ETH zürich

MAS ETH in Applied Technology
Concept and Program

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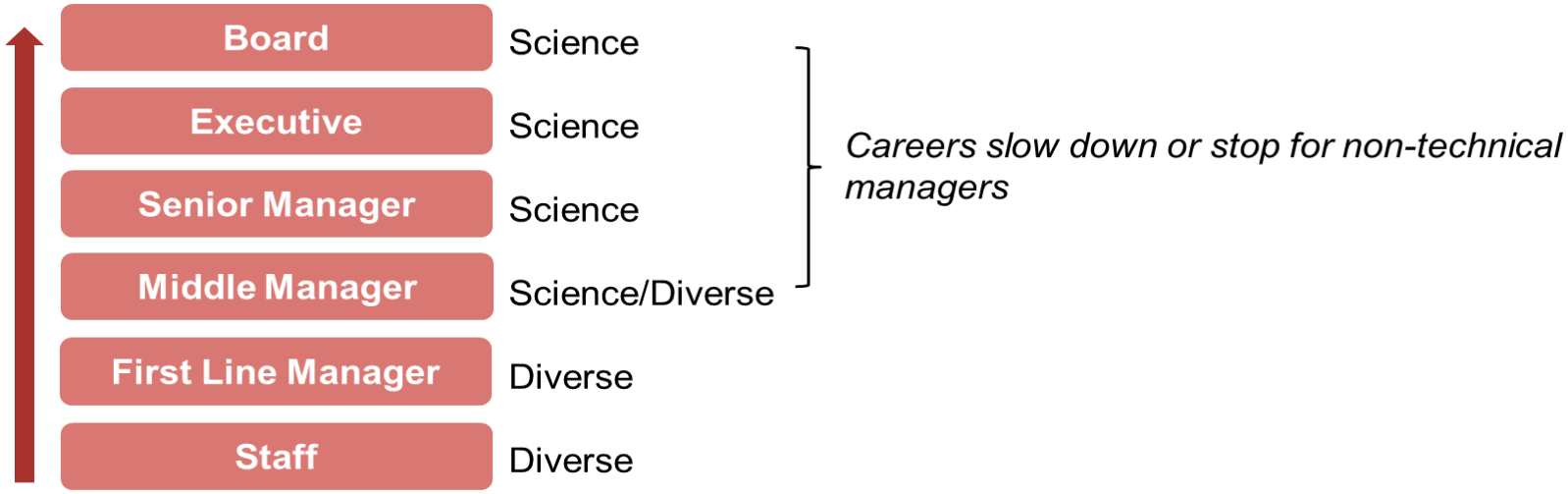
Content

Development in Response to Industry Needs

Typical career advancement in a technology company



Problem recognition:

- Lack of qualified candidates for senior management in technology companies
- Science and technology qualifications are missing
- Existing education and training options are inadequate

Program Concept & Goals

Continuing Education Degree enabling Graduates to

- Better understand the scientific aspects behind most important technologies in the industry
- Colaborate more effectively with technical experts and managers in order to provide interdisciplinary, technology-based solutions to industry problems
- Better lead and understand technical staff
- Better lead technology-based companies

Target Participants

- Managers/Professionals with at least 5 years of working experience
- Managers/Professionals in technology-based companies and industries
- Managers/Professionals with non-science or single-science Master’s degree
- Employees with promotion potential

Example Participant – Marketing Manager

6 years – Manufacturing

Manages groups in 3 EU countries

Masters in Marketing & Communication

Supervisor & HR Feedback

- Next level will require more interdepartmental collaboration
- Should improve understanding of operations and engineering

Personal Goals

- Improve product design
- Understand opportunities created by technology

Example Participant – Finance Manager

12 years – Electronics Industry

First Line Manager, Finance Dept.

Masters in Finance

Supervisor & HR feedback

- Excellent with numbers
- Look beyond the numbers and help the company be more innovative, especially in its use of technology

Personal Goals

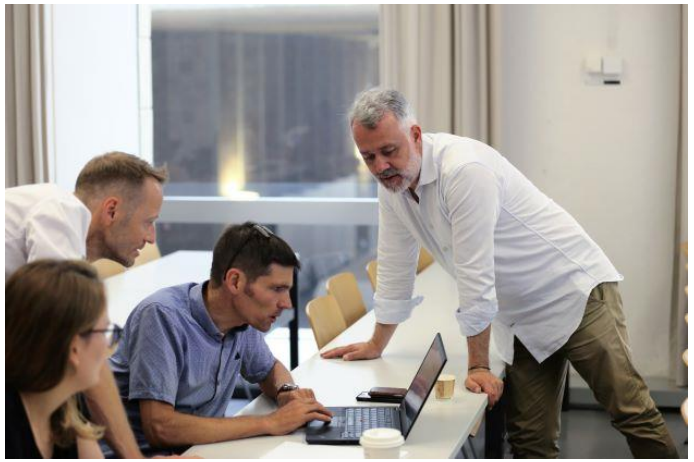
- Stronger relationships with technical managers in the business unit
- Not feel lost in technical conversations

