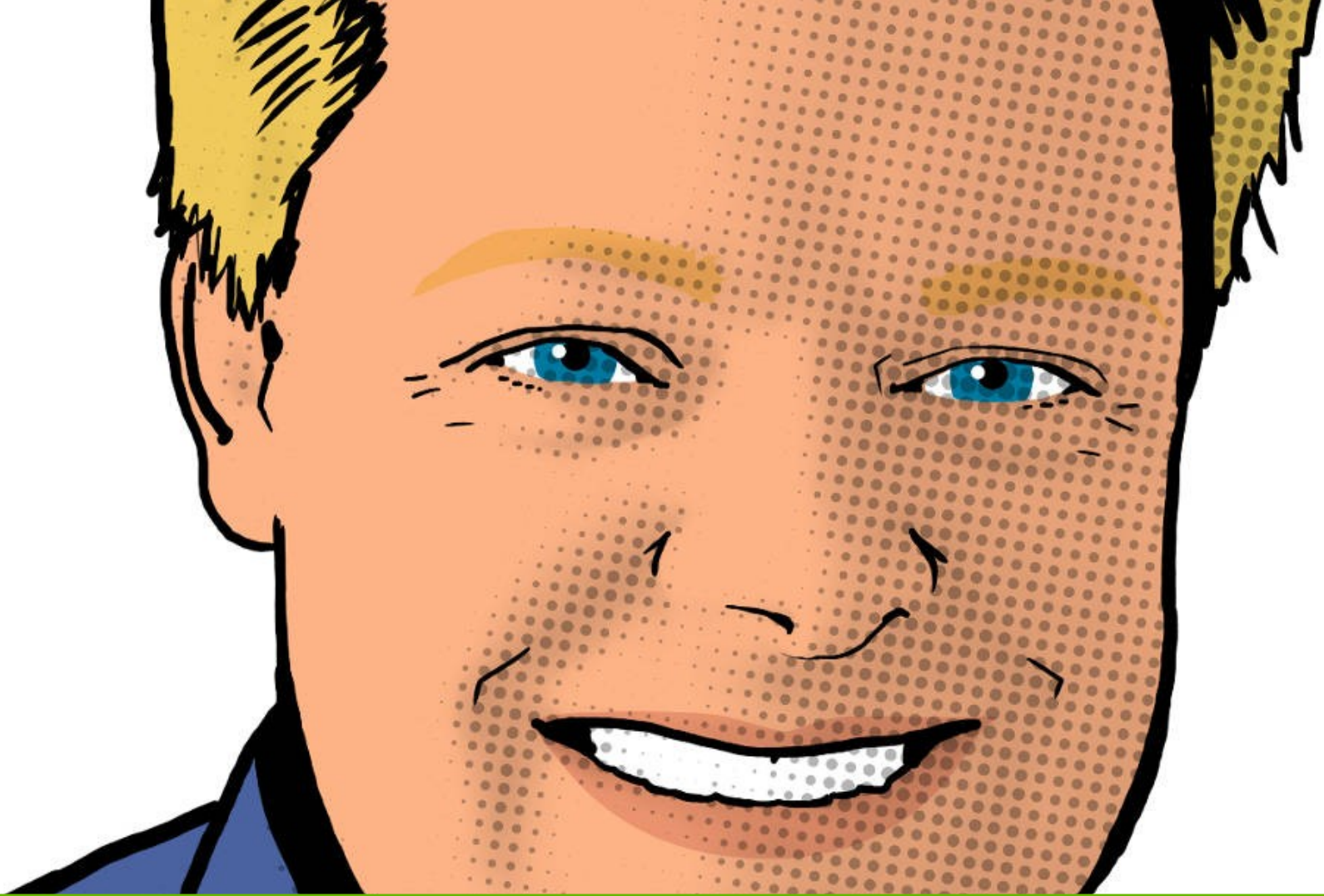




# **Workshop: Zend Framework 3 Middleware-Anwendungen bauen**





# **Ralf Eggert**

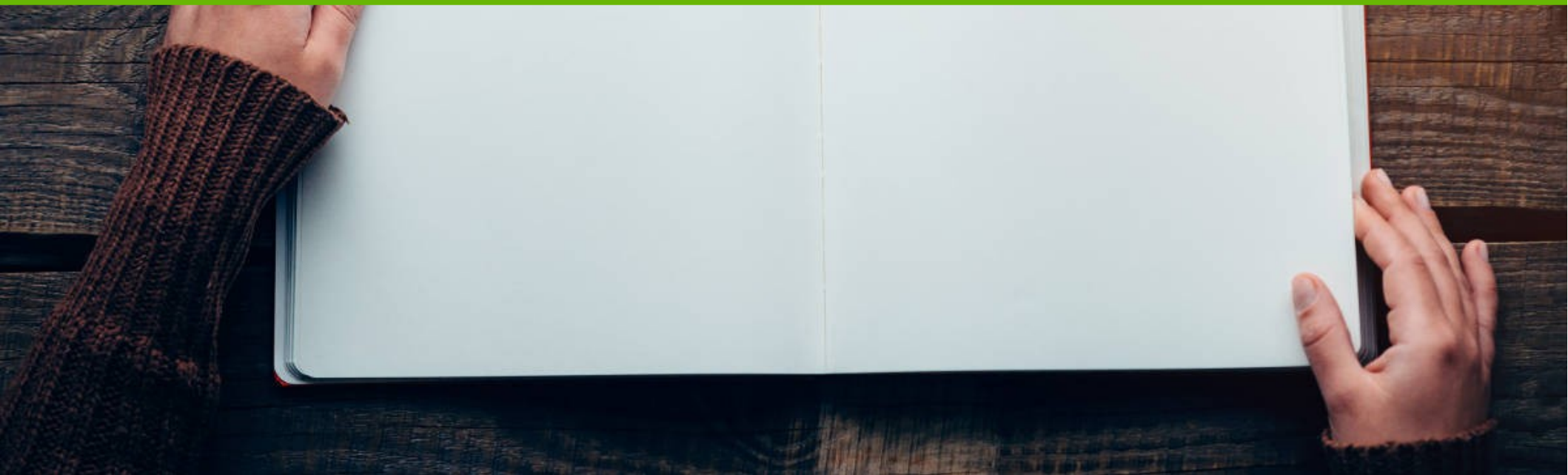
**CEO Travello GmbH, PHP Entwickler,  
Zend Framework Trainer, Autor & Coach sowie  
Amazon Alexa Skill Entwickler**





# Frage

**Welche Aspekte interessieren Sie am meisten?**



## Agenda

- Teil 1: Einführung in `Zend\Expressive`
- Teil 2: Installation & Aufbau der Anwendung
- Teil 3: Anwendungsmodule
- Teil 4: Middleware-Aktionen
- Teil 5: Datenbankansbindung
- Teil 6: Formulare und Formularverarbeitung
- Teil 7: Zusammenfassung





# Ablauf

## Theorie, Live-Coding, Fragen & Diskussion





# Teil 1

## Einführung in Zend\Expressive



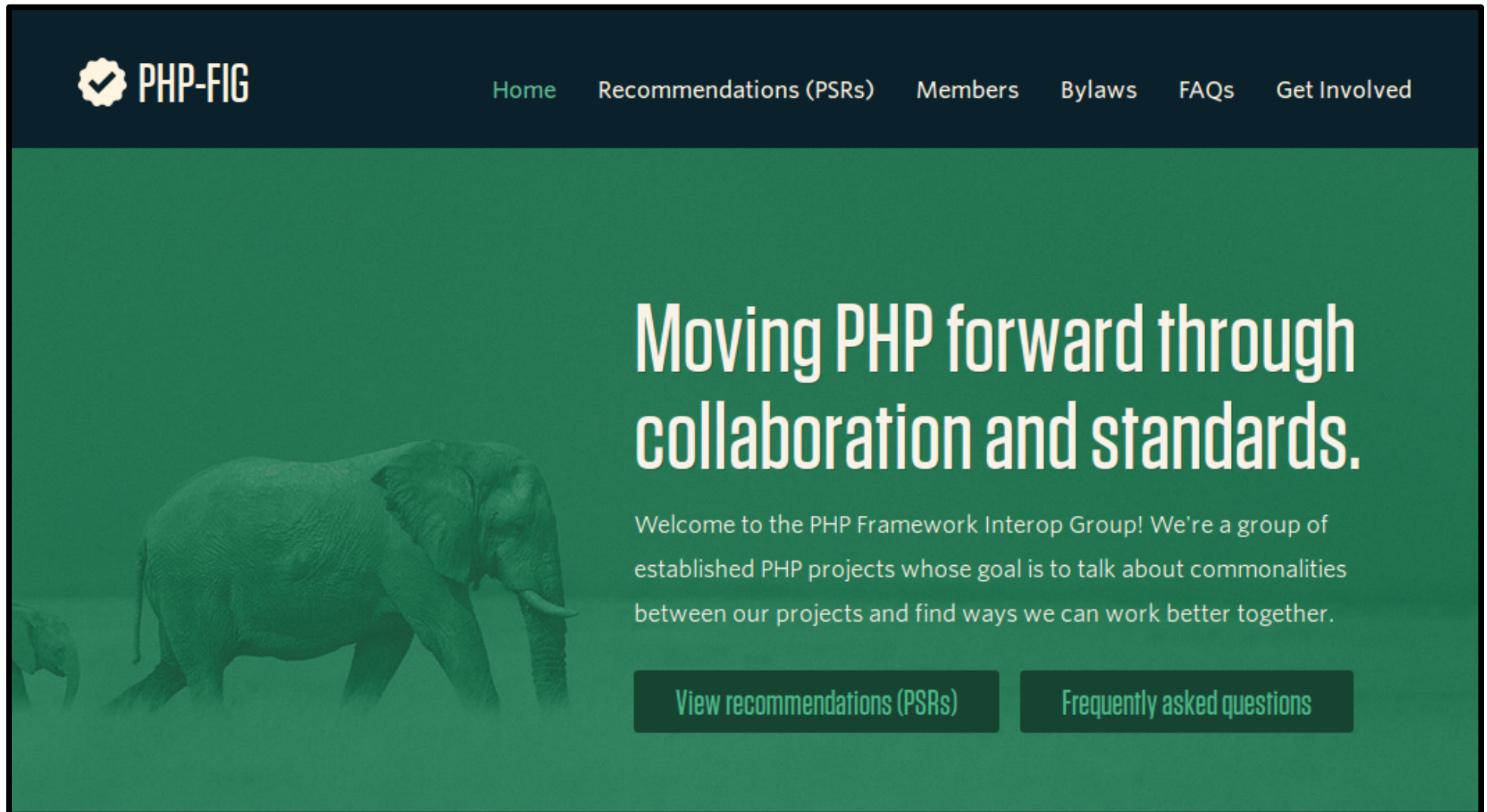


A top-down view of a wooden desk. In the upper left, a closed brown notebook is partially visible. Next to it is a black smartphone. To the right is a white cup with an orange handle, filled with a brown liquid. In the center, an open notebook with blank white pages lies flat. The desk's wood grain is prominent.

# Frage

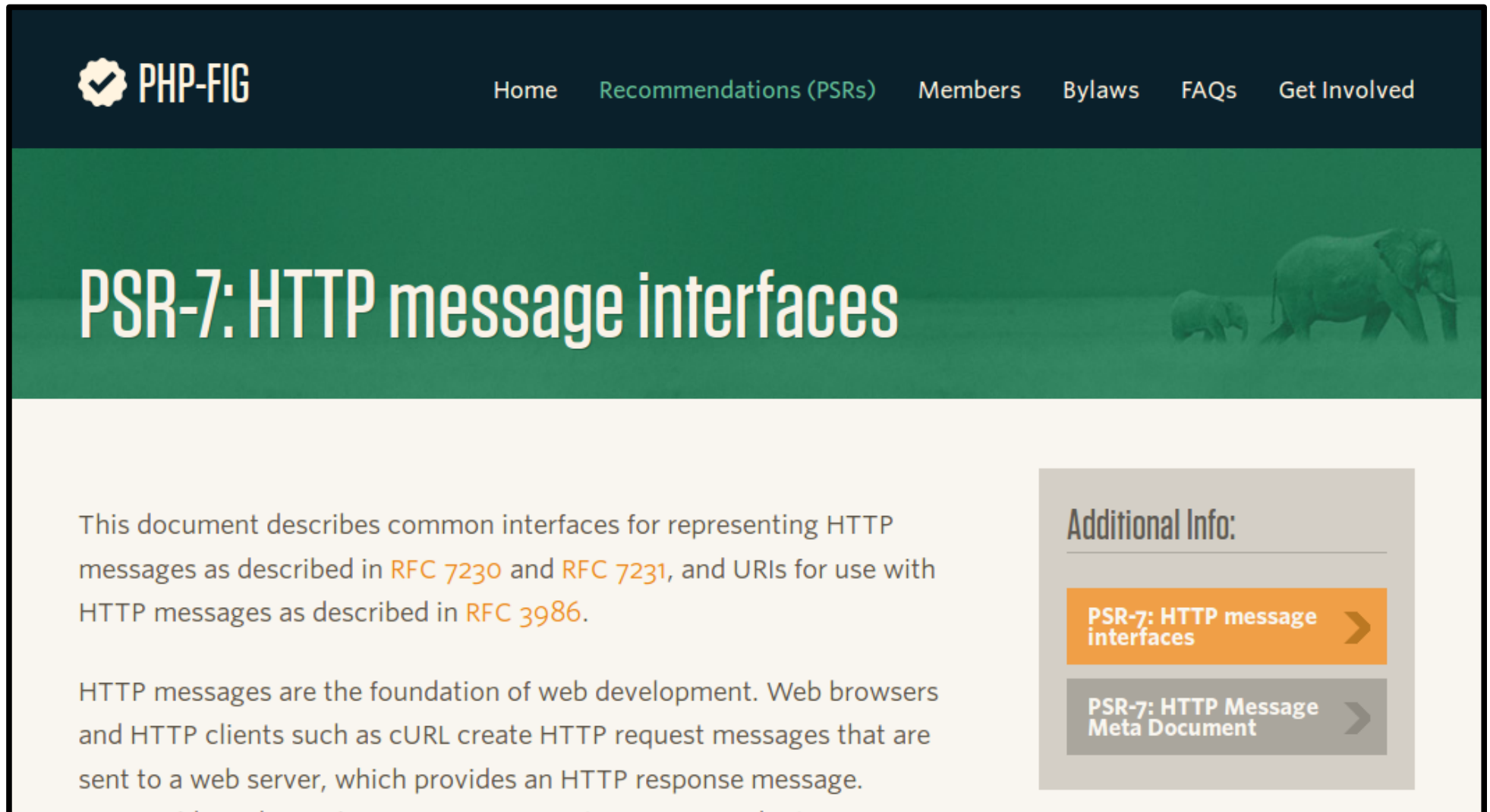
**Wer kennt die PHP-FIG und den PSR-7?**

