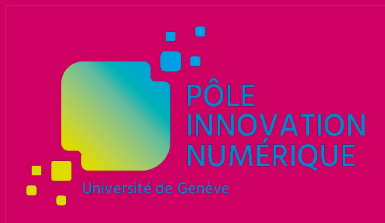


SWITCH EDUHUB Webinars

Learning through digital innovation

Prof. Giovanna Di Marzo Serugendo
Dr. Lamia Friha

August, 19th 2021



<https://www.unige.ch/stic/innovation/>



**UNIVERSITÉ
DE GENÈVE**
CENTRE UNIVERSITAIRE
D'INFORMATIQUE

STUDENTS EXPERIENCE – ACTIVE AND INNOVATIVE LEARNERS



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Theory, Exercising, Alone

Programs: BSc in Information systems and service science (Unige)
BSc Informatique de gestion (HEG)
MSc in Computer Science (Unige)



Practice, Stakeholders, Projects, Portfolio

Collaborations : HES-SO (HEG, hepia),
University offices (sport, culture, admissions, ...)

PLAN



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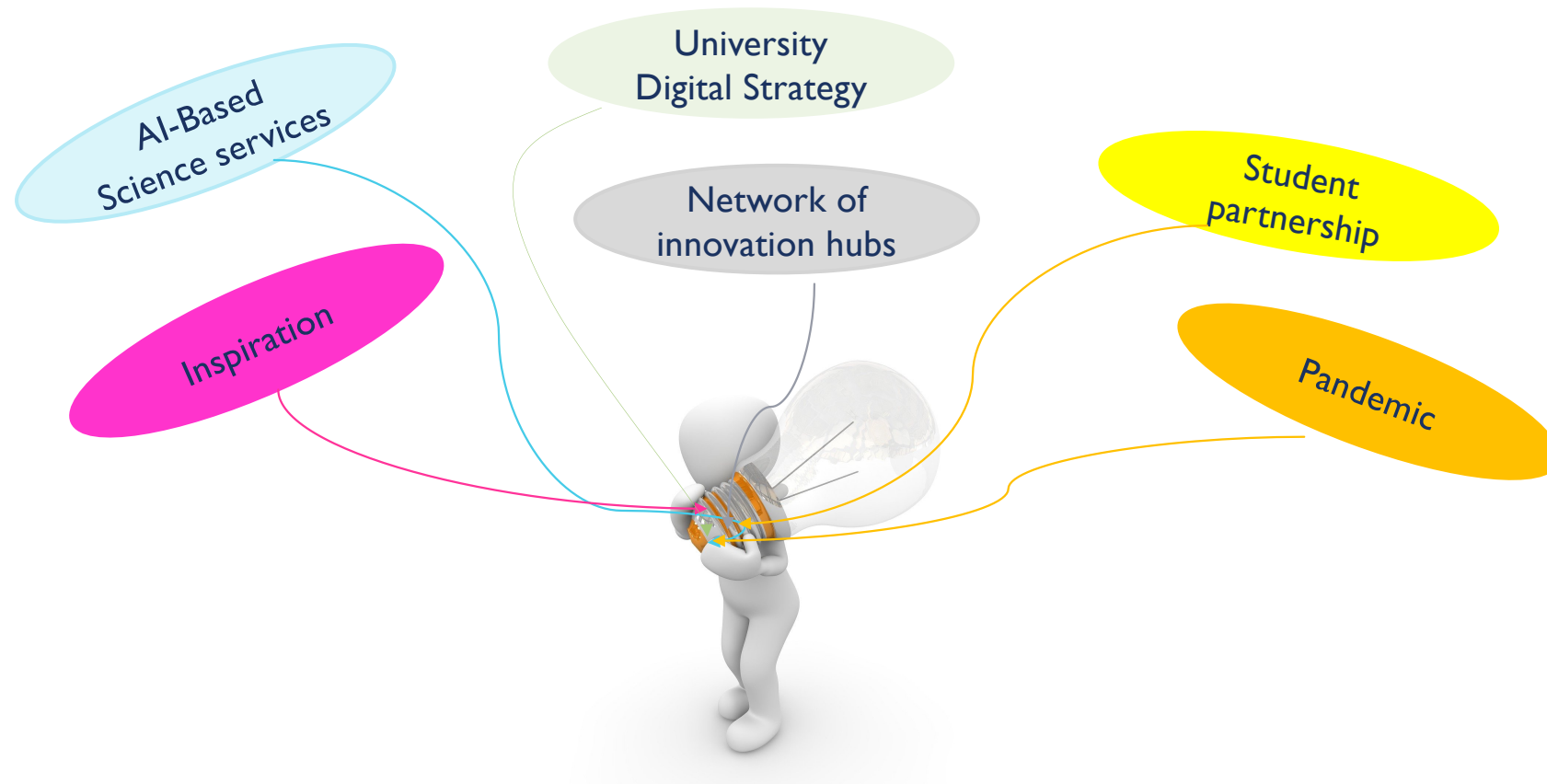
- Motivation
- Digital transformation and innovation in Academic world: Geneva University
- Digital Innovation Hub of the University of Geneva
- Accelerator of Digital Sciences and Services
- Innovation process
- Unige Case study (projects)
- Conclusion



MOTIVATIONS AND OPPORTUNITIES



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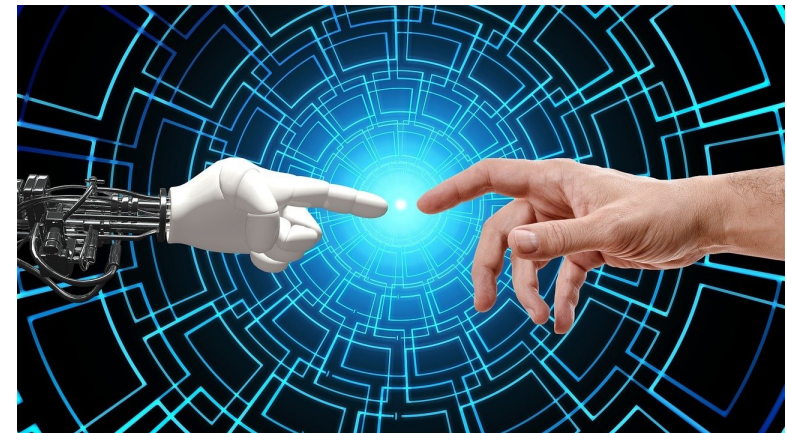
DIGITAL TRANSFORMATION AND INNOVATION IN ACADEMIC WORLD



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“According to Gartner I, by 2021, the top 100 higher education institutions will need to adopt artificial intelligence technologies to stay competitive in research. And over 30% of institutions will be forced to move towards a personalization strategy to maintain student enrollment levels.»

