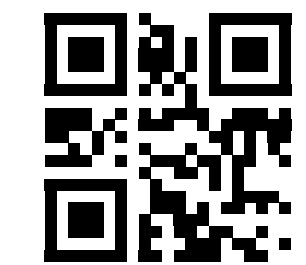
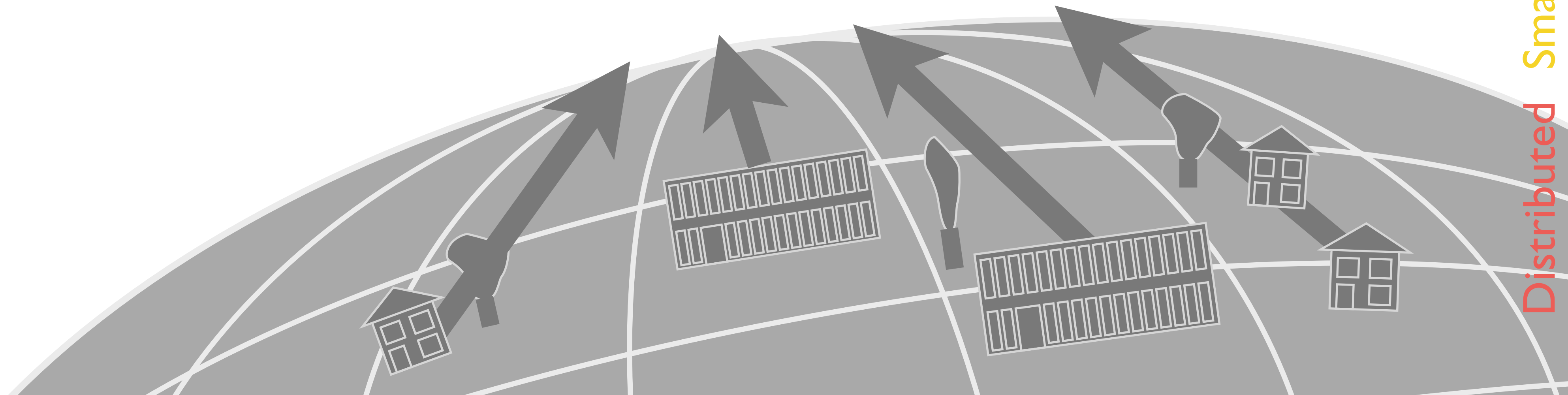


