

BLOG

26. November 2019
Köln / JVM-Con

Einführung in Web- Components

INNOQ

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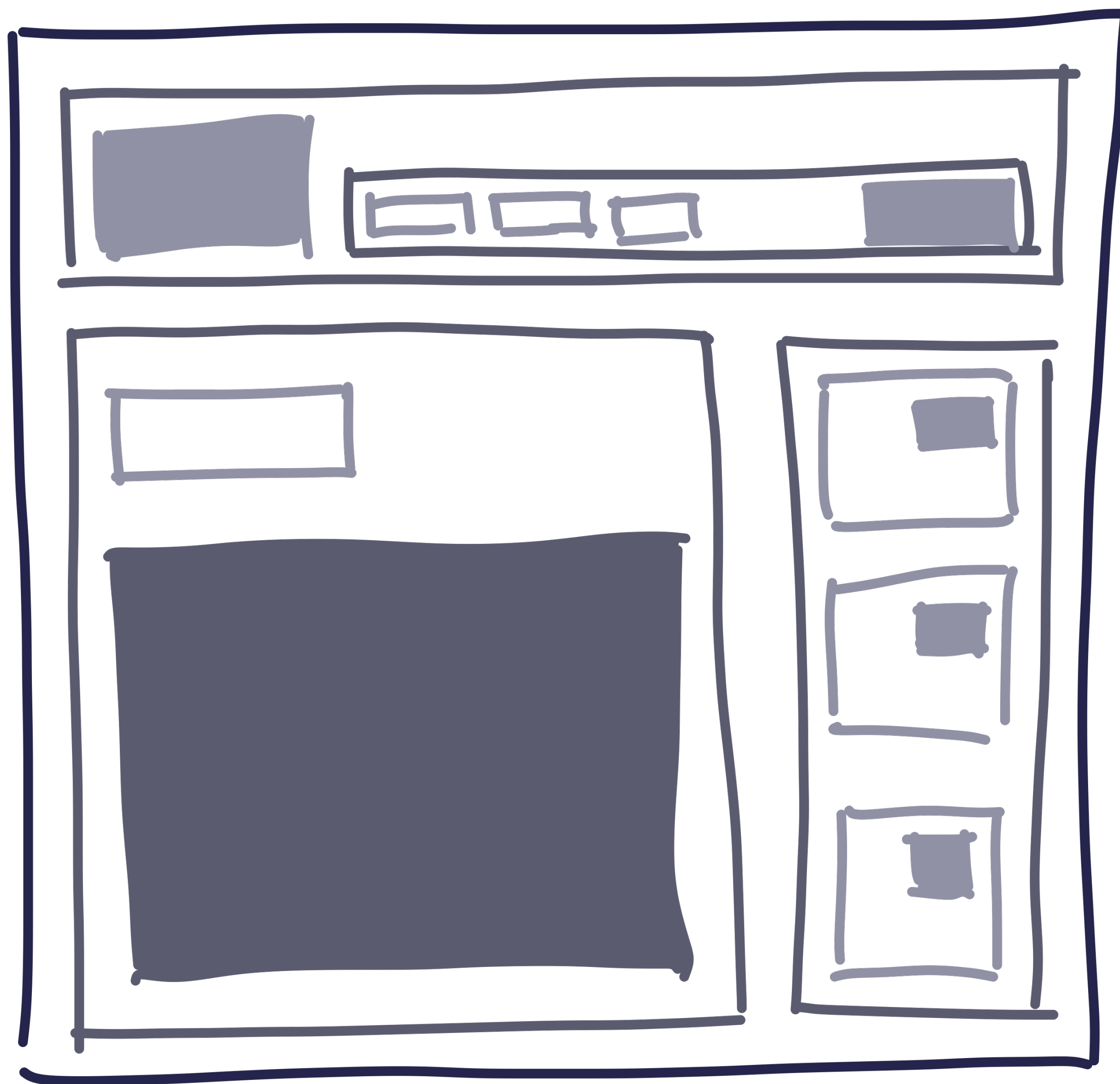
bei INNOQ Deutschland GmbH