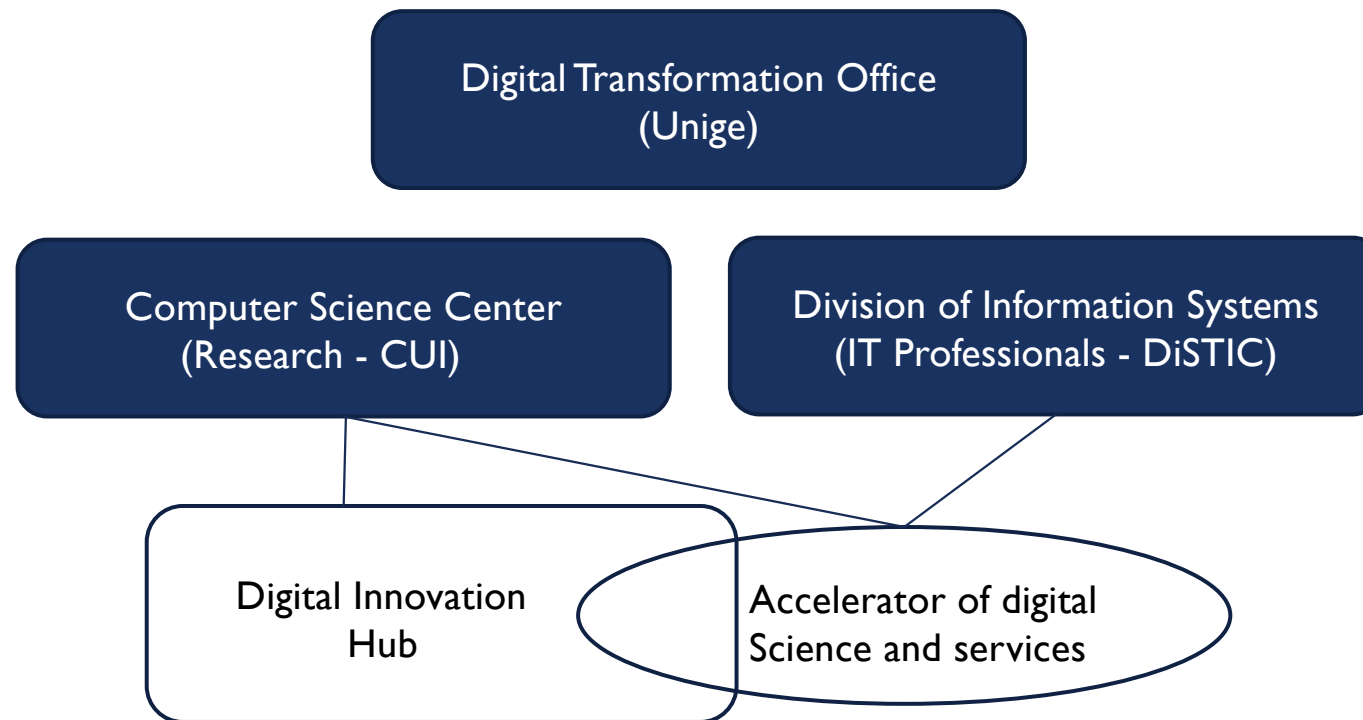
<https://www.gartner.com/en/documents/3895923/5-best-practices-for-artificial-intelligence-in-higher-e>



DIGITAL TRANSFORMATION AND INNOVATION IN ACADEMIC WORLD: GENEVA UNIVERSITY



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DIGITAL STRATEGY - UNIGE



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Original combined efforts of two main digital actors in university along with a challenging digital strategy to provide:

- Digital skills for all;
 - Digital services and support to transform the University;
 - Towards a responsible digital society;
 - A digital backbone for advanced research;
 - An open ecosystem for digital innovation;
 - An agile and participative governance.
-
- <https://www.unige.ch/numerique/en/digital-strategy/digital-strategy/>



DIGITAL INNOVATION HUB OF THE UNIVERSITY OF GENEVA

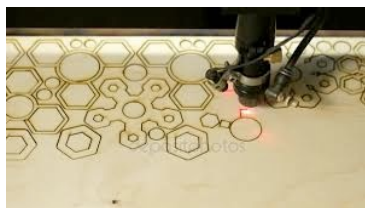


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Digital Innovation Hub

Managed by the Computer Science Center (CUI)

<http://pin.unige.ch>



■ Missions:

- Development of innovative digital services for the University community
- Supporting students and researchers with their projects
- Reaching out towards the public, private and organisational sector of the Geneva area

■ Tools:

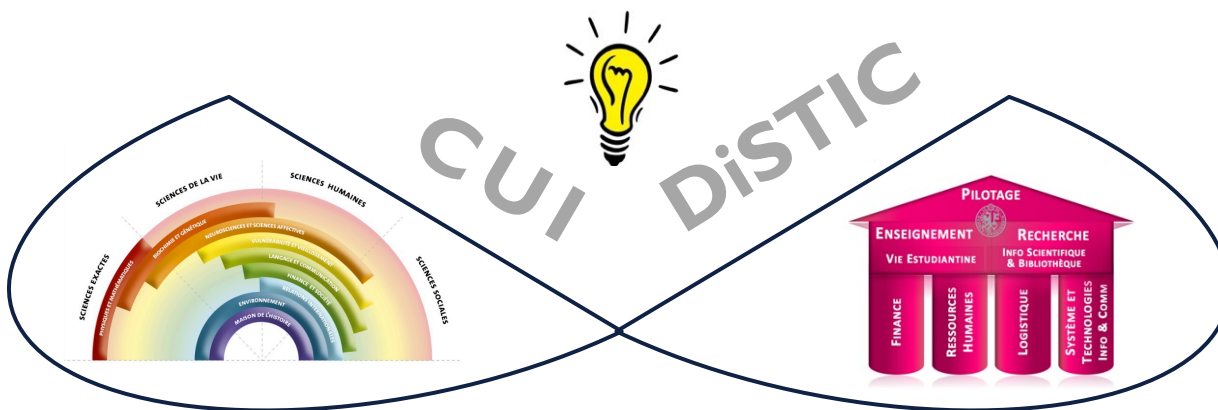
- Accelerator of digital science and services
- FacLab
- Innovation clinic
- Digital Forge
- Scientific Computing Support
- Programming Club

ACCELERATOR OF DIGITAL SCIENCES AND SERVICES



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Born from the original combined effort of the two main actors of the University



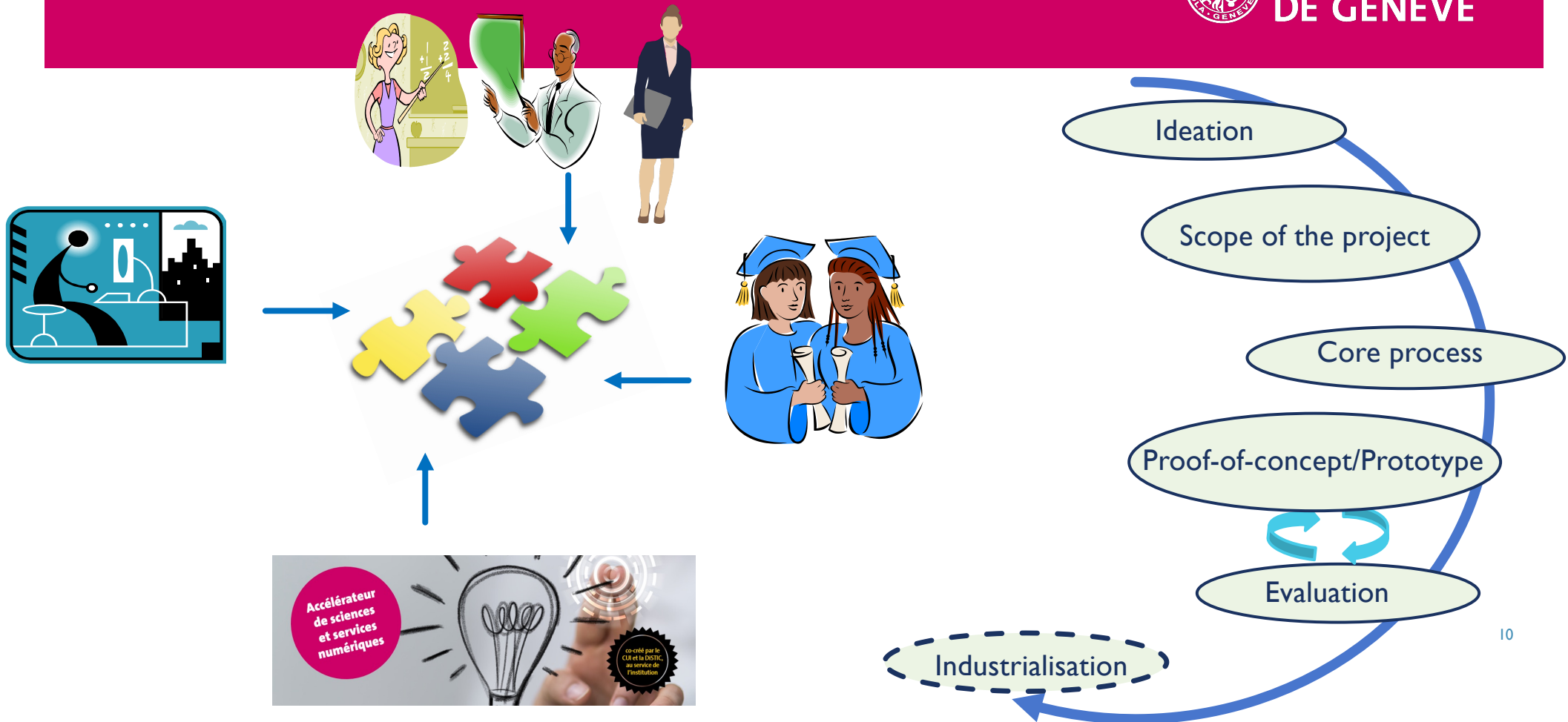
- Student projects:
Internship, BSc, MSc
- Academic expertise: Copils (SIS, PLI2146), Mandates
- Tailored training fo DiSTIC
- Lecturing

<https://www.unige.ch/stic/innovation>

ACTORS AND INNOVATION PROCESS



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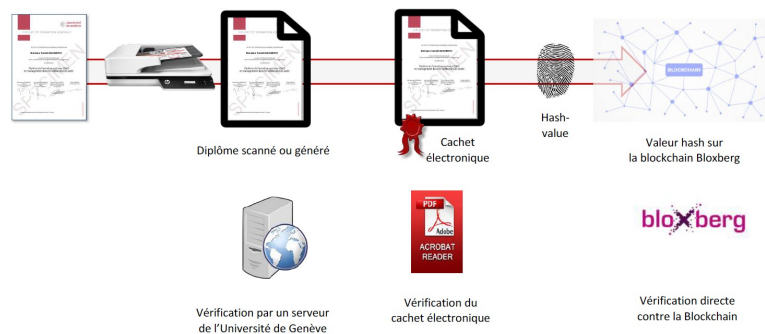


PROJECTS – BLOCKCHAIN



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Combination of 3 Verification Techniques



Mission: Authenticating University diploma

Status: Prototype deployed

Technology: Blockchain (Bloxberg)

Student: Jörn Erbguth (PhD thesis)



