

The Skyguide Safety Management System

From some aspects of setup and experienced performance to a broader context



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Content

- ▶ A short introduction
- ▶ Focus on some specifics of the Skyguide SMS setup
- ▶ A closer look at the performance of the Skyguide SMS, also in a larger context
- ▶ Thoughts on the way ahead, not only for the Skyguide Safety Management improvement



Focus on some recent developments in Skyguide's SMS.

Corporate	<ul style="list-style-type: none">▶ Corporate Culture: HRO▶ Commitment of the Executive Management to Safety▶ Organization: Safety, Security, Quality Department, CSO in EM
Safety generic	<ul style="list-style-type: none">▶ Interface to Enterprise Risk Management▶ Safety Policy

Safety Promotion (and Development)

- ▶ 5yr Safety Development Strategy
- ▶ **Safety Performance Measuring**
- ▶ **Beyond 10⁻⁹: Resilience Engineering**

Safety Risk Assessment

- ▶ "Bottom-up" Safety Assessments of changes, focus to
 - ▶ **Human Factors**
 - ▶ **"Safe by Design"**
- ▶ **"Top-Down" Unit Hazard Surveys (of the running system)**

Safety Assurance (Reporting and Investigation)

- ▶ State-of-the-art Safety Occurrence Investigations
- ▶ **Use of recorded data**

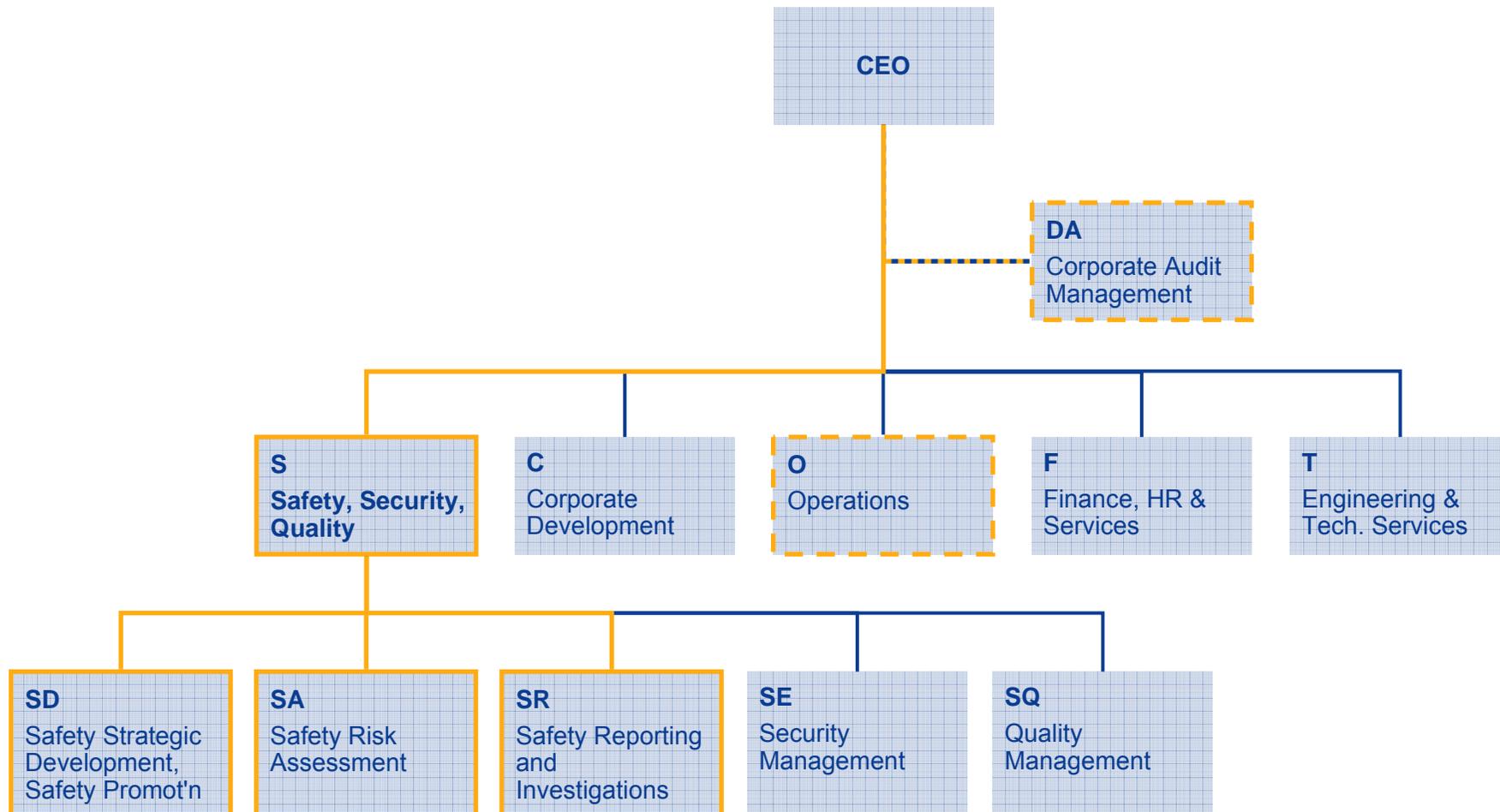
 detailed information may be found on www.skyguide.ch, in the "safety dossier".

Skyguide as "High Reliability Organization": Safety as intergrated "transversal discipline".



- ▶ Sensitivity to the business front end
- ▶ Reluctance to (over-)simplify interpretations
- ▶ Systemic learning from events
- ▶ Commitment to resilience
- ▶ Deference to expertise

Safety is partially centralized and in the Executive Management at skyguide.



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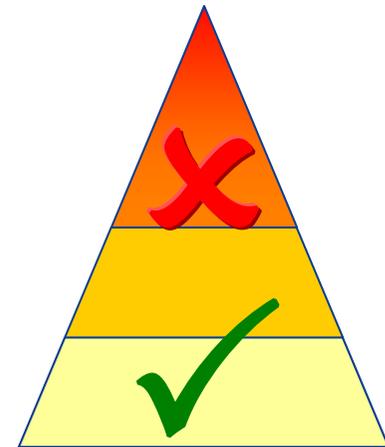
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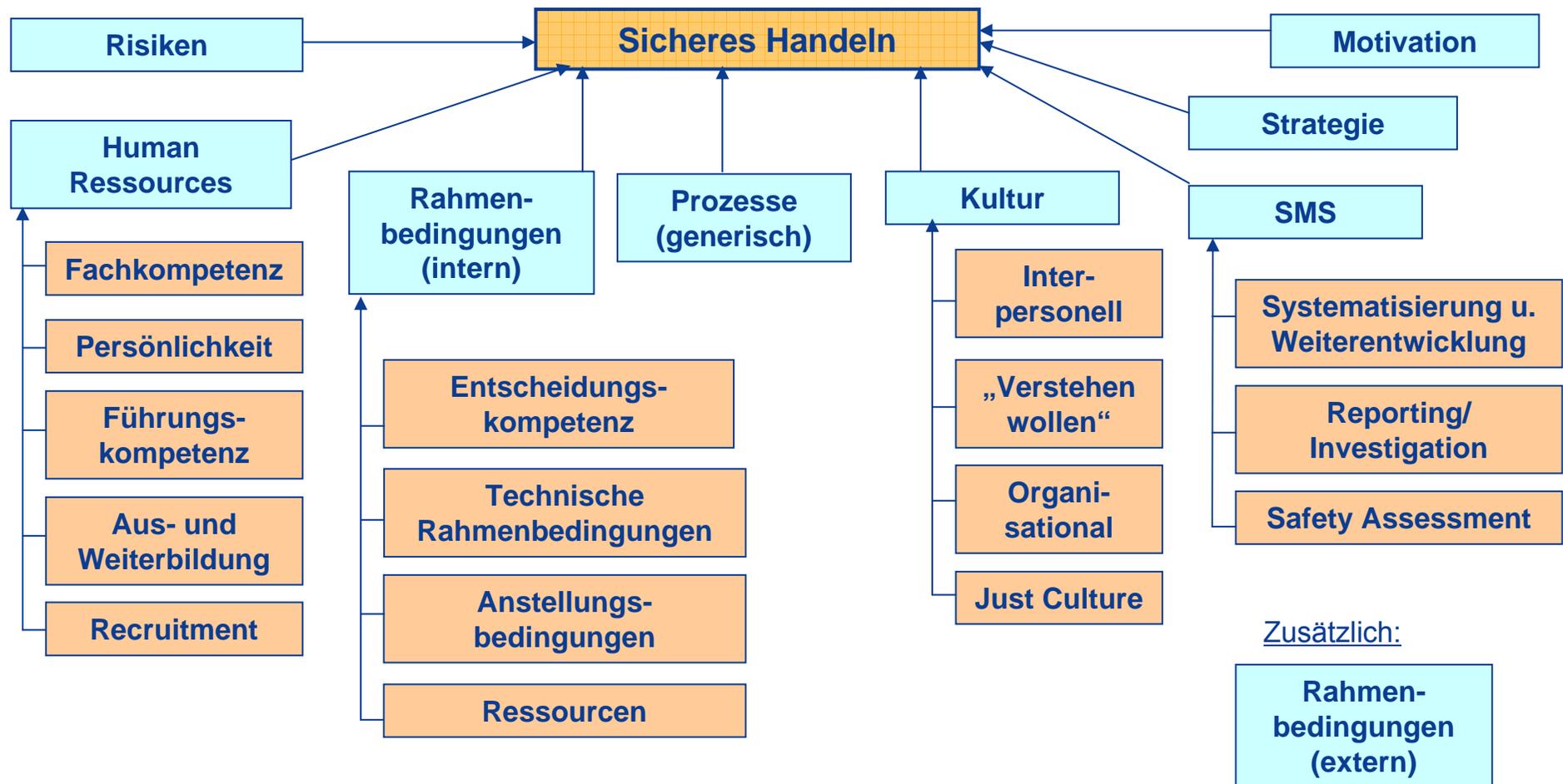
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Safety Improvement from Safety Performance Monitoring?

- ▶ Counting and judging the outcomes (i.e. severe incidents)...
 - ▷ ... has become meaningless, because the numbers are so small and statistically irrelevant (1/1'000'000 flights!)
 - ▷ ... does usually not directly allow for safety improvement and/or respective measures.
- ▶ New, more meaningful ways of "measuring the safety level" have been developed:
 - ▷ Blunt end contributors
 - ▷ "Focus group survey", based on "Sicheres Handeln" (with FHNW)
 - ▷ combined into the "*Safety Cockpit*" (still in pilot phase)



"Measuring" Safety Culture, Safety Levels: Focus Group Survey, based on "Sicheres Handeln".



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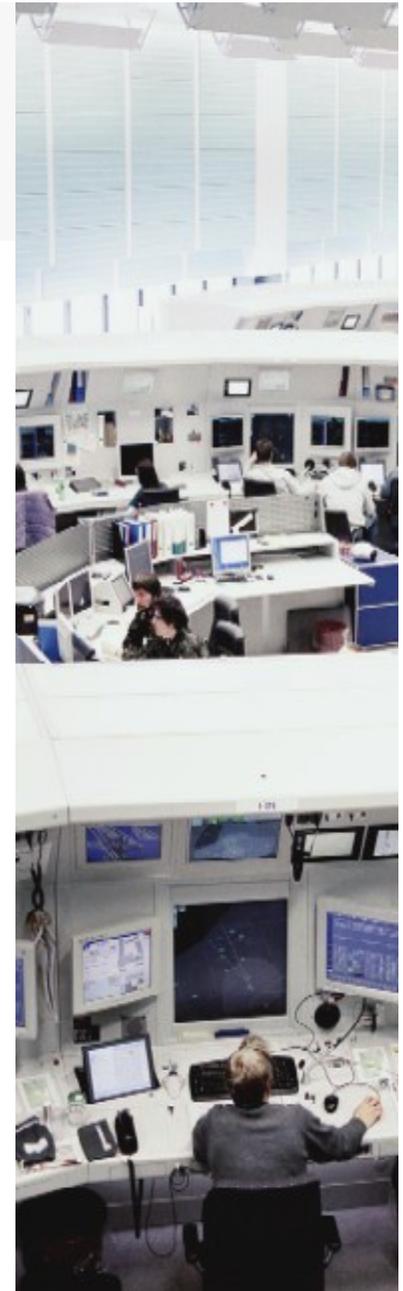
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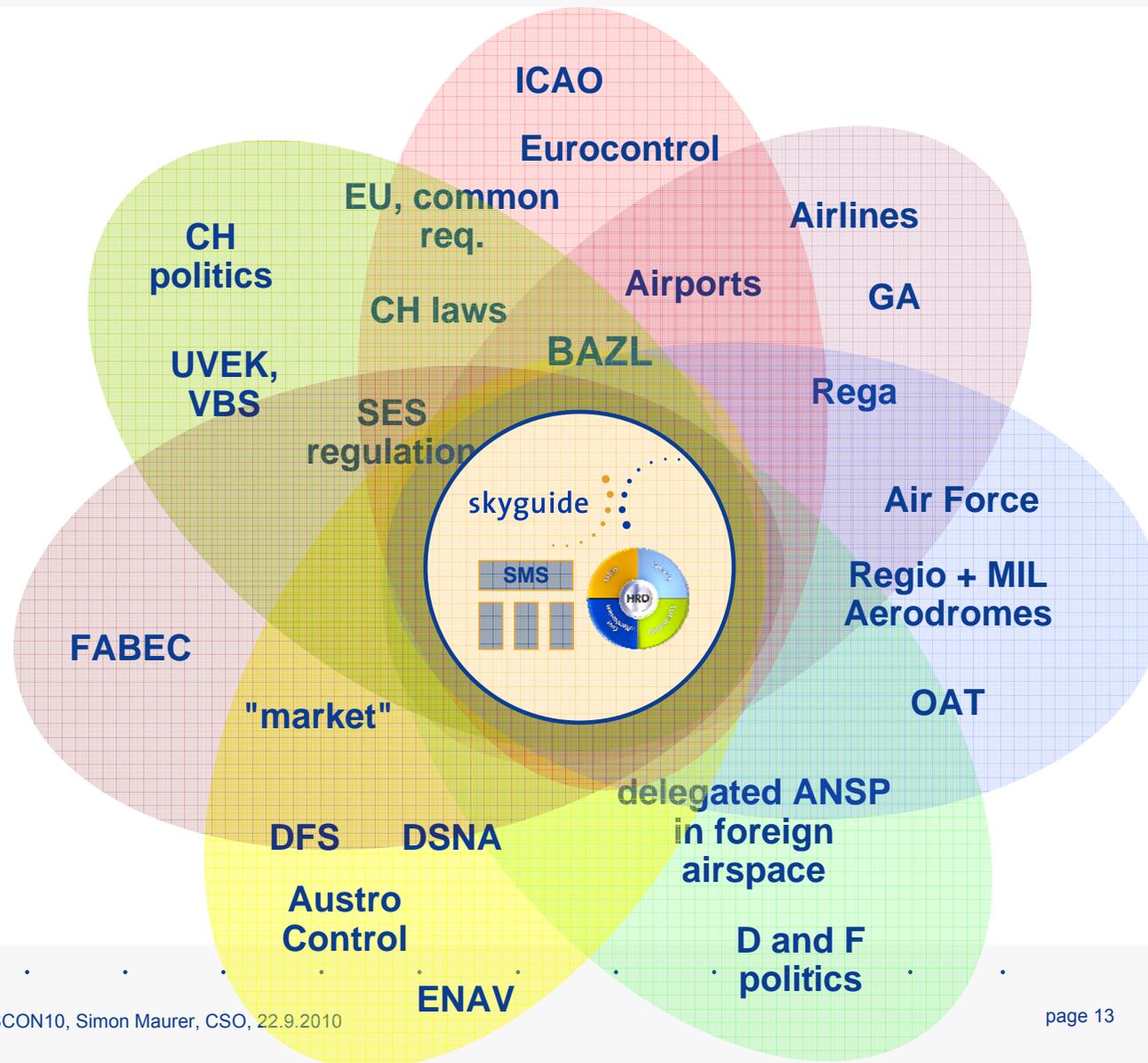
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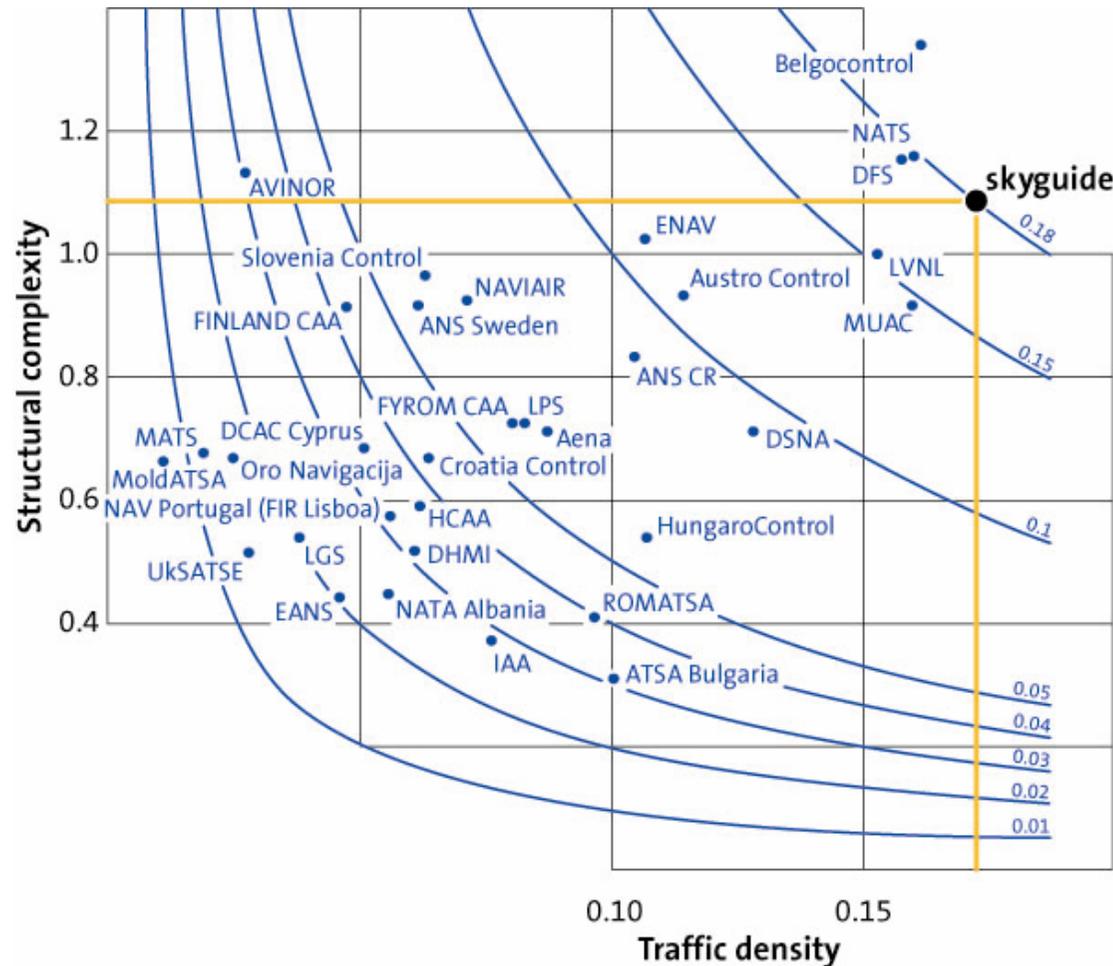
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Skyguide depends on a dense and large network of stakeholders, requirements, structures, and interests.



Switzerland aviation is a system of full-blown complexity, but operated with few resources.



Along with its Belgian, British and German counterparts, skyguide is responsible for some of Europe's most complex airspace areas.

Considering the small size of Swiss airspace, some 2/3 of the traffic managed by skyguide is in a state of almost perpetual change, be it of its altitude, heading or speed, or combinations thereof.

Source : Eurocontrol – Performance review unit

Some consequences – and challenges not only for the Skyguide Safety Management.

1

- ▶ **Ressources** are a permanent issue. FABEC and other strategic initiatives demand even more ressources.
- ▶ **Operationalisation of new concepts** remains a challenge.
- ▶ The constant "**Safety uphill battle**", i.e. the constant pull of the system towards business optimization, business constraints etc.
- ▶ A **very complex and dynamic system**, demanding lots of short-term changes, causing unplanned efforts, making the system inherently less stable, and cannibalizing ressources from the strategic work.
- ▶ Risks "manifesting" on our sharp end are increasingly driven by **systemic and design issues**, which are **only partly (or not at all) under Skyguide managerial control**.

Some consequences – and challenges not only for the Skyguide Safety Management.

2

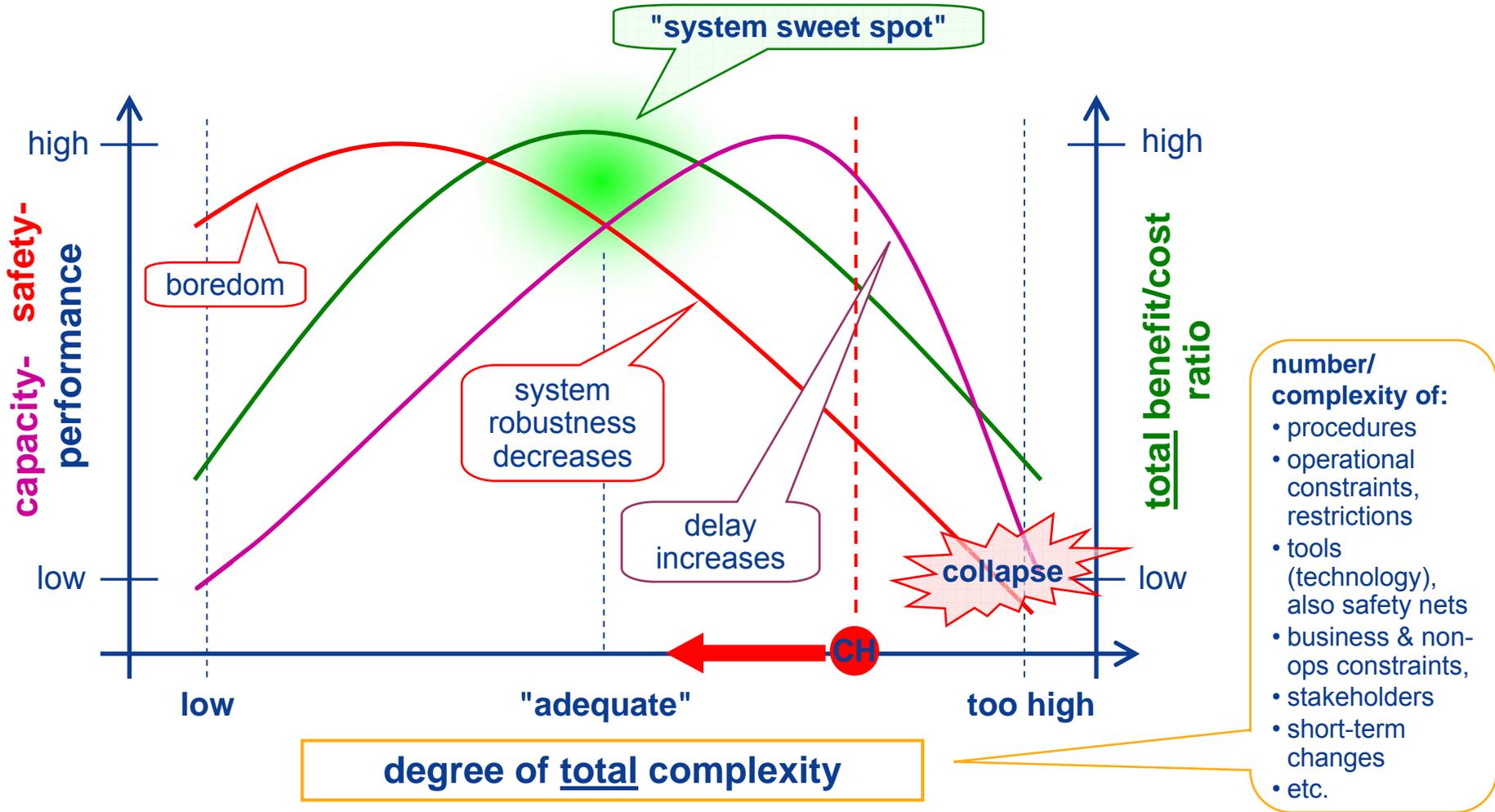
- ▶ **"Safe by design"** remains difficult, i.e. ICAO level 1 mitigations (avoid risk by different design) are usually not possible because mostly the efficient drivers are outside our managerial control.
Far too often, we're forced to apply level 3 mitigations on the operators level (training, awareness, service orders...), creating new, collateral risks (limitations of human performance).
- ▶ **Tactical headroom** ("slack") necessary to cope with unexpected events (= resilience) is cannibalized by overspecification and/or externally driven non-aviation requirements/pressures.
- ▶ *Very dynamic* **regulation & oversight** processes, and sometimes conflicting/unclear regulations.
- ▶ A variety of **long-known operational hotspots and structural shortcomings** not under Skyguide managerial control, some "workable", but not really best practice, some leading to constant debates.

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Managing for "adequate" complexity allows for simultaneous Safety and Capacity optimization.



Suggestions. For us...

- ▶ Always strive for **adequate complexity**, key to simultaneous capacity and safety improvement, and refuse to overcomplexify the system.
 - ▷ accept that sometimes, less is more;
 - ▷ slaughter whole cows, be able to say "no" to particular wishes;
 - ▷ care about operational headroom, "reserve";
 - ▷ make aviation, not politics ;-)
- ▶ Systematically and strategically **address the topmost** (usually also the most difficult) **shortcomings** in the Swiss Aviation System.
- ▶ Avoid jumping-to-conclusion activities and inappropriate level of action.
- ▶ **Excellent expertise is key**. There can't be enough skills, and training, to be able to solve complex problems adequately and sustainably.
- ▶ **Harmonize** the regulations/requirements for interacting Safety Management Systems, and harmonize some aspects of these **SMS** for better exchange of information and joint activities on joint issues.

Thank you!



'WELL, HIGGINS, I SEE EVERYTHING'S UNDER CONTROL.'