



22nd International SAP HERUG Conference: “Mastering our Digital Transformation” - Opening Address and Introduction

Prof. Dr. Christian Thomsen – President of TU Berlin

Prof. Dr. Hans-Ulrich Hei – VP Education, Digitalisation and Sustainability

Michael Wilmes - Conference Chairman



Digitalisation@TU_Berlin: A Sketch of the Big Picture

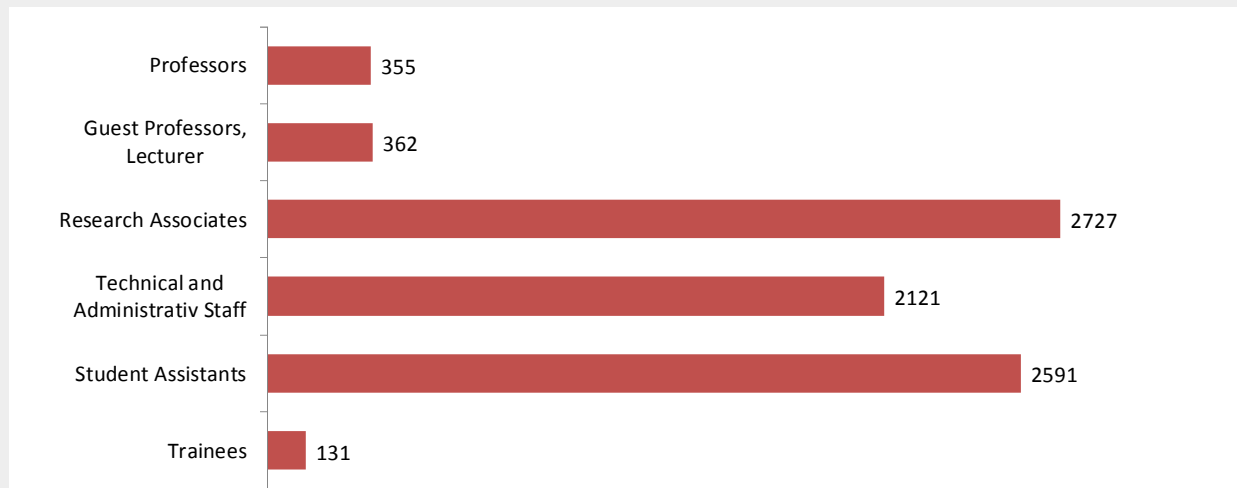
15.05.2019

Hans-Ulrich Heiss

VP Education, Digitalisation and Sustainability

TU Berlin in numbers:

- public funds from regional government: 328,5 million euros (2018)
- additional third-party expenditures: 170 million euros (2017)
- 35,000 students (Winter Semester 2018) in 135 degree programs
- 8,362 employees

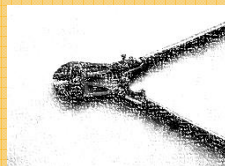


Data as of: September 2018

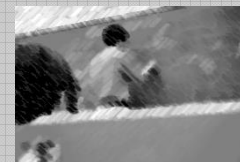


Digitalisation: Draw a Distinction!

Digitalisation
as a tool



Digitalisation as
a subject



We are only at the beginning:

Digitalisation as a tool

- IT-Support for all fields of activity and user groups of university
 - Improve quality
 - Increase efficiency
 - Create transparency

