mobile business

GOETHE UNIVERSITÄT FRANKFURT AM MAIN

Lecture 01

Business Informatics 2 (PWIN)
SS 2021

Introduction & Course Organisation

Prof. Dr. Kai Rannenberg

Chair of Mobile Business & Multilateral Security
Johann Wolfgang Goethe University Frankfurt a. M.

Agenda

- Introduction of the Chair
- Course Organisation
- Scope and Outline of the Course
- Introduction to Information & Communication Systems

Who we are

Business Informatics @ Goethe University Frankfurt

E-Finance Prof. Dr. Peter Gomber	**Business Informatics (Informatics)** Prof. Dr. Mirjam Minor	**Information Systems Engineering** Prof. Dr. Roland Holten
Business Education (associated) Prof. Dr. Gerhard Minnameier	**Mobile Business & Multilateral Security** Prof. Dr. Kai Rannenberg	**Business Education** (associated) Prof. Dr. Eveline Wuttke
Information Systems & Information Management Prof. Dr. Wolfgang König	**Business Informatics & Microeconomics** Prof. Dr. Lukas Wiewiorra	**Business Informatics & Information Management** Prof. Dr. Oliver Hinz

Chair of Business Administration, especially Business Informatics, Mobile Business and Multilateral Security

Chair of Mobile Business & Multilateral Security

Theodor-W.-Adorno-Platz 4
Campus Westend
RuW, 2nd Floor

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www.m-chair.de

Vita of Prof. Dr. Kai Rannenberg

Einbeck, Göttingen, Eystrup, Wolfsburg, ...
TU Berlin (Dipl.-Inform.)
Uni Freiburg (Dr. rer. pol.)

Dissertation on "**Kriterien und Zertifizierung mehrseitiger IT-Sicherheit**"
Standardization at ISO/IEC JTC 1/SC 27 and DIN NI-27

Kolleg "Sicherheit in der Kommunikationstechnik"
Gottlieb Daimler- and Karl Benz-Foundation

Multilateral Security:
"Empowering Users, Enabling Applications", 1993 – 1999

Recent History
1999-09 till 2002-08
Microsoft Research Cambridge UK
www.research.microsoft.com
Responsible for "Personal Security Devices and Privacy Technologies"

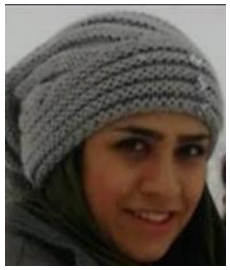
2001-10 Call for this chair
2001-12 till 2002-07 Stand-in for the chair

Since 2002-07 Professor at Goethe University Frankfurt
Since 2012-04 Visiting Professor at the National Institute for Informatics (Tokyo, Japan)

Team

Kai Rannenberg

Sebastian Pape



Narges Arastouei

Welderufael Tesfay

Christopher Schmitz

David Harborth

Peter Hamm

Ann-Kristin Lieberknecht

Frédéric Tronnier

Ahad Niknia

Sascha Löbner

Research Fellows & External PhD Students


Markus Tschersich


Jetzabel Serna-Olvera

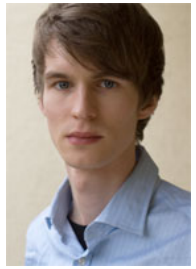

Mike Radmacher


Andreas Albers


Stefan Weiss


Shuzhe Yang


André Deuker


Christian Kahl


Ahmed Yesuf


Gökhan Bal


Ahmad Sabouri


Fatbardh Veseli


Tim Schiller


Niels Johannsen


Stephan Heim


Marvin Hegen


Michael Schmid


Majid Hatamian

Team

Office:

Diana Weiß

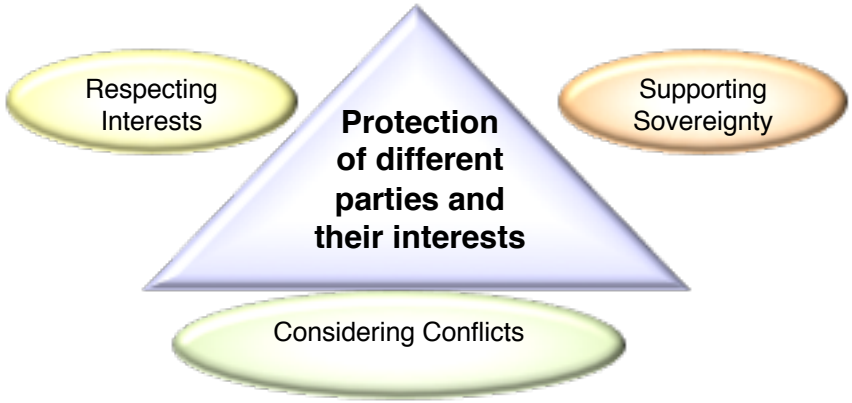
Email: diana.weiss@m-chair.de

Office Hours: On appointment

Mobile Business and Multilateral Security in a Mobile Market Context

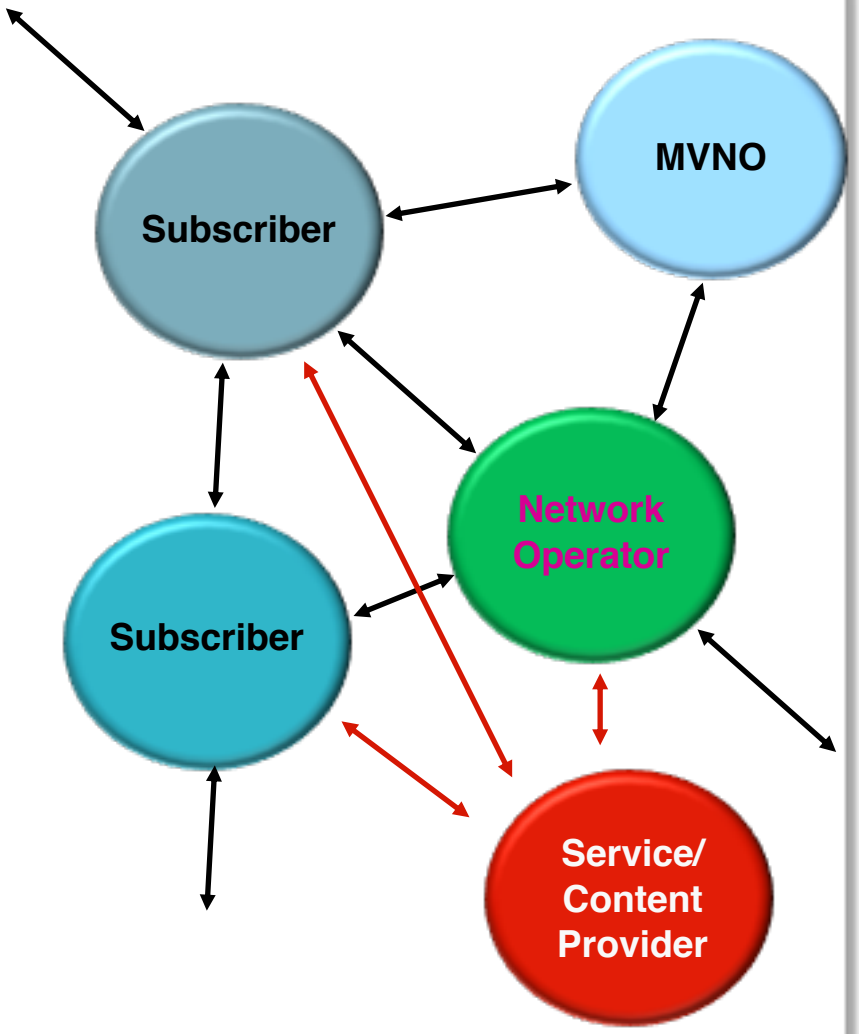
Different Parties with different Interests

- Customers/Merchants
- Communication partners
- Citizens/Administration

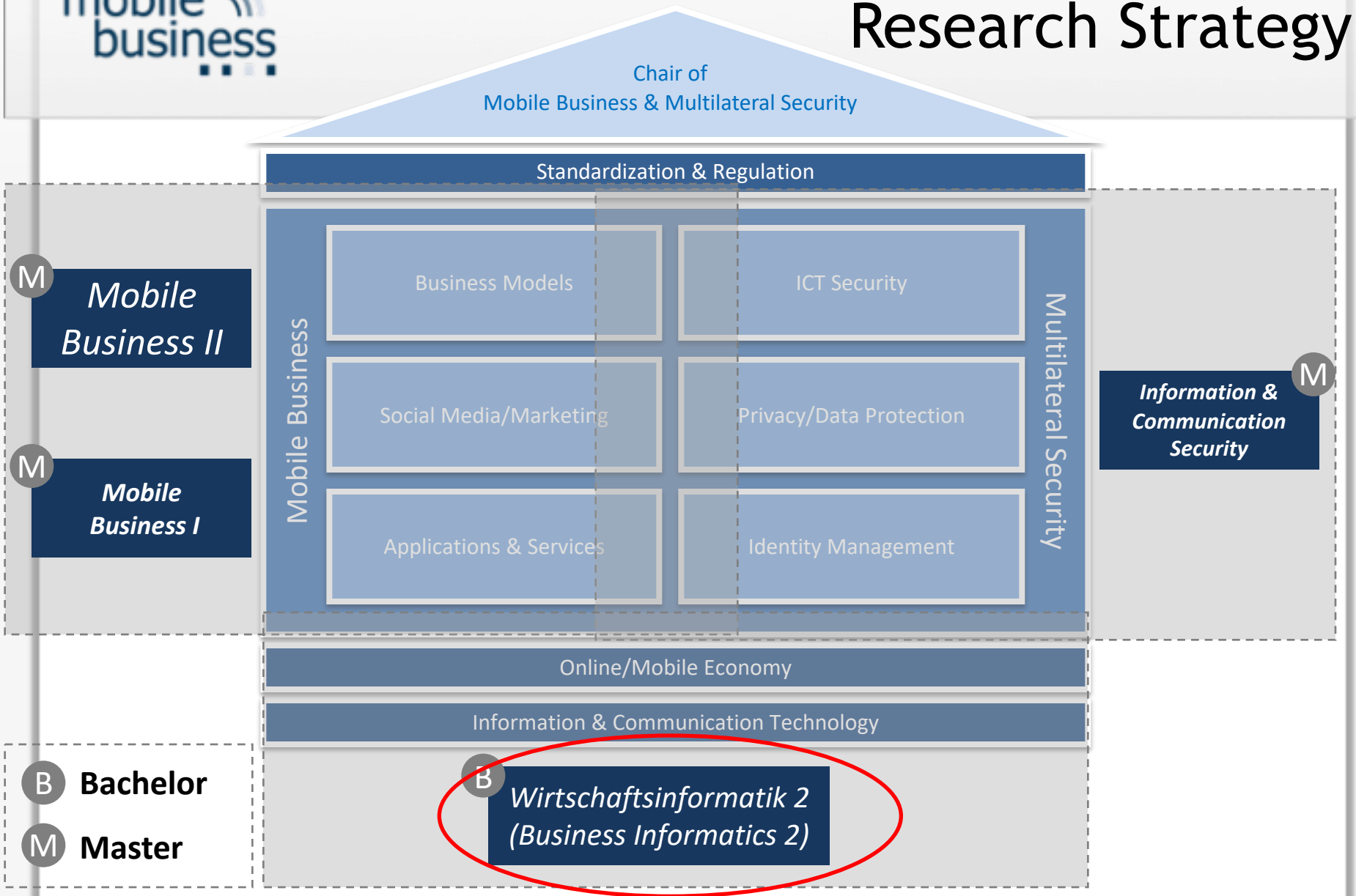


... in a world of consortia

- more partners
- more complex relations



Teaching & Research Strategy



Teaching

	SS 2021	WS 2021 / 22
Bachelor	*Course* **Business Informatics 2 (PWIN)**	**Sabbatical**
Master	*Course* **Mobile Business II:** **Technology, Markets, Platforms and Business Models** *Course* **Privacy vs. Data: Business Models in the digital, mobile Economy** *Seminar* **Privacy Preserving Machine Learning**	**Sabbatical**

