Experiences from the Saab-KTH Strategic Partnership

UIDP Europe 2023

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Outline

- About Saab
- Partnership history
- Purpose and overarching goals
- Organisation and way of working
- Key elements – Success factors
- KPI:s
- Areas of improvement
- Adjunct career path
- Conclusions
-

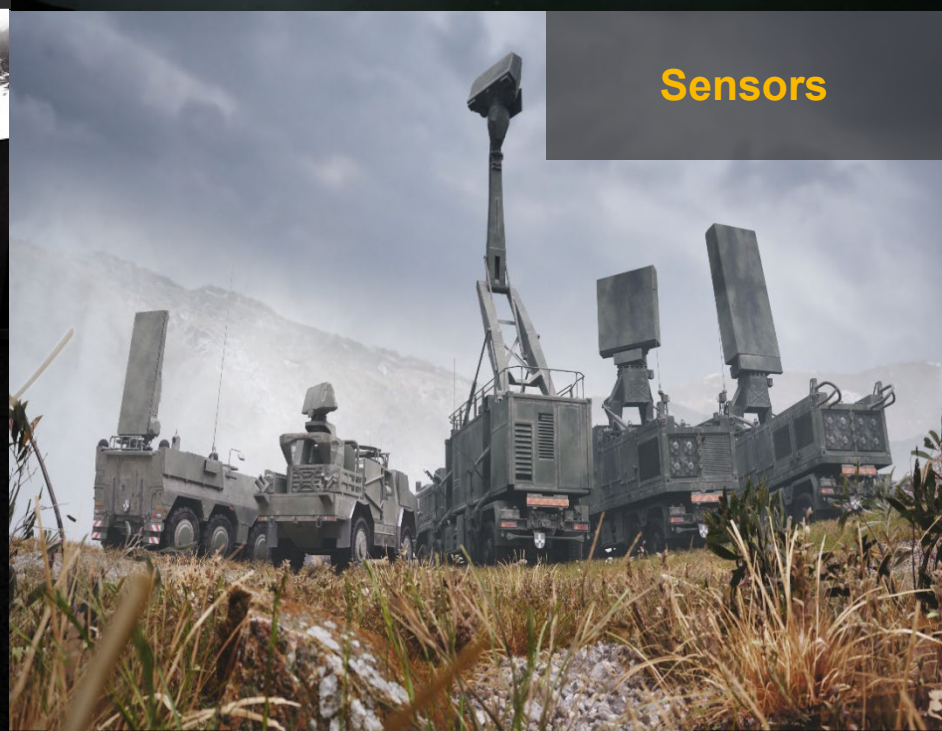
Our broad offering

Advanced Weapon Systems

Fighter Systems

Underwater Systems

Command and Control



Sensors

Saab R&T Clusters

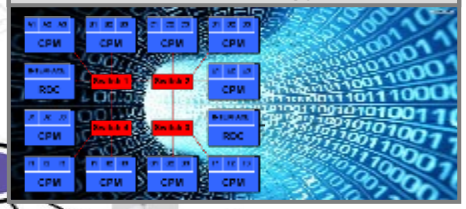
Command, Control and Communication

HMI and Human Factors

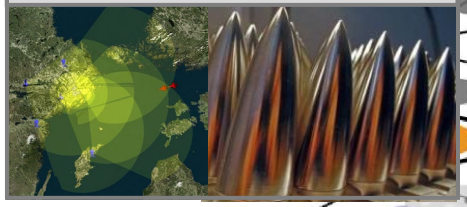
AI and Autonomy

Weapons and Protection Technology

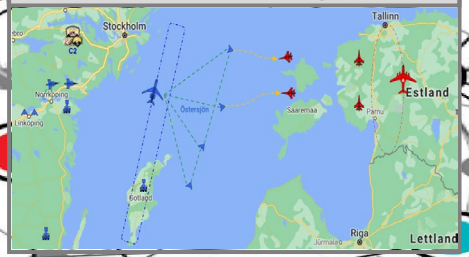
Software, Cyber and Information Technology



