

gasunie

Pipeline Infrastructure Management

The Hague March 9th

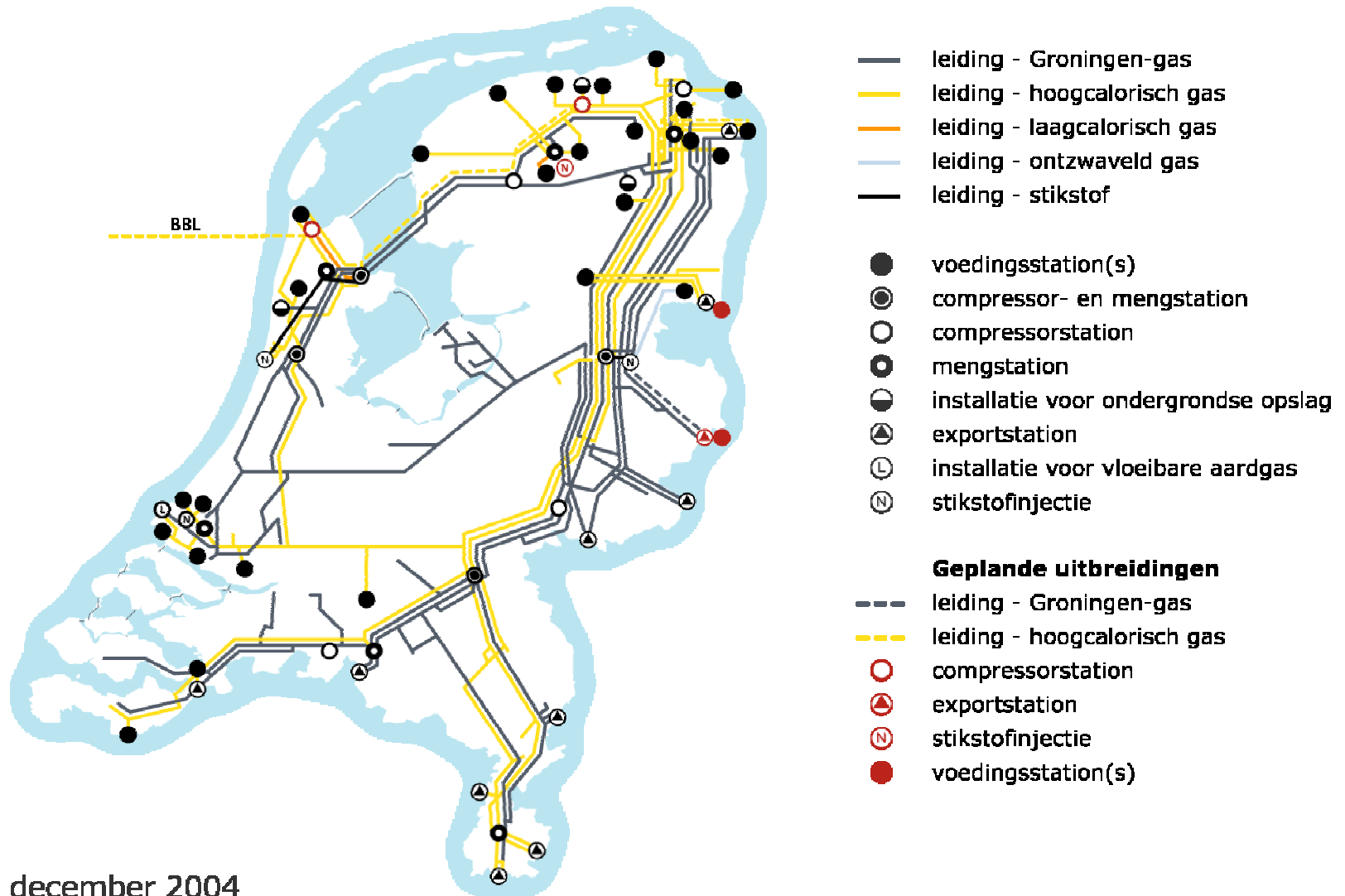
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Presentation on:

- **Pipeline Infrastructure Management
by Gasunie**
- **Key Performance Indicators**

