Challenges and Political Agenda to Promote Universities in the Context of Digitalization

WORKING AND LEARNING IN A DIGITAL WORLD
São Paulo // October 31, 2018

Prof. Dr. Klaus Kreulich // Vice President Munich University of Applied Sciences

7th German-Brazilian Dialogue on Science, Research and Innovation

Agenda

- Challenges posed by Digitalization
- Challenges posed by new ‘universities’ for the Digital World
- German Government initiatives and strategy
- Political efforts of selected organizations and associations

CHALLENGES POSED BY DIGITALIZATION

in the conference context

>> working and learning in a digital world <<

Digitalization is the transformation of the society and economy including the working world

as a result of

the current progress in computer sciences including software engineering as well as information and communication technology.

challenge // learning technologies

Many opportunities for new learning scenarios

Top 200 Tools for Learning 2018

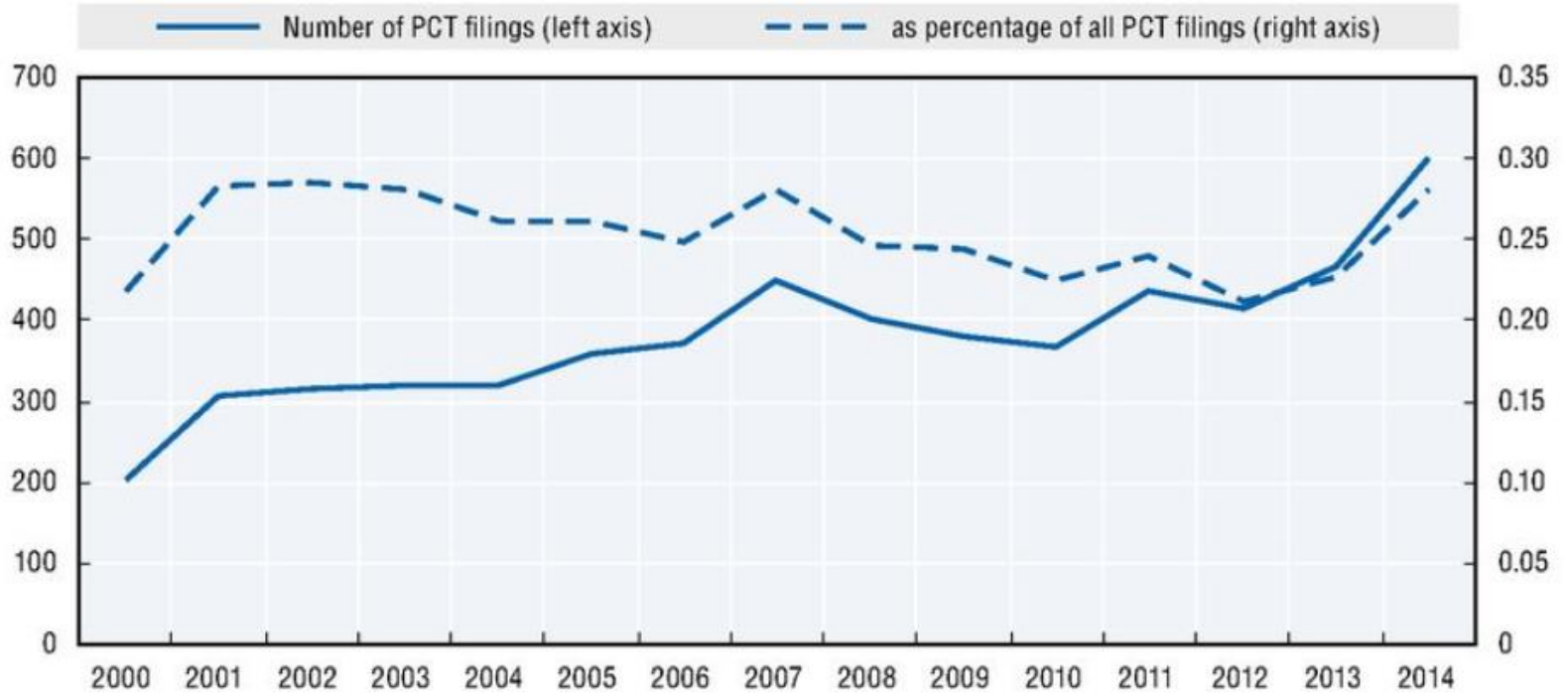
Use the interactive table to view tool categories

Compiled by Jane Hart
from the results of the 12th Annual
Digital Learning Tools survey

challenge // EdTech patents

Increasing Patent Filing

Figure 6.1. **Evolution of the world's education-related patents by priority year, 2000-14**



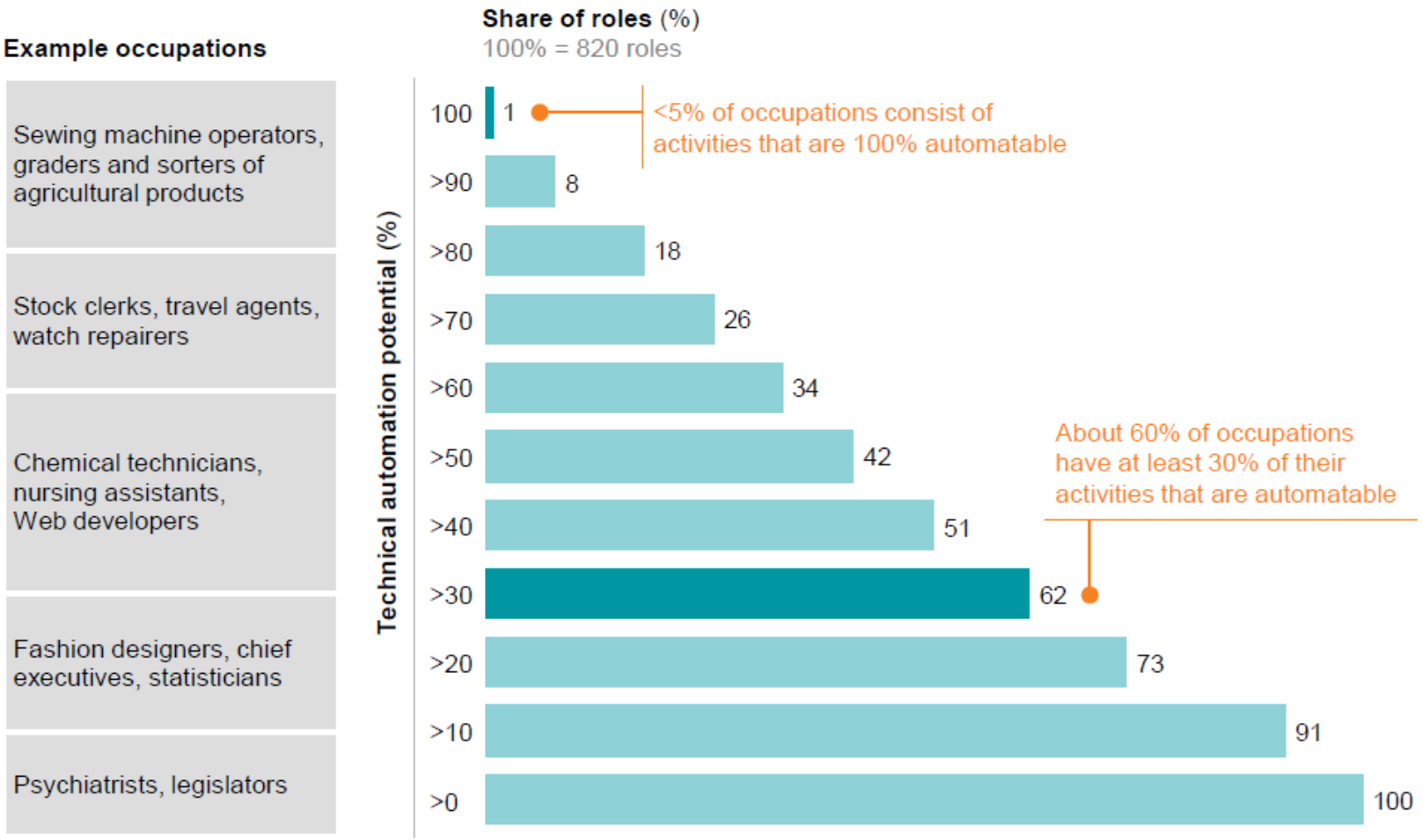
Source: Foray, D. and J. Raffo (forthcoming), "An Analysis of Business-driven innovation through educational patents", in Vincent-Lancrin, S. (Ed.), *Business-driven innovation in the education sector*, OECD Publishing, Paris.