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UNIVERSITY

FACULTIES

STUDENTS

SERVICES

Specimen Diploma for Testing (TEST)



Un diplôme
vérifié

Online verification of diploma for

NAKAMOTO SATOSHI

1989-01-09

Centre Universitaire d'Informatique

Diploma number
25/2018

Diploma identifier
ND8IMJQ9MVF5NJDx

Diploma issue date
2018-12-14

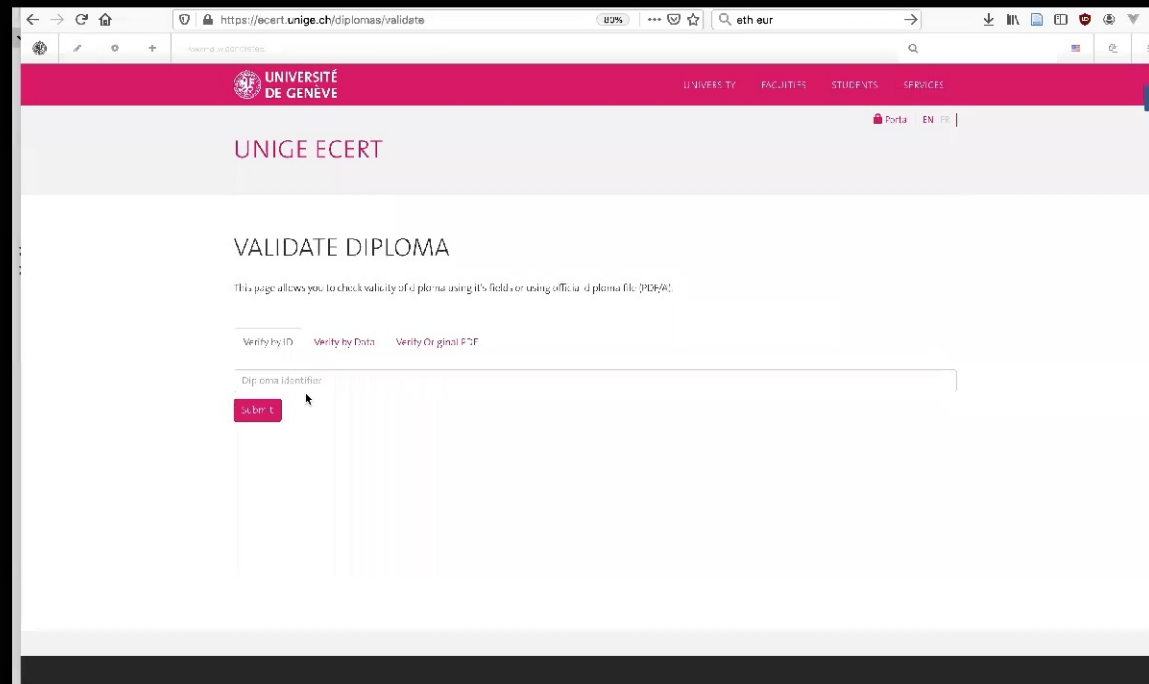
SPECIMEN DIPLOMA FOR TESTING (TEST)
CAS Blockchain & DLT

with Distinction

Verified 2019-01-18 at 23:14

This entry has been verified (2019-01-18 at 23:14) with our internal database and the blockchain smart contract.
(0x19dDgef9a4ABd2d3906xdac1279f88b005018f)

- <https://mediaserver.unige.ch/play/I52096>
- <http://cui.unige.ch/fr/pin/digital-innovators/di20210203/>
- <https://www.unige.ch/stic/innovation/projets/>



- <https://mediaserver.unige.ch/play/I52096>
- <http://cui.unige.ch/fr/pin/digital-innovators/di20210203/>

PROJECTS – CHATBOT GSEM



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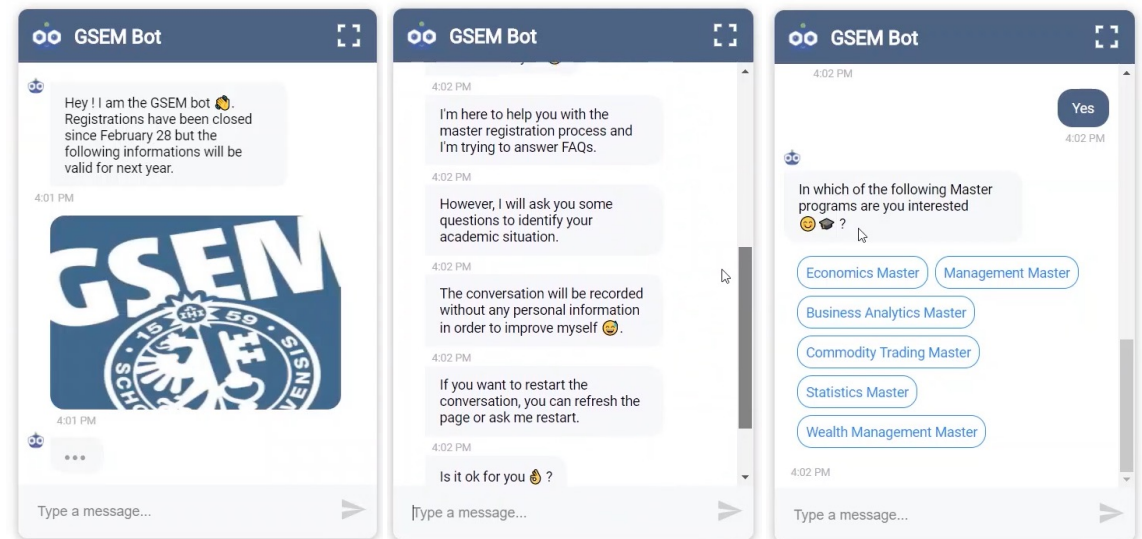


Mission: Help future master students to apply to the GSEM Faculty

Status: Deployed

Technology: Rasa

Student: Bastien Fioretti (BSc project)



- <https://digitaltag.swiss/fr/programm/des-services-numeriques-concus-par-les-etudiant-es-du-cui/>
- <http://cui.unige.ch/fr/nouvelles/chatbotgsem/>
- <https://www.unige.ch/stic/innovation/projets/>



