Usability: A Core Concept in Socio-Technical Systems Development

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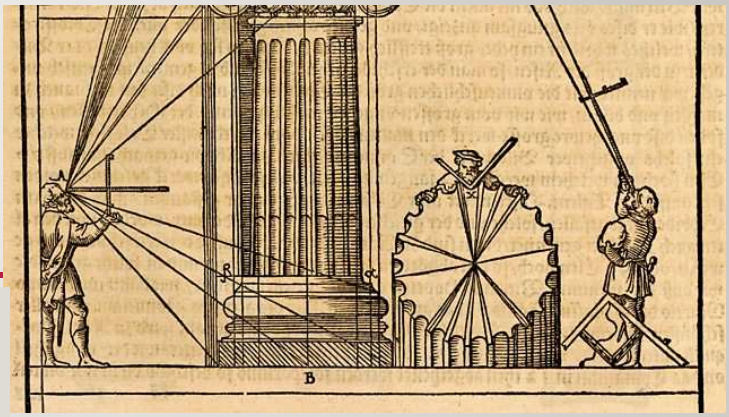
STPIS 2019

INTRODUCTION

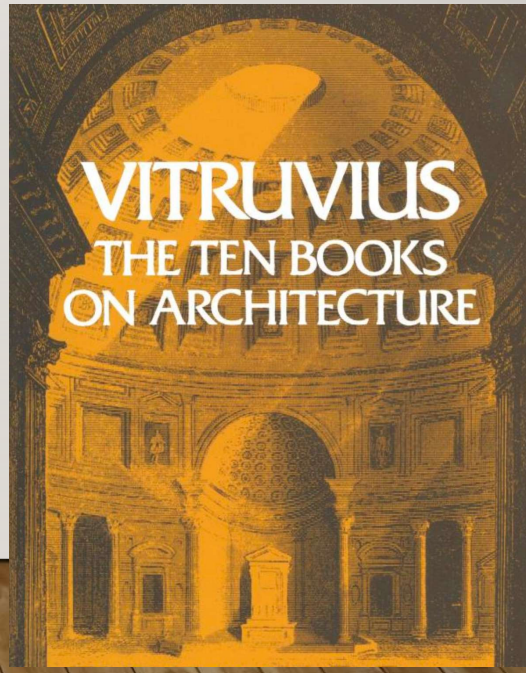
- This paper restates the importance of the concept of ***usability*** in the socio-technical systems development
  - Usability covers the breadth and depth of the rich interaction of users and technology in the socio-technical context
  - Usability can act as *speculum mundi*, a lens through which the impacts of interaction in all levels of the organization and society can be identified
- Usability is or should be fundamental concept for professionals designing the systems of the future

VITRUVIAN DESIGN PRINCIPLES AND USABILITY PARADIGMS

- In this paper, usability was conceptualized through the principles of *utilitas* and *firmitas* from Vitruvian architectural design
  - Suitability and usefulness for the intended user
  - Reliability and durability
- These were reflected on three paradigms of usability:
  1. Usability as a *property of software* or system itself
  2. Usability as physical and cognitive *characteristics of the user*
  3. Usability as characterizing the *interaction* involving particular user, system, and context of use



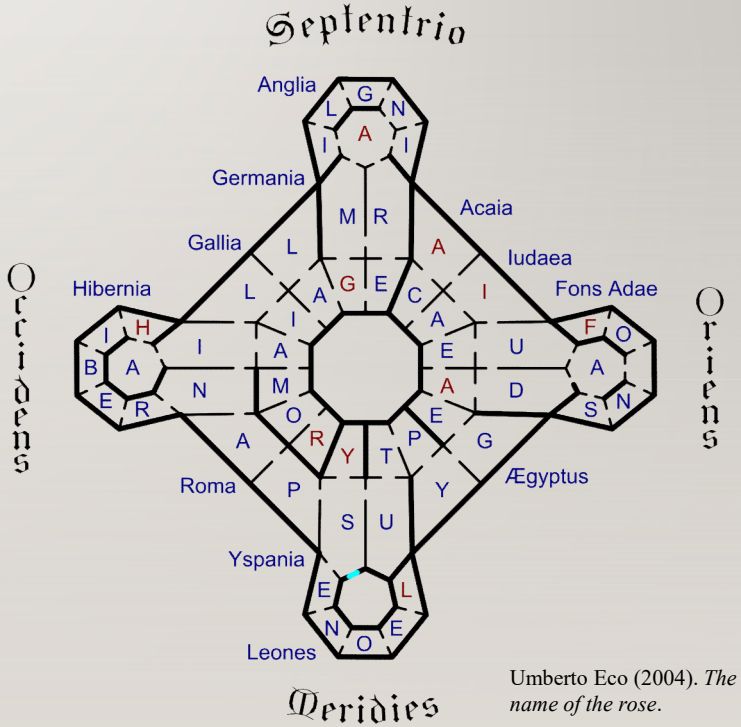
Vitruvius Pollio (1960). *Vitruvius: The ten books on architecture.* Dover Publications.



USABILITY AS *SPECULUM MUNDI*

- We argue that usability of the socio-technical systems that exist in the world reflects the advancement of technology, socio-technical systems, organizations, society at large, and environmental responsibility

- This proposition is especially relevant in the perspective of new technological breakthroughs that are looming at the horizon, such as *6G, IoT, etc.*



Umberto Eco (2004). *The name of the rose.*

USABILITY IMPACTS AT DIFFERENT LEVELS

- Individual impact
  - Usability enables the concept of *utilitas* in that the design is useful and suitable for the user
  - Best encapsulated in the *interaction* between the individual and the technology

- Group impact
  - Usability enables *utilitas* by making STS suitable and useful for groups of people sharing common goal
  - Best understood through user-user and user-technology *interaction*

USABILITY IMPACTS AT DIFFERENT LEVELS

- Technological impact
  - Designing with technology impact in mind enables principles of *utilitas* and *firmitas* (useful and reliable)
  - Usability is best observed as *property* of technology, taking into account the users' *characteristics*, and through *interaction* between user and technology
- Environmental impact
  - Designing to minimize materials, waste, and energy enables both *utilitas* and *firmitas*
  - Usability is best analyzed both as *property* of technology and *interaction* between user and technology
- Financial impact
  - Designing to ensure user's and organizational goals are fulfilled, generating economic value enables *utilitas*
  - Usability is best ensured and observed as *property*, *characteristics*, and *interaction*

THANK YOU

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