Digitalization of the Student Life Cycle: Challenge and Opportunity for Universities

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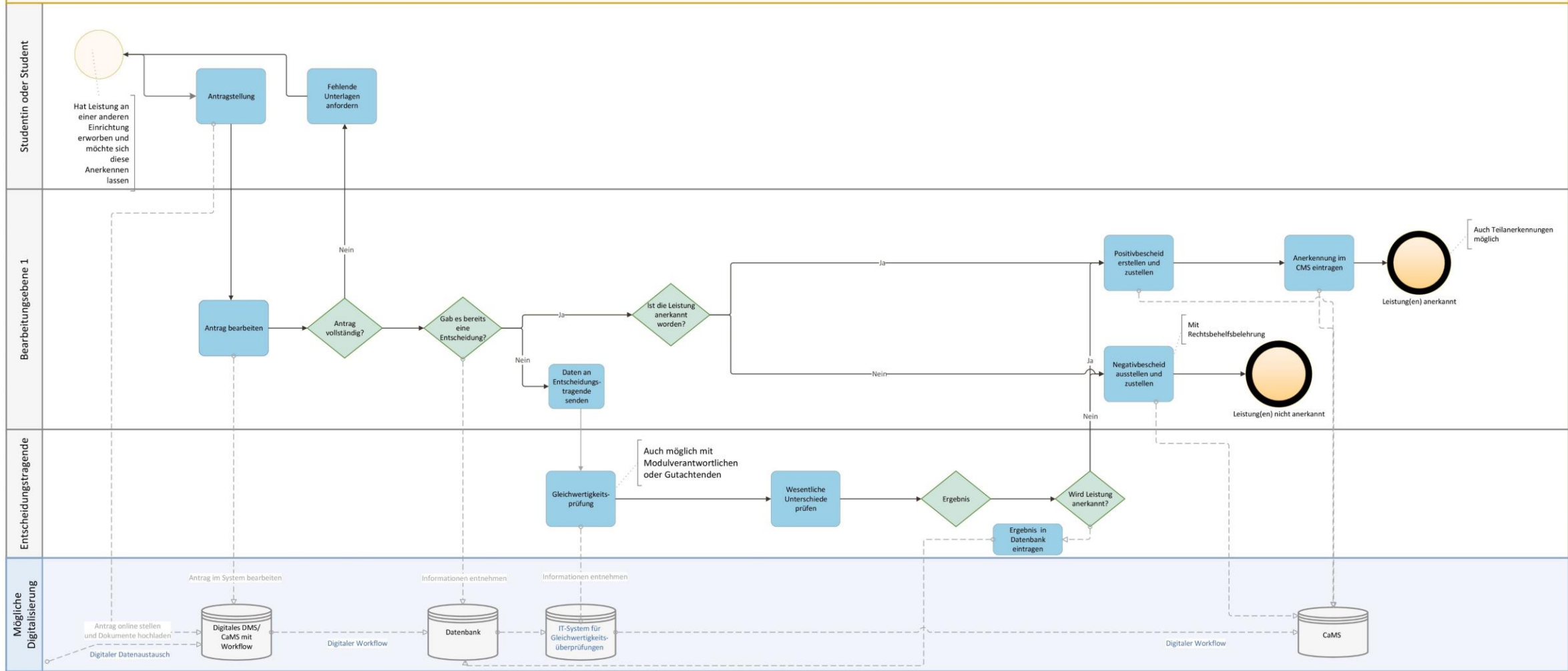
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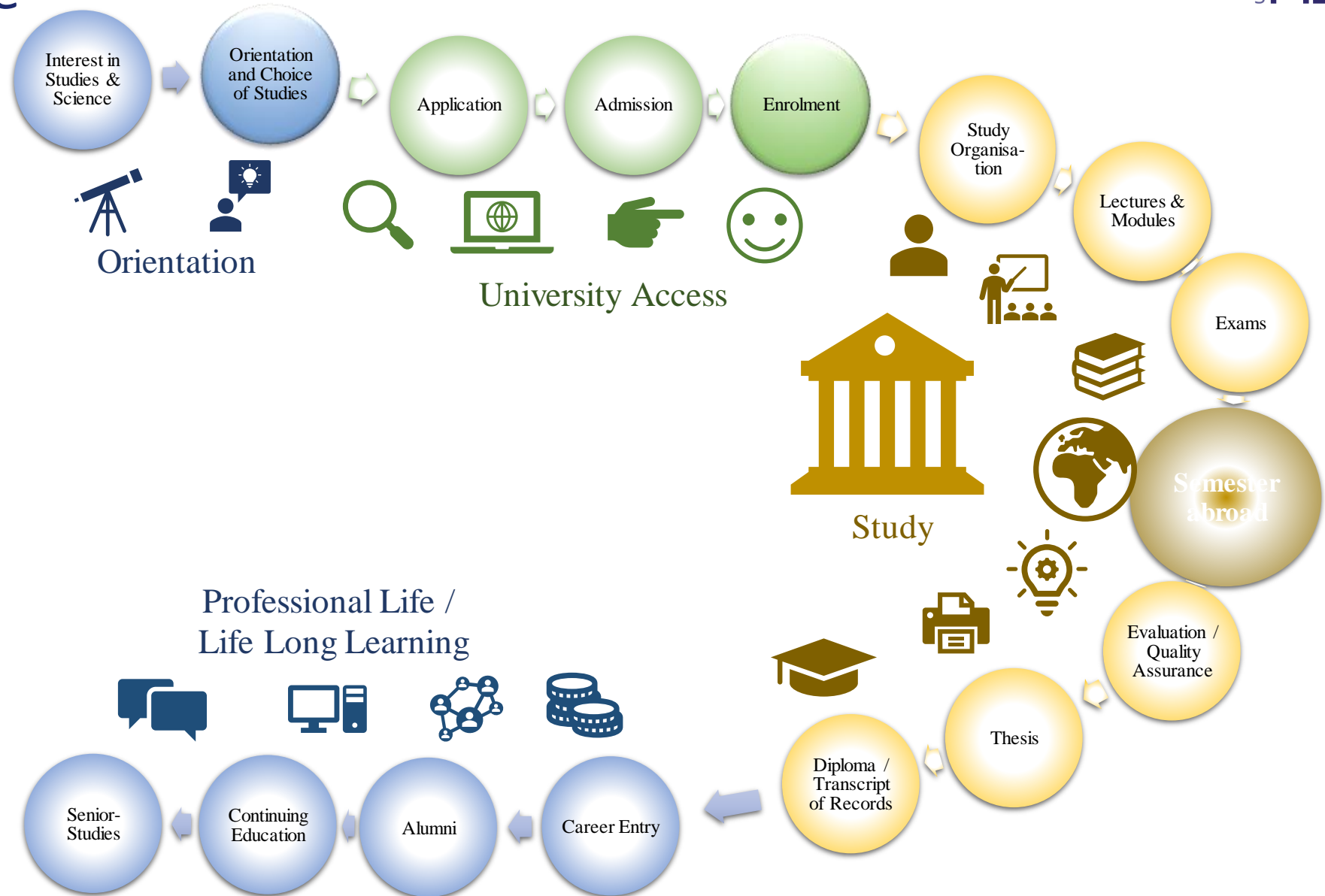**Introduction Recognition process**