MAS AT Program Structure

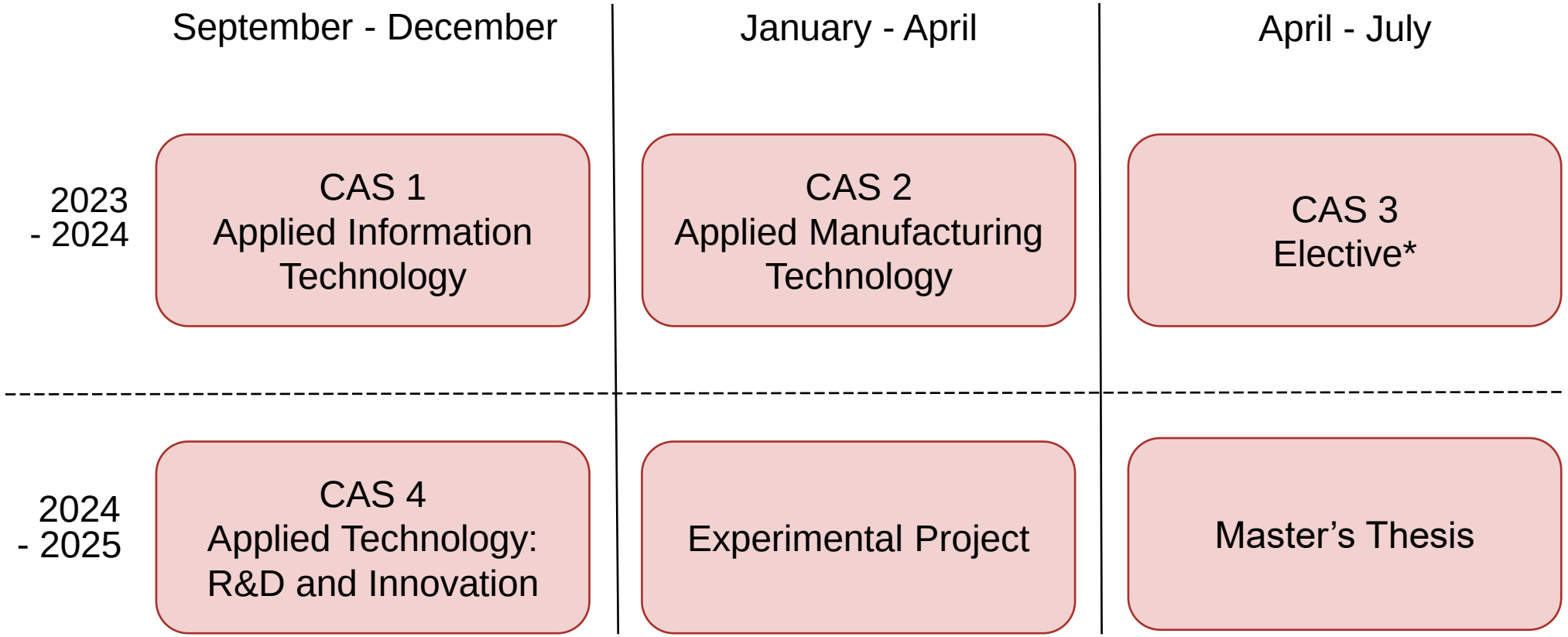
MAS	**Applied Technology**	**66 ECTS**
CAS 1	Applied Information Technology (CAS AIT)	12 ECTS
CAS 2	Applied Manufacturing Technology (CAS AMT)	12 ECTS
CAS 3	Applied Technology Elective*	12 ECTS
CAS 4	Applied Technology: R&D and Innovation (CAS ARI)	10 ECTS
Experimental Project		10 ECTS
Master's Thesis		10 ECTS

*Elective CAS for 2023:

- CAS Applied Technology in Energy (CAS ATE)
- CAS Applied Electronics and Digitization (CAS AED)



MAS ETH in Applied Technology: Study Plan



CAS Programs in Details

CAS in Applied Information Technology

- Foundations of Programming
- Data Science
- Data Modelling and Computer Vision
- Applied Information Technology

CAS in Applied Technology in Energy

- Energy Fundamentals
- Energy Storage
- Electric Power Grid Systems
- Electrification and Practical Applications

CAS in Applied Manufacturing Technology

- Manufacturing Processes
- Production Systems
- Product Development & Technology Implementation
- Materials

CAS in Applied Electronics & Digitization

- Fundamentals of Semiconductors and Electronics
- Semiconductor Devices and Applications
- Integrated Circuits(ICs)
- Complex Electronic Systems

