







Stefan Becker

Head of Corporate Development

Backgrounds and Benefits of a GNSS Low Flight Network (LFN)



Credentials & Partners

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Willy Müller & Claudio Caluori (skyguide / OEP)



Swiss Air Traffic Control, mandated by the Swiss Confederation and the Federal Office of Civil Aviation (FOCA).



CH (Switzerland)-wide
Implementation
Programme of
SESAR-oriented
objectives, activities &
technologies

Impact of a physician-staffed helicopter

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- Included patients: 1,766
- ISS >15: 204 (56 before and 148 after implementation)
- 6.4% unexpected survivors after implementation

EMS system		ISS	NISS	Head AIS>3	PH ETI	Mort. <30d	Total Mort.
without PS-HEMS	n=56	25	33	23	8	16	18/448
		17-45	17-50	41.1%	14.4%	29%	4%
with PS-HEMS	n=148	25	29	47	34	21	29/1318
		16-43	17-57	31.8%	23.0%	14% *	2.2% *

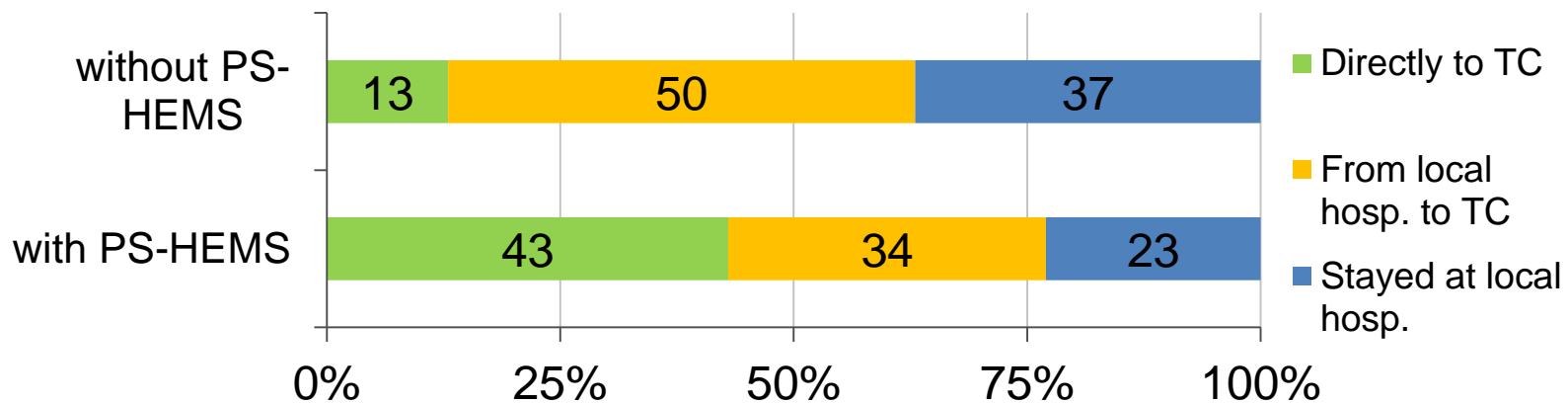
Impact of a physician-staffed helicopter

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EMS system		Disp. to initial hospital	Disp. to Trauma Centre	Disp. to Trauma Centre (GRD)
without PS-HEMS	n=56	52 min.	218 min.	218 min.
		21-103	54-832	54-832
with PS-HEMS	n=148	60 min.	90 min.*	219 min.
		24-96	57-458	59-925

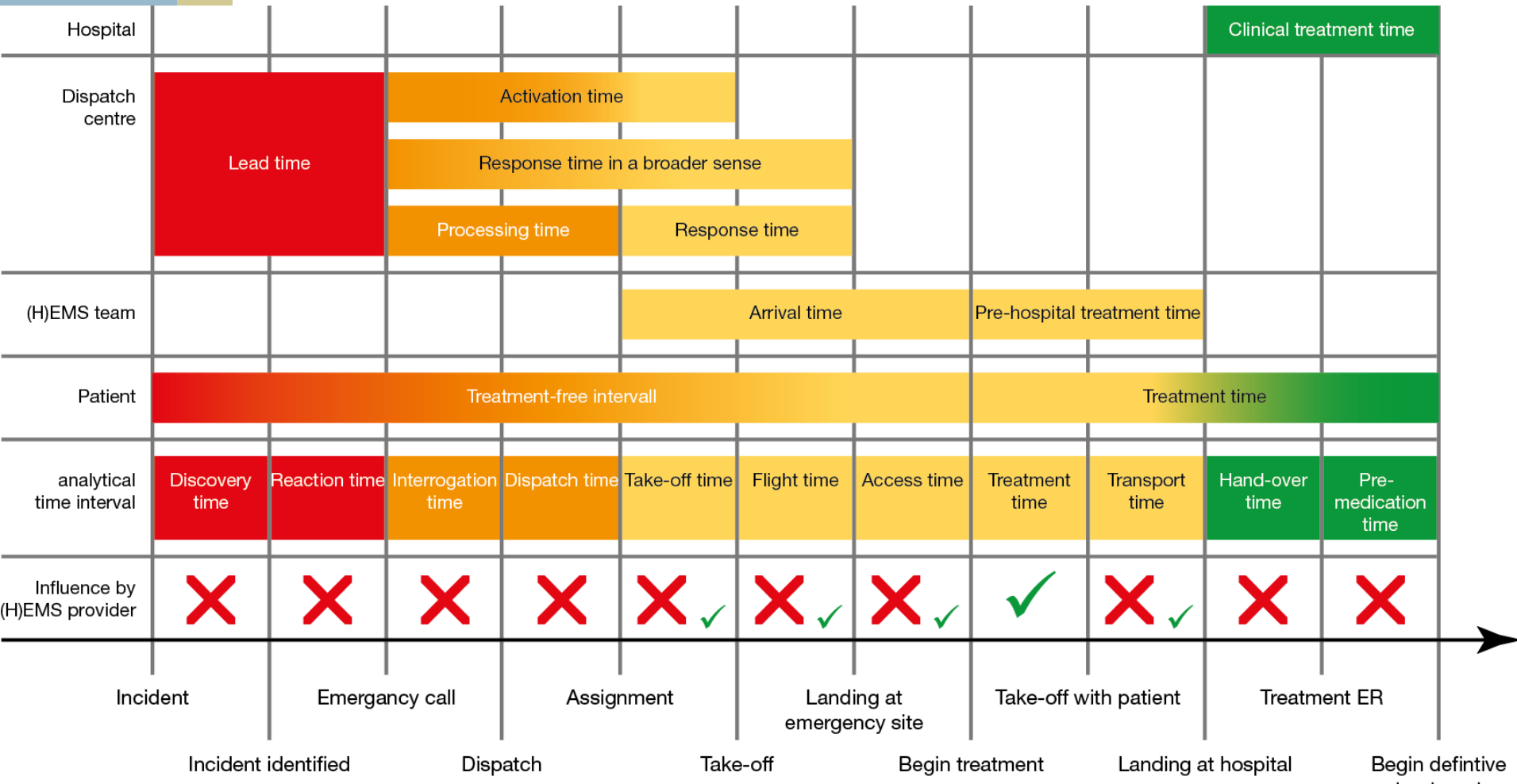


The limiting factor «time»