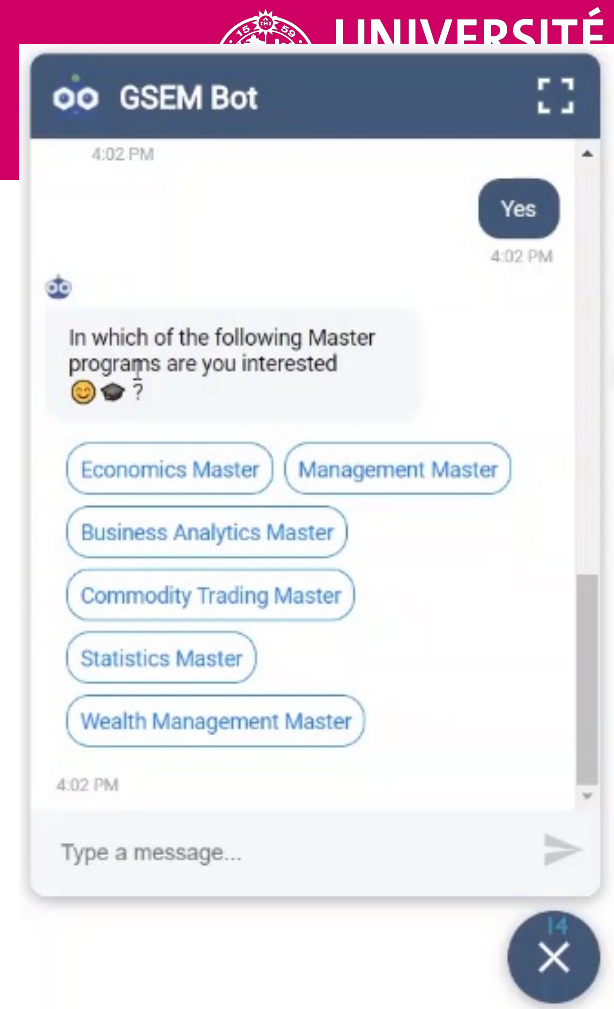
Mission: Help future master students to apply to the GSEM Faculty

Status: Deployed

Technology: Rasa

Student: Bastien Fioretti (BSc project)

- <https://digitaltag.swiss/fr/programm/des-services-numeriques-concus-par-les-etudiant-es-du-cui/>
- <http://cui.unige.ch/fr/nouvelles/chatbotgsem/>



PROJECTS – STUDIES ADVISOR



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Advisor

Mission: Help student with frequently asked questions abouts internship, studies, subscriptions

Status: Beta test

Technology: IBM Watson

Student: Karim El-Kassimi (Bsc projet)



- <https://unitabel.com/CUI/chatbotcui.html>
- <https://www.unige.ch/stic/innovation/projets/>

PROJECTS – STUDIES ADVISOR



Advisor

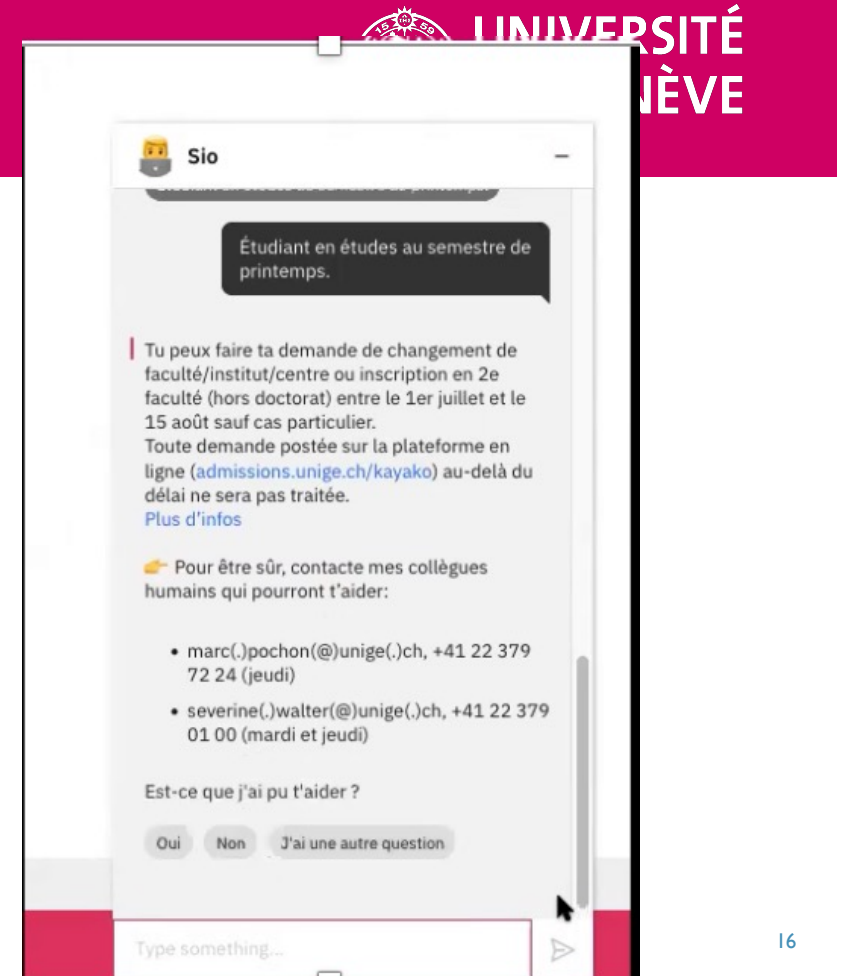
Mission: Help student with frequently asked questions abouts internship, studies, subscriptions

Status: Beta test

Technology: IBM Watson

Student: Karim El-Kassimi (Bsc projet)

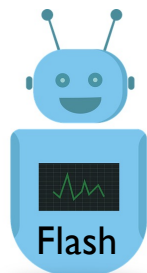
- <https://unitabel.com/CUI/chatbotcui.html>
- <https://www.unige.ch/stic/innovation/projets/>



PROJECTS – CHATBOT CULTURE & SPORT



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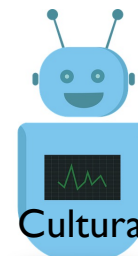
Mission: Help student with frequently asked questions abouts sports, subscriptions, ski camps

Status: Beta test

Technology: Rasa

Student: Ivan Kostine (Internship)

<https://www.unige.ch/stic/innovation/projets/>



Mission: Help students with frequently asked questions and present the culture program offer

Status: Beta test

Technology: Rasa, use Database

Student: Antonin Sedoh (BSc projet + internship)

<https://www.unige.ch/stic/innovation/projets/>



Démo Chatbot!

