

# The STIG - A new SDI assessment method

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# This presentation

- Stig's metaphor
- SDI Assessment
- Stress testing
- Financial Infrastructures (FI)
- The framework of The STIG
- Conclusions and further research



# Stig's metaphor

"The Stig exists for one reason alone - to wring every last drop of performance out of any car he drives around our demanding test track."

Jeremy Clarkson "BBC Top Gear"



***Stig = Stress-Test for Cars.***

***The STIG = Stress-Test for Infrastructures of Geo-information.***

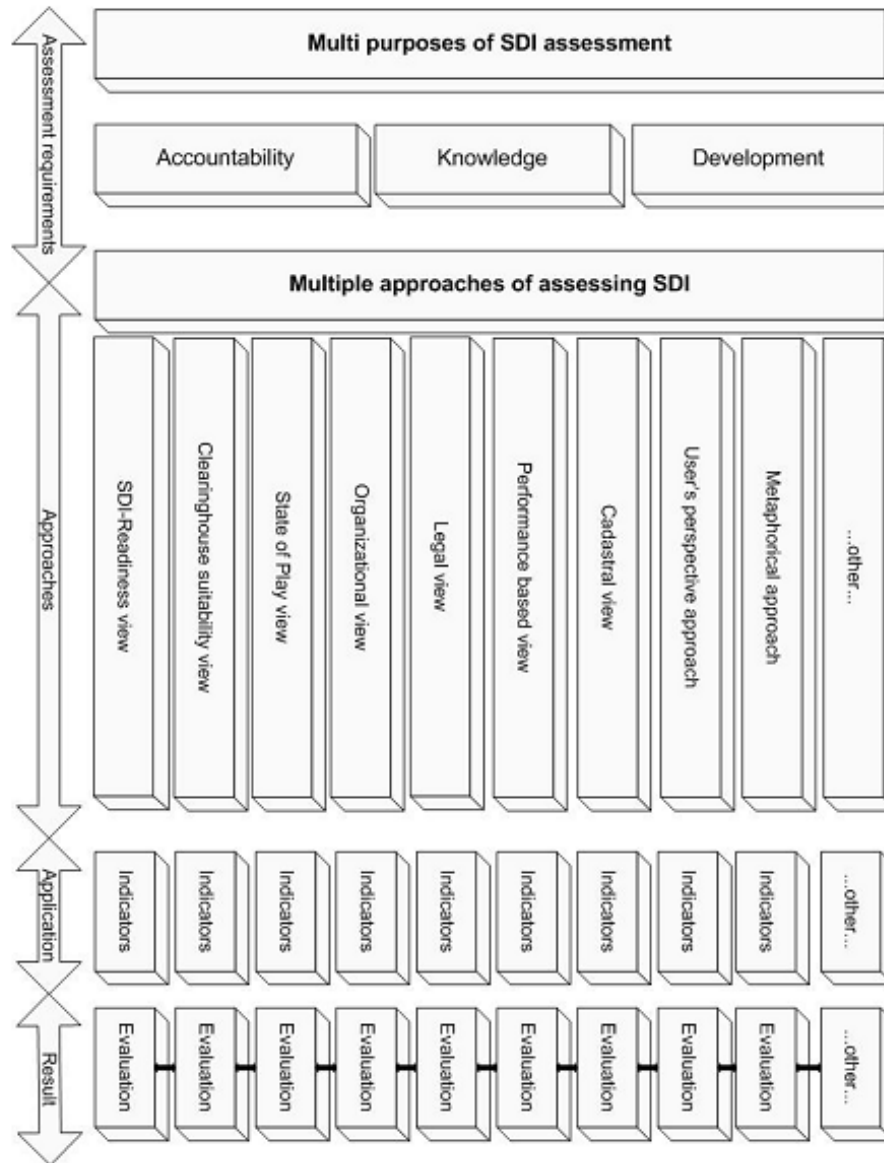


# Assessing SDIs

- Significant investments in SDI
- What did these investments deliver:
  - How does the SDI perform?
  - How robust is the SDI?
  - How effective is the SDI?
  - How efficient is the SDI?
  - How many lives were saved?
  - Etc.
- What should be the next step/ strategy?



