H2020 ICE GENESIS
Overview

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on behalf of :

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Scientific & technical goals

Top level objective

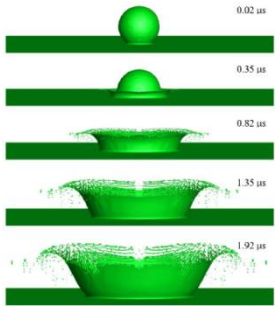
The top level objective of the ICE GENESIS project is to provide the European aeronautical industry with a validated new generation of

3D icing engineering tools

(numerical simulation and test capabilities),

addressing CS25 **App C**, **App O** **and** **snow** conditions, for safe, efficient and cost effective design and certification of future aircraft and rotorcraft.

Scientific & technical goals



Sub objectives

- **Obj#1:** Improve and validate existing **3D numerical tools** to predict ice accretion in App C, App O and Snow conditions.
- **Obj#2:** Upgrade and calibrate **icing wind tunnels** to allow reproduction of:
  - **Supercooled Large Droplets (SLD) in FZDZ (Freezing drizzle) conditions.**
  - **Snow icing conditions**
  - **Additionally, to assess the potential of current icing wind tunnels to represent SLD in FZRA (Freezing rain) conditions.**
- **Obj#3:** Build a **large scale experimental database** on representative 3D configurations to be used as a solid reference ("ground truth") for future numerical tools validation.

Partnership

Industrials, Wind tunnels, Research centers, …

AIRBUS	AIRBUS OPERATIONS SAS
AIH	AIRBUS HELICOPTER
AIIS	AUSTRIAN INSTITUTE FOR ICING SCIENCES
AIT	AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH
ARTTIC	ARTTIC
ATR	ATR AIRCRAFT
AVI (TBC)	UEC-AVIADVIGATEL JSC
BOMB	BOMBARDIER INC.
CAO	CENTRAL AEROLOGICAL OBSERVATORY
CIAM	FEDERALNOE GOSUDARSTVENNOE UNITARNOE PREDPRIYATIE CENTRALNII INSTITUTAVIACIONOGO MOTOROSTROENIYA IMENI PI BARANOVA
CIRA	CENTRO ITALIANO RICERCHE AEROSPAZIALI SCPA
CNRS	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE
CU	CRANFIELD UNIVERSITY
DASSAV	DASSAULT AVIATION
DLR	DLR
EPFL	ÉCOLE POLYTECHNIQUE FÉDÉRALE DE LAUSANNE
GE	GENERAL ELECTRIC DEUTSCHLAND HOLDING GMBH