CAS in Applied Technology: R&D and Innovation

- Fundamentals of R&D and Innovation
- Innovation – What is and to what purpose do we need it?
- R&D: The Engine of Innovation
- The Innovation Ecosystem

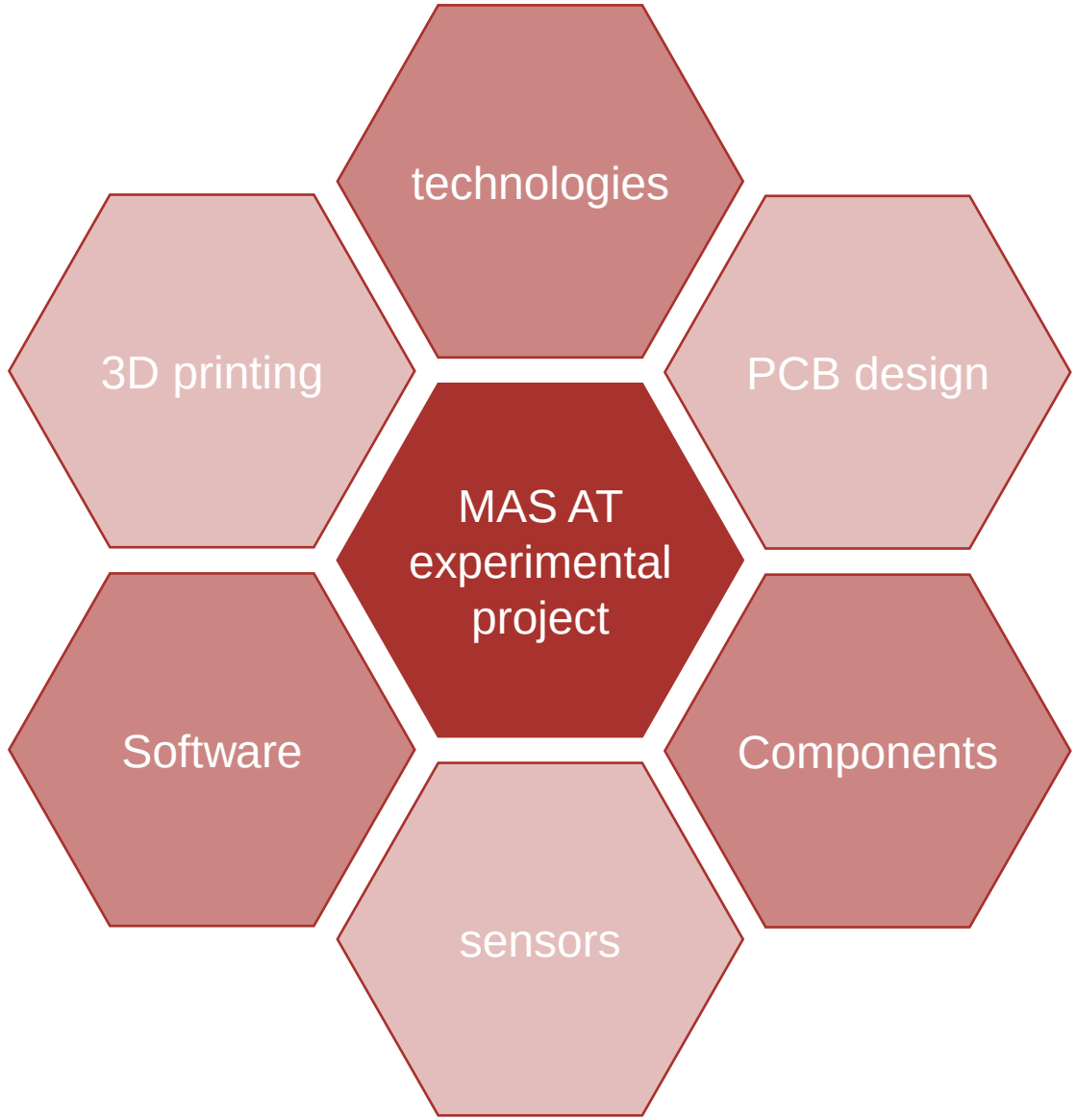
Experimental Project MAS AT

The project encompasses the conceptualization, realization and testing of a complete, functional technical system.

Goal

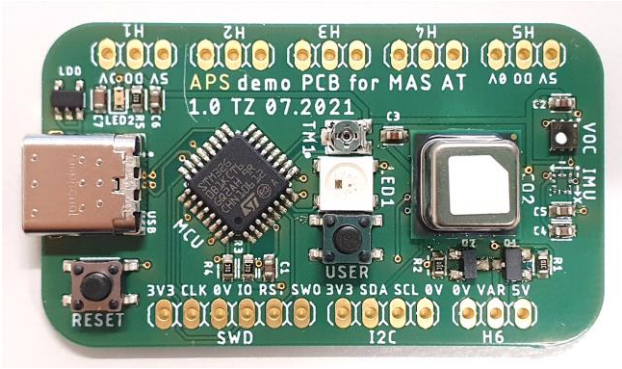
The goal is to give the participants a wide range of experiences in hardware and software, touching every aspect of R&D prototype development.