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Rega Bases



Basel

St. Gallen

Kloten

Dübendorf

Bern

Mollis

Erstfeld

Intervaz

Wilderswil

Lausanne

Zweisimmen

Samedan

Genève

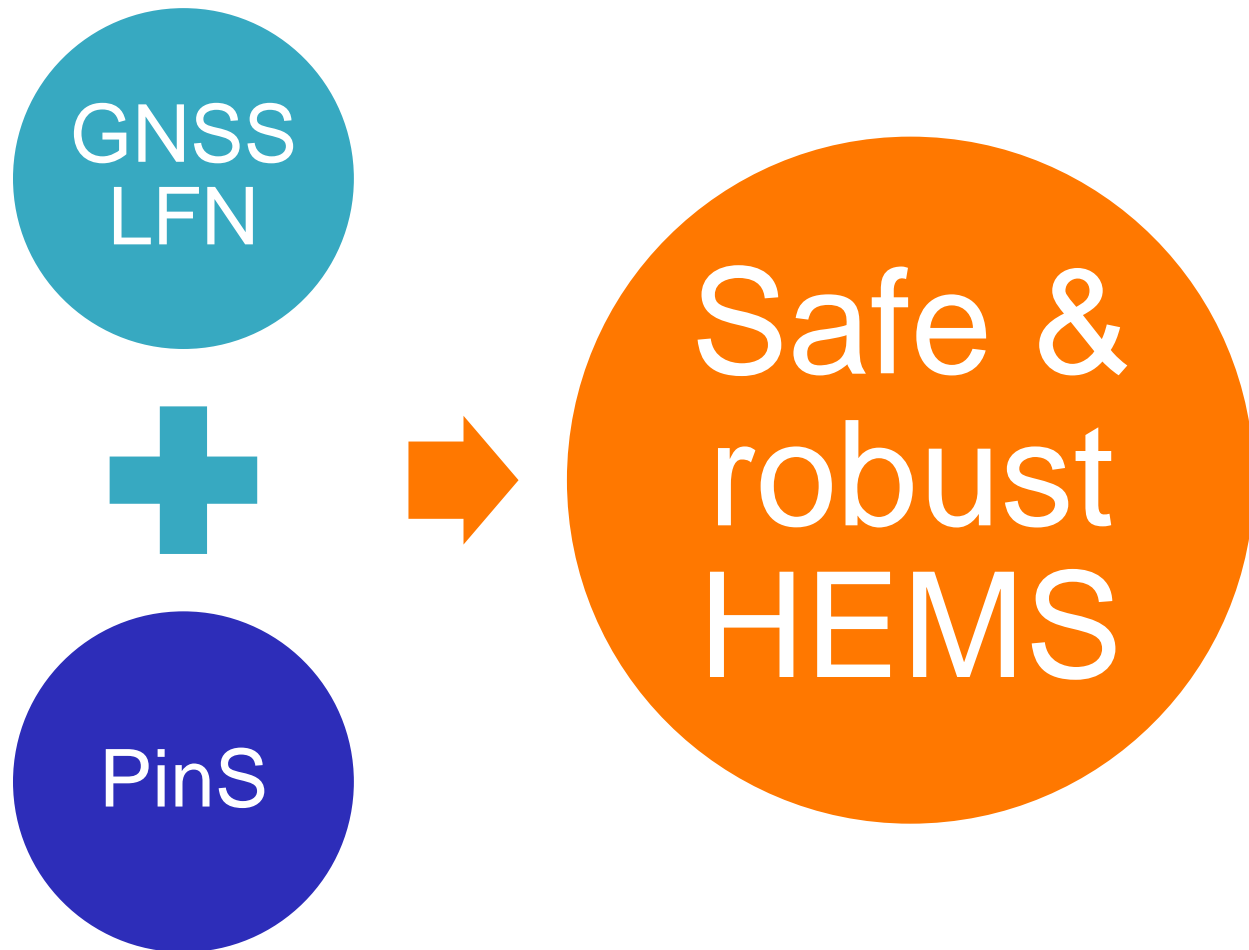
Locarno

Concept

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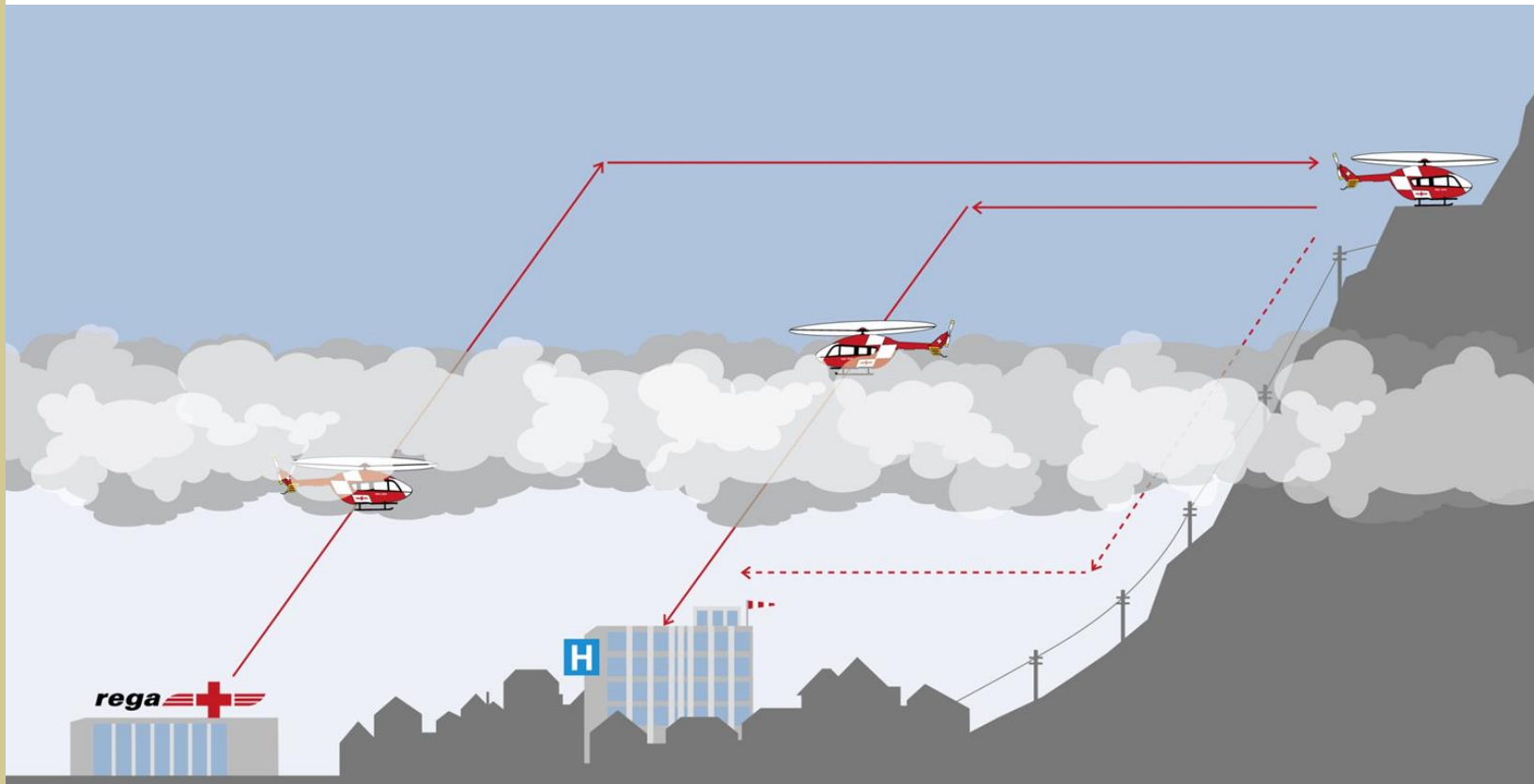