@michaelvitz



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Komponenten im Web

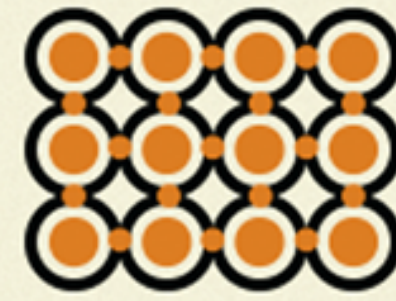




ATOMS



MOLECULES



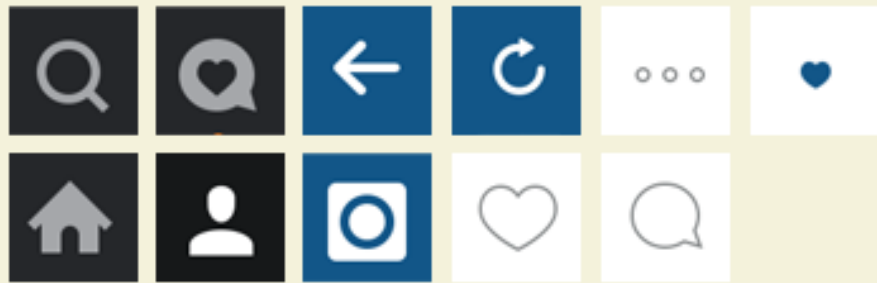
ORGANISMS



TEMPLATES



PAGES



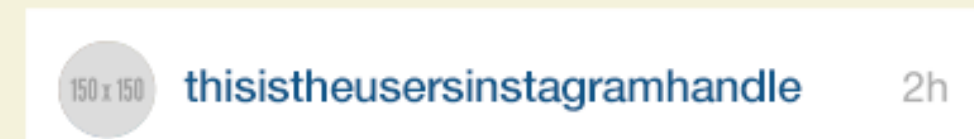
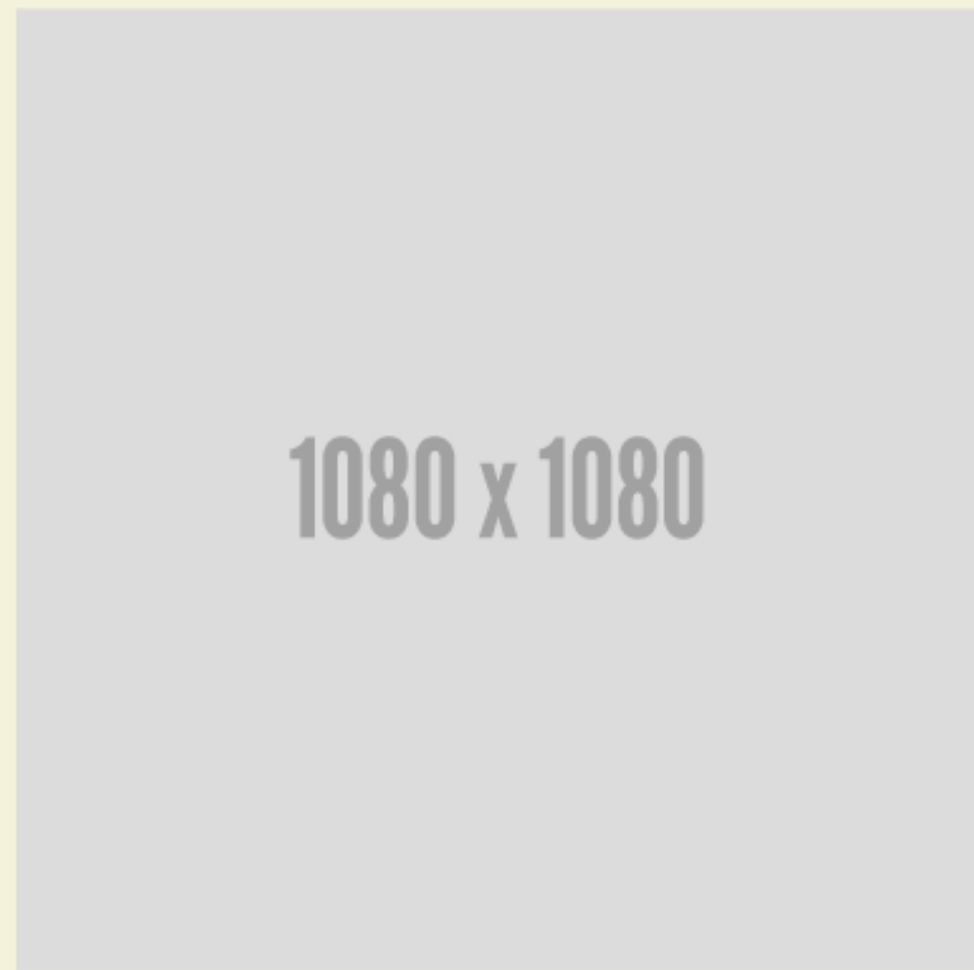
PHOTO