Chat avec Cultura

The Bot

que je sais faire pour que je
vous fasse des suggestions

Voici quelques exemples de ce
que vous pouvez faire

je cherche des cours de danse

J'ai 6 prestation(s) à vous
proposer pour **Danse**

Prestation 1

- Titre: Danse classique
- Difficulté: Débutant
- Date de début: 14 Avril 2021 à
12 h 15 min

...

Entrer un message



SOME ONGOING PROJECTS



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SMART TRASH

Mission: (1) Automatic system for identifying PET bottles in sorting bins; (2) autonomous bins will reject unwanted objects; (3) completed with an interactive system (educational reward).

Status: On going

Technology: Sensors (camera), Machine Learning

Project : HEPIA - UNIGE

Student: Eric Alexis_Bertrand (Master Project)

<https://www.unige.ch/stic/innovation/projets/>

DIGITAL HUMANITIES

Mission: Consolidate and enrich a collection of literature data (textual documents, letters – organised as linked data) with additional information on mentioned locations (geonames)

Status: On going

Technology: OpenRefine, geonames, RDF, linked data

Project : HEG - UNIGE

Student: Marion Lorenz (Bsc Project)

<https://www.unige.ch/stic/innovation/projets/>

PROJECTS – ... AND MORE ...



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Chatbots:

- Access to internal database
- Access to Moodle (assignments)
- Retrieving information from zoom recording
- Rasa vs IBM Watson
- Ontology
- Personnalisation
- Various levels of maturity (L1-L2-L3)

Other:

- Services for Mobile App Unige
- Tests for e-learning environments

Full list:

- <https://www.unige.ch/stic/innovation/projets/>

SYSTÈME D'INFORMATION

SI@UNIGE GOUVERNANCE DU SI ACTEURS DU SI PROJETS DE SI SERVICES NUMÉRIQUES INNOVATION

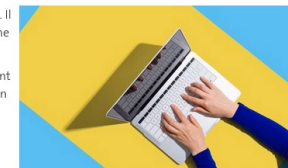
INNOVATION

Projets accélérés

L'Accélérateur de sciences et de services numériques de l'UNIGE développe de nombreux projets et partenariats. Il encadre notamment des travaux d'étudiant-es (stages, travaux de Bachelor en Informatique, projets de recherche de Doctorat) par le biais du CUI, de la DiSTIC ou encore de la Haute École de Gestion.

Des projets étudiant-es/institutionnels numériques sont développés dans le cadre de l'Accélérateur et deviennent des prototypes ou proof-of-concept. Certains prototypes prometteurs peuvent être ensuite repris par l'institution pour un déploiement et une mise à disposition de la communauté universitaire.

Vous trouverez ci-dessous la liste des travaux réalisés depuis 2017 ainsi que les projets en cours.



2020 -

2020

• **Chatbot conseiller aux études pour le CUI, BSc SISS / Karim El Kassimi**

Travail de Bachelor SISS

Encadrement : Lamia Friha, Omar Benkacem (DiSTIC), Giovanna Di Marzo Serugendo (CUI)

• **eProctoring / Marco Castagnuolo, Allan Bowman, Axel Ducaux, Faton Murtezi**

Haute École de Gestion, Filière informatique de Gestion - Module 645-1

Mandant-es : Omar Benkacem, Lamia Friha (DiSTIC), Laurent Moccozet (CUI) - Responsables HEG : D. Billard, A. Rossier, S. Gerson

• **Chatbot e-learning / Kilic Adis, Ouail El-Alami, Kijic Mario, Blülle Celado José-Paul**

Haute École de Gestion, Filière informatique de Gestion - Module 645-1

Mandant-es : Lamia Friha, Omar Benkacem (DiSTIC), Laurent Moccozet (CUI) - Responsables HEG : A. de Banoff, A. Starkov, A. Duarte Da Silva

SCOPE AND ARTICULATION WITH IT SERVICES



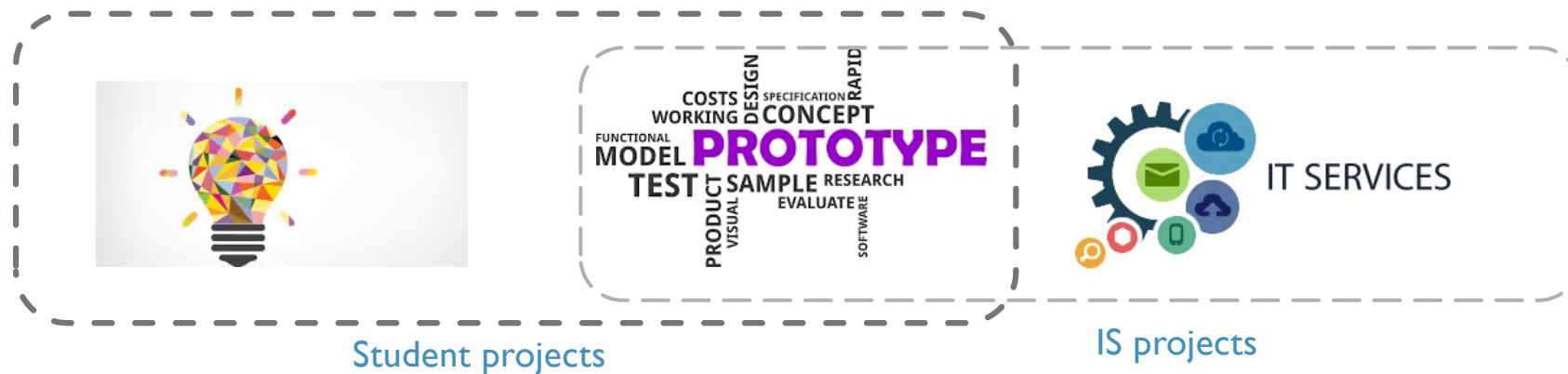
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ADVANTAGES

