

Human-Computer Interaction

User Needs



Goals of this Video

After watching this video you will be able to explain...

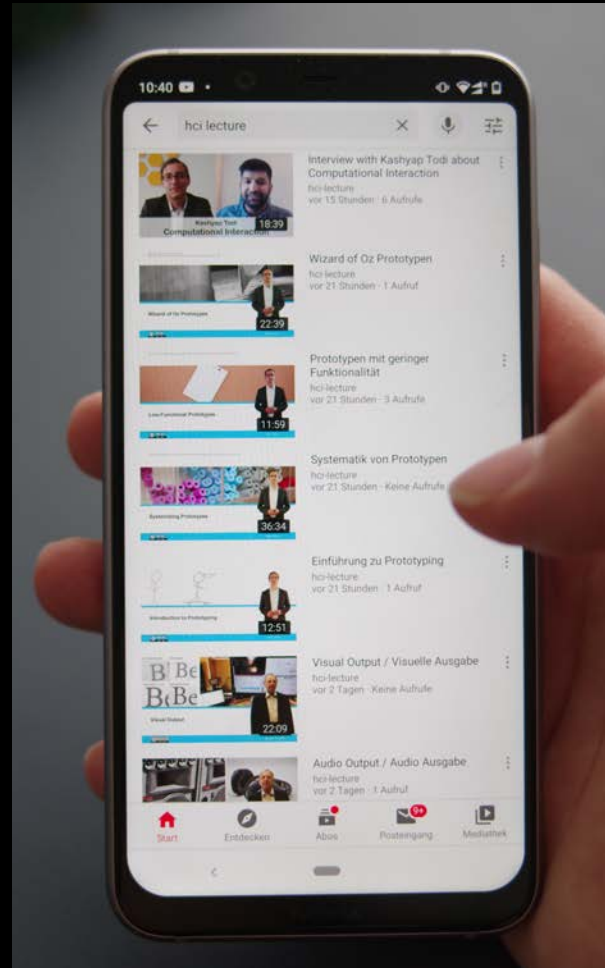
- the complexity of user needs and the challenges to uncover them
- how human needs impact the technologies we develop and how technologies influence needs
- the basics of Maslow's theory of motivation
- the concept of the task-artifact cycle

USER NEEDS

ASK THE (POTENTIAL) USERS?



USER NEEDS – CURRENT TECHNOLOGIES ASK THE (POTENTIAL) USERS?



THE THEORY OF HUMAN MOTIVATION

MASLOW, A.H. (1943)

- 5) The Need for Self-Actualization.
- 4) The Esteem Needs
- 3) The Love Needs
- 2) The Safety Needs
- 1) The 'physiological' Needs

Maslow, A. H. (1943). A theory of human motivation. *Psychological Review*, 50(4), 370–396. <https://doi.org/10.1037/h0054346>

