ERM at skyguide
and interface with BCM

- Fachveranstaltung Netzwerk Risikomanagement

- Aarburg, 8 September 2017

- J. Schulte, Enterprise Risk Manager

Content

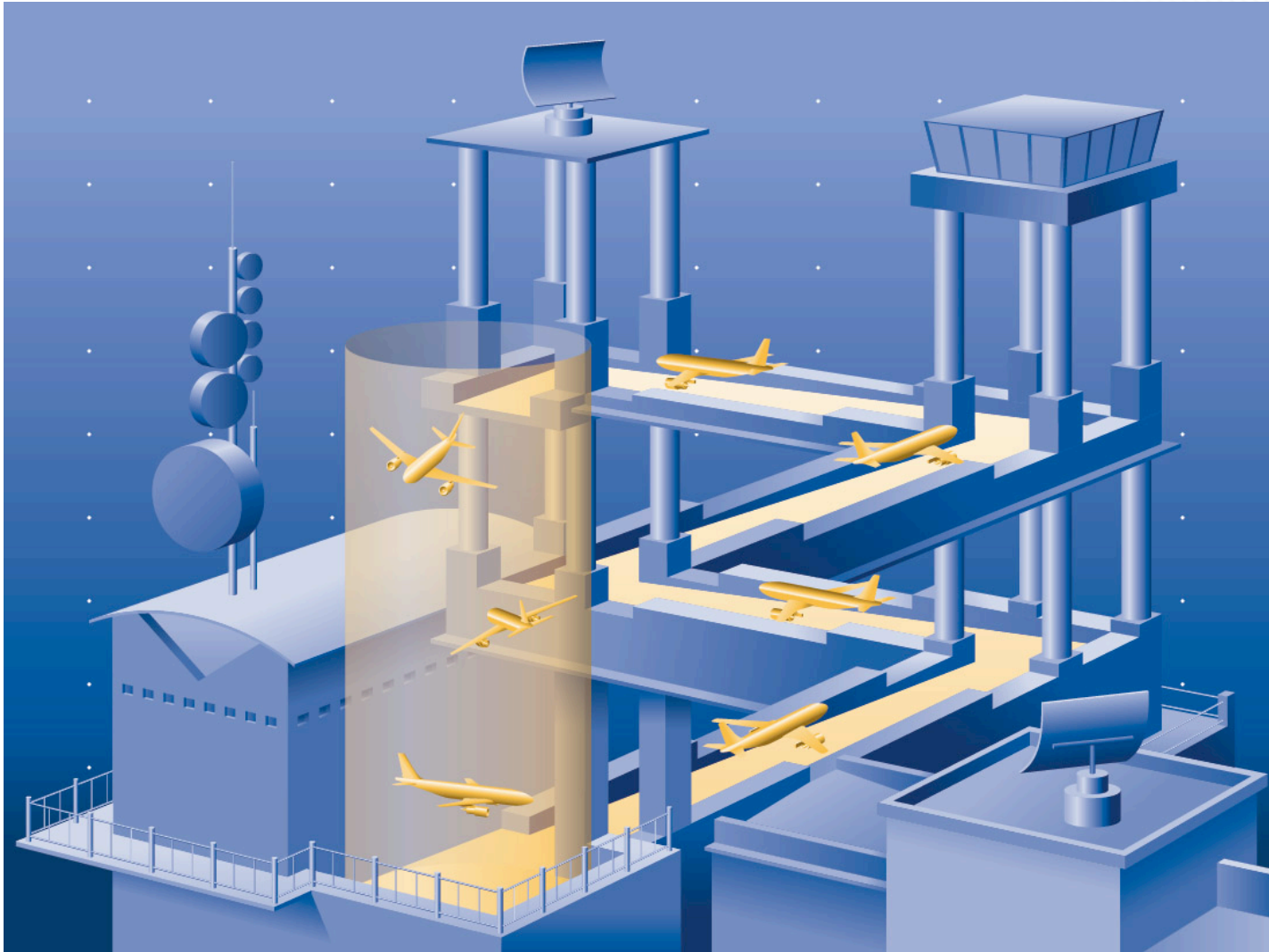- overview of skyguide
  - company
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  - overall ERM process
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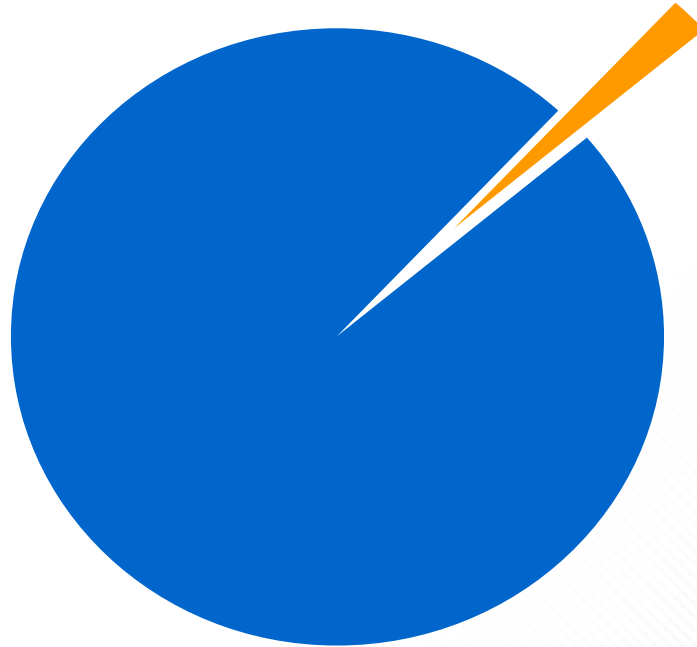- interface ERM-BCM at skyguide