Smart Space Orchestration

The Internet of Things
Cyber-Physical Systems
Pervasive Computing

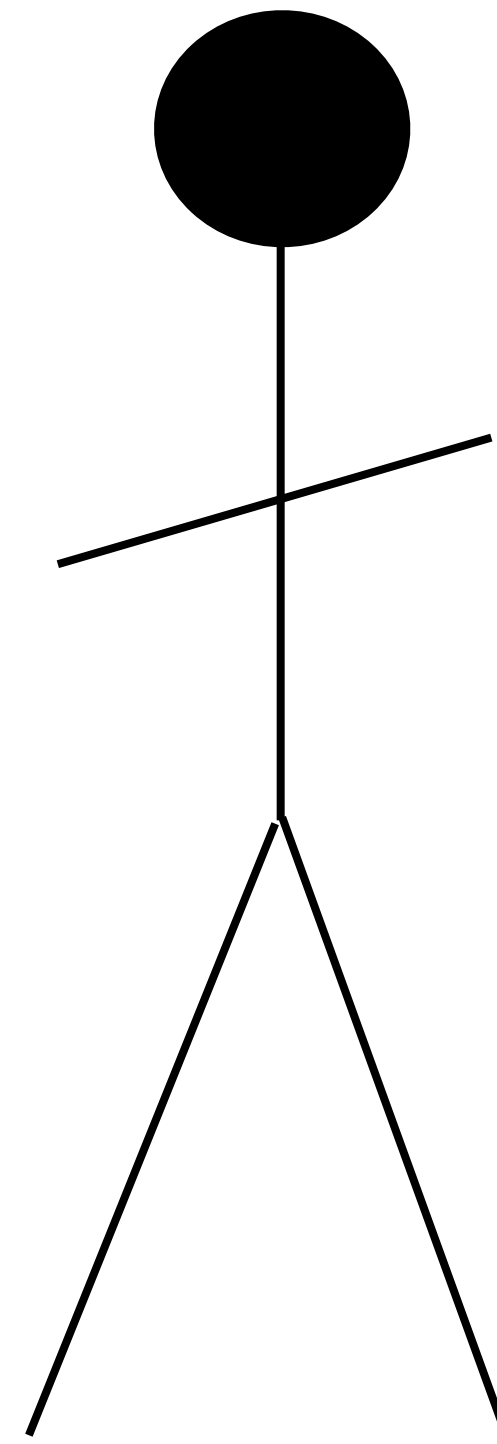
Marc-Oliver Pahl



ds2os.org/

Overview

- Part I: Flavours of Computing
- Part II: Terminology
- Part III: The BIG picture



Part I

Flavours of Computing

Computing

VR



<http://www.forbes.com/sites/danielnyegriffiths/2014/05/01/virtual-legality-legal-letters-claim-oculus-vr-made-the-oculus-rift-using-zenimax-ip/>



<http://www.digitaltrends.com/cool-tech/oculus-rift-my-o-gesture-control-armband-pure-awesomeness/#!O5sPv>

AR



<http://glass-apps.org/google-glass>



<http://masspictures.net/google-glass/>



<http://guardianlv.com/2014/01/google-glass-the-definition-of-live/>

PerCom



Flickr | Plage Vinilos y Adhesivos | <https://www.flickr.com/photos/plagevinilosyadhesivosdecorativos/5429084250/>



Flickr | O Palsson | <https://www.flickr.com/photos/opalsson/4387563218/>



<http://www.forbes.com/sites/danielnyegriffiths/2014/05/01/virtual-legality-legal-letters-claim-oculus-vr-made-the-oculus-rift-using-zenimax-ip/>



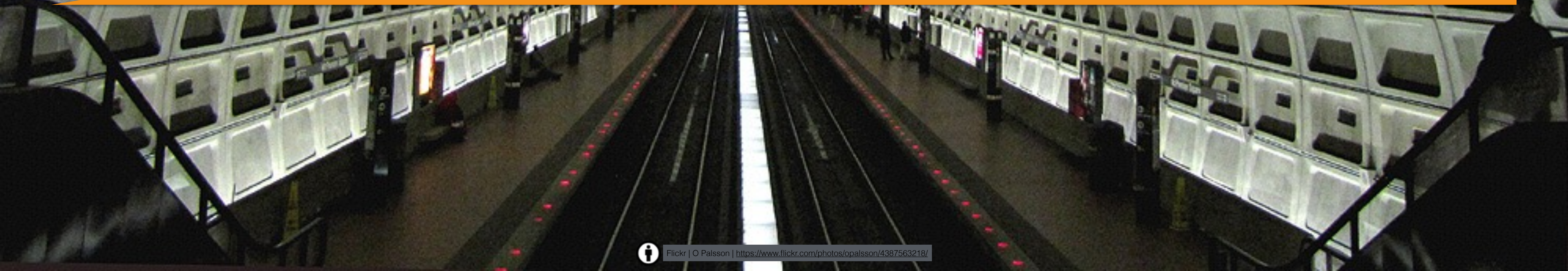
<http://guardianlv.com/2014/01/google-glass-the-definition-of-live/>



 Flickr | Plage Vinilos y Adhesivos | <https://www.flickr.com/photos/plagevinilosyadhesivosdecorativos/5429084250/>