Business Informatics @ Goethe University

- Master of Science in Betriebswirtschaftslehre

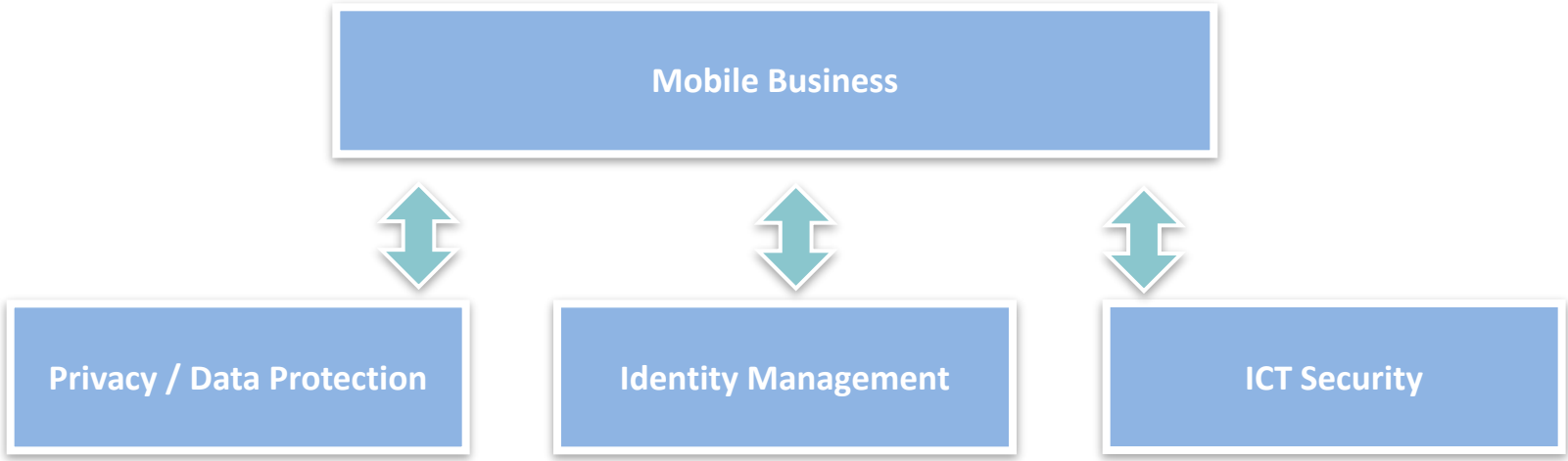
http://www.wiwi.uni-frankfurt.de/?id=96

- Master in Wirtschaftsinformatik

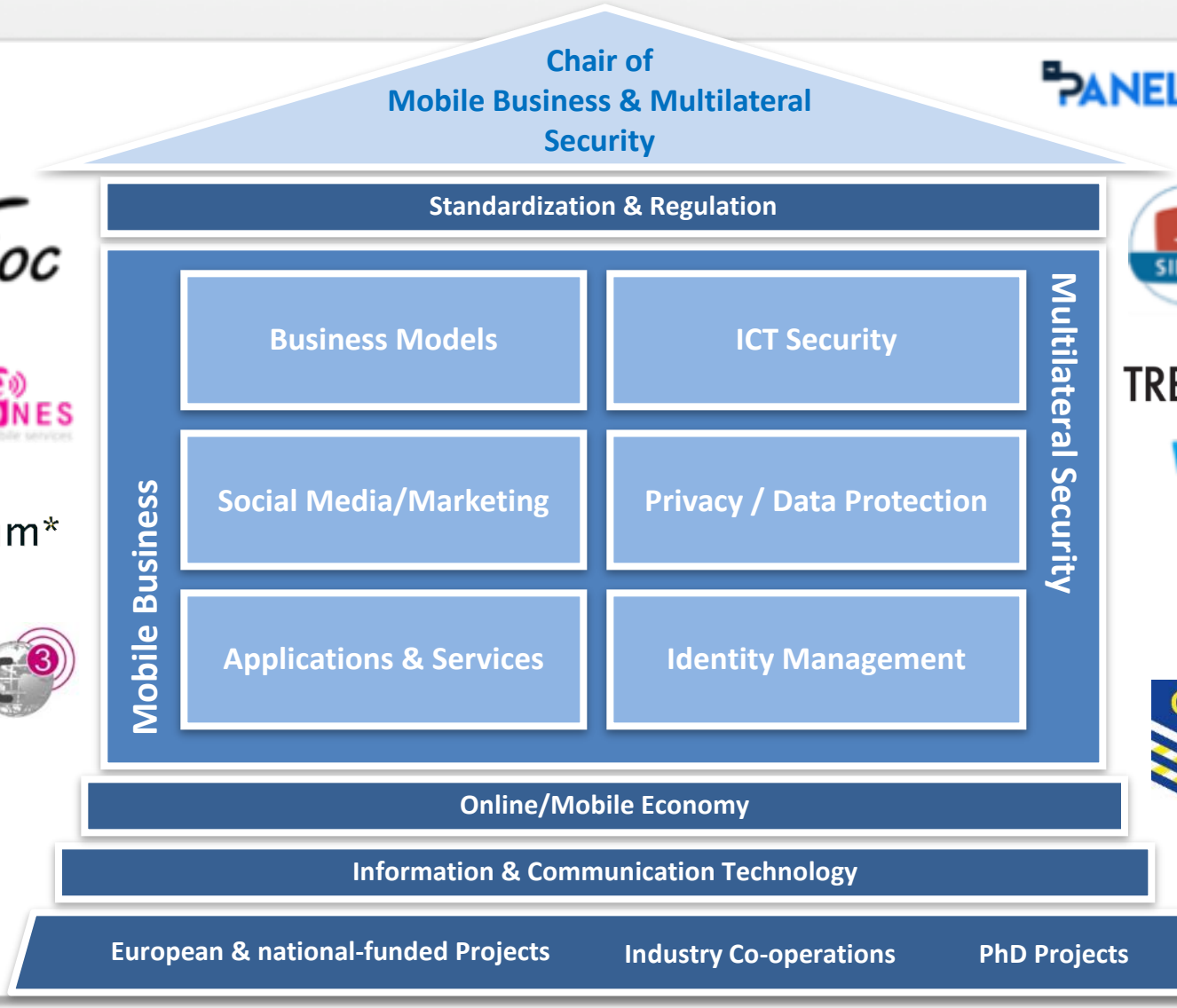
http://www.informatik.uni-frankfurt.de/index.php/de/studierende-studiengaenge/studierende-studiengaenge-master-wirtschaftsinformatik.html

M-Chair Research Statement

Advancing *Mobile Business* while enabling individuals to be in control of their personal data by providing *Identity Management*, *Privacy Protection*, and *ICT Security* within the Digital Economy



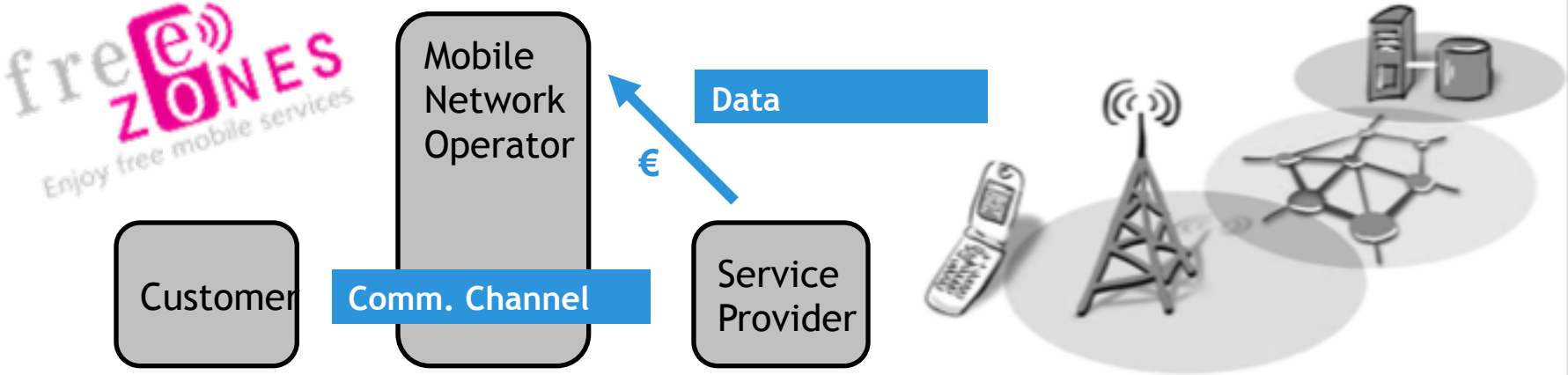
Overview of M-Chair Research Areas & Projects



PREMIUM Project (Completed in 2007)

- **Potential:** Mobile network operators have a customer relation with most of the German population!
- **Offering:** Mobile network operators are providing service providers with a communication channel to potential customers.
- **Motivation:** Service providers gain higher, mobile initiated revenues in their business.
- **Objective:** Eliminating data costs for customers while making them marketing costs for service providers.