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Skyguide's synopsis

Skyguide's shareholders (2015)
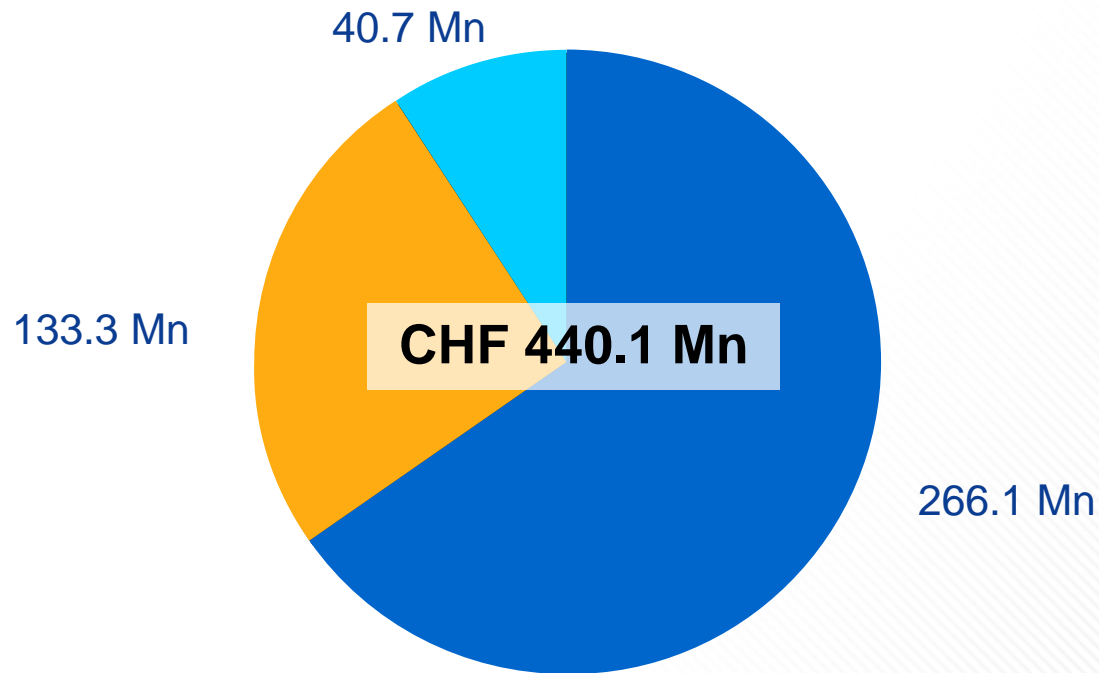
total share capital CHF 140 millions.

■ Swiss confederation   99,94 %

■ aeronautical associations, airport owners, cantons and cities, unions   0,06 %

Income statement ANS (2016)

40.7 Mn

133.3 Mn

CHF 440.1 Mn

266.1 Mn

■ Routes charges (60.5%)
■ Landing charges for cat. I & II airports (30.3%)
■ Military compensation (9.2%)
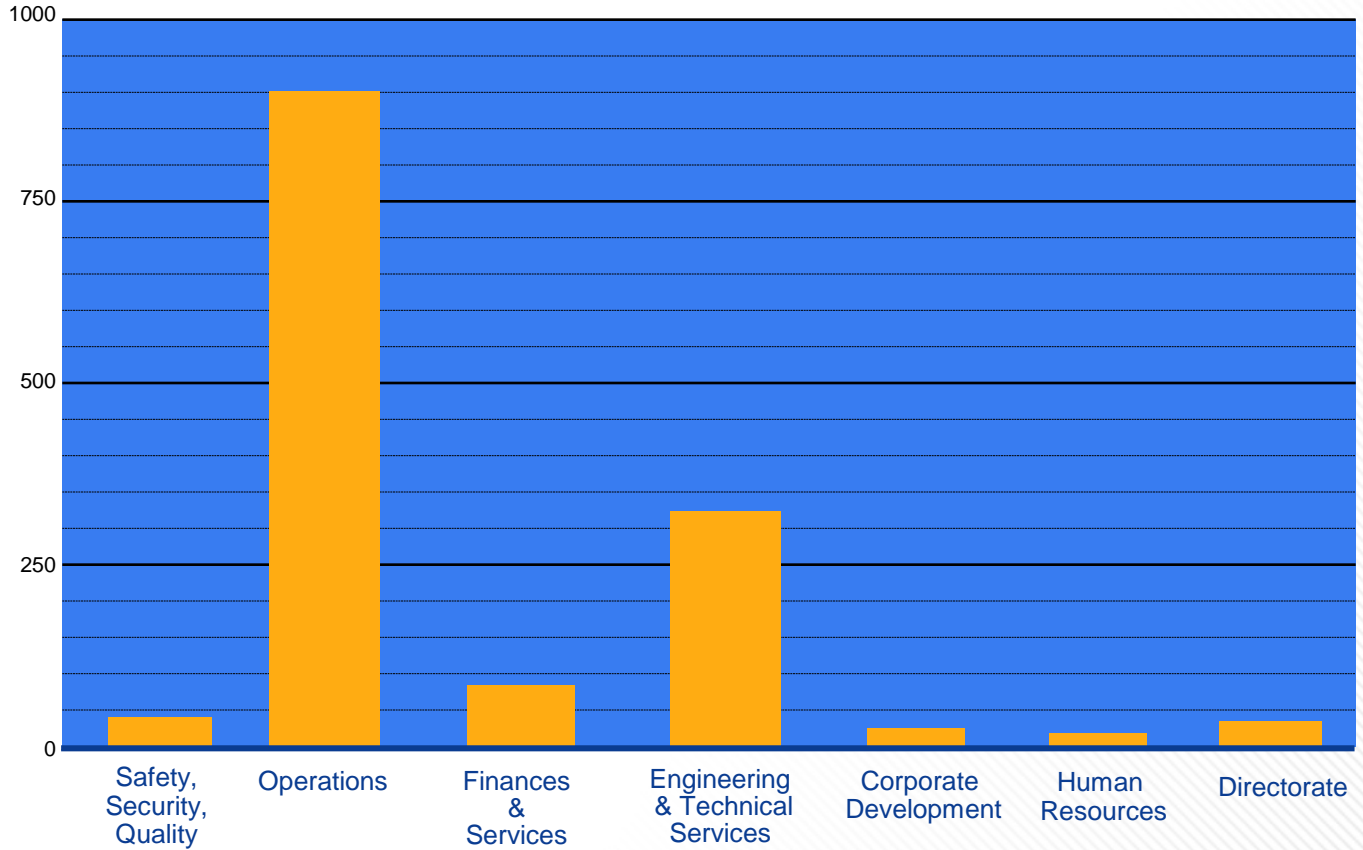
skyguide is financed by

