Hogeschool van Amsterdam

How to connect applied research and education?

The Knowledge hub model

Geert Boosten
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Creating Tomorrow

Impact covid on aviation

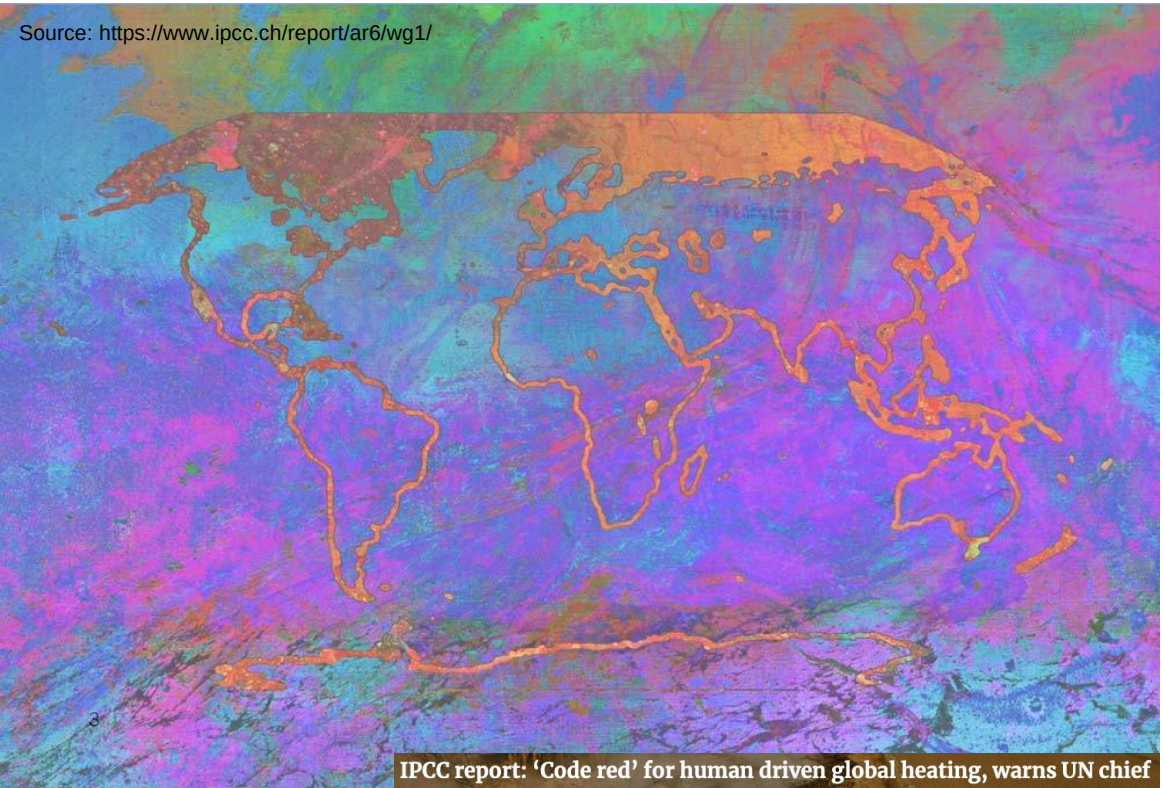
INTERNATIONAL Airport REVIEW

The true cost of the COVID-19 crisis for aviation: Its people

Secondary effects:

- Human capital: massive lay offs and outflow of expertise
- Delayed investments in R&D and infrastructure
- Government limitations on operations
- Distort competition due to government interventions
- Increased emissions by route and hub optimization
- Conflict of interest airlines and airports: Fees and charges regulations

Climate change remains the biggest challenge



- EU- Aviation ***net zero*** by 2050
- EU- Airports ***climate neutral*** by 2030

Climate change and aviation recent studies/reports

Fleet mix and airport changes

Fleet Mix: specific fleet with different energy source

- **Electrical aircraft:**
  - **short haul mobility services up to 20+ passengers**
- **Hydrogen aircraft:**
  - **Medium haul market up to 120 passengers**
- **Fossil fuel aircraft:**
  - **for long haul markets**
  - **Using SAF (bio-fuel and synthetic jet fuel)**