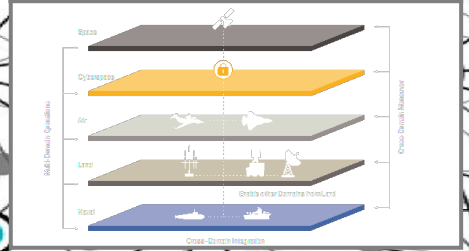
Sensors and EW / Multi-function Sensor System



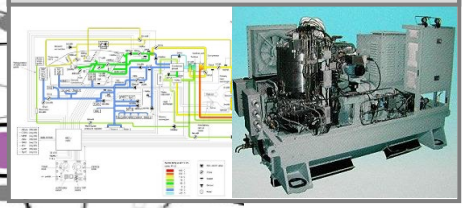
Operational Analysis and Concept Design



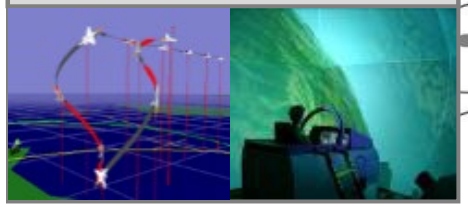
Systems Engineering incl. MBSE



Vehicle Sub-systems



Training and Simulation



Maintenance and Logistics Support incl. IVHM

Manufacturing

Structure and materials

Vehicle Engineering

University collaboration

- Partnerships with KTH, LiU, CTH, SEDU, Lund University, NTU, Alto University, Purdue University, Imperial College and Cranfield University
- 10 Adjunct professors and a number of affiliated faculty at Swedish universities
- ~40 industrial PhD students

Partnership history

- Long history of informal collaboration in aeronautical engineering and composites
- KTH established a vision for strategic partnerships 2010
  - A leading international technical university
  - External cooperation
  - Staff mobility
  - Vice president with dedicated mission
- MOU 2013
  - High level meeting
  - Steering group
  - Expansion with production technology, software systems engineering, antenna technology and autonomy
- SMARC was approved – Underwater technology added
- Collaboration agreement 2017

Purpose

- Strengthen excellent research and education that meet Saab's short- and long-term needs
- Increase KTH’s attractiveness for students and researchers
- Creates better opportunities for continuous learning for both Saab's and KTH's staff