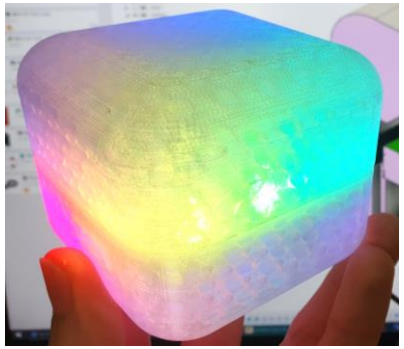
- Explore and improve understanding of a specific subject or technology
- Better appreciation of typical problems during technology development

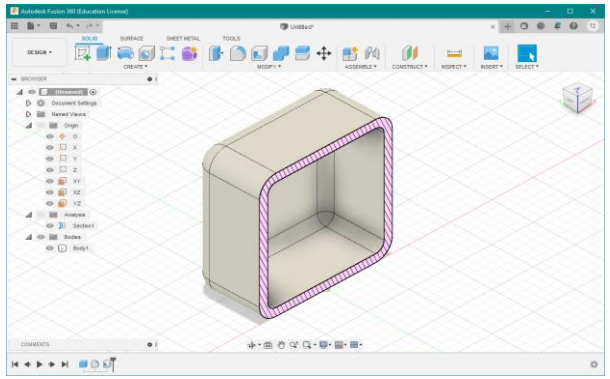


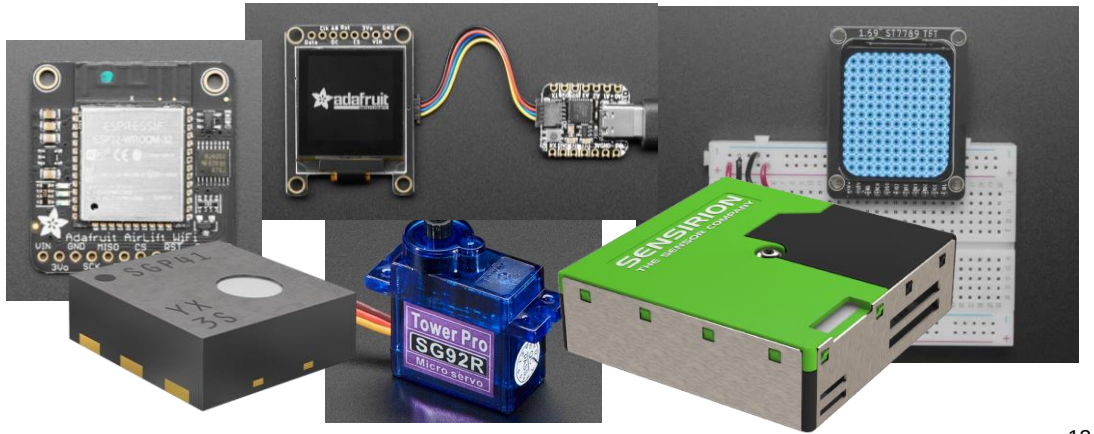
Experimental Project MAS AT

- Technologies
  - Printed circuit boards (PCBs)
  - 3D printed mechanical parts
- Software
  - Cloud-based CAD, PCB design software
  - Python on MCUs and PCs
- Components
  - Sensors
  - Displays, LEDs
  - Motors, speakers









Master’s Thesis

The Master’s Thesis concludes the Master’s degree Programme (MAS ETH in Applied Technology).

- Subject
  - Evaluate a technology application to solve a real industry problem
  - Problem and technology selectable (with advisor/tutor approval)
- Key Points
  - Implementation of material and skills learned in program
  - Must be sufficiently rigorous from science and technology perspective
  - Other information (policy, market, etc.) should be context only, not the focus
  - Early discussion with a potential advisor/tutor.
- ETH Advisor
  - Meet during CAS 4 for advance planning
  - External advisor in cooperation with ETH MAS AT advisor

MAS in Applied Technology - Key Facts

- Program Duration — 2 Years, Part-Time
- Format — In presence & online
  2-day block, every other week (Friday full day/Saturday morning)
- Language — 100% English
- Next Start — September 2023
- Time Commitment — ~250-300 hours/CAS = ~20 hours/week

Rolling admission possible:
Start with a CAS of your choice and change to the MAS ETH in Applied Technology, after completion of the CAS (CAS fee paid will be fully credited).