Consequences for airports:

- **Facilitate 3 different energy sources**
- **Limitations in capacity due to reduced flexibility and different standards for new aircraft types**
- **Higher costs and investments: airport should be ready before new aircraft start to operate**
- **New blueprint for master planning**

https://electrek.co/wp-content/uploads/sites/3/2020/09/ZEROe-concept-aircraft-Patrol-Flight.jpg?quality=82&strip=all

Human Capital still urgent topic

- Strong and earlier than expected outflow of experienced staff due to COVID
- Upcoming retirements
  - Transfer of know how and expertise (tacit knowledge)
- Expected growth perspectives (within limitations climate change)
- Differentiation in technology
  - New skills and competences
  - New curricula aviation education programs
  - Lifelong Learning
- Concerns all parties in aviation chain (airline, airport, ATC, handling, government, etc.)

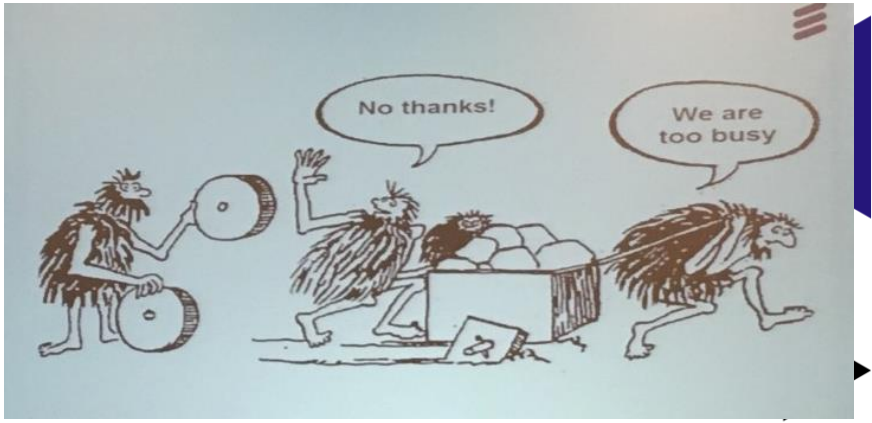
Source: https://1120688276.rsc.cdn77.org/admin/uploads/images/getadvice/77052/5b5e8492df22b.png

Applied research needed to find answers for Aviation challenges

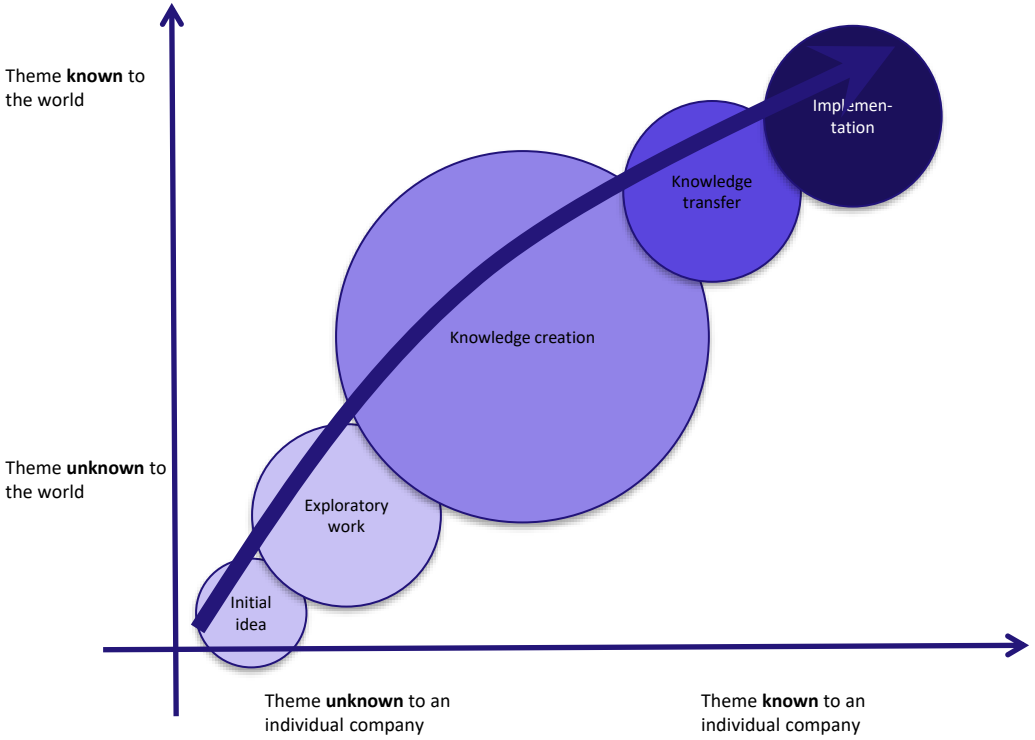
- Implementation of technological innovations and changes in procedures will change construction, MRO and operations in Aviation
- New knowledge is needed to safely apply this in daily operations
- Future and current professionals need to be educated and trained to use the new technology and procedures
- The application will result in new questions and need for additional solutions in operations (second order effects)