Technology **Awareness**

Technology **Immersiveness**

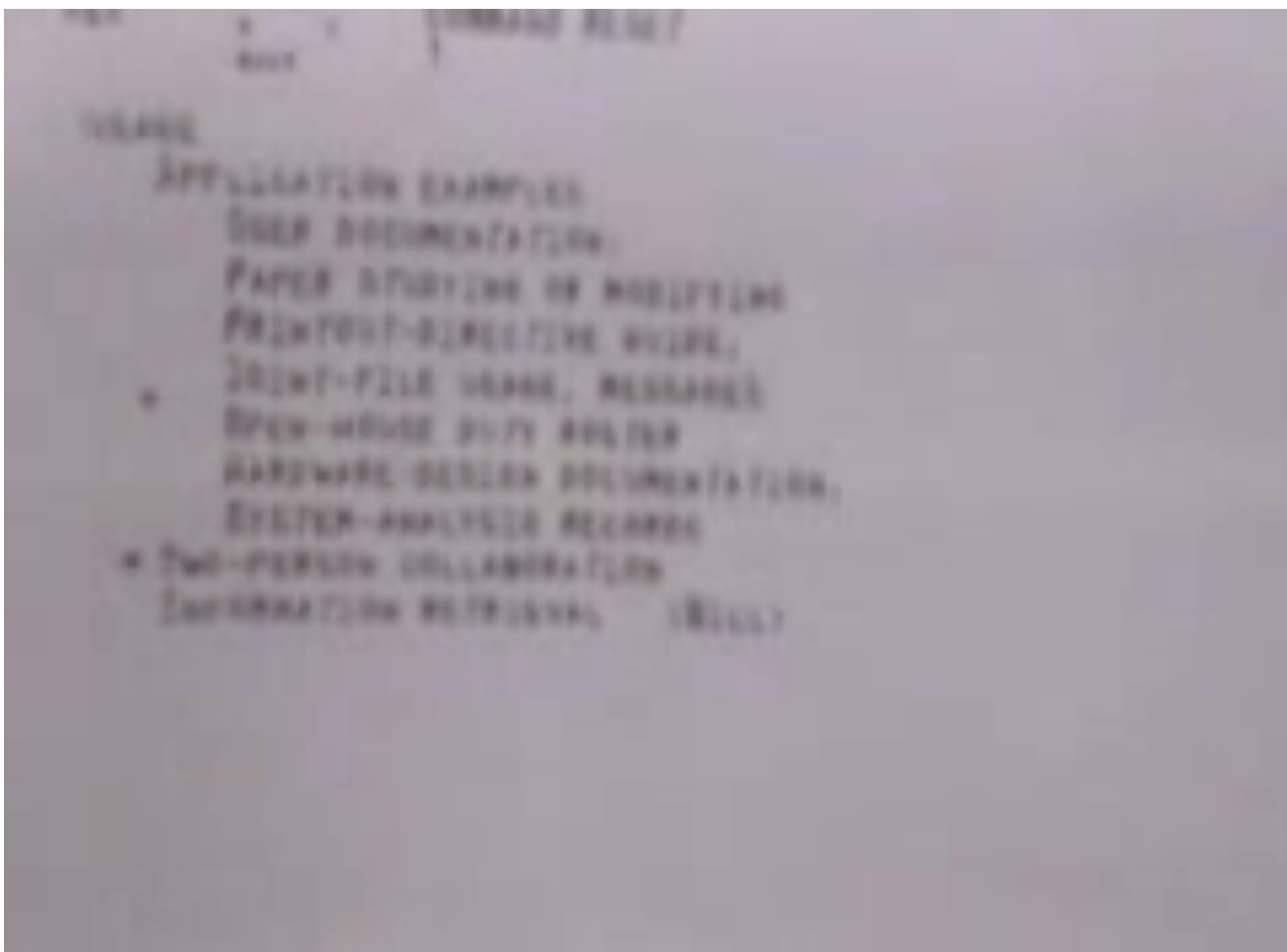


 Flickr | O Palsson | <https://www.flickr.com/photos/opalsson/4387563218/>



 Flickr | Bretislav Valek | http://commons.wikimedia.org/wiki/File:Reliance_Smart_Client.jpg