Point in Space (PinS)

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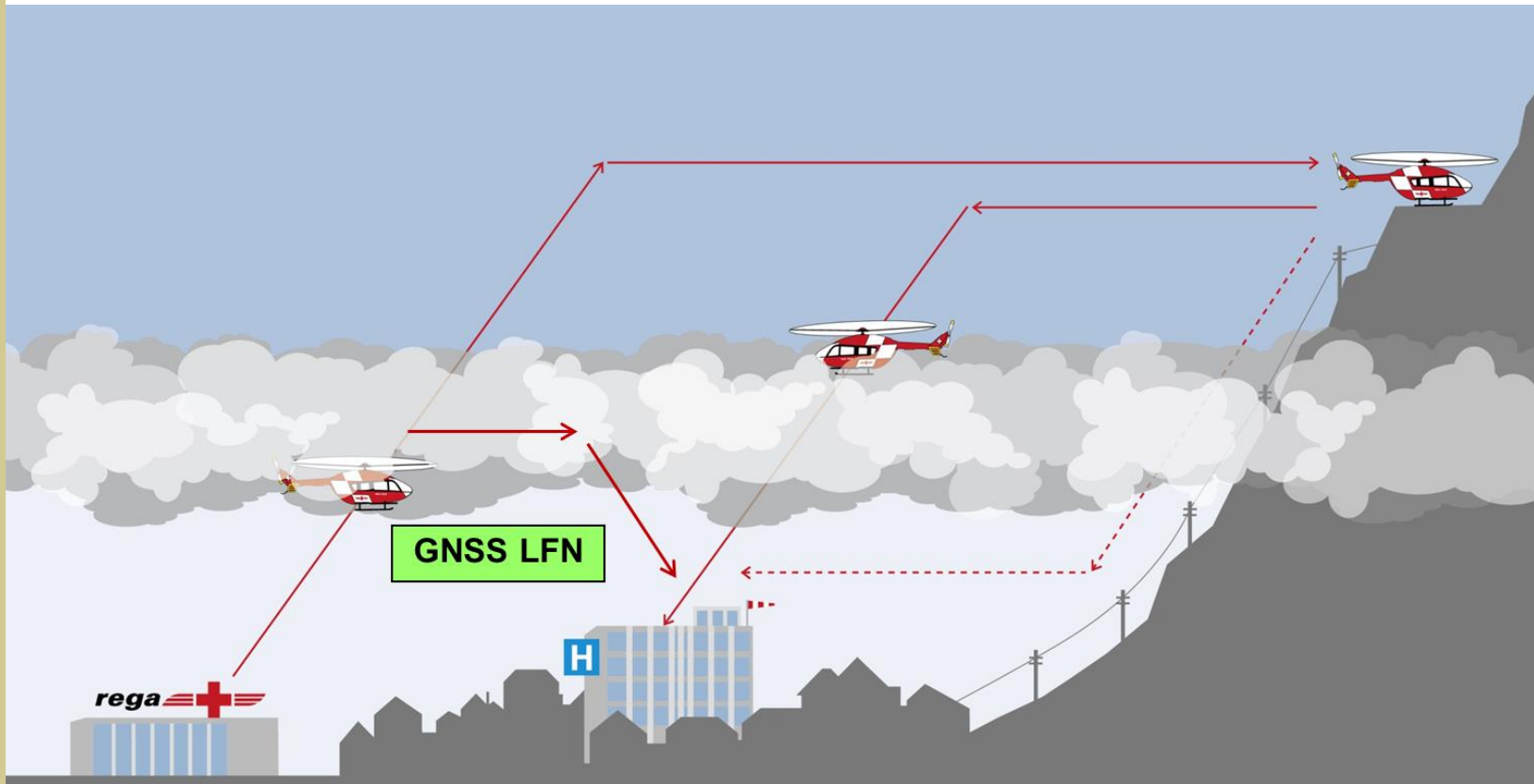


Point in Space (PinS)