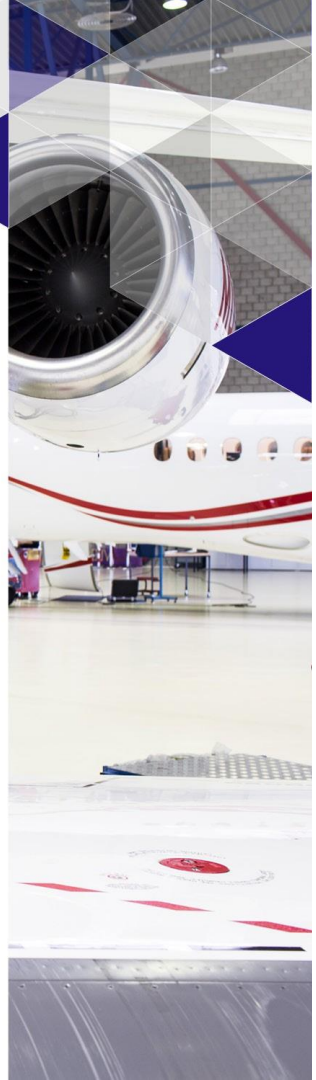
- Net zero n 2050 means: planning for a 30-year transition phase with gradual changes during the entire period!!

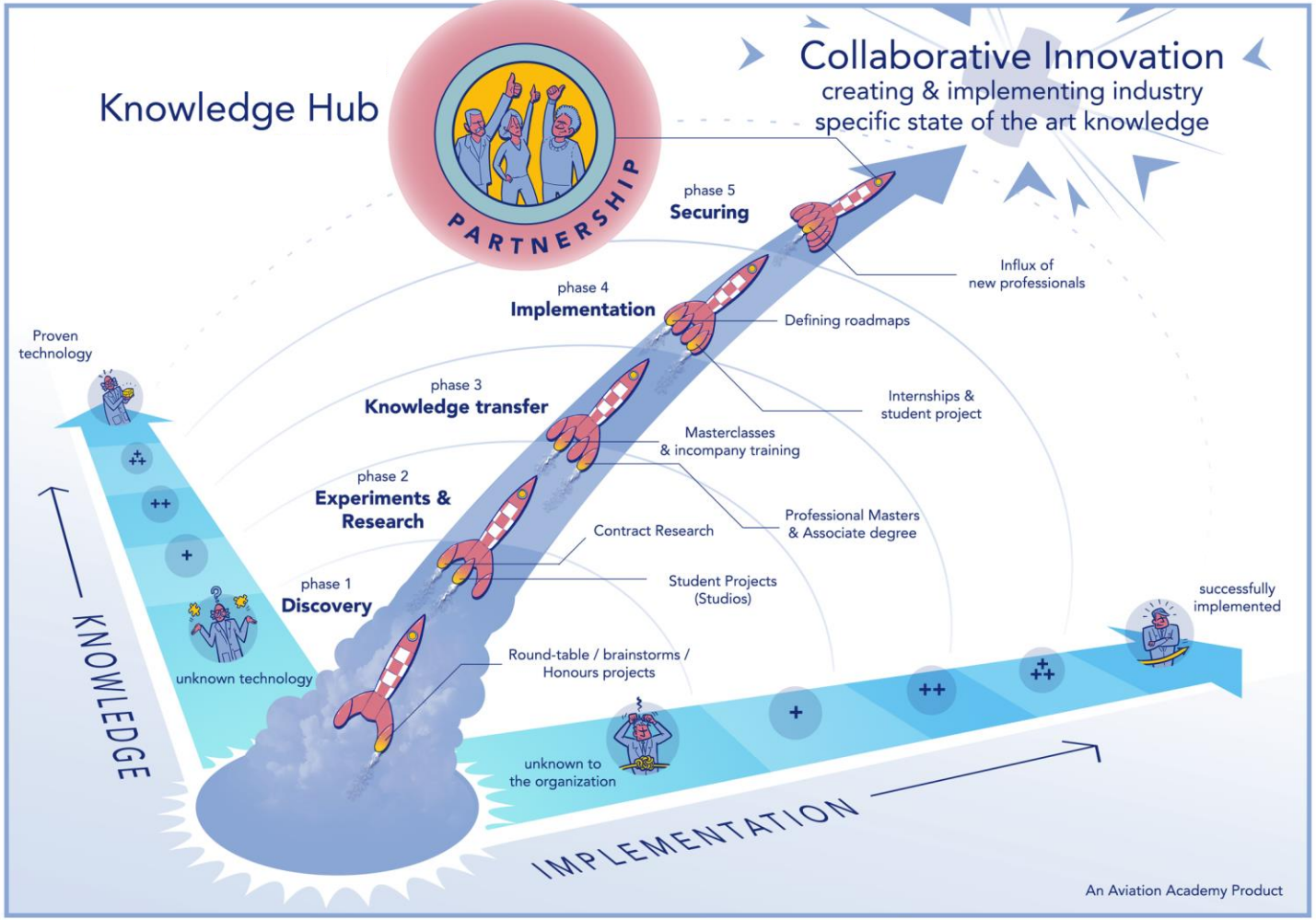
We have to learn how to apply new solutions