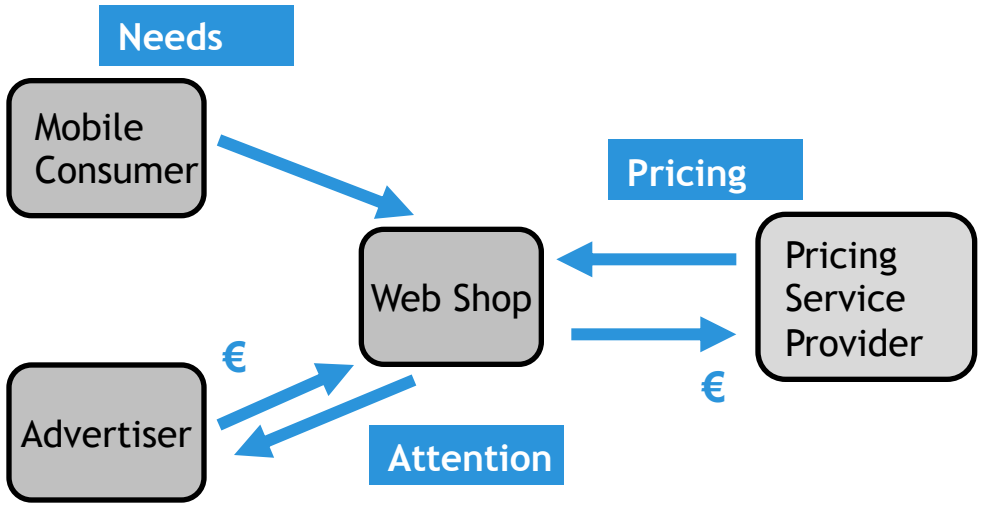
Premium*



PREMIUM Services Project (Completed in 2011)

Research on Pricing Mechanisms for Context-sensitive Mobile Consumer Contacts offered to Mobile Advertisers

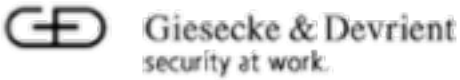
- Design of dynamic, interactive pricing mechanism to address the unique characteristics of Context-sensitive Mobile Consumer Contacts
- Development of an Evaluation Tool for Advertisers in order to determine the value of mobile consumers in their current usage situation
- Implementation of Pricing Service Platform for the webservice-based provision of Pricing Mechanisms to SMEs (e.g. Online Webshops)



PrimeLife

- EU FP7 Challenge “Secure, dependable and trusted Infrastructures”

- Integrated Project
- Planned for 3 years from 2008-03 (extended till 2011-06): Summit event at IFIP Sec 2011 Lucerne
- EC contribution : ~€ 10 Mio
- Partners
  - IBM, Microsoft, SAP, Giesecke & Devrient, W3C, and more…



PrimeLife

- Providing Privacy *throughout Life*: Prime***Life***!
  - … digital footprints left over lifetime
  - … in emerging Internet applications
  - … user-centric and configurable

- Making Privacy Real: Prime***Life***!
  - Making results of PRIME (FP6) and PrimeLife widely usable and deployed
  - Cooperating with other projects for transferring PRIME and PrimeLife technologies and concepts

- Advancing State-of-the-Art in Technology supporting Privacy and Identity Management
  - Mechanisms, HCI, Policies, Infrastructure

… Building on results and expertise of PRIME

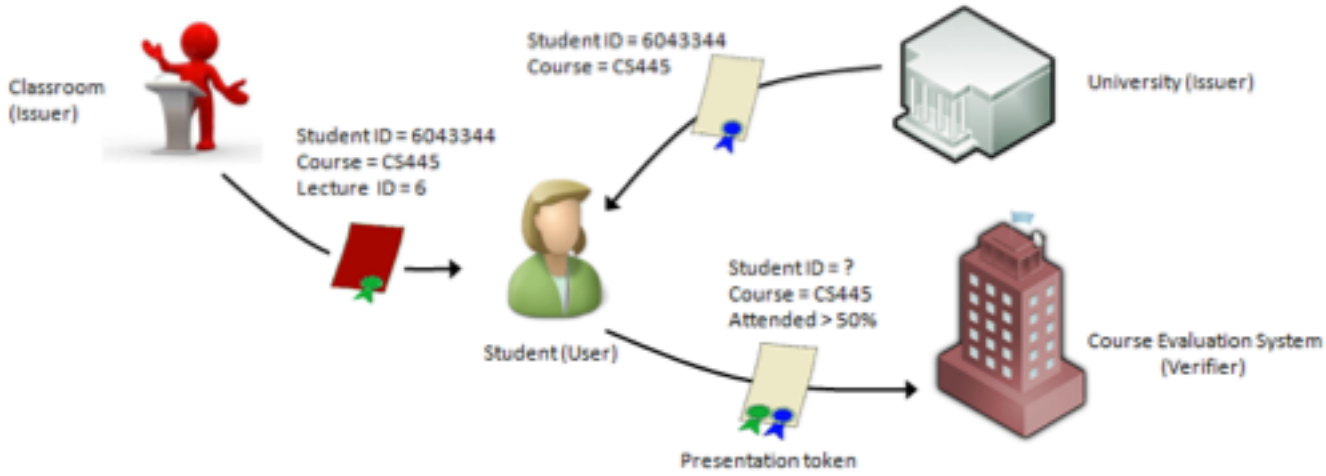
ABC4Trust
Overview and goals

- Attribute-based Credentials for Trust (ABC4Trust)
- Nov. 2010 – Feb. 2015
- Objectives:
  - Abstraction of concepts of privacy-ABCs & unification of features
  - A common unified architecture
    - Independent from the specific technologies
    - Enabling the federation of privacy-ABC Systems based on different technologies
    - Enabling interoperability between different privacy-ABC technologies
- ➢ Avoid lock-in into one specific system
- ➢ Raise trust in privacy-ABC technologies

ABC4Trust received research funding from the 7th Research Framework Program (FP7) of the EU as part of the Trust & Security Program.

ABC4Trust
Application and benefits

- 1st Pilot – Privacy in Online Evaluation and Feedback Systems
  - Deployment: Patras University, Greece
  - Scenario: Students evaluate anonymously the courses they attended
- 2nd Pilot - Privacy in social communication fora
  - Deployment: Söderhamn Secondary School, Sweden
  - Scenario: Pupils communicate using pseudonyms on the school communication system
- Benefits of Privacy-ABCs
  - Privacy-ABCs are by default untraceable (no user-tracking)
  - Enable minimal disclosure (user reveals only the necessary information)
  - User can chose to stay anonymous or generate (unlimited number of) pseudonyms
  - Advanced security (no sharing of credentials, device-binding for extra protection)



ABC4Trust Architecture goals

Reference implementation with ABC functionality

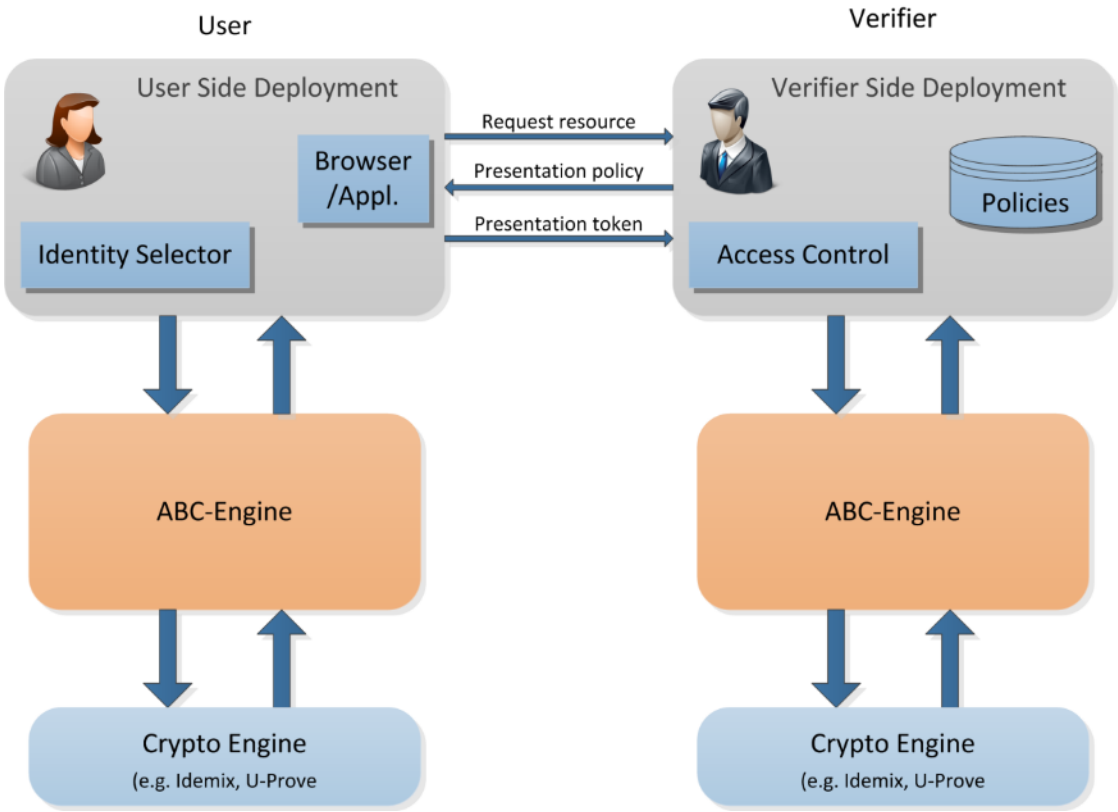
- coded in the ABC-Engine,
- exposed to the application layer as web-services,
- as open source

For developers

- Easier application development
- Cryptographic operations are abstracted away from

For users

- Only need to install a browser plug-in

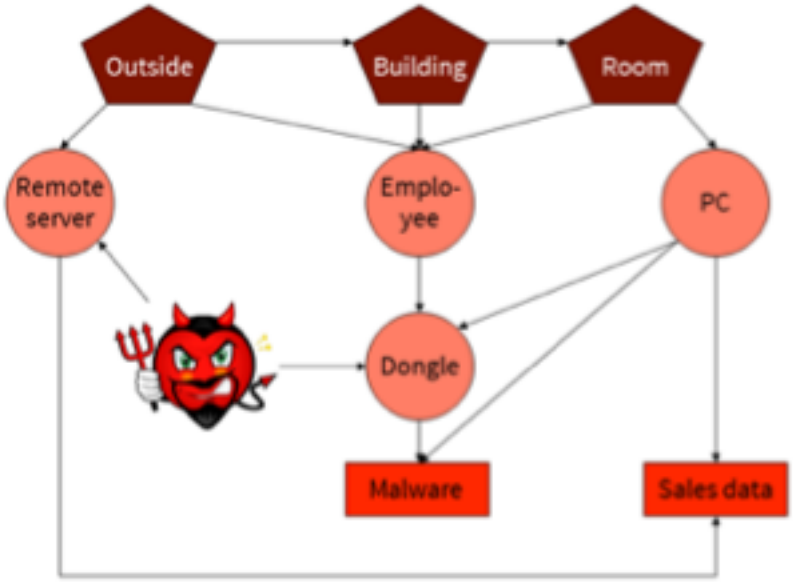


TREsPASS (Completed in 2016)

- There is a constant increase of costs due to cyber attacks (hacking, industrial espionage, exploitation of loopholes).

- How to combine technical sciences, social sciences and state-of-the-art industry processes and tools to
  - predict complex attack scenarios spanning digital, physical, and social engineering aspects,
  - enable informed decisions on security investments,
  - reduce security incidents, and
  - increase resilience?