MAS in Applied Technology – Application Procedure

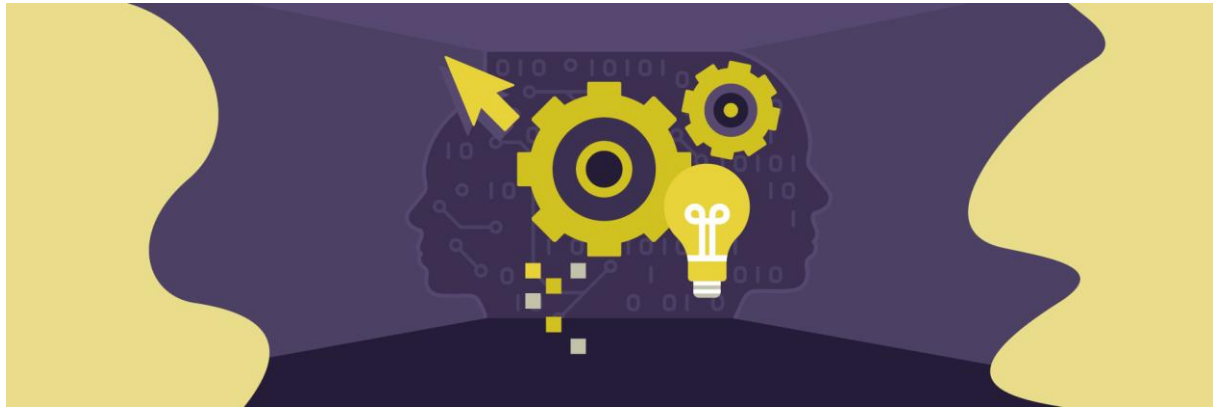
Application Process:

School for Continuing Education (SCE) website

Programme fee MAS AT (2023)
CHF 39,000

Programme fee CAS AT (2023)
CHF 8’500

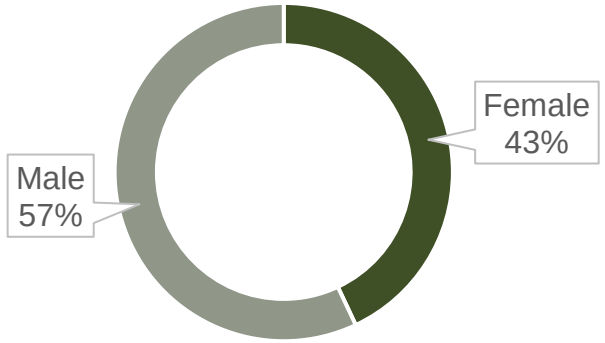
Application fee (non-refundable)
CHF 50 for persons with a Swiss university degree
CHF 150 for persons with another university degree



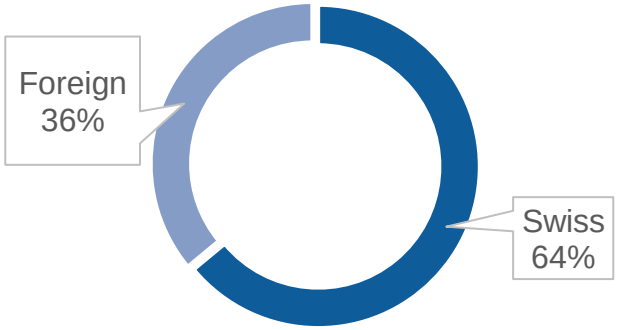
2019 – 2022 Participant Profile* – Personal Background