challenge // EdTech patents

Promoting Patents for Learning Technology?

- Pro
  - The emergence of entrepreneurs in the “EdTech” market is good news. Competition leads to innovations.
- Con
  - The main market for EdTech innovations is not the public education sector. Private markets are more attractive.
  - Patents complicate Open Source Projects

Occupations for Graduates are Changing



SOURCE: US Bureau of Labor Statistics; McKinsey Global Institute analysis

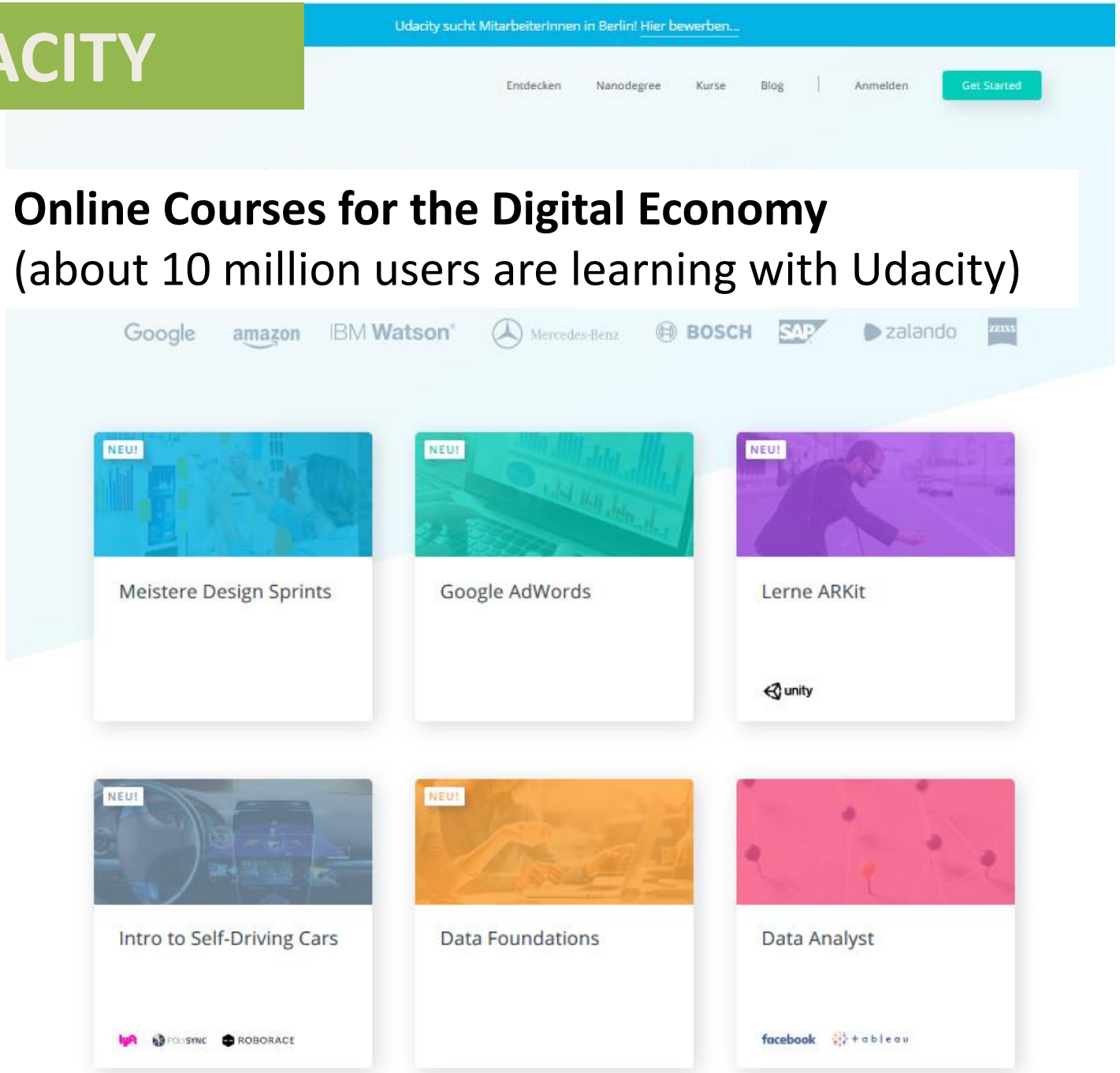
challenge // new working world
Skills shortage