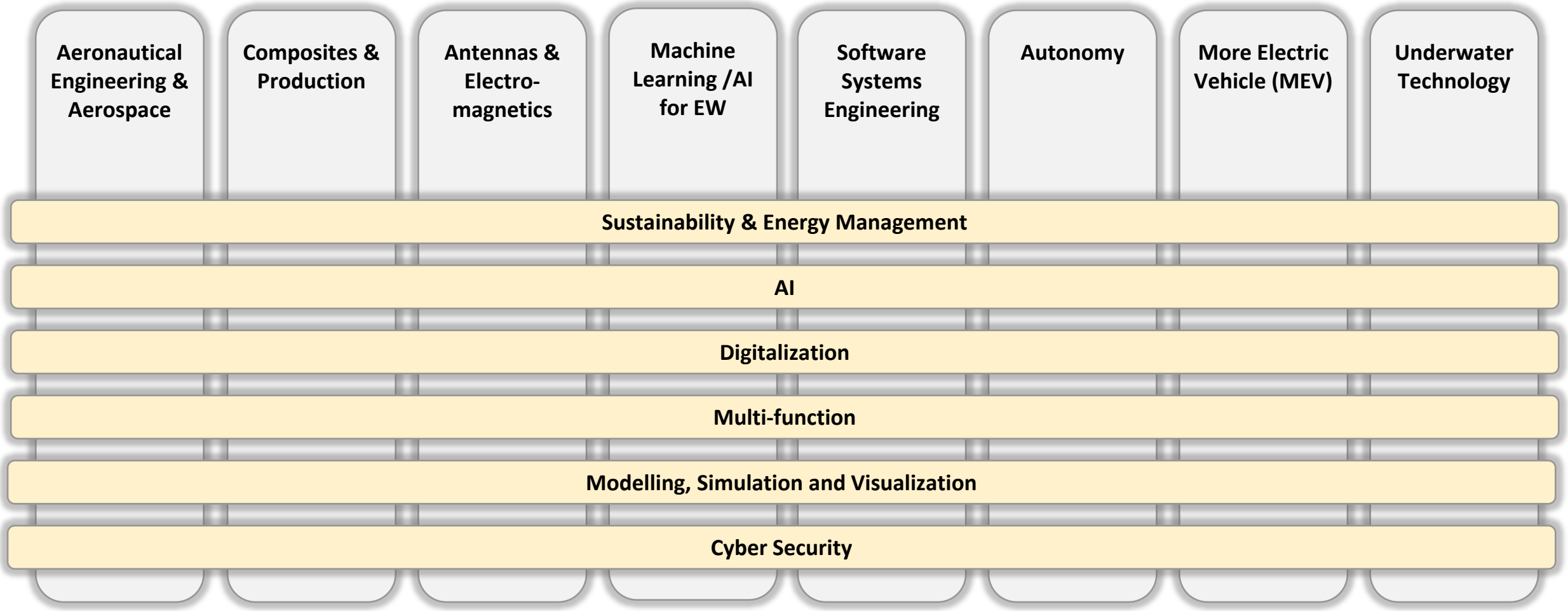
Overarching goals

- Research of high quality and high industrial relevance through close collaboration (and mobility) within agreed research areas
- Undergraduate education that attracts top students and meets Saab's competence demands and where Saab actively contributes with teachers and project tasks
- Strengthen international collaborations
- Mutual competence development
- Exchange between Saab and other KTH strategic partners

Organisation and way of working

- Annual high level meeting with Saab CEO and the president of KTH present
- Quarterly steering group meetings
- A working group for each research area with a group leader from Saab
- Status reporting from working groups on each Steering group meeting
- KPI:s are used to monitor progress