- Project aims
  - tool support for investments into cyber security controls
  - models and processes to analyse and visualize possible attacks
  - an attack navigator to systematically predict, prioritise, and prevent complex attacks



Privacy & Us
Overview and Objectives

- Privacy and Usability (Privacy & Us)
- Dec. 2015 until Sep. 2020
- Objectives:
  - Develop ways to minimize the negative impact of personal information disclosure
  - Create awareness of the possible negative consequences of uncontrolled personal data disclosure
  - Develop and evaluate methods to assess risks and make informed decisions

CREDENTIAL
Overview and Vision

- Oct 2015 – Sep 2018

- *Vision*: develop, test, and **showcase innovative cloud-based services** for storing, managing, and sharing **digital identity information** and other highly critical **personal data** with a demonstrably **higher level of security** than other current solutions.
  - Secure, user-friendly, cloud-based identity management solution
  - Open, portable and broadly interoperable architecture

- Piloting in different domains
  - e-government,
  - e-health, and
  - e-business

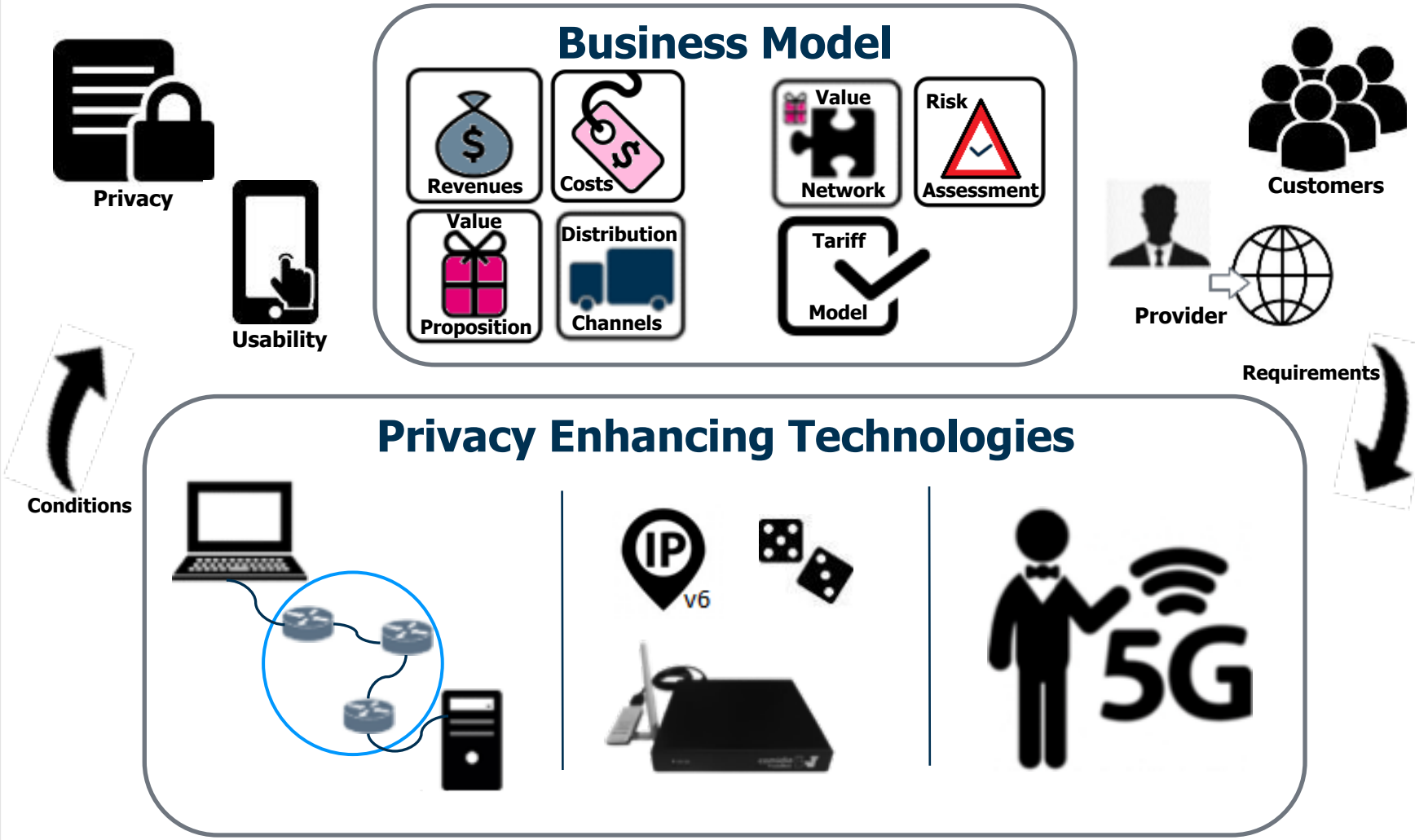
SIDATE

- **Duration:** 08/2015 – 12/2018
- **Aim:** Protection of communication networks of small and medium sized energy providers.
- **Focus:** Balance between security and usability. Enable non-experts to detect and overview security risks.
- **Research I:** Development of security metrics and corresponding measuring methods.
- **Research II:** Creation of a cross-organisational knowledge-database for small and medium sized energy providers to improve availability and integrity of critical infrastructures against attackers.

AN.ON-next

- **Duration:** 01/2016 – 06/2019
- **Aim:** Create and integrate privacy-enhancing technologies into the internet infrastructure
- **Focus:** Establish PET in the mass market
  - Develop new or adapt existing business models
  - Standardize technologies
  - User study: How do users understand tariff and pricing models?
  - User study: What is the perceived relationship of service feature and accepted prices?
  - How can existing value creation architectures and operational models be adapted?

AN.ON-next
Project Overview

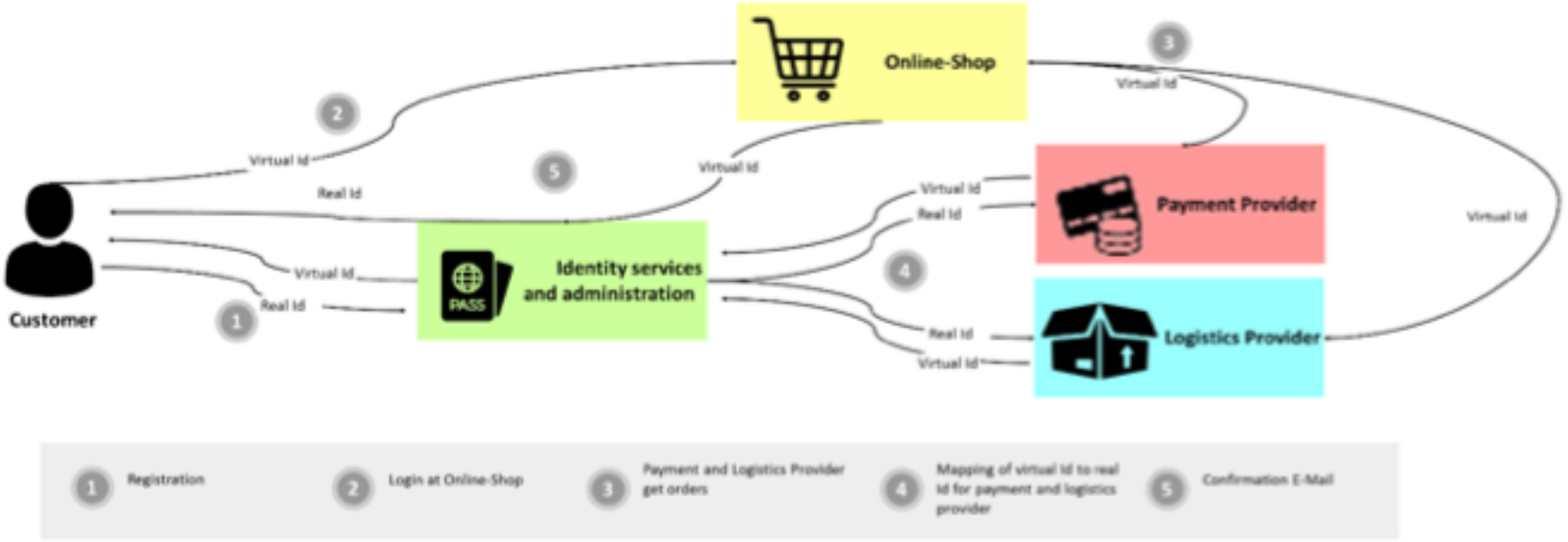


SIOC

- **Selbstdatenschutz im Online Commerce**
- **Duration:** 04/2016 – 06/2019
- **Aim:** Enhance Privacy for Online Shopping
- **Focus:** Develop an online commerce solution with an architecture that enables pseudonymous online shopping, while respecting the interests of all stakeholders.
  - Modelling business processes
  - Considering especially the requirements of the web shop providers since they are crucial for mass-market penetration
  - User studies concerning usability and business model development

Commodity chain

Virtual and real Ids



Panelfit

- **Participatory Approaches to a New Ethical and Legal Framework for ICT**
- **Website:** www.panelfit.eu
- **Duration:** 36 months, from November 2018
- **Aim:** Help researchers and innovators in conducting ethical and legally compliant research
- **Focus:** Conduct issues and gap analysis and develop guidelines for researchers and innovators on:
  - Informed Consent
  - Data Commercialization
  - Cybersecurity

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Cyber Security for Europe

CyberSec4Europe

GOETHE-UNI online – Aktuelle Nachrichten aus Wissenschaft, Lehre und Gesellschaft | News | Kalender |

Goethe University co-ordinates mega-project on cybersecurity and data protection

28. Februar 2019

This is the news channel for the latest information from science and research at Goethe University.

An extensive research project on cybersecurity and data protection in Europe will be launched this week. Goethe University Frankfurt has assumed the leadership and co-ordination of the 43 total consortium partners from science, business, industry and society.

https://aktuelles.uni-frankfurt.de/englisch/goethe-university-co-ordinates-mega-project-on-cybersecurity-and-data-protection/


Proposal for a European Cybersecurity Competence Network and Centre | Digital Single Market - Mozilla Firefox
Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe
Proposal for a European Cyber
https://ec.europa.eu/digital-single-market/en/proposal-european-cybersecurity-competence-net
Suchen
Commission and its priorities
Policies, information and services
Log in
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Digital Single Market
POLICY
Proposal for a European Cybersecurity Competence Network and Centre
Building on the ambitious cybersecurity initiatives announced in 2017, the European Commission proposes as a next step the creation of a Network of Cybersecurity Competence Centres and a new European Cybersecurity Industrial, Technology and Research Competence Centre to invest in stronger and pioneering cybersecurity capacity in the EU.
Aims of this proposal
The mission of the proposal to establish a European Cybersecurity
About Cybersecurity
Policies
Blog posts
News
Events

Who are CyberSec4Europe?