>> 3.5 million IT experts will be needed in Europe by 2020 <<

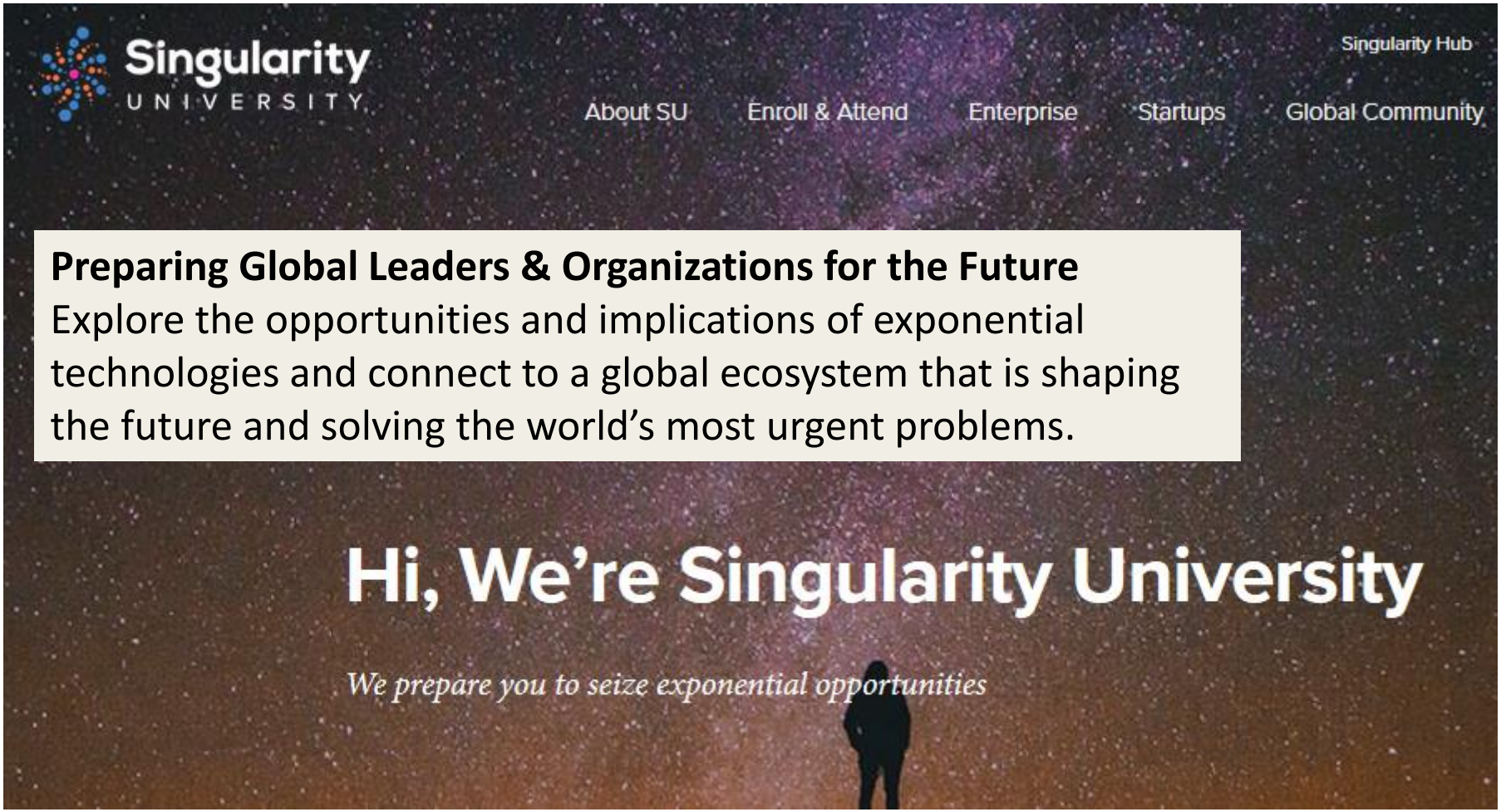
Source: BMWi, Digital Strategy 2025

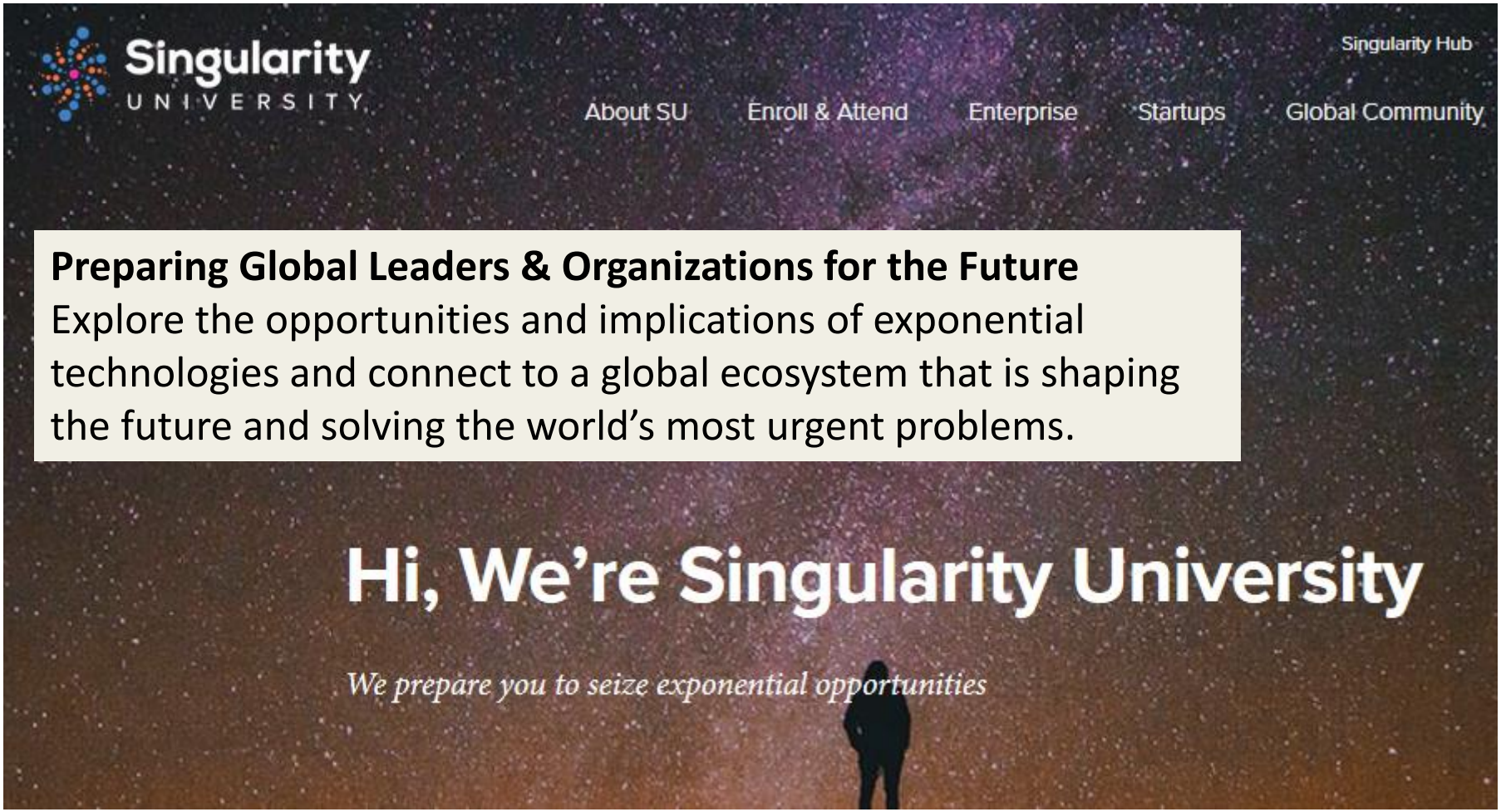
CHALLENGES POSED BY NEW ‘UNIVERSITIES’ FOR THE DIGITAL WORLD

UDACITY

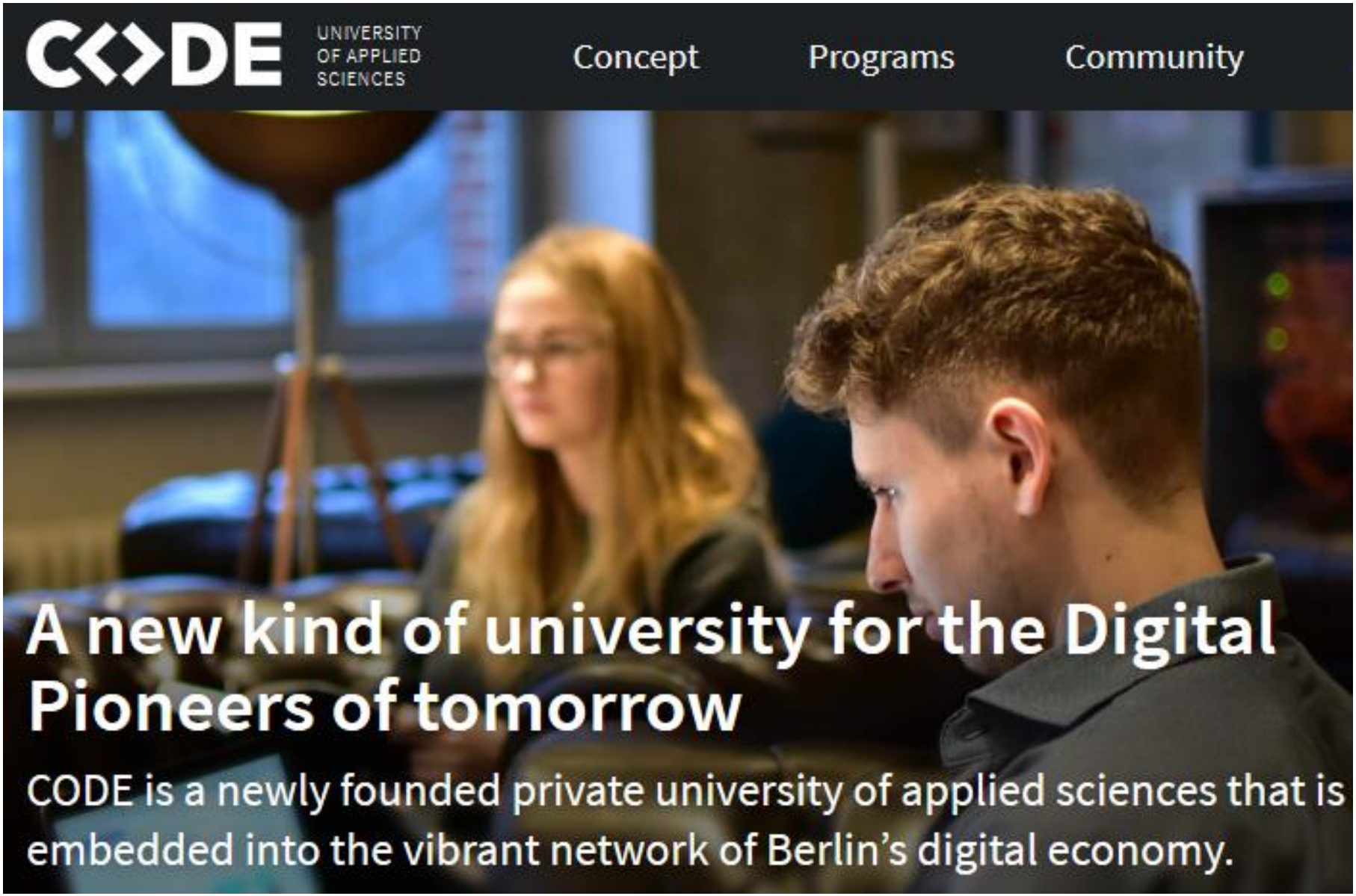


Online Courses for the Digital Economy
(about 10 million users are learning with Udacity)


Singularity
UNIVERSITY
Singularity Hub
About SU
Enroll & Attend
Enterprise
Startups
Global Community
Preparing Global Leaders & Organizations for the Future
Explore the opportunities and implications of exponential technologies and connect to a global ecosystem that is shaping the future and solving the world's most urgent problems.
Hi, We're Singularity University
We prepare you to seize exponential opportunities



Will academic degrees become less important?


CODE
UNIVERSITY OF APPLIED SCIENCES
Concept
Programs
Community
A new kind of university for the Digital Pioneers of tomorrow
CODE is a newly founded private university of applied sciences that is embedded into the vibrant network of Berlin's digital economy.

GOVERNMENT INITIATIVES AND STRATEGY

Government initiatives and strategy