# Was ist die PHP-FIG?

The screenshot shows the homepage of the PHP Framework Interop Group (FIG). The header is dark blue with the PHP-FIG logo (a checkmark in a gear) and the text 'PHP-FIG' on the left. To the right of the logo are navigation links: 'Home', 'Recommendations (PSRs)', 'Members', 'Bylaws', 'FAQs', and 'Get Involved'. The main content area has a green background with a faint image of an elephant. The headline reads 'Moving PHP forward through collaboration and standards.' Below this, a paragraph welcomes visitors to the PHP Framework Interop Group, stating it is a group of established PHP projects aiming to discuss commonalities and find ways to work better together. At the bottom, there are two buttons: 'View recommendations (PSRs)' and 'Frequently asked questions'.



# Was ist der PSR-7?



The screenshot shows the PHP-FIG website's page for PSR-7. The header is dark blue with the PHP-FIG logo and navigation links: Home, Recommendations (PSRs), Members, Bylaws, FAQs, and Get Involved. The main content area has a green header with the title 'PSR-7: HTTP message interfaces' and a background image of elephants. Below the title, there is a paragraph describing the document's purpose and a list of additional resources on the right side.

**PHP-FIG** Home Recommendations (PSRs) Members Bylaws FAQs Get Involved

## PSR-7: HTTP message interfaces

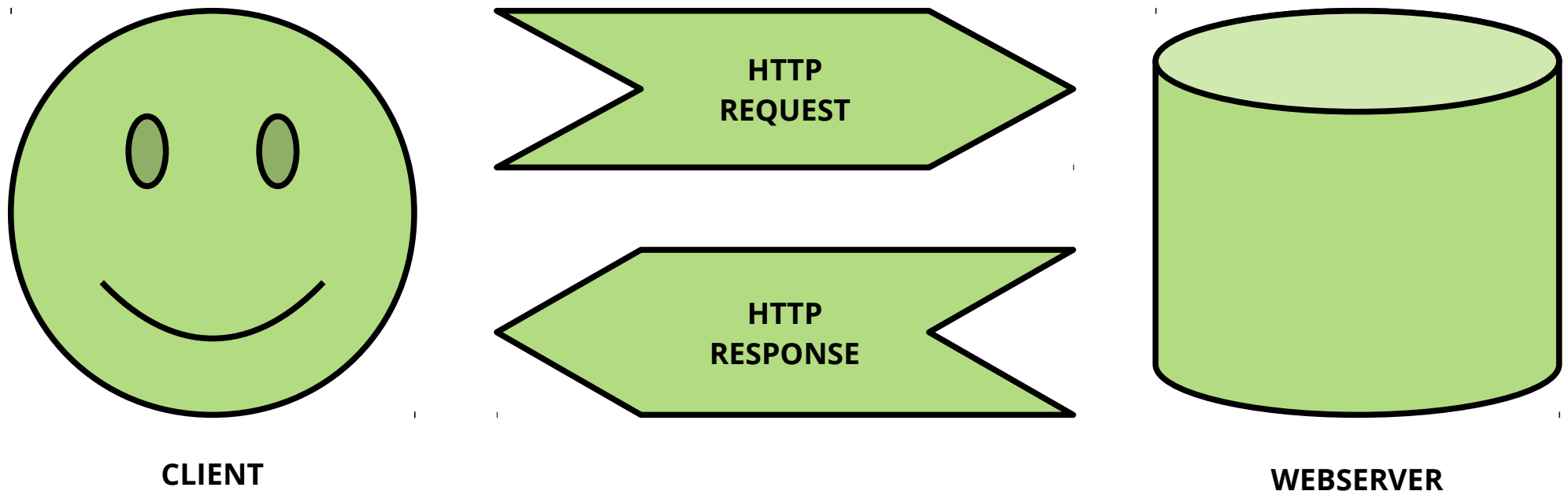
This document describes common interfaces for representing HTTP messages as described in [RFC 7230](#) and [RFC 7231](#), and URIs for use with HTTP messages as described in [RFC 3986](#).

HTTP messages are the foundation of web development. Web browsers and HTTP clients such as cURL create HTTP request messages that are sent to a web server, which provides an HTTP response message.

**Additional Info:**

- [PSR-7: HTTP message interfaces](#)
- [PSR-7: HTTP Message Meta Document](#)