# Developed SDI Assessment Methods





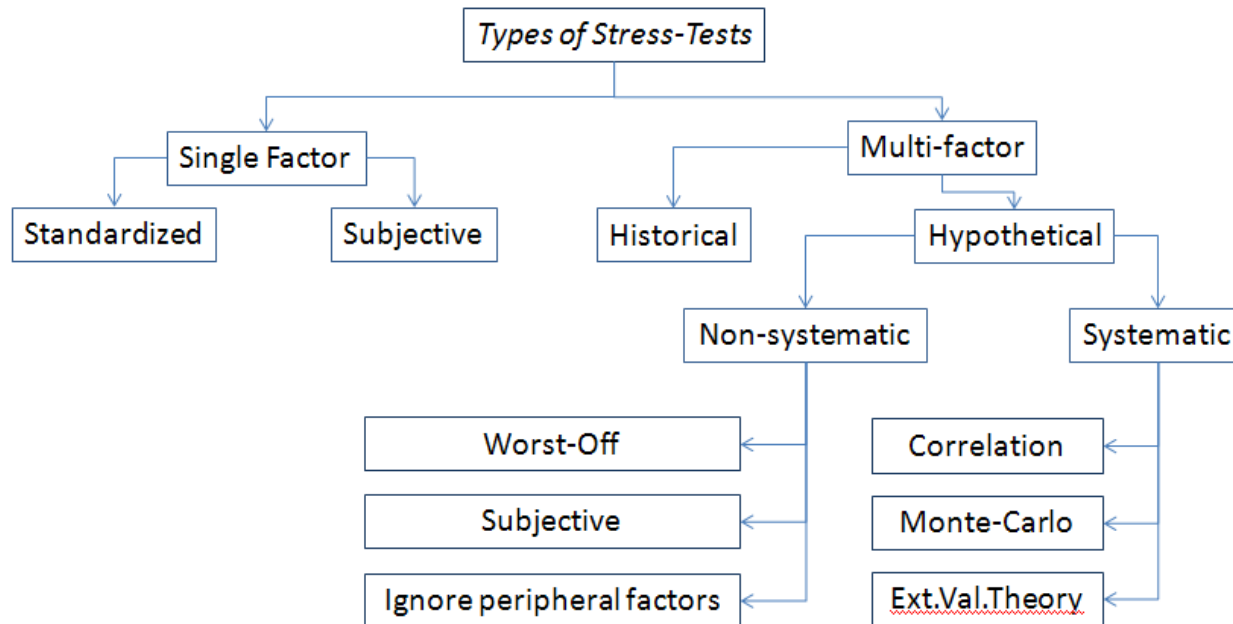
# Why another assessment method?

- Assessing the robustness of an SDI: how does the SDI perform when you really need it?
- Extensive, comprehensive, user-oriented, demand-driven, diverse and closely tied to explicit targets
- Stress testing assessment methods may be an option for the SDI assessment



# Stress testing

Definition: *'Stress testing is when the load placed on the system is raised beyond normal usage patterns, in order to test the system's response at unusually high or peak loads.'*





# Implementations of Stress Testing

Stress testing is implemented in:

- In materials science
- In software testing
- Cardiac stress test is a test used in medicine and cardiology
- Nuclear power reactors
- Financial sector





# Financial Infrastructures (FI)

- FI comprises the underlying foundation for a country's financial system
- It includes all *institutions, information, technologies, rules and standards* that enable financial intermediation (IFC, 2009)
- The quality of financial infrastructure determines the efficiency of intermediation, the ability of lenders to evaluate risk and of borrowers to obtain credit, insurance and other financial products at competitive terms (IFC, 2009)
- Credit bureaus, collateral registries, and payment, remittance and securities settlement systems are all vital parts of a country's financial infrastructure (IFC, 2009)



