SGS HFCV, Japan, 24th – 26th September 2008

Automotive

SGS 4 - 09

GTR-Development
for H2- and FC-Vehicles

a TÜV SÜD - opinion

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Some Thoughts on

1. Approval

2. GTR-Development

Automotive

1. Approval

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One of the most important Rules in Safety Technology:

Prevention is better than cure

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Some experiences in the last 5 years with CNG- and LPG-vehicles in Europe:

- 6 burst incidents (Saarland-CNG, Recklinghausen-LPG, Emmendingen-LPG, Speyer-LPG, Brescia-CNG, France-CNG)
- reasons: position of PRD, LPG-tank was filled at a CNG-station, missing PRD, failing solenoid valve, too small orifice of PRD-vent line

-3 crash incidents with LPG-vehicles (Rinteln, Dülmen, Thalwil-CH)
No burst of containers

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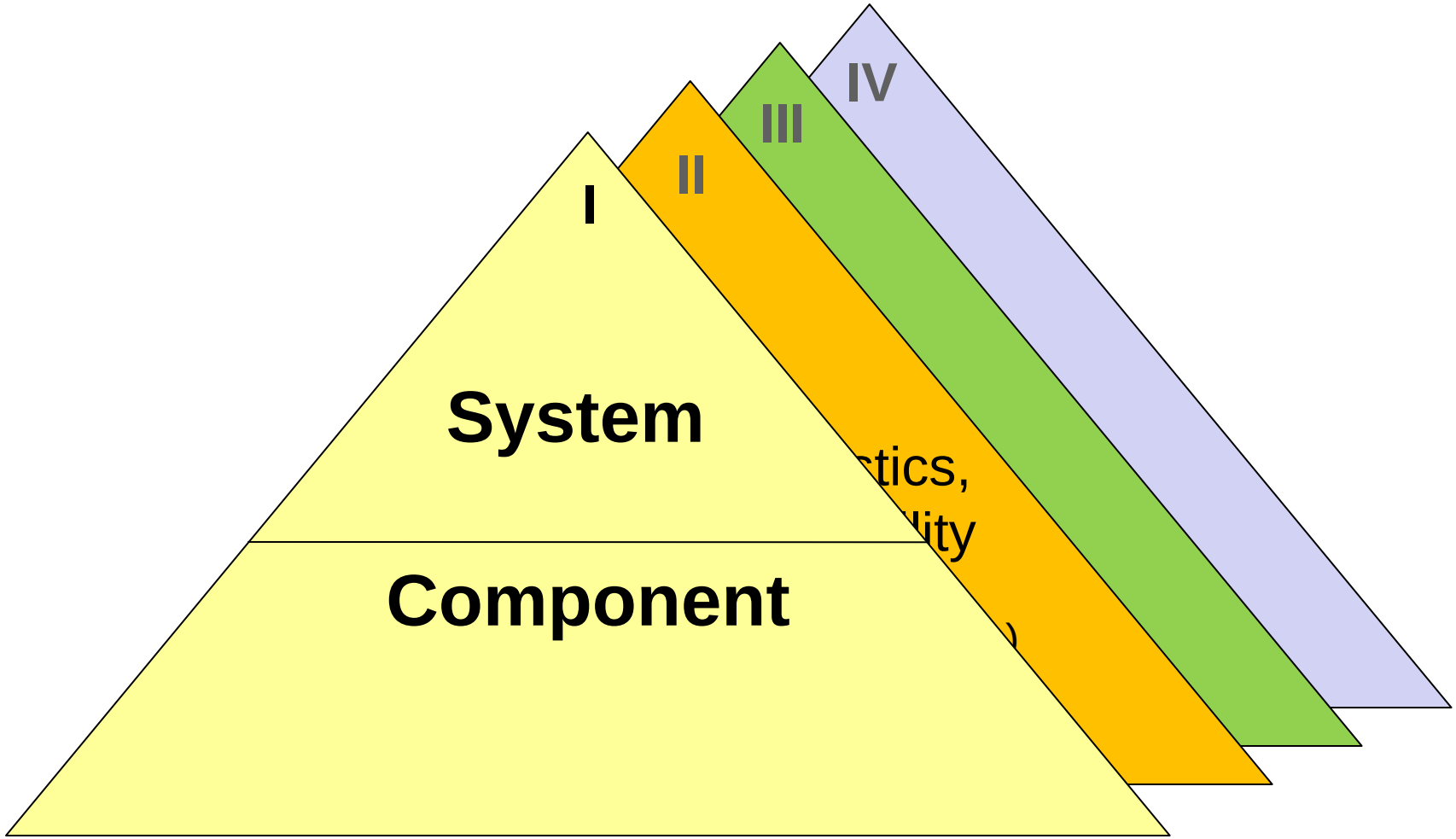