A THEORY OF HUMAN MOTIVATION

BY A. H. MASLOW

Brooklyn College

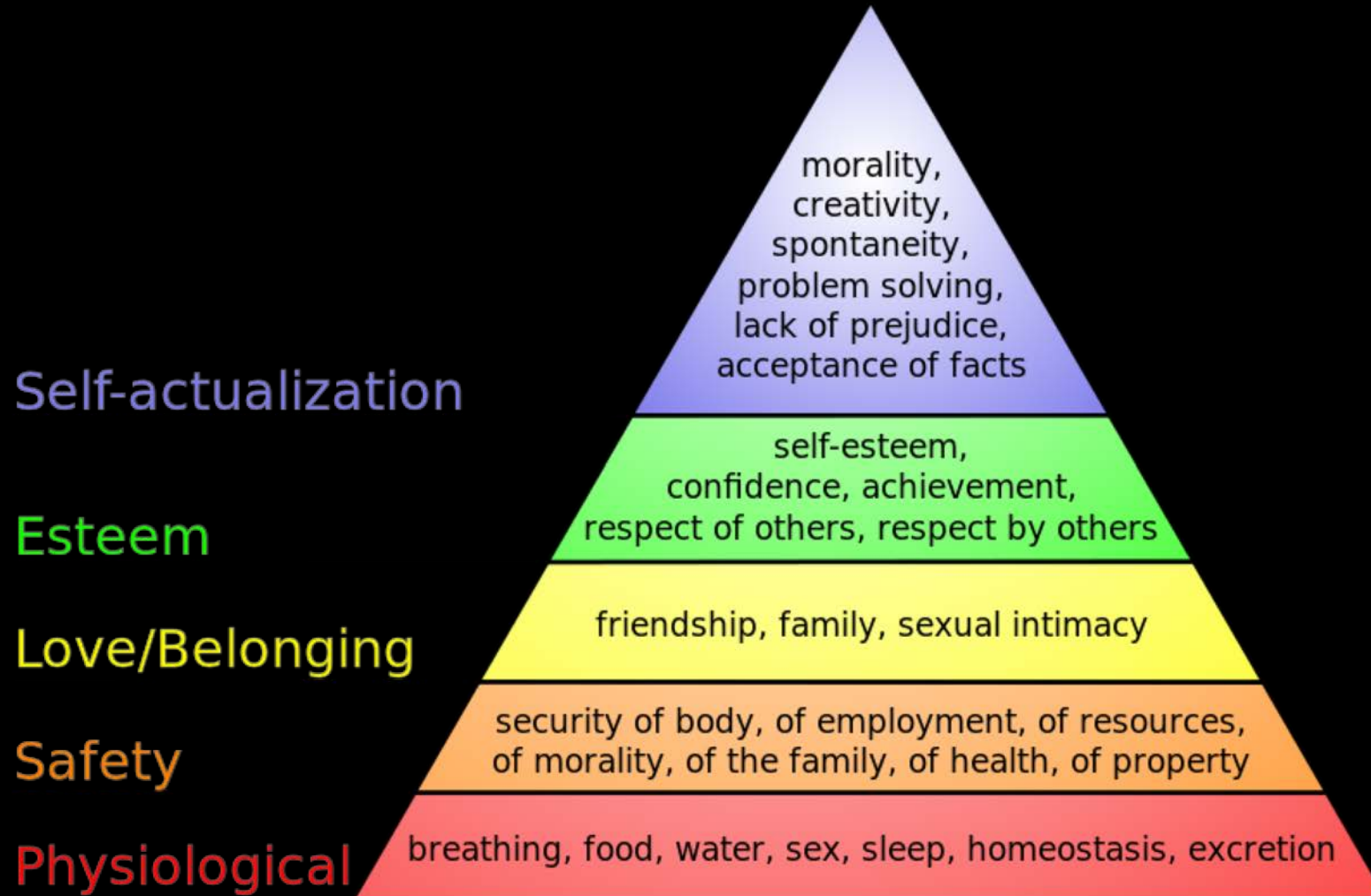
I. INTRODUCTION

In a previous paper (13) various propositions were presented which would have to be included in any theory of human motivation that could lay claim to being definitive. These conclusions may be briefly summarized as follows:

1. The integrated wholeness of the organism must be one of the foundation stones of motivation theory.
2. The hunger drive (or any other physiological drive) was rejected as a centering point or model for a definitive theory of motivation. Any drive that is somatically based and localizable was shown to be atypical rather than typical in human motivation.
3. Such a theory should stress and center itself upon ultimate or basic goals rather than partial or superficial ones, upon ends rather than means to these ends. Such a stress would imply a more central place for unconscious than for conscious motivations.
4. There are usually available various cultural paths to the same goal. Therefore conscious, specific, local-cultural desires are not as fundamental in motivation theory as the more basic, unconscious goals.
5. Any motivated behavior, either preparatory or consummatory, must be understood to be a channel through which many basic needs may be simultaneously expressed or satisfied. Typically an act has *more* than one motivation.
6. Practically all organismic states are to be understood as motivated and as motivating.
7. Human needs arrange themselves in hierarchies of prepotency. That is to say, the appearance of one need usually rests on the prior satisfaction of another, more pre-potent need. Man is a perpetually wanting animal. Also no need or drive can be treated as if it were isolated or discrete; every drive is related to the state of satisfaction or dissatisfaction of other drives.
8. *Lists* of drives will get us nowhere for various theoretical and practical reasons. Furthermore any classification of motivations

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MASLOW'S HIERARCHY OF NEEDS



MASLOW'S HIERARCHY OF NEEDS

How does Instagram,
tinder, or maps relate to this?