**includes all MAS and CAS Participants*

Gender



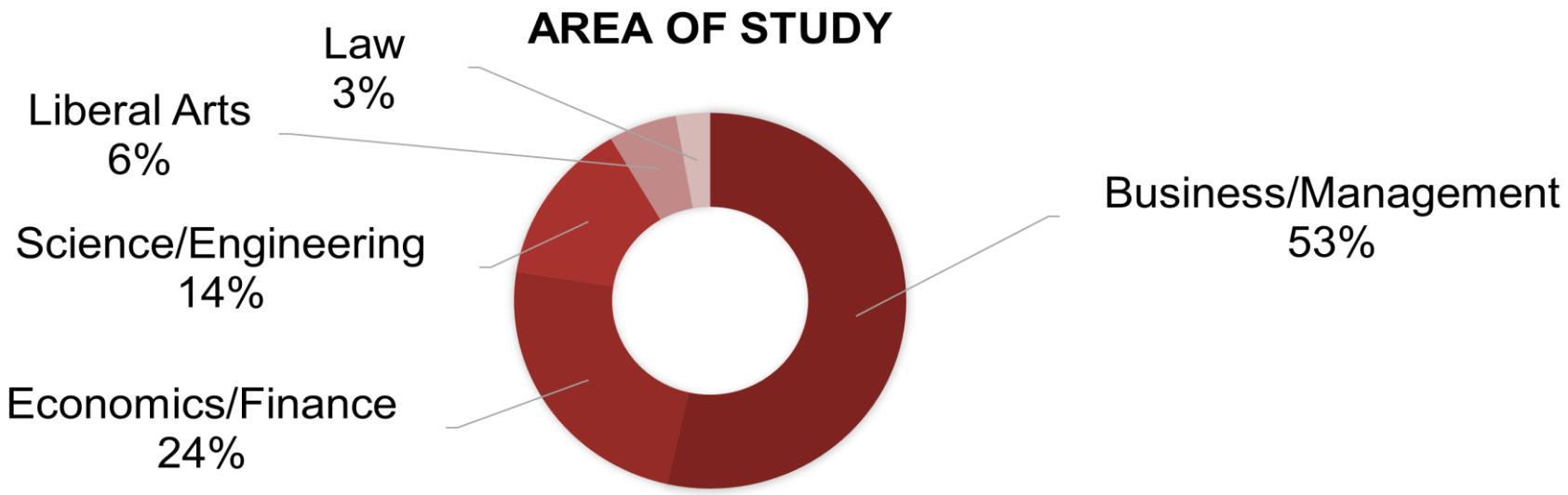
Nationality

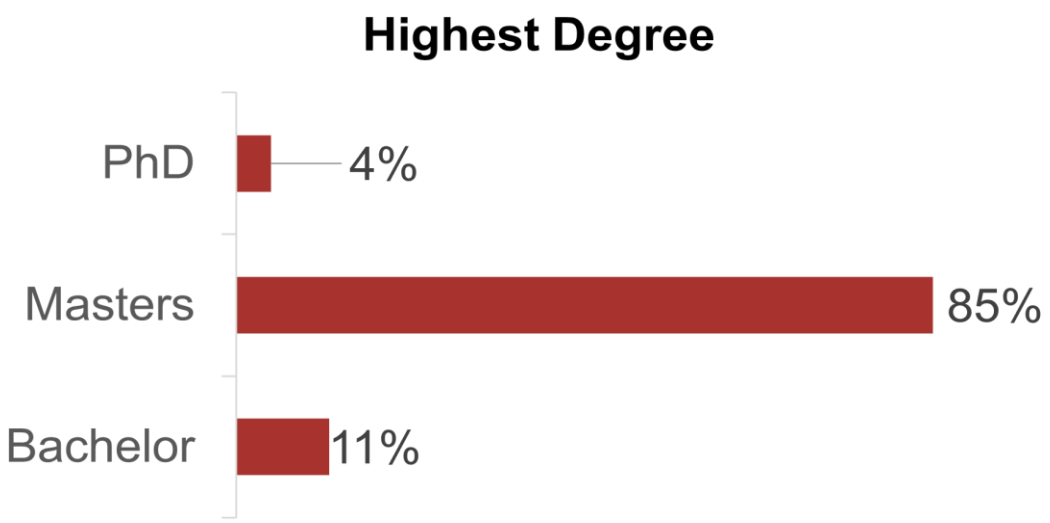