Partnership

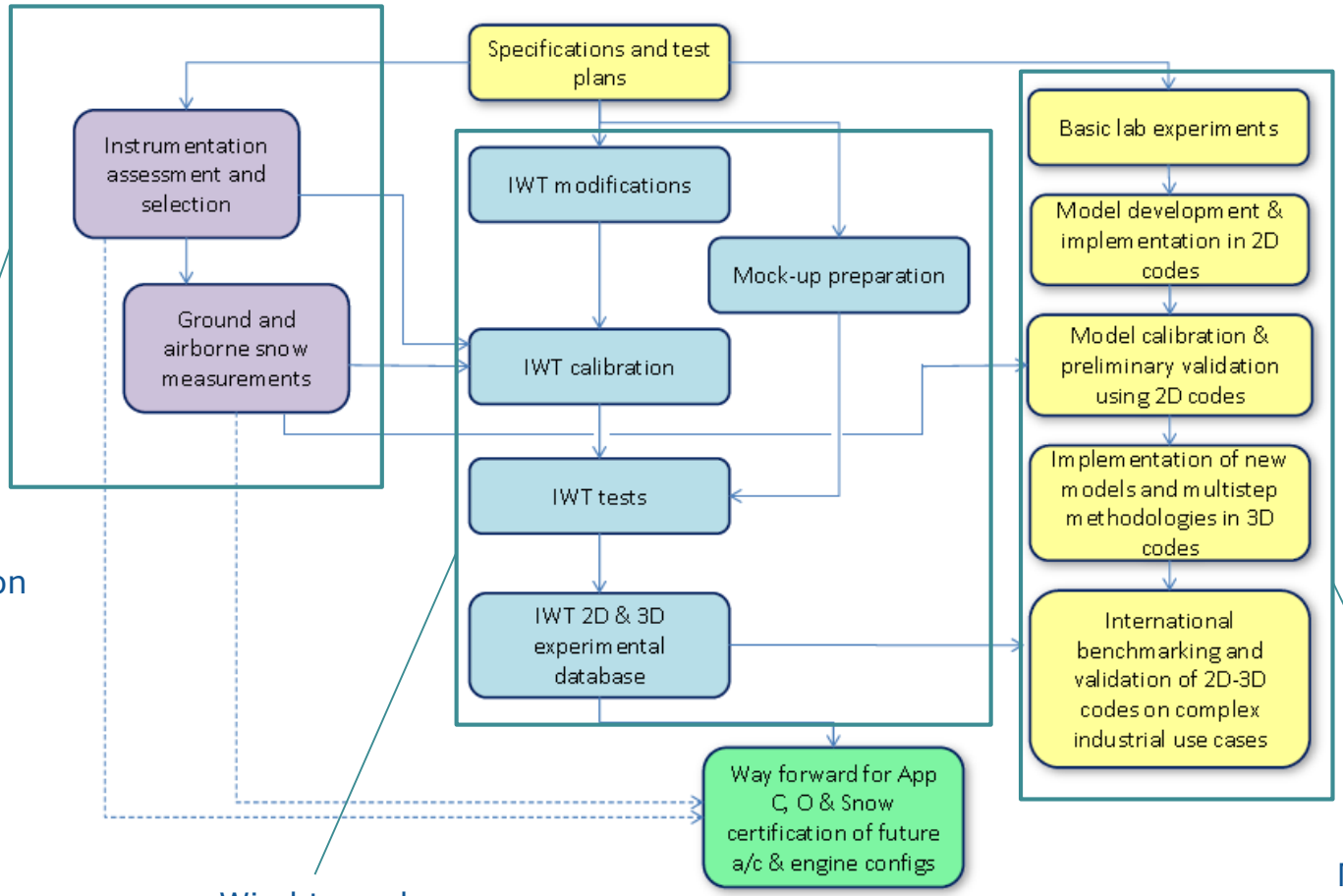
IAG	IAG INDUSTRIE
LDO	LEONARDO
LIEBHERR	LIEBHERR
MINDEF	MINISTERE DE LA DEFENSE
MIPT	MOSCOW INSTITUTE OF PHYSICS AND TECHNOLOGY (STATE UNIVERSITY)
MMHP (TBC)	MIL MOSCOW HELICOPTER PLANT, JSC
NRC (TBC)	NATIONAL RESEARCH COUNCIL CANADA
ONERA	OFFICE NATIONAL D'ETUDES ET DE RECHERCHES AEROSPATIALES
POLIMI	POLITECNICO DI MILANO
POLYMO	CORPORATION DE L ECOLE POLYTECHNIQUE DE MONTREAL ASSOCIATION
RR	ROLLS-ROYCE PLC
RTA	RTA
RV	RAINBOW VISIONS
SAF-AE	SAFRAN AIRCRAFT ENGINES
SONACA	SONACA
TsAGI	FEDERAL STATE UNITARY ENTERPRISE THE CENTRAL AEROHYDRODYNAMIC INSTITUTE NAMED AFTER PROF. N.E. ZHUKOVSKY
TUBS	TECHNISCHE UNIVERSITAT BRAUNSCHWEIG
TUDA	TECHNISCHE UNIVERSITAT DARMSTADT
TUS	TOKYO UNIVERSITY OF SCIENCE FOUNDATION

Partnership

Consortium nationalities: Austria, Belgium, Canada, France, Germany, Italy, Japan, United Kingdom, Russian Federation, Switzerland

Advisory board: EASA, FAA, ADSE, AEROTEX, AIRBUS Defense&Space, CSTB, DAHER, EMBRAER, PIAGGIO, SAFRAN Helicopter engines, SAFRAN nacelles