1

1967

1972

2

1988

3

2012

2010

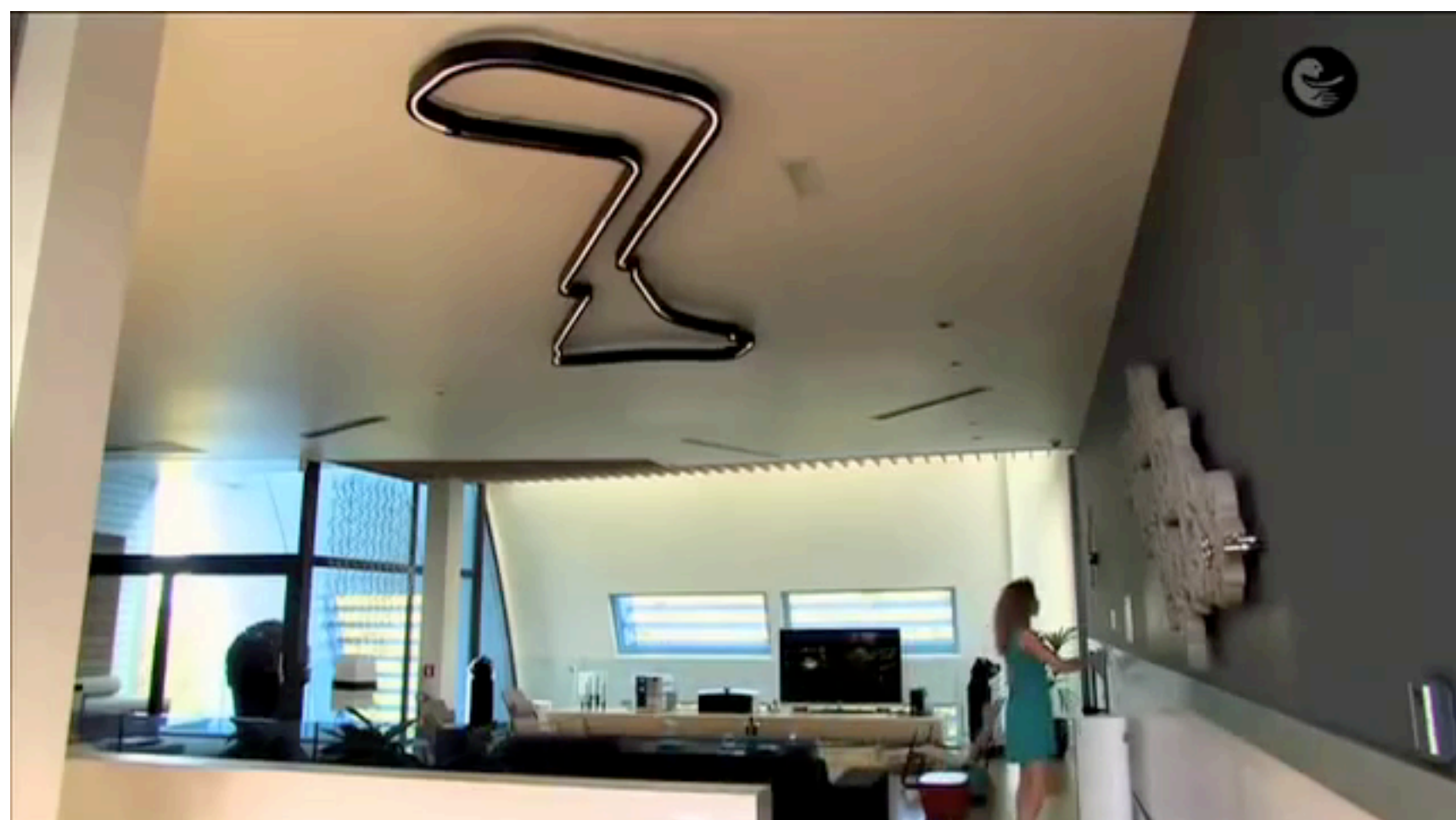
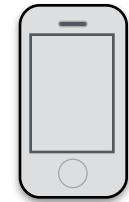
2008

2003

[1] W. K. English, D. C. Engelbart, and M. L. Berman, "Display-Selection Techniques for Text Manipulation," *Human Factors in Electronics, IEEE Transactions on*, no. 1, pp. 5-15, 1967.