43 partners in 22 countries

11 technology/application elements and coverage of nine vertical sectors

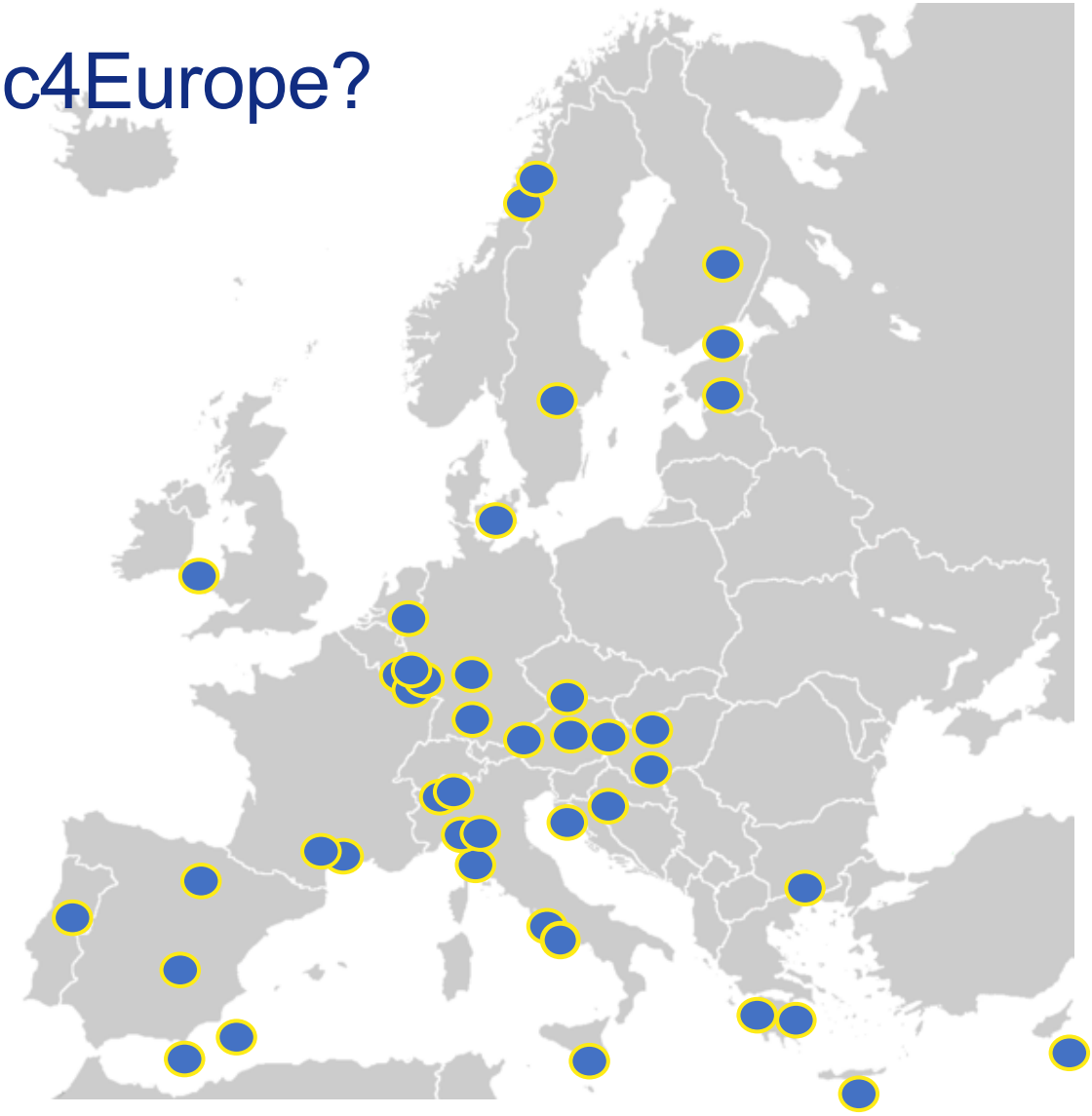
Centres of Excellence / Universities / Research Centres / SMEs

Experience from over 100 cybersecurity projects in 14 key cyber domains

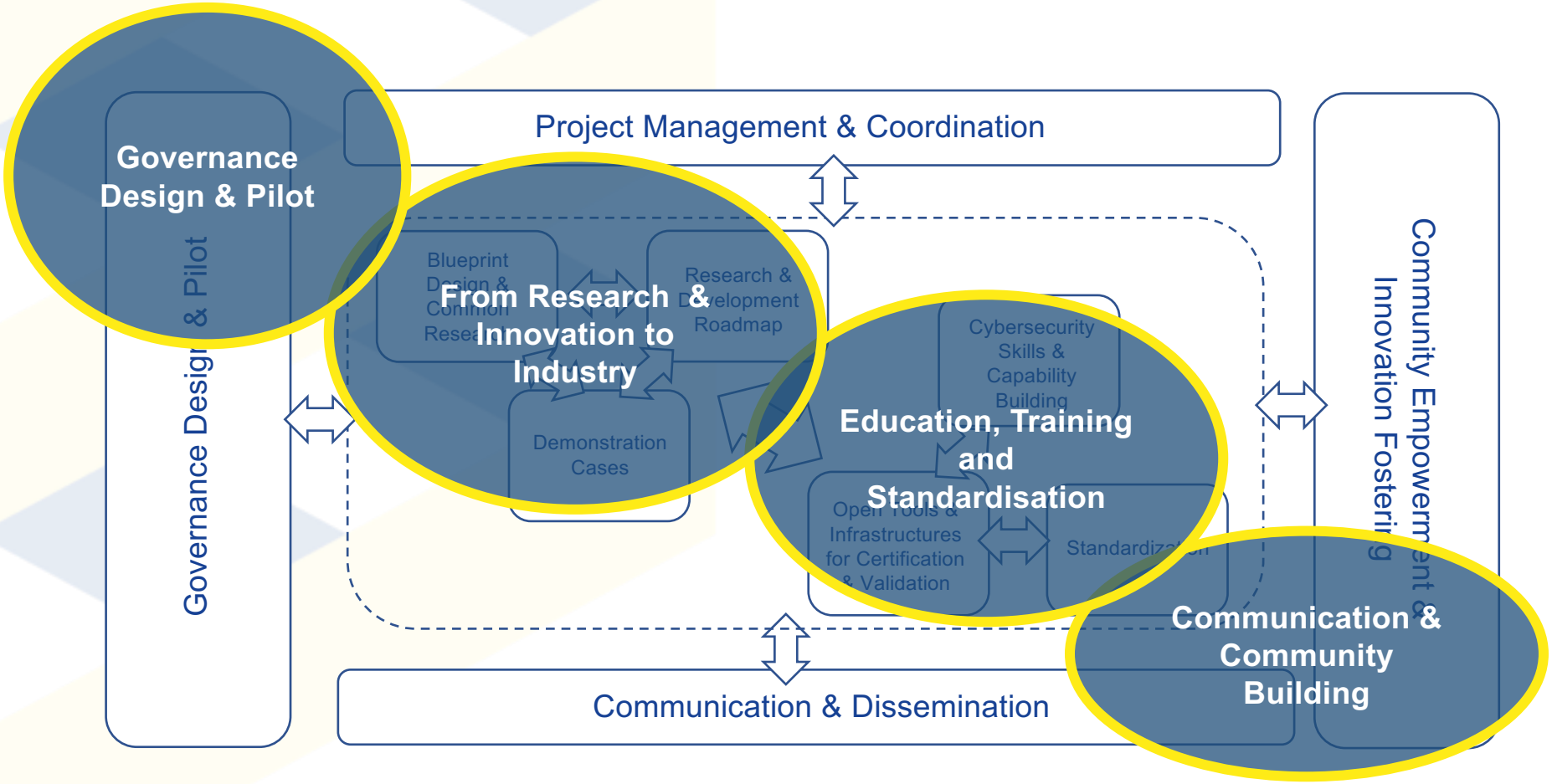
26 ECSO members involved in 6 ECSO Working Groups

Existing networks (ECSO, TDL, EOS, CEPIS)

Funding period:
February 2019 – July 2022



Piloting a Competence Network



Realising Europe's Cybersecurity Strengths and Capacity for the 2020s

Moderator
David Goodman
Trust in Digital Life Association

Tamara Tafra
Previous chair of the Horizontal Working Party on Cyber Issues, Permanent Representation of Croatia to the EU

Andreas Könen
Head of Cyber and Information Security, German Federal Ministry of the Interior, Building and Community

Rasmus Andresen
MEP, Rapporteur Cybersecurity Competence Network Centre Regulation

Miguel González-Sancho,
Head of Cybersecurity Technology and Capacity Building, DG CNECT, EC

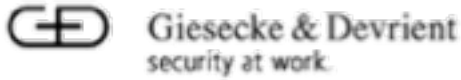
Juhan Lepassaar
Executive Director, ENISA

Europe is funded by the European Union under the H2020 Programme Grant Agreement No. 830929

Standardisation and Regulation

- Multilateral Security, Privacy, and Identity Management in
  - IT Security Evaluation
    - Criteria (IS 15408, Common Criteria)
    - Certification
  - Standardisation (in ISO/IEC JTC 1/SC 27)
    - WG 3: IT Security Evaluation Criteria
    - WG 5: Identity Management and Privacy Technologies
- EU ENISA, European Cybersecurity Competence Centre and Network, EP, …

Partners of the Chair



and many more ...

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Agenda

- Introduction of the Chair
- Course Organisation
- Scope and Outline of the Course
- Introduction to Information & Communication Systems

Teaching Assistance

Peter Hamm
M.Sc.

Please write to:
win2@m-chair.de

Frédéric Tronnier
M.Sc.

Course Materials and Additional Information

- Course Slides
  - Slides of the course can be downloaded from the website of the Chair at www.m-chair.de
- Online News
  - News about the course (e.g. room changes, announcements, etc.)
  - Available via website of Chair, RSS feed or Twitter


www.m-chair.de | twitter @mchair | Imprint | Sitemap

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Chair of Mobile Business & Multilateral Sec

Wirtschaftsinformatik II (PWIN)

Basic Information

Type of Lecture:	Lecture
Course:	Bachelor
Hours/Week:	3
Credit Points:	6
Language:	German
Term:	Summer 2019
Lecturers:	Prof. Dr. Kai Rannenberg Christopher Schmitz M.Sc. Ann-Kristin Lieberknecht MSc.
Email:	win2@m-chair.de

Content of the Course

Description: Basierend auf der Vorlesung "Wirtschaftsinformatik 1" (OWIN) vermittelt dieser Kurs die Grundlagen von Informations- und Kommunikationssystemen (IuK-Systeme) und behandelt u.a. deren Entwicklung und Einführung in Unternehmen. Die Veranstaltung lässt sich grob in folgende vier Teile gliedern:
Im ersten Teil werden Bedeutung und Charakteristika von IuK-Systemen in Unternehmen rekapituliert und eine kurze Einführung in die Unternehmensmodellierung gegeben.
Der zweite Teil geht mehr ins Detail und widmet sich der Architektur und Funktionalität von IuK-Systemen. Es werden ferner die beiden miteinander verwandten Konzepte "Informationssysteme" (IS) und "Kommunikationssysteme" definiert und voneinander abgegrenzt. Dieser Abgrenzung folgend, werden IS-Architekturen und entsprechende IS-Modelle diskutiert und schichtenbasierte Kommunikation und Netzwerktechnologien für Kommunikationssysteme vorgestellt.