XXXXXX likes

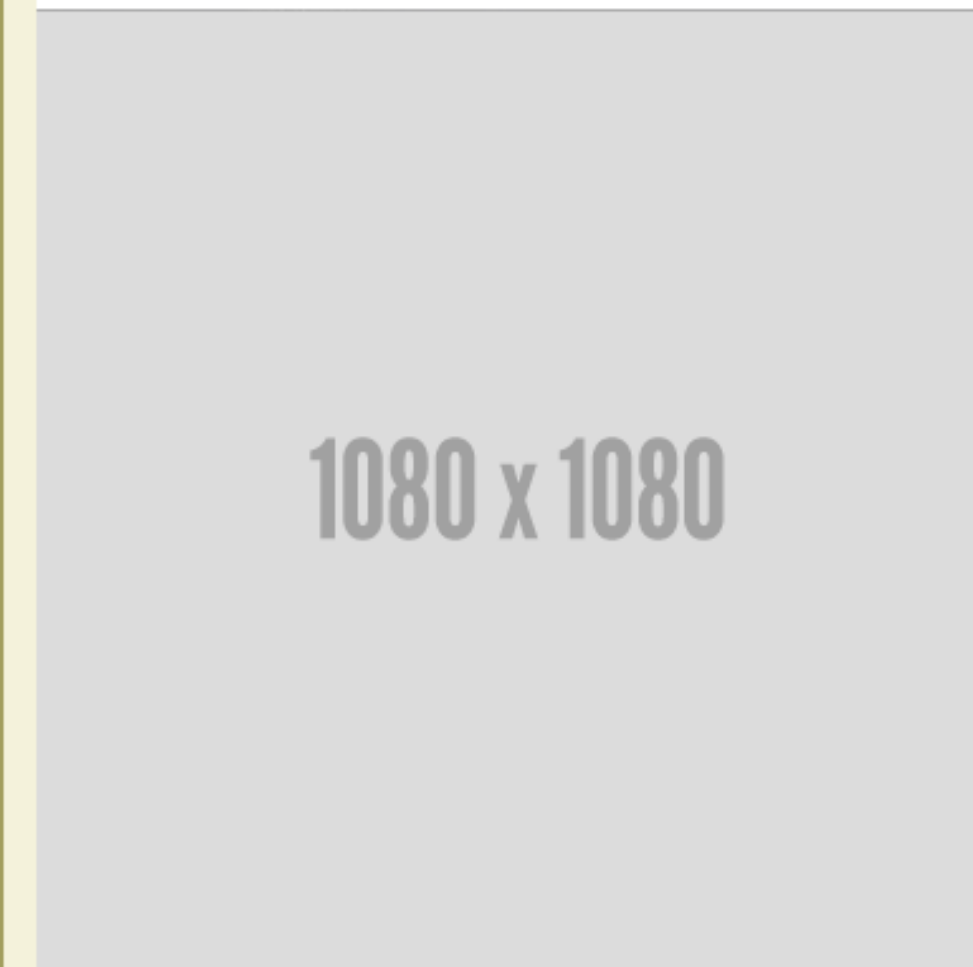
thisistheusersinstagramhandle

2h

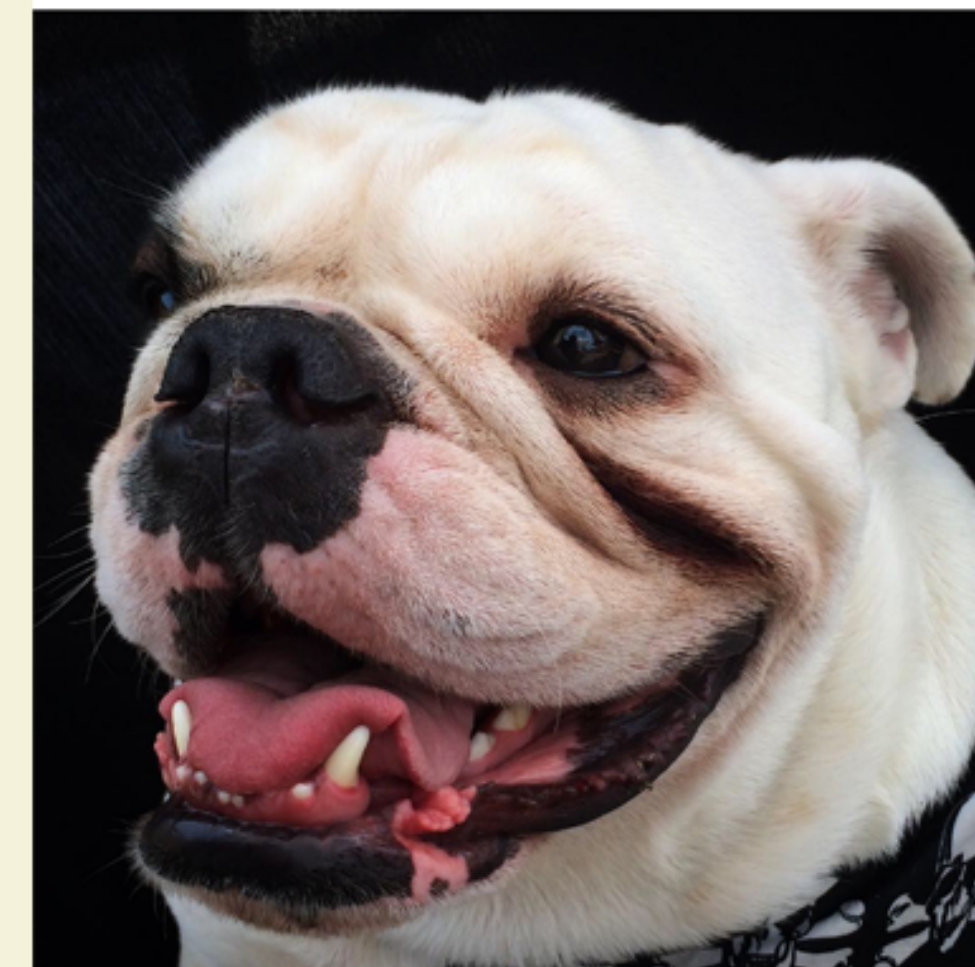
Lorem ipsum dolor sit amet, consectetur
adipisici



♥ XXXXXX likes
thisistheusersinstagramhandle Lorem
ipsum dolor sit amet, consectetur adipisici