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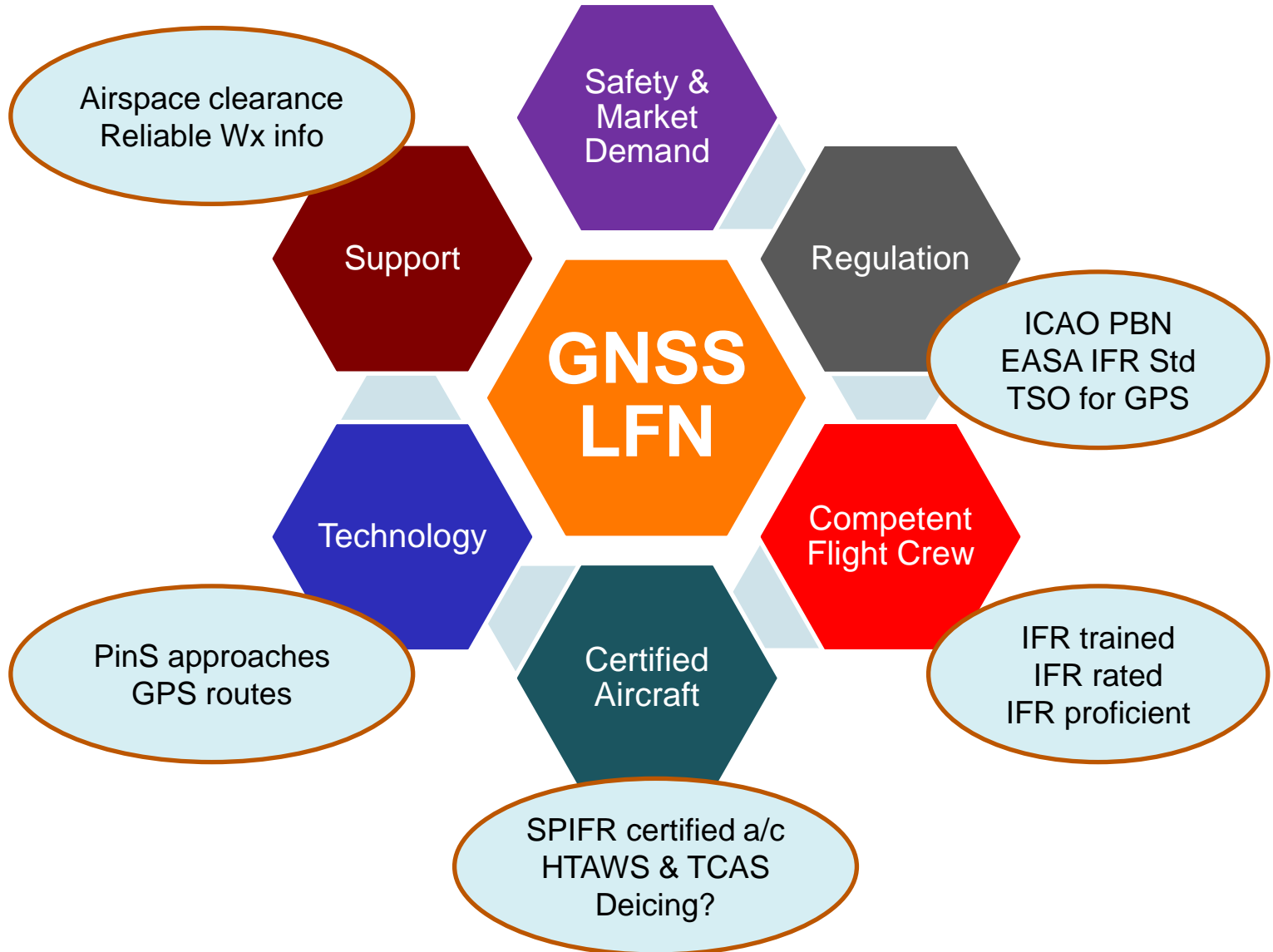


Operational Challenges

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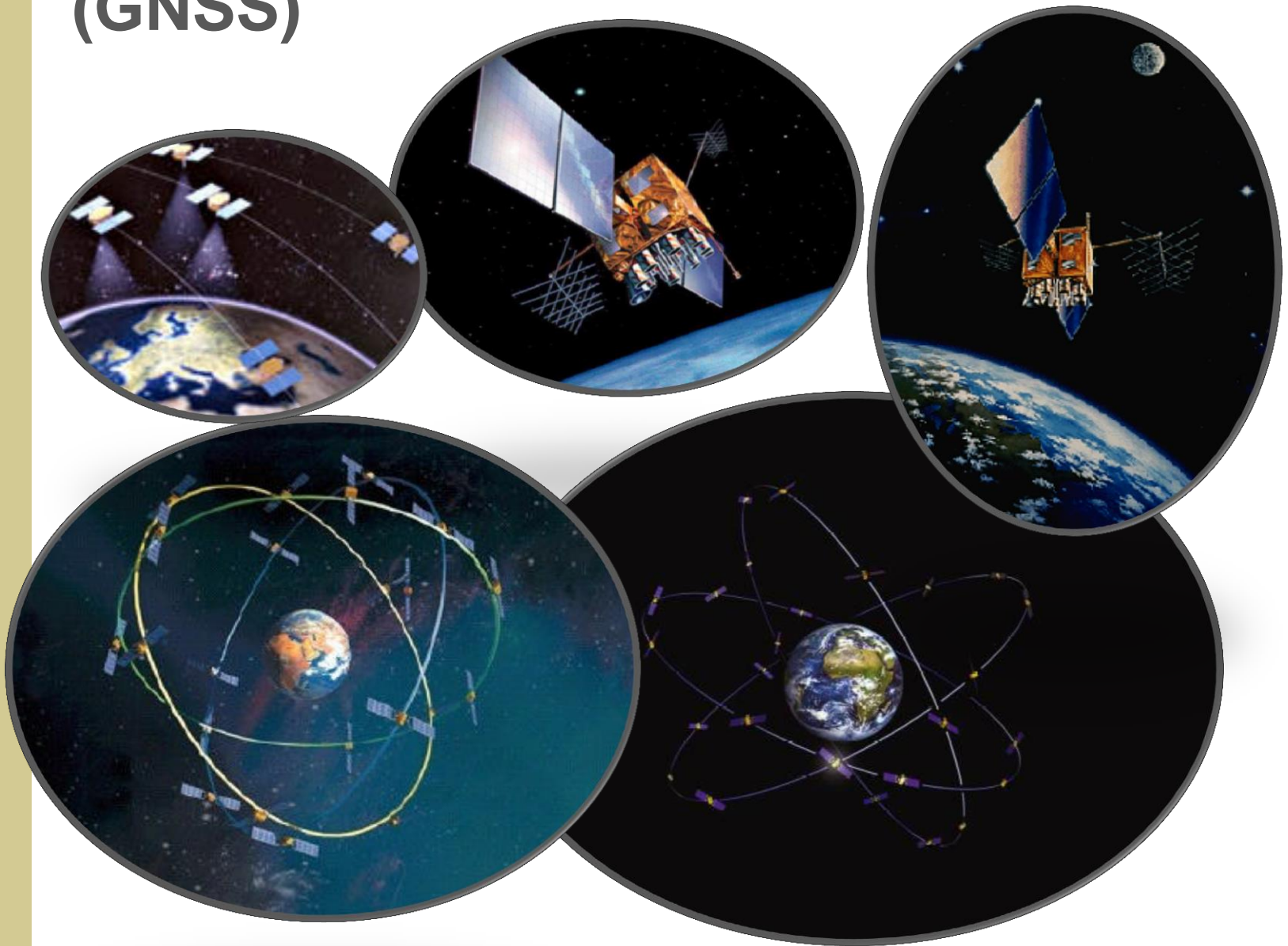


Global Navigation Satellite System (GNSS)