# Klassischer HTTP Request

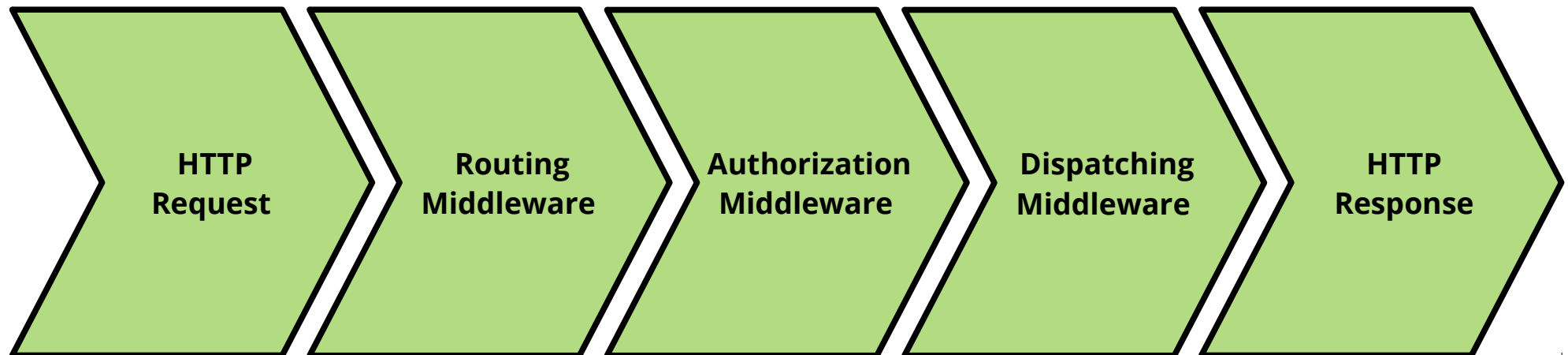




# Middleware-Request

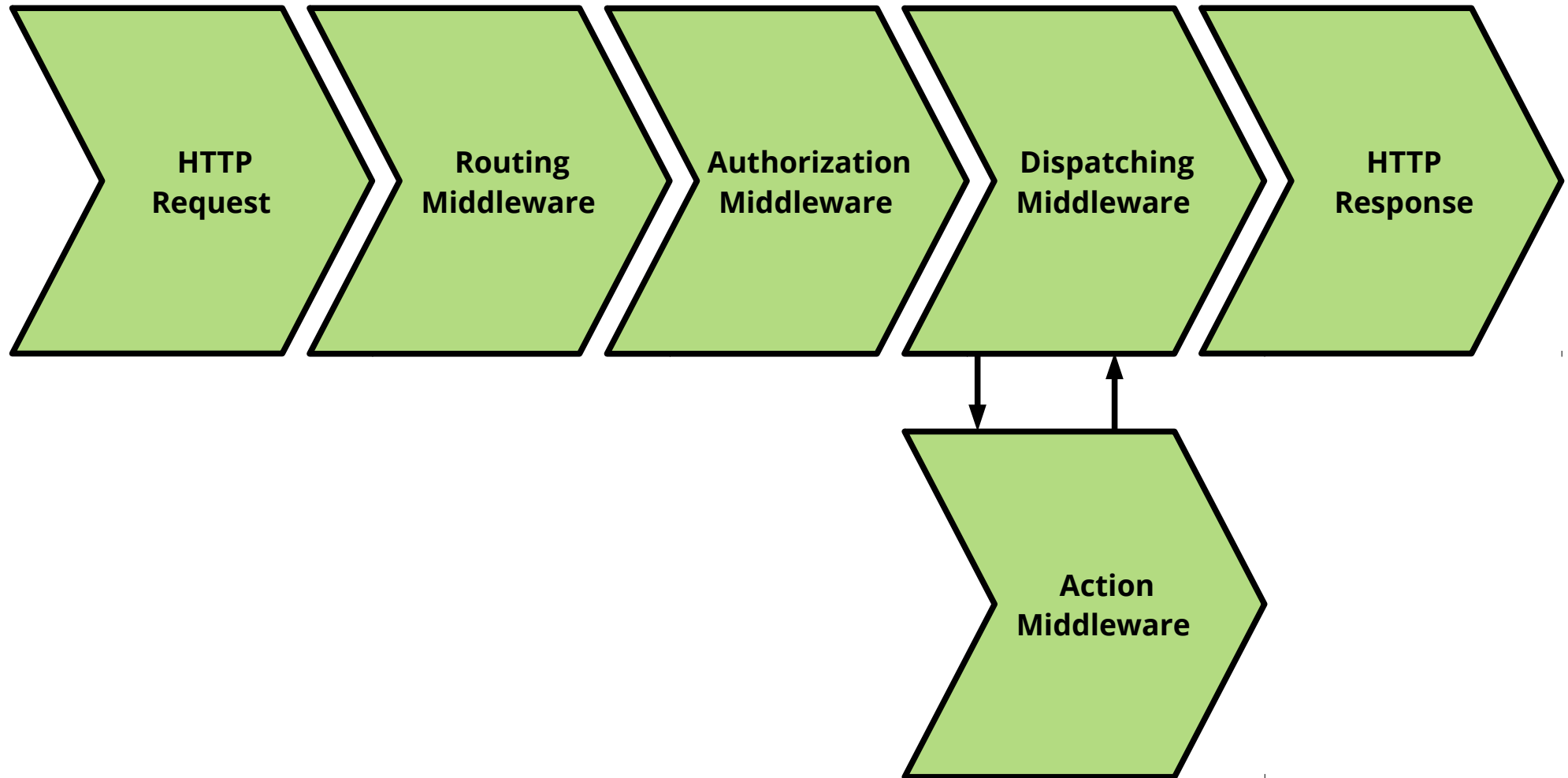


# Middleware-Pipeline

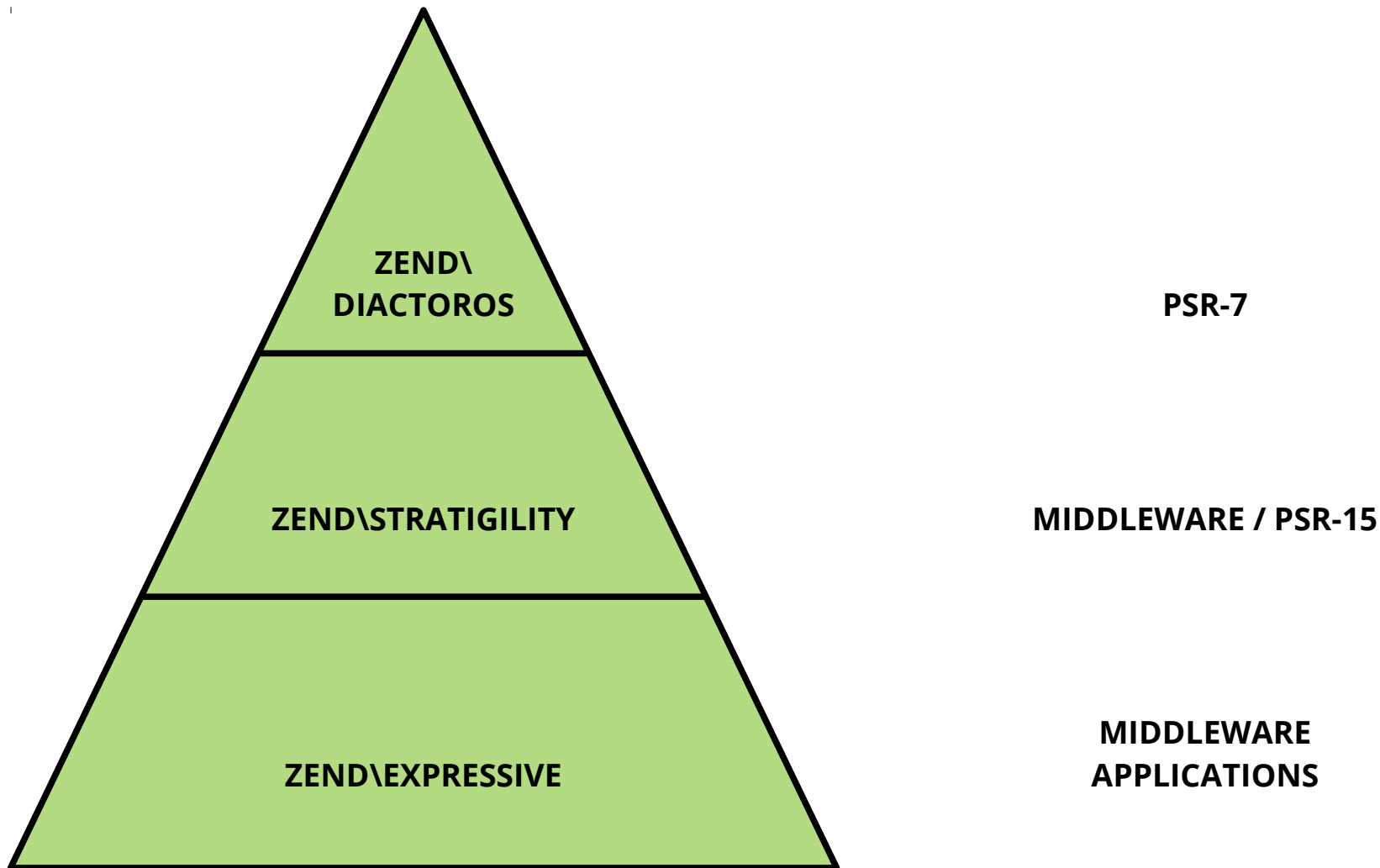




# Action-Middleware

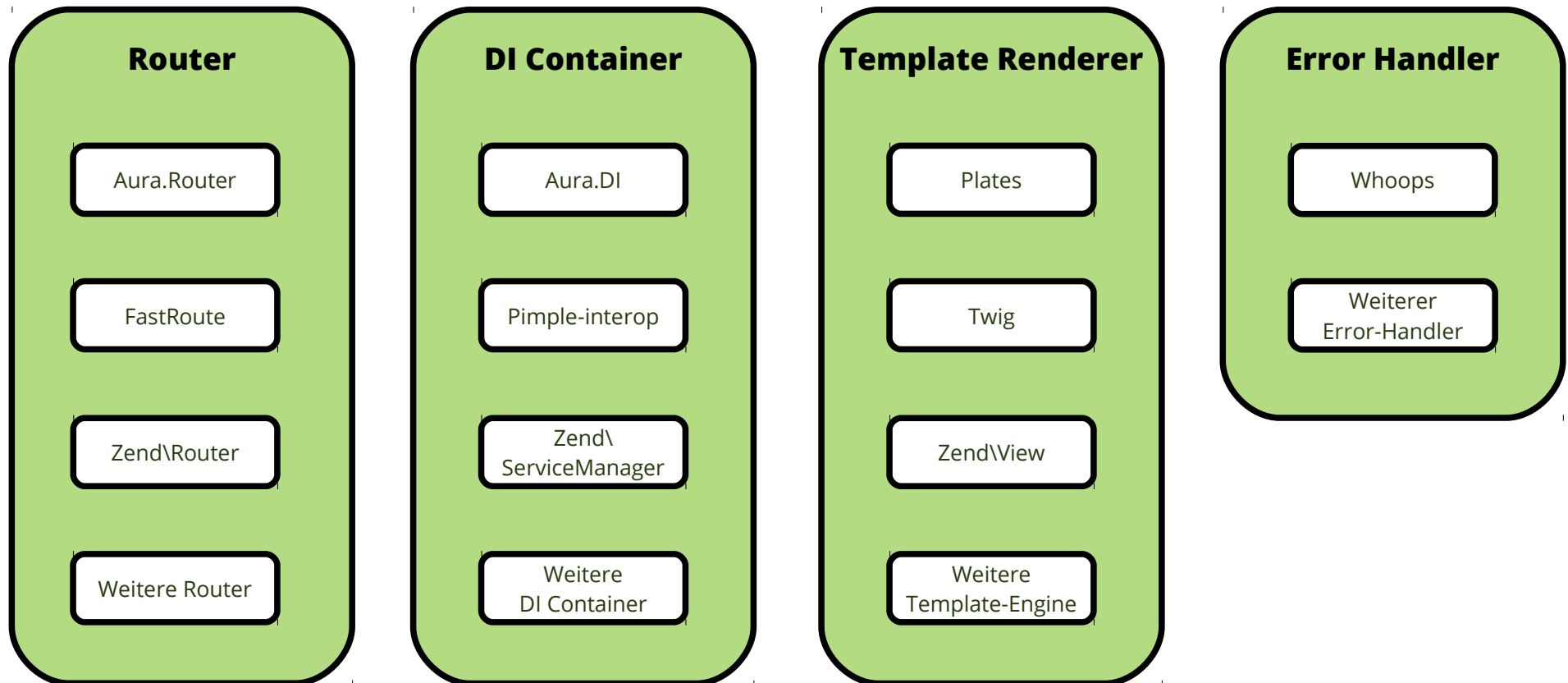



# Zend Framework Komponenten





# Zend\Expressive Komponenten





# **Teil 2**

## **Installation & Aufbau der Anwendung**

# Zend\Expressive installieren I

```
ralf@ralf-HP-2017 /home/devhost/konferenzen $ composer create-project zendframework/zend-expressive-skeleton
Installing zendframework/zend-expressive-skeleton (2.0.3)
- Installing zendframework/zend-expressive-skeleton (2.0.3): Loading from cache
Created project in /home/devhost/konferenzen/zend-expressive-skeleton
> ExpressiveInstaller\OptionalPackages::install
Setting up optional packages
Setup data and cache dir
Removing installer development dependencies

What type of installation would you like?
[1] Minimal (no default middleware, templates, or assets; configuration only)
[2] Flat (flat source code structure; default selection)
[3] Modular (modular source code structure; recommended)
Make your selection (2): 3
- Adding package zendframework/zend-expressive-tooling (^0.4.1)
- Copying src/App/src/ConfigProvider.php

Which container do you want to use for dependency injection?
[1] Aura.Di
[2] Pimple
[3] Zend ServiceManager
Make your selection or type a composer package name and version (Zend ServiceManager): 3
- Adding package zendframework/zend-servicemanager (^3.3)
- Copying config/container.php

Which router do you want to use?
[1] Aura.Router
[2] FastRoute
[3] Zend Router
Make your selection or type a composer package name and version (FastRoute): 3
- Adding package zendframework/zend-expressive-zendrouter (^2.0.1)
- Copying config/routes.php
```



# Zend\Expressive installieren II

```
- Copying config/autoload/router.global.php
```

```
Which template engine do you want to use?
```

```
[1] Plates
```

```
[2] Twig
```

```
[3] Zend View installs Zend ServiceManager
```

```
[n] None of the above
```

```
Make your selection or type a composer package name and version (n): 3
```

```
- Adding package zendframework/zend-expressive-zendviewrenderer (^1.4)
```

```
- Copying config/autoload/templates.global.php
```

```
- Copying src/App/templates/error/404.phtml
```

```
- Copying src/App/templates/error/error.phtml
```

```
- Copying src/App/templates/layout/default.phtml
```

```
- Copying src/App/templates/app/home-page.phtml
```

```
Which error handler do you want to use during development?
```

```
[1] Whoops
```

```
[n] None of the above
```

```
Make your selection or type a composer package name and version (Whoops): 1
```

```
- Adding package filp/whoops (^2.1.7)
```

```
- Copying config/autoload/development.local.php.dist
```

```
Remove installer
```

```
Removing composer.lock from .gitignore
```

```
Removing Expressive installer classes, configuration, tests and docs
```

```
Loading composer repositories with package information
```

```
Updating dependencies (including require-dev)
```

```
Package operations: 65 installs, 0 updates, 0 removals
```

```
- Installing zendframework/zend-component-installer (1.0.0): Loading from cache
```

```
- Installing zendframework/zend-config-aggregator (1.0.0): Loading from cache
```

```
- Installing psr/http-message (1.0.1): Loading from cache
```

```
- Installing fig/http-message-util (1.1.2): Loading from cache
```

```
- Installing zendframework/zend-diactoros (1.4.0): Loading from cache
```

# Zend\Expressive installieren III

```
Please select which config file you wish to inject 'Zend\Validator\ConfigProvider' into:
```

```
[0] Do not inject
```

```
[1] config/config.php
```

```
Make your selection (default is 0):1
```

```
Remember this option for other packages of the same type? (y/N)y
```

```
Installing Zend\Validator\ConfigProvider from package zendframework/zend-validator
```

- Installing zendframework/zend-escaper (2.5.2): Loading from cache
- Installing zendframework/zend-uri (2.5.2): Loading from cache
- Installing zendframework/zend-loader (2.5.1): Loading from cache
- Installing zendframework/zend-http (2.6.0): Loading from cache
- Installing zendframework/zend-psr7bridge (0.2.2): Loading from cache
- Installing zendframework/zend-servicemanager (3.3.0): Loading from cache
- Installing zendframework/zend-router (3.0.2): Loading from cache

```
Installing Zend\Router\ConfigProvider from package zendframework/zend-router
```


- Installing http-interop/http-middleware (0.4.1): Loading from cache
- Installing zendframework/zend-expressive-router (2.1.0): Loading from cache
- Installing zendframework/zend-expressive-zendrouter (2.0.1): Loading from cache
- Installing zendframework/zend-eventmanager (3.1.0): Loading from cache
- Installing zendframework/zend-view (2.9.0): Loading from cache
- Installing zendframework/zend-expressive-template (1.0.4): Loading from cache
- Installing zendframework/zend-expressive-helpers (4.0.0): Loading from cache
- Installing zendframework/zend-expressive-zendviewrenderer (1.4.0): Loading from cache
- Installing zfcampus/zf-development-mode (3.1.0): Loading from cache
- Installing sebastian/version (2.0.1): Loading from cache
- Installing sebastian/resource-operations (1.0.0): Loading from cache
- Installing sebastian/recursion-context (3.0.0): Loading from cache
- Installing sebastian/object-reflector (1.1.1): Loading from cache
- Installing sebastian/object-enumerator (3.0.2): Loading from cache
- Installing sebastian/global-state (2.0.0): Loading from cache
- Installing sebastian/exporter (3.1.0): Loading from cache

# Workshop Repository installieren

```
$ cd /home/devhost/  
$ git clone https://github.com/RalfEggert/ipc2017-expressive  
$ cd ipc2017-expressive/  
$ sudo chmod 777 -R data/  
$ composer install  
$ composer development-enable  
$ composer serve
```



# Workshop Expressive Anwendung

 Ping Test

## Herzlich Willkommen!

Im Workshop "Zend Framework 3 - Middleware-Anwendungen bauen" auf der IPC2017 Spring Edition lernen Sie, wie Sie Middleware-Anwendungen mit Zend\Expressive erstellen können.

[Datenbank Test](#)

---

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# Virtual Host für Apache 2

```
<VirtualHost 127.0.0.1>
    ServerName ipc2017.expressive
    DocumentRoot /home/devhost/konferenzen/ipc2017-expressive/public/
    AccessFileName .htaccess

    SetEnv APPLICATION_ENV development

    <Directory /home/devhost/konferenzen/ipc2017-expressive/public/>
        DirectoryIndex index.php
        AllowOverride All
        Order allow,deny
        Allow from all
        Require all granted
    </Directory>
</VirtualHost>
```

A top-down view of a wooden desk. In the upper left, a closed brown notebook is partially visible. Next to it is a black smartphone. To the right is a white cup with an orange rim, filled with a brown liquid. In the center, an open notebook with blank white pages lies flat. The desk's wood grain is prominent.