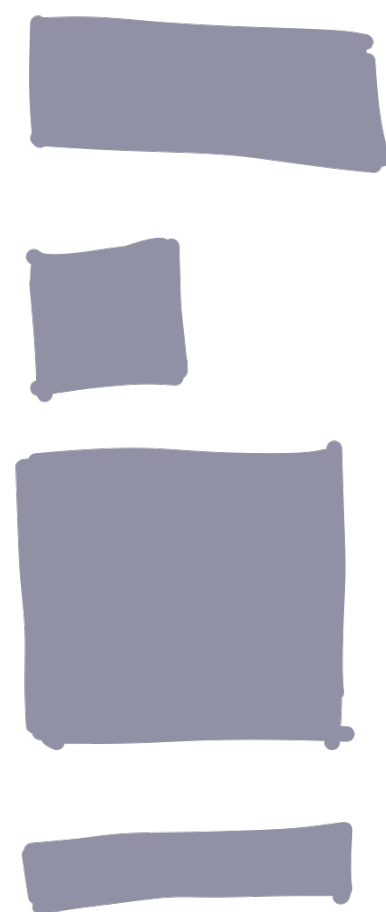
♥ XXXXXX likes
thisistheusersinstagramhandle Lorem
ipsum dolor sit amet, consectetur adipisici



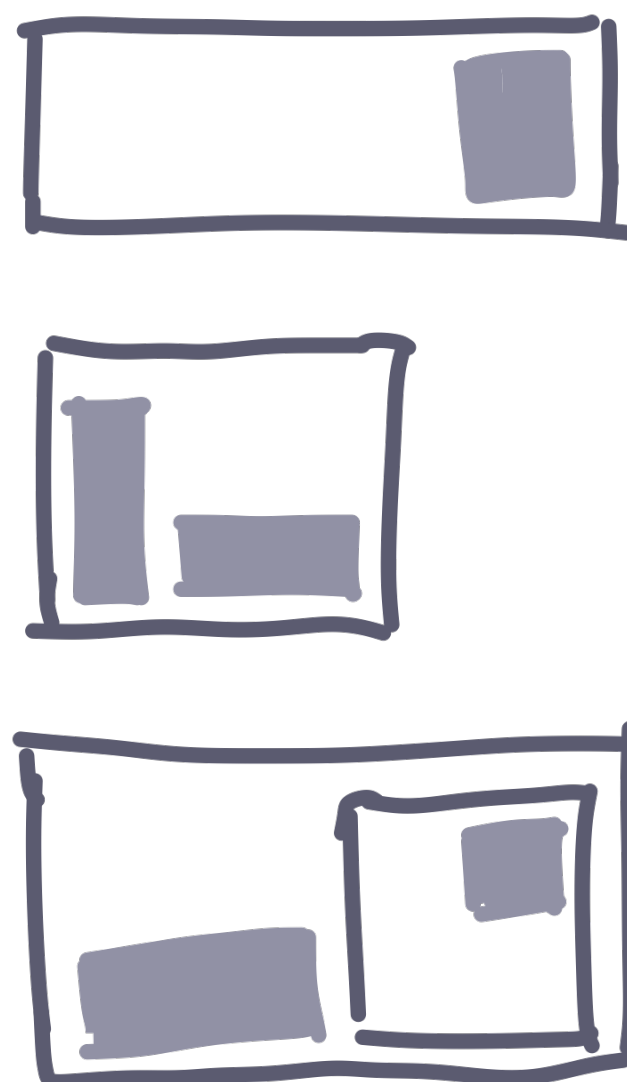
♥ 41 likes
brad_frost Hi!