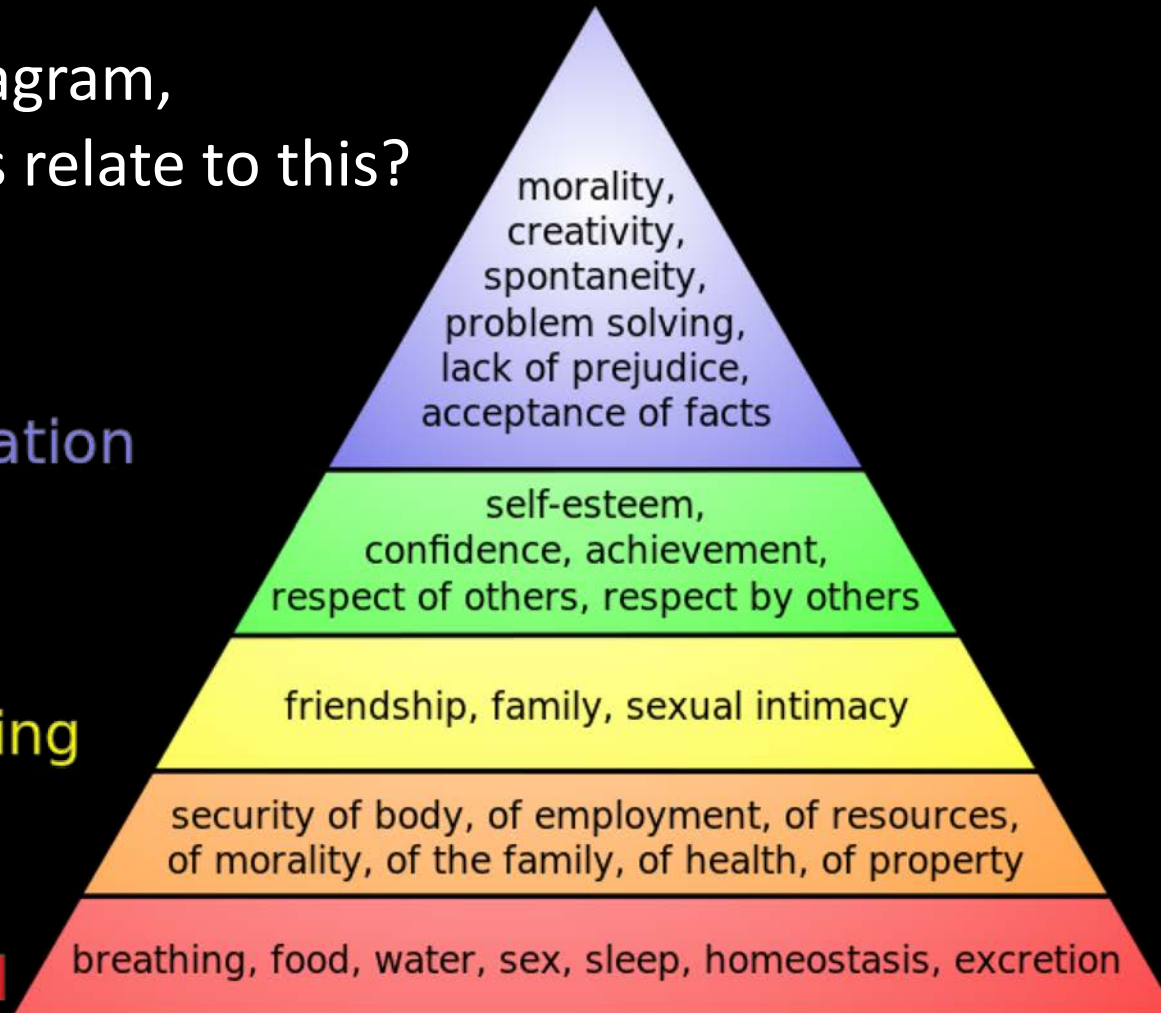
Self-actualization

Esteem

Love/Belonging

Safety

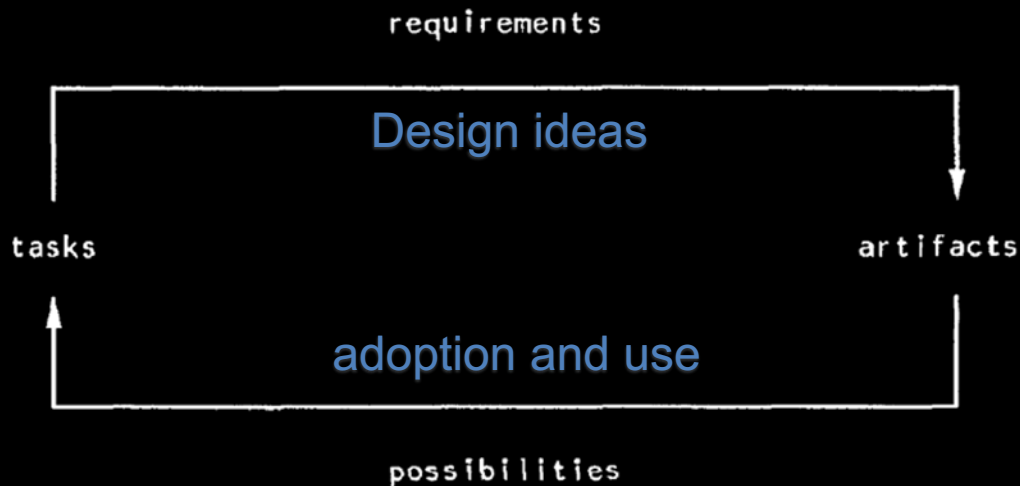
Physiological



TASK-ARTIFACT CYCLE

JOHN CARROLL 1990

- Humans have needs and preferences
- Technologies are created to suit these needs
- As humans use the technologies needs and preferences change



John M. Carroll. 1990. Infinite detail and emulation in an ontologically minimized HCI. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '90)*. Association for Computing Machinery, New York, NY, USA, 321–328. DOI:<https://doi.org/10.1145/97243.97303>

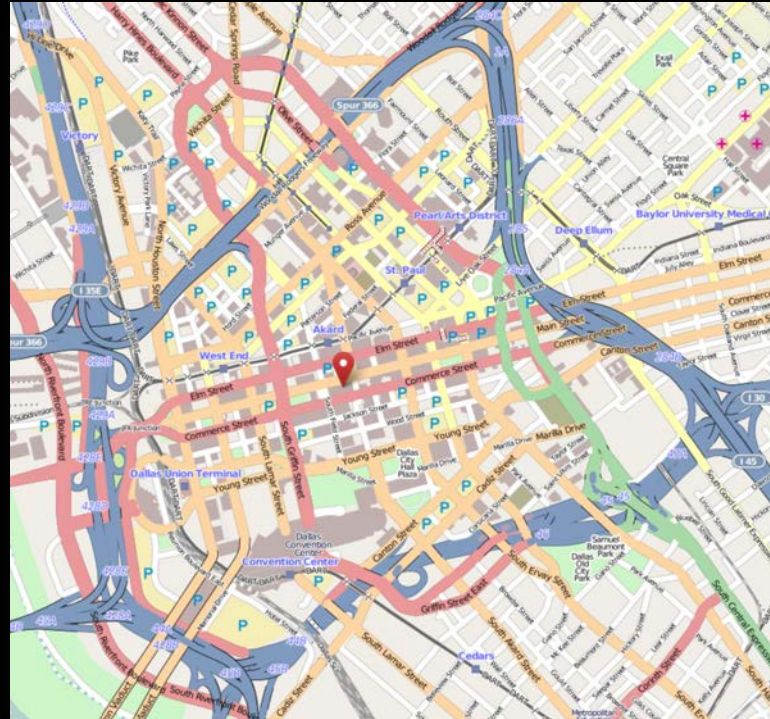
TASK-ARTIFACT CYCLE: EXAMPLE MOBILITY

Need for transport → car → changed mobility behavior and town layouts

Image from OpenStreetMap:
<http://www.openstreetmap.org/?lat=48.85154&lon=10.48856&zoom=17&layers=M>



Image from OpenStreetMap:
<http://www.openstreetmap.org/?lat=49.48761&lon=8.46736&zoom=16&layers=M>



Mobile Phone

Desire to communicate

→ phone

→ changed social behavior

→ ...

1. Explain the task-artifact cycle in the mobile telephony.
2. How did people meet in town 1990
Discuss the impact beyond a single



CONFLICTING USER NEEDS

DESIGNERS MAKE VALUE DECISIONS

- User needs are a complex mix of (conflicting) needs
 - It is difficult to weight values against each other
 - Many values are not explicitly communicated
- Example – ask people about explicit values:
 - Should it be free of charge?
 - Should it be privacy preserving?