# Frage

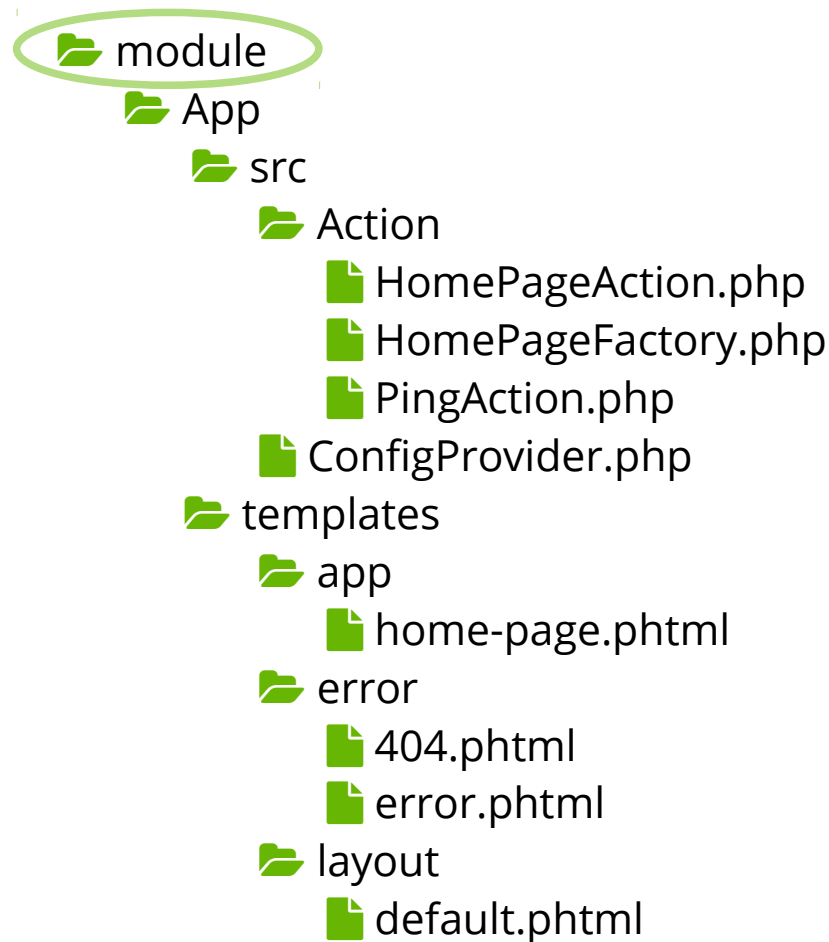
**Läuft bei allen die Anwendung im Browser?**

# Aufbau der Anwendung

- bin
  - clear-config-cache.php
- config
  - autoload
    - dependencies.global.php
    - dependencies.local.php.dist
    - local.php.dist
    - router.global.php
    - templates.global.php
    - zend-expressive.global.php
  - config.php
  - container.php
  - development.config.php.dist
  - pipeline.php
  - routes.php
- data
  - cache
  - db
- module
  - App
- public
  - .htaccess
  - db-check.php
  - index.php
- test
  - AppTest
  - ...
- vendor
  - bin
  - composer
  - zendframework
  - ...
  - autoload.php
- composer.json
- composer.lock



# Aufbau des App Moduls





# **Teil 3**

## **Anwendungsmodule**



# User Stories Kundenverwaltung

	Story	#0001	
	As an	admin	
	I want	to list all customers	
	So that	I have an overview of all registered customers	

	Story	#0004	
	As an	admin	
	I want	to update a customer	
	So that	I can change the details of a customer in the database	

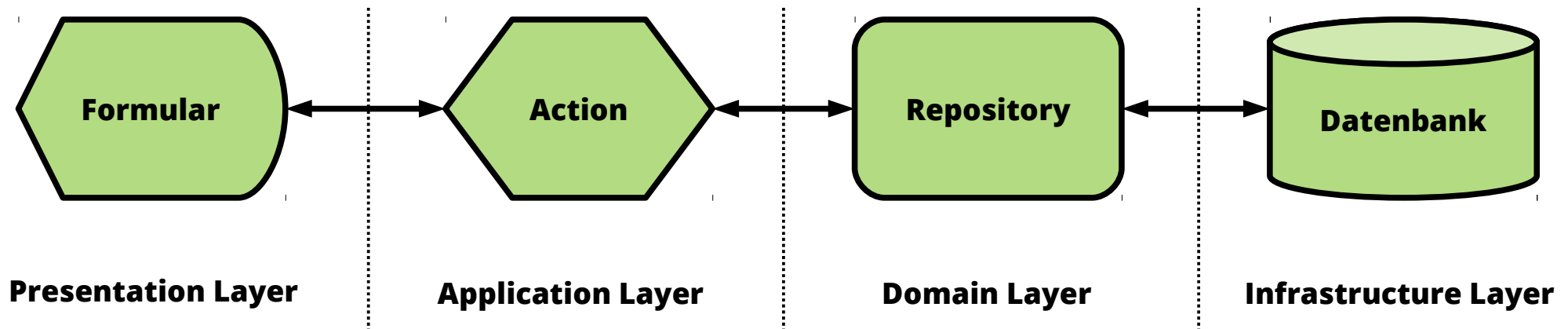
	Story	#0002	
	As an	admin	
	I want	to show a single customers	
	So that	I can see all data of a registered customer	

	Story	#0005	
	As an	admin	
	I want	to delete a customer	
	So that	I can remove the customer data from the database	

	Story	#0003	
	As an	admin	
	I want	to create a new customer	
	So that	I can add customers without registration	

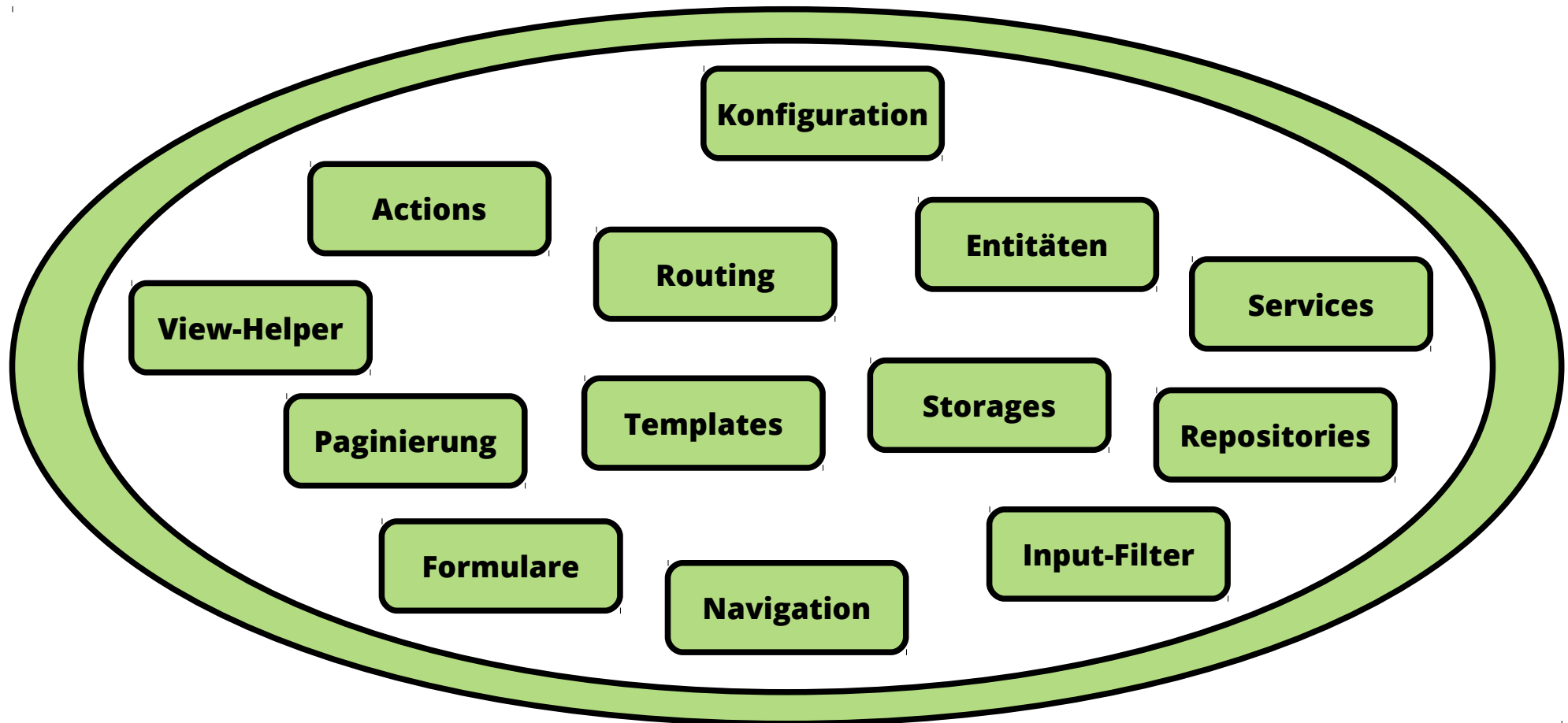
	Story	#0006	
	As a	-	
	I want	-	
	So that	-	