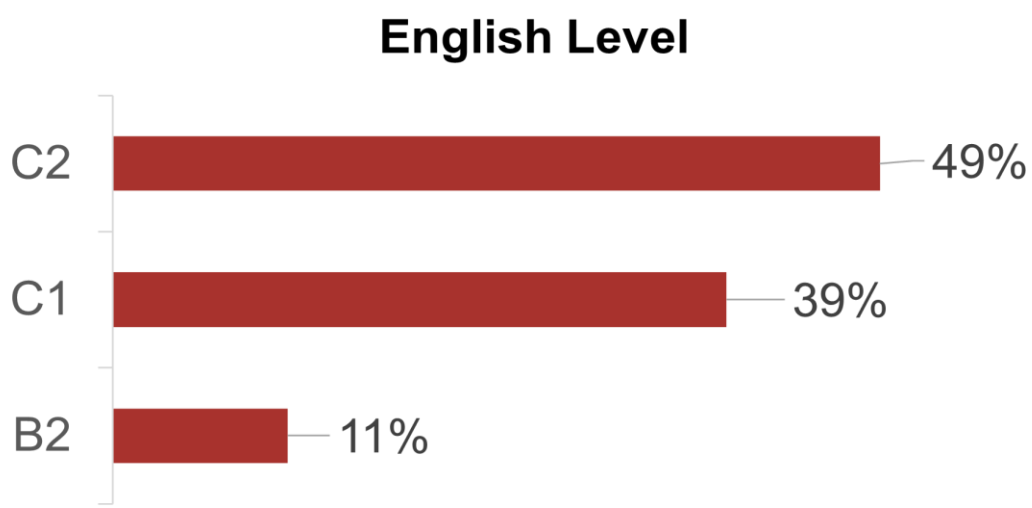
Age

from 27 — 36 Average — to 59

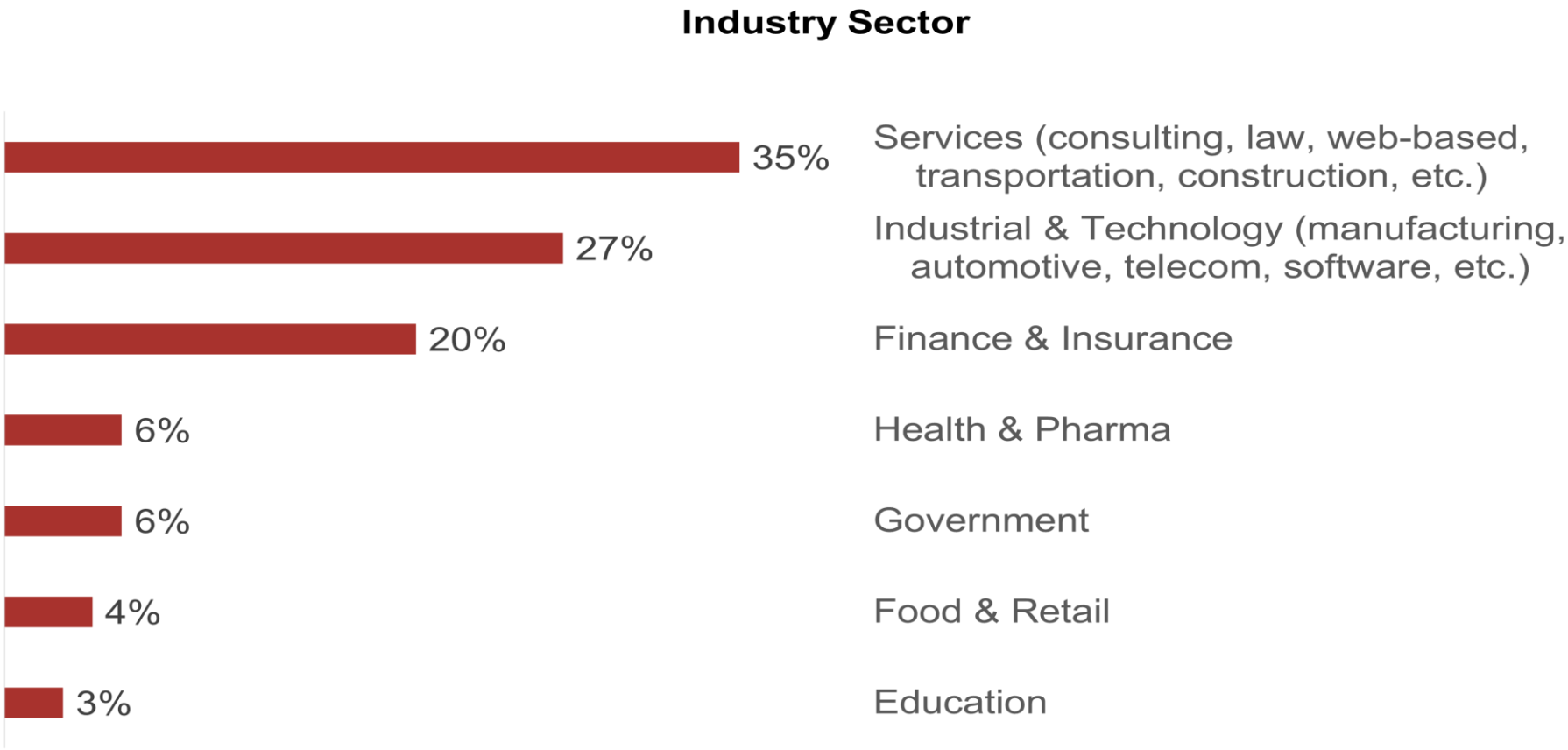
2019 – 2022 Participant Profile – Academic Background



