

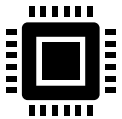
## Cookbook for LED-Walls

Katharina Michel (2208715) und Matthias Held (2182712)



### Never underestimate the impact of environmental factors.<sup>1</sup>

- The importance of environmental factors is based on the brightness and the color temperature of the daylight.



### Anticipate and plan for regulatory compliance issues<sup>2</sup>

- Over time LED panels can get different color shifts and can be broken.

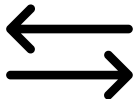


### Never underestimate the importance of content.<sup>3</sup>

- Without content even the greatest calibrated LED Wall is still boring.



### Set aside adequate resources for content creation.<sup>4</sup>



### Ensure that users don't experience partial or inconsistent changes in system state.<sup>5</sup>



### Most interactions want to be explored alone<sup>6</sup>

- User might interact with the LED Wall differently depending on if friends or strangers are around them

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<sup>1</sup> Transitioning from a Research Deployment to a Service (Sarah Clinch, Mateusz Mikusz and Adrian Friday)

<sup>2</sup> Transitioning from a Research Deployment to a Service (Sarah Clinch, Mateusz Mikusz and Adrian Friday)

<sup>3</sup> Transitioning from a Research Deployment to a Service (Sarah Clinch, Mateusz Mikusz and Adrian Friday)

<sup>4</sup> Transitioning from a Research Deployment to a Service (Sarah Clinch, Mateusz Mikusz and Adrian Friday)

<sup>5</sup> Transitioning from a Research Deployment to a Service (Sarah Clinch, Mateusz Mikusz and Adrian Friday)

<sup>6</sup> They are looking at me! Understanding how audience presence impacts on public display users (Vito Gentile, Mohammed Khamis, Salvatore Source, Florian Alt)

# COOKBOOK

## Content on the HAW Hamburg LED-Screen



### **Low-threshold form**

Content that is easy to understand invites people to participate

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### **Relevance of content**

Content that is relevant for the recipients draws more attention and encourages people to deal with something

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### **Controversial issues**

Controversial issues encourage recipients to interact with the content

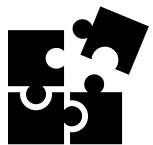
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### **Gamification**

Improvement of user engagement through gamification

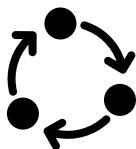
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### **Contextualization**

Content has to fit in overall atmosphere to create a holistic experience

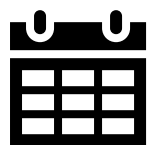
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### **Automation entails risks**

Automation increases the probability of errors and opens up possibilities for manipulation

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### **Curation and broadcasting schedule**

The content needs a framework to create a fluent and logical order

# Cookbook for HAW LED-wall

Simon Stielow (2259844) and Laura Saupe (2219616)



## **ENVIRONMENTAL FACTORS AS AN IMPORTANT PART OF USABILITY (1)**

- The importance of environmental factors is based on the brightness and the color temperature of the daylight
- Sun exposure in particular can limit interactivity with a display



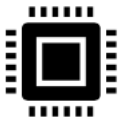
## **SET ASIDE ADEQUATE RESOURCES FOR CONTENT CREATION. (2) SHOW IMPORTANT CONTENT!**

- boring and low quality content won't animate people to watch
- without content even the greatest calibrated LED Wall is still boring



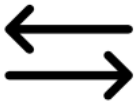
## **MOST INTERACTIONS WANT TO BE EXPLORED ALONE (3)**

- User might interact with the LED Wall differently depending on if friends or strangers are around them.



## **ANTICIPATE AND PLAN FOR REGULATORY COMPLIANCE ISSUES (4)**

- Over time LED panels can get different color shifts and can be broken.