The Hague, March 9th

Gastransport in the Netherlands

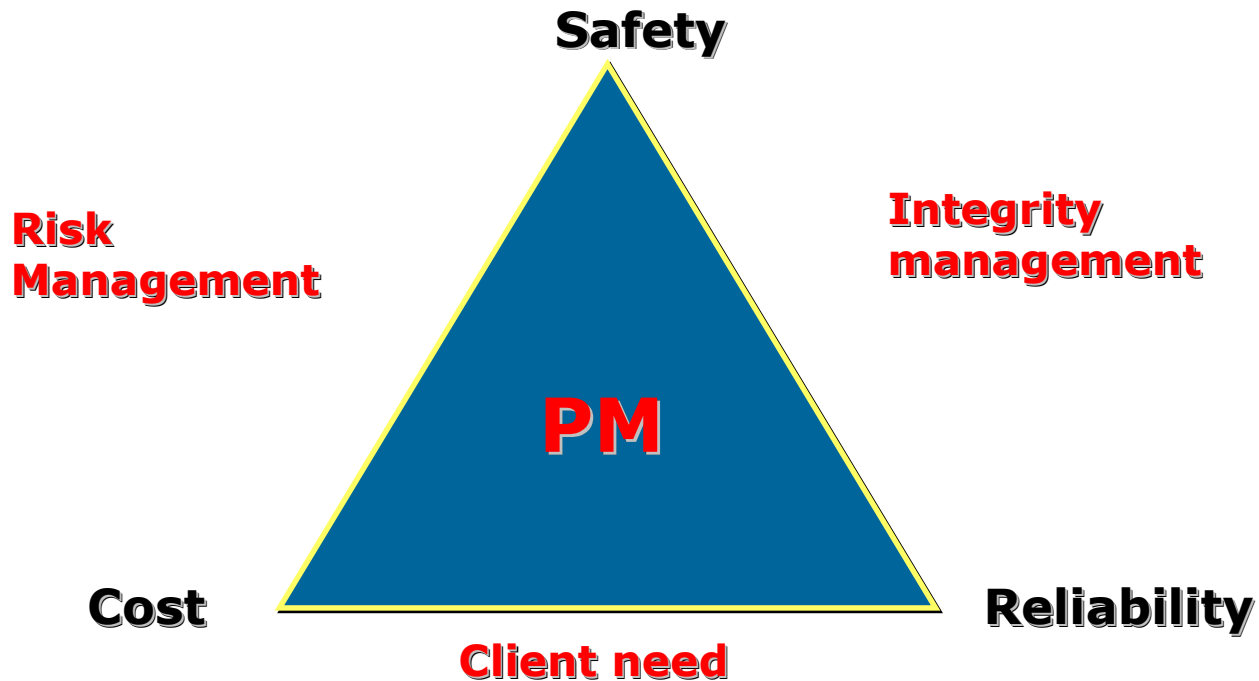


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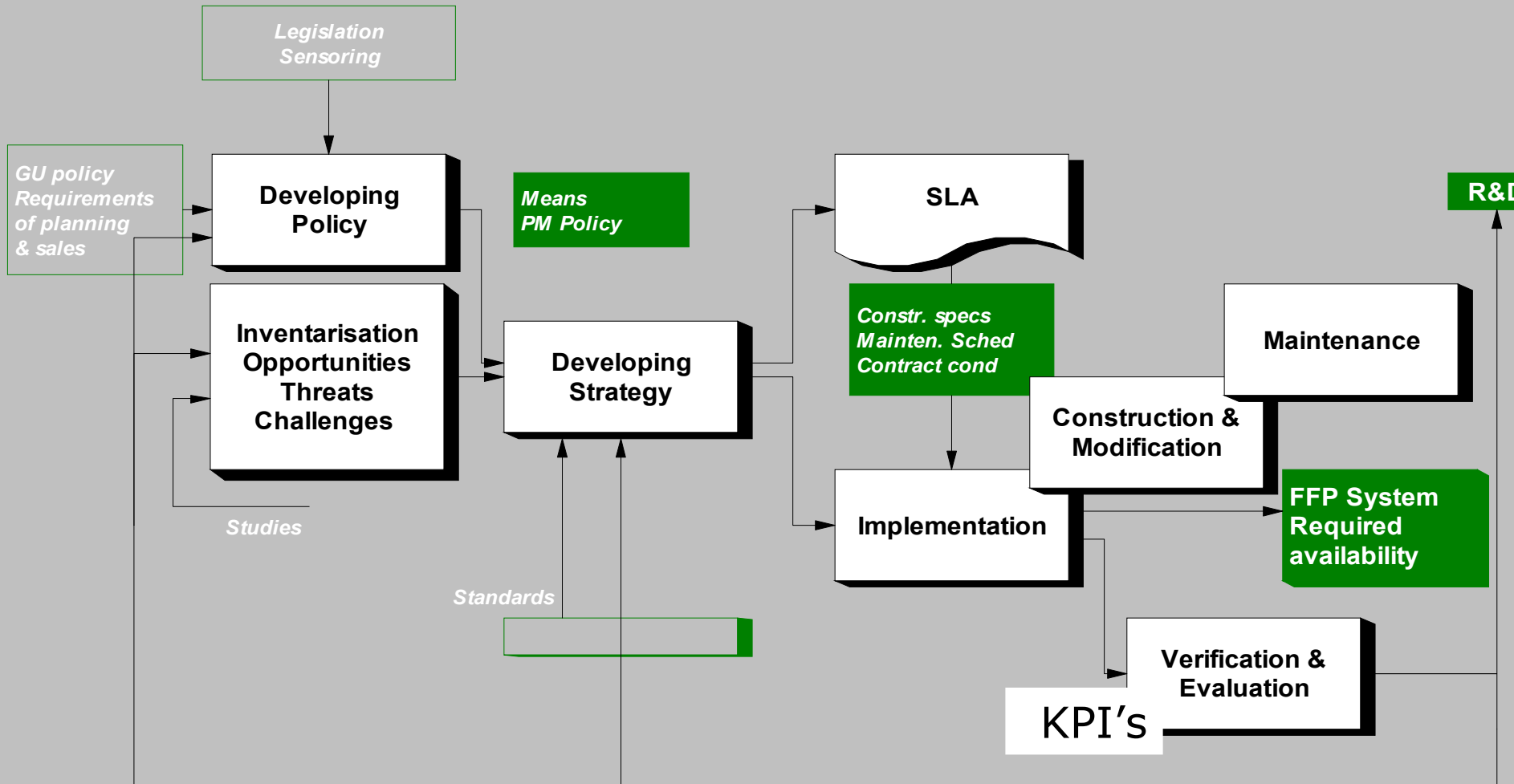
**Pipeline Management System
more than Integrity alone**

Pipeline Management

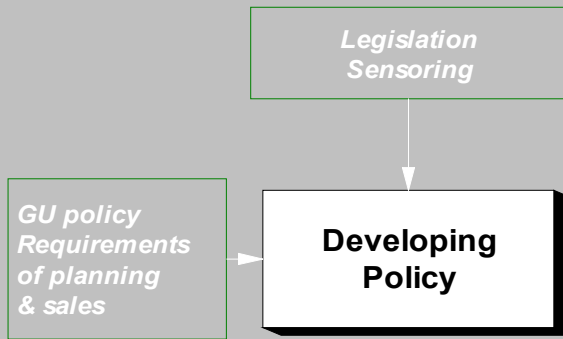