[1] A. C. Kay, "A Personal Computer for Children of All Ages," presented at the ACM '72: Proceedings of the ACM annual conference, 1972, vol. 1.

[1] M. Weiser, "The Computer for the 21st Century," *Scientific American*, Sep. 1991.



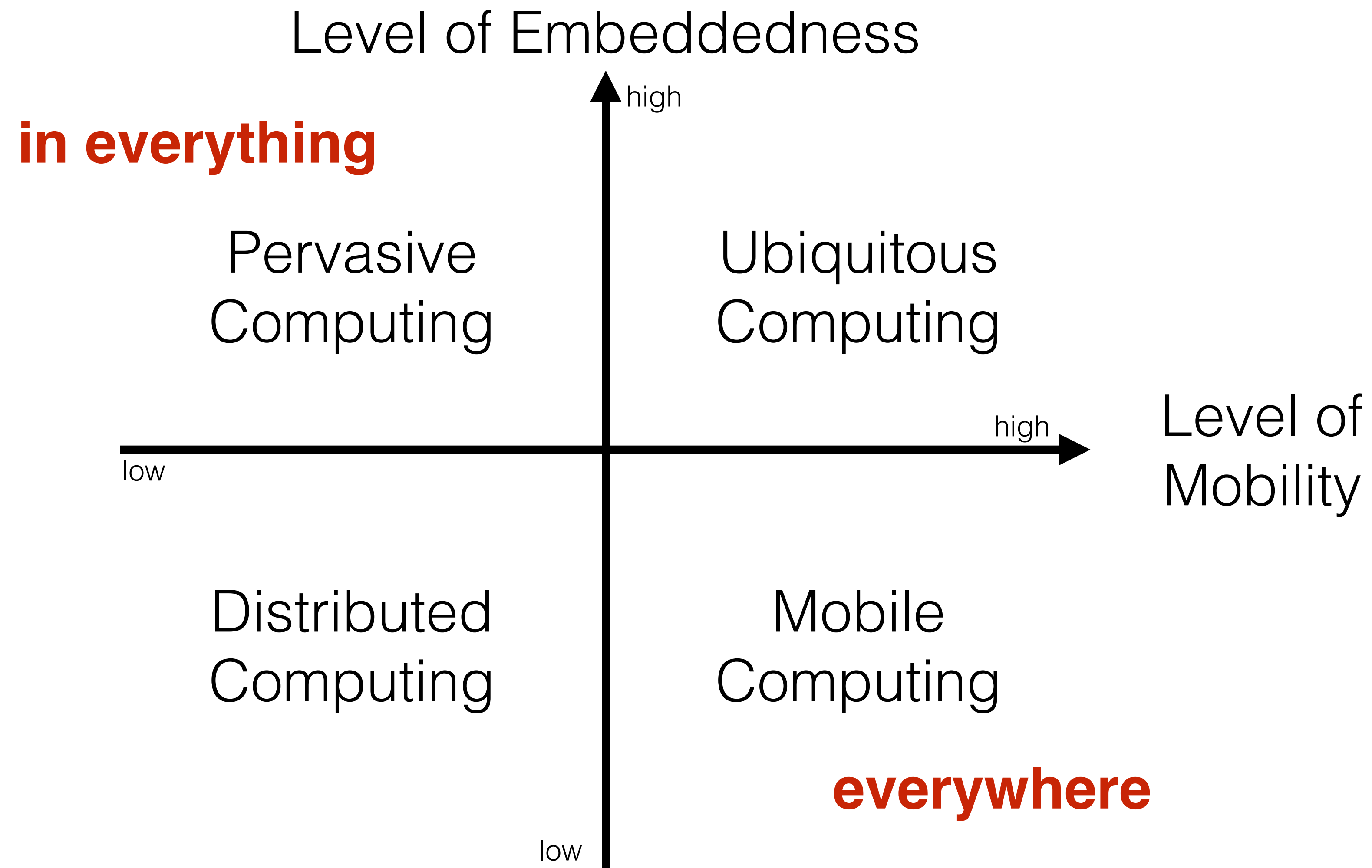
What is the problem realizing this?