Routes charges

Landing charges

Military compensation

Human resources (as of 31 December 2016, in FTE)

skyguide offers 1'426 full time jobs

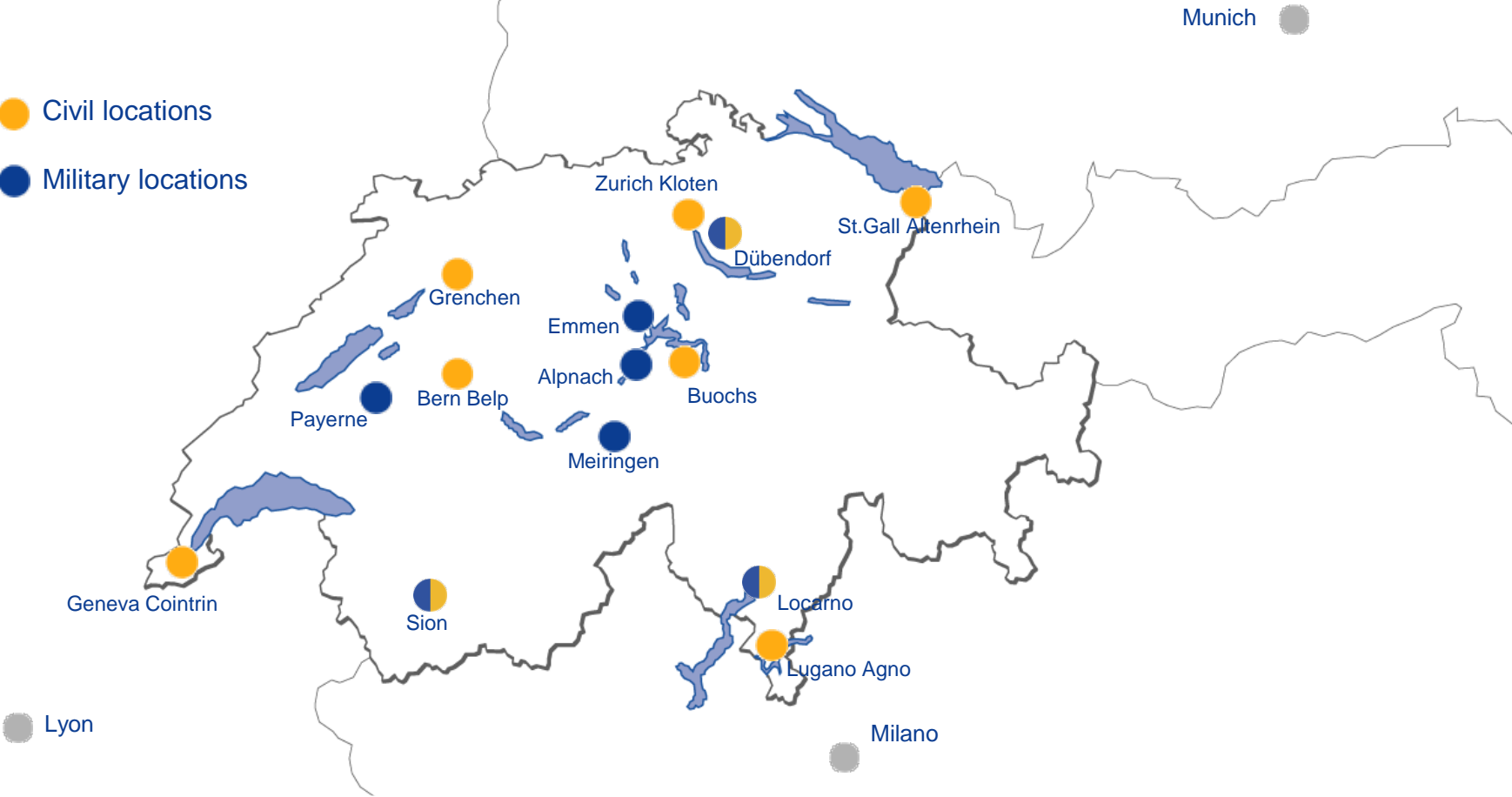|		
43.6		
Safety, Security, Quality		
898.0 (incl. 546.9 ATCOs)		
Operations*		
83.1		
Finances & Services		
323.0		
Engineering & Technical Services		
24.5		
Corporate Development		
21.0		
Human Resources		
32.7		
Directorate**		

*   including trainees

** includes Corporate Communication and Innovation & Change

skyguide's locations

Civil locations

Military locations

Munich

Zurich Kloten

St.Gall Altenrhein

Dübendorf

Grenchen

Emmen

Alpnach

Buochs

Payerne

Bern Belp

Meiringen

Geneva Cointrin

Sion

Locarno

Lugano Agno

Lyon

Milano

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IFR traffic – all skyguide centres (in number of IFR flights, source : CFMU)
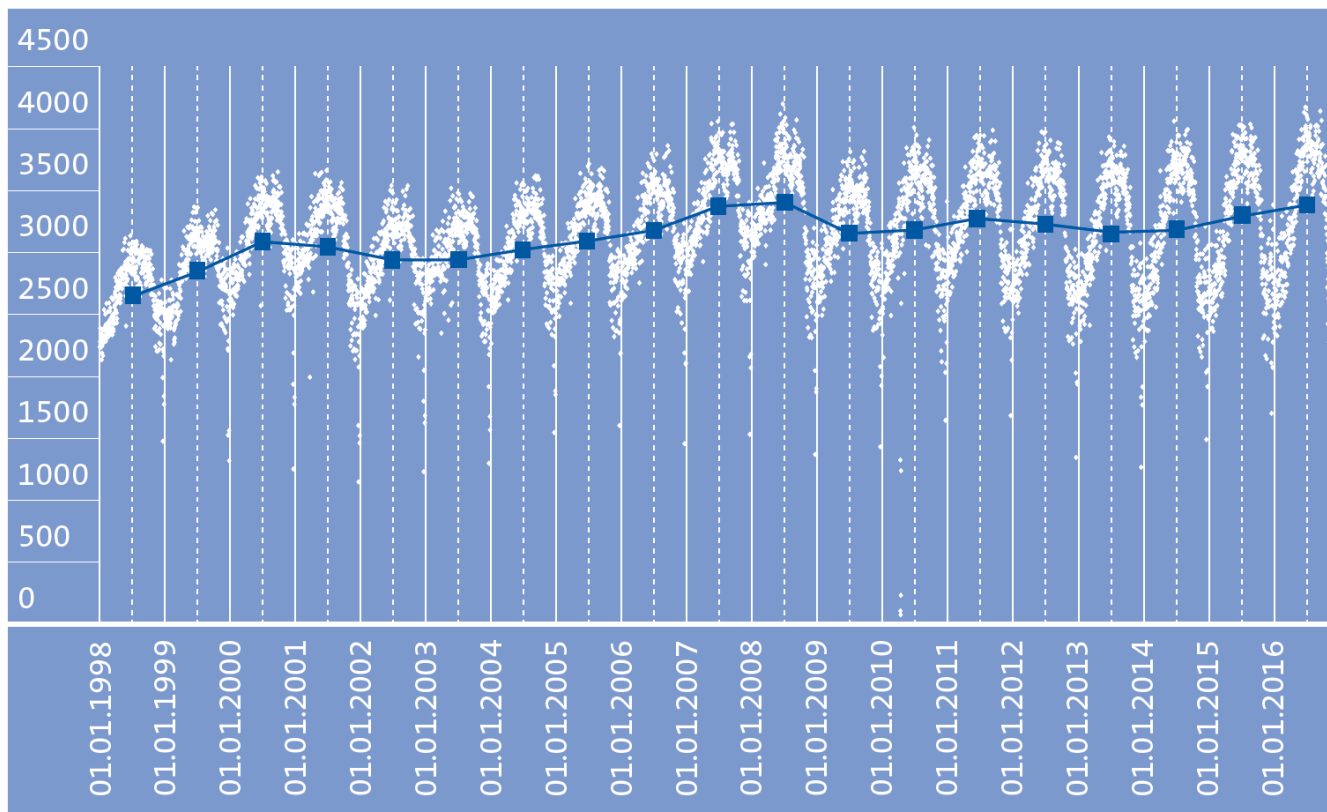
	2016	2015	Change
Total IFR flights	1 198 663	1 177 365	+1.8%
of which en-route traffic	716 159	703 037	+1.9%