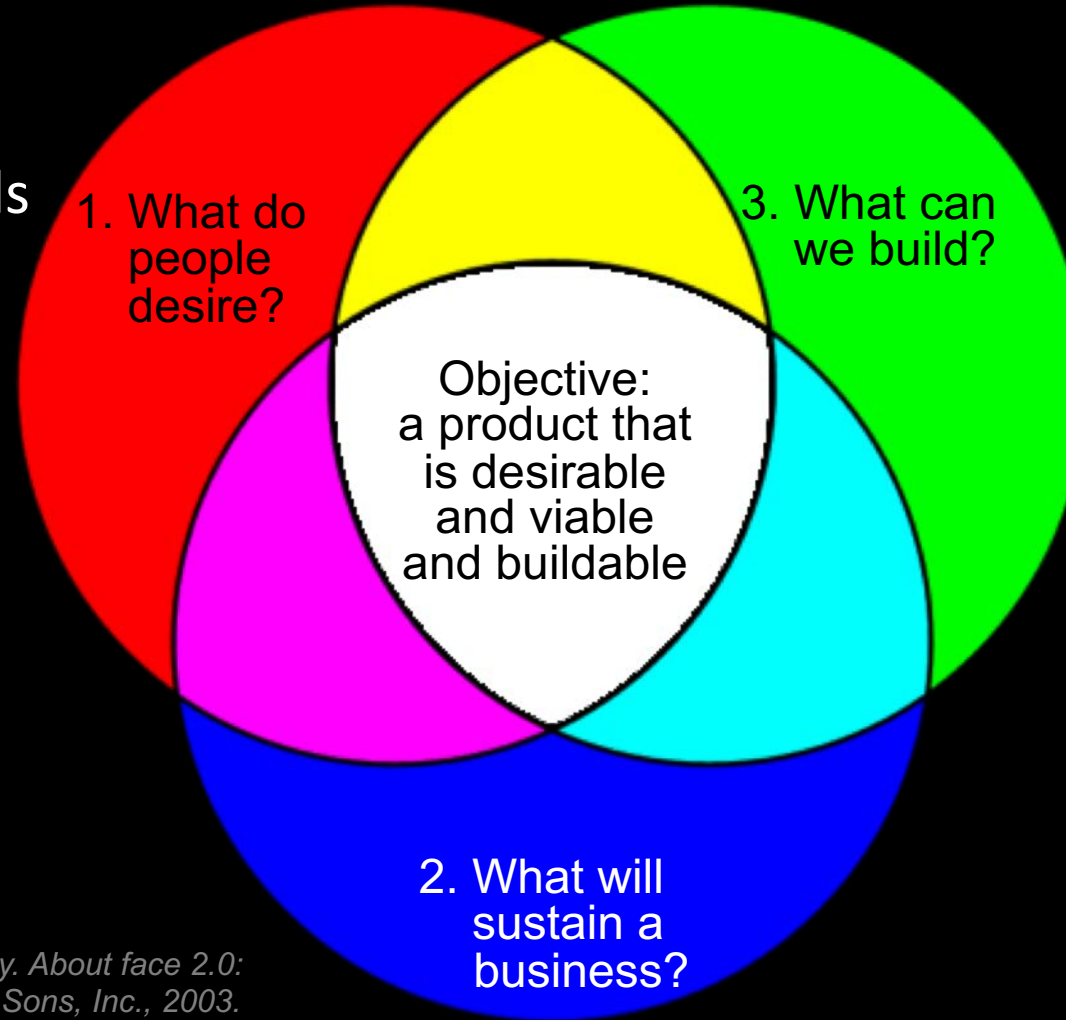
THE BIGGER PICTURE

BUILDING SUCCESSFUL DIGITAL PRODUCTS

Tension

- different objectives
- different design goals

Context of a product design



Cooper, Alan, Robert Reimann, and Hugh Dubberly. About face 2.0: The essentials of interaction design. John Wiley & Sons, Inc., 2003.

An innovation has to be timely.



- [1] Maslow, A. H. (1943): A theory of human motivation. *Psychological Review*, 50(4), 370-396.
<https://doi.org/10.1037/h0054346>
- [2] John M. Carroll. (1990): Infinite detail and emulation in an ontologically minimized HCI. In Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '90). Association for Computing Machinery, New York, NY, USA, 321–328. DOI:<https://doi.org/10.1145/97243.97303>
- [3] John M. Carroll.(2013): Human Computer Interaction - brief intro. In: Soegaard, Mads and Dam, Rikke Friis (eds.). "The Encyclopedia of Human-Computer Interaction, 2nd Ed.". Aarhus, Denmark: The Interaction Design Foundation. http://www.interaction-design.org/encyclopedia/human_computer_interaction_hci.html
- [4] Alan Cooper, Robert Reimann, and Hugh Dubberly (2003): About face 2.0: The essentials of interaction design. John Wiley & Sons, Inc.

ACKNOWLEDGEMENTS

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Albrecht Schmidt