Research Areas



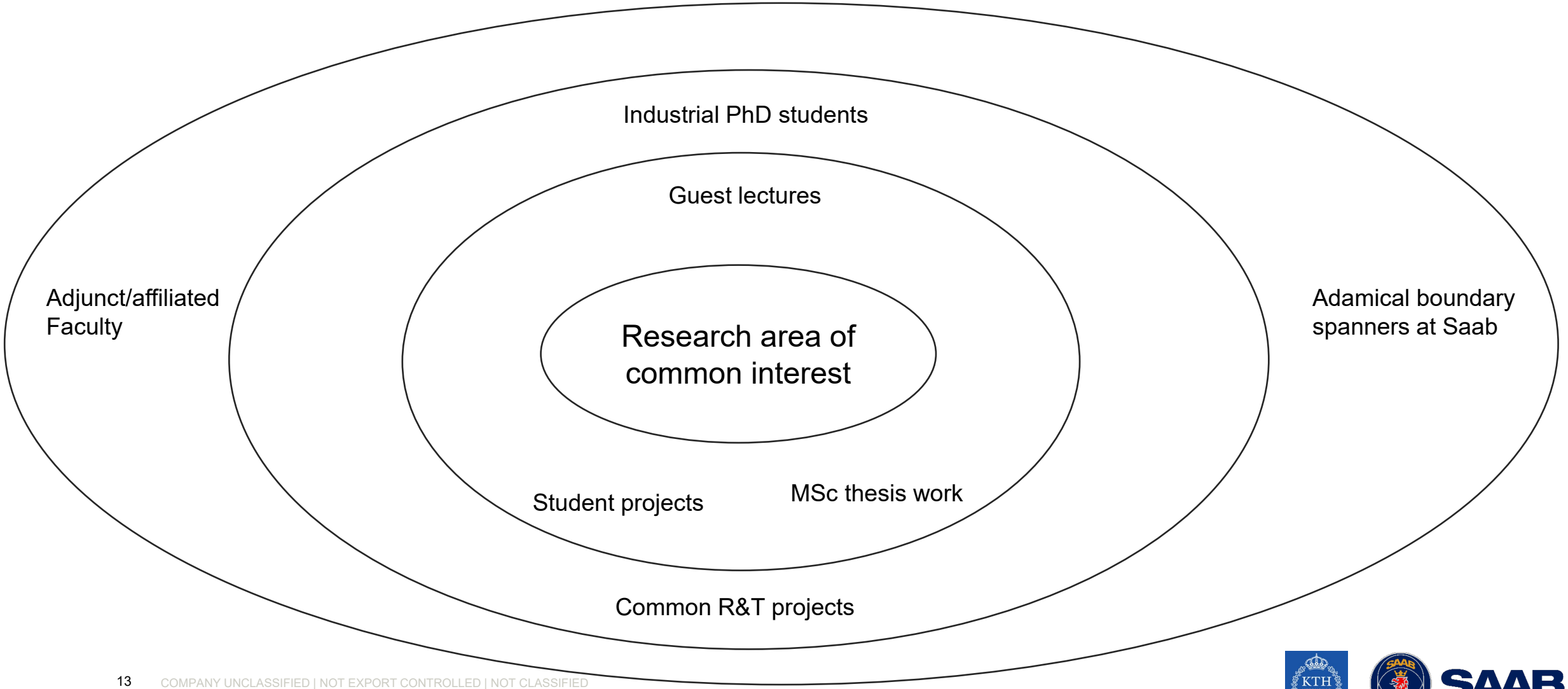
Key Performance Indicators

- Universum (or similar) ranking, MSc students (men, women)
- Active Master Thesis Projects
- Saab PhD students
- KTH PhD students
- KTH courses with Saab contribution
- Joint research applications
- Joint projects during the year
- Joint published papers / dissertations
- Adjunct Saab professors at KTH
- Affiliated Saab people at KTH
- Affiliated KTH people at Saab
- “Life long learning” education activities with Saab participation
- Saab representation in master programme committees
- Internships at Saab

Key elements – Success factors

- High level attention at both parties
- Active steering group with regular meetings
- Participation from industry in the undergraduate education through guest lectures and project courses
- Common projects with industrial PhD students
- Adjunct/affiliated faculty – Saab researchers part time at KTH
- KTH researchers part time at Saab

