Funding Project 1:

iCAS-II - Procurement and Deployment of PCP ATC System iCAS at DFS Munich and Bremen and LVNL (DFS internal naming: iCAS-II)

Programme iCAS comprises all projects and measures for the procurement, development and commissioning of a modern, interoperable ATS system for upper and lower airspace, which will be introduced in all DFS and LVNL control centres. iCAS is a strategic further development of the DFS ATS systems P1/ATCAS and P1/VAFORIT and the LVNL ATS system AAA.

iCAS has a forecasting outlook based on 4D trajectory and is designed to provide air navigation services throughout German and Dutch airspace in all sectors of upper and lower airspace, with the exception of airspace controlled by EUROCONTROL Maastricht UAC.

iCAS will enable a more advanced and flexible use of airspace for civil-military purposes. In addition, iCAS will control and safely manage more than three million flights with over 450 million passengers per year in European airspace.

The iCAS ATS system will be implemented in a multinational context. The iCAS development is based on "iTEC Core Products", which are developed within the framework of the iTEC International cooperation together with the European iTEC partners. This enables cost sharing in the procurement of ATS systems and the joint development of an interoperable system in line with the strategic goals of Single European Sky (EU No. 552/2004 and EU No. 1070/2009). iCAS will enable the introduction of future operational concepts based on 4D trajectory information, which will move from a tactical form, used in today's operations, to an increasingly more strategic one.

The implementation of iCAS will take place in two stages: iCAS Phase I (iCAS-I) and iCAS Phase II (iCAS-II).
iCAS-I: Future DFS Center ATS System for Upper Airspace - iCAS deployed at the Karlsruhe Center
Implementation in Karlsruhe has already been completed. The implementation was supported by the "Common Project" from the Call 2015 "Deployment of ATC System iCAS". The roll-out planning of iCAS-II in Karlsruhe is also part of this "Common Project".

iCAS-II - Future DFS Center ATS System for Lower Airspace - Procurement and Deployment of PCP ATC System iCAS at DFS Munich and Bremen and LVNL

iCAS-II is a strategic further development of the ATS system iCAS-I Upper Airspace to include the necessary functions for the lower airspace including associated Extended Arrival Management Systems (cf. Call 2015, project "Deploy AMAN").

Funding Project 2:
TANGe (Tower ATS-System Next Generation) Phase 1+ incl. Service Architecture

The aim of the TANGe project is to implement planning functions for the use of A-SMGCS-Routing (Advanced Surface Movement & Guidance Control System, comp. Call 2014 - A-SMGCS) and the associated airport security nets at Frankfurt, Munich, Düsseldorf and Berlin airports.

TANGe is pursuing the implementation of a new and improved tower ATS system that provides functions required by the EU regulation.

The EU demand for an extended DFS-Tower-ATS system is supported by DFS as the current ATS system does not support the airport integration and throughput functions.

The TANGe project is the first project of a DFS-wide programme called ZAAS - "Zukunftsarhitektur ATS Systeme" (Future Architecture for ATS Systems). The ZAAS programme aims to optimise maintenance processes, methods and ATS systems. ZAAS supports the digital transformation of DFS ATS information technology by consolidating ATS technology using new architecture concepts (e.g. cloud computing, service orientation). The aim is to accelerate the implementation of operational requirements while at the same time optimising the use of resources.

Phase 1 of the TANGe project defines concepts and determines which system features and functions are to be developed in terms of roles and responsibilities.

The phase 1+ refines the requirements. Suitable validations are carried out to define the exact design of the functions.
Funding Project 3:

Deployment of Centralized Interoperable Center Information Service (Step 1)
(DFS interne Bezeichnung: CICIS)

CICIS is a new, integrated and interoperable information system to be used at the air traffic controller working position (CWP). It is based on the information system used by LVNL at ACC Amsterdam. CICIS enables the web-based retrieval, exchange and display of operational information, thus optimising the controllers work.

Compared to its predecessor ATCIS (Air Traffic Control Information Support System), it offers lean maintenance and is based on a state-of-the-art technological platform and interoperable SWIM services (System Wide Information Management).

CICIS provides strategic and operational data of weather services and air traffic flow information such as capacity information and occupancy.

The EU-funded CICIS project initially comprises Step 1 of the DFS project. It aims to define dedicated system and service requirements, ensuring the adaptation, migration, procurement and commissioning of the new system. The implementation of Step 1 will be completed by acceptance tests and includes the preparation of the integration of CICIS at a pilot site.

The system will then be commissioned at the DFS control centres in Karlsruhe, Munich, Bremen and Langen. In a further development step, the regulatory requirements of the PCP Regulation will be implemented.

„Other Projects“

Funding Project 1:

Sectorless-ATM (Robusto Step 1 & 2)
(DFS internal identification: S-ATM Robusto)

Currently, the airspace over Germany is dividing into sectors. The sectorisation is done to optimise routing of aircraft. These „sectors“ or „Einsatzberechtigungsgruppen“ (EGBs) are the names of the working areas being managed by air traffic controllers. For each of these sectors, a radar controller and a coordinator controller are normally responsible for all traffic in that particular sector.
Changes in the further course of the flight outside the responsible sector must be coordinated between the air traffic controller-teams responsible for the sectors. When an aircraft overflies a sector boundary, pilots switch to the new sector frequency.

As traffic in a sector increases, the sectors can be divided to adjust the workload for the controllers. However, if air traffic continues to increase in the long term, this working method will reach its limits.

For example, if traffic figures fluctuate according to the time of day or season, it will only be possible to react by further dividing sectors, whereby, the possible applications of the controllers are limited by complex „EBG“ structures.

The concept of sectorless "Air Traffic Management" (S-ATM) provides for certain parts of airspace no longer to be subdivided into sectors/EBG, but to be considered as a whole. In this large airspace, a controller is assigned a defined number of aircraft, each of which can be located anywhere within his area of responsibility. The establishment of a sectorless airspace means that aircraft no longer have to be handed over to the next controllers at the internal sector boundaries, but can be managed continuously. This longer-term control is intended to achieve a significantly more continuous workload for the controllers, which could result in an increase in controller productivity.

The research project TeFiS (Technology for Air Traffic Management in Large Structures) investigated this new way of working and developed procedures and technical functionalities for controlling air traffic in sectorless airspace in the future. The project was completed in March 2017. The knowledge gained here is now to be implemented in stages by the S-ATM project.

The S-ATM Robusto project will implement the first stage of sectorless air traffic control at the UAC site in Karlsruhe. S-ATM will be used from a flight level where the aircraft are primarily at an established cruising altitude where fewer vertical movements take place (probably above flight level FL 385). The underlying sectors and working procedures are to remain unchanged. The implementation is based on the adaptation or modification of the current airspace procedures, processes and technical infrastructure.