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Objectives

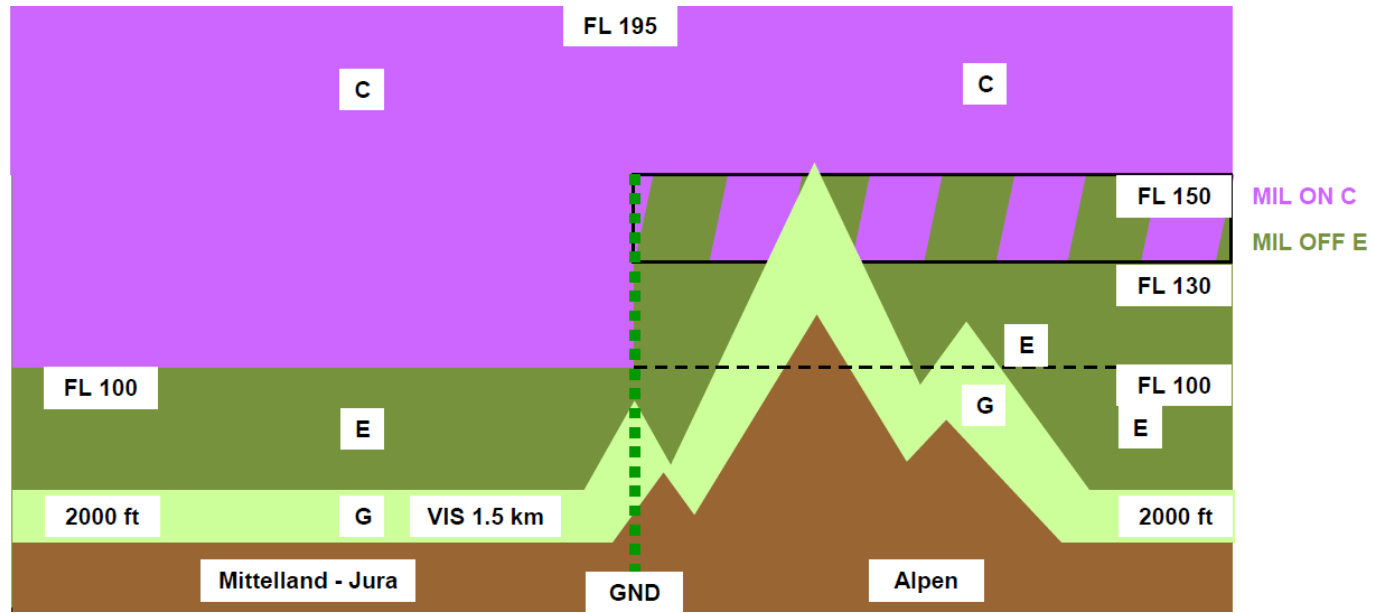
- Establish an extended **low flight route network in airspace ECHO** throughout Switzerland in accordance with ICAO recommendations and PANS OPS requirements
- **Create useful Point in Space (PinS) procedures**, linked to the network compatible with FMS databases, and based on ICAO recommendations (airspace ECHO & GOLF)
- Enable joining and leaving flights over these PinS
- **Develop operational and IFR flight procedures** to allow safe operation on this network and to / from PinS by the use of **state-of-the-art navigation systems based on GNSS**
- Analyse and organise **ATC for the flight operations**

Swiss Airspace Definitions

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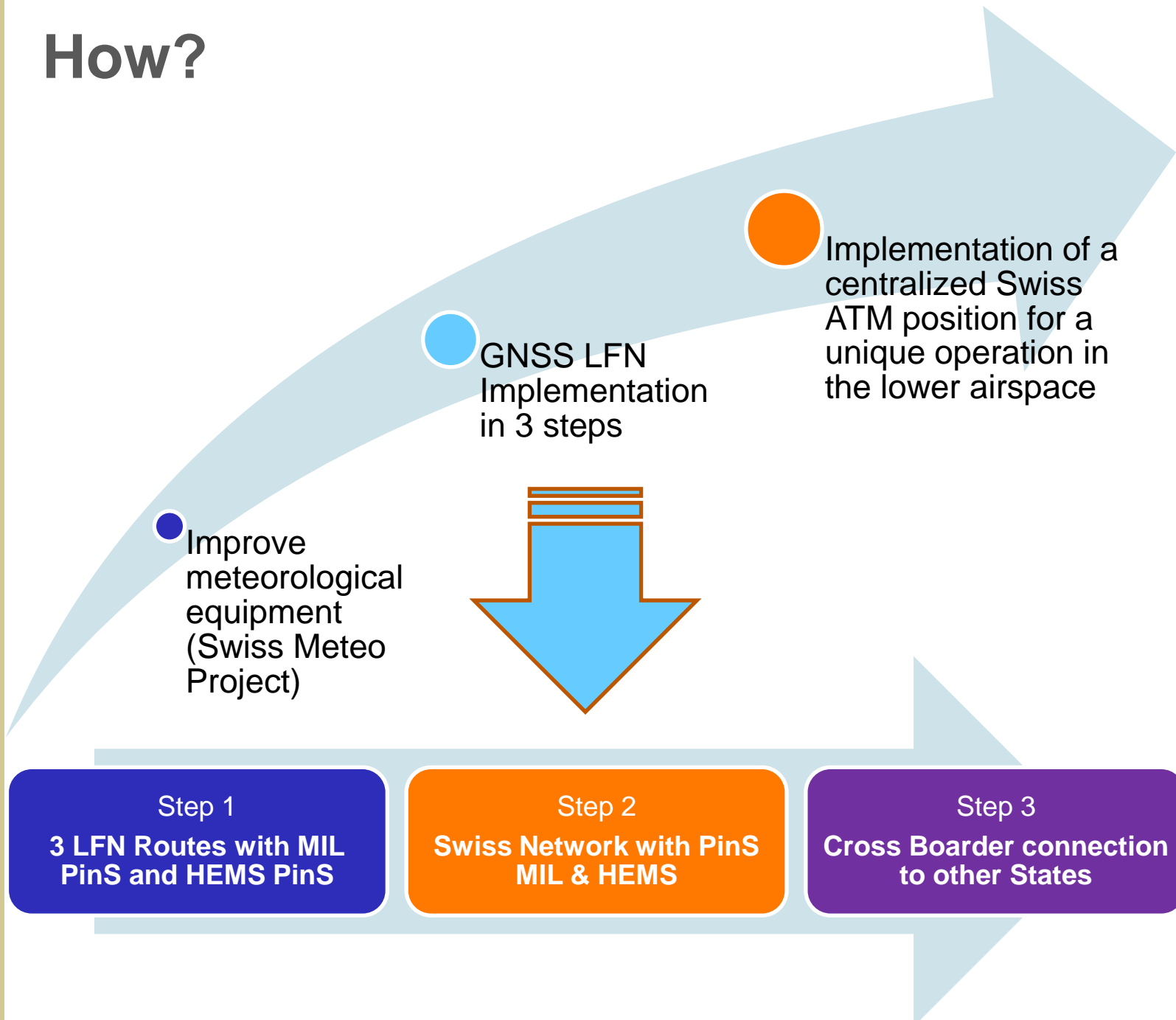
ICAO Class	ATC	IFR	SVFR	VFR	ATC Clearance	Separation	Traffic Information
A	Controlled	Yes	Yes	No	Required	Provided for all flights	N/A
B	Controlled	Yes	Yes	Yes	Required	Provided for all flights	N/A
C	Controlled	Yes	Yes	Yes	Required	Provided for all IFR/SVFR	Provided for all VFR
D	Controlled	Yes	Yes	Yes	Required	Provided for IFR/SVFR to other IFR/SVFR	Provided for all IFR and VFR
E	Controlled	Yes	Yes	Yes	Required for IFR and SVFR	Provided for IFR/SVFR to other IFR/SVFR	Provided for all IFR where possible, to VFR where possible but only when requested
F	Uncontrolled	Yes	No	Yes	Not Required	Provided for IFR/SVFR to other IFR/SVFR where possible	Provided where possible
G	Uncontrolled	Yes	No	Yes	Not Required	Not provided	Provided where possible

How?