European Agenda for Digital Education

- PRIORITY 1: Making better use of digital technology for teaching and learning
- PRIORITY 2: Developing relevant digital skills and competences for digital transformation
- PRIORITY 3: Improving education systems through better data analysis and foresight

Coalition Agreement of German Government Parties

Digitization offers great opportunities for our country and its people. Opportunities for prosperity and social progress. Our job is to create the right conditions for everyone to participate [...]

For this we set ambitious goals: [...]

convey digital skills as a key skill for all ages, "

(Source: Koalitionsvertrag CDU, CSU und SPD draft 7.2.2018, section 5. Digitalization, p.37)

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Strategy of the Committee of State Ministers of Education (KMK)

Leading Question in the Strategy

What competences must children, adolescents and young adults have to meet the future demands of the digital world?

- Not only computer sciences
- Digitalization is changing each subject

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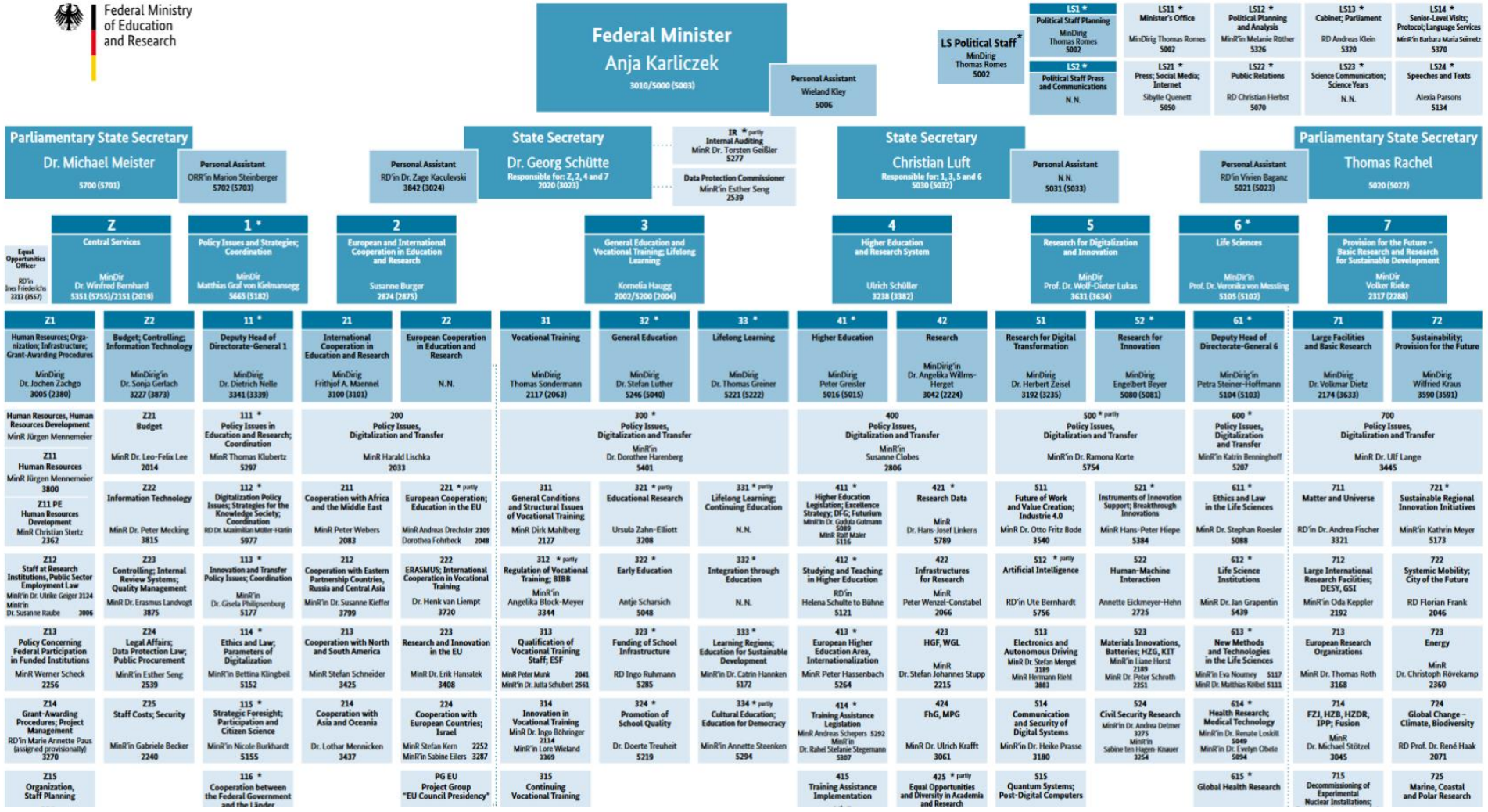
German Universities of Applied Sciences