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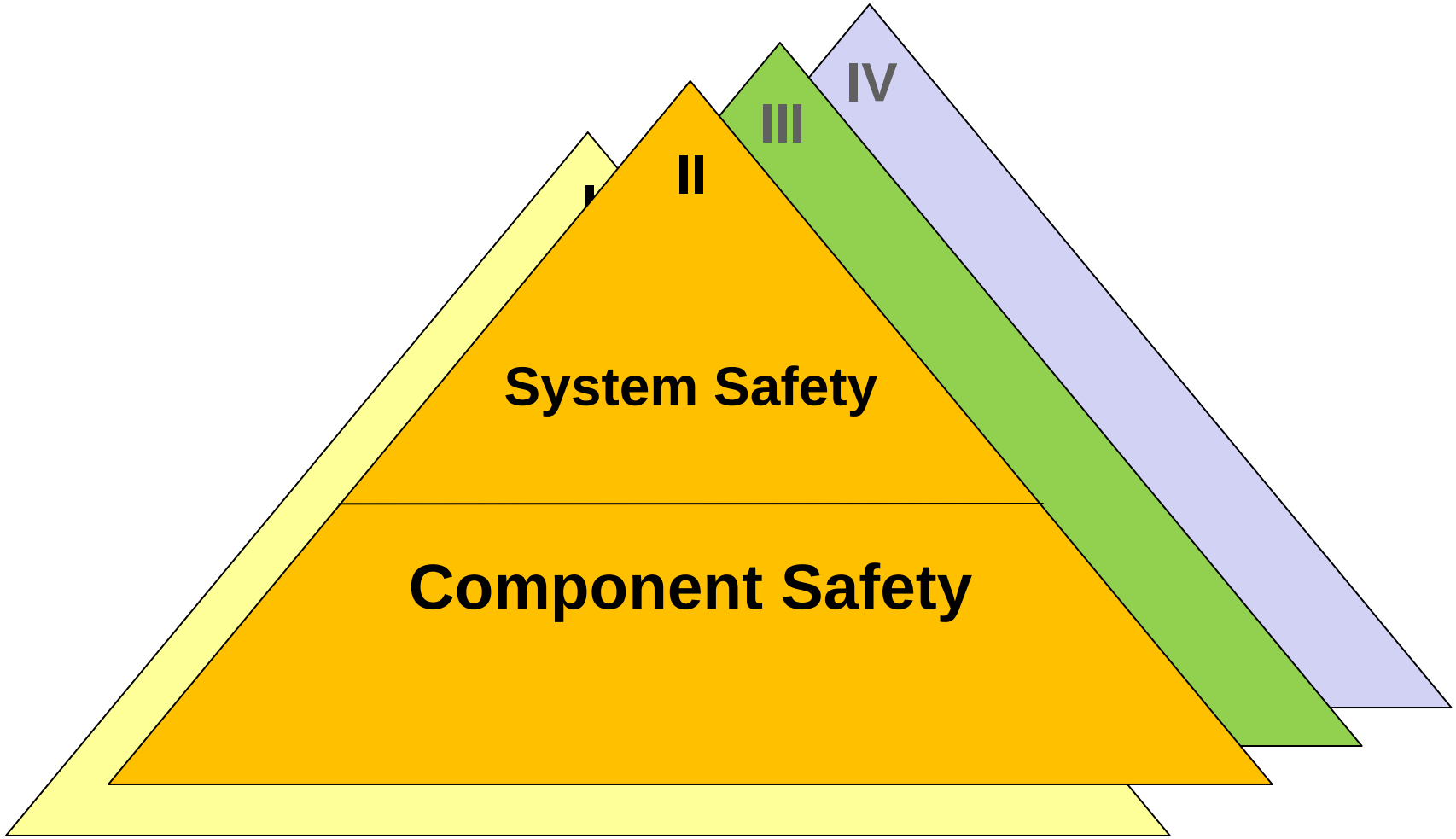

