



SARC Kick-off Workshop 18/19 June 2018, Linköping

## **NFFP – The Swedish National Aeronautical Research Program**

Mats-Olof Olsson M.Sc  
Chief Engineer Aerospace, FMV  
Chairman of NFFP



### **Outline**

- Background and purpose
- Roles and responsibilities
- The Agendas
- The "Slanted Wave" principle
- NFFP7 so far
- Benefits for Industry, Academia and the Armed Forces
- Discussion and Questions



## Background - Purpose

NFFP aims to contribute to sustainable development of the aeronautical area by creating knowledge and supply of expertise to:

- Enhance the competitiveness of the Swedish Aeronautical Industry
- Enhance the nations ability to contribute to and benefit from international cooperation in research and development programs in Aeronautics
- Support the SwAF in maintaining and developing Air Systems.



## Background

- Started 1994, now in its 7th edition
- 50/50 Civil / Military
- Cooperation between Industry, Academia and Institute
- At least 50% in kind funding from industry (Saab/GKN)
- Small and Medium Enterprises "SME" included
- Projects led by the industry
- Cooperation agreement between:

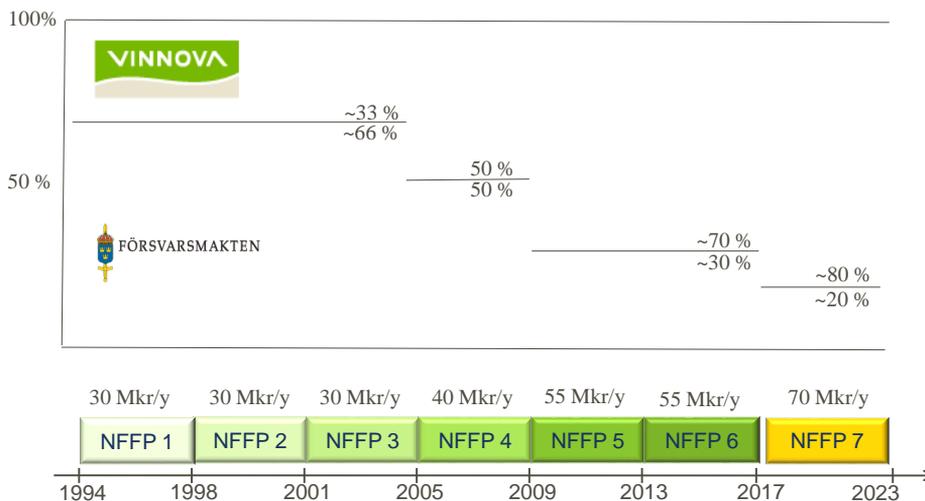


FÖRSVARSMAKTEN