- Experimenting innovation
- Providing prototypes
- Technological Watch

LIMITS

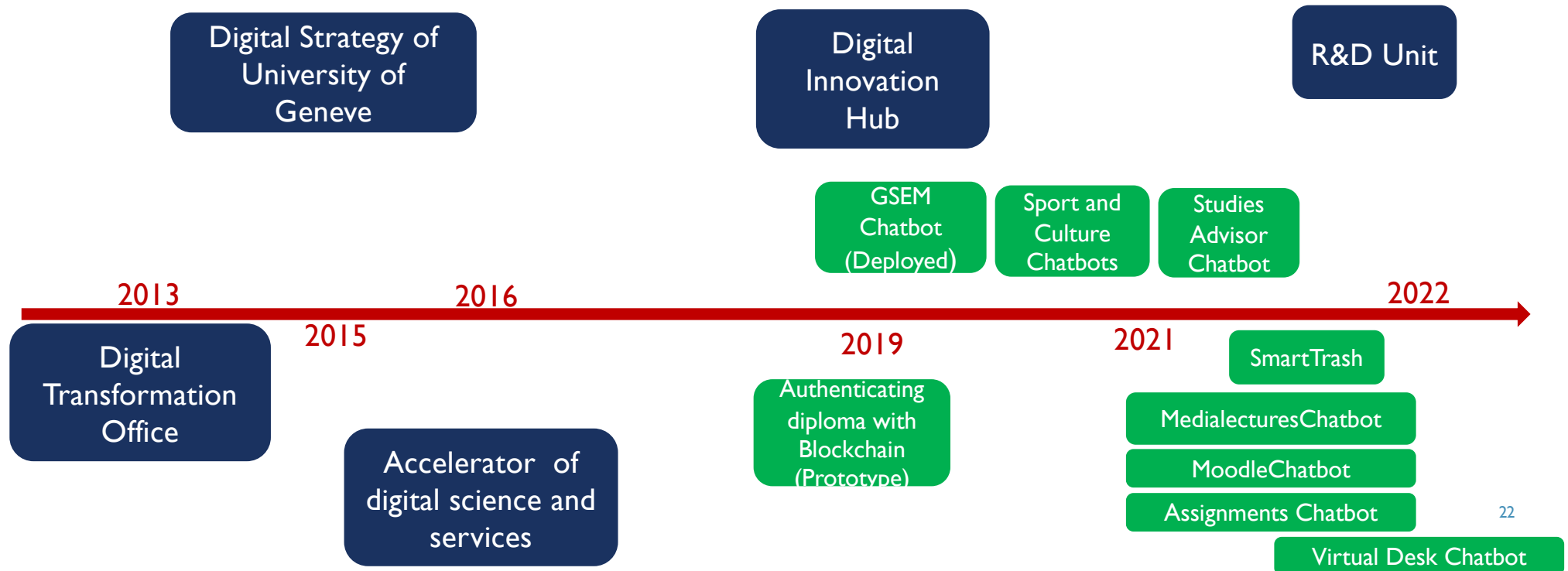
- Additional needs: industrial phase → finalised service usable by the University community
- Prototypes – not ready to use



TIMELINE



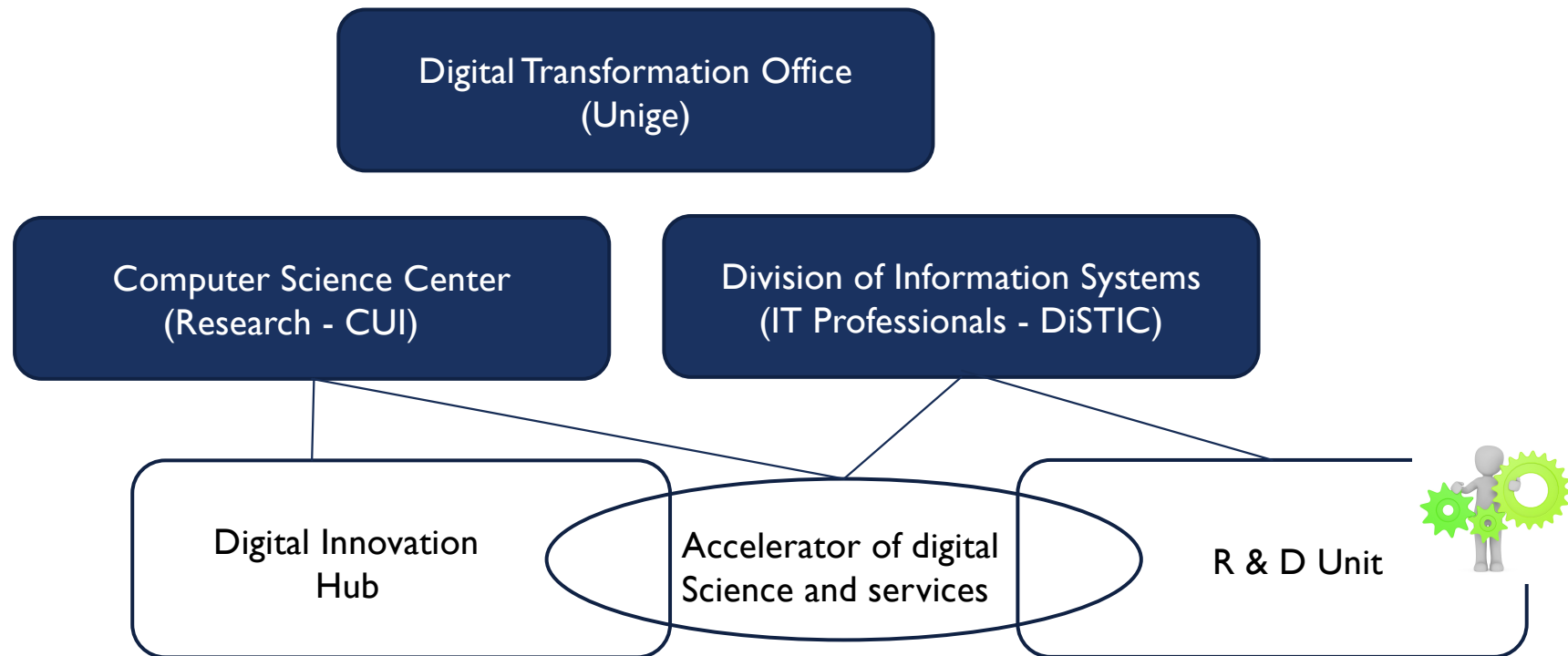
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FUNCTIONAL DIAGRAM