MODUS study

Examples

Challenges

Recognition process - real -

Anerkennungsprozess (eigene Darstellung)

Student life cycle

Orientation

- Interest in Studies & Science
- Orientation and Choice of Studies

University Access

- Application
- Admission
- Enrolment

Study

- Study Organisation
- Lectures & Modules
- Exams
- Semester abroad
- Evaluation / Quality Assurance
- Thesis
- Diploma / Transcript of Records

Professional Life / Life Long Learning

- Career Entry
- Alumni
- Continuing Education
- Senior-Studies

Recognition workflow - with digitisation options -

About recognition/ Inform about crediting possibilities

Students/ Applicants:inside

Recognition database

Pre-recognition "Learning Agreements

International Office, Erasmus Officer

Campus Management System

Submit an pplication for recognition/credit

Students/ Applicants:inside

Recognition database

Provide performance records and performance information

Receive and formally check the application

Examination Office/ Programme Coordination

Edit request

Check the content of the application

Examination Board / Module Officer / Lecturers

Recognition database

Acknowledgement Algorithm

Make a decision on recognition/credit

Transmit decision to applicant

Examination Office/ Programme Coordination

Request final process

Enter recognised/credited services in the system

Examination Office

Campus Management System

If necessary, lodge an objection in case of non-recognition/credit

Students

Application form fill out

digital Data exchange

Scan documents and upload

Digital workflow

Source: Gilch et. al. 2022
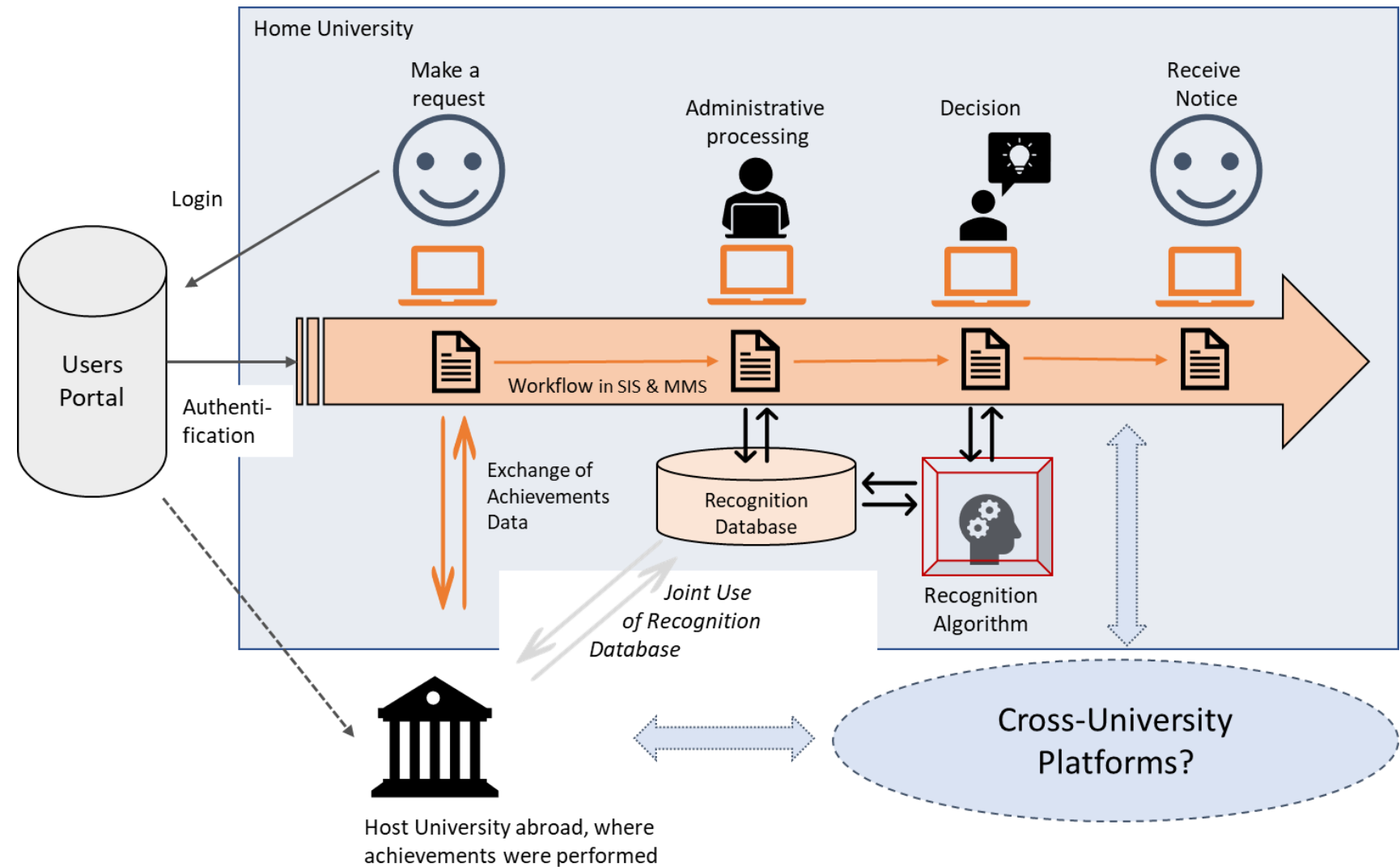https://www.hrk-modus.de/media/redaktion/Downloads/Publikationen/MODUS/MODUS_Studie_Digitalisierung_22_03.pdf