Latest News

- MOB1 Exam Review
- Evaluation for MOB1 v
happen on the 15th o
January, 2019
- Next INKO course on
- INKO guest lecture re
by an exercise
- The deadline for Post-
job application is exte

Quick Links

- Courses
- Theses
- FAQ (Teaching)
- Job Offers
- How to find us

mchair @ twitter

twitter: @mchair

Contents of Exercises and „Mentorien“

- Exercises
  - Presentation and discussion of exercise results
  - Addressing of open questions from the lectures
  - Preparation for final written exam
- „Mentorium“
  - Preparation, presentation and discussion of exercises in smaller groups of students
- All materials are going to be made available on the website of the Chair in advance and should be prepared by the students.

Written Final Exam

- Duration: 90 minutes
- 6 Credit Points
- Date of written exam is going to be posted on the examination office's website
- Exam language: German
- All lecture and exercise content is relevant unless it is explicitly excluded
- Previous written exams can be found at www.m-chair.de

Equivalence of prior Academic Achievements to this course

- Acceptance of verified achievements of universities or universities of applied sciences and arts (located in Germany or foreign countries) is possible.

- Achievements from schools generally rejected:
  - Apprenticeships of grammar schools, secondary schools, technical colleges, etc.
  - Apprenticeships of vocational schools

Equivalence of Academic Achievements prior to this Course

- Acceptance will be granted if it is verified that at least 75% of the contents of this course (incl. exercises) was covered and studied at a former university.
- In addition, the weekly number of hours of the course at the former university must be higher or equal to the hours of this course (2L+1E) in order to be accepted .
- The application documents have to consist of an outline of the passed course from the former university, a corresponding certificate and a table of the contents, which shows the overlap with this course (***structured by the outline of this course!***).

Additional Information Source

www.enzyklopaedie-der-wirtschaftsinformatik.de

Agenda

- Introduction of the Chair
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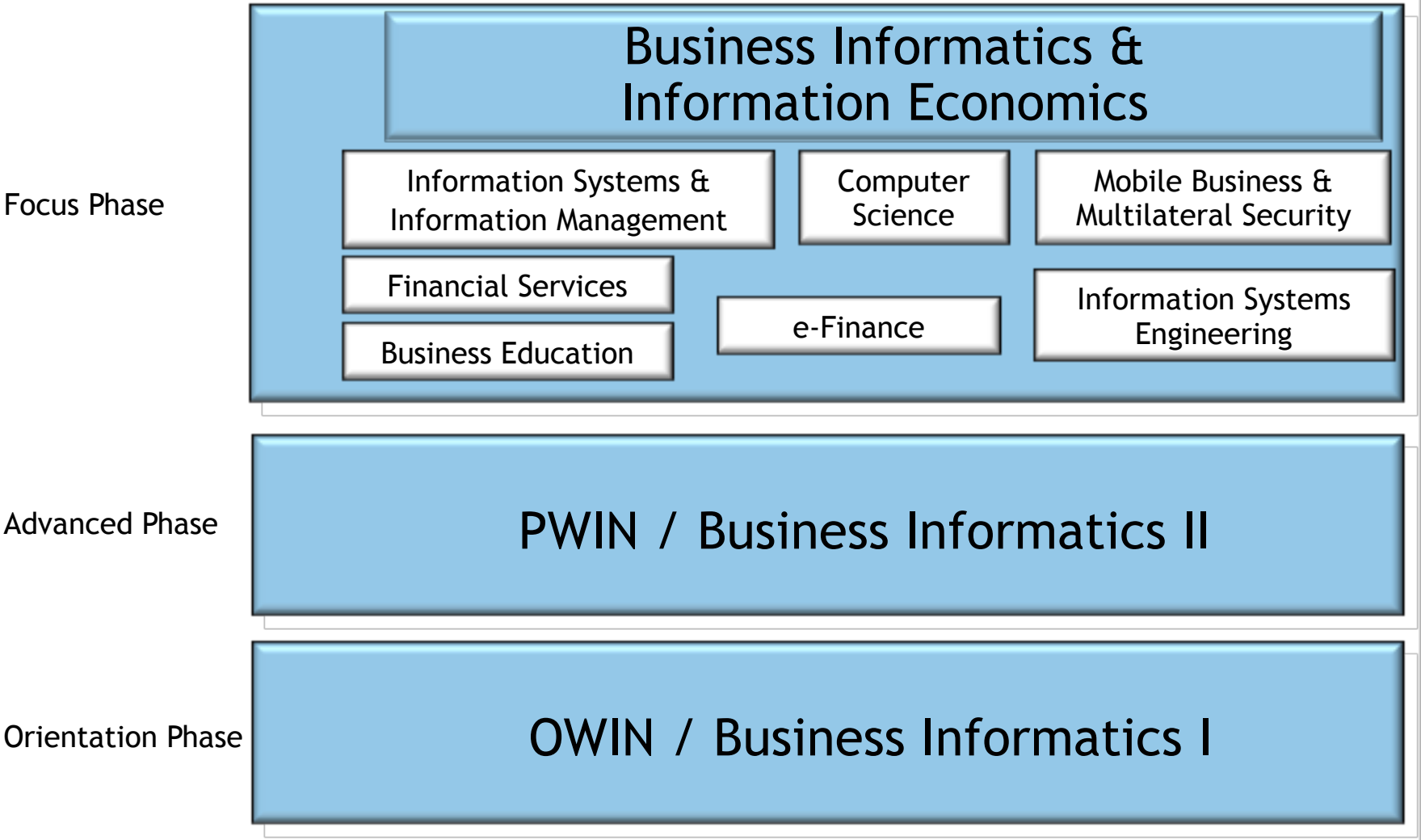
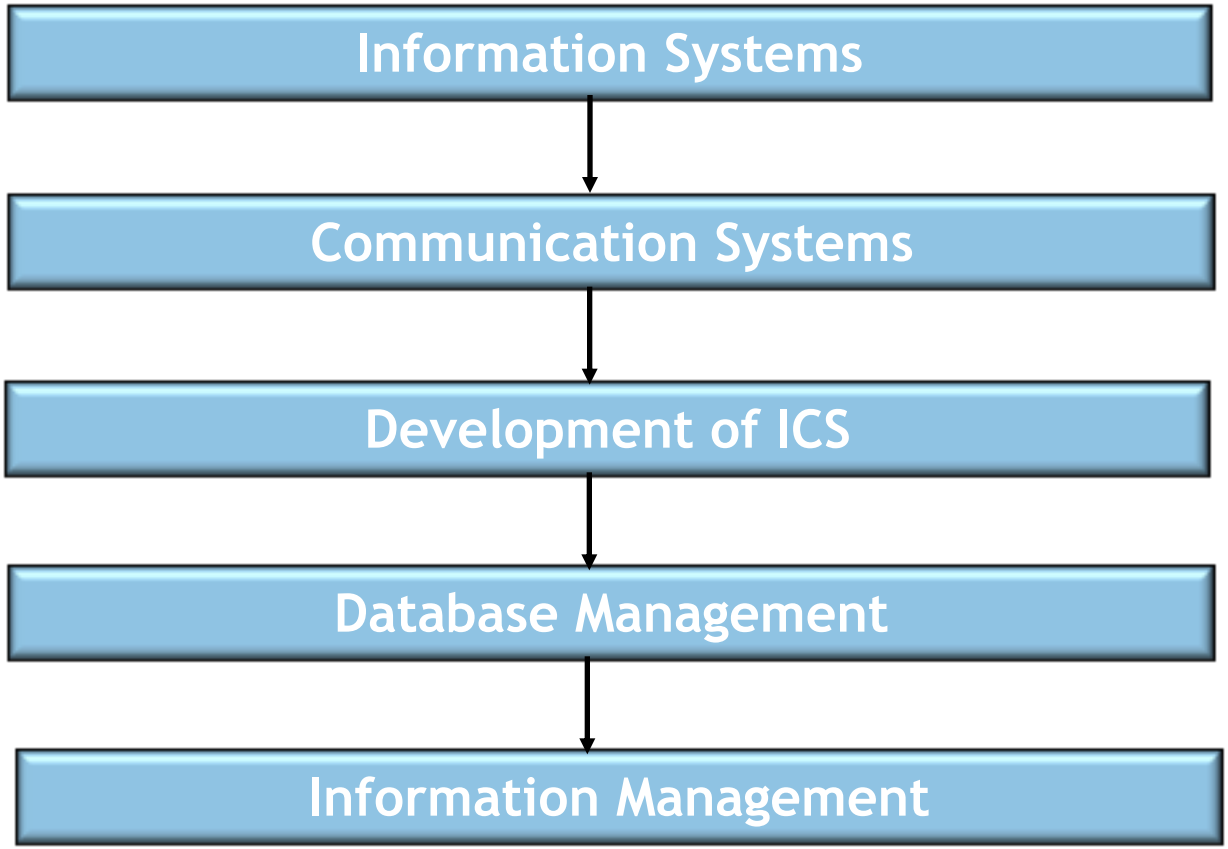
Integration of the Course into the Teaching of Business Informatics



Components of the Course Business Informatics II (PWIN)



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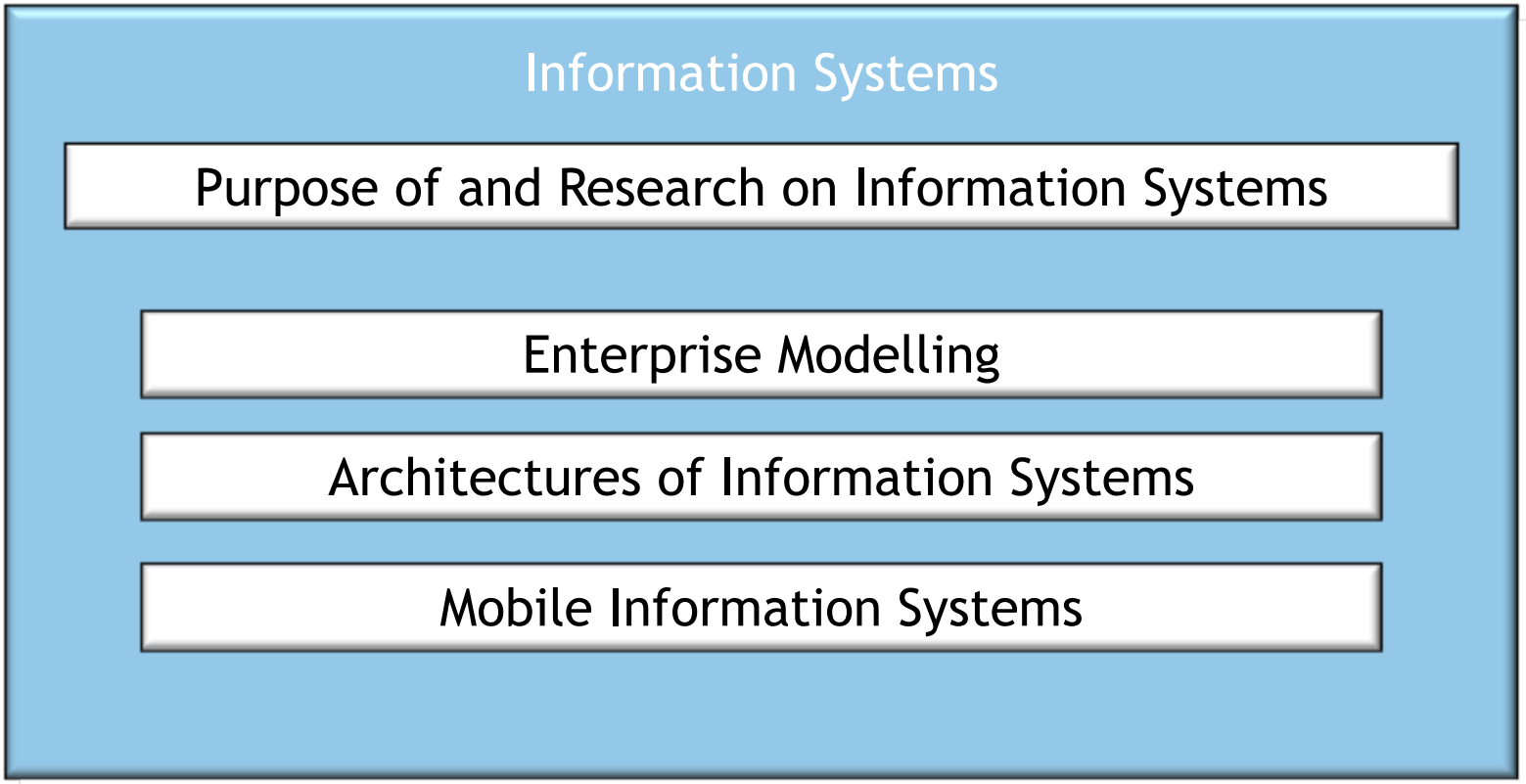