- **Safety of the Public, Employees, and the Environment**
- **Reliability for Customers and Suppliers**
- **Cost minimization while maintaining Safety and Reliability**

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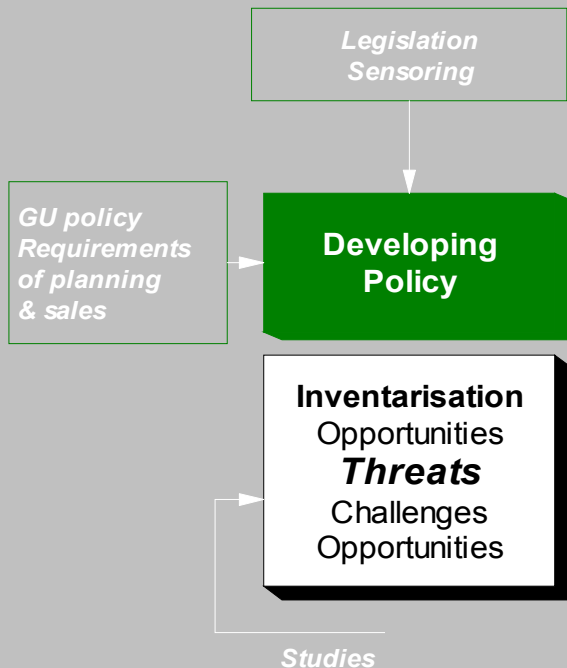
Pipeline Management