Digital recognition workflow

Agenda

Introduction Recognition process

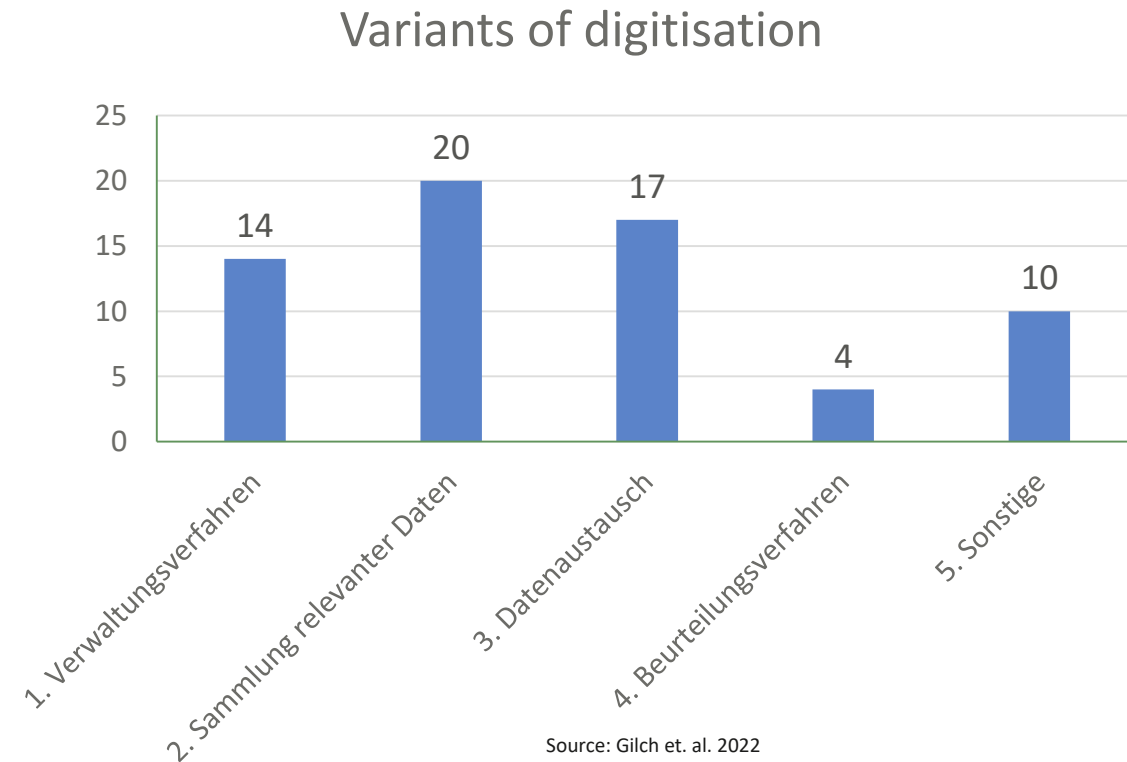**MODUS study**

Examples

Challenges

Project MODUS

- The HRK's MODUS project aims to further improve recognition and credit transfer practices* at higher education institutions. This will enable more transparency and flexibility as well as _mobility_ and _permeability._ The focal points of the project include:

  - Coordination and dissemination of common, quality-assured **standards** for recognition and credit transfer at higher education institutions
  - Increased use of **digital processes** and infrastructures for better and simpler recognition and crediting procedures, including the testing of digital **pilots**
  - **Information and advice for** higher education institutions on all questions of recognition and credit transfer (service point)
  - https://www.hrk-modus.de/
  - HIS-HE study on digitalisation, published March 2022.

https://www.hrk-modus.de/media/redaktion/Downloads/Publikationen/MODUS/MODUS_Studie_Digitalisierung_22_03.pdf

Results

- The HIS-HE study highlights a snapshot of projects and initiatives for the digitalisation of recognition and credit processes at higher education institutions.

- A total of 56 projects and initiatives were
  Desk Research 56 projects and initiatives were recorded,
  which can be assigned to five variants:

  1. Administrative procedure,
  2. Collection of relevant data in online databases,
  3. Data exchange between universities or institutions,
  4. "technical" support for procedures of assessment/decision for recognition,
  5. Other.

Variants of digitisation

Bar chart values: 1. Verwaltungsverfahren = 14; 2. Sammlung relevanter Daten = 20; 3. Datenaustausch = 17; 4. Beurteilungsverfahren = 4; 5. Sonstige = 10.

1. digitisation as an administrative procedure

- Focus on application forms and documents (input) and information and notifications (output).

- difference above all with regard to the degree of digitalisation achieved.

- Partially integrated into the local CMS system or implemented with the help of independent software solutions.

- Examples:
  - PIM - Platform for Inter*national Student Mobility (BMBF, TU Berlin, U Göttingen and many others)
  - EwP - Erasmus without Papers
  - Impact.Digital (TH Lübeck, RWTH Aachen and many others)
  - FACE (U Freiburg)

2. digitisation as a collection of relevant data

- Collection of information in (online) databases available to those involved in the process (including university teachers, examination office, some students).

- Can also be used as an "orientation and decision-making aid" for students

- The databases can be available within a university or across universities (network).

- Containing information esp. module information, agreements and learning agreements, (positive as well as negative) decisions in previous recognition/credit cases (reference cases)

- Examples:

  - andaba (FHs BaWü, DHBW)
  - ZeDoLa / DaBeKom (FH Bielefeld)
  - Valiant (U Augsburg)

3. digitisation as data exchange

- Digital transmission of relevant information on recognition/credit according to a common data standard or with the help of interfaces.

- Aspects: Authentication, data security, data content or allocation, interfaces

- At the moment, mainly European initiatives with a focus on transnational, Europe-wide exchange. Prospective benefits for a (German domestic) data exchange between universities.

- Examples:

  - EMREX, ELMO, EWP, EDCI, EBSI
  - PIM - Platform for Inter*national Student Mobility
  - StudiES+ (FU Berlin, HS Harz)

4. digitisation as "technical" support for assessment procedures

- "automatic" processing of recognition/credit cases based on existing learning agreements, university cooperation or comparable reference cases

- Support in individual assessment in the context of identifying "significant differences".