## **ENSURE THAT USERS DON'T EXPERIENCE PARTIAL OR INCONSISTENT (5) CHANGES IN SYSTEM STATE**



## **NOBODY WANTS TO SEE A BLUE SCREEN! (6)**

- never ever display software notification
- instead of blue screen or broken content, think about an alternativ

1. Design Strategies for Overcoming Failures in Public Interactive Displays by Callum Parker, Marius Hoggenmueller, Martin Tomitsch
2. Research Deployment to a Service by Sarah Clinch, Mateusz Mikusz and Adrian Friday
3. hey are looking at me! Understanding how audience presence impacts on public display users by Vito Gentile, Mohammed Khamis, Salvatore Source, Florian Alt
4. Research Deployment to a Service by Sarah Clinch, Mateusz Mikusz and Adrian Friday
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# COOKBOOK

## Content on the HAW Hamburg LED-Screen



### **Visibility**

Content has to draw attention from every viewpoint, even if parts of the screen are covered.



### **Fast Interaction**

Users should be motivated to interact with the screen within 15 seconds [1].



### **Usability and reliability**

Interaction has to work easy and reliably to prevent frustration of participants [1].



### **Brightness and contrast**

Large bright colored areas may be discomfoting to look at. Try incorporating dark backgrounds. Use high contrast to increase readability from angled views and attract attention [2].



### **Implementation**

An easy to use CMS is needed to make the screen accessible and free of heavy workload. Simple animations can be scripted.

[1] A'aeshah Alhakamy, Francesco Cafaro and Milka Trajkova. 2019. Designing Embodied Interactions for Informal Learning: Two Open Research Challenges.

[2] Sabine Bank, Guusje Hallema, Mettina Veenstra. 2016. The impact of rhetorical devices in text on public displays. ACM. DOI: <http://dx.doi.org/10.1145/2914920.2915019>

Icons from the Noun Project under CC. „Visibility“ and „Satisfaction“ by Adrien Coquet, „Stopwatch“ by Phạm Thanh Lộc, „Brightness“ by Gregor Cresnar, „Data management“ by priyanka

# Cookbook für LED-Displays

Daniel Kreth (2548768)



## Neuheitseffekt<sup>1</sup>

- Neue Displays haben Neuheitseffekt
- lässt nach einer Weile nach
- danach setzt Display-Blindheit ein



## Display-Blindheit<sup>2</sup>

- Displays werden oft übersehen oder ignoriert
- Menschen vermuten irrelevante kommerzielle Werbung
- Um Informationsüberlastung zu vermeiden



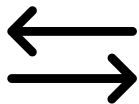
## Interaktions-Blindheit<sup>3</sup>

- Auch „Problem des ersten Klicks“
- Nachdem Aufmerksamkeit des Benutzers erregt wurde
- Unfähigkeit des Benutzers, interaktive Inhalte zu erkennen



## Benutzerschatten in Form von Skelett, verstärkt Erstbeobachtung<sup>4</sup>

- Spiele fördern eine längerfristige Interaktion
- Die Kombination beider Methoden bringt höchsten Gesamtnutzen



## Animation versus Video<sup>5</sup>

- Animation zieht mehr Benutzer Interaktionen an
- Animation verringert Interaktions-Blindheit besser als Video
- Video ist verständlicher als Animation

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<sup>1</sup> Fostering Large Display Engagement Through Playful Interactions (Jane Henderson, Shaishav Siddhpuria, Keiko Katsuragawa and Edward Lank)

<sup>2</sup> Fostering Large Display Engagement Through Playful Interactions (Jane Henderson, Shaishav Siddhpuria, Keiko Katsuragawa and Edward Lank)

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<sup>4</sup> Fostering Large Display Engagement Through Playful Interactions (Jane Henderson, Shaishav Siddhpuria, Keiko Katsuragawa and Edward Lank)

<sup>5</sup> Comparing Two Methods to Overcome Interaction Blindness on Public Displays (Guiying Du, Lukas Lohoff, Jakub Krükar, Sergey Mukhametov)