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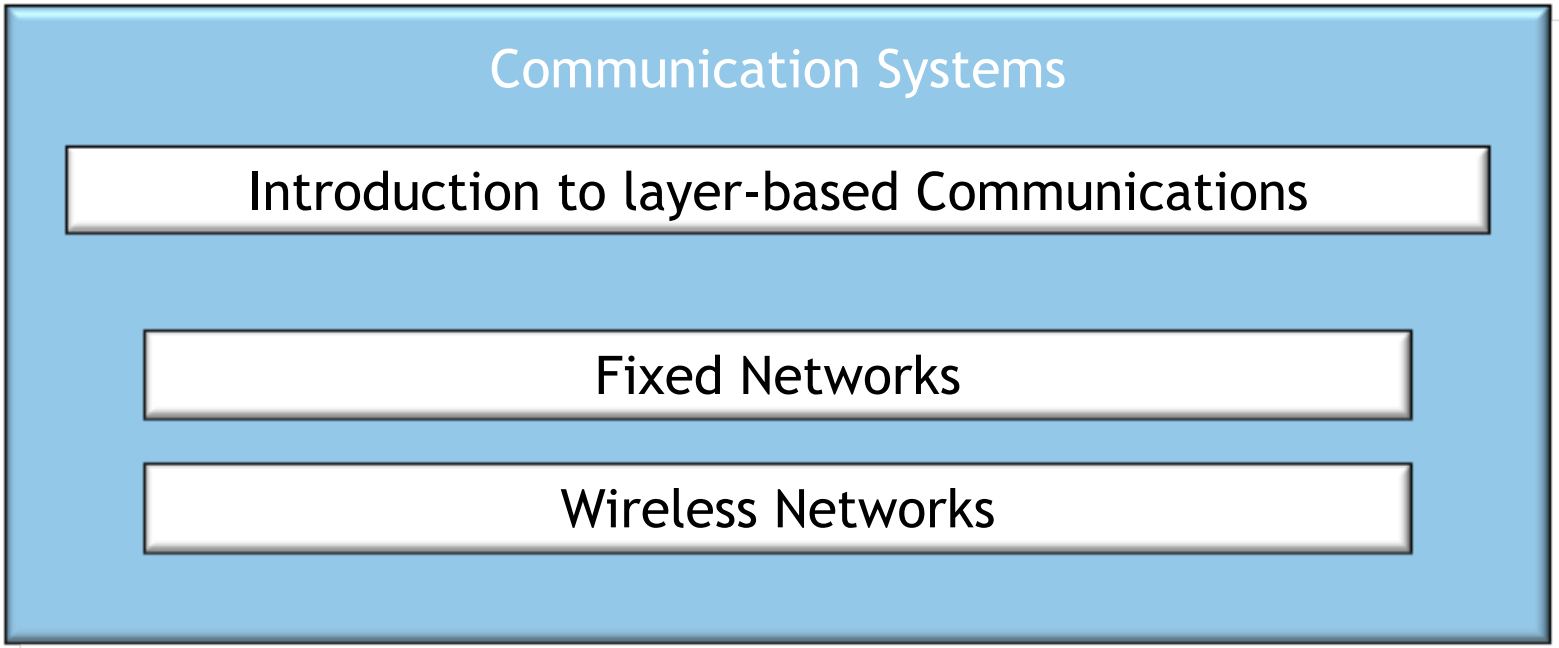
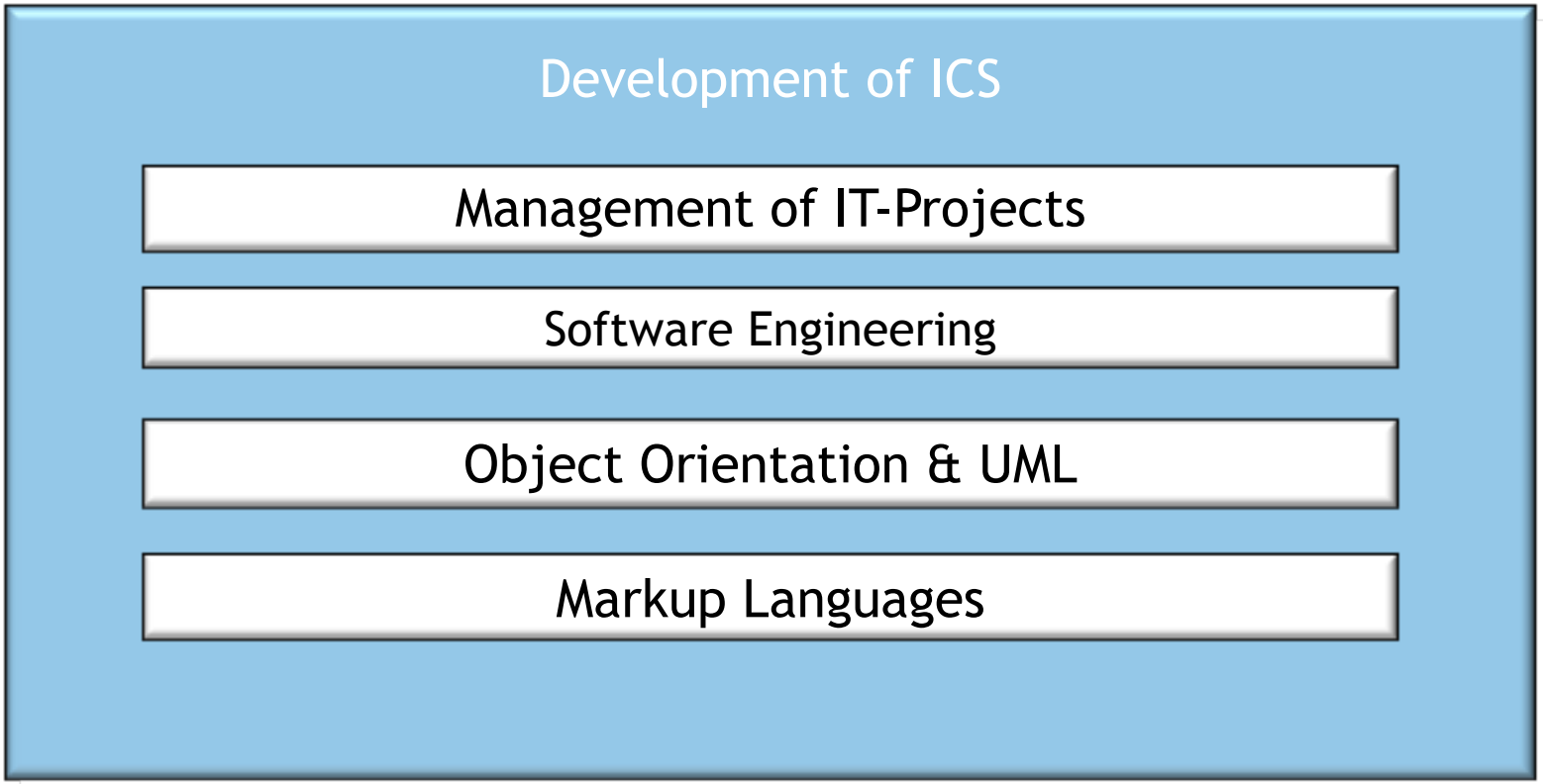


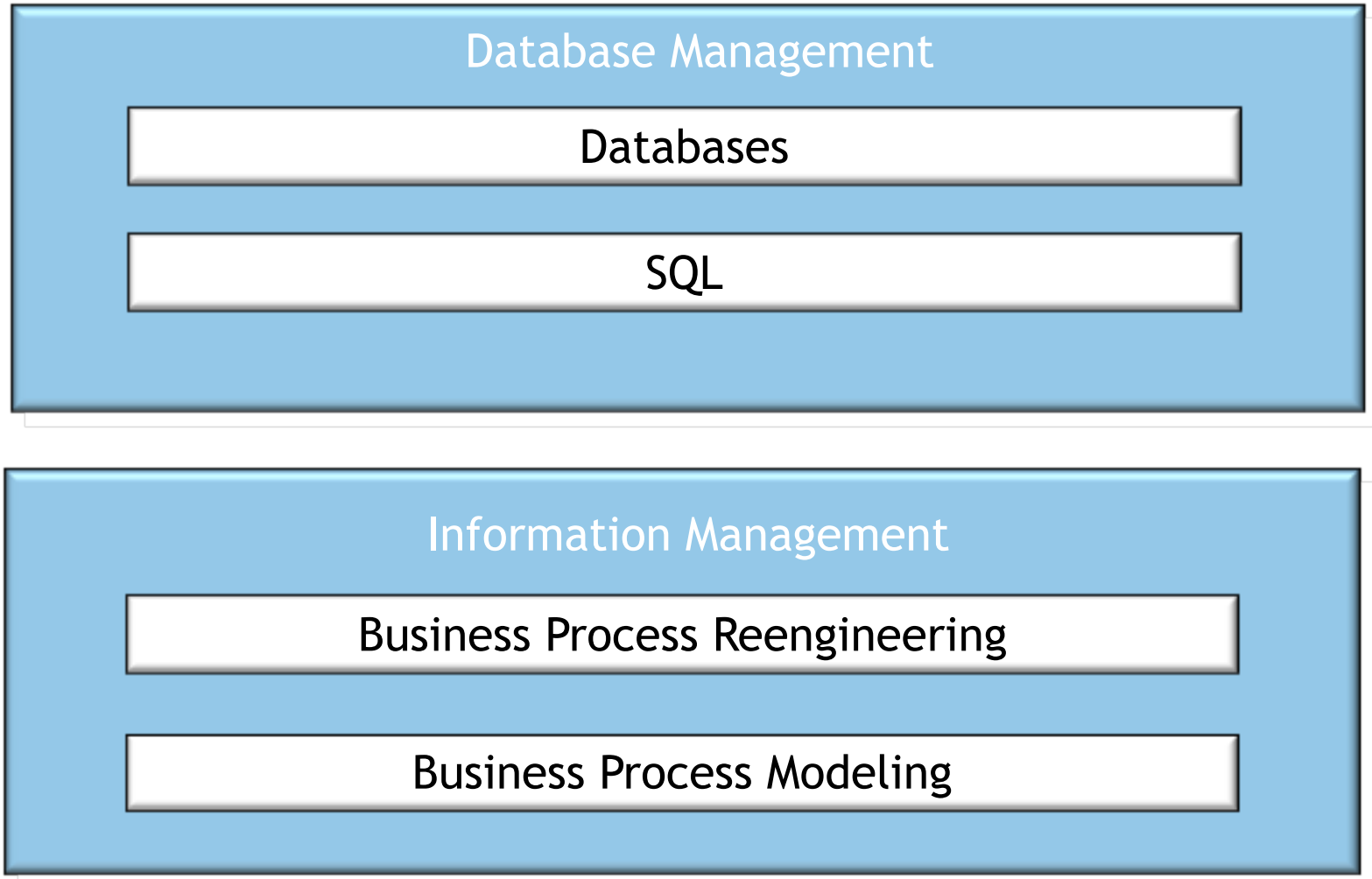
After NSA-gate the Internet will not be what it used to be