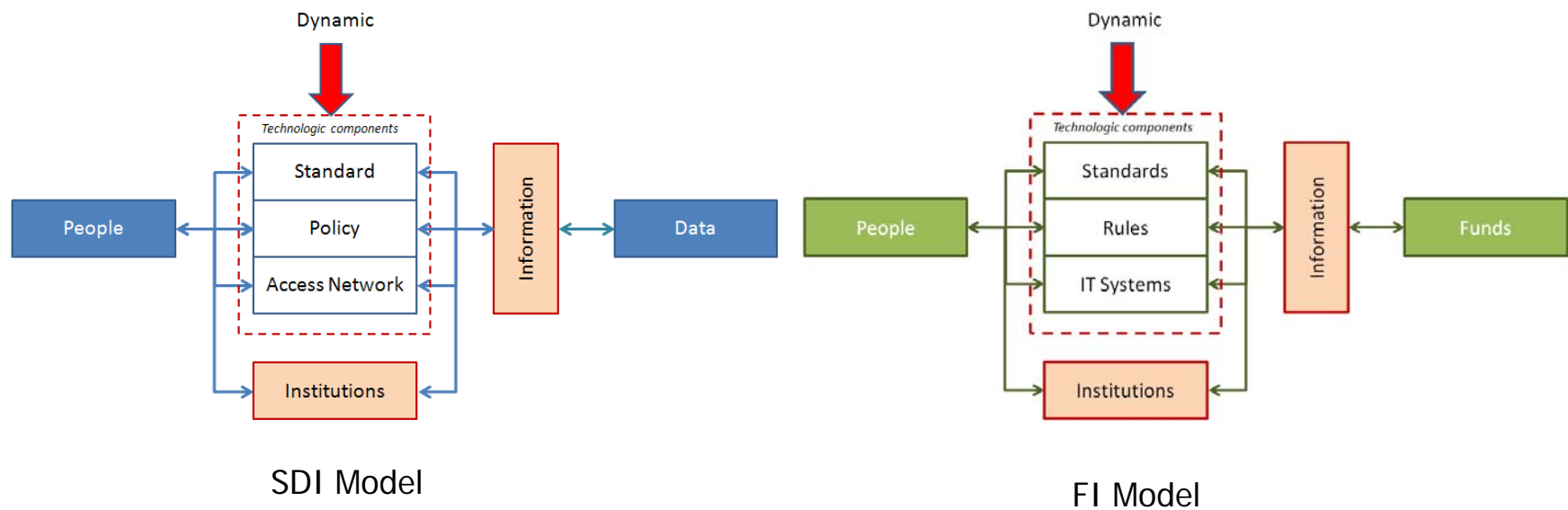
# Relation between FI and SDI

The key components enabling FIs and SDIs to perform are similar:

- both infrastructures have many different providers (institutions) involved;
- have many different users;
- use a range of the technological systems;
- there is interaction between all stakeholders,
- standards and rules are necessary and the strength of the infrastructure depends on the coherence of the individual parts.



# Relation between FI and SDI





# Stress testing FI as inspiration for STIG?



# ST in Financial sector: The Basel Core Principles

The Core Principles for Effective Banking Supervision (The Basel Core Principles) are the de facto minimum standard for sound prudential regulation and supervision of banks and banking systems.

The Core Principles define 28 principles that are needed for a supervisory system to be effective. Those principles are categorised into two groups:

- principles 1 to 13 focus on powers, responsibilities and functions of supervisors
- principles 14 to 28 focus on prudential regulations and requirements for banks



# The Basel Core Principles

Nr	Principle
1	Responsibilities, objectives and powers
2	Independence, accountability, resourcing and legal protection for supervisors
3	Cooperation and collaboration
4	Permissible activities
5	Licensing criteria
6	Transfer of significant ownership
7	Major acquisitions
8	Supervisory approach
9	Supervisory techniques and tools
10	Supervisory reporting
11	Corrective and sanctioning powers of supervisors
12	Consolidated supervision
13	Home-host relationships
14	Corporate governance
15	Risk management process
16	Capital adequacy
17	Credit risk
18	Problem assets, provisions, and reserves
19	Concentration risk and large exposure limits
20	Transactions with related parties
21	Country and transfer risks
22	Market risk
23	Interest rate risk in the banking book
24	Liquidity risk
25	Operational risk
26	Internal control and audit
27	Financial reporting and external audit
28	Disclosure and transparency