<http://atomicdesign.bradfrost.com>

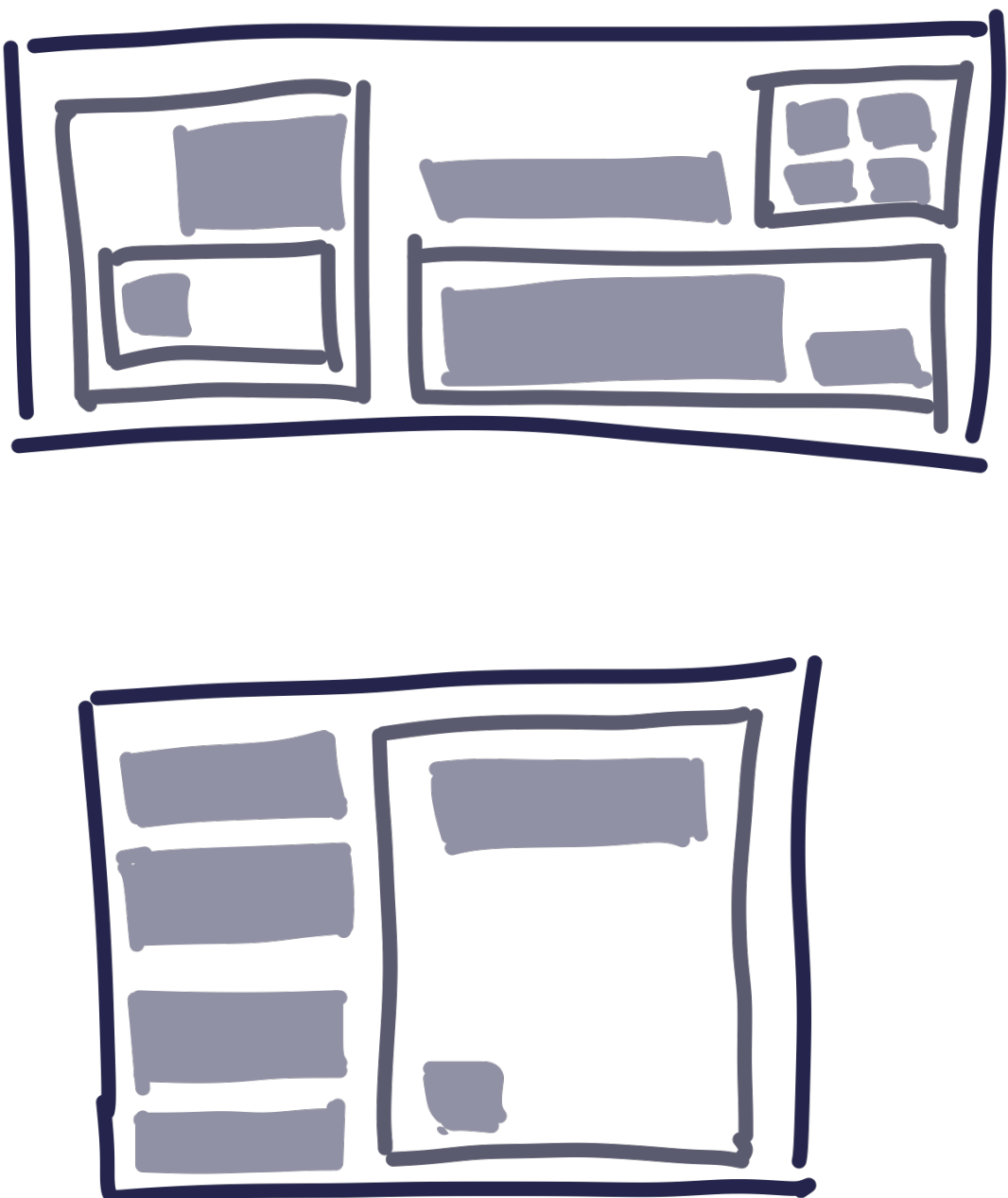
Atomic Design



ATOMS



MOLECULES



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Living Styleguide

COMPONENTS

▼ Atoms

▼ Input Elements

▼ Alert

Default

Error

Warn

Button

Button Group

Checkbox

Fieldset

Form Control

Form Group

Form Label

Form Text

Legend

Radio

Media

Text

Togglers

Toggle

Alert: Error

READY

Das hat nicht geklappt! Bitte füllen Sie alle Felder aus.