PM Policy:

- **Life Cycle Cost –based design, construction and maintenance**
- **Cover all threats**
- **Deal with threats proactively**
- **Maintain (national) risk standards**
- **Set performance targets**
- **Involvement in EU legislation & Normalisation**

Pipeline Management



Threats (Technical)

Design & Construction :

- Design failures
- Delay in construction
- Material and / or construction failures

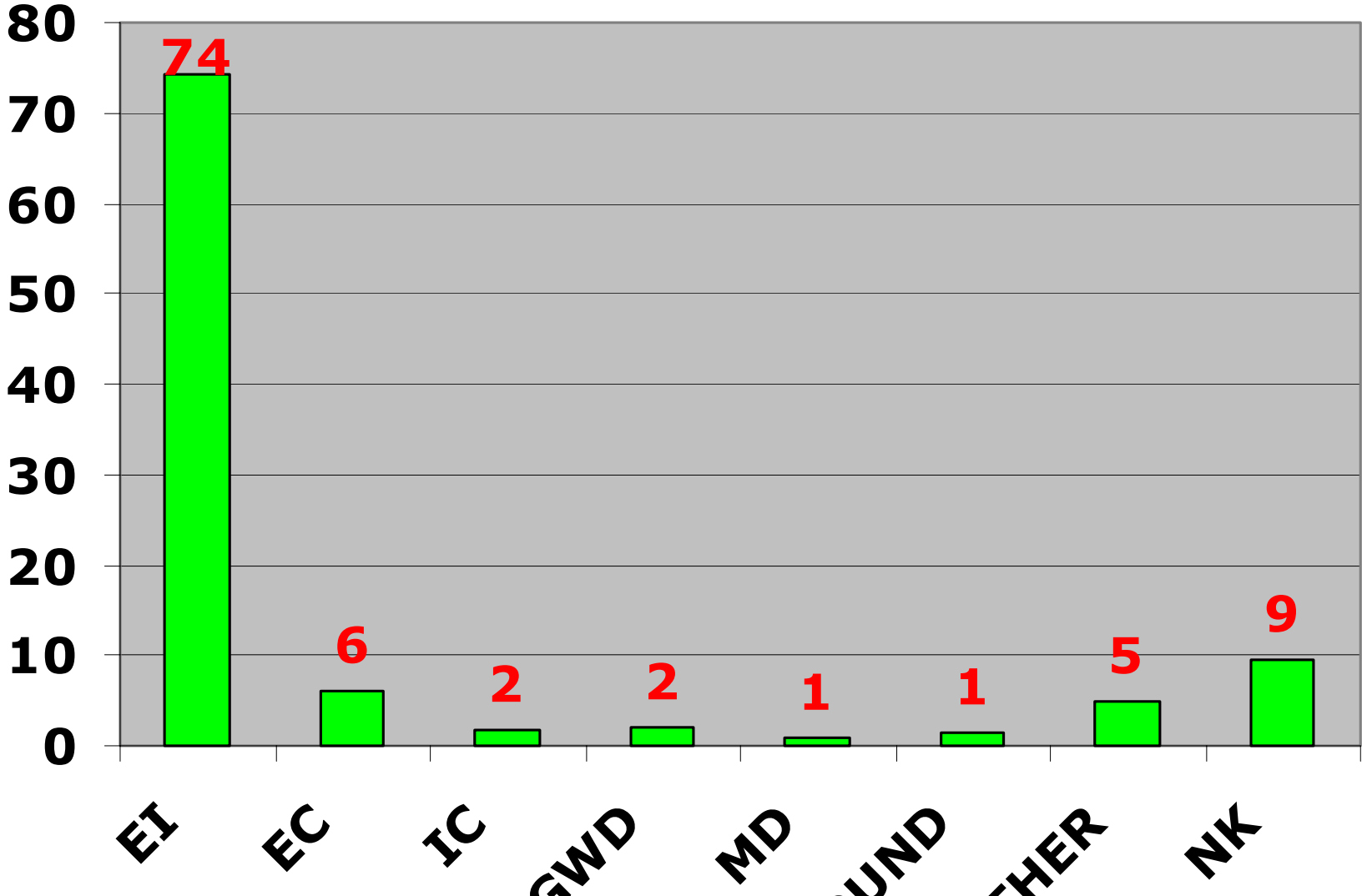
Operations:

- **Damage caused by third party**
- Ageing in general
- Coating degeneration
- Defects / breakdowns
- Corrosion and fatigue
- (to) high insurance claims
- (unnecessary) Re-routing
- (to) high costs of maintenance

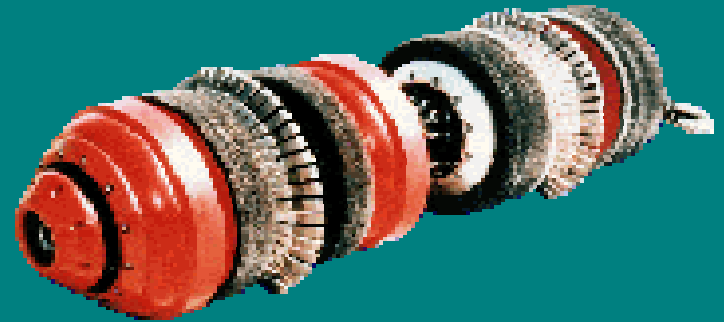
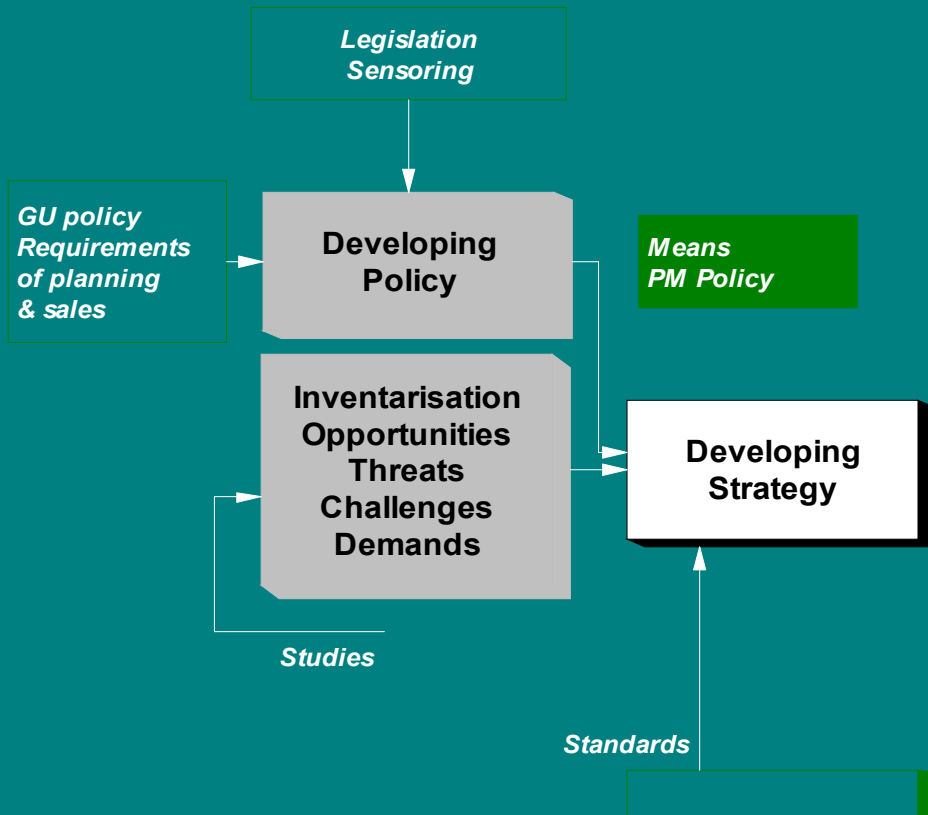
Abandonment:

- high costs
- environmental problems

Cause (percentage)



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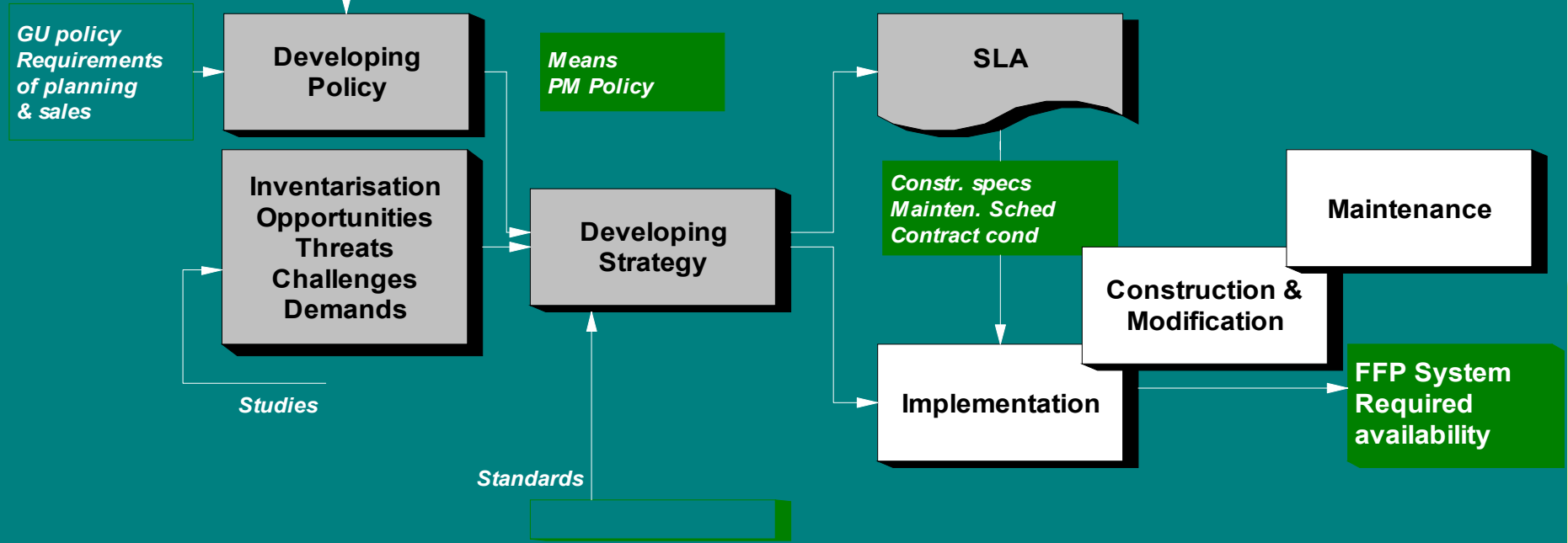
Implementation in 2 sub-processes:

4a. Construction & Modification

4b. Maintenance

- Integrity management
- Right of way management

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Integrity Management:

Right of way

- Mobile inspections (walk, drive, fly)
- Supervision "Third party jobs" (KLIC)
- Preventive measures