Part II

Terminology

What is Ubiquitous Computing?

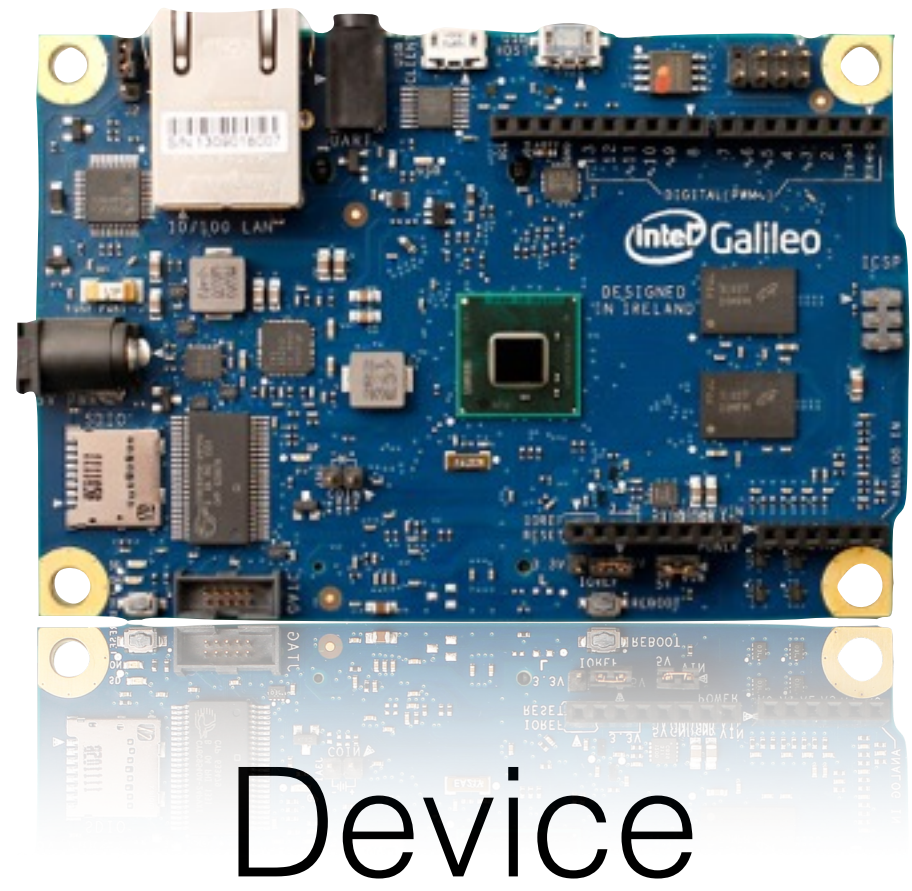


[1] D. Saha and A. Mukherjee, "Pervasive computing: a paradigm for the 21st century," *Computer*, vol. 36, no. 3, pp. 25–31, Mar. 2003.

[1] K. Lyytinen and Y. Yoo, "Issues and Challenges in Ubiquitous Computing," *Commun. ACM*, vol. 45, no. 12, Dec. 2002.

[1] M. Satyanarayanan, "Pervasive computing: Vision and challenges," *Personal Communications*, 2001.