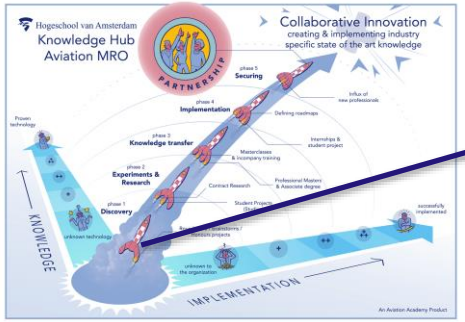
KNOWLEDGE HUB

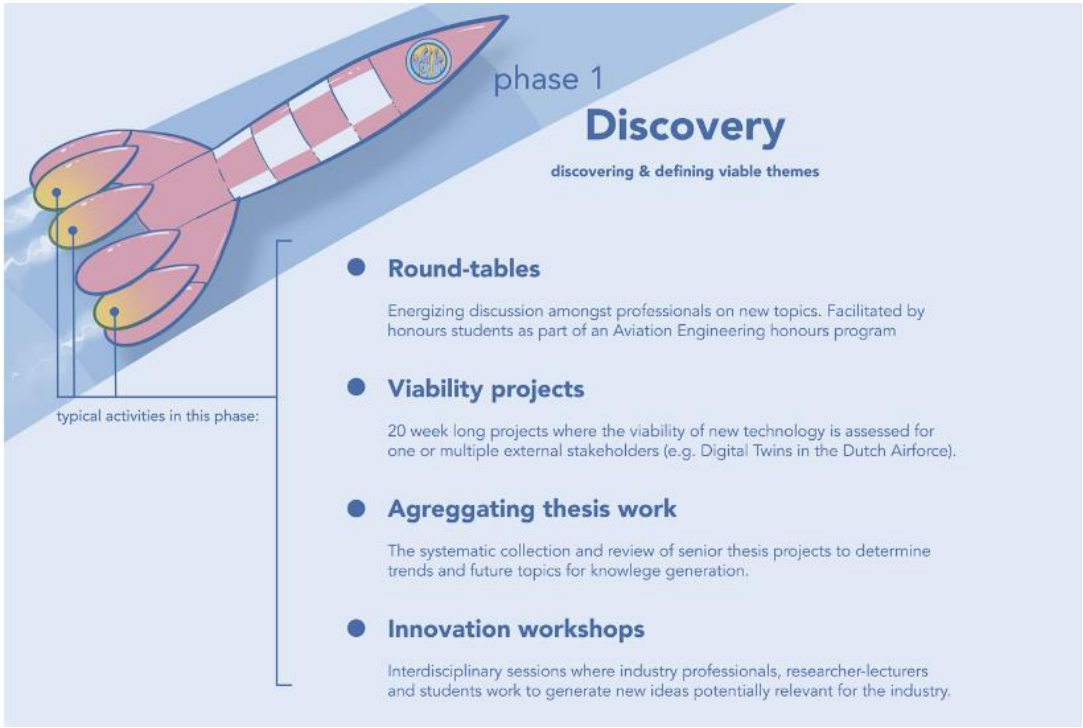





Knowledge Hub
PARTNERSHIP
Collaborative Innovation
creating & implementing industry
specific state of the art knowledge
phase 5
Securing
Influx of
new professionals
phase 4
Implementation
Defining roadmaps
Proven
technology
phase 3
Knowledge transfer
Internships &
student project
Masterclasses
& incompany training
phase 2
Experiments &
Research
Professional Masters
& Associate degree
Contract Research
phase 1
Discovery
