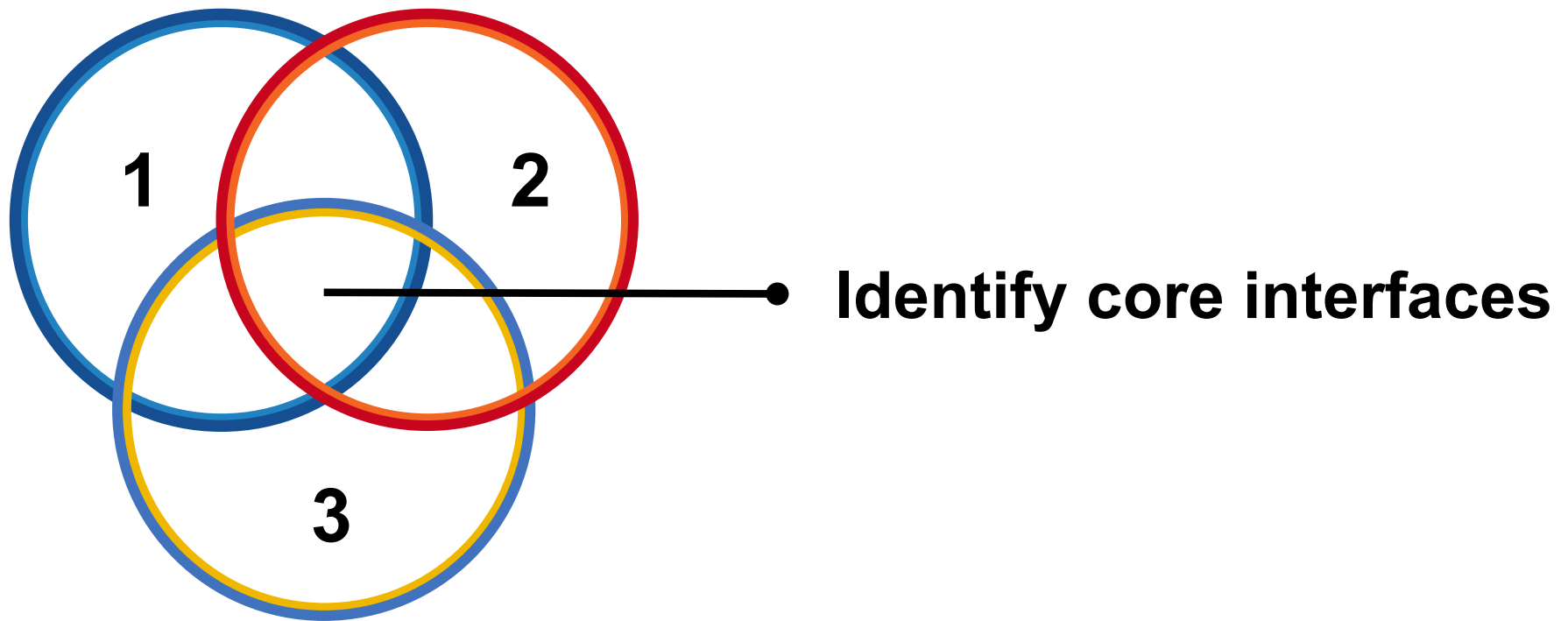
**TEAM 3**

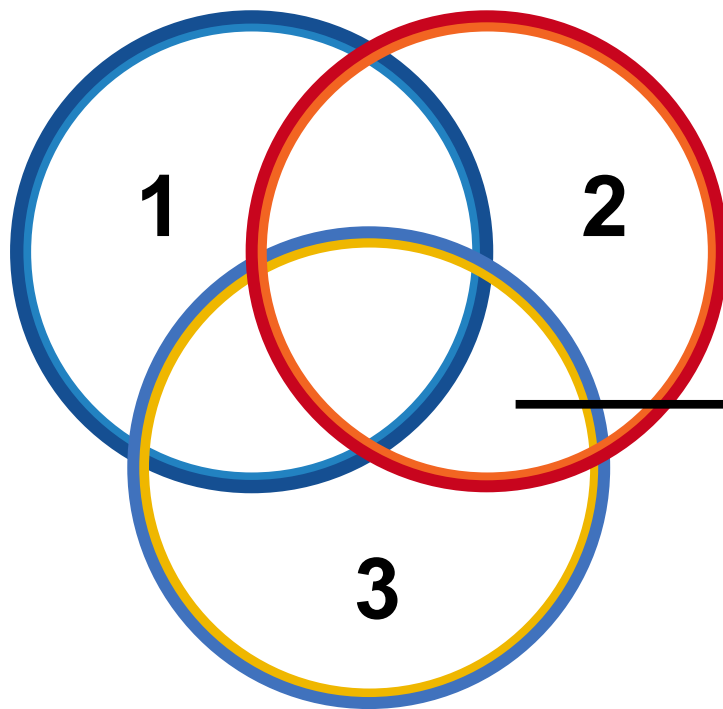


**MAXBLUE\*\***

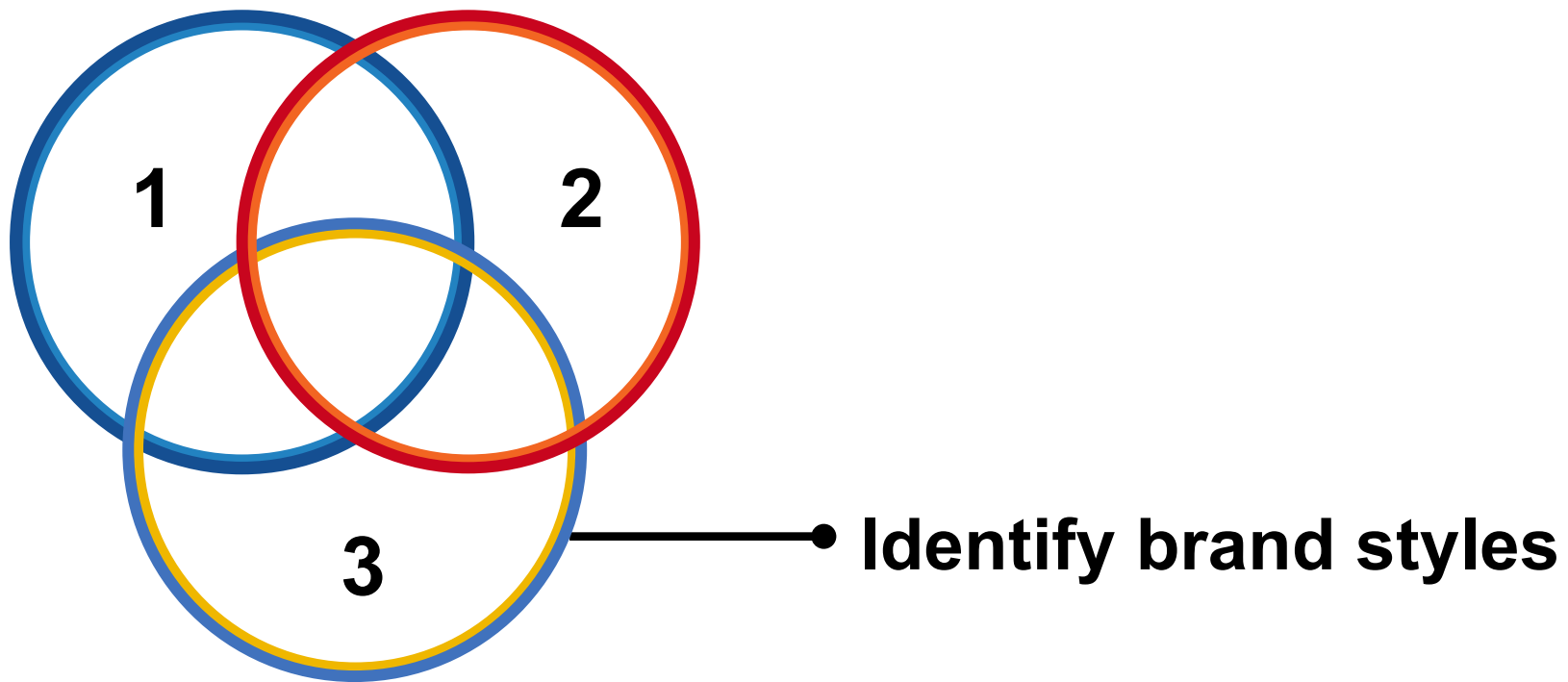