Structuring the Research Field



Device
Hardware

Internet of Things

Cyber-Physical-Systems

Smart Space Orchestration

Ambient Intelligence

Pervasive Computing



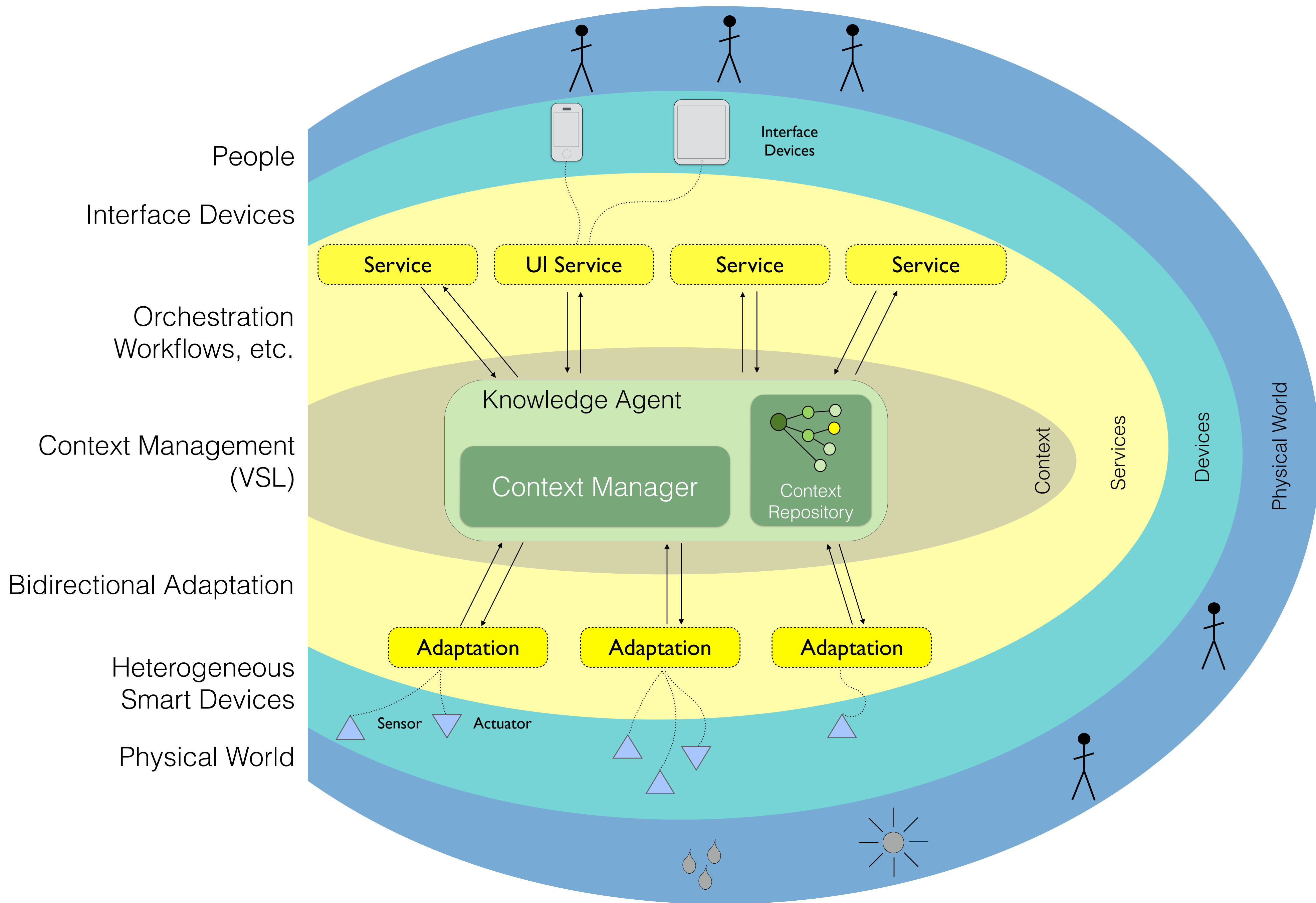
Application
Software



Richard Wagner - Ritt der Walkyren | photo: Carlo Alberto Cazzuffi

Part III

The BIG Picture



So what is the problem?

SCOTT'S

Functional

Spatial

Vendor

Access

Middleware



Is there a Solution???