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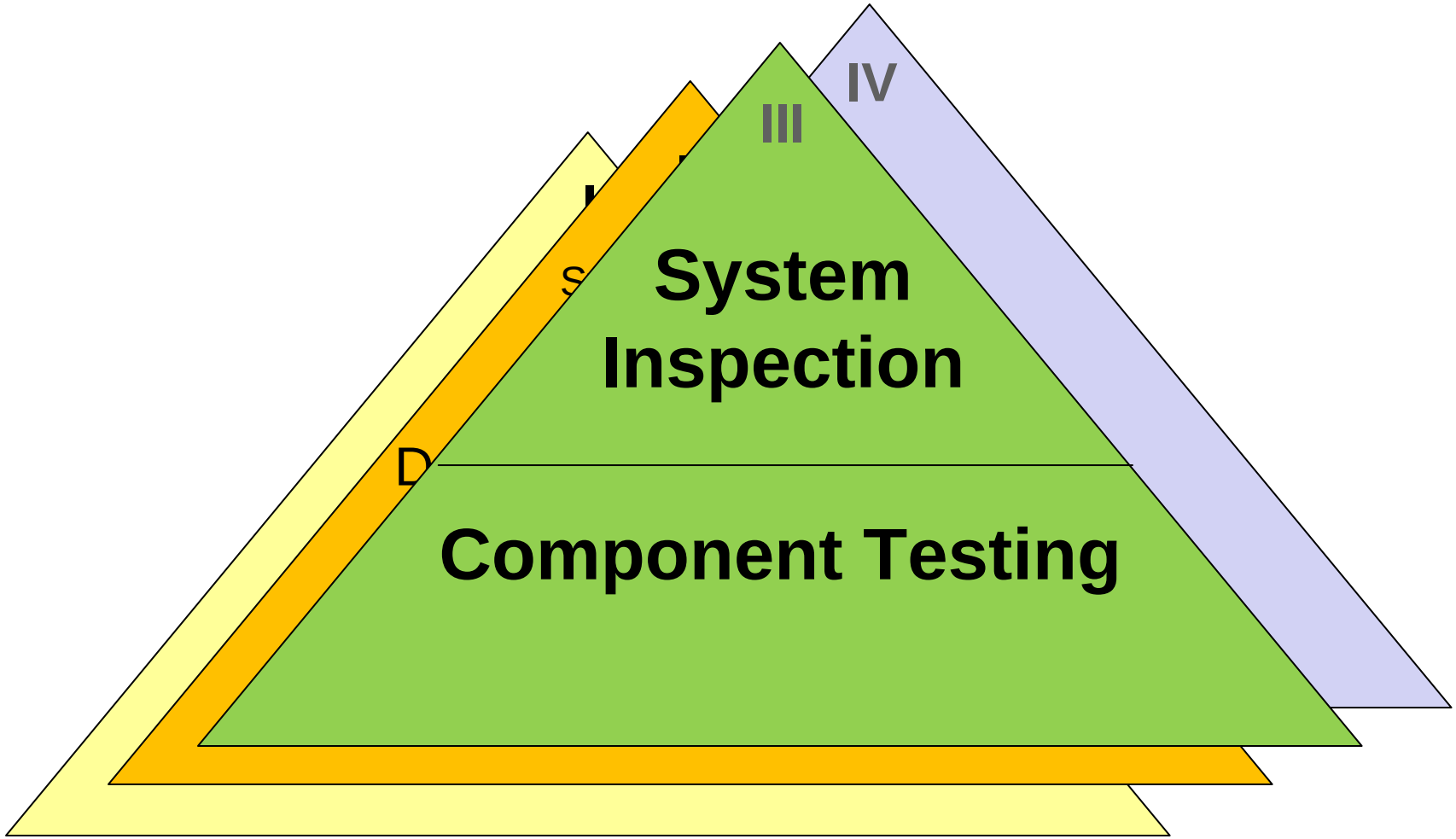