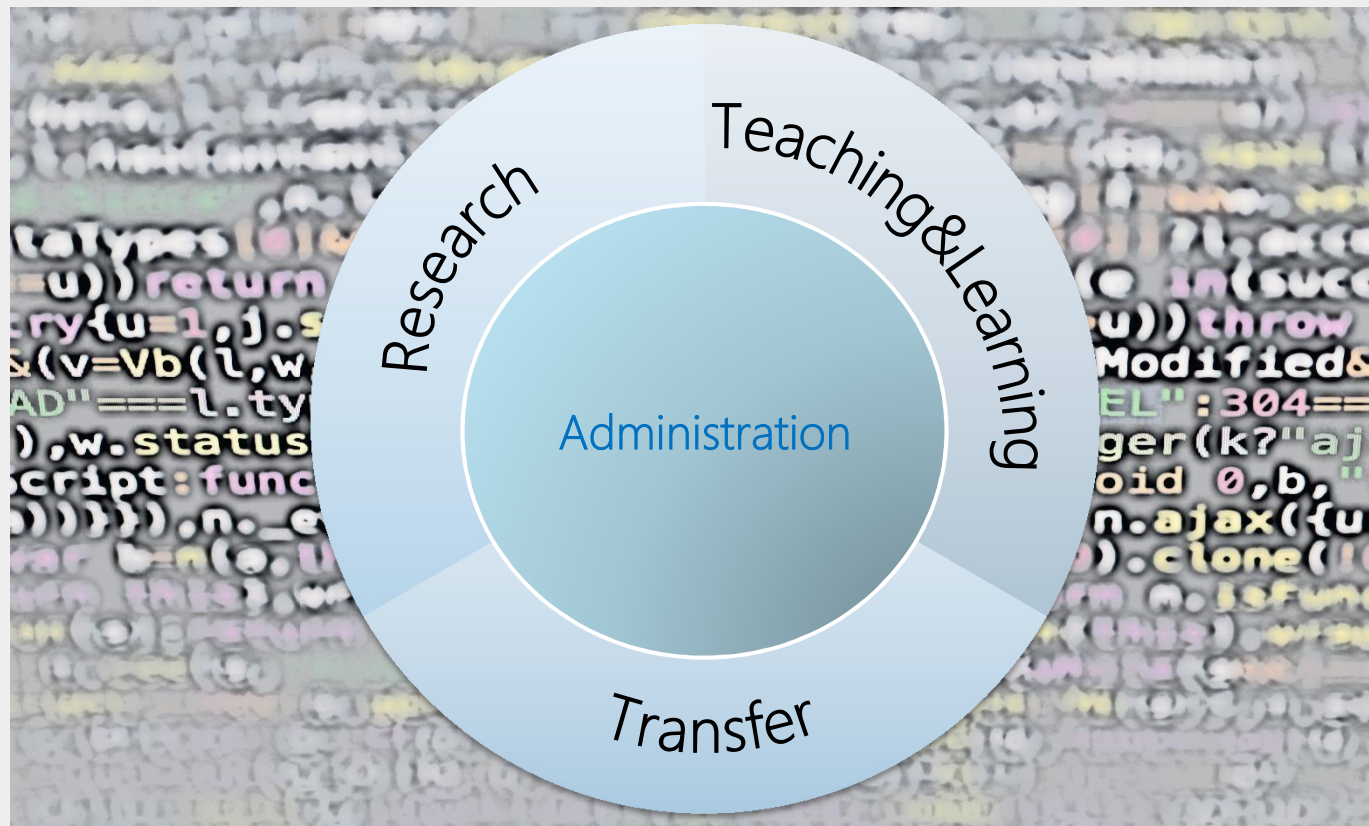


Digitalisation as a subject

- Extend the state of the art
 - Further develop structure and governance of organization and curricula
 - Prepare graduates for the Digital Transformation
 - Foster critical dialogue with society



(I) Digitalisation as a tool



Digital Tools in Administration

New Campus Management System

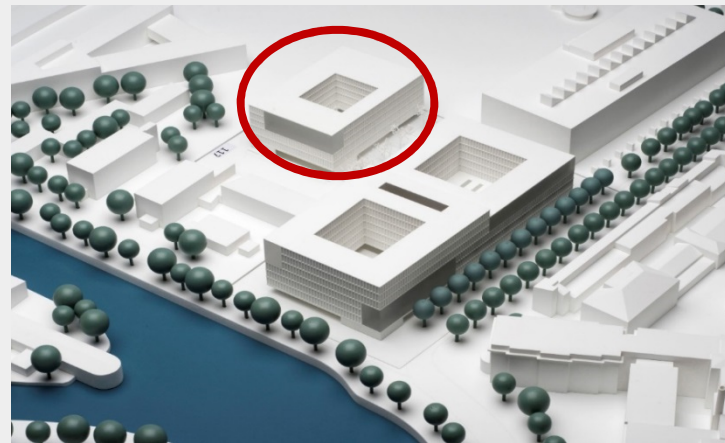
- Integrated system based on SAP-Software
 - Enterprise Resource Management (ERM)
 - Student Lifecycle Management (SLM)
- Start 2012 (preliminary projects)
- More than 100 consultants (external, accumulated)
- More than 200 TU employees involved
- More than 2000 pages requirements description
- Stepwise GoLive until 2020

Legacy Systems still remaining in a number of fields and areas

SAP is not covering all aspects and requirements

Digital Tools in Research

- Digital Models and Simulation are state of the art in almost all disciplines
- Provision of increasing HPC capacities
- New Interdisciplinary Center for Modelling and Simulation (IMoS)
- Joint efforts in the Berlin University Alliance (BUA = TUB, FUB, HUB and Charité)
- New National Initiatives
 - National research data infrastructure (NFDI)
- AManDa: TU Research Information (SAP aBPM and HANA)
- Kordula: Academic Performance and Institutional Research (SAP Analytics)



Digital Tools in Transfer: Open Science



- Open Data:
 - Meta data management, curating of research data
- Open Access
 - Open Access Strategy in place: Provide Infrastructures for OA publication
- Open Source
 - Widely used
- Citizen Science
 - Individual projects
- Open Educational Resources: little done so far

Digital Tools in Teaching&Learning

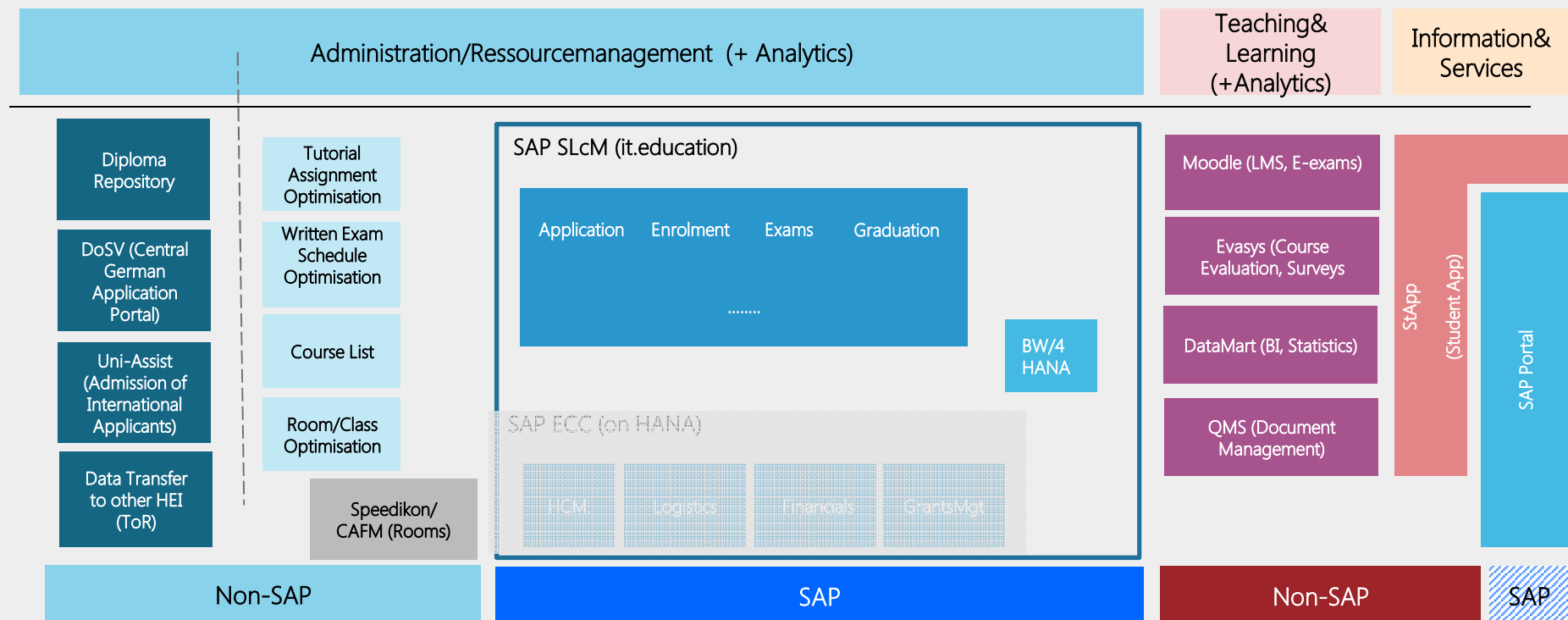
- Learning Management System (Moodle)
- Support by Online-Teaching-Team (7 FTE + 5 student assistants)
 - Courses and Workshops
 - Individual counseling (technically und didactically)
 - Recording studio + Equipment to lend
- MOOC production
- Flipped Classroom
- E-exams