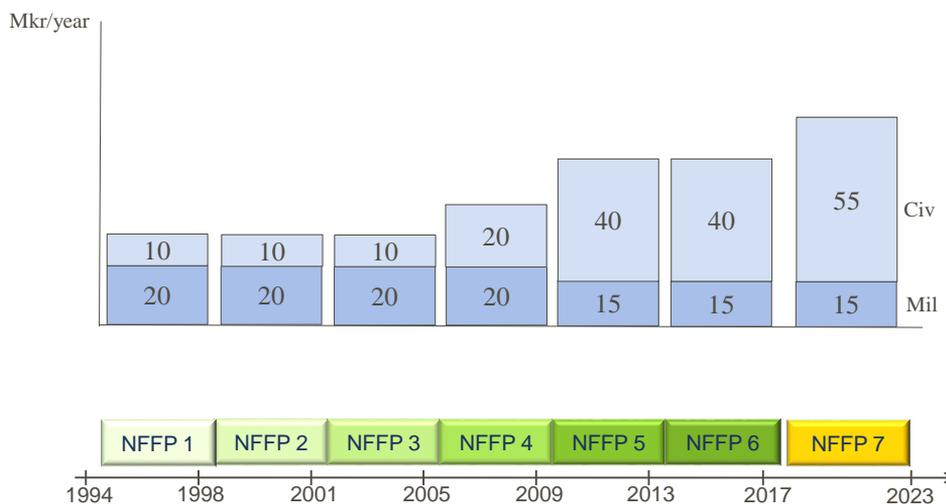




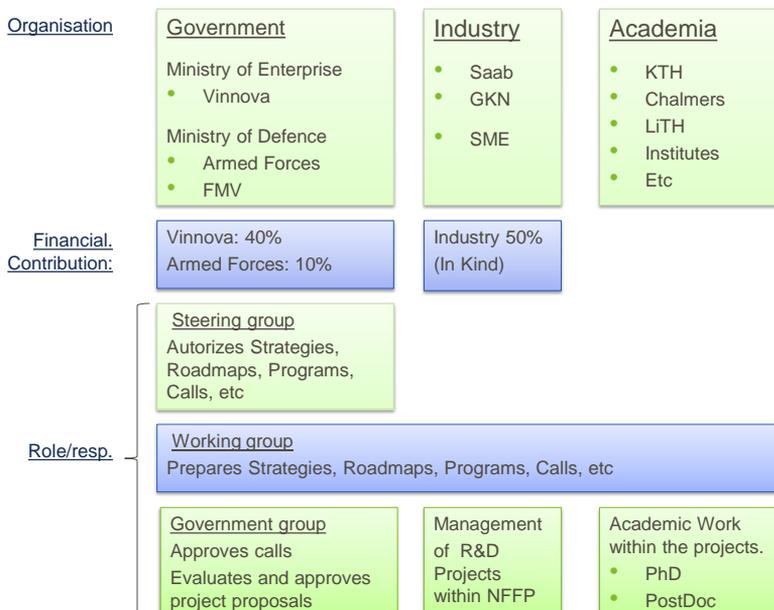
## Background



## Background



## **nffp** Actors in the Triple Helix perspective



## **nffp** NFFP focuses on the Agendas



### NRA Flyg 2013:

- Over all objectives for 2020, 2035 and 2050:
- 6 prioritized Research areas:
  - Basic technology
  - Conceptual design
  - Integrated structures
  - Intelligent systems and sensors
  - Propulsion
  - (Air Traffic Management (ATM))

### 2020

- Sweden has a position in H2020/CS2
- Participating in a mil. demo
11. Further innovation system developed

### 2035

- 1,5 x turnover inkl increased export
- Subcontractor for civilian aircraft
- Further development of Gripen
- Five global arenas of expertise
14. xxx

### 2050

- 2 x turnover to 40 MdSEK
- ACARE SRIA/Flightpath 2050
- Part. in a future aerospace system
5. xxx



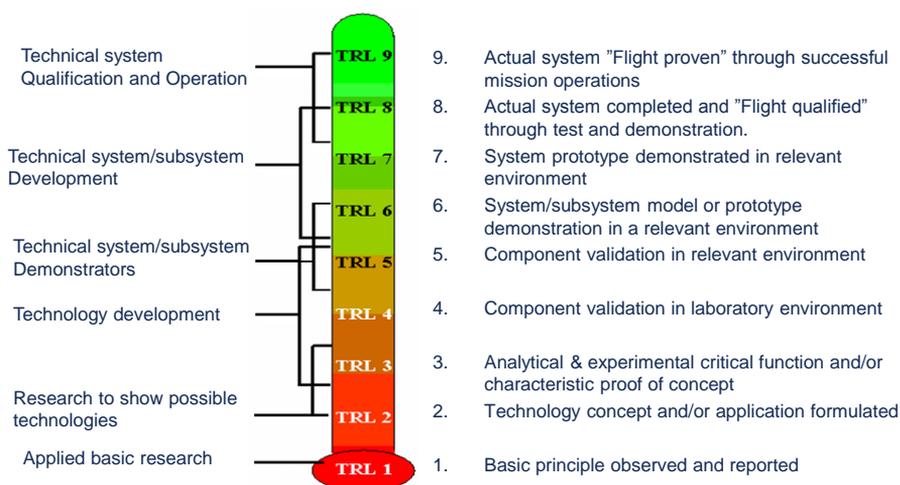


## NFFP:s strategic objectives

- Developing new technologies – at low TRL
- Increasing the "expertise volume" in Sweden
- Opening doors to international cooperation in the Aeronautical R&D area.
- Create R&D networks with strategic partners (inside and outside Sweden)
- Representing the base of the *Slanted Wave*