# Schichtenmodell für Anwendung



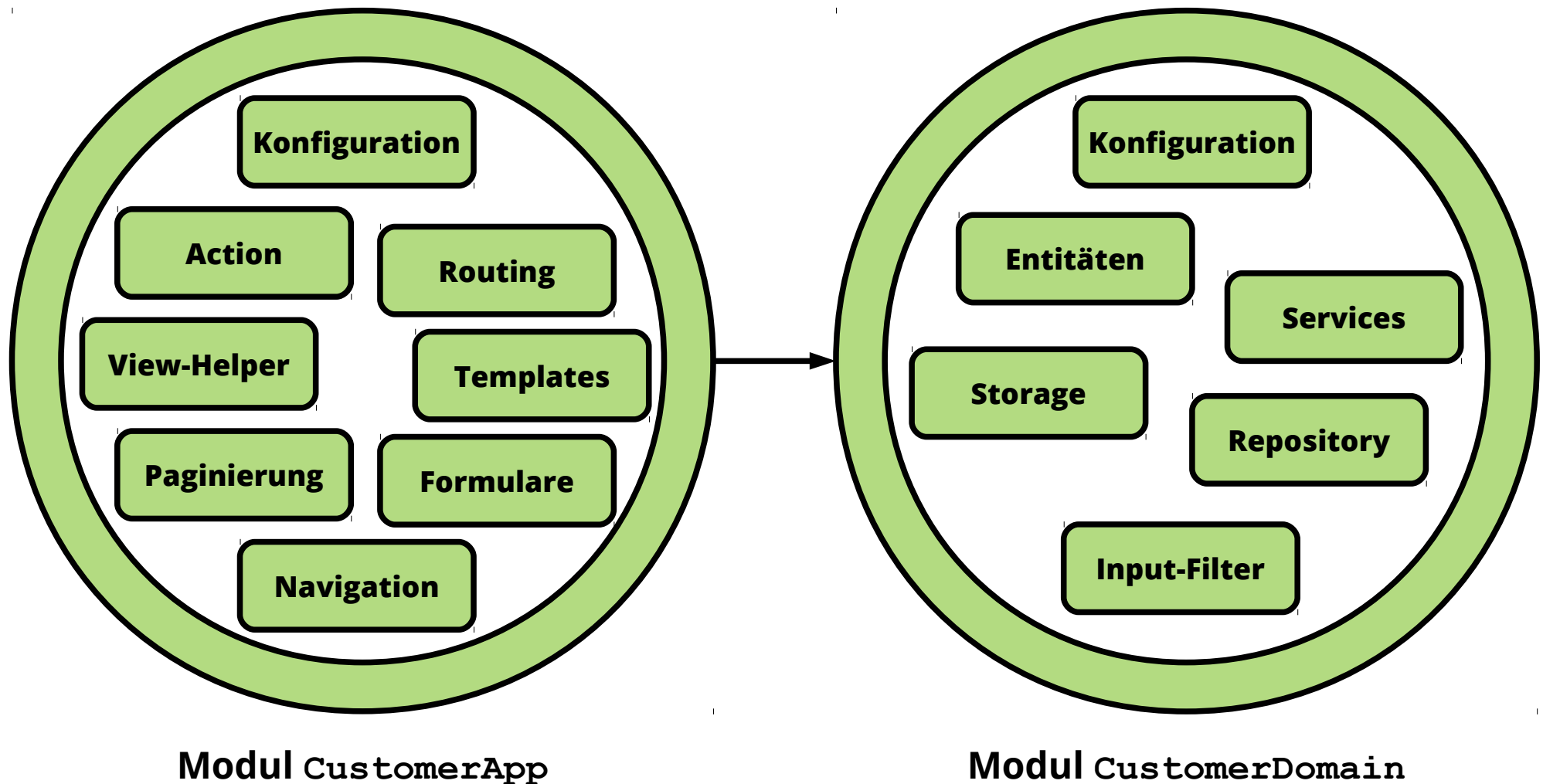


# Modularität I

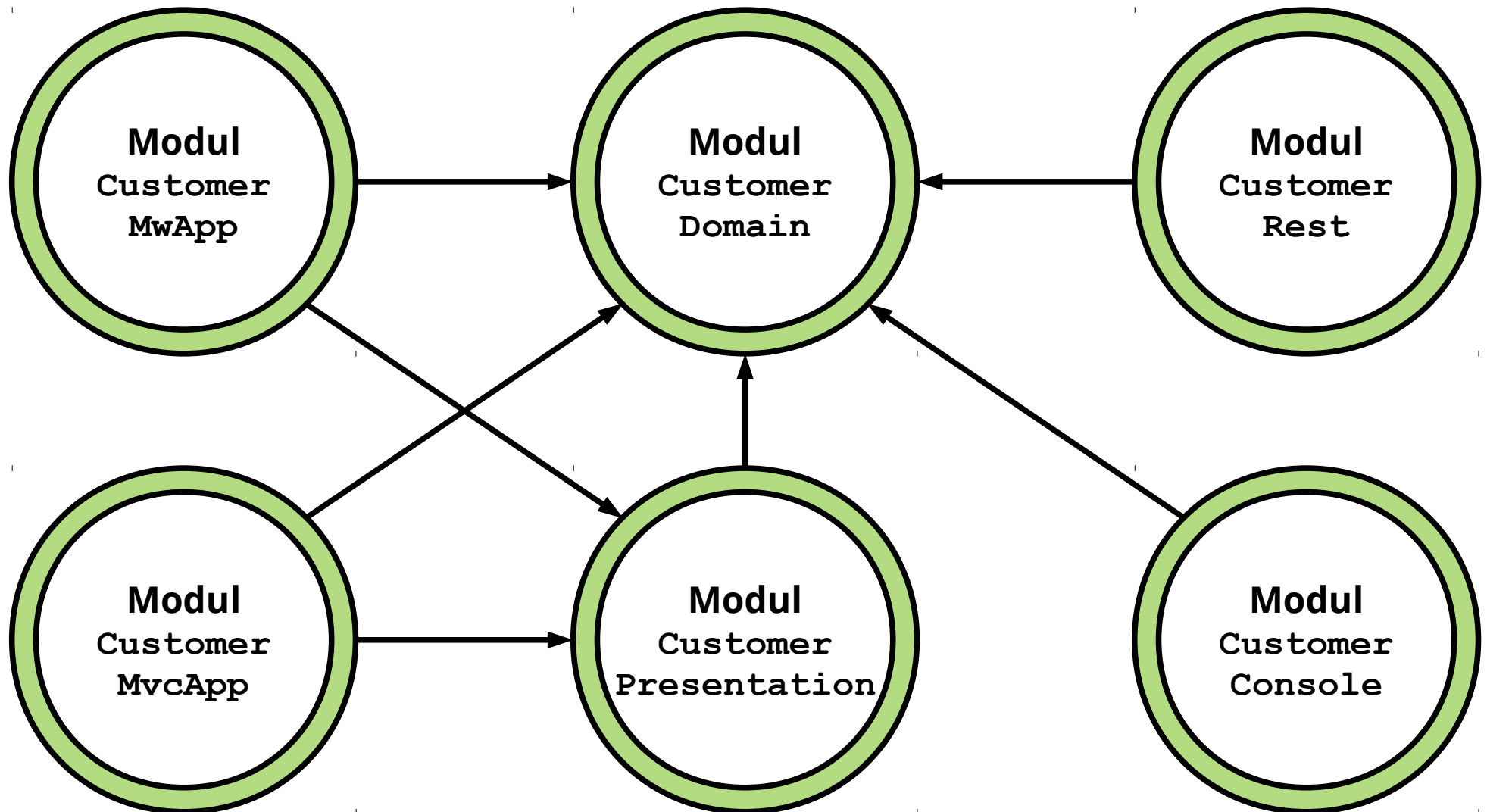


Modul Customer

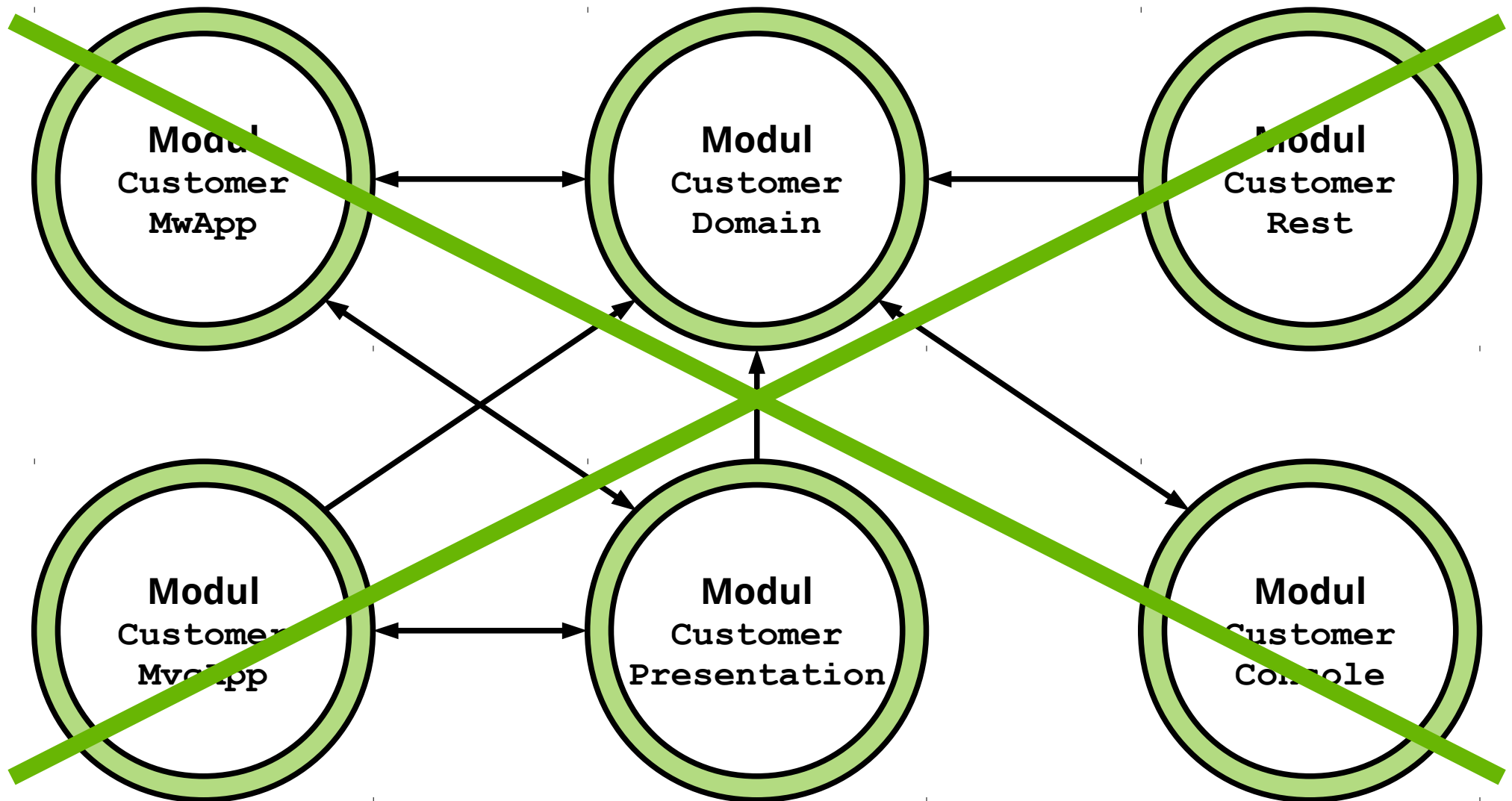
# Modularität II



# Modularität III



# Modularität IV





A top-down view of a wooden desk. In the upper left, a closed brown notebook is partially visible. Next to it is a black smartphone. To the right is a white cup with an orange rim, filled with a brown liquid. In the center, an open notebook with blank white pages lies flat. The desk's wood grain is prominent.