Consequences for campus and building development

- Lecture Halls
- Teaching-/Learning spaces

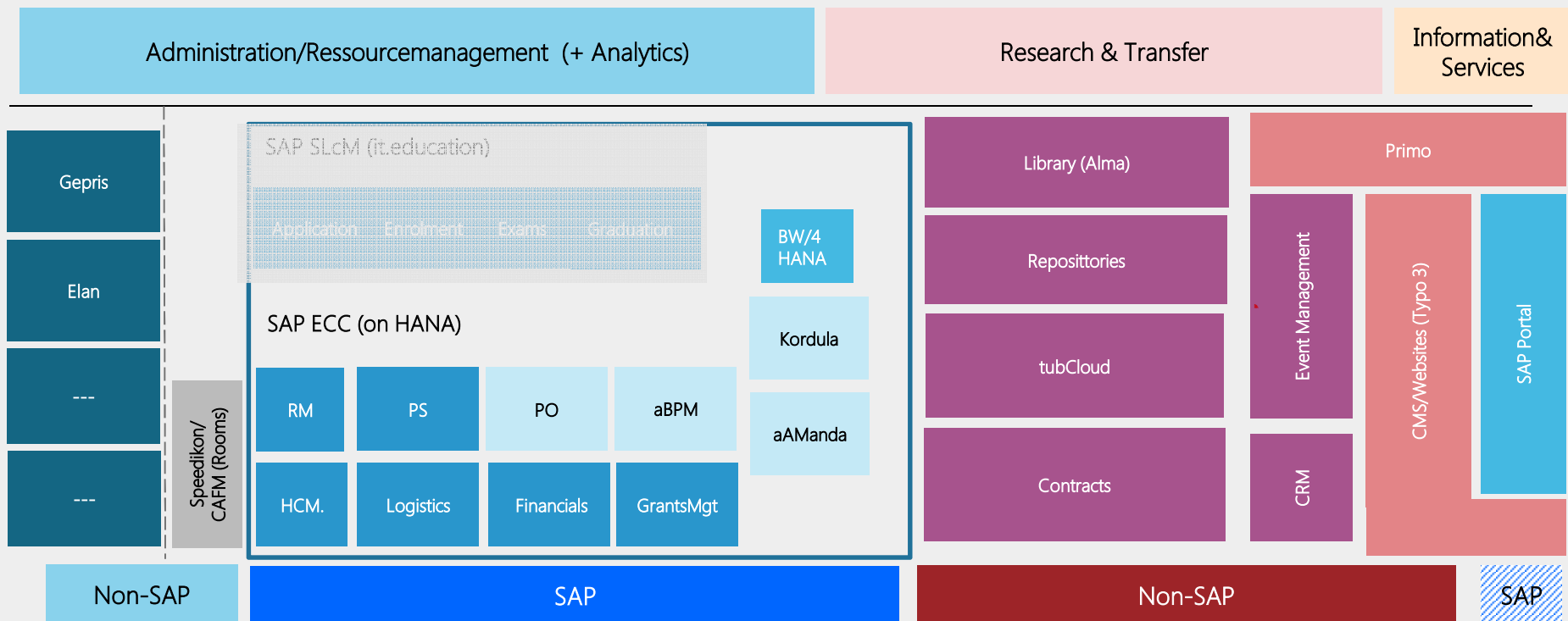
Enterprise Architecture TUB: application landscape (I)