Swiss and delegated Airspace
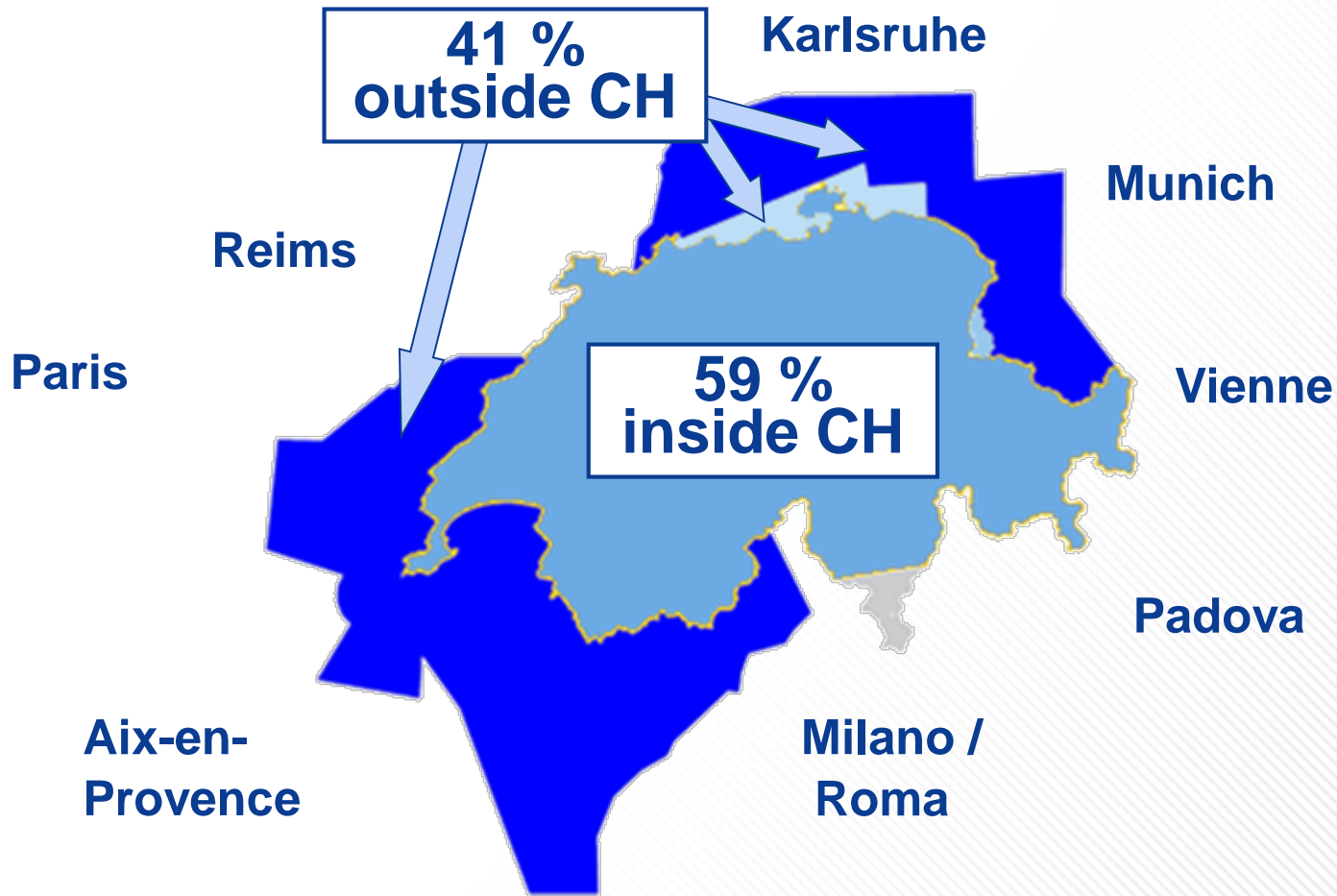
41 % outside CH

Karlsruhe

Munich

Reims

59 % inside CH

Paris

Vienne

Padova

Aix-en-Provence

Milano / Roma

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Skyguide's ERM in a nutshell

- ## Scope of skyguide's ERM
    - All events that may affect skyguide's ability to achieve its objectives
    - Whole skyguide organisation (cross-departmental framework)

- ## ERM introduced in skyguide end of 2006

- ## ERM set up as management tool for prioritizing risks and for supporting risk-based decision making

- ## ERM integrated in skyguide's overall planning process (in particular strategic planning)

- ## ERM composed of 2 fundamental steps : risk assessment and risk response

- ## Risk reviews done twice a year and reported at EB and BoD level

- ## ERM process supported by specific tool (R2C) available throughout the entire company