# Frage

**Welche Module für Kundenverwaltung notwendig?**





# **Live Coding**

**Module für Kundenverwaltung einrichten**





# **Diskussion**

## **Moduleinrichtung**







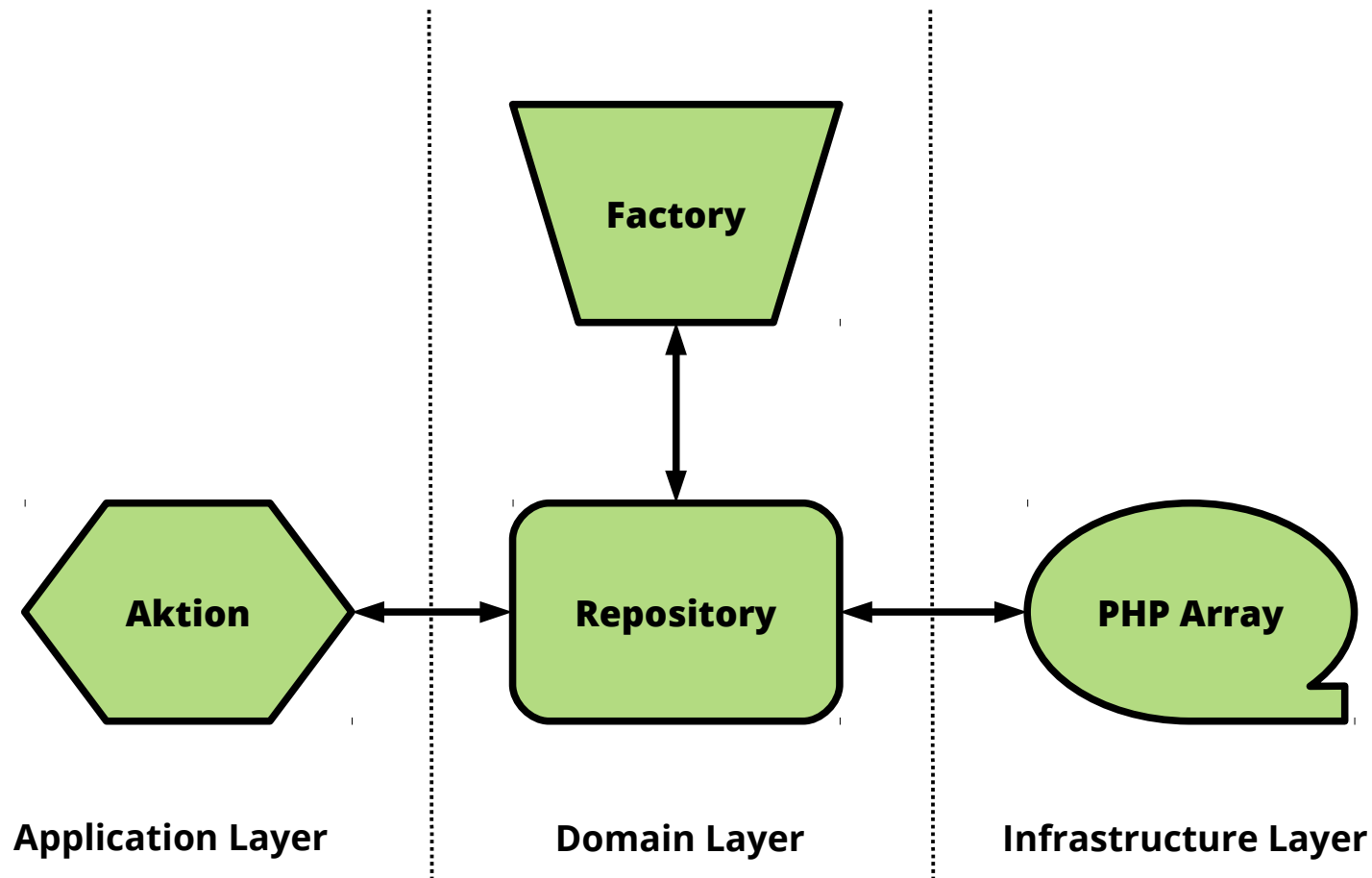
# **Teil 4**

## **Middleware-Aktionen**





# Einfacher Domain-Layer





# **Live Coding**

## **Repository implementieren**





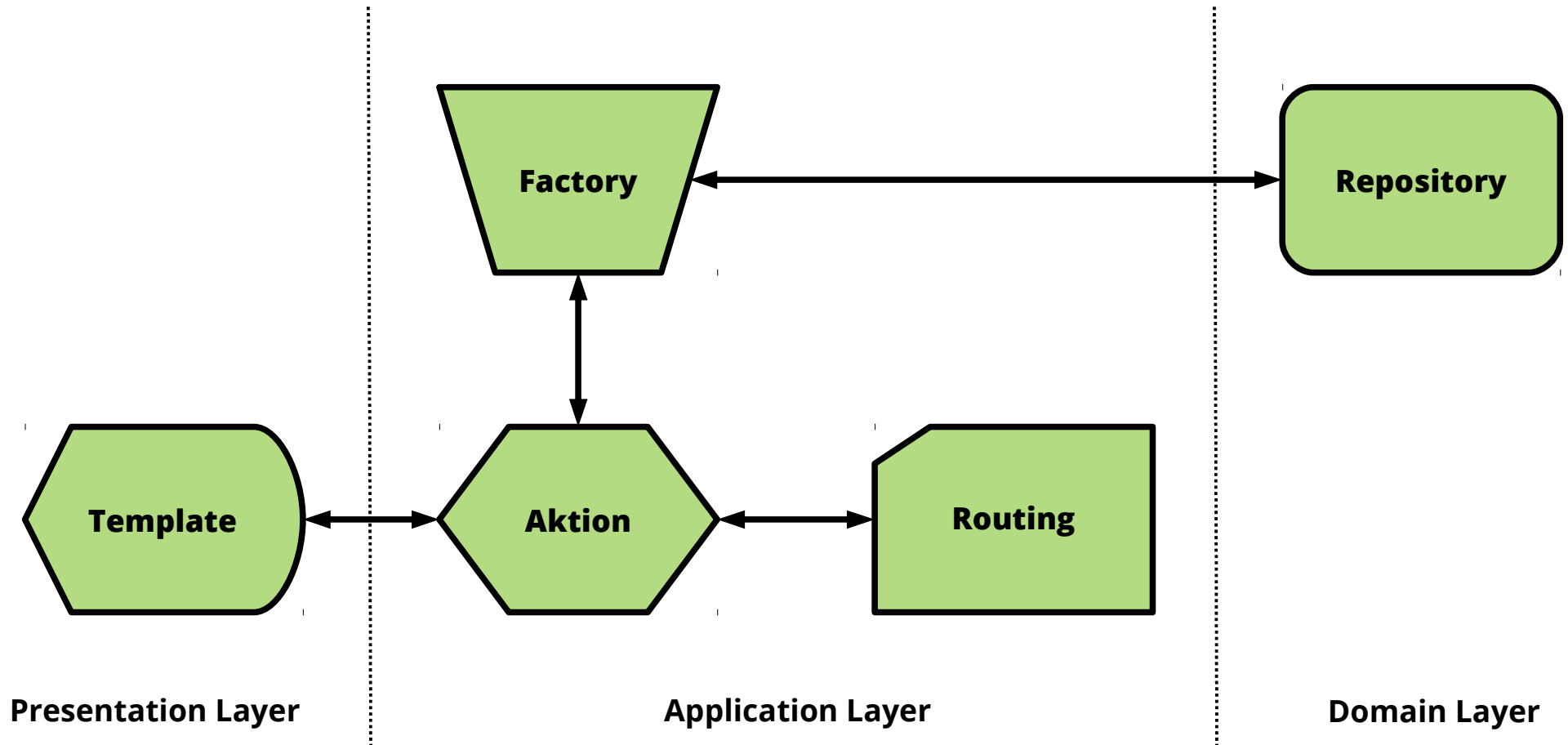


# **Diskussion**

## **Repository**



# Middleware-Aktionen





A top-down view of a wooden desk. In the upper left, a closed brown notebook is partially visible. Next to it is a black smartphone. To the right is a white mug with a red handle, filled with a brown liquid. In the center, an open notebook with blank white pages lies flat. The desk's wood grain is prominent.

# Frage

**Welche lesenden Middleware-Aktionen notwendig?**





# **Live Coding**

**Lesende Middleware-Aktionen implementieren**





# **Diskussion**

## **Repository**





A top-down view of a wooden desk. In the upper left, a closed brown notebook is partially visible. Next to it is a black smartphone. To the right is a white cup with an orange handle, filled with a brown liquid. In the center, an open notebook with blank white pages lies flat. The desk's wood grain is prominent.

# Frage

**Welches Problem birgt die Anwendungsstruktur?**

A close-up view of the open notebook from the previous image. Two hands are visible, holding the edges of the pages. The left hand is wearing a dark brown, ribbed sweater sleeve. The right hand is bare. The pages are blank and white, and the notebook is resting on a dark wooden surface.





# **Live Coding**

## **Modulare Struktur verbessern**





# **Diskussion**

## **Delegator Factories**







# **Teil 5**

## **Datenbankanbindung**

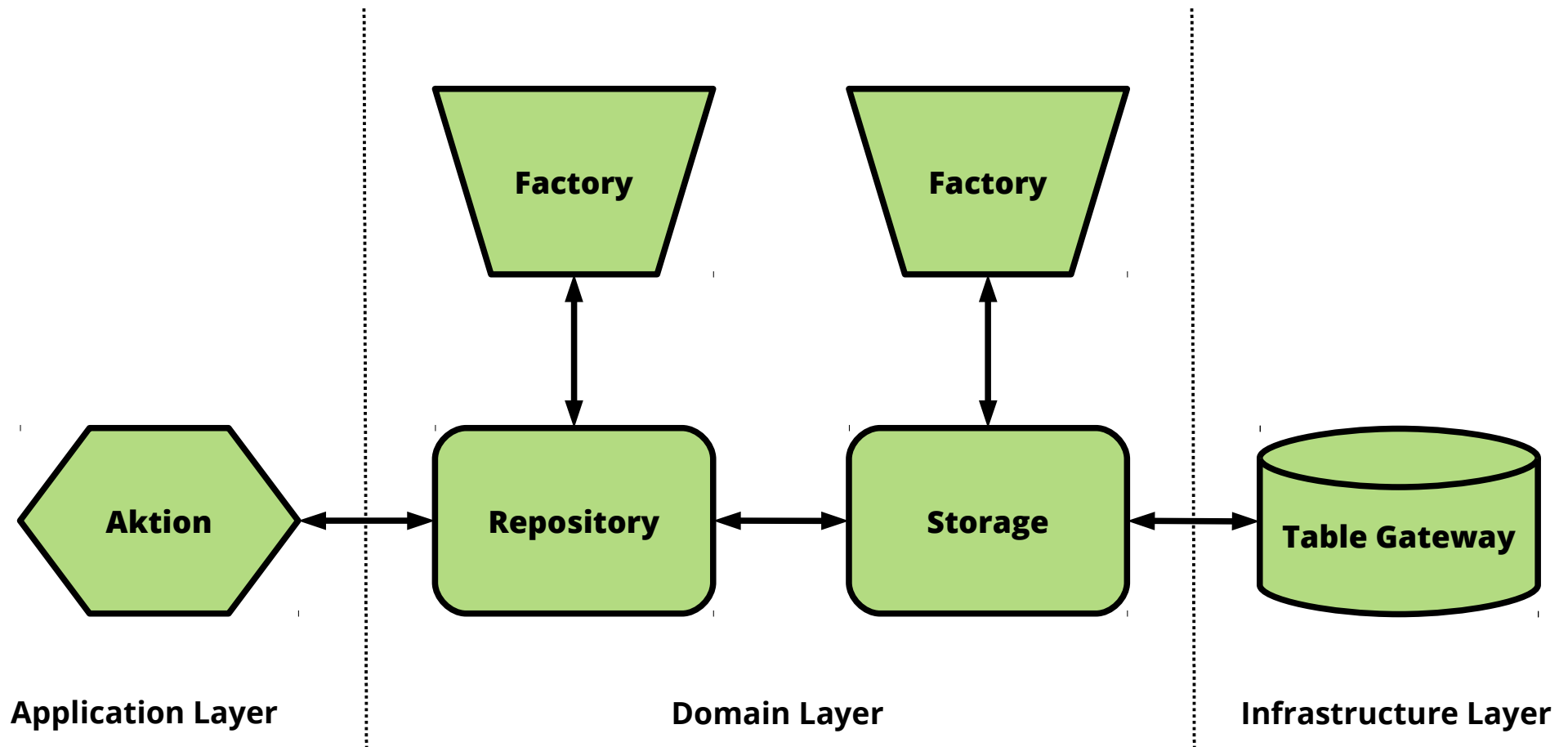




**Frage**

**Wie Datenbank ansprechen?**

# Erweiterter Domain-Layer





# Zend\Db installieren

```
ralf@ralf-HP-2017 /home/devhost/konferenzen/ipc2017-expressive (example-part4c) $ composer require zendframework/zend-db
Using version ^2.8 for zendframework/zend-db
./composer.json has been updated
Loading composer repositories with package information
Updating dependencies (including require-dev)
Package operations: 1 install, 0 updates, 0 removals
  - Installing zendframework/zend-db (2.8.2): Loading from cache

Please select which config file you wish to inject 'Zend\Db\ConfigProvider' into:
[0] Do not inject
[1] config/config.php
Make your selection (default is 0):1

Remember this option for other packages of the same type? (y/N)y
Installing Zend\Db\ConfigProvider from package zendframework/zend-db
zendframework/zend-db suggests installing zendframework/zend-hydrator (Zend\Hydrator component for using HydratingResultSets)
Writing lock file
Generating autoload files
```

# Datenbank Dump einspielen

id	date	status	first_name	last_name	country	email	password
1	2017-05-21 07:13:22	new	Sebastian	Kappel	de	sebastian@kappel.de	\$2y\$10\$HyizHhdxyOL/3ymghfdCNui7CBuhDyL1alZKJbgLcg9HEQsvhQuma
2	2017-05-21 07:13:54	blocked	Birgit	Beike	de	birgit@beike.de	\$2y\$10\$5s4qEzltE5.cLVvZ6waDDeASmmrE1/jSTkGZ2r8KbxSqnelbuFnZq
3	2017-05-21 07:14:38	approved	Robert	Decker	de	robert@decker.de	\$2y\$10\$oTquAQvCHW3Xfqh/N4Qq5.QM9m9skwXj3gLQHScsvPTY72ZjCj.2u
4	2017-05-21 07:15:11	approved	Christine	Grunewald	de	christine@grunewald.de	\$2y\$10\$Q1molP0Iqz/gQx/.uBmZXOrZkNVknVI8YwGyf1dl6J8CMgN6CRhoa
5	2017-05-21 07:15:44	approved	Kerstin	Eisenberg	at	kerstin@eisenberg.at	\$2y\$10\$0rOyYk1BQSCuNo0SPbXWae2GhQPLmumFyNP6R1XfzO3OkPlqXofR2
6	2017-05-21 07:15:18	approved	Johanna	Koertig	at	johanna@koertig.at	\$2y\$10\$h9fCa/hv3PdmF5LWa1I9tuobAZ20K1qIzBMC8HrZmmEPnFuXGPMpa
7	2017-05-21 07:16:53	approved	Eric	Daecher	at	eric@daecher.at	\$2y\$10\$sNwrv7qXzfQSrsCrov1RK0tL1Eau4iYBPt1h1GWC.6aSfGenjjZn6
8	2017-05-21 07:17:23	approved	Erik	Lemann	ch	erik@lemann.ch	\$2y\$10\$RObRTpPCfNzSUQhxSMVUsu1OcC2mKosXs5NI7V54lLe8ajFAeCBj
9	2017-05-21 07:17:48	approved	Andreas	Dresner	ch	andreas@dresner.ch	\$2y\$10\$W/LLsZoPDFBEQouMUTffkeOOiAGKz9qCoQ82ierCYCHR9yI3ca5OS
10	2017-05-21 07:18:19	approved	Erik	Bürger	de	erik@buerger.de	\$2y\$10\$CmTrfCf/UTrauAnyzs/P.Nj.sjJxXG1DVttUk57amgOzRITvK.fy
11	2017-05-21 07:18:59	blocked	Marie	Mehler	de	marie@mehler.de	\$2y\$10\$SbKhL2fbsdpE7btjKHseEelkYKSnl.XlBOJJBVscq3FEQUp/5gesS
12	2017-05-21 07:19:25	approved	Dieter	Mayer	at	dieter@mayer.at	\$2y\$10\$CLUOysGWJVvGcwNciXIS.aUAU4kdXc1rGFRmfQYX9/8QI3HAY8Wa