HTML

View

Context

Assets

Info

Notes

<div class="alert alert--error">

<div class="alert-text">

Das hat nicht geklappt! Bitte füllen Sie alle Felder aus.

</div>

<button class="alert-btn" type="button">

<i class="icon icon-close"></i>Schließen

</button>

</div>

Bestandteile

möglicherweise

JavaScript

Optimiere die UX

vermutlich

CSS

Optimiere das Aussehen

HTML

Mach es Funktional

BLOG

Web-Components

Web-Components

- Erlauben das Definieren von eigenen HTML Elementen
- Set von Web APIs
 - Custom Elements
 - Shadow DOM
 - HTML Template
 - ES Modules (wird im Vortrag nicht behandelt)

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Custom Elements

Autonomous Custom Element

```
<my-alert type="warn">  
  <h4>Achtung</h4>  
  <p>Etwas schlimmes ist passiert!</p>  
</my-alert>
```

```
class MyAlert extends HTMLElement {  
  ...  
}
```

```
customElements.define('my-alert', MyAlert);
```

Kennen wir das nicht woher?

<h:form>

<p:dataTable var="car" value="#{dtFilterView.cars}" widgetVar="carsTable"

emptyMessage="No cars found with given criteria" filteredValue="#{dtFilterView.filteredCars}">

<f:facet name="header">

<p:outputPanel>

<h:outputText v

<p:inputText id

</p:outputPanel>

</f:facet>

<p:column filterBy="#{c

<h:outputText value

</p:column>

<p:column filterBy="#{c

<f:facet name="filt

<p:spinner onch

<f:convert

</p:spinner>

</f:facet>

<h:outputText value

</p:column>

<p:column filterBy="#{c

<f:facet name="filt

<p:selectOneMer

<f:selectIt

Search all fields: Enter keyword

Id	Year	Brand	Color	Status	Price
bc640ccf	1983	Mercedes	Maroon	Sale	\$47,392.00
a80cc3fc	1982	Renault	Black	Sale	\$82,466.00
cb7b1158	1988	Ford	Silver	Sale	\$84,917.00
2e1430f7	1998	Jaguar	Black	Sale	\$26,705.00
567c43a8	1985	Honda	Green	Sold	\$48,415.00
474c38ab	1968	Volkswagen	Yellow	Sold	\$29,852.00
69f6d733	1987	Mercedes	Yellow	Sale	\$93,369.00
68372ad8	1988	Volkswagen	Blue	Sold	\$83,726.00
7111c25f	2008	Renault	Black	Sold	\$75,656.00
1fb4d27b	1976	Ford	Brown	Sale	\$97,720.00
contains	lte	exact	in	equals	custom (min)

Customized Built-In Element

```
<a href="/somewhere" is="embeddable-content">  
    Some Link  
</a>
```

```
class EmbeddableContent  
    extends HTMLElement {  
    ...  
}
```

```
customElements.define('embeddable-content',  
    EmbeddableContent, {extends: 'a'});
```

Custom Element API

- `constructor()`
// instance is created
- `connectedCallback()`
// instance is inserted into DOM
- `disconnectedCallback()`
// instance is removed from DOM
- `attributeChangedCallback(attrName, oldVal, newVal)`
// one of observed attributes changed -> static `get observedAttributes()`
- `adoptedCallback()`
// instance is adopted via `document.adoptNode(el)`

Can I use custom elements ? Settings

4 results found

Custom Elements (V1) - LS

Usage % of all users  ?
Global 73.69% + 15.24% = 88.93%

Method of defining new HTML tags.

Current aligned Usage relative Date relative Apply filters Show all ?