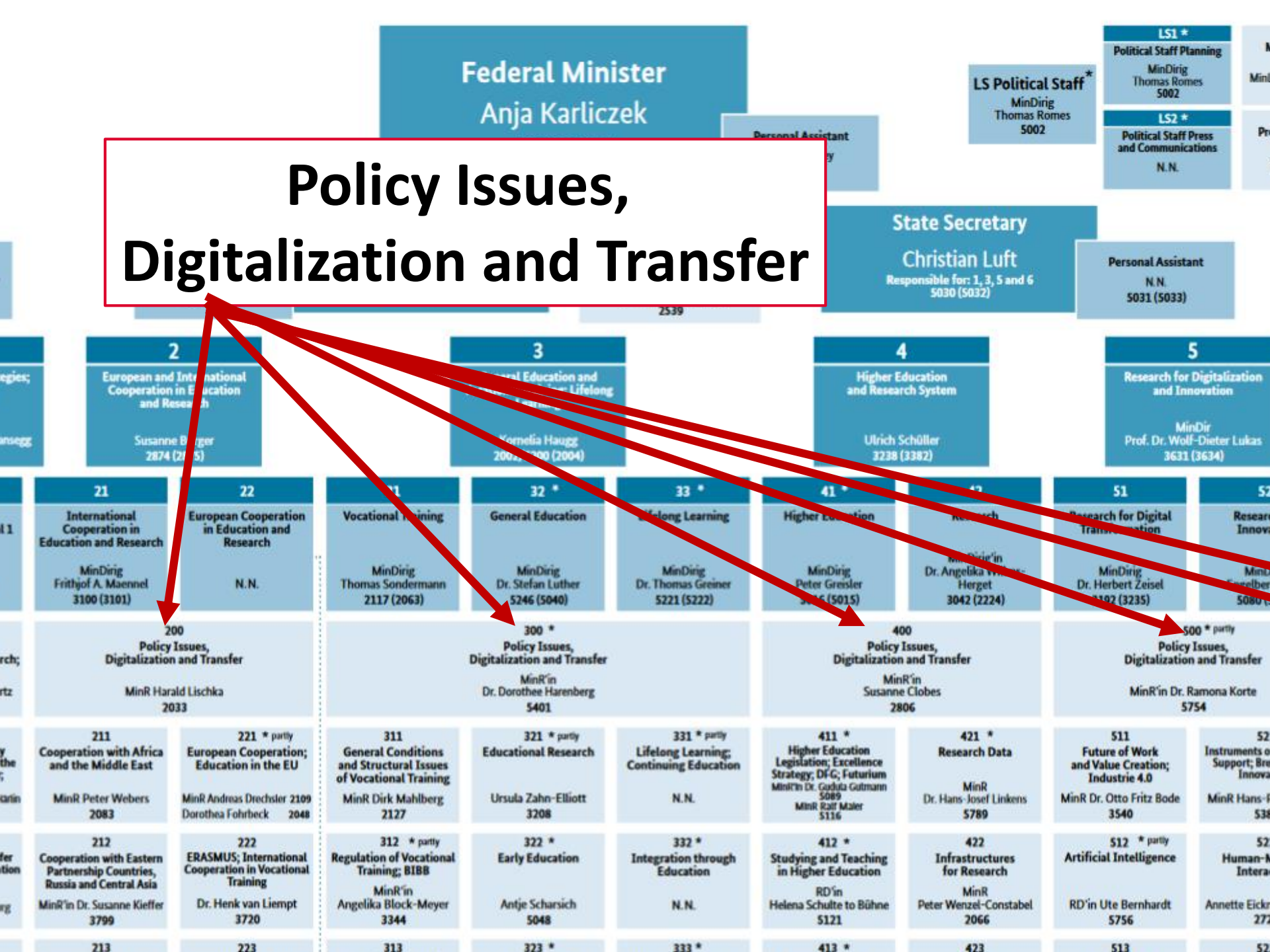
Programs in German Federal States

- All states have programs in different ministries. Mostly in the ministry of economy and in the ministry of education.

- Example Bavaria:
  In 2015 – 2018 the government spend about 5 billion EUR in Digitalization projects.
  - Infrastructure, Research, Education and other fields

Significance of Digitalization in the German Federal Ministry of Education and Research