Capabilities: *Administration*, *Teaching and Learning*

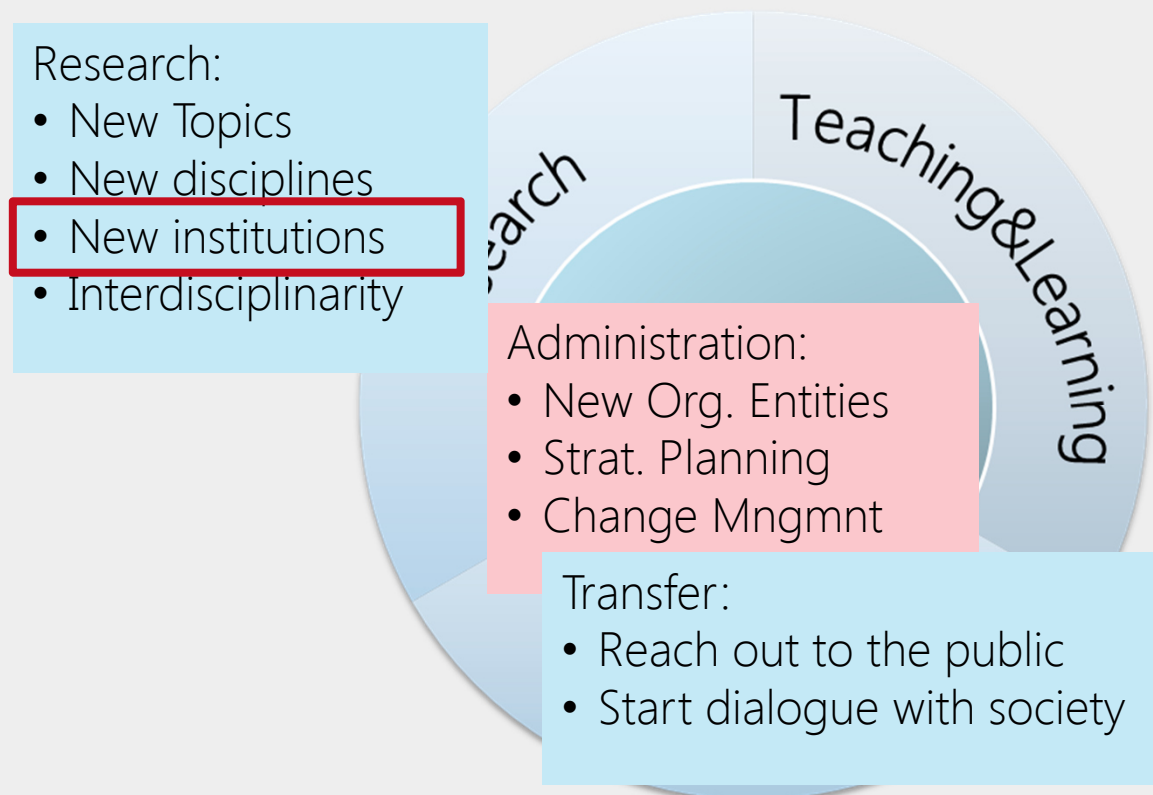


Enterprise Architecture TUB: application landscape (II)

Capabilites: *Administration*, *Research and Transfer*



(II) Digitalisation as a subject



Digitalisation as a Research Topic

- Several Collaborative Research Centers
- Several Research Training Groups (Graduate Schools)
- Research Campuses

New Institutions:

- Berlin Big Data Center (Volker Markl)
- Competence Center for Machine Learning
- Einstein Center for Digital Future (ECDF)
- Weizenbaum Institute for the Networked Society

EINSTEIN CENTER DIGITAL FUTURE

Ca. 40 Mio for 6 years
More than 50 new (junior)
professorships

Private-Public
Partnership

Donors'
Endowment

Matching
funds

Collaboration
funding

Einstein Center Digital Future
Collaborative projects, professorships, infrastructure, master
program, labs,
public approach, show cases

Technische
Universität
Berlin

Charité
Berlin

Freie
Universität
Berlin

Humboldt-
Universität
zu Berlin

Universität
der Künste
Berlin

RESEARCH PROGRAM

Digital Humanities &
Society

Digital Health

Digital Industry
and Services

design, improve, adapt, methods, models, infrastructure

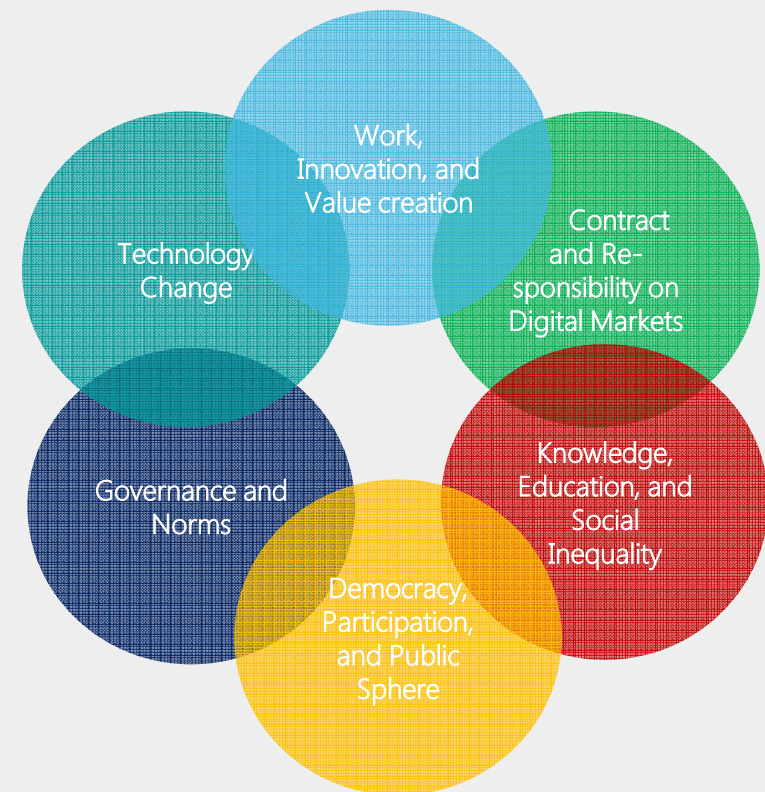
New insights with digital methods, models infrastructures

Digital methods, algorithms, infrastructures

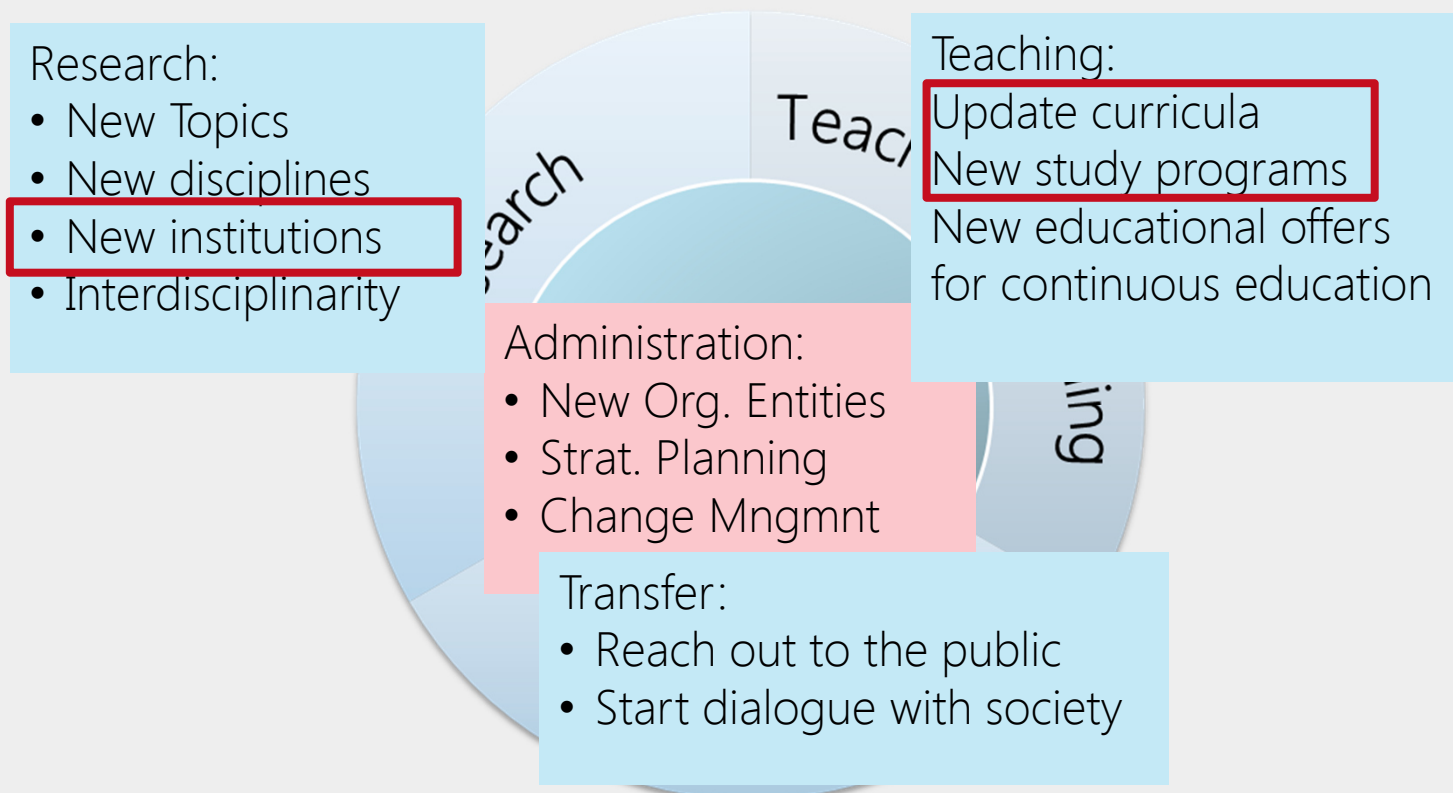
Weizenbaum Institute for the Networked Society