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R&D UNIT GOALS



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Propose

Propose innovative projects giving rise to functional prototypes with strong added value

Technology watch

Perform a technology watch

Evaluate

Monitor the prototypes arising from the projects, evaluating the results

Select

Select the services to scale up and made available to the whole university

Deploy

Ensure the production and deployment of new services

Train

Train and develop internal skills of the teams who will be responsible for maintenance of the service



R&D UNIT GOALS



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Accelerator of digital
Science and services

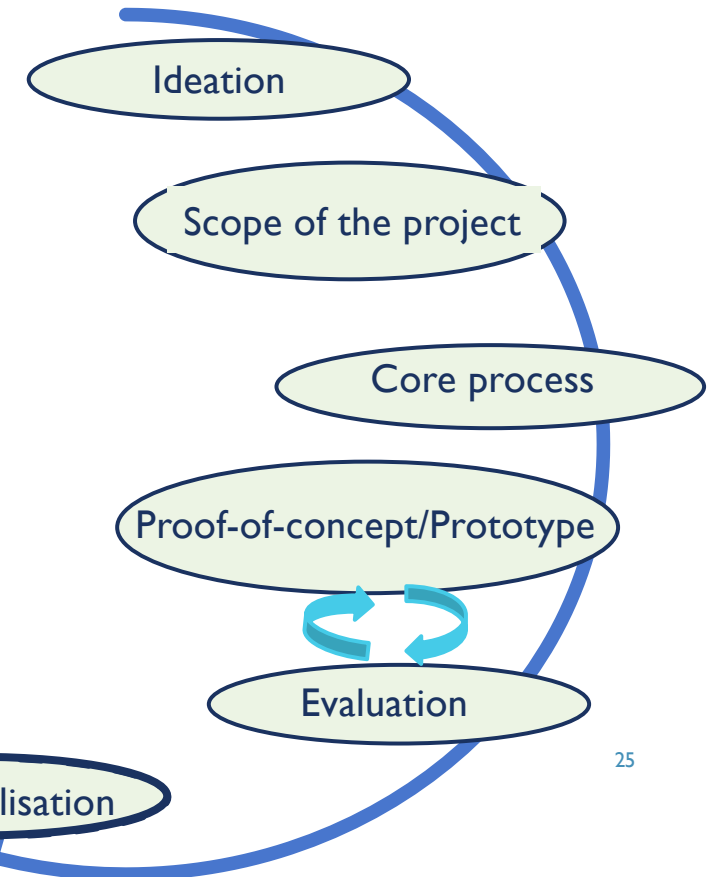


Student projects

R & D Unit



IS projects



CONCLUSION



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- Learning through Innovation process
- Need for structures to sustain the process
(Digital Innovation Hub, Accelerator, R&D Unit)
- Success stories
- Competence networks → beyond the Accelerator
- Include students of other programs – e.g. Media et Communication / Psychologie

THANKS!!



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- Team work → students, product owners, DiSTIC IT specialists, other IT specialist, academic coaches, rectorate
- Specific thanks to:
 - Dr Oumaima Ajmi (chatbot GSEM), Dr Omar Benkacem (mobile app)
 - Accelerator team

REFERENCE



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- [1] <https://www.deakin.edu.au/about-deakin/news-and-media-releases/articles/deakin-genie-digital-student-assistant-winsmajor-global-business-award>
- [2] <https://www.gartner.com/en/documents/3895923/5-best-practices-for-artificial-intelligence-in-higher-e>
- [3] Giovanna Di Marzo Serugendo, Lamia Friha, Digital innovation process in the academic sector - The case of the University of Geneva, in Proc. of the International Conference on Exploring Services Science (IESS 2021) (EDP Sciences, 2021) ITM Web Conf. 38 03004 (2021) DOI: 10.1051/itmconf/20213803004
https://www.itm-conferences.org/articles/itmconf/abs/2021/03/itmconf_ies2021_03004/itmconf_ies2021_03004.html
- [4] J.H. Morin, L. Moccozet, Build to think, build to learn: what can fabrication and creativity bring to rethink (higher) education? in Proc. of the International Conference on Exploring Services Science (IESS 2021) (EDP Sciences, 2021). ITM Web Conf. 38 03004 (2021) DOI: 10.1051/itmconf/20213802004
https://www.itmconferences.org/articles/itmconf/abs/2021/03/itmconf_ies2021_02004/itmconf_ies2021_02004.html

Accelerator of digital sciences and services

Pr Giovanna Di Marzo Serugendo – Direction

Dr Pierre-Yves Burgi – Direction

Dr Lamia Friha - Coordinatrice de l'Accélérateur

Lucie Ducevic - Coordinatrice communication

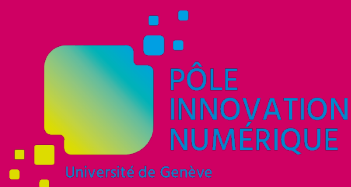
David Ott - Responsable du Pôle d'Innovation Numérique (PIN)

Elisabeth Giudicelli –Suivi administratif

<https://www.unige.ch/stic/innovation/>

<https://pin.unige.ch>

accélérateur-ssn@unige.ch



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