

NRIA FLYG 2024

NRIA Flyg is Sweden's national **strategic research and innovation agenda** (NRIA) for aeronautics technology. The agenda outlines the **benefits** that aviation creates from a global perspective, identifies the **societal challenges**, sets **goals** to address the challenges, and maps out the **strategy** for how Sweden's collective aeronautics technology stakeholders work together to achieve the goals.

The agenda's six recommendations

1. Ensure a continued coordination function for Swedish aeronautical research and innovation and initiate an associated foresight group.
2. Fund core activities and the ability to meet new technologies.
3. Strengthen the efforts to increase diversity and attract young people and women to science and technology.
4. Increase collaboration, nationally and internationally.
5. Increase SME participation in Swedish aeronautical innovation.
6. Enable the production of sustainable aviation fuels.

Read the recommendations in detail in NRIA Flyg 2024!

The agenda includes a **detailed analysis** and logic that leads to these recommendations.

Global aviation is undergoing significant changes – civil **aviation is growing**, along with **increasing sustainability demands**, and military aviation is facing a **new security situation and changing preconditions**. Together with rapid technological development, this creates **strong opportunities for Sweden** to continue making strategic investments in aeronautics technology, thus **addressing global challenges** while also **providing economic benefits** in the form of export revenues and job creation.

NRIA Flyg 2024 identifies **three megatrends** that together create the needs for national efforts in aeronautical innovation.

MEGATREND 1: Climate change



The climate is changing, and researchers, organisations and governments around the world agree that **the scenario is concerning**. At the same time, the world is seeing rapid improvements in living standards, leading to increased demands for air travel and transportation. This presents a challenging equation. No single measure will solve the entire problem; **innovation must occur along various development paths in parallel**.

MEGATREND 2: Deteriorating security situation and geopolitics

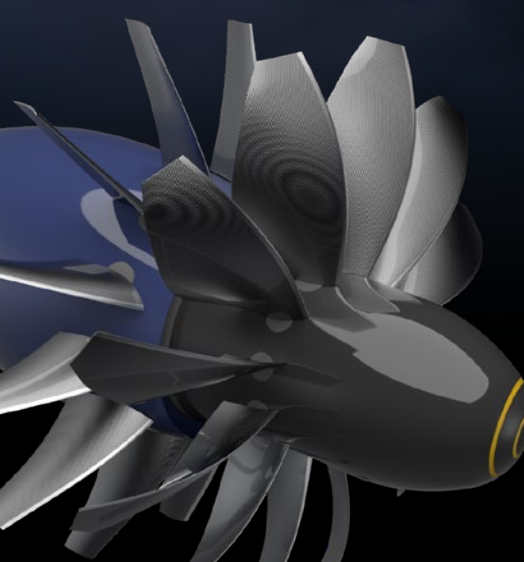


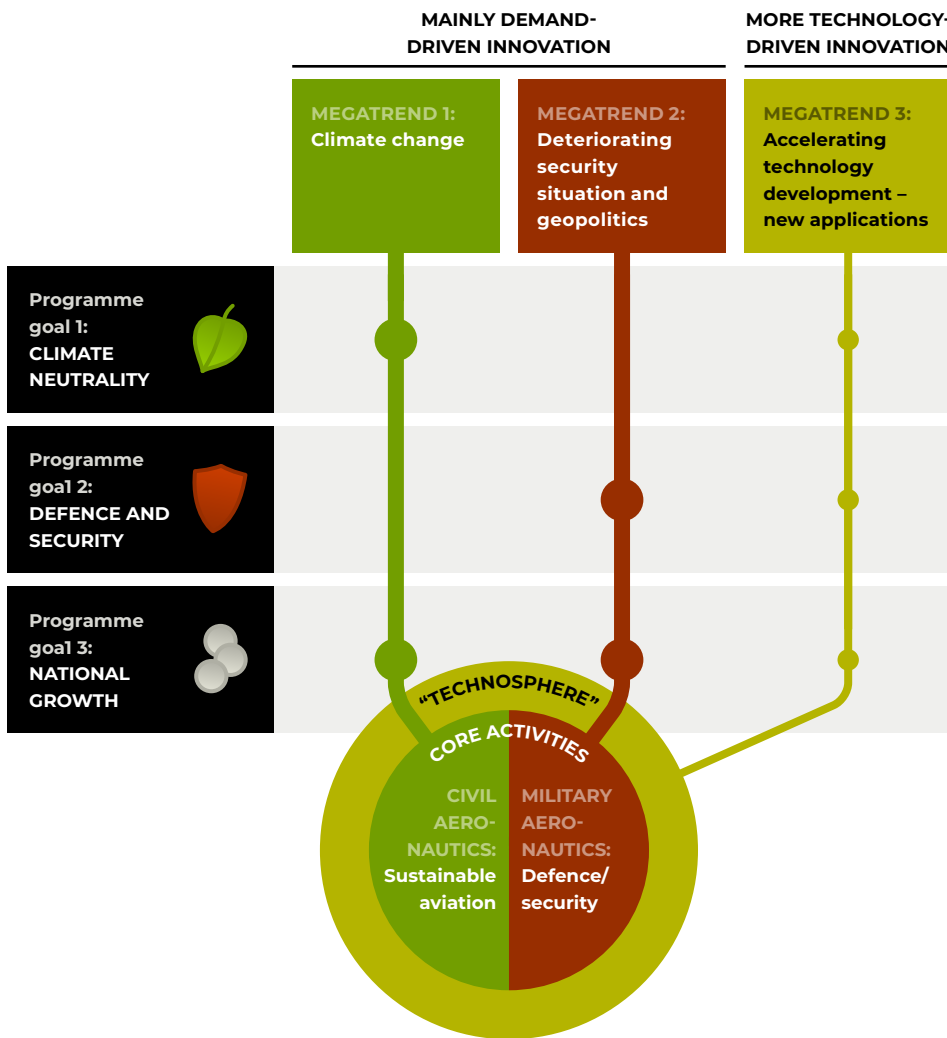
A new world order is emerging. Conflicts and geopolitical tensions are affecting globalisation and creating uncertainty, which, along with natural disasters, leads to significant demographic changes. **Sweden, like other EU countries, needs to radically increase its defence capabilities**. Advanced fighter and air defence systems constitute a central factor in enhancing security.