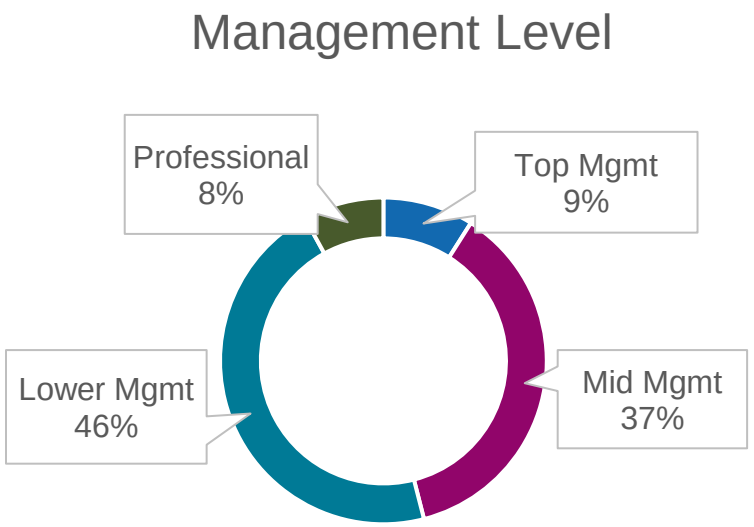




2019 – 2022 Participant Profile – Industry



2019 – 2022 Participant Profile – Experience



Work Experience

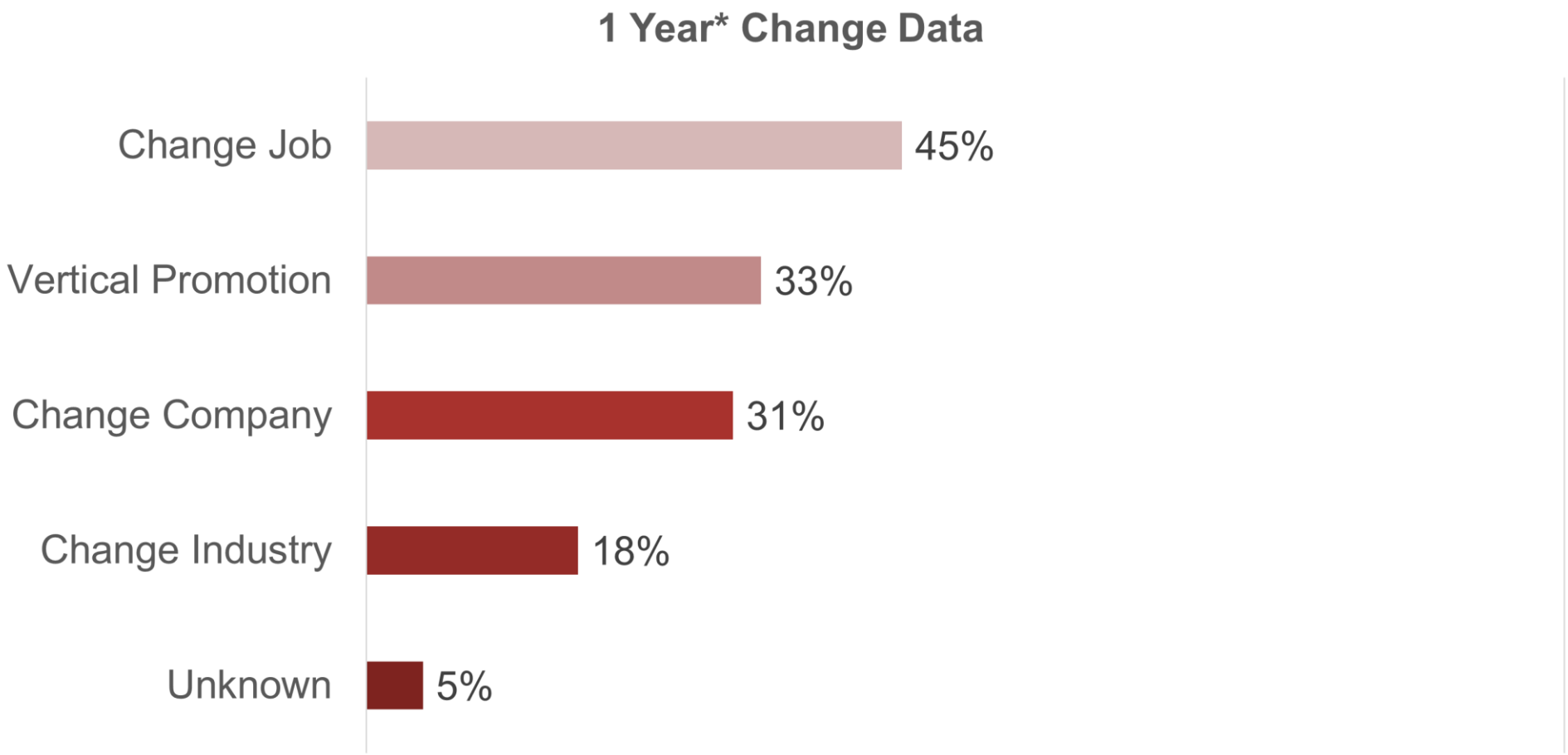
Average: 11 years

Range: 4 – 25 years

Example Titles

Director
Vice President
Head
Program Manager
Product Manager
Sales Manager
Finance Manager
Project Manager
Project Leader
Controller
Consultant / Senior Consultant
Business Analyst

2019 – 2022 MAS and CAS Participants Employment Data



*One year after completion of first CAS

ETH zürich

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