Federal Minister
Anja Karliczek
LS Political Staff*
MinDirig
Thomas Romes
5002
LS1 *
Political Staff Planning
MinDirig
Thomas Romes
5002
LS2 *
Political Staff Press and Communications
N.N.
State Secretary
Christian Luft
Responsible for: 1, 3, 5 and 6
5030 (5032)
Personal Assistant
N.N.
5031 (5033)
Policy Issues, Digitalization and Transfer
2
3
4
5
Higher Education and Research System
Ulrich Schüller
3238 (3382)
Research for Digitalization and Innovation
MinDir
Prof. Dr. Wolf-Dieter Lukas
3631 (3634)
21
International Cooperation in Education and Research
MinDirig
Frithjof A. Maennel
3100 (3101)
22
European Cooperation in Education and Research
N.N.
32 *
General Education
MinDirig
Dr. Stefan Luther
5246 (5040)
33 *
MinDirig
Dr. Thomas Greiner
5221 (5222)
MinDirig
Dr. Herbert Zeisel
51
200
Policy Issues, Digitalization and Transfer
MinR Harald Lischka
2033
300 *
Policy Issues, Digitalization and Transfer
MinR'in
Dr. Dorothee Harenberg
5401
400
Policy Issues, Digitalization and Transfer
MinR'in
Susanne Clobes
2806
500 * partly
Policy Issues, Digitalization and Transfer
MinR'in Dr. Ramona Korte
5754
211
Cooperation with Africa and the Middle East
MinR Peter Webers
2083
221 * partly
European Cooperation; Education in the EU
MinR Andreas Drechsler 2109
Dorothea Fohrbeck 2048
311
General Conditions and Structural Issues of Vocational Training
MinR Dirk Mahlberg
2127
321 * partly
Educational Research
Ursula Zahn-Elliott
3208
331 * partly
Lifelong Learning; Continuing Education
N.N.
411 *
Higher Education Legislation; Excellence Strategy; DFG; Futurium
MinR'in Dr. Guduta Gutmann 5089
MinR Ralf Maier 5116
421 *
Research Data
MinR
Dr. Hans-Josef Linkens
5789
511
Future of Work and Value Creation; Industrie 4.0
MinR Dr. Otto Fritz Bode
3540
212
Cooperation with Eastern Partnership Countries, Russia and Central Asia
MinR'in Dr. Susanne Kieffer
3799
222
ERASMUS; International Cooperation in Vocational Training
Dr. Henk van Liempt
3720
312 * partly
Regulation of Vocational Training; BIBB
MinR'in
Angelika Block-Meyer
3344
322 *
Early Education
Antje Scharsich
5048
332 *
Integration through Education
N.N.
412 *
Studying and Teaching in Higher Education
RD'in
Helena Schulte to Bühne
5121
422
Infrastructures for Research
MinR
Peter Wenzel-Constabel
2066
512 * partly
Artificial Intelligence
RD'in Ute Bernhardt
5756
Annette Eick

POLITICAL EFFORTS OF SELECTED ORGANISATIONS AND ASSOCIATIONS

starting points for cooperation between German and Brazilian universities in the field of research and technology policies?