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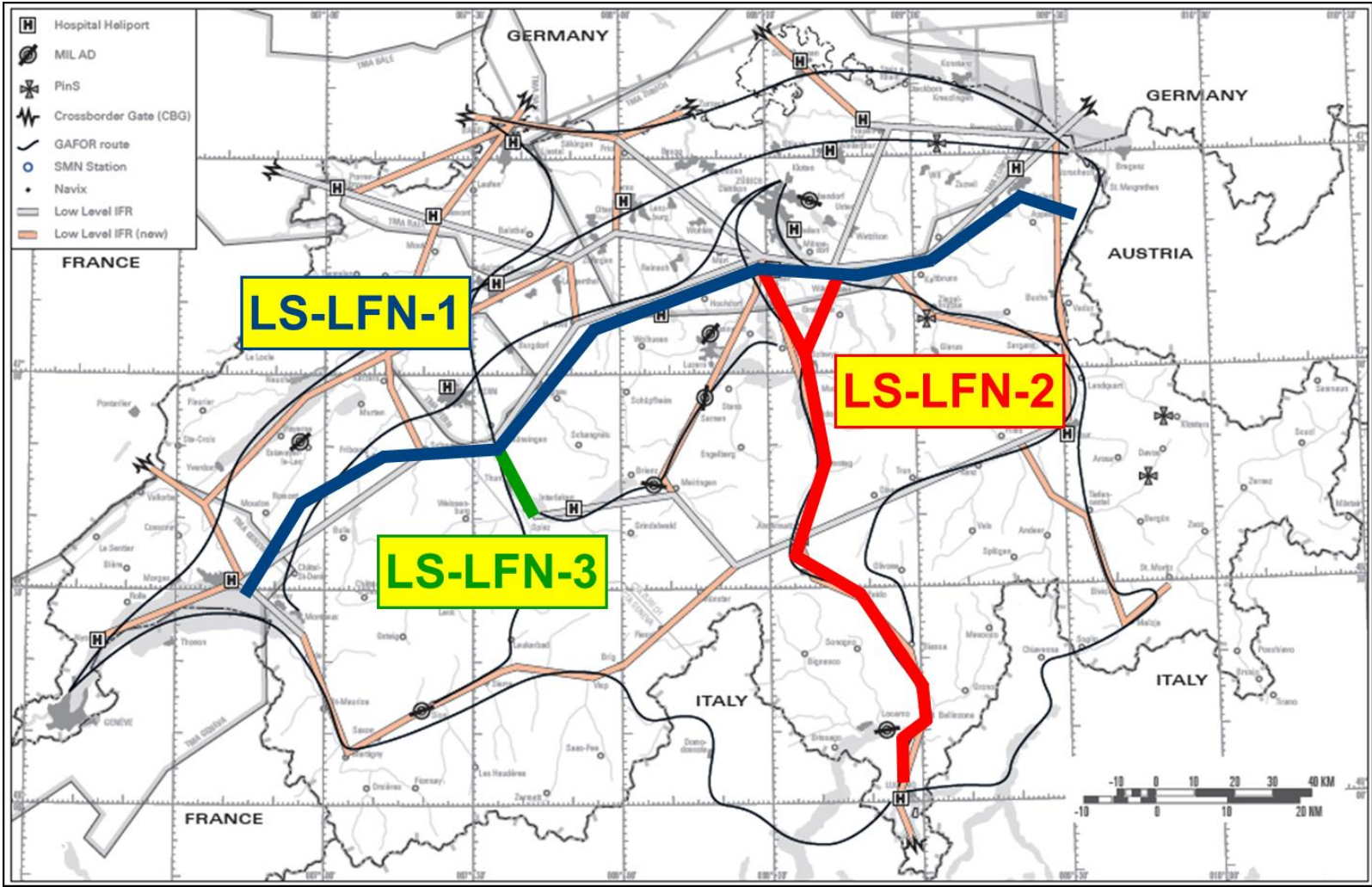
Step 1

Proposal for 3 LFN

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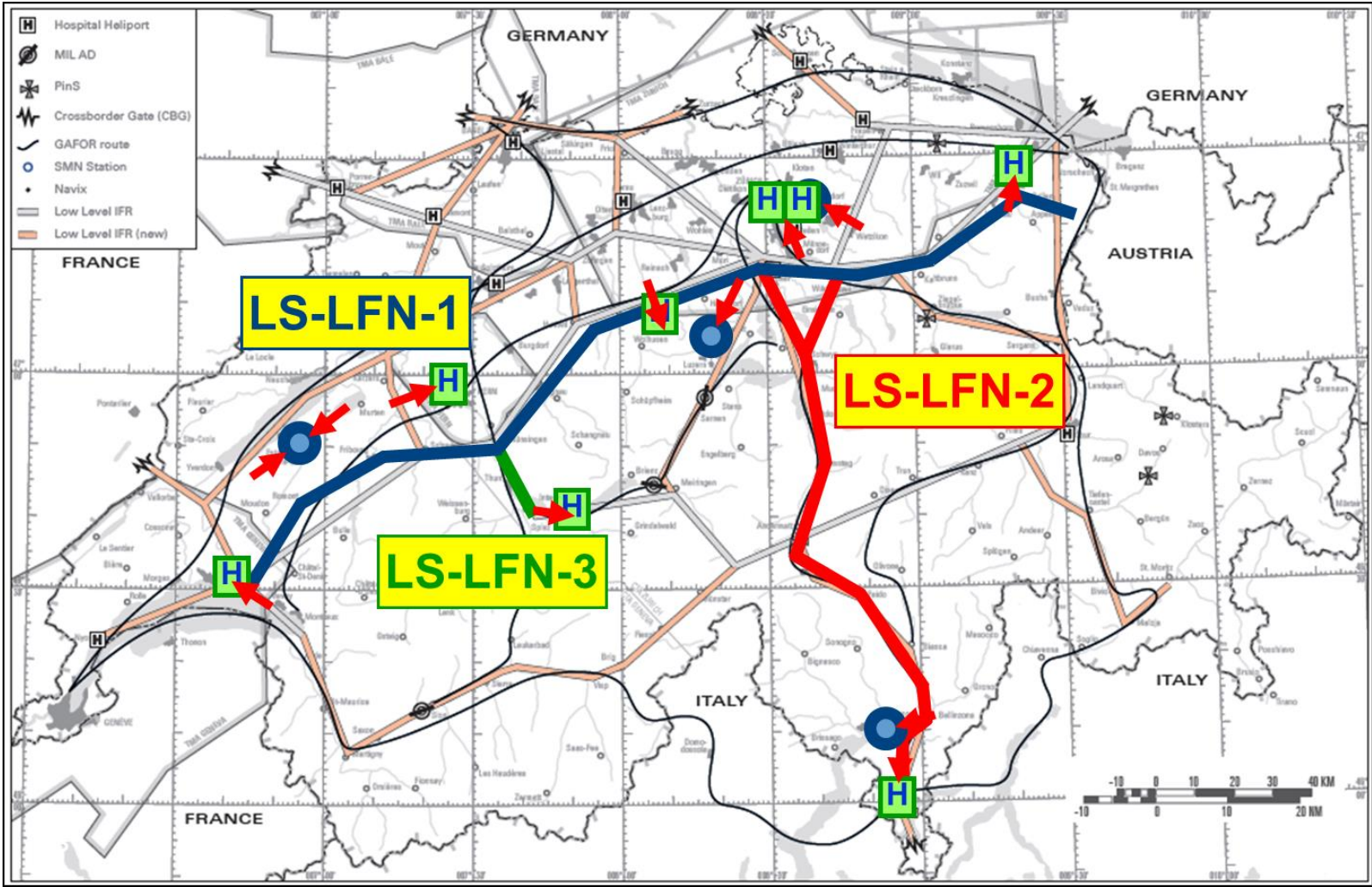
Step 1