Integrity

Corrosion prevention

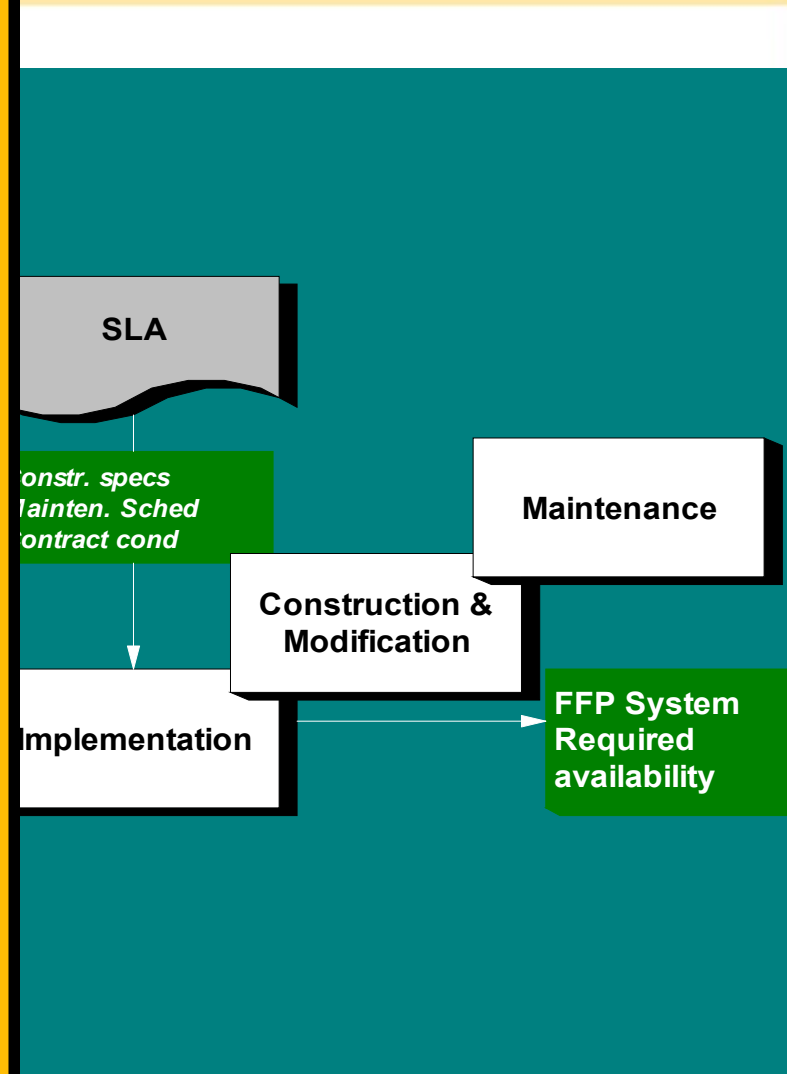
- Cathodic Protection
- Coating (primary protection)
- Stray currents drainage

Inspections of condition

- Intelligent Pigging
- CP control measurements
- Coating inspections

Integrity Analysis

- (Direct) Assessment



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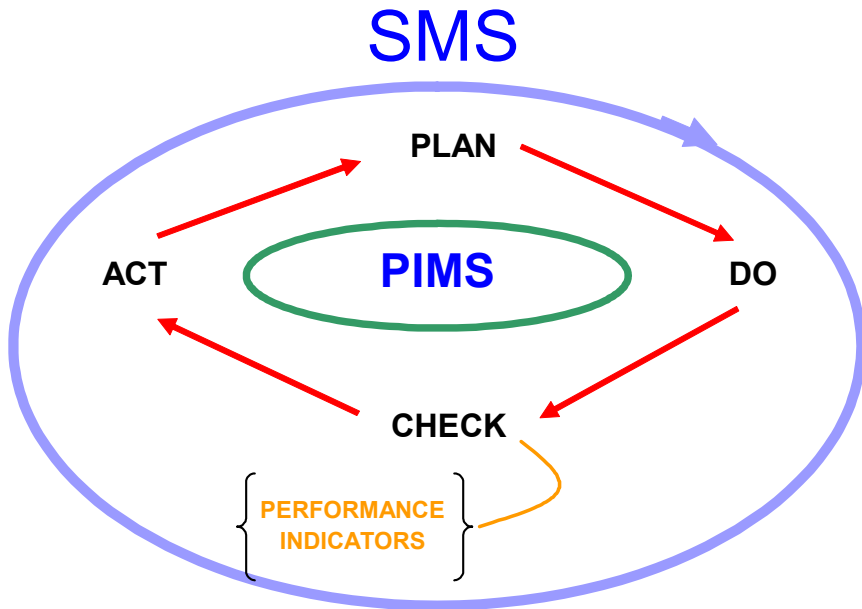
- **Marcogaz** → self regulation of the branch
- Normalization in CEN and ISO
 - EN 1594
 - TS 15173
 - TS 17174
- Marcogaz documents
(website for information)

Developing KPI methodology

SMS presents in the European Gas Transmission Industry generally the same fundamental structure (Plan, Do, Check and Act).