# **Live Coding**

## **Storage implementieren**







# **Diskussion**

## **Storage und Repository**







# **Live Coding**

**Schreibende Methoden implementieren**





# **Diskussion**

## **Schreibende Methoden**





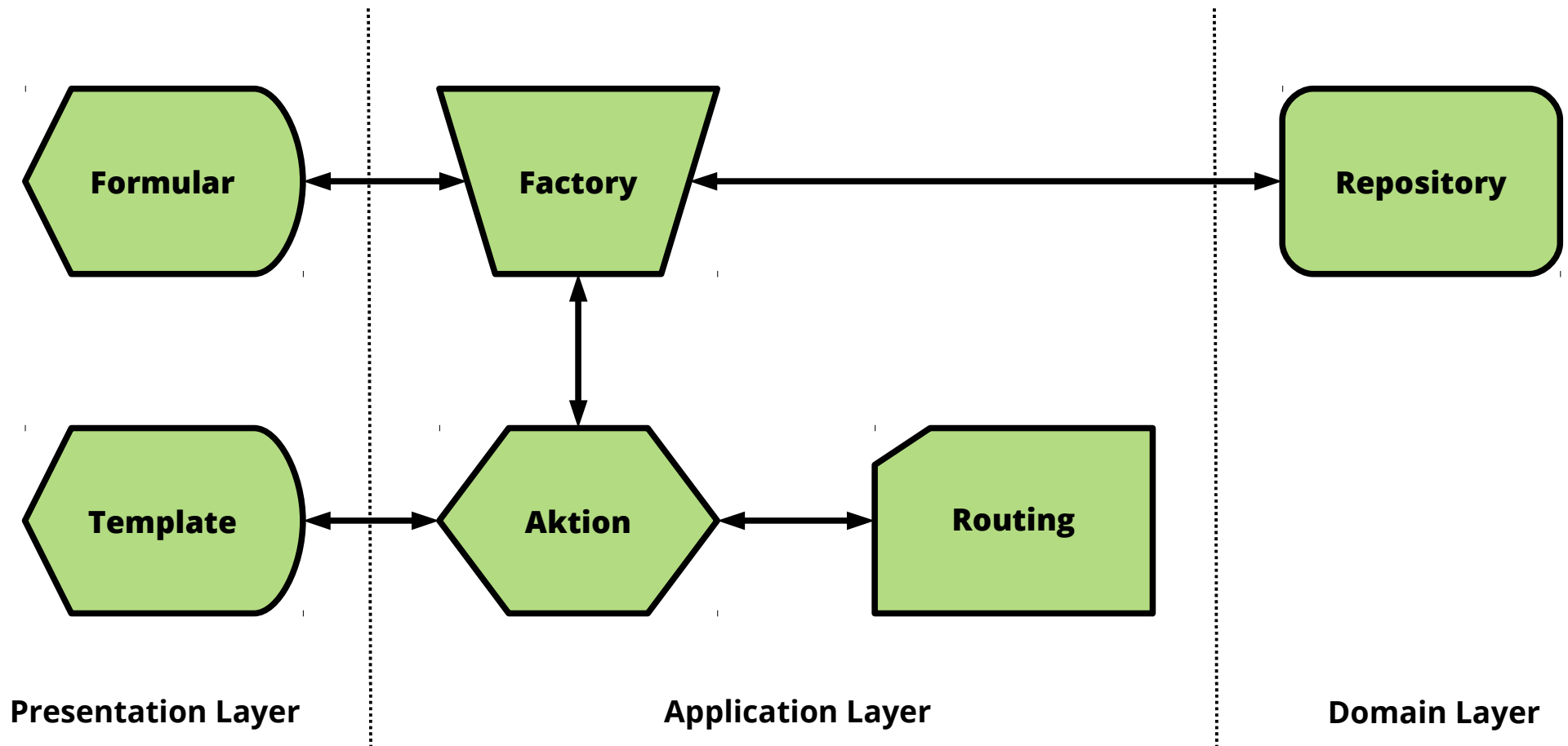


# **Teil 6**

## **Formulare und Formularverarbeitung**



# Middleware-Aktion





# Zend\Form installieren

```
ralf@ralf-HP-2017 /home/devhost/konferenzen/ipc2017-expressive (example-part6a) $ composer require zendframework/zend-form
Using version ^2.10 for zendframework/zend-form
./composer.json has been updated
Loading composer repositories with package information
Updating dependencies (including require-dev)
Package operations: 4 installs, 0 updates, 0 removals
 - Installing zendframework/zend-hydrator (2.2.2): Loading from cache

Please select which config file you wish to inject 'Zend\Hydrator\ConfigProvider' into:
[0] Do not inject
[1] config/config.php
Make your selection (default is 0):1

Remember this option for other packages of the same type? (y/N)y
Installing Zend\Hydrator\ConfigProvider from package zendframework/zend-hydrator
 - Installing zendframework/zend-filter (2.7.2): Loading from cache
Installing Zend\Filter\ConfigProvider from package zendframework/zend-filter
 - Installing zendframework/zend-inputfilter (2.7.4): Loading from cache
Installing Zend\InputFilter\ConfigProvider from package zendframework/zend-inputfilter
 - Installing zendframework/zend-form (2.10.2): Loading from cache
Installing Zend\Form\ConfigProvider from package zendframework/zend-form
zendframework/zend-hydrator suggests installing zendframework/zend-serializer (^2.6.1, to use the SerializableStrategy)
zendframework/zend-filter suggests installing zendframework/zend-crypt (Zend\Crypt component, for encryption filters)
zendframework/zend-filter suggests installing zendframework/zend-i18n (Zend\I18n component for filters depending on i18n functionality)
zendframework/zend-form suggests installing zendframework/zend-captcha (^2.7.1, required for using CAPTCHA form elements)
zendframework/zend-form suggests installing zendframework/zend-i18n (^2.6, required when using zend-form view helpers)
zendframework/zend-form suggests installing zendframework/zendservice-recaptcha (in order to use the ReCaptcha form element)
Writing lock file
Generating autoload files
```