Proposal for 3 LFN

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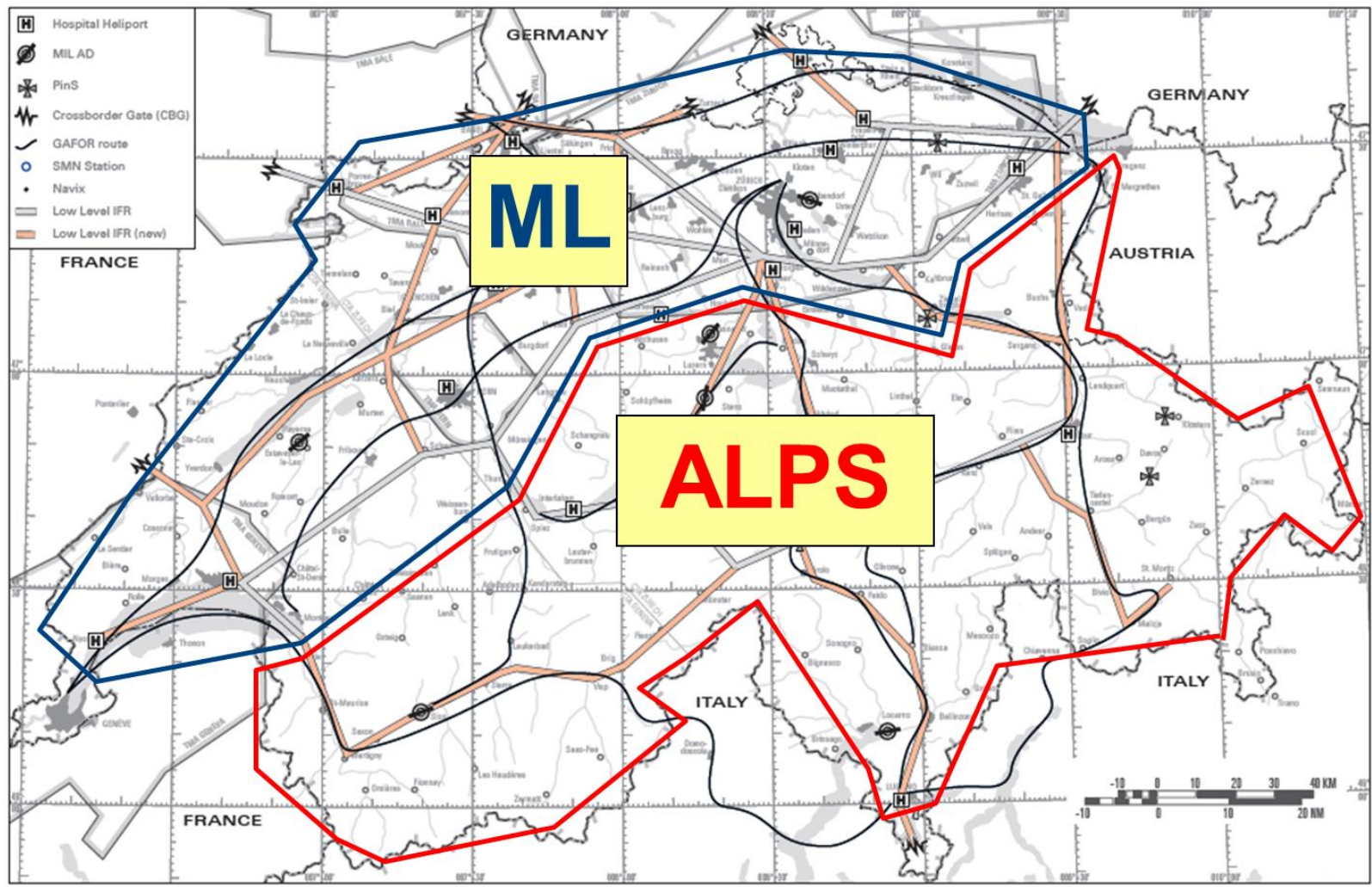
Step 2