\* Unternehmen der Deutsche Bank Gruppe

\*\* Online-Brokerage-Angebot der Deutsche Bank Privat- und Geschäftskunden AG





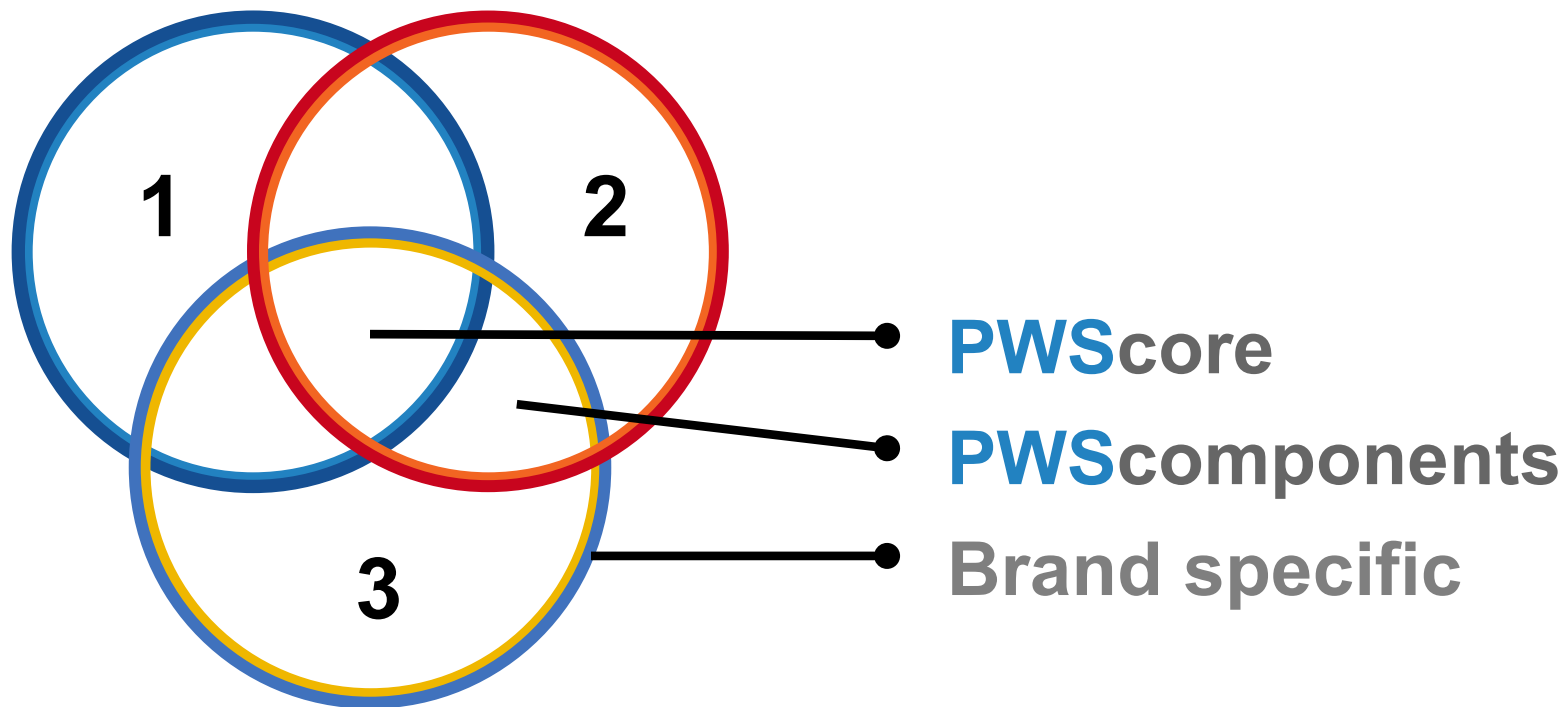
Identify business logic interfaces





# What is the outcome?

# The outcome





What is **PWS**core?