The German Internet Institute

Funded by the
Ministry of Education and Research
with 50 Mio € for 5 years



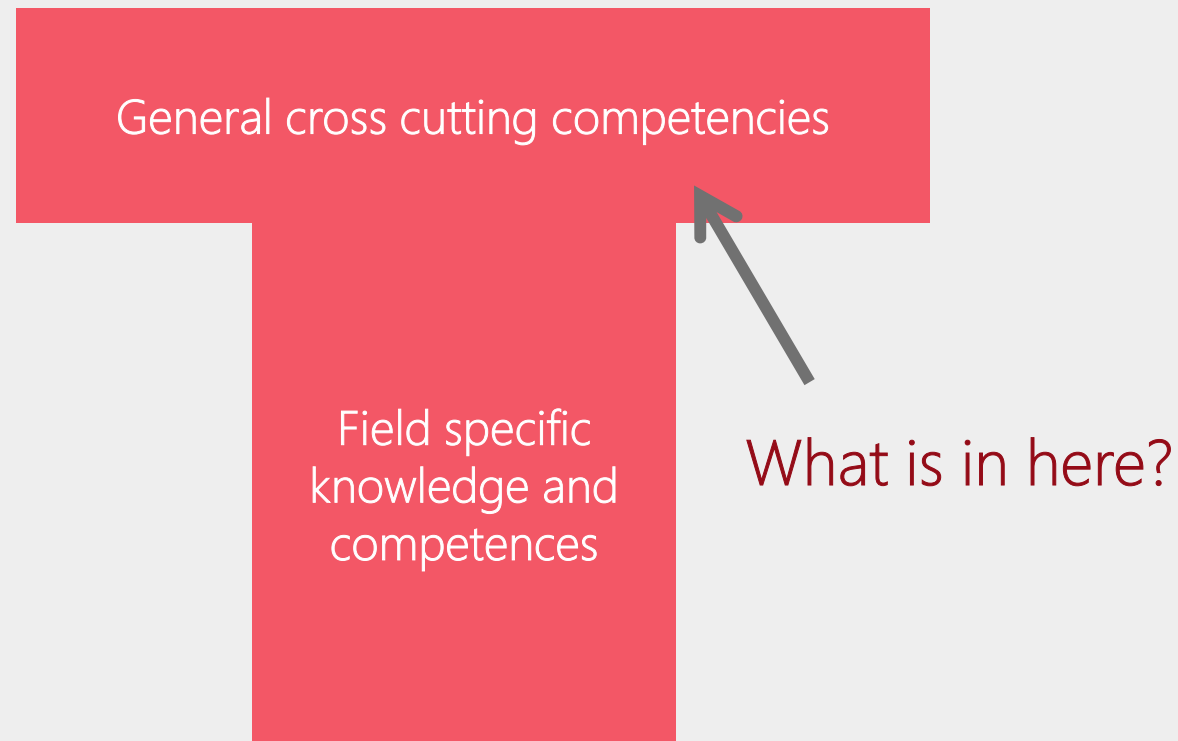
(II) Digitalisation as a subject



What we already have (dedicated programs)

- Computer Science (BSc, MSc)
- Computer Engineering (BSc, MSc)
- Information Systems Management (BSc, MSc)
- Digital Media and Technology (BSc, MSc)
- Computational Engineering Sciences (BSc, MSc)
- Automotive Systems (MSc)
- Scientific Computing (MSc)
- ICT Innovation (MSc, EIT Digital, with a 25% minor in „Innovation&Entrepreneurship“)
 - Autonomous Systems
 - Cloud Computing and Services
 - Cyber Security
 - Data Science
 - Human Computer Interaction and Design
 - Internet Technology and Architecture
 - Visual Computing and Communication

What we want:
Digitalisation as a subject for all and everyone!



Questionnaire to all study program directors at TUB



Ca. 135 programs, response rate ca. 60%

Questions about Digital Transformation:

- How will competence/job profiles change?
- New scientific methods?
- New fields emerging?
- New professorships required?
- Need for new courses?
- Need for new degree programs?

Summary of Survey

- Some recent changes in curricula already in place
- Central course offer „Data Science“ highly welcome
- Little willingness to change compulsory core of programs
- New courses to be placed in electives catalogue
- Programming courses for all desirable, but unclear:
 - Service from CS department or own production?
 - Which language: C, C++, Java, Python, Scala,...?