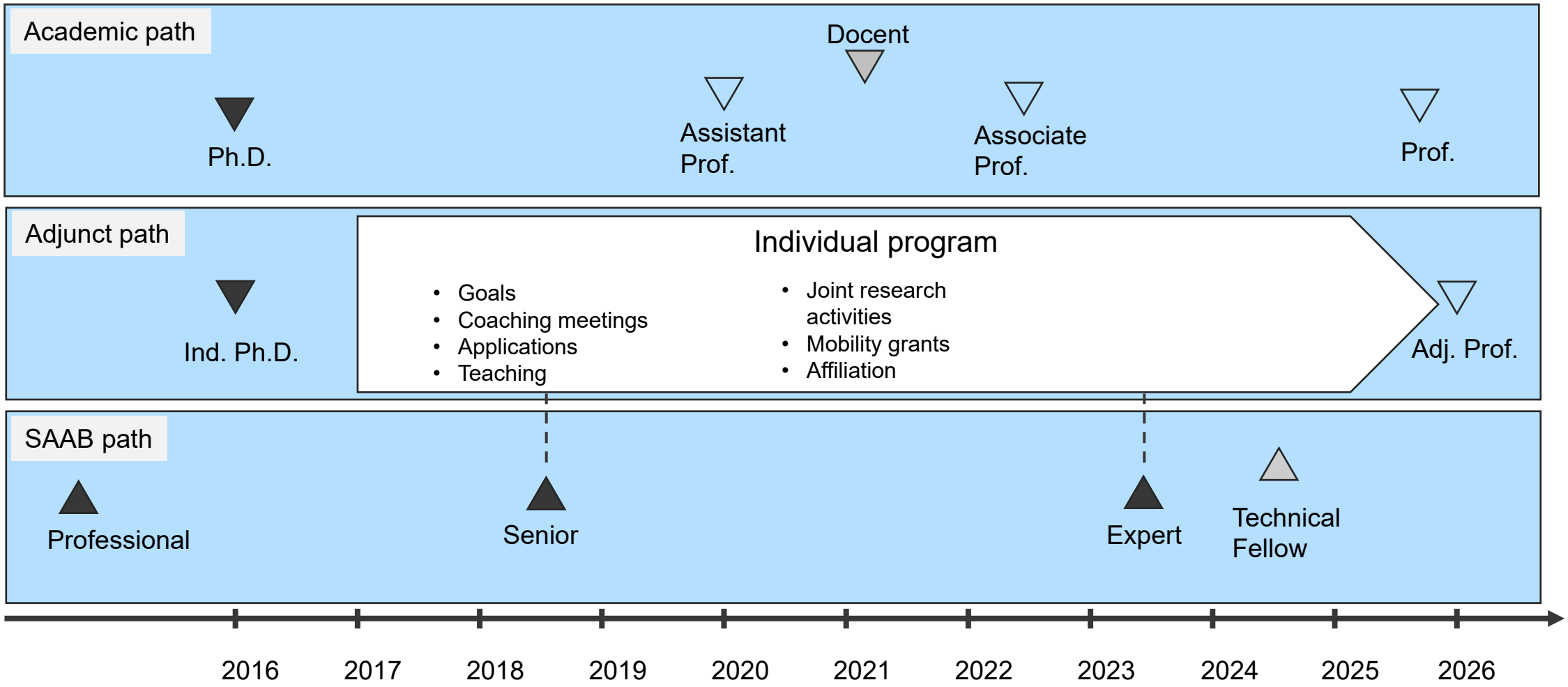
Maturity model



Difficulties and areas of improvement

- Difficult to get affiliated KTH researchers to Saab
- Knowledge of the partnership at both KTH and Saab
- Dependence of project funding from Swedish authorities
- Industrial collaboration need to be meritorious for the KTH researchers
- Industrial post doc funding

Model for Adjunct Career Path



Research Areas

SARC

Aeronautical Engineering & Aerospace (2)

Electromagnetics & Antennas

Machine Learning /AI for EW

XPRES
Initiative for excellence in production research

Composites & Production (1)

- **Research** of high quality and high industrial relevance through close collaboration within agreed research areas
- **Undergraduate** education that attracts top students and meets Saab's competence needs
- Strengthen **international collaborations**
- **Mutual** competence development
- **Cross fertilisation** between Saab and other KTH partners

SMaRC (1)

Underwater Technology

x *Adjunct/Affiliated Saab-personnel*

More Electric Vehicle (MEV)

Swedish Electromobility Centre

WASP WALLENBERG AUTONOMOUS SYSTEMS AND SOFTWARE PROGRAM

Autonomy

Cices
Innovative Centre for Embedded Systems

Software Systems Engineering (1)

CASTOR
Software Research Centre

TECoSA digital futures

KTH VETENSKAP OCH KONST

SAAB TECHNOLOGIES

SAAB

Conclusions

- If possible, build the partnership from existing collaborations
- Industrial PhD students is a key factor for maturing the collaboration in a new research area
- “Boundary spanners” deepens the collaboration
- Use KPI:s to monitor the effectiveness
- Difficult the get internal visibility of the partnership
- Industry collaboration and boundary spanning from academy to industry need to be meritorious for the academic career
- A mature partnership will benefit education, research, recruitment, technology supply and life long learning