- Examples:
    - Machine Learning (WBH Darmstadt)
    - AlgoA (Leuphana Lüneburg)
    - Recognition algorithm for MicroCredentials (Nuffic)

Results

- Higher education institutions are free to design the recognition and credit transfer process. The responsibilities and processes can vary greatly between the higher education institutions and sometimes within a higher education institution. Nevertheless, commonalities can be found and corresponding reference processes = standards can be developed.

- The digitalisation of processes is - technically speaking - already largely possible within the university (e.g. with the use of the CaMS = Campus Management System or with DMS = Document Management System); however, the potential seems to be far from exhausted.

- Recognition databases are already widely used in various forms - but mostly with varying degrees of coverage and accessibility.

- Digital decision-making is only just beginning - if it is aspired to at all.

- However, the digital exchange of data between universities has not been solved - even though there are initial successful pilot projects (e.g. PIM = Platform for Inter*national Student Mobility) and this is already common practice internationally.
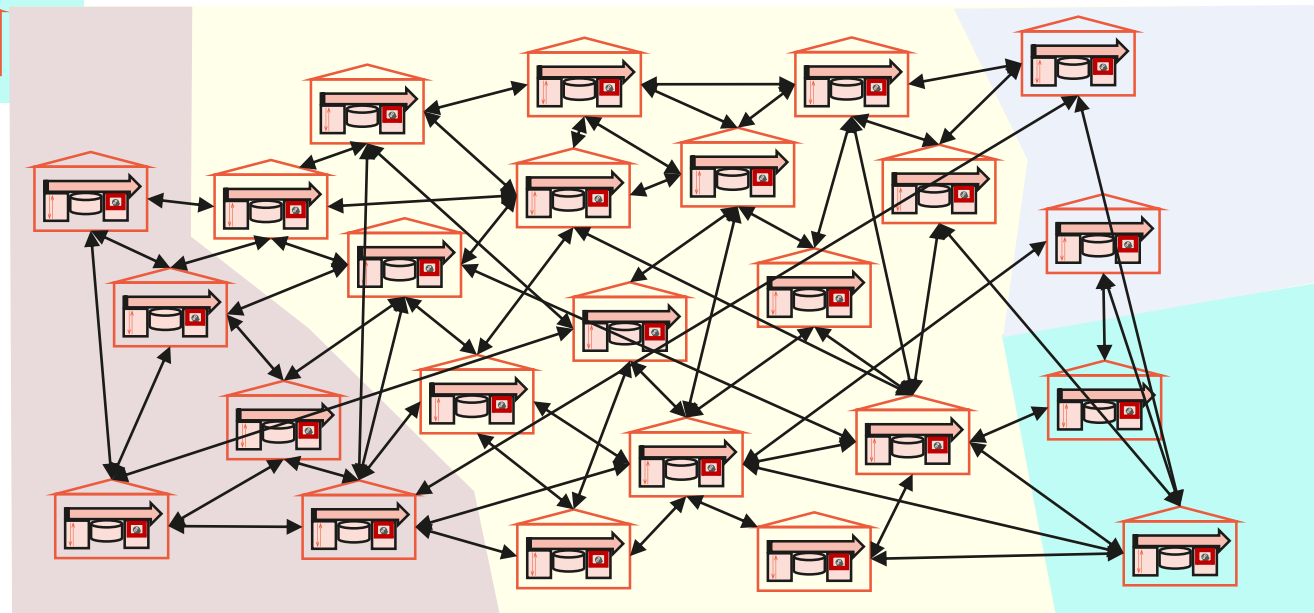
Results

- Digitalisation does not only concern technical aspects but also requires a comprehensive change process! All the actors involved must be actively involved in this process.

- The external (legal, technical and organisational) framework conditions are decisive factors for further development. The diversity of conditions alone makes digitisation difficult.

- Networking at different levels is a central factor - at federal, state and university level. An overarching approach in the sense of a common framework and guidance is currently - still - missing.

- Common (data) standards with the simultaneous necessary interoperability of different interfaces and systems are necessary in order to achieve digitisation in the interaction of the various institutions and actors involved - nationally and internationally.

- It has to be decided whether overarching platforms (e.g. PIM) or decentralised individual systems (CaMS) should be used for networking. Or a combination of the two.

Exchange via platforms or decentralised?