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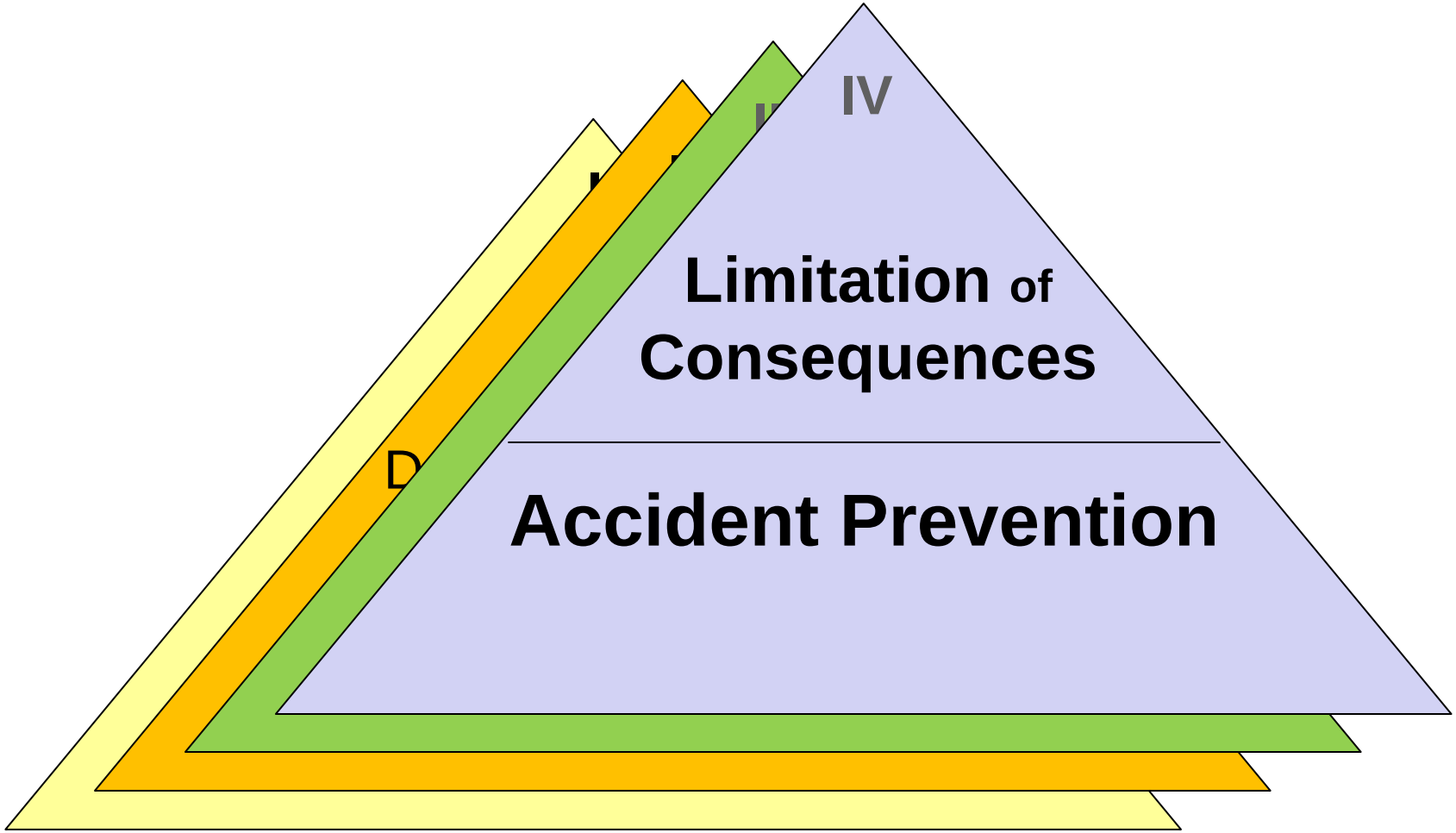