Principles and the architecture philosophy followed for the SMS are described in a document issued by the IGU (2003) (reference)

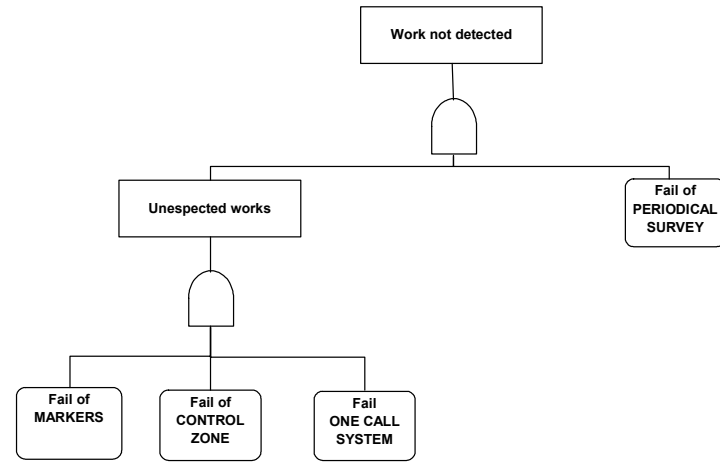
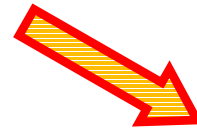
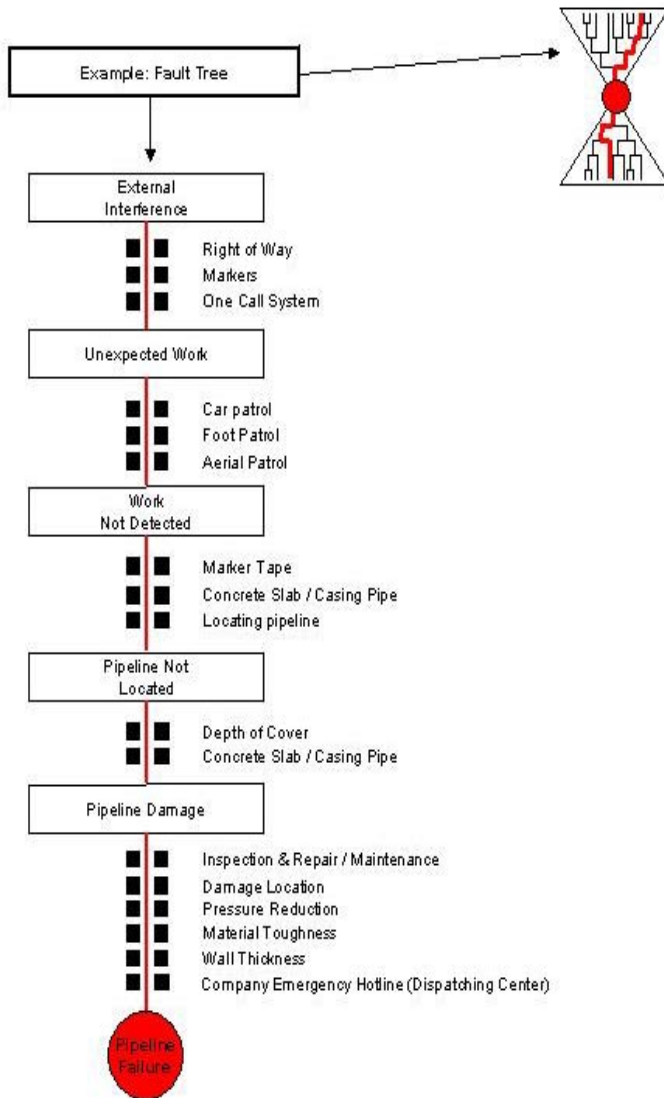
The management loop



The global process guarantees the system's coherency by managing the loop.

In the global process an important role is played by the Performance Indicators that shall support the Operator in measuring and monitoring the implementation of environmental and safety policies on a regular basis in order to plan the achievement of safety objectives.

Bow tie model



THIRD PARTY INTERFERENCE