MEGATREND 3: Accelerated technological development – new applications



In many cases, **technological development is advancing faster than the articulation of needs**. Sweden must ensure that we can understand and exploit the potential of new technology in the most effective way – now and in the future. To remain competitive when facing the two trends mentioned above, we need to be **proactive**, study and implement **new technologies** and be **ready to act** when technology leaps occur.





NRIA Flyg 2024 further outlines the opportunities to address the three megatrends. Based on the strategic innovation programme Innovair's **programme goals** the agenda identifies **three specific areas of action** for Swedish aeronautics technology innovation:

Civil aeronautics technology – sustainable aviation: A significant part of sustainable aviation focuses on fossil-free propulsion. The agenda examines the available alternatives and indicates the aviation segments where these are expected to have an impact. Other aspects, such as circularity, airspace issues and the need for system understanding, are also addressed to demonstrate where innovation is needed.

Military aeronautics technology – defence and security: The agenda outlines ongoing discussions regarding Sweden's future fighter capabilities and national resilience and identifies the innovation efforts that will be necessary. The agenda further shows how synchronisation should occur with the Armed Forces' research and technology development program, as well as how international collaboration can be pursued for effective goal fulfilment and synergies.

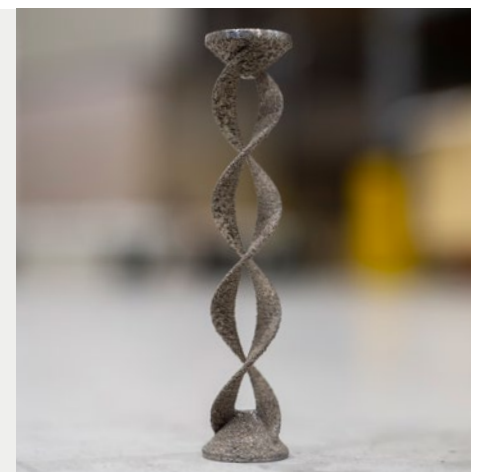
Technology in the "technosphere": In this area, the agenda lists several domains traditionally not defined as aeronautics technology but where aeronautical innovation must remain alert – to contribute to, as well as benefit from, rapid technological advancements. The overview clearly indicates how aeronautical innovation needs to expand its horizon compared to previous approaches.

These three areas of action are thoroughly examined in individual chapters of the agenda.



There are also several critical **conditions for competitive innovation** that must be in place for efforts in these areas to become reality and create value. The agenda emphasises the importance of **collaboration within the innovation system, technology dissemination, dual use (co-development for civil and military applications), internationalisation** and, of course, **funding**.

To complete the connection between innovation efforts and addressing megatrends, NRIA Flyg 2024 formulates the **six recommendations** on the previous page, that together can **strengthen Sweden's innovation capacity**.



NRIA Flyg 2024 has been developed by representatives from Swedish **industry, institutes, universities/colleges and government agencies** active in aeronautics technology. The work is done in harmony with a broad reference group to ensure that many aspects have been addressed. NRIA Flyg serves as a unifying tool for the aeronautics sector to **guarantee that all actors in the field are working in the same direction**, and the outcome will be a clear strengthening of Sweden's innovation resources. Another purpose is to provide politicians and decision-makers with a **clear picture of the sector's strength and potential** for Sweden, so that resources can be directed and coordinated for the best national effect.

Responsible for the development of NRIA Flyg is **Innovair, the strategic innovation programme for aeronautics**. Since 2014, Innovair has built its operations to address the three megatrends through three overarching goals related to **climate neutrality, defence/security and national growth**. The goals may seem directly tied to each respective megatrend, but NRIA Flyg 2024 demonstrates that the connections are more intertwined than that, resulting in synergy effects for Sweden.



An English version of the 2024 agenda will be available during the first half of 2025. You can download it, or the Swedish version, from innovair.org/dokument/rapporter. There, you will also find previous years' agendas (2010, 2013, 2016 and 2020), most of them available in English, as well as more information about aeronautical research and innovation.