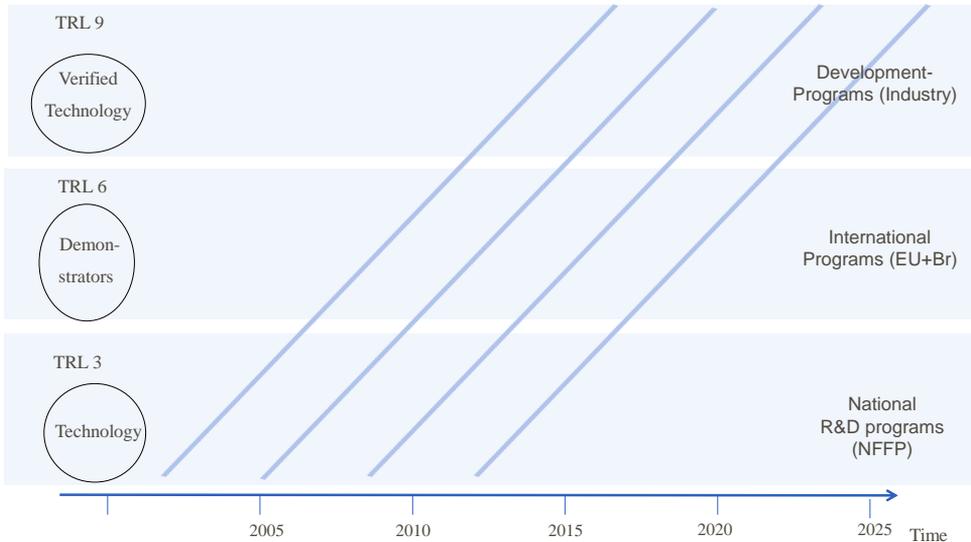


## Technology Readiness Level (TRL)

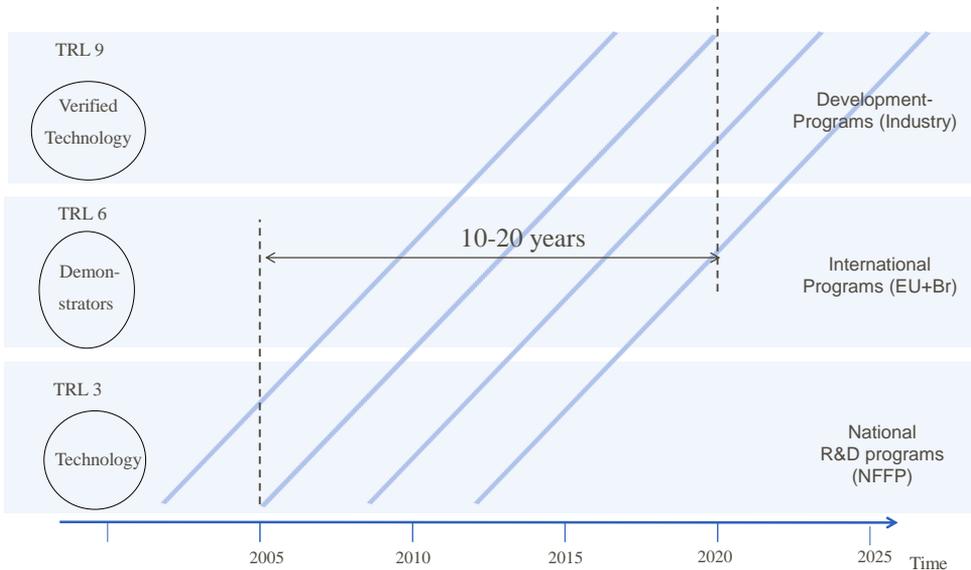




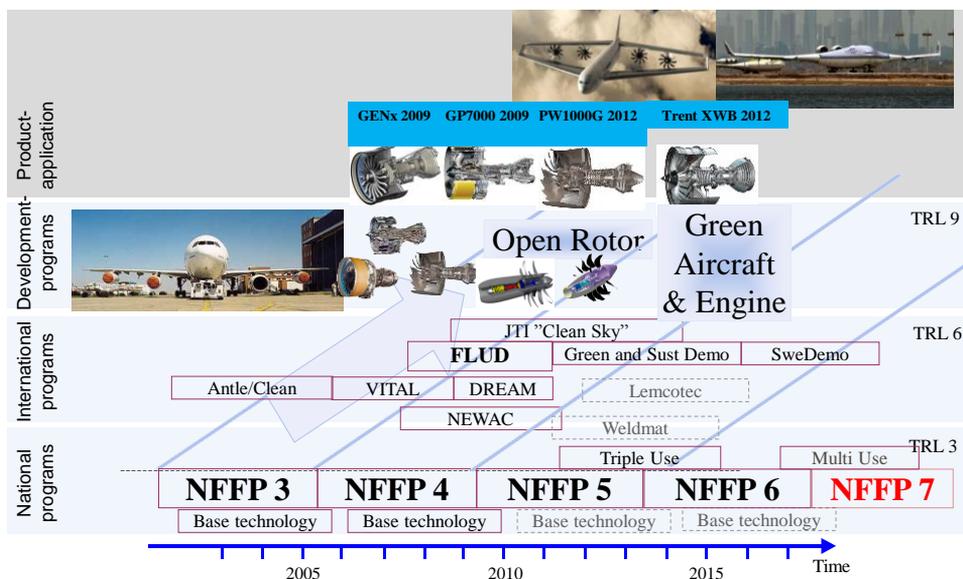
### The Slanted Wave



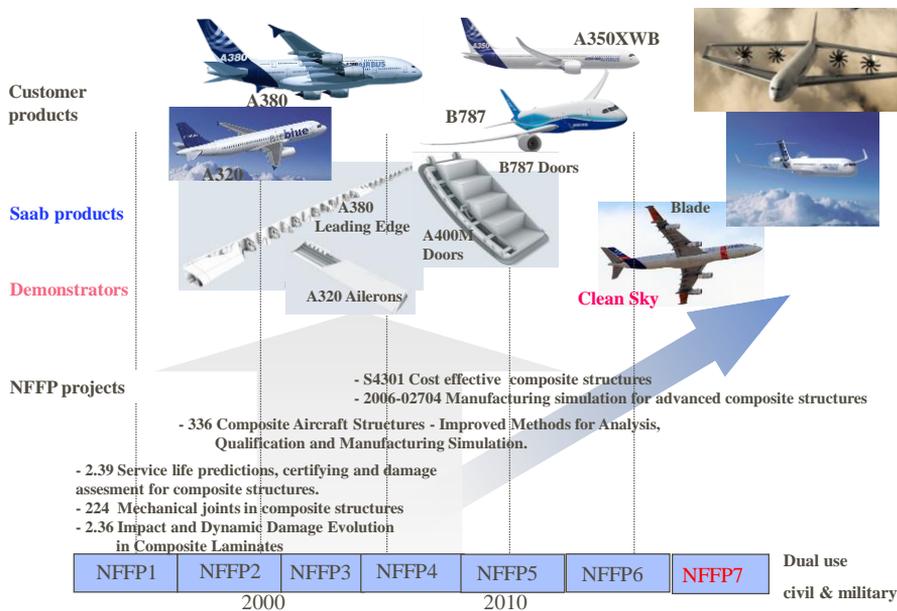
### The Slanted Wave



# nffp **Slanted wave example; GKN**



# nffp **Slanted wave example: Saab civil programs**





## NFFP7 so far

- Increased budget (55 => 70 Mkr/year)
- Increased length (4 to 5 years)
- Special budget for international projects
  - UK/Sw bilateral call august 2018
  - Ongoing work with Brasil and Germany
- Special budget for SME projects
  - First round will be approved in june 2018
- Special budget for SARC
  - Starting today ☺
- NFFP7 Call 1 closed 170930
  - 55 proposals ~ 246 Mkr.
  - 43 proposals approved ~ 180 Mkr (plus same amount from Industry partners)
    - Saab: 23 projects
    - GKN: 20 projects
  - The largest proportion is Dual use (>70%)
  - Slightly higher portion of military research than before



## Expected Benefit for the Academia and Industry

- Advanced knowledge from at least 60 succesful projects in highly relevant research areas.
- At least 50 PhD:s in highly relevant areas

Experience from previous NFFP programs shows:

- ~30 % will work at GKN or Saab
- ~30 % will work at other Swedish companies
- ~30 % "NFFP-PhD:s" within Academia (Universities and Institutes)
- ~10 % will leave Sweden
- Project manageing by the Industry gives:
  - Good "Branch knowledge"
  - Good connection with the Industry – "networks"
  - "Need driven" – increases the relevance of the R&D



## Expected benefit for the Armed Forces

- ~90% relevant knowledge for the Armed Forces
  - NFFP 6: ~12% civil, ~12% military, ~75% dual use
- Technology transfer from civil R&D
- Methodology to meet future requirements on development of the Gripen and other Air Systems