Model B: The IT systems of the universities (e.g. CaMS) network with each other and the digital exchange of student data takes place directly between the respective universities.
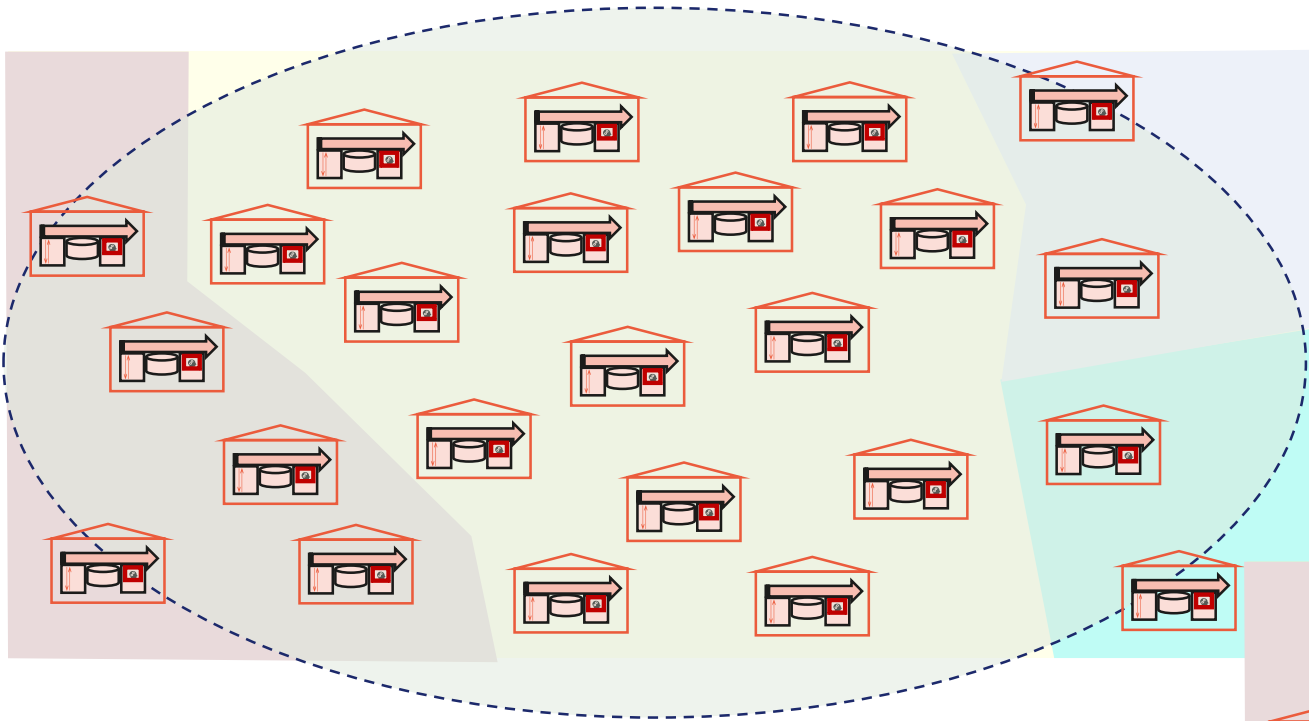
Model A: Universities connect to platform(s) (e.g. PIM), via which the digital exchange of student data then takes place.
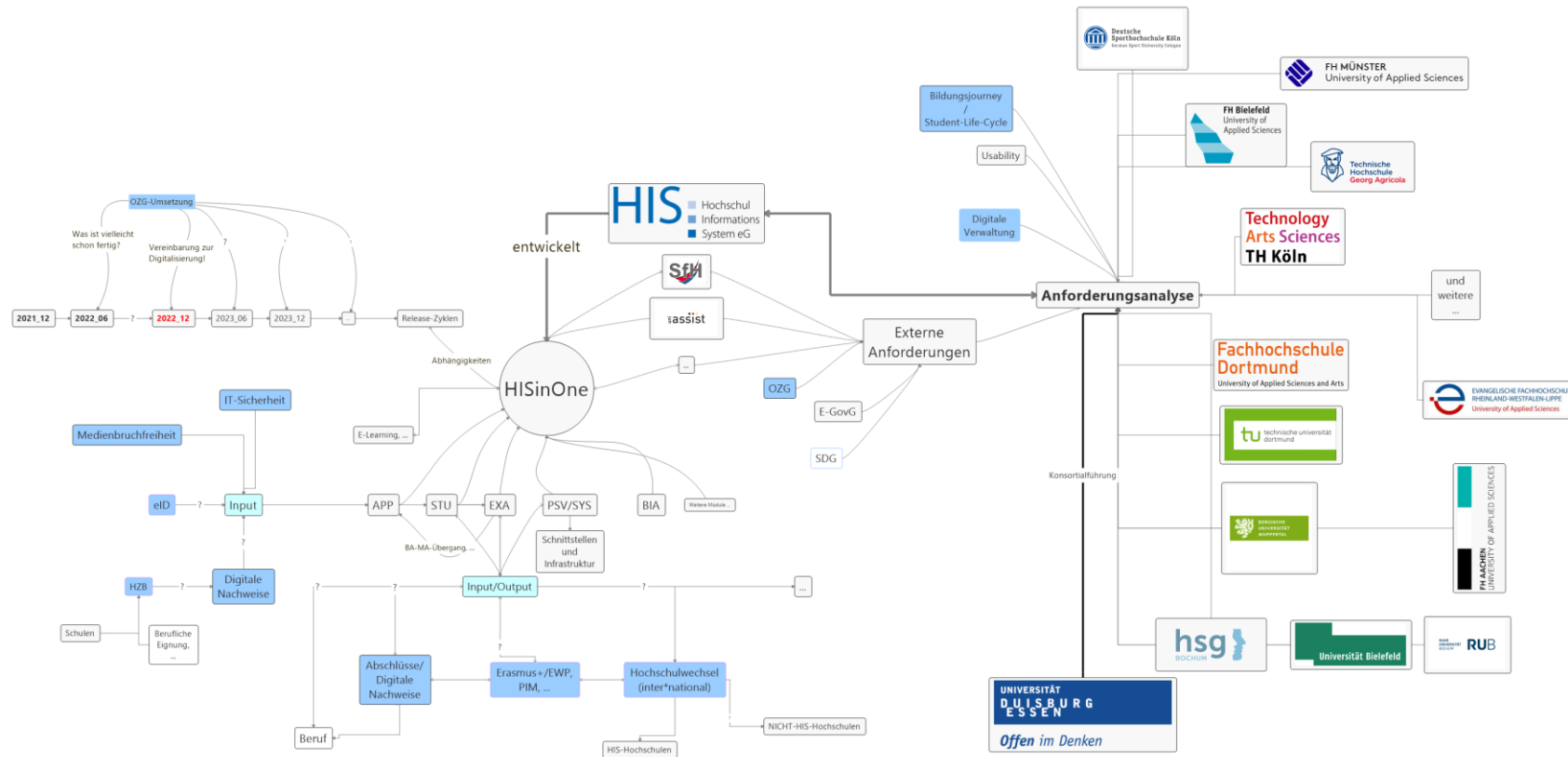
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MODUS study