[Schneier 2013]

Components of the Course Business Informatics II (PWIN)



Components of the Course Business Informatics II (PWIN)



Outline

Date	Time	Type	No.	Title
13.04.2021	08:30 bis 10:00	Vorlesung	VL1	Informationssysteme I
13.04.2021	10:00 bis 12:00	Vorlesung	VL2	Informationssysteme I
20.04.2021	10:00 bis 12:00	Vorlesung	VL3	Informationssysteme II - Modelle und Architekturen
27.04.2021	08:30 bis 10:00	Vorlesung	VL4	Informationssyteme III - Mobile Systeme
27.04.2021	10:00 bis 12:00	Übung	Ü1	VL1, VL2
04.05.2021	10:00 bis 12:00	Übung	Ü2	VL3, VL4
11.05.2021	08:00 bis 10:00	Vorlesung	VL5	Kommunikationssysteme I - Schichtenbasierte K.
11.05.2021	10:00 bis 12:00	Vorlesung	VL6	Kommunikationssysteme II - Kabelgeb. U. drahtlose K.
18.05.2021	10:00 bis 12:00	Vorlesung	VL7	Management von IT Projekten
25.05.2021	08:30 bis 10:00	Vorlesung	VL8	Entwicklung von IS I - Software Engineering
25.05.2021	10:00 bis 12:00	Vorlesung	VL9	Entwicklung von IS II - Objektorientierung & UML
01.06.2021	10:00 bis 12:00	Vorlesung	VL10	Entwicklung von IS III - Markup Languages
08.06.2021	08:30 bis 10:00	Übung	Ü3	VL5, VL6
08.06.2021	10:00 bis 12:00	Gastvortrag	GV1	TBD
15.06.2021	10:00 bis 12:00	Vorlesung	VL11	Datenbankansatz & Datenorientierte Modellierung
22.06.2021	08:30 bis 10:00	Gastvortrag	GV2	TBD
22.06.2021	10:00 bis 12:00	Übung	Ü4	VL7, VL8
29.06.2021	10:00 bis 12:00	Übung	Ü5	VL9, VL10
06.07.2021	08:30 bis 10:00	Vorlesung	VL12	SQL
06.07.2021	10:00 bis 12:00	Übung	Ü6	VL11, VL12
13.07.2021	10:00 bis 12:00	Vorlesung	Q&A	Q&A

Agenda

- Introduction of the Chair
- Course Organisation
- Scope and Outline of the Course
- Introduction to Information & Communication Systems

What is an Information System?

"[…] a set of interrelated components that collect (or retrieve), process, store, and distribute information to support decision making, coordinating and control in an organization."

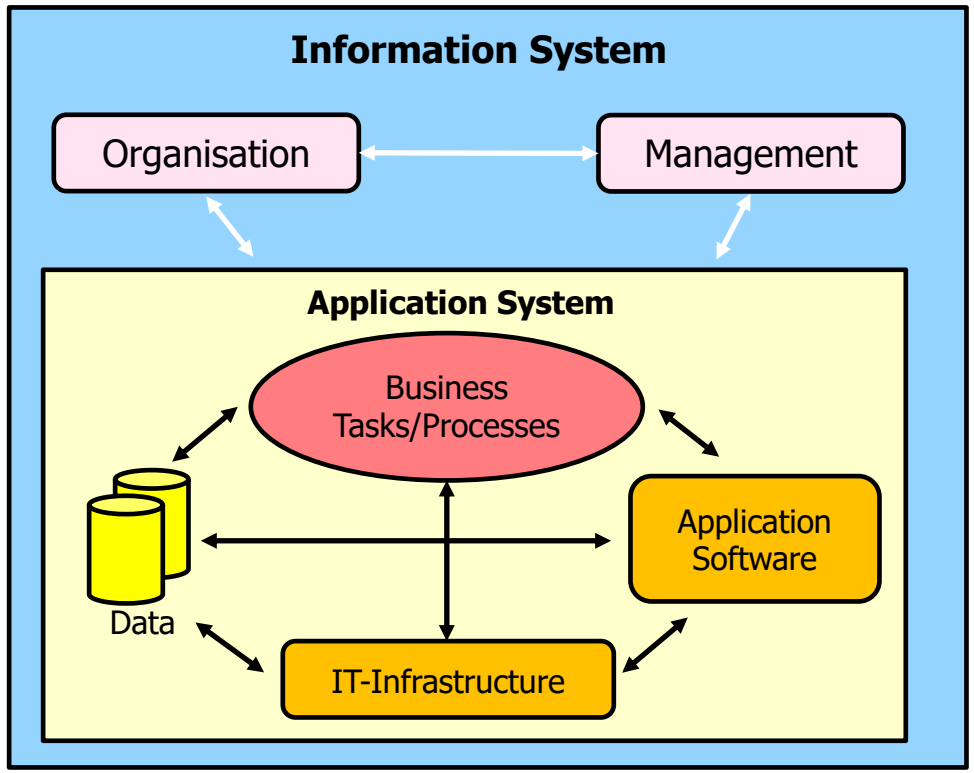
Source: Laudon, Laudon (2013), p. 35

Information System and Application System

- **Information System (IS):**
  A system which was built to be used as part of an enterprise. It contains all relevant application systems and is embedded into the organisation and management of an enterprise.

- **Application System (AS):**
  A system which consists of business tasks and processes it supports, the underlying IT-infrastructure, the application software and the data it required in order to accomplish its objectives.

Information System Structure and Components

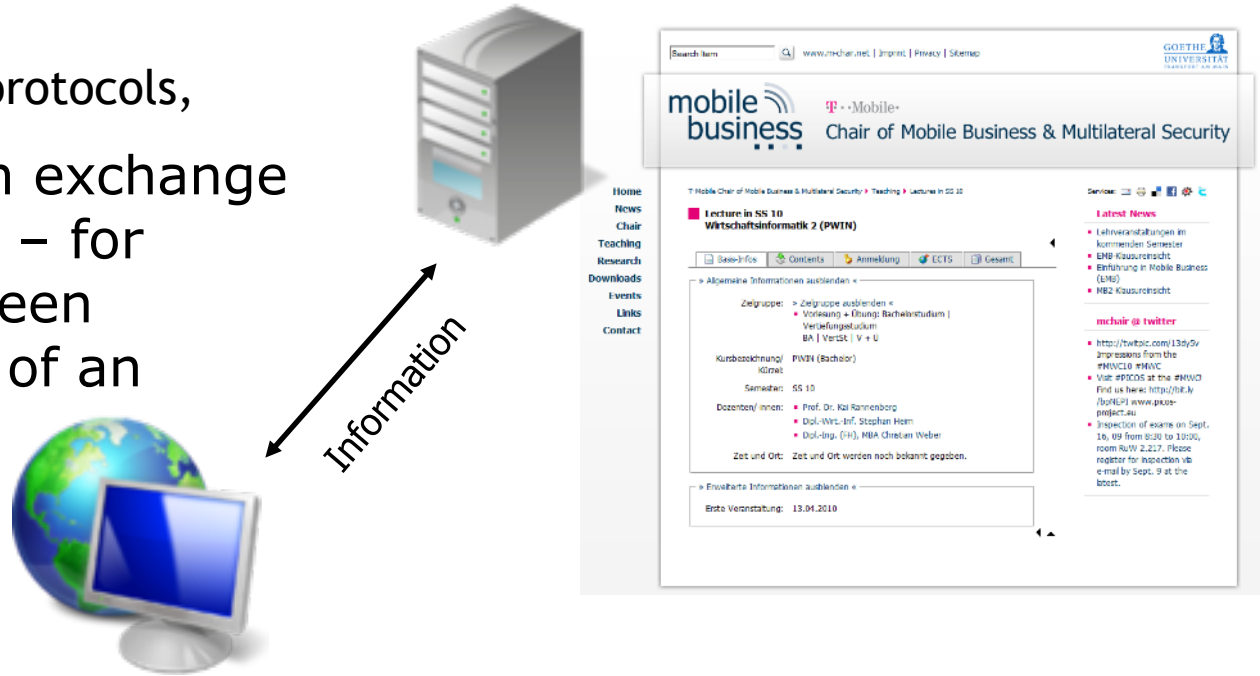


Source: Laudon, K.C., Laudon, J.P., Schoder, D. (2010), p. 18.

Communication System

- A communication system is a collection of to each other compatible
  - Hardware (terminals, physical network components),
  - Software (operation systems, network protocols, application systems), and
  - Transmission protocols,

which allow an exchange of information – for example between different sites of an enterprise.



Interplay of Information and Communication Systems

- Information Systems (organisational orientation)
  - Designed for a specific operational area of responsibility
  - Considers organisational and basic personal requirements
  - Supports decision making, coordination, controlling and monitoring in enterprises, but even more aids managers and employees to analyse problems, understand complex business cases and develop new products.

- Communication Systems (technical orientation)
  - Physical networking
  - Transmission media
  - Hardware and software

Literature

- Laudon, K.C., Laudon, J.P., Schoder, D. (2010) „Wirtschaftsinformatik – Eine Einführung“, Pearson Studium, München.
- Laudon, K. C.; Laudon, J. P. (2013): *Essentials of Management Information Systems. 10th* Edition, Pearson Education Limited, Kendallville.
- Schneier, Bruce (2013): *The US government has betrayed the internet. We need to take it back.* www.theguardian.com/commentisfree/2013/sep/05/government-betrayed-internet-nsa-spying