Two possible ways for RM

Need for RM

Skyguide has chosen to implement a Qualitative RM

Quantitative RM

Qualitative RM

- Needs a lot of effort/investments

- Huge historical data set required

- Relies on intuition and know how of staff
- Partly subjective

Not feasible for SME*

Feasible for SME*

* SME = Small and Medium Enterprises

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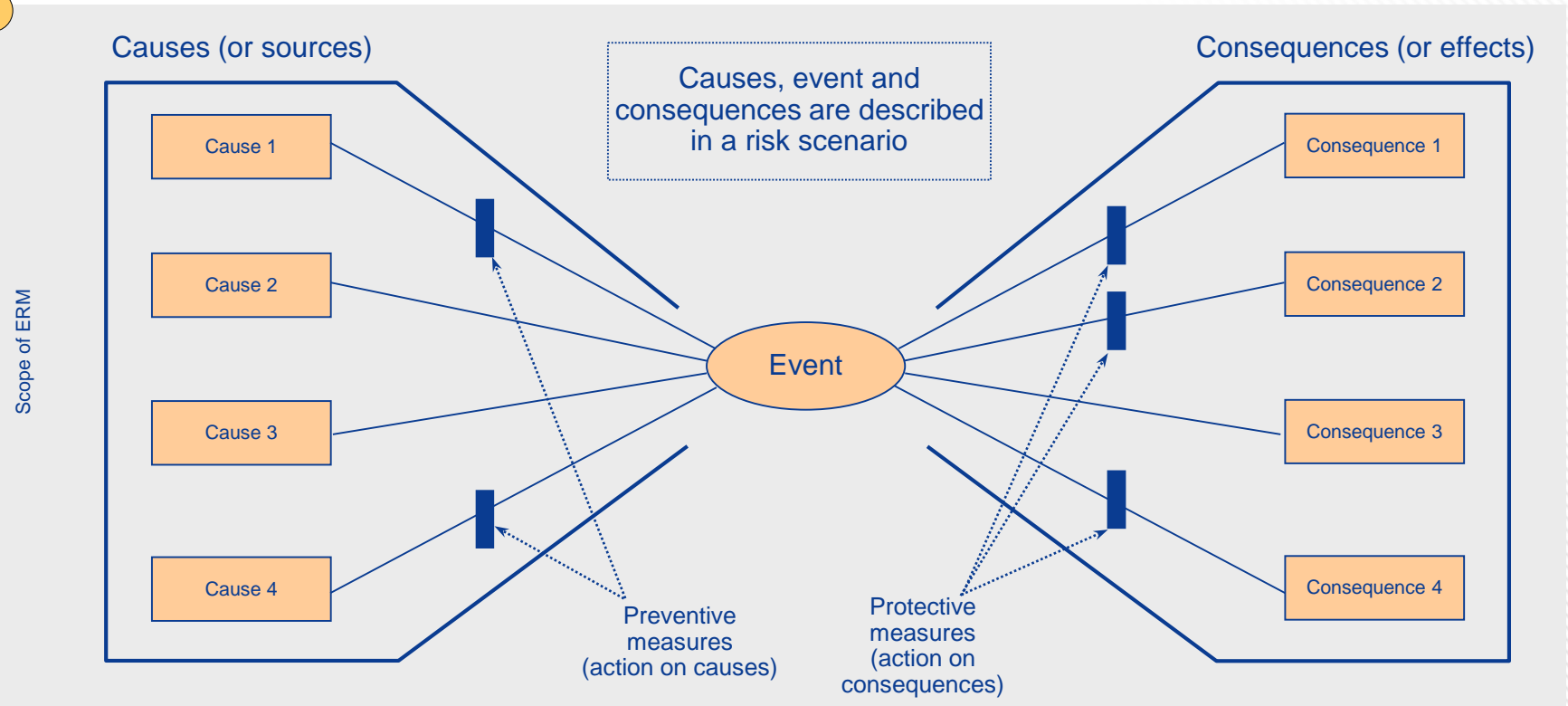
Added-value of ERM

- Through reporting of risks from departments/processes/ projects/programs, **get overall view of risk portfolio at skyguide**

- By improving awareness of RM in skyguide and by using RM as a tool in (daily) management, **be able to manage most important risks in a systematic way and hence improve decision-making**

- Develop measures to manage risks in order to **support the achievement of skyguide's objectives**

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Process

0 **Risk Management Framework :**
- Risk Policy Statement
- Risk Policy Directive
- Risk Organisation
- Process incl. Methodology
- Reporting and Tools

1 Risk Identification

Risk Assessment

4 Risk Monitoring and Review

5 Communication and Training

2 Risk Evaluation

3 Risk Treatment

Risk Response

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Bow-Tie Model

Causes (or sources)

Causes, event and consequences are described in a risk scenario

Consequences (or effects)

Scope of ERM

Cause 1
Cause 2
Cause 3
Cause 4

Event

Consequence 1
Consequence 2
Consequence 3
Consequence 4

Preventive measures (action on causes)

Protective measures (action on consequences)

Preventive measure act first on probability or likelihood

Protective measure act first on impact or consequences

A risk scenario should be understood as a "credible worst case scenario" : a remote but not impossible scenario with significant impact

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Risk Evaluation

2

Risk Evaluation

- Measure risks

  - <u>impact</u> (or severity) : using predefined criteria
    e.g. financial impact and non financial impact (on
    corporate and strategic objectives, reputational, etc.)

  - <u>likelihood</u> (or probability of occurrence) : using the same
    time horizon as for severity, order of magnitude (rather
    than precise number) given by the most knowledgeable
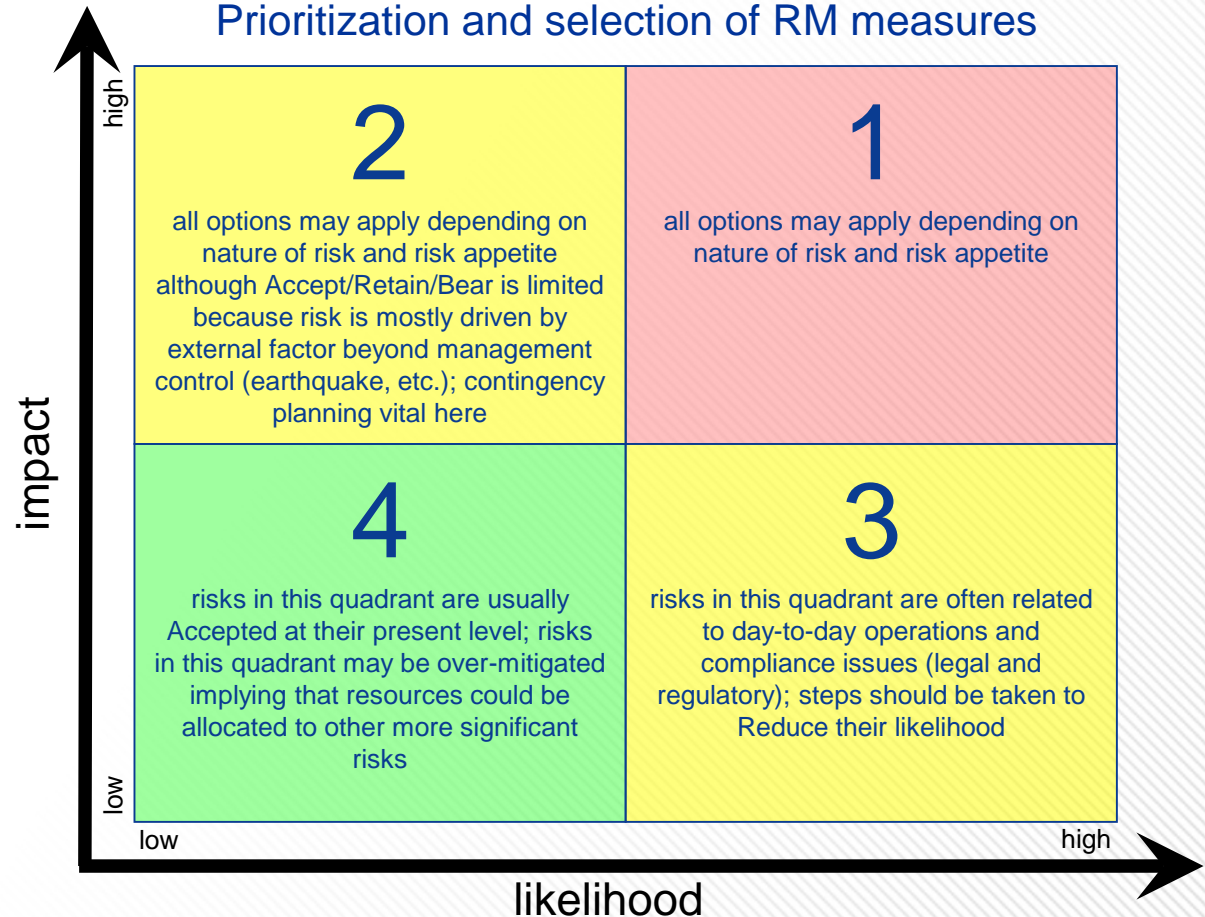   people