GOING DIGITAL

Making the transformation work for growth and well-being

Artificial intelligence

Digital consumers

Digital infrastructure

Digital security & privacy

Education & skills

Labour markets

Productivity

Public governance

Science & innovation

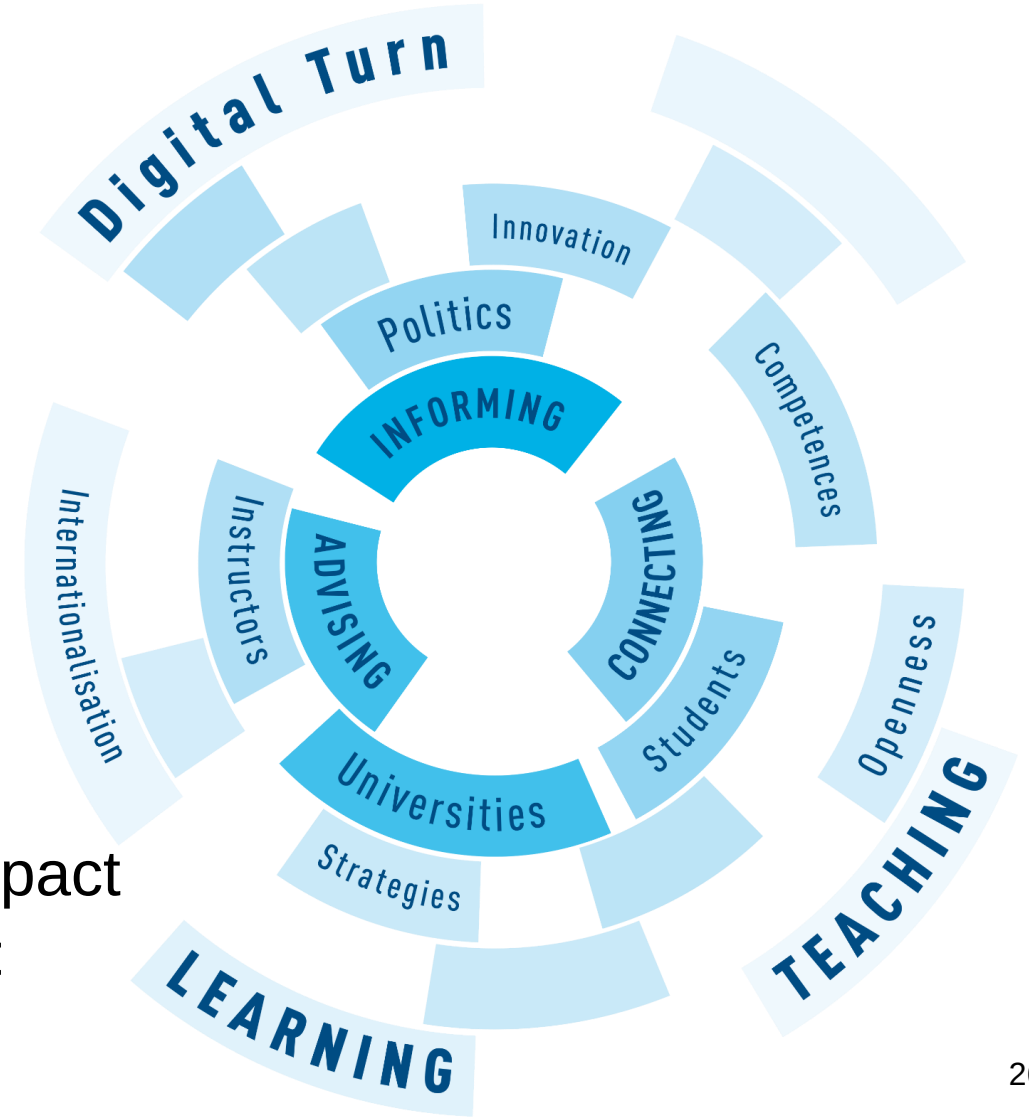
Tax

Trade

Well-being

political efforts // selected associations

Hochschulforum Digitalisierung - HFD



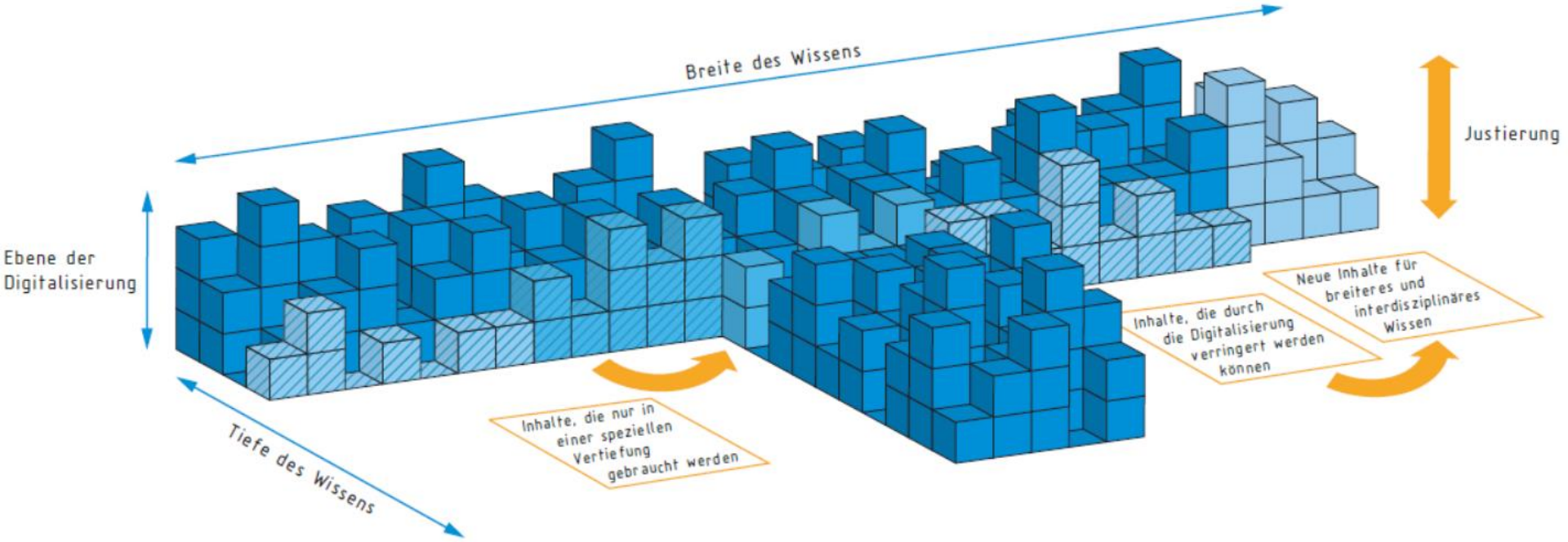
>> most relevant German platform for discussing impact of digitalization on HEI <<

VDI - The Association of German Engineers

Program
Engineering education for the digital transformation

- Conducting surveys and studies to digital competencies
- Organizing parliamentary evenings / discussions
- Organizing workshops for curriculum development in a digital world

VDI extended T-shape model

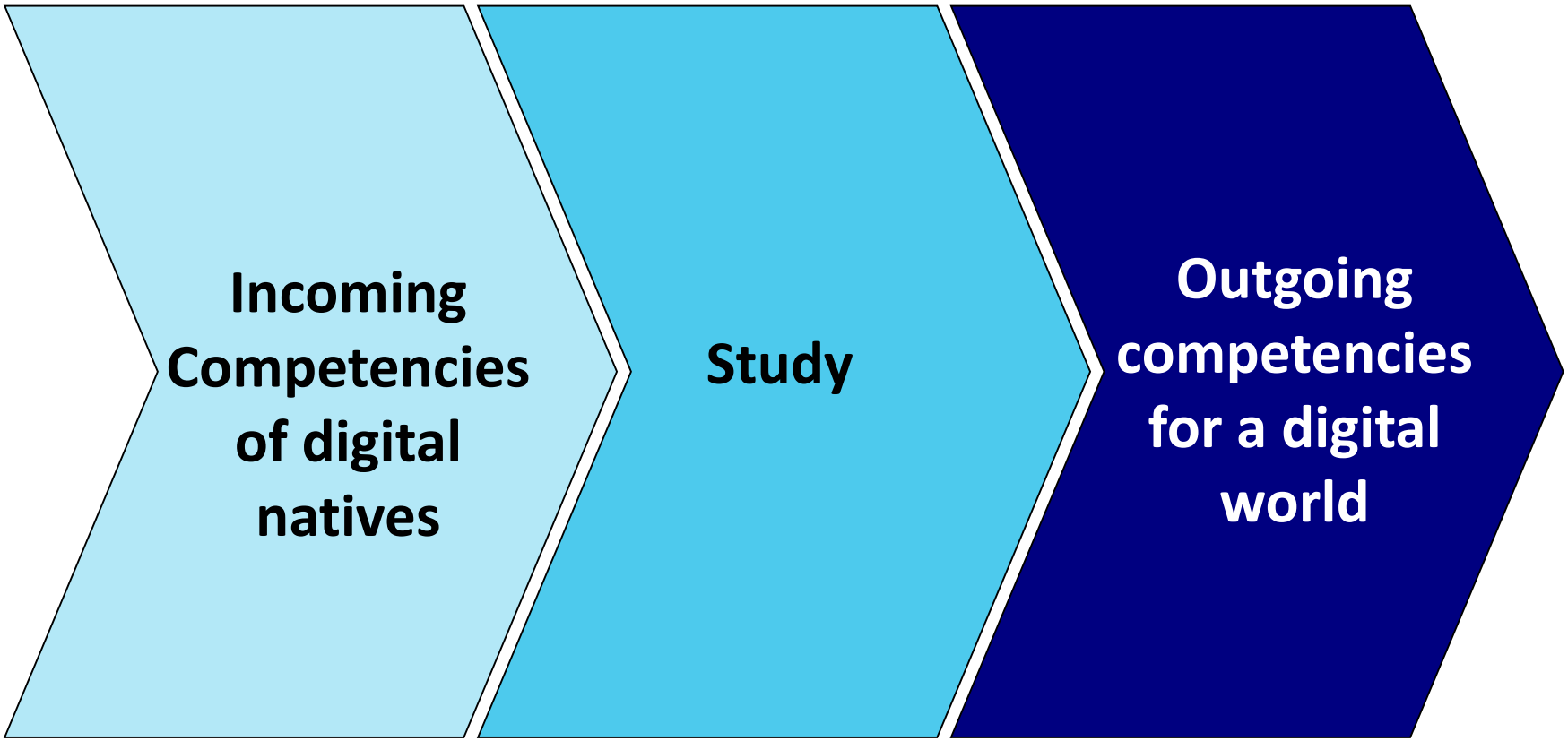


Source: VDI – Smart Germany, Ingenieurausbildung für die digitale Transformation
https://www.vdi.de/index.php?id=62293

UAS7
German Universities of Applied Sciences

- UAS7 members commits to programs of professional relevance and application oriented courses. Consequently, digitalization is a high priority issue.
- In 2015 UAS7 has initiated an ongoing debate concerning competencies for a digital world.

Digitization is causing changed incoming competencies and requires new output competencies



Summary

- Digitalization is changing the whole society including the working world and the higher education system

- Good news
  Governments, Organizations and Associations are working with great commitment on policies

- Bad news
  Traditional Universities could turn out to be too inflexible for meeting the challenges

UNIVERSITY OF APPLIED SCIENCES MUNICH

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THANK YOU !