# **Live Coding**

## **Formular implementieren**







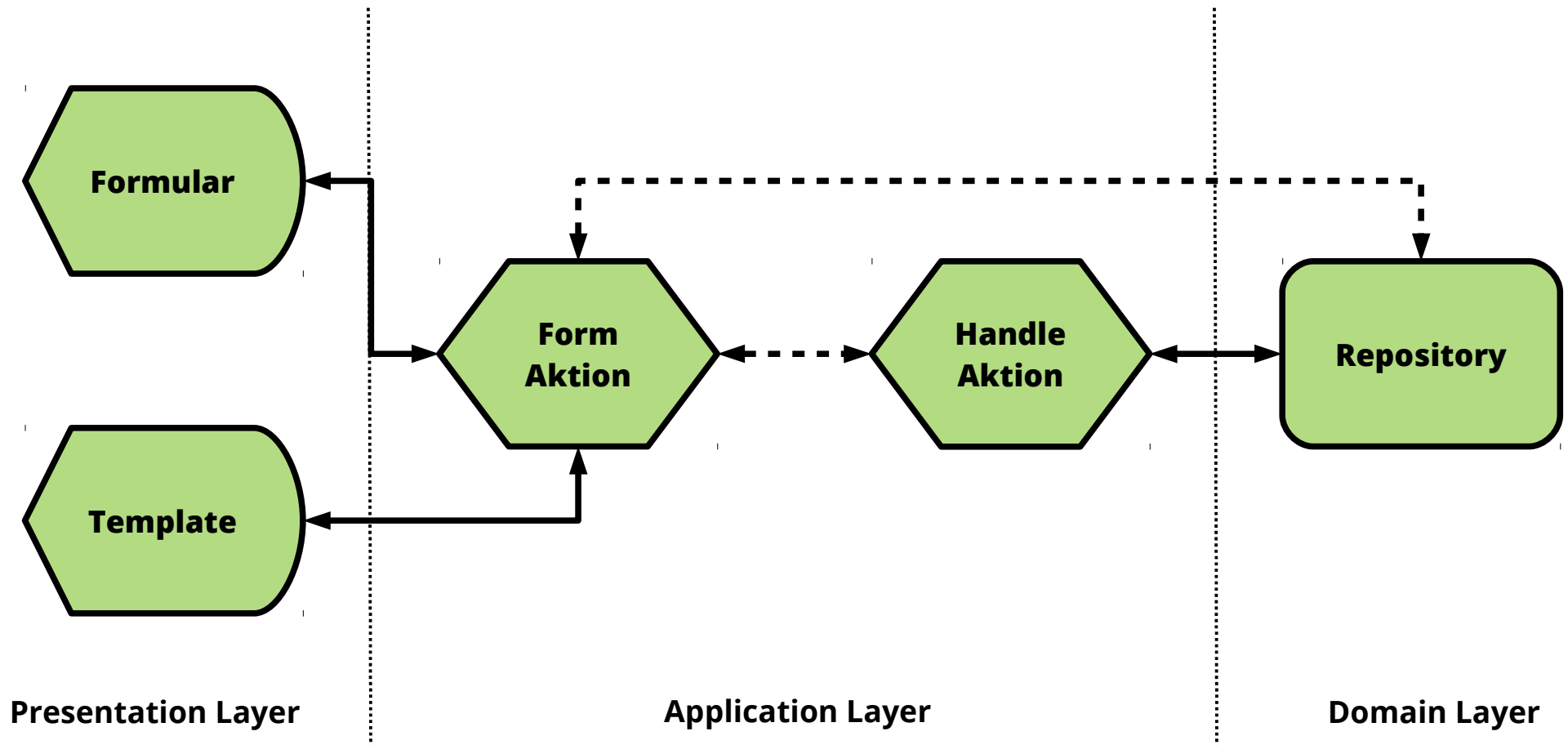
# **Diskussion**

## **Formulare**





# Formularverarbeitung





# **Live Coding**

**Formularverarbeitung implementieren**







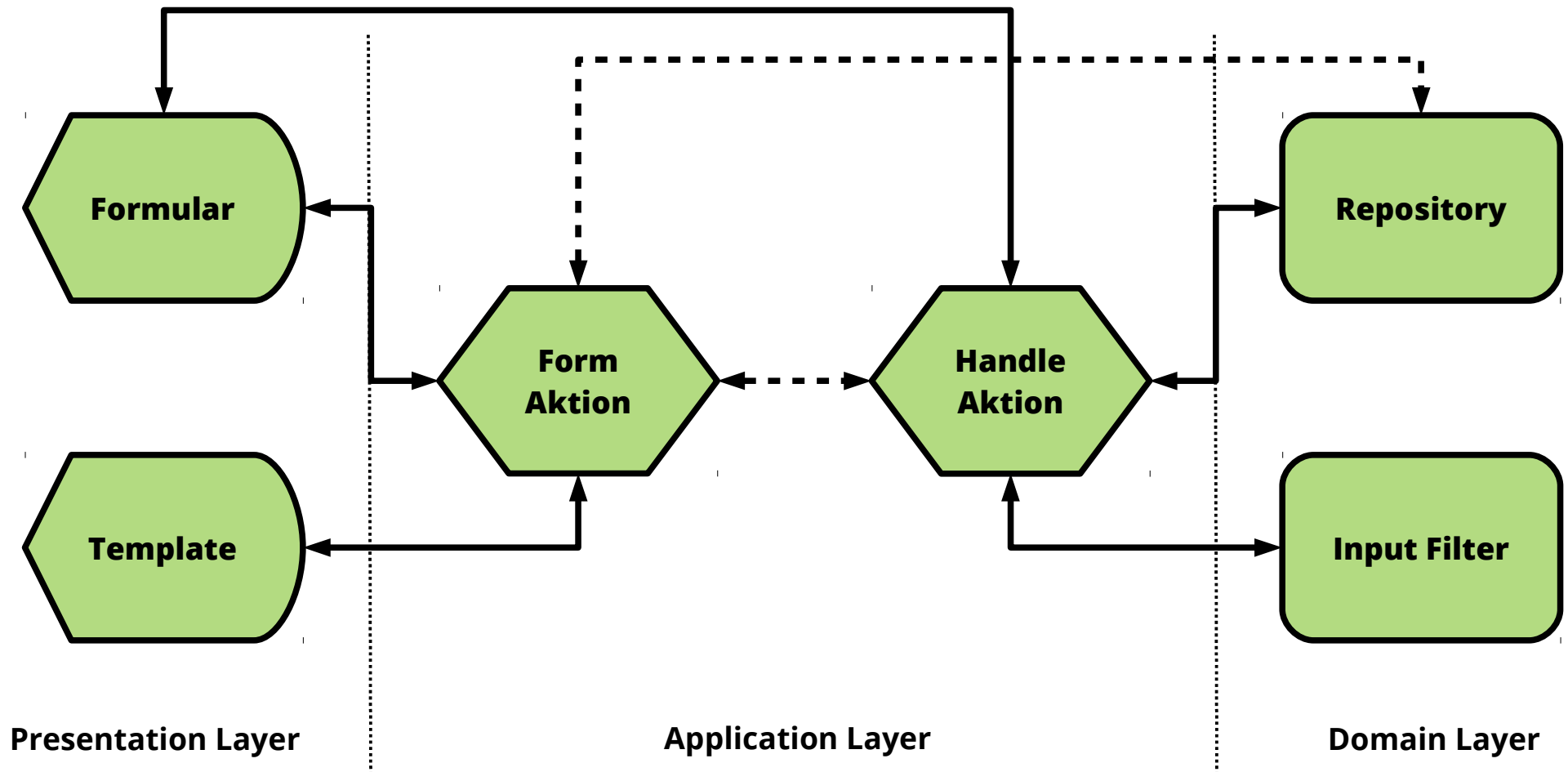
# **Diskussion**

## **Formularverarbeitung**





# Eingabevalidierung





# **Live Coding**

## **Formularvalidierung implementieren**







# **Diskussion**

## **Formularvalidierung**





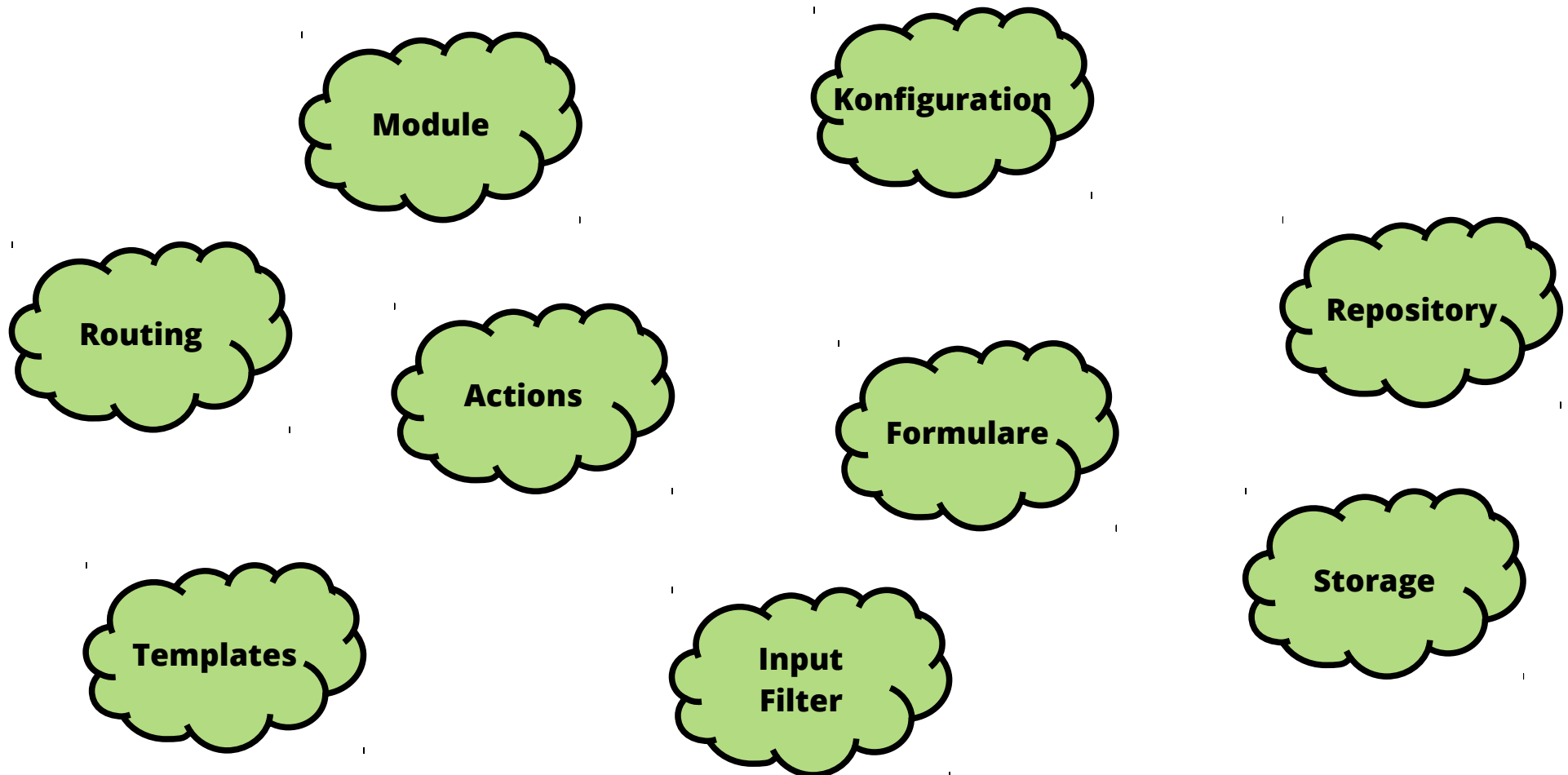


# **Teil 7**

## **Zusammenfassung**



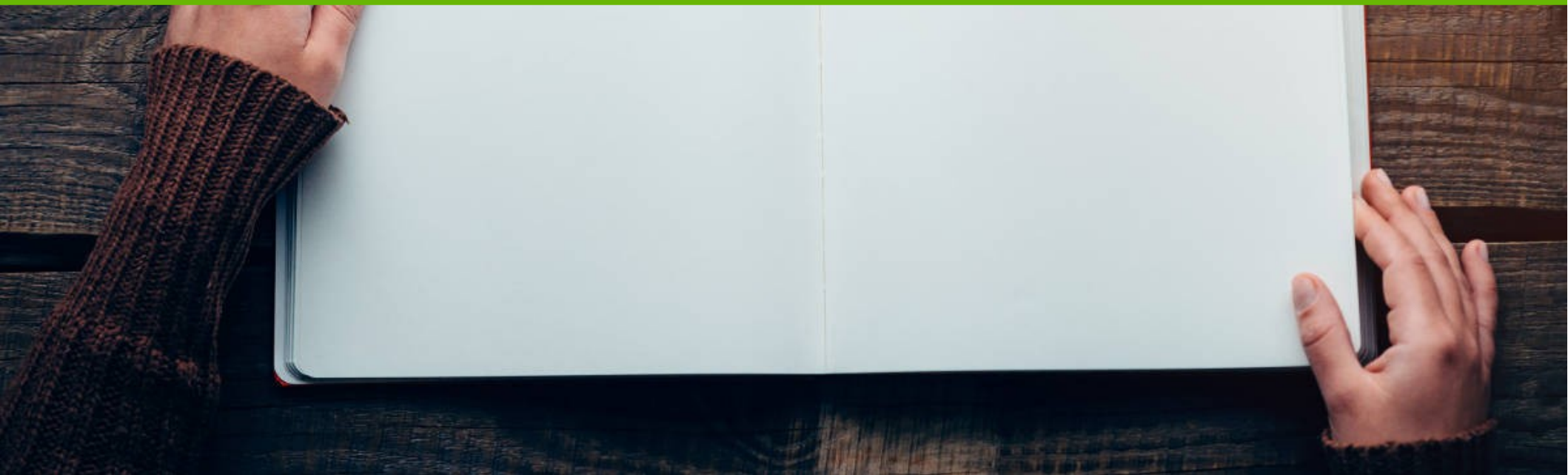
# Implementierte Bestandteile





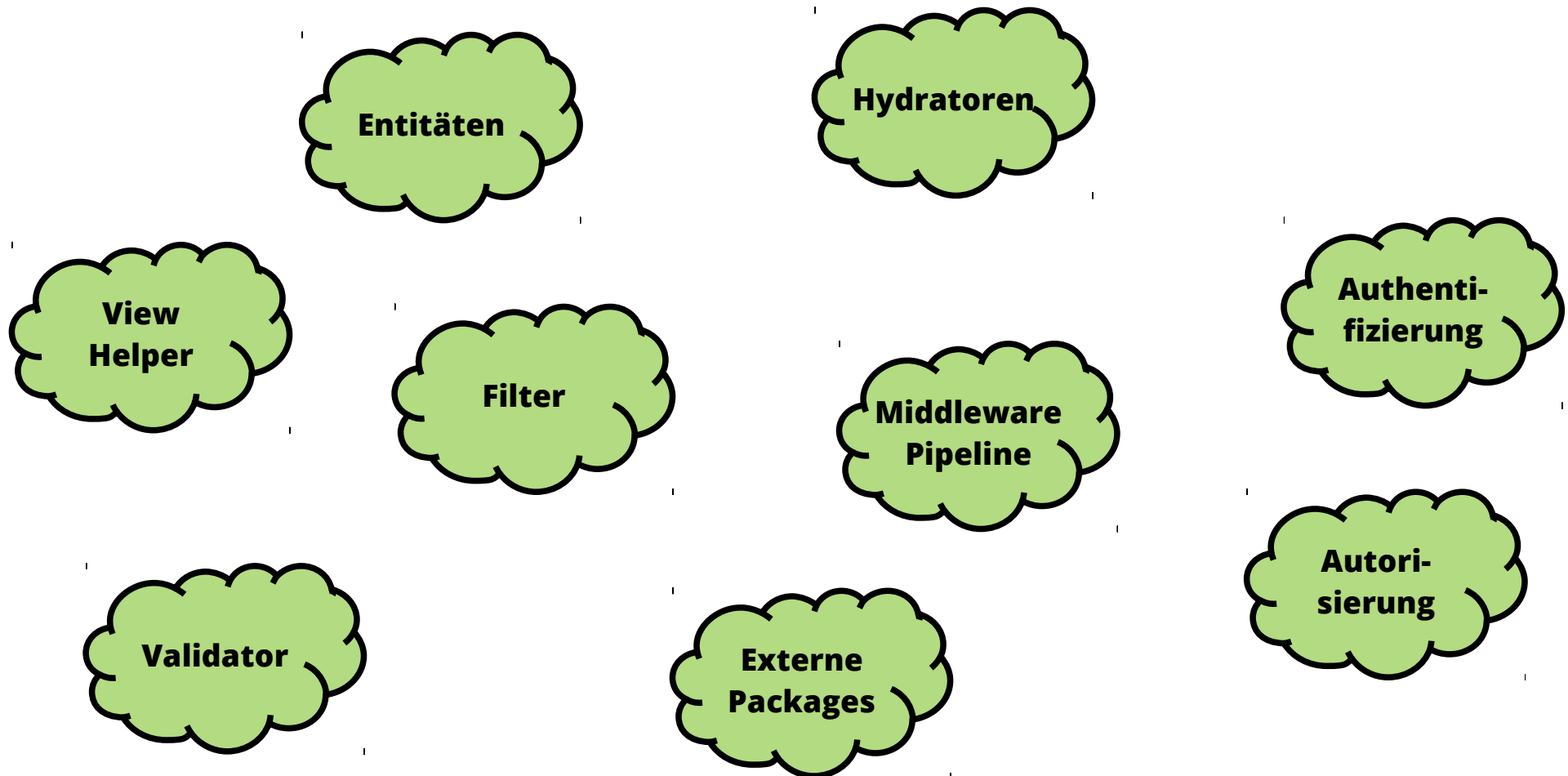
# Frage

**Welche Bestandteile einer Anwendung fehlen?**





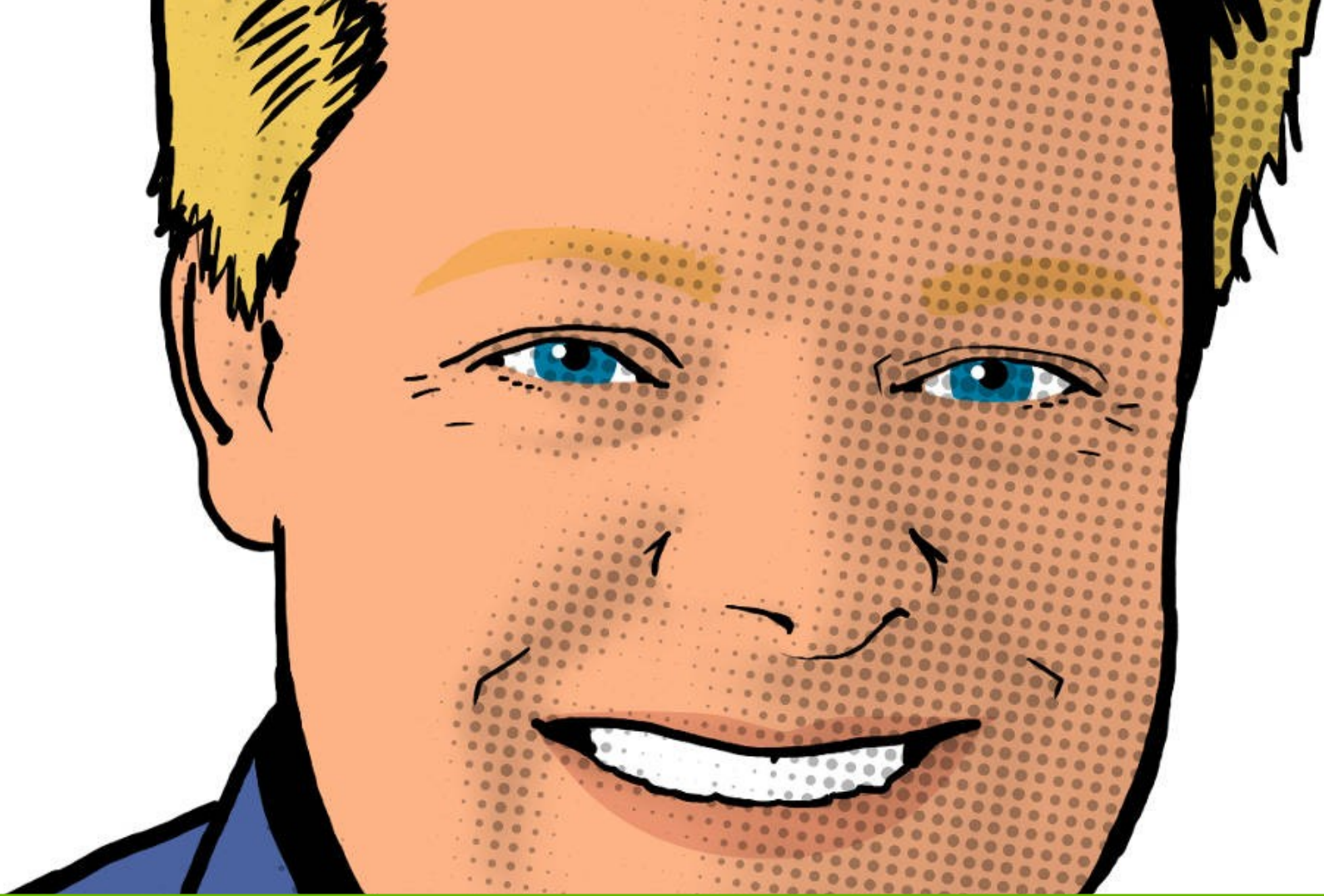
# Fehlende Bestandteile (Auswahl)



A top-down view of a wooden desk. In the upper left, a closed brown notebook is partially visible. Next to it is a black smartphone. To the right is a white cup with an orange handle, filled with a brown liquid. In the center, an open notebook with blank white pages lies flat. The desk's wood grain is prominent.

# **Diskussion**

**Abschlussdiskussion und weitere Fragen**



**Danke!**

**Fragen an [ralf@travello.de](mailto:ralf@travello.de)**