  - <u>interdependency</u> and correlation between risks (portfolio effect)

Risk map

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Risk Treatment

3

Risk Treatment

- Avoid/Eliminate
- Accept/Retain/Bear
- Reduce/Hedge/Mitigate
- Insure
- Transfer (i.e. outsource)

Risk Map / Heat Map for Prioritization and selection of RM measures
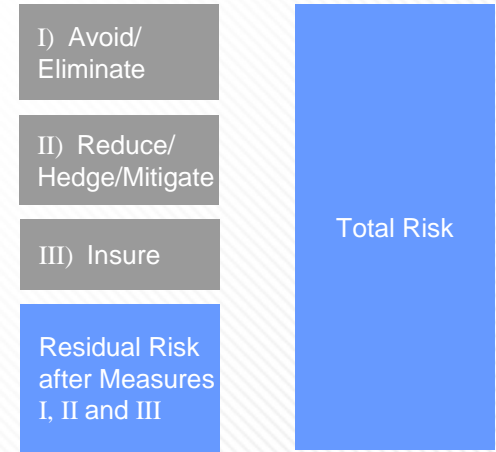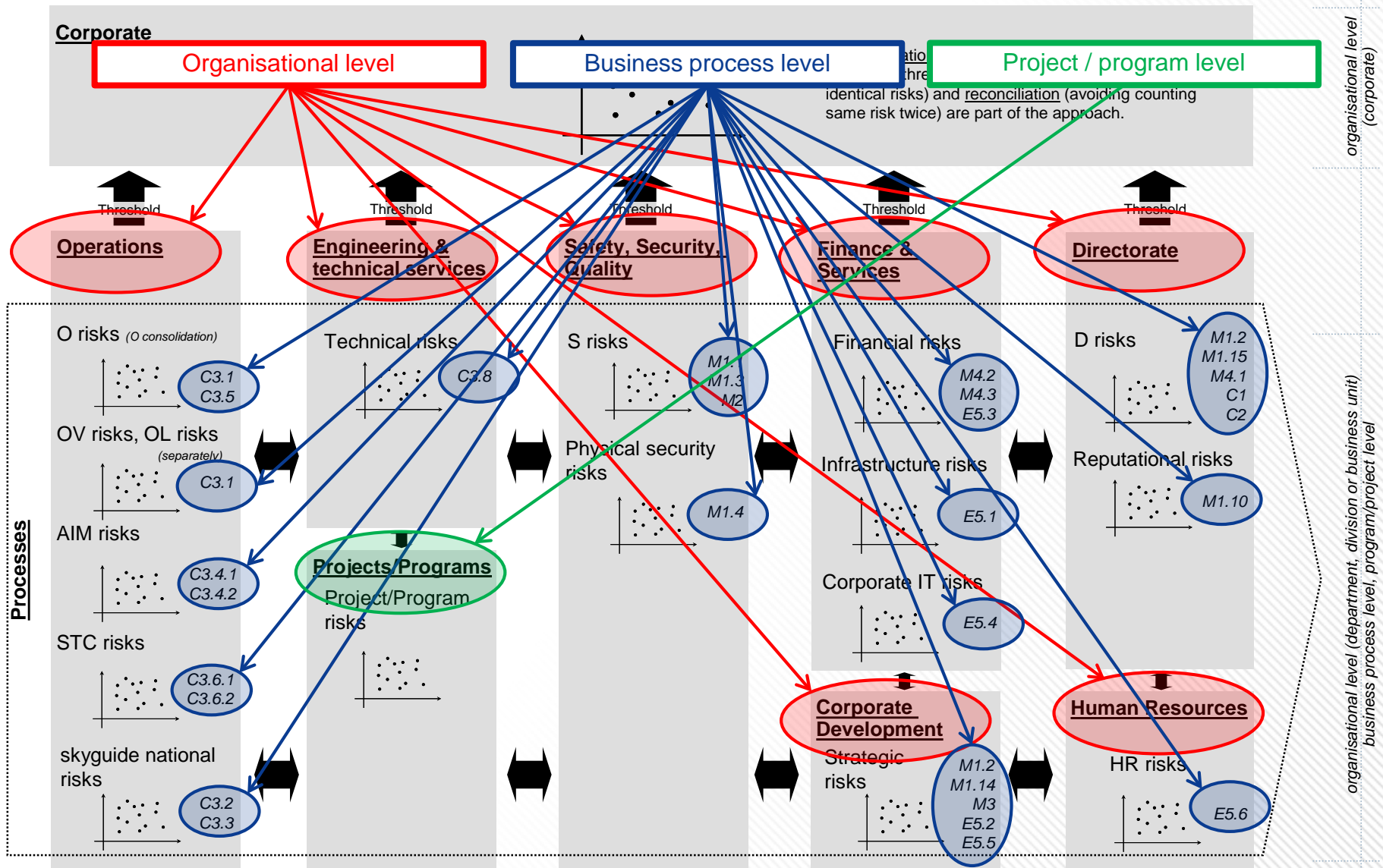
	likelihood low	likelihood high
impact high	**2** all options may apply depending on nature of risk and risk appetite although Accept/Retain/Bear is limited because risk is mostly driven by external factor beyond management control (earthquake, etc.); contingency planning vital here	**1** all options may apply depending on nature of risk and risk appetite
impact low	**4** risks in this quadrant are usually Accepted at their present level; risks in this quadrant may be over-mitigated implying that resources could be allocated to other more significant risks	**3** risks in this quadrant are often related to day-to-day operations and compliance issues (legal and regulatory); steps should be taken to Reduce their likelihood

Risk Treatment

3 Risk Treatment

- Avoid/Eliminate
- Accept/Retain/Bear
- Reduce/Hedge/Mitigate
- Insure
- Transfer (i.e. outsource)