Prof. Dr. Klaus Kreulich // Vice President
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kreulich@hm.edu

Julia Bergmeister

MUNICH UNIVERSITY OF APPLIED SCIENCES // MUAS

An indicator for the impact of education, research, and technology policies

MUAS Location Info

Munich - an European Digitalization Hub

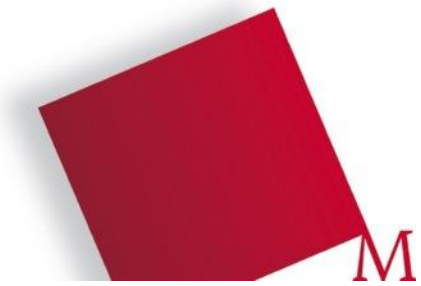
- Automotive industry
- Biotechnology & life sciences
- Design & media
- Energy technology
- Finance
- Health/social sciences
- IT & communications
- Aerospace engineering
- Tourism
- Business services

MUAS
Business Fields

in total 18,200 Students

Bachelor Programs

Part-time Degree Programs for Working Professionals

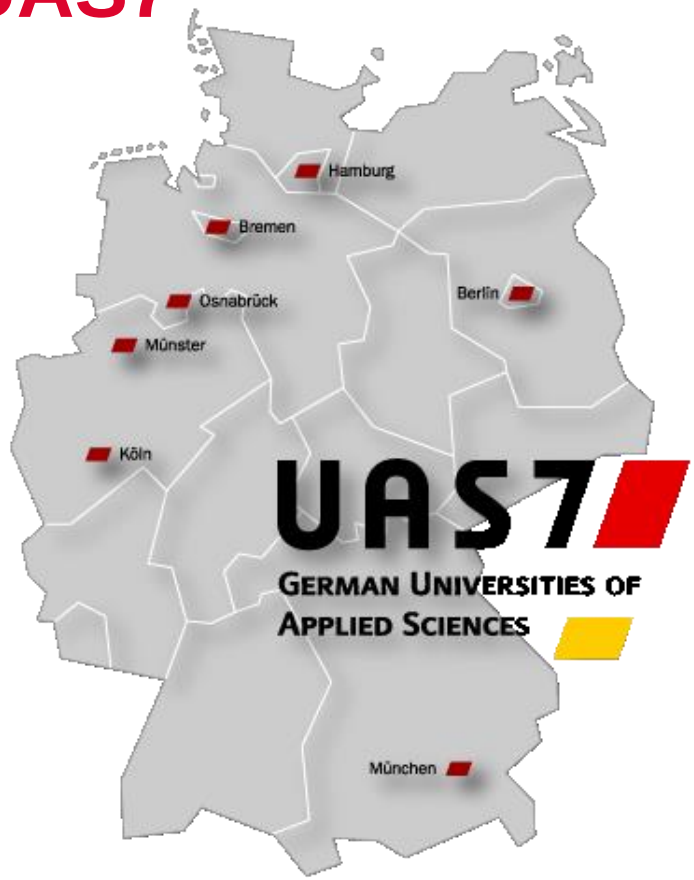


Master Programs

Applied Research and Doctoral Programs

MUAS's GERMAN NETWORK

UAS7



- Berlin
- Bremen
- Cologne
- Hamburg
- Munich
- Münster
- Osnabrück

Hochschule für Wirtschaft und Recht Berlin
Berlin School of Economics and Law

HSB
Hochschule Bremen
City University of Applied Sciences

Technology
Arts Sciences
TH Köln

HAW
HAMBURG

HOCHSCHULE
FÜR ANGEWANDTE
WISSENSCHAFTEN
MÜNCHEN

FH MÜNSTER
University of Applied Sciences

Hochschule Osnabrück
University of Applied Sciences

UAS7 represents

- 500 Bachelor's and Master's programs
- 100,000 students
- 2,000 full-time faculty members

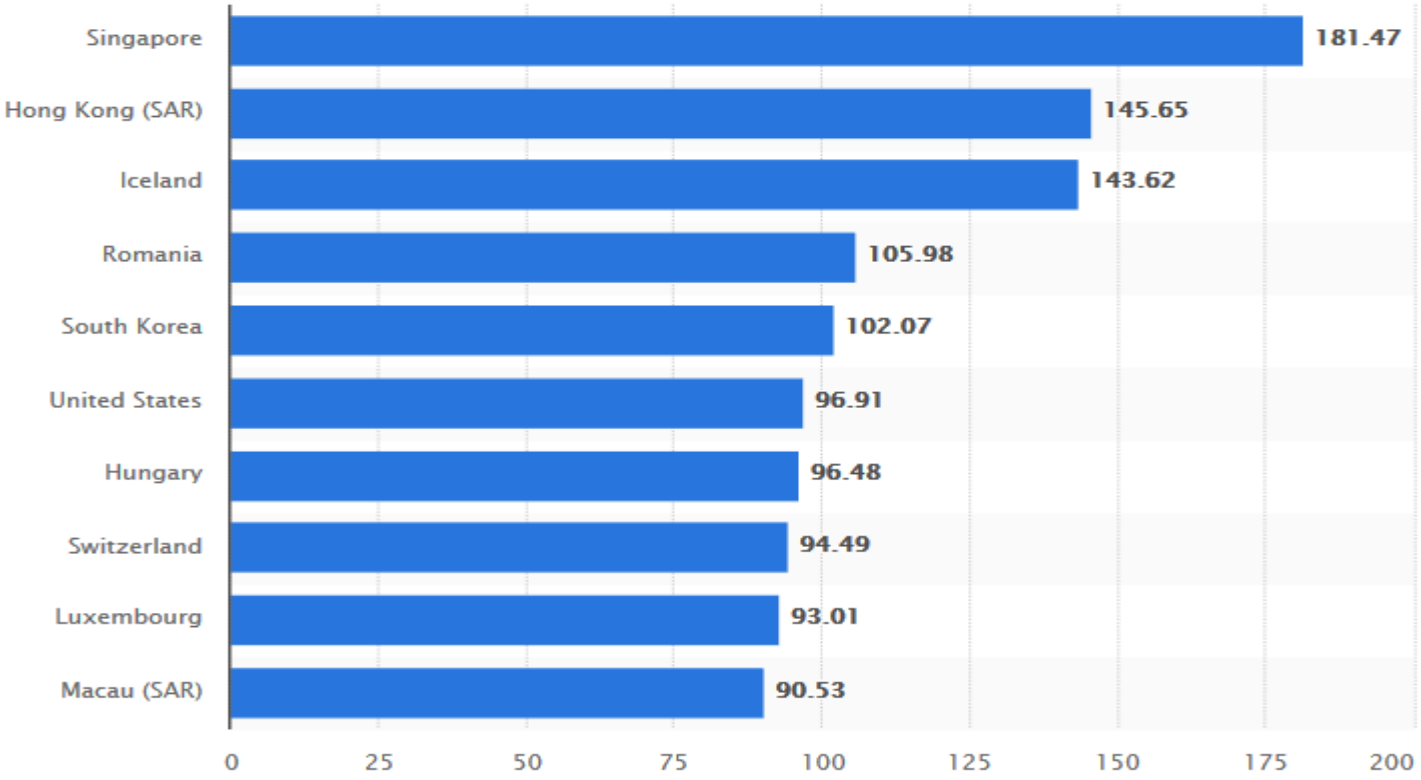
Bavarian Government // Digital Pact

Strategic Projects at MUAS

- MUAS is member of the Bavarian Center for Digitalization (ZD.B)
- Innovation and research lab for digital learning at Bavarian UAS
- Interdisciplinary master program Entrepreneurship and Digital Transformation
- Curricula development for digital challenges in non-MINT subjects

challenge // IT infrastructure

Internet in Germany and Brazil: still not fast enough



Countries with the fastest average fixed broadband internet speeds as of July 2018 (in Mbps)

Source: de.statista.com