## **PWS**core

- It is a Component Library based on Angular
- To deliver standardised components for all projects
- To have a central place for the style of the components
- To have a central place for testing and maintenance
- To speed up development dramatically



PWScore 4.0 Deutsche Bank Theme

- Getting Started
- Contributing
- Changelog
- Visual Design
- Form Components
- Presentational Components
- Validation
- Services
- API Services
- Tracking

## PWScore Library

### Contributors

The PWScore project is a common initiative by developers within the PWS department - its a project from developers, for developers.  
We would like to thank the following developers for contributing to PWScore:

- Hessel Bearda • Florian Kittel • Alexander Kubias • Andre Juris • Dominique Müller • Michael Cornel • Sascha Ehrhard • Pradeep Kumar
- Mohammed Houssaini • Fabian Eidner • Konrad Nowakowski • Rikhil Arora • Marco Unterberger • Mehmet Ücyildiz • Martin Baum
- Manuel Häuser • Matthias Gigl • Marc Rinner • Sandeep Deshmukh • Deepali Patil • Kevin Chwalek • Himanshu Saxena
- Falko Pfitzke • Matthias Schüßler • Ashutosh Jadav • Sebastian Seltmann • Himanshu Garg • Verena Ermes • Sumit Bharekar
- Saraswati Talwar • Michael Lang • Mohit Puranik • Sergejs Zerins • Abhimanyu Kumar • Raja Ghosh • Naveen Bodicherla
- Barnadeep Bhowmik • Waldemar Jaufmann • Altan Tuetek

[start contributing today](#)

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What is **PWS**components?



## **PWS**components

- It is a set of combined components that is often used
- To deliver a standardised setup
- To have a central place for legal requirements
- To have a central place for testing and maintenance
- To speed up development more then ever in the projects



**PWScomponents** 4.0 Deutsche Bank Theme

- Getting Started
- Contributing
- Changelog ↗
- Confluence Documentation ↗
- Basic >
- Customer Data >
- Kapitalanlage-Check (KAC) >
- Online Banking (TRXM) >

## PWScomponents Library

### Contributors

The PWScomponents is a joint effort of developers within the PWS department - from developers, for developers. We would like to thank the following developers for contributing to the PWScomponents:

- Hessel Bearda • Florian Kittel • Alexander Kubias • Dominique Müller • Manuel Häuser
- Rikhil Arora • Marc Rinner • Himanshu Saxena • Deepali Patil • Matthias Gigl
- Rohan Fating • Marco Unterberger • Verena Ermes • Naveen Bodicherla • Nikhil Yadav
- Pradeep Mohite • Raja Ghosh • Ashutosh Jadav • Abhimanyu Kumar • Himanshu Garg
- Barnadeep Bhowmik

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What is **PWS**seed?



## **PWS**seed

- It is a ready to use boilerplate project
- To enable the developers to quickly start and see progress
- To reduce the project setup effort to a minimum
- To fulfil the idea of standardised projects
- To let the developers concentrate on the product, not the things around



Welcome 1



Personal Info



Summary

## Personal Info

Oh, look at this! Routing and a form including validation...

- Sir  
 Madam

First name

Surname

Country  
Please select a country

Phone Number

Optional comment

previous page

next page

[Konditionen & Preise](#) | [Rechtliche Hinweise](#) | [Impressum](#)

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## Conclusion

- We learned a lot about standardisation in our project
- We learned that people matter and that you have to inspire them
- Without the developers it would never have been possible to create something like PWScore and PWScomponents

We would like to say thank you to the Developers who are using it, the Contributors who built it and the Supporters that made it possible.



**Thank you for your attention**





# Questions?