Examples

Challenges

HISinOne-CM.NRW

- Student mobility as part of the educational journey: "Erasmus+/ Erasmus Without Paper

Source: University of Duisburg-Essen. Project presentation HISinOne-CM.NRW on 30.09.2021:
https://www.vcrp.de/wp-content/uploads/2021-09-30-OZG_Infoveranstaltung-UDE.pdf

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HISinOne-CM.NRW

- The aim is to model processes also for the digital recognition and crediting workflow that meet the requirements of the OZG and include the European level - specifically Erasmus without Paper.

- In doing so, it is important to take into account the different standards at German and European level that either already exist (EMREX/ELMO) or are currently being developed (XHochschule, ELM, SDG).

- Particular challenges are posed by the networks of the European University Initiative, which are considered forward-looking pilot projects but are currently developing their individual solutions relatively autonomously from each other.

- Increasingly, microcredentials and lifelong learning must be included in the considerations.

PIM at a glance

- PIM - Platform for Inter*national Student Mobility.

  - BMBF project to establish a digital platform with the participation of numerous universities and various CMS providers

- Example of a successful, overarching project with open communication, successful networking of a wide range of actors and dynamic development.

- Addressing various basic problems:

  - Linking of different data standards and formats,
  - open adaptation to different types of higher education institutions and requirements,
  - active integration of almost all CM system providers,
  - Integration function of various initiatives, networks and software solutions.
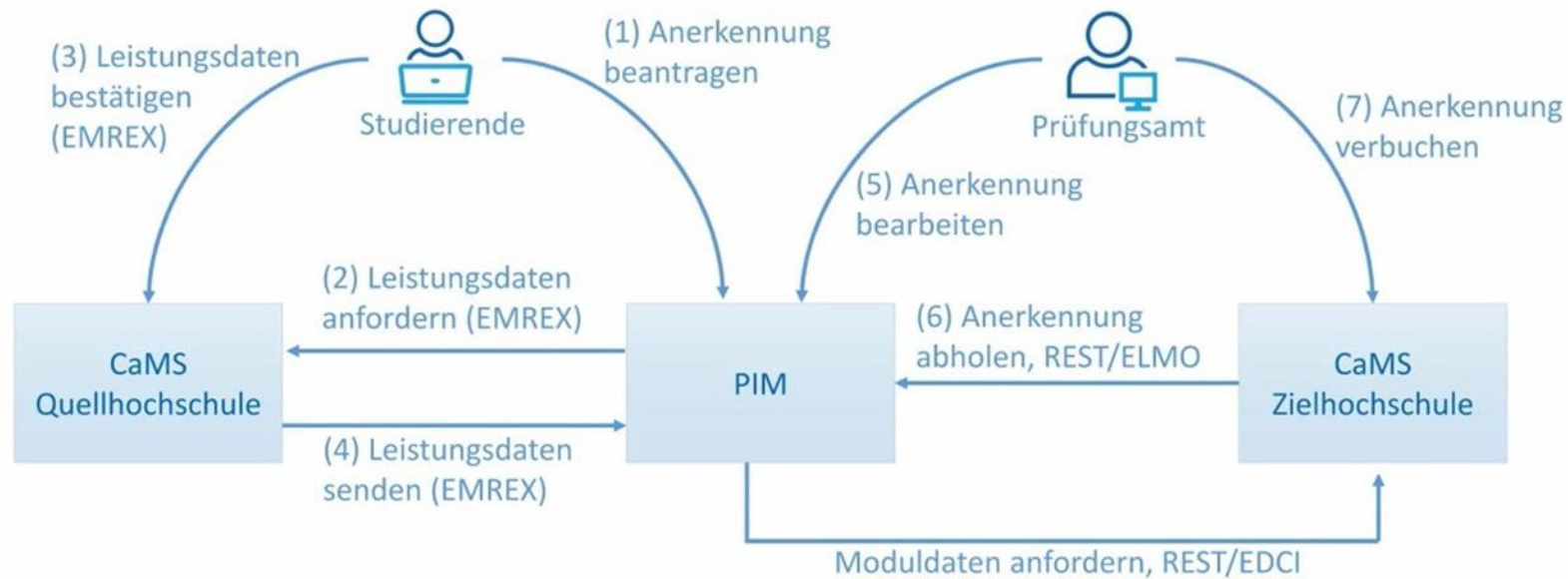
PIM Platform Inter*national Student Mobility