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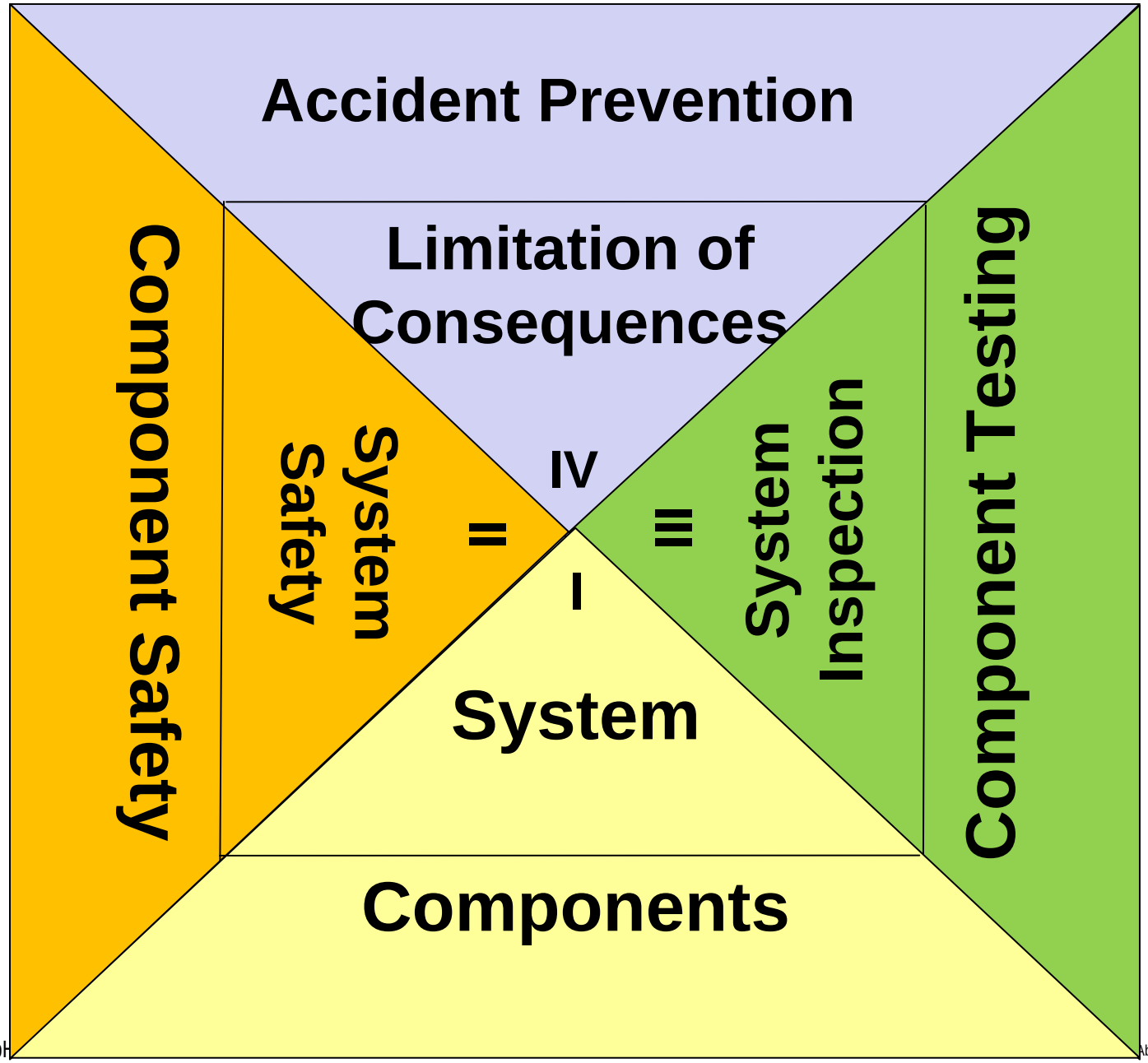

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2. GTR-Development

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DRAFT STRUCTURE of HFCV-GTR, SGS 3-10, dated 2008-05-15

I. Storage system provisions

II. Vehicle fuel system integrity provisions

III. Electric safety

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Questions arised during GTR-Discussions:

components **and** system requirements?

Which components?
Container, valve, PRD, filling device?

Functional safety/quality of ECUs?

I. Storage system provisions

1. Scope and Purpose
2. Application
3. Definitions
4. General Requirements
5. Performance Requirements
6. Test conditions and procedures
7. Annexes

protection against overpressure
Potential ignition sources
Mechanical protection, …
Part I or II?

Who is adressed? Component manufacturer or vehicle/system manufacturer?

…

Documentation?

Burst ratios, fire protection, …

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Proposal: Part I: basic requirements for accident prevention for system and components

I. Storage system provisions

1. Scope and Purpose

2. Application

3. Definitions

4. General Requirements

5. Performance Requirements

6. Test conditions and procedures

7. Annexes

System and component requirements
CGH2 and LH2
H2-system excluding propulsion s. or other consumers

System, e.g. mechanical, electrical, functional r.
Components, e.g. P, T, Material, Media, function, etc.

System, e.g. overpressure/temperature, leakage, ignition sources, single failure, monitoring, vehicle integration, shut off strategy
Components (container, valve, PRD, filling device)

Documentation system
Documentation components

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Proposal: Part II: requirements and test procedures
for limitation of consequences

II. Vehicle fuel system integrity provisions

1. Scope and Purpose
2. Application
3. Definitions
4. General Requirements
5. Requirements and test procedures - in-use
5.1. Performance requirements
5.2. Test conditions and procedures
6. Requirements and test procedures - post crash
6.1. Performance requirements
6.2. Test conditions and procedures
7. Annexes

OICA-Proposal?
Further requirements,
e.g.
Visible inspection
Tightness test

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III. Electric safety

1. Scope and Purpose
2. Application
3. Definitions
4. General Requirements
5. Requirements and test procedures - in-use

5.1. Performance requirements

5.2. Test conditions and procedures

6. Requirements and test procedures - post crash

6.1. Performance requirements

6.2. Test conditions and procedures

7. Annexes