Methodology



Main expected results

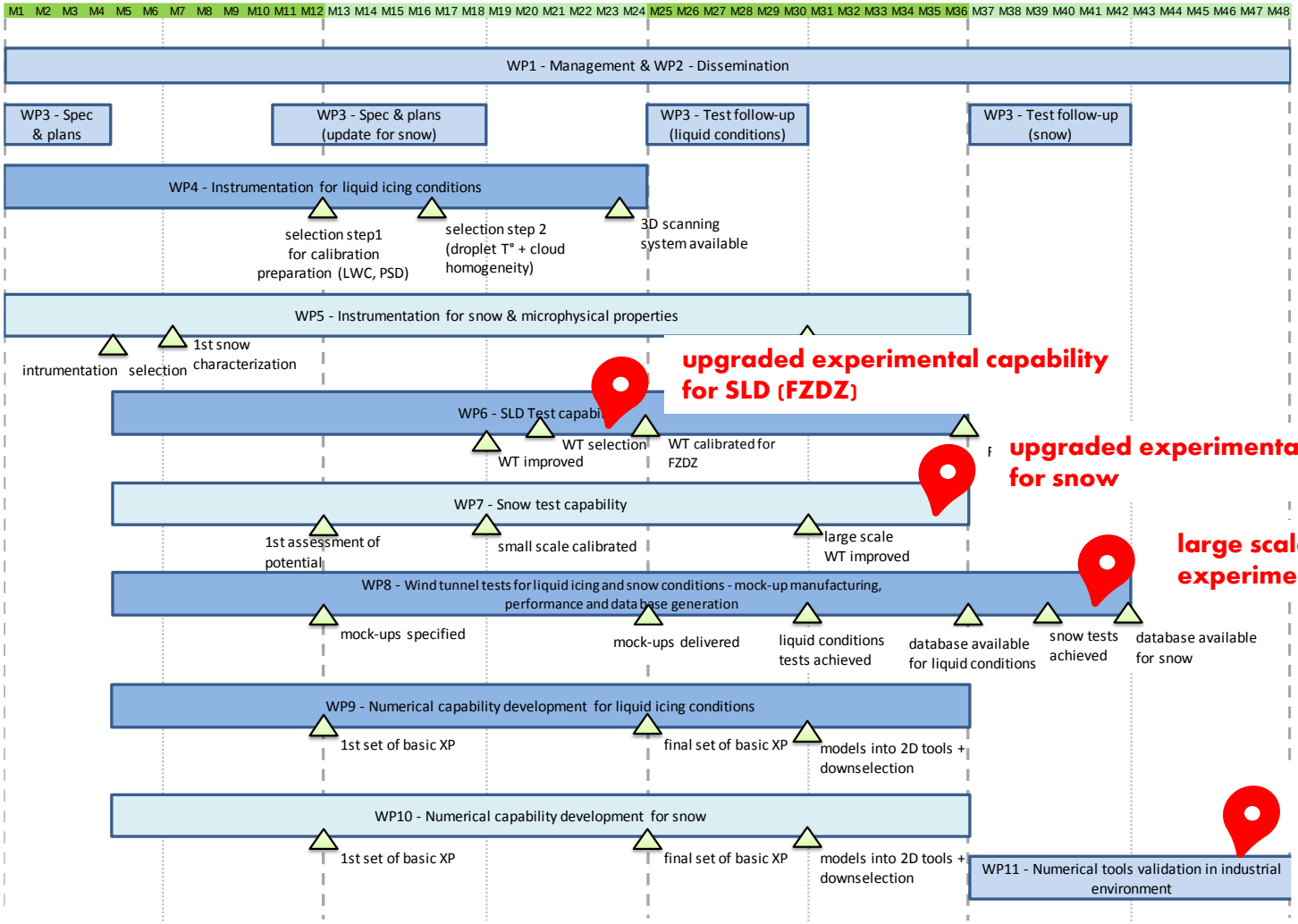
- 3D numerical tools : TRL5

- Test facilities
  - for liquid conditions (App O) TRL5
  - for snow conditions TRL4

Main schedule

ICE GENESIS

End 2022



2019 2020 aerodays TANDEM

Bucharest, 27-30 May 2019

European Commission

Useful infos and acknowledgements

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No. 824238

Thank you

Organisation

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End 2022