Source: Gerald Lach and Janina Hantke: "Platform for Inter*national Student Mobility".
Presentation at the EN-HANCE Conference 2021 on 06.05.2021. https://pim-plattform.de/wordpress/wp-content/uplo-ads/2021/06/2021-05-06_Enhance.pdf

PIM in process view

Ausblick
HISinOne - Prozesssicht

(3) Leistungsdaten bestätigen (EMREX)

Studierende

(1) Anerkennung beantragen

Prüfungsamt

(7) Anerkennung verbuchen

(5) Anerkennung bearbeiten

(2) Leistungsdaten anfordern (EMREX)

CaMS Quellhochschule

PIM

(6) Anerkennung abholen, REST/ELMO

CaMS Zielhochschule

(4) Leistungsdaten senden (EMREX)

Moduldaten anfordern, REST/EDCI

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Challenges

Challenges

- Many projects are temporary research projects and/or are designed as stand-alone solutions. The continuation of the projects (operator models) and the (long-term) integration into the campus management systems or the data centres are (mostly) open.

- While the project character promotes competition and innovation, it does not create stable institutionalised structures to promote student mobility in the long term through the digitalisation of recognition and credit transfer processes.

- Linking the digitalisation of recognition and credit processes with other modernisation activities in higher education administration is a key prerequisite for sustainable solutions. At the same time, the various actors in the universities (examination offices, departments, international offices, IT services, university management) must network and cooperate.

- Recognition and credit transfer are also a cultural issue, so that procedural questions and the efforts to be made by a higher education institution must be critically reflected upon, especially with the teachers.

Challenges

- Procedural legislation must adapt to the requirements of digitalisation (e.g. written form requirement). The Online Access Act (OZG) of the Federal Government and the e-government laws of the Länder are important drivers of digitisation here.

- Higher education laws, ordinances and regulations (admission regulations, examination regulations) should be subjected to a "digital check". Necessary is, among other things:

  – Establish a legal basis for the equivalence of digital certificates,

  – Clarification of indeterminate legal terms under higher education law such as "substantial difference", "competence test" and/or "equivalence",

  – Promotion of "LegalTech" in recognition procedures through digitisation-friendly module descriptions.

- Data protection and IT security are central aspects that must be considered and ensured above all from the user's point of view, e.g. through appropriate release rights.

Challenges

- Standards for data and processes are the prerequisite for further advancing digitalisation across higher education institutions (for recognition) and in exchange with other institutions (for credit transfer). The universities cannot manage this alone. There are currently various initiatives to develop such standards (including XHochschule). Existing standards and activities outside Germany (e.g. EMREX, EWP = Erasmus Without Paper, EDCI = Europass Digital Credentials Infrastructure) must be included.

- CaMS manufacturers have a crucial role in developing their systems to create digital workflows within systems and digital interfaces across systems. For this, the CaMS manufacturers must be actively involved in the discussion on data and process standards (and, if necessary, also be driven by the universities).

- The Länder create the legal basis and finance the universities. They can also promote the networking of higher education institutions across the Länder. The federal government is responsible for the national and international level and has an important driver function both in terms of communication and framework setting and with the help of funding for research and development projects.

Thank you for your attention.

Please do not hesitate to contact us if you have any questions!

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