Consequence:



Soft approach to curriculum change:

- Additional courses offered targeting non-IT-students
- Embeddable into any degree program (elective or free choice)
- Let the students decide

Action 1 Appetizer Lecture Series



Digital Future (Fall 2018)

- Overview of current technologies, applications and research topics from different disciplines
- Taught by professors from all disciplines
- Target group 3./4. semester bachelor (all students)

Internet & Privacy (Spring 2019)

- Overview of technology, threats, opportunities, economic and political issues, data protection rights
- Taught by professors and external experts
- Target group: all students and public

Action 2

New Course: Data Science 1 (Spring 2019)



- Learning Outcomes:
 - Understanding of data science foundations
 - Knowledge of data programming concepts
 - Experience in interdisciplinary problem fields
- Adapted from Data 8 course (UC Berkeley)
- Based on Jupyter Notebook (Python)
- Target group 3rd-6th semester bachelor (all students)
- Offered each semester
- 6 cp, E-assessment

Action 3

New Certificate program: Data Literacy (Fall 2019)



Data Science 1

Compulsory
(6 cp)

Digital Future

Internet&Privacy

Machine Learning

Data Engineering

Data Science Tool Box

Electives
(12 cp)

Digital Innovation

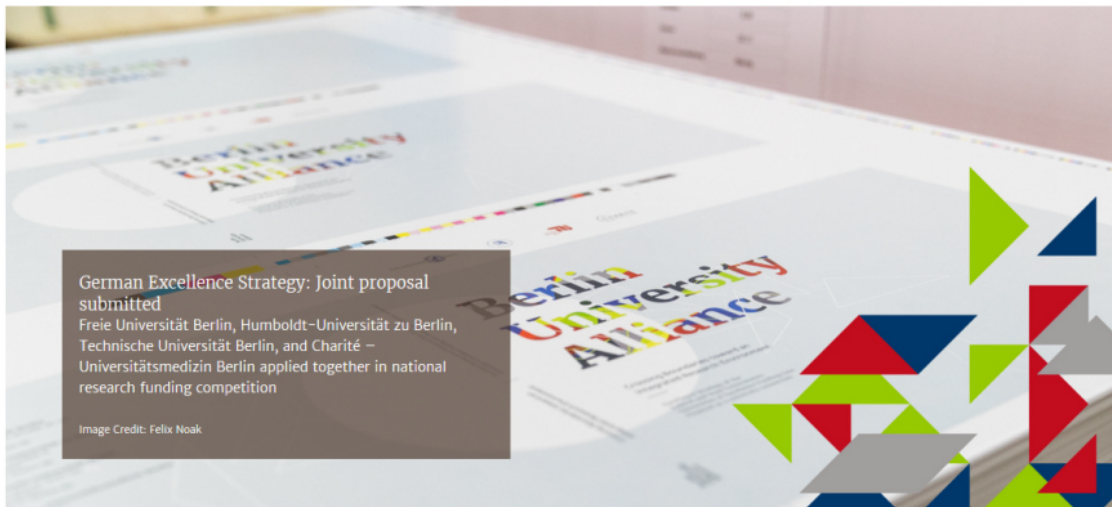
Data Protection
Law

Information Systems
and Data Analytics

Outlook: Berlin University Alliance

Joint Infrastructure and Shared Services creating a new level of cooperation

Freie Universität Berlin, Humboldt-Universität zu Berlin, and Technische Universität Berlin along with **Charité – Universitätsmedizin Berlin**: Working together teaching and doing research in one of the leading research hubs of the world.

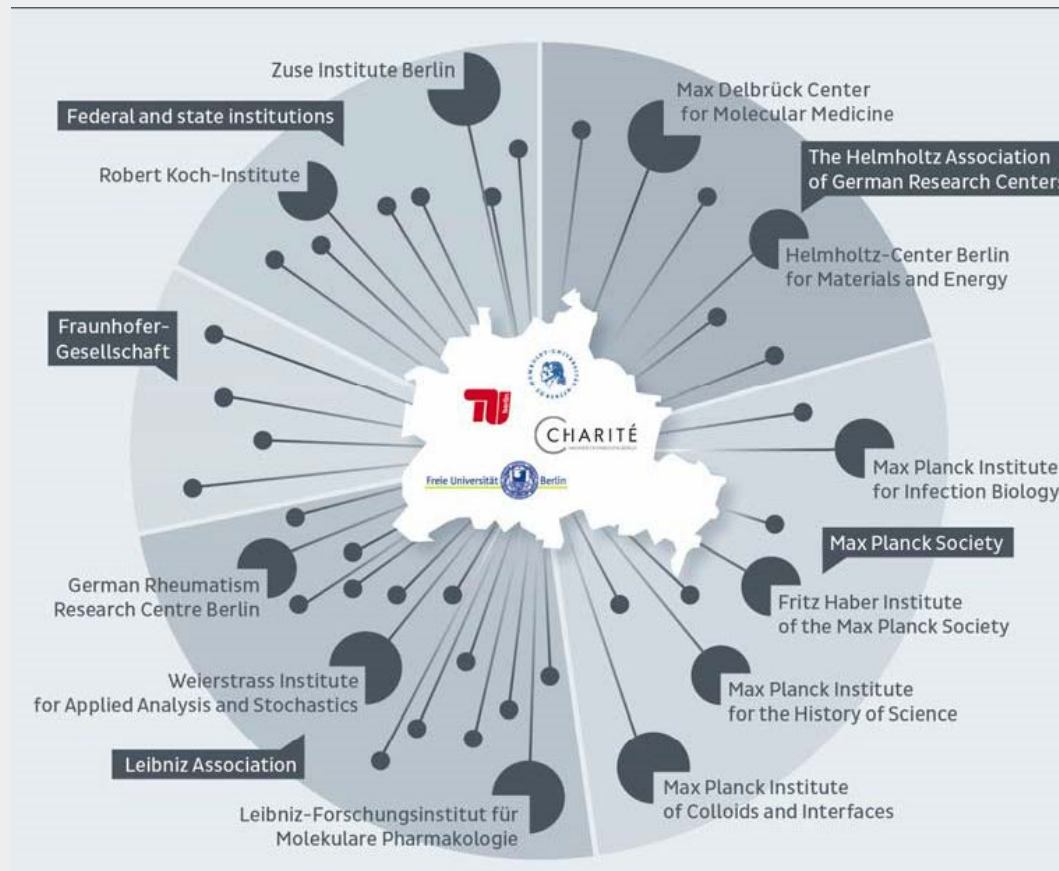


Vision

Turning Berlin into an
integrated research environment
that will be
one of Europe's leading science hubs
with the Alliance as
nucleus and driving force



