INSTRUCTOR

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LITERATURE

Required: Lecture slides and articles posted on the blackboard or handed out as photocopies during class

Recommended Books:


OBJECTIVE

The course aims to provide a holistic view on the diverse factors driving the market success of high-tech products and services. Innovation diffusion theory, human-centred system design and marketing strategies are combined to provide course participants with a broad perspective on the myriad factors relevant for building, marketing or simply judging on new technologies.
COURSE DESCRIPTION

The course starts out with an overview of current product and service innovations arising in the realm of ubiquitous/pervasive computing. This introduction is followed by a thorough presentation of innovation theory, in particular the theory of innovation diffusion. Theoretical frameworks are presented to characterize product and service innovations as well as the triggers of their success: relative advantage, compatibility and complexity.

On the background of this introduction, a more detailed look is then taken at concrete characteristics of successful digital products and services. What’s important when engineering digital products for broader market acceptance? And what does one have to watch out for when judging on the quality of new product and service proposals? To answer these questions, human-centred technical designs as well as economic factors need to be considered.

Human-centred technical design involves not only an understanding of adjusted and more human-centred system development life-cycles, but also insights into the long history of research in technology acceptance models. Here, usability issues are playing a role (i.e. affective, cognitive and physical engineering), but equally important are more general factors of system acceptability such as trust, social compatibility, culture and personality as well as the respect of human values in the design of systems (such as the desire for privacy, control or autonomy).

The economic perspective, in contrast, covers a selected number of those market forces which are relevant for system acceptance and success regardless of product appeal: in particular pricing, standardization and network effects.

GRADING

The course is a combination of a lecture and in-class student presentations and discussion.

Every student (or teams of two) is required to prepare one presentation for the class during the term which covers one or two case-studies related to the course’s theory (accompanied by a 5-page text exposé).

In addition, all students are required to prepare a 10 min presentation (accompanied by a 3-page exposé) for the very last class of October 16th on cultural differences in the perception of technology. Preparation is supposed to be done by teams of two who are not having the same cultural background.

Grades depend on:

1. Class attendance and participation  10%
2. Presentation case study  30%
3. Presentation of cultural differences  10%
3. Exam  50%
COURSE SCHEDULE AND TOPICS

Lecture 1 (Tuesday, August 29th)
Topic: Technology Acceptance & The Future of Products and Services - Pervasive Ubiquitous Computing, Motivation for Studying Acceptance Factors

Recommended Reading:

Lecture 2 (Thursday, August 31st)

Recommended Reading:

Lecture 3 (Tuesday, September 5th)
Topic: Innovation Diffusion II – Diffusion Networks, Change Agents, Innovation in Organizations

Recommended Reading:
**Lecture 4 (Thursday, September 7th)**

Topic: Relative Advantage I – Why do people intent to use one system rather than another?

Student Presentation 1:
Usefulness in products and services – What makes Google, Skype and iPods more successful than their competitors?

Recommended Readings:


**Lecture 5 (Tuesday, September 12th)**

Topic: Ensuring Relative Advantage II - About the Role of Standards, Network Effects and Timing for Innovation Success

Student Presentation 2:
2 cases that demonstrate the power of standardisation and network effects

Recommended Reading:

- Case Study: “Instant Messaging”, HBS 9-704-502 by David Yoffie

**Lecture 6 (Thursday, September 14th)**

Topic: Minimizing Complexity – How to design for Usability and Ease-of-Use

Student Presentation 3:
2 cases: one system which worked really well and another which did not at all; present the systems and the logic of their success and failure

Recommended Reading:

Lecture 7 (Tuesday, September 19th)

Topic: Ensuring Compatibility I – About the Role of Affect and Social Compatibility in System Design

Student Presentation 4:
2 cases of systems that are successful in making people happy; present the systems and develop a logic for driving user happiness

Recommended Reading:


Lecture 8 (Thursday, September 21st)

Topic: Ensuring Compatibility II – About the Role of Personal Factors in System Design

Student Presentation 5:
2 cases of systems where personal factors may impede system usage (potentially relating also to digital gap factors); present the systems and the challenges and how these could be or are addressed

Recommended Reading:

Lecture 9 (Tuesday, September 26th)

Topic: Ensuring Compatibility III – Values Relevant for System Design

Student Presentation 6:
2 cases of systems that provide different levels of user control and how people react to
different levels of control (or automation)

Recommended Reading:

- Sarah Spiekermann, “Perceived Control: Scales for Privacy in Ubiquitous Computing”, presented at the CHI’06, Workshop on Privacy and Personalization

Lecture 10 (Thursday, September 28th)

Topic: Ensuring Compatibility IV – Social Compatibility and Value Sensitive Design

Student Presentation 7:
Present a privacy-enhancing technology and show how different parts of the architecture
relate to different aspects of the privacy construct (potential privacy-enhancing technologies
are Identity Cards in the new Microsoft VISTA or Privacy Bird)

Recommended Reading:


Lecture 11 (Tuesday, October 3rd)

Topic: Acceptance Factors in Design – Ways to build Human-Centred Systems

Student Presentation 8:
Present 2 cases of systems where you believe no effort has been made to include usability
requirements into the system or in contrast where you feel a particular effort has been made.
Explain why you have come to these conclusions.

**Lecture 12 (Thursday, October 5th)**

Topic: Innovation Adoption – Forecasting Models

Student Presentation 9:
The skillMap is a new social software product launched soon into the market ([http://ioe-skillmap.hu-berlin.de](http://ioe-skillmap.hu-berlin.de)). Try to project the success of this innovation with the help of a forecasting model.

Reading:


**Lecture 13 (Tuesday, October 10th)**

Topic: Cultural Differences in the Adoption and Perception of Technologies

Student Presentation 10:
Mobile services are earliest to market in Asian countries and they are typically adopted more quickly there. Taking a particular service, please try to develop an argument why Asian markets show this phenomenon.

Recommended Readings:


**Lecture 14 (Thursday, October 12th)**

Topic: Cultural Differences in the Adoption and Perception of Technologies II

Student Presentations