Switzerland-wide LFN

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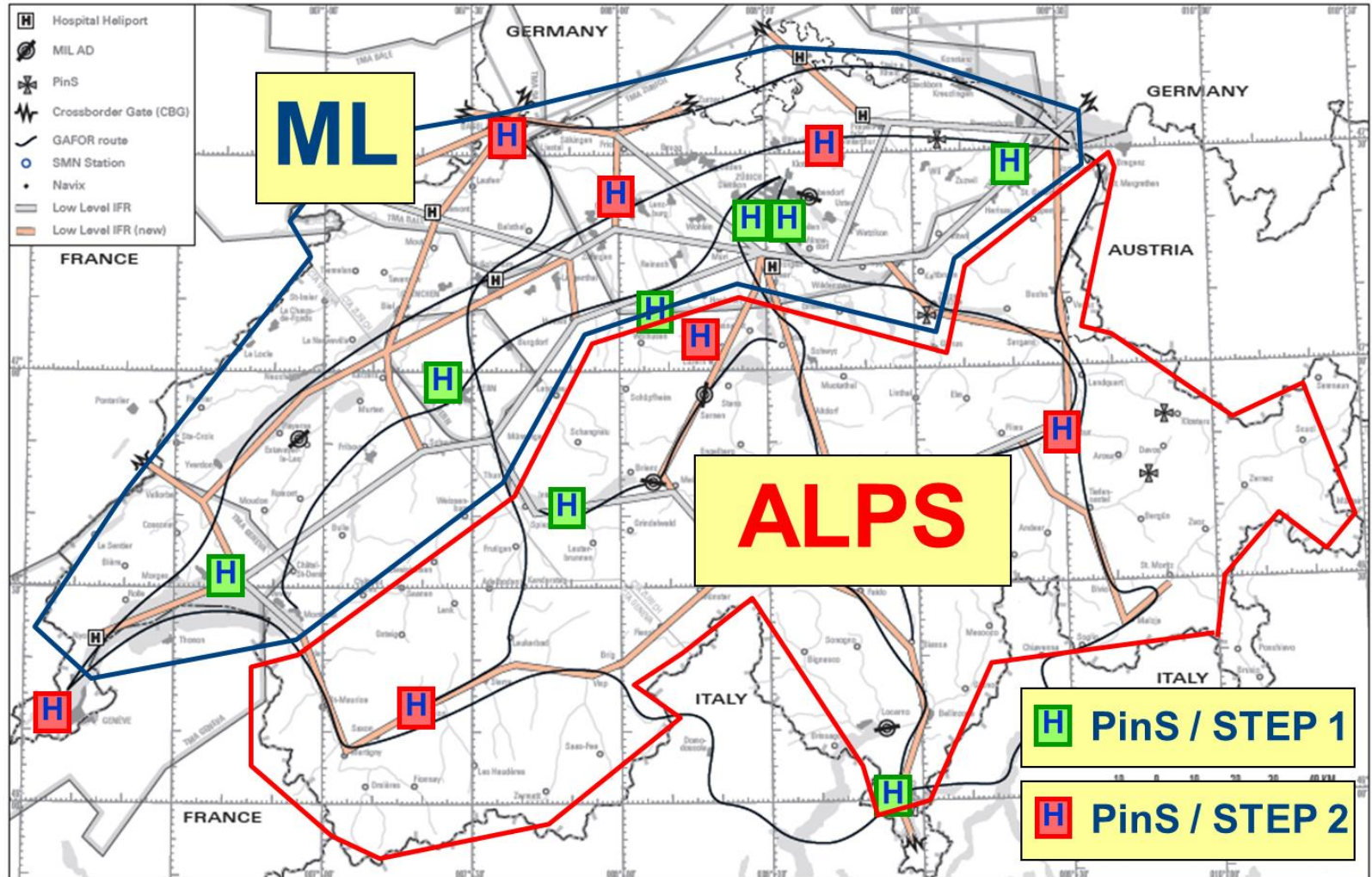
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Switzerland-wide LFN

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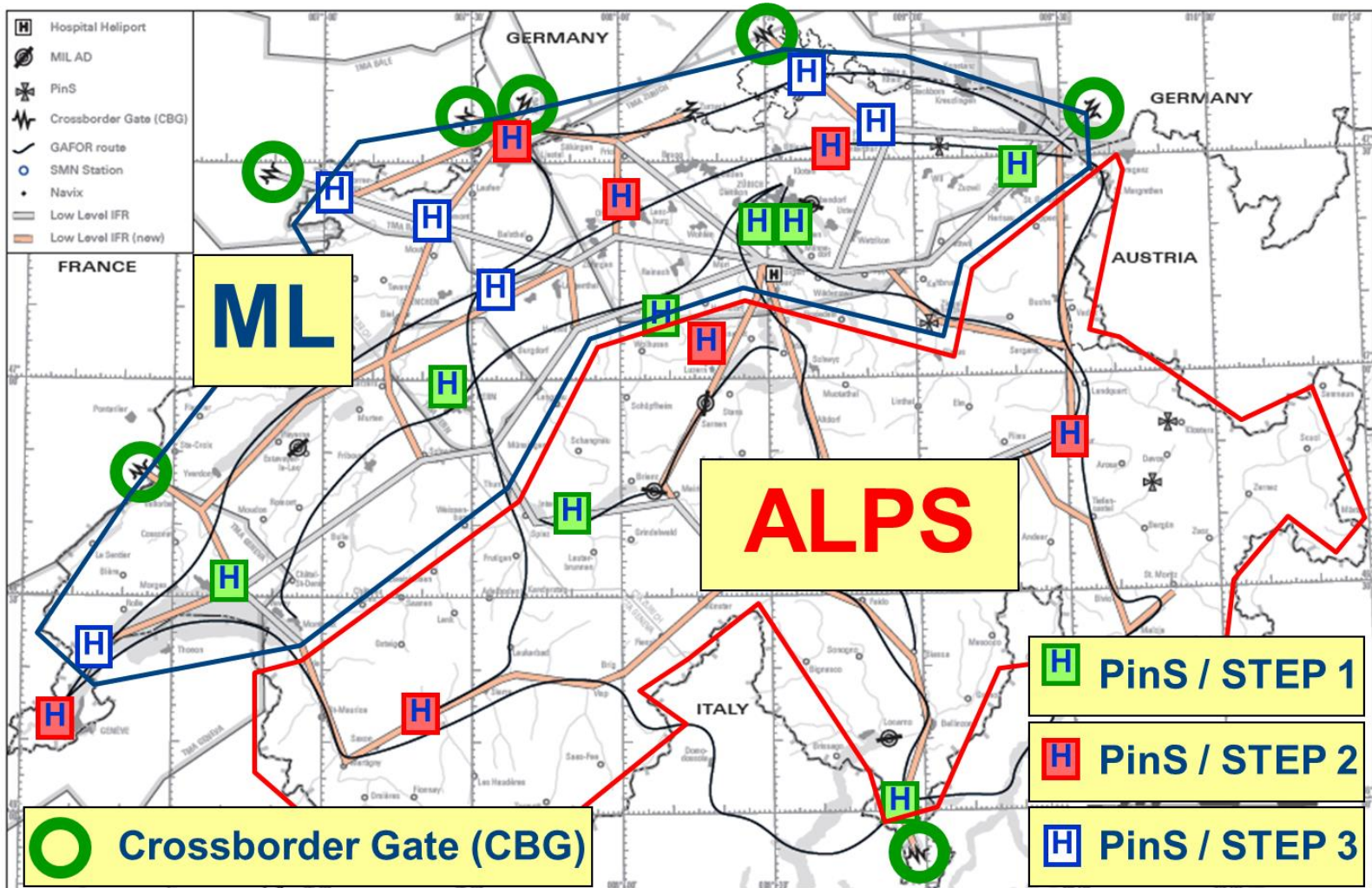
Step 3

Swiss LFN with cross-border gates

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Many thanks to our competent and strong partners in



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Many professional ideas towards one important goal!

Scientific Approach

- **Thesis**

PinS and GNSS LFN are safe and reliable flight procedures and patients can benefit from the new technology under most non-VFR conditions.

- **Anti-Thesis**

New flight procedures need to be trained, new equipment bought and rules have to be set up.

- **Synthesis**

PinS and GNSS LFN are already regulated through ICAO. Rega provides certified aircrafts and highly trained and experienced IFR-rated crews. **The benefits prevail**, especially for time-critical patients.

Knowing is not enough,
we must apply,
willing is not enough,
we must do.

GOETHE

Thank you for your interest

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Mark your Calendar: 3 – 5 June 2014

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