I) Avoid/Eliminate

II) Reduce/Hedge/Mitigate

III) Insure

Residual Risk after Measures I, II and III

Total Risk

Costs of Measures + Residual Risk ≤ Costs of Total Risk

Example

Risk Exposure (how much we currently have)

Total Risk

I) Avoid/Eliminate

Risk after Measure I

II) Reduce/Hedge/Mitigate

Risk after Measure I and II

III) Insure

Residual Risk after Measures I, II and III

Risk Tolerance (how much we should have, how much we can bear)

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ERM extension - Concept

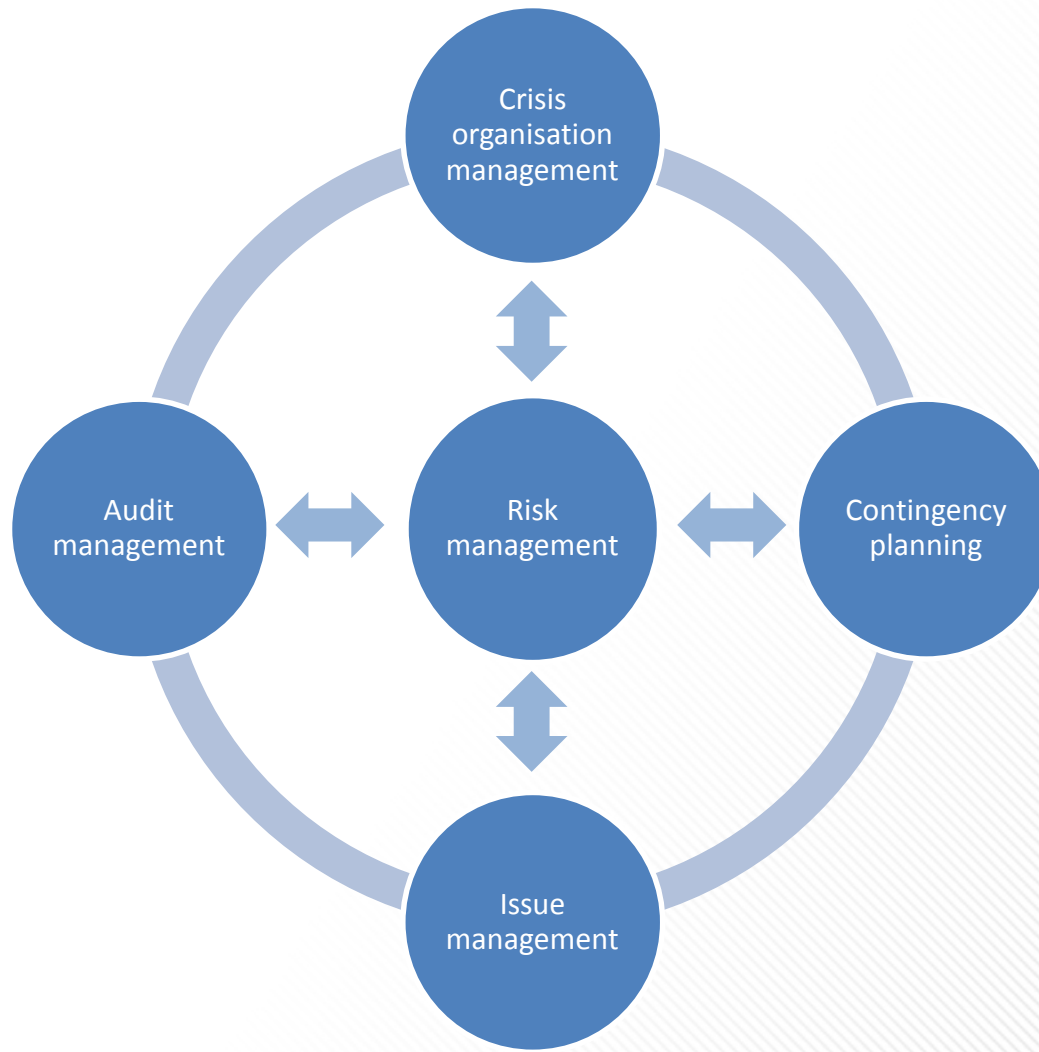# Tool used at skyguide to support the whole ERM process

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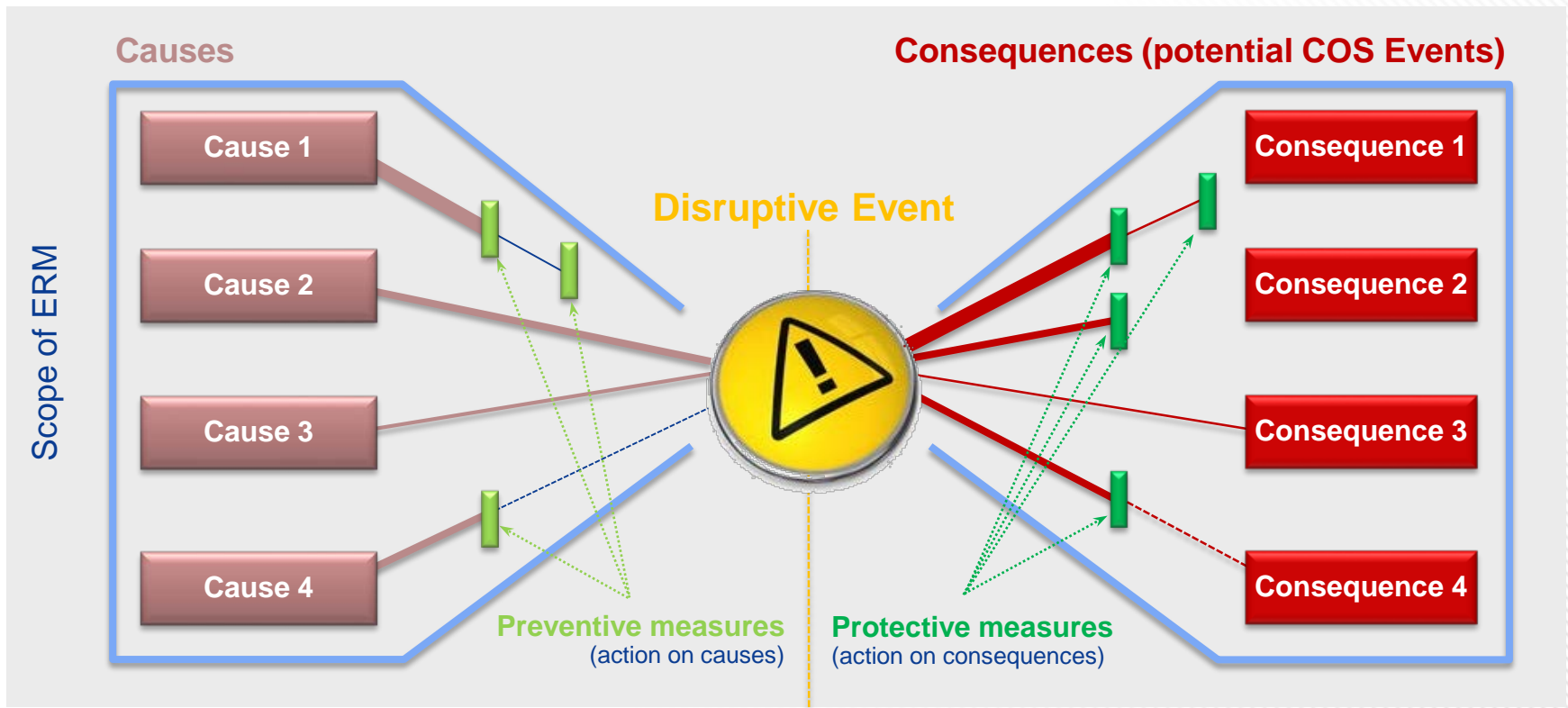
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Process cycle - Harmonisation of ERM-CM-COS-IM-AM