Collaboration with a large number of non-university research institutes



Outlook: Digitisation of the Campus

Smart Campus, Smart City



Outlook: Sustainability and Innovation with a Purpose

Ressources, KPIs, Projects, Platforms

- Campus as „Living Lab“
- Transdisciplinarity and Openness:
 - Make better informed decisions
 - Bring together knowledge, action and technology in concrete projects
 - Build Platforms: Data, Information, Analytics, Processes, Knowledge Exchange and Collaboration



Conclusion

- Digitalisation at universities is a complex topic
- Comprehensive integrated campus management not available „out of the box“
- Stepwise integration of existing „islands“ based on a general core data management (single point of truth) and clear goals
- Revision/enhancement of curricula urgent
- New study programs coming up

Digitalisation as a tool and Digitalisation as a subject are interdependent and need to be developed further in parallel





Let's go!

Thank you for your attention!



22nd International SAP HERUG Conference: "Mastering our Digital Transformation"

Introduction to the programme

15.05.2019

Michael Wilmes

Conference Chairman

Two approaches of „Mastering“

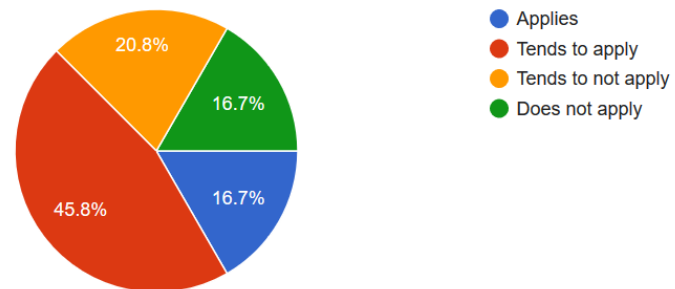
Moving with the times *or* Strategic approach

- Wait and see
- Main objective: Not to be lost in the storm of digitalisation
- Leading role
- Seeking and realising strategic advantages

What we do: Current survey among HERUG participants

My institution has a comprehensive and clearly formulated digitisation strategy

24 responses

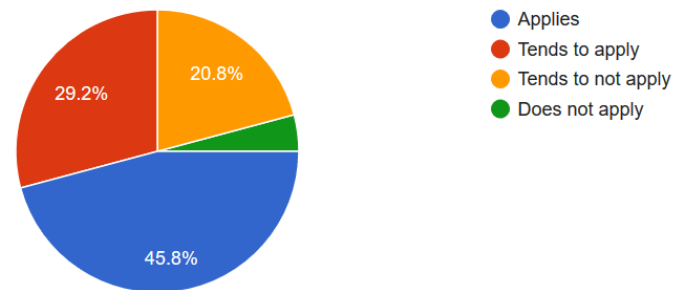


Mainly second
Approach:
Active Role in
mastering of
digitalisation

What we do: Current Survey survey among HERUG participants

SAP is an important building block of the digitisation strategy of my institution

24 responses



SAP is in focus

What is SAP? Starting Point ERP



Michael Martin Hammer (13 April 1948 – 3 Sept 2008) was an American engineer, management author, and a former professor of computer science at the Massachusetts Institute of Technology (MIT), known as one of the founders of the management theory of **Business Process Reengineering - BPR**

“first (...) an ERP system leads to cross-functionality and teamwork: the *together* theme of process.(..) Second (...) an ERP system introduces discipline to an organisation: the *organized* dimension of process. An ERP System is an Trojan horse that carries in his belly our **two old friends, discipline and teamwork, organized and together.** It introduces processes into an enterprise whether it wants them or is ready for them. **When companies prepare effectively for this by orienting around processes, they succeed with ERP. When they do not, they fail.**”

John Fralick (Jack) Rockart (1931 – 3 February 2014) was an American organizational theorist, and Senior Lecturer Emeritus at the Center for Information Systems Research at the MIT Sloan School of Management.. He introduced to management thinking the concept of **Critical Success Factors - CSF**



MIT got the **SAP bug** and was convinced that it had to implement SAP across the campus. **Jack wrote a memo** laying out why that was a monumentally **stupid idea** – he argued that **implementing a very centralized command-and-control system in a very decentralized organization was doomed to failure.**

MIT didn't listen, and the result was a mess. It was just like Jack to see through the **hype** and cut to the heart of the issue.

The organisational challenge: Aligning SAP and strategy

The Intelligent University?



„Universities are stupid
organisations with smart
members”

Helmut Willke



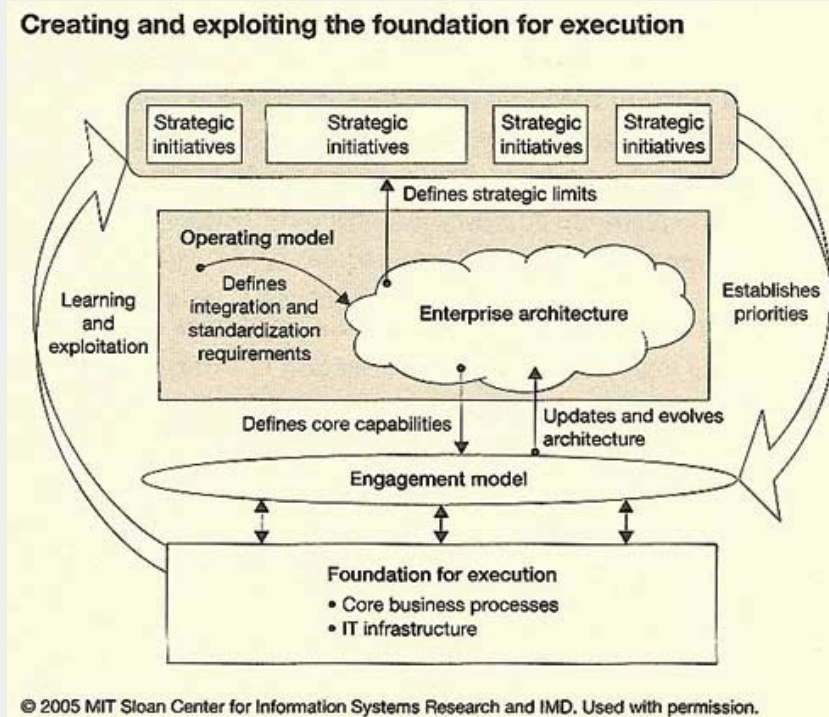
Professor of Global Governance and former Vice
President of Research at Zeppelin University in
Friedrichshafen

The organisational challenge: Aligning SAP and strategy



Jeanne Ross,
MIT CISR:
Enterprise
Architecture as
Strategy

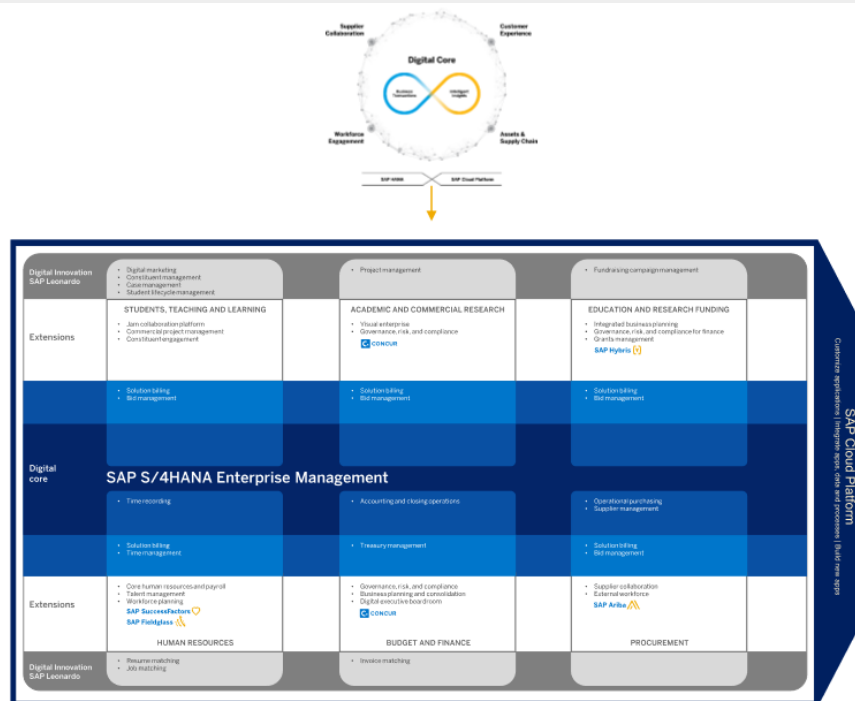
SMACIT



Critical Success Factors: Aligning SAP and strategy

1. A Foundation for Execution:
Core business processes
& IT Infrastructure
2. Learning and Exploitation
3. Update and evolve enterprise
architecture (EA)
4. Drivers: SocialMobileAnalyticsCloudIoT

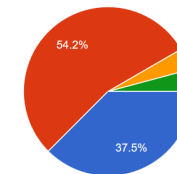
What is SAP today? Aligning SAP and strategy by EA



- Digital core: Core solution capabilities delivered as part of SAP S/4HANA Enterprise Management
- Digital Core: Solution capabilities that are also part of SAP S/4HANA Enterprise Management, but added/purchased as needed.
- Extensions: Cloud-based (LoB) solution extensions that are fully integrated with SAP S/4HANA Enterprise Management, but added/purchased as needed.
- Leonardo: Solution capabilities that are powered by a Leonardo technology and included in the Leonardo suite and how to add/purchase is not shown on this diagram.

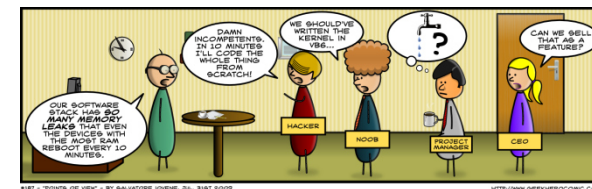
Does your institution have full-time position for an Enterprise Architect?

24 responses



- Yes
- No, but the task is taken over by other roles
- No
- We have a qualified EA but he wears many hats so not full-time EA

Treat them well, you'll need them.



Learning and Exploiting: International SAP HERUG as a Community of Practice



Søren Kierkegaard

"One can understand life
backwards; but one must live it
forwards."

Learning and Exploiting: International SAP HERUG as a Community of Practice



A community of practice is a group of people who share a concern or a passion for something they do, and learn how to do it better as they interact regularly. This definition reflects the fundamentally social nature of human learning. It is very broad (see: wenger-trayner.com)

Programme Overview



ENHANCE ERP

Cash management

Topics:

Filling the gaps

Document management

Administering accommodations...

Topics:

Replacing PSM with CO in S/4

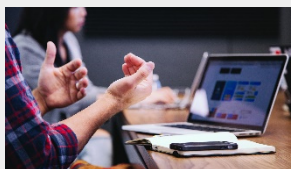
Strategic alignment through S/4

Process ReEngineering



TRANSFORM THE PLATFORM

Cloud and SaaS Concur, SuccessFactors...



ORGANISE CHANGE

Enterprise Architecture Management

Topics:

User satisfaction

Transforming management culture

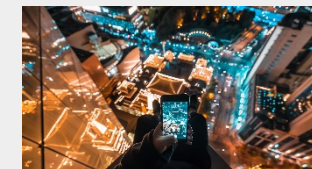
Training and Support with EnableNow...

Topics:

Parking Management Redesign

Campus Experience

Blockchain and Diplomas



DIGITISE THE CAMPUS

SLcM and Beyond...

Plenaries and Special Formats

Keynotes: A mixture of „food for thought“ and practical issues to better understand the broadening domain

Presentations in Plenary: Joint knowledge sharing of common topics

Panel: S/4 as hot topic for all of us

Special formats:

Meet the Expert
&
Workshops



Get individual
advice and insights
from partners



Thank you for your attention!