Student Projects
(Studios)
successfully
implemented
Round-table / brainstorms /
Honours projects
unknown technology
unknown to
the organization
KNOWLEDGE
IMPLEMENTATION
An Aviation Academy Product

Knowledge Hub phases can be specified in detail
Phase 1 as example





Knowledge Hub supports mobility through livelong learning

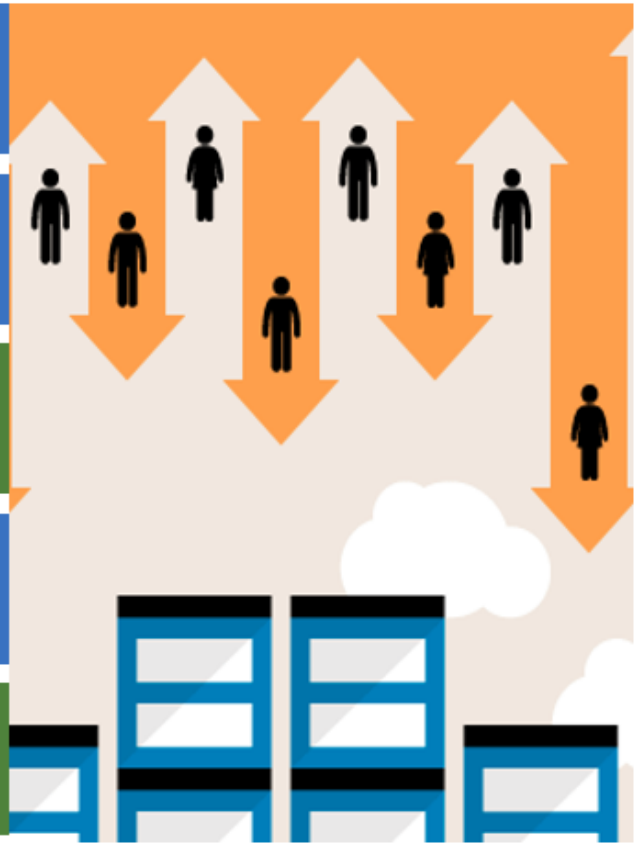
Professional Master

Masterclasses

Bachelor Programma

Associate Degree

MBO - Luchtvaart



Questions & discussion

Thank you for your attention!