Do-It-Yourself Maker Culture

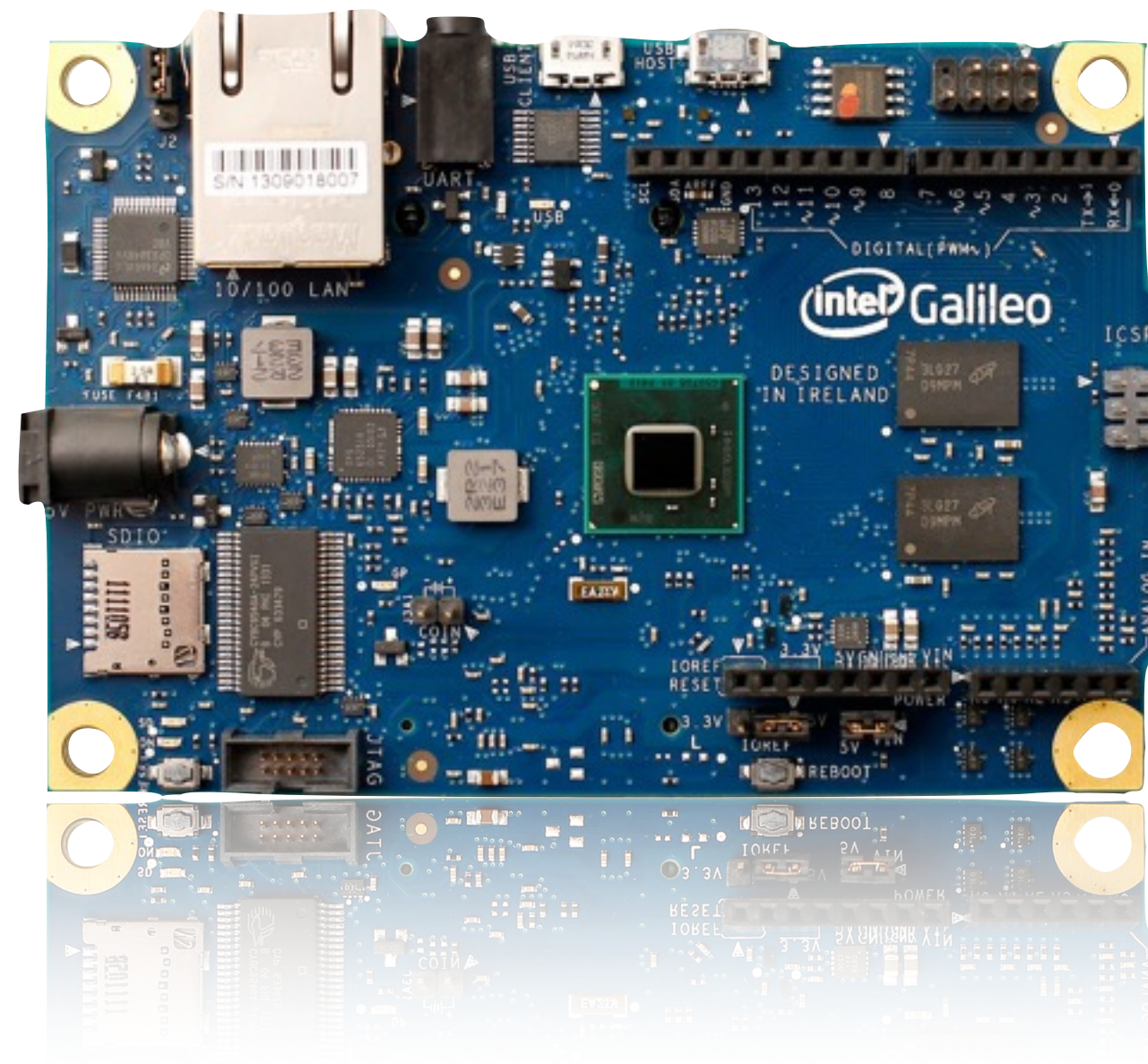


TOMORROW



DIY SOFTWARE
(my research)

TODAY



DIY HARDWARE