IE	Edge*	Firefox	Chrome	Safari	Opera	iOS Safari*	Opera Mini*	Android Browser*	Opera Mobile*	Chrome for Android	Firefox for Android	UC Browser for Android	Samsung Internet	QQ Browser	Baid Browser
		2-49													
		^{2 1} 50-58	4-53										4		
		^{3 1} 59-62	¹ 54-66	3.1-10	10-40	3.2-10.2							¹ 5.4		
6-10	12-17	63-68	67-76	¹ 10.1-12.1	¹ 41-60	¹ 10.3-12.3		2.1-4.4.4	12-12.1				6.2-8.2		
11	18	69	77	¹ 13	¹ 62	¹ 13	all	76	¹ 46	76	68	12.12	9.2	1.2	¹ 7.1
	76	70-71	78-80	¹ 13.1-TP		¹ 13.1									

- Notes
- Known issues (0)
- Resources (11)
- Feedback

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Shadow DOM

Shadow DOM

- Ermöglicht stärkere Kapselung der Komponente

```
this.attachShadow({mode: 'open'});
```

oder

```
this.attachShadow({mode: 'closed'});
```

Shadow DOM (V1) - WD

Usage

% of all users ?

Global

76.09% + 13.16% = 89.25%

Method of establishing and maintaining functional boundaries between DOM trees and how these trees interact with each other within a document, thus enabling better functional encapsulation within the DOM & CSS.

Current aligned		Usage relative		Date relative		Apply filters		Show all		?					
IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Opera Mobile *	Chrome for Android	Firefox for Android	UC Browser for Android	Samsung Internet	QQ Browser	Baid Brow:
		2-57													
		² 58											4		
		³ 59-62	4-52	3.1-9.1	10-39	3.2-9.3							5.4		
6-10	12-17	63-68	53-76	¹ 10-12.1	40-60	¹ 10-12.3		2.1-4.4.4	12-12.1				6.2-8.2		
11	18	69	77	¹ 13	62	¹ 13	all	76	46	76	68	12.12	9.2	1.2	7.1
	76	70-71	78-80	¹ 13.1-TP		¹ 13.1									

Notes

Known issues (0)

Resources (8)

Feedback

MS Edge status: **In Development**

¹ Certain CSS selectors do not work (`:host > .local-child`) and styling slotted content (`::slotted`) is buggy.

² Enabled through the `dom.webcomponents.enabled` preference in `about:config`.

³ Enabled through the `dom.webcomponents.shadowdom.enabled` preference in `about:config`.

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HTML Template

HTML Template

- Ermöglicht User ein Template anzugeben das von der Komponente verwendet wird

```
<template id="alert">  
  <slot name="title"><h1>Achtung</h1></slot>  
  <slot name="text"><p>Es passiert!</p></slot>  
  <p>Ihnen wird nichts passieren.</p>  
</template>
```

HTML templates - LS

Usage

% of all users  ?

Global

94.2% + 0.24% = 94.44%

Method of declaring a portion of reusable markup that is parsed but not rendered until cloned.

Current aligned	Usage relative	Date relative	Apply filters	Show all	?										
IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Opera Mobile *	Chrome for Android	Firefox for Android	UC Browser for Android	Samsung Internet	QQ Browser	Baid Brow
				3.1-6											
				³ 6.1											
	12		4-25	7	10-12.1	3.2-7.1									
	^{1 2} 13-14	2-21	¹ 26-34	^{1 2} 7.1-8	¹ 15-21	^{1 2} 8-8.4		2.1-4.3							
6-10	15-17	22-68	35-76	9-12.1	22-60	9-12.3		4.4-4.4.4	12-12.1				4-8.2		
11	18	69	77	13	62	13	all	76	46	76	68	12.12	9.2	1.2	7.1
	76	70-71	78-80	13.1-TP		13.1									

Notes

Known issues (0)

Resources (8)

Feedback

¹ Does not support Document.importNode on templates, nested templates or elements that contain templates.

² Does not support Node.cloneNode on templates, nested templates or elements that contain templates.

³ Safari 6.2 has the same partial support as Safari 7.1.

Danke! Fragen?



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<https://www.innoq.com/de/talks/2019/11/jvm-con-2019-web-components>

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