The Bow Tie model in ERM, BCM & COS

Causes

Consequences (potential COS Events)

Scope of ERM

Cause 1
Cause 2
Cause 3
Cause 4

Disruptive Event

Consequence 1
Consequence 2
Consequence 3
Consequence 4

Preventive measures
(action on causes)

Protective measures
(action on consequences)

Risk Mitigation Measures & Business Continuity Plans

Prevention

Recovery

Preventive measures act first on
probability or **likelihood**

Protective measures act first on
impact or **consequences**
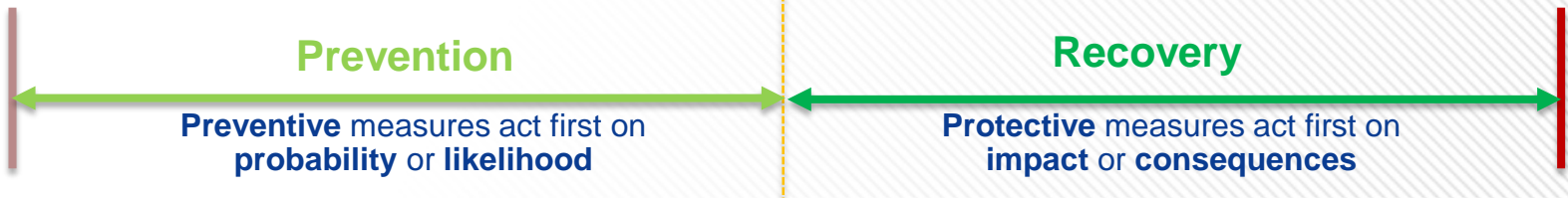
Interface of the BCM Process with ERM & COS
Procedure view
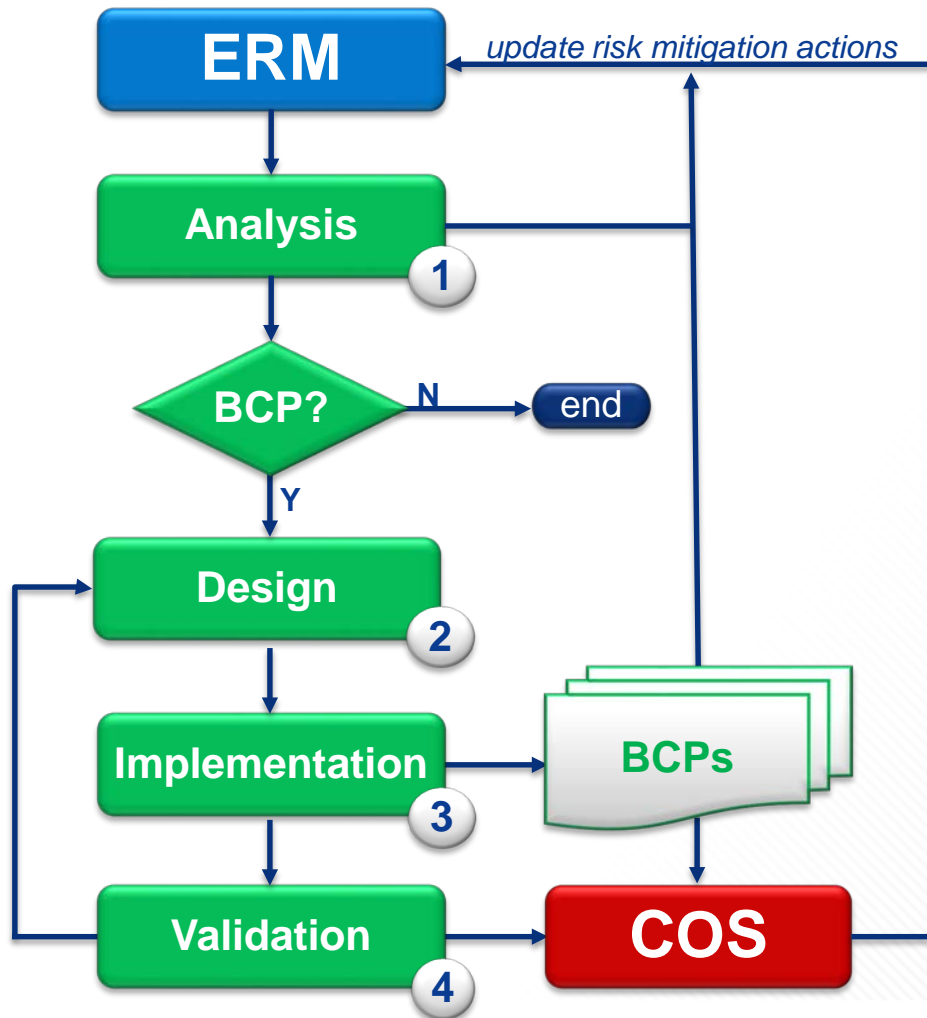
1. In the **Analysis** phase a Business Impact Analysis (BIA) is conducted for each mission critical service as well as for projects or events that have been identified as BIA relevant
2. In the **Design** phase the Maximum Tolerable Period of Disruption (MTPD) and the Recovery Time Objective (RTO) are decided. After a gap analysis strategic and/or tactical options are identified that enable the RTO to be achieved.
3. In the **Implementation** phase, a Business Continuity Plan is drafted together with a planning team, that usually will also have the role of the incident response team if needed
4. In the **Validation** phase, the BCP is reviewed, maintained and tested through exercises in order to deliver its benefits in case of a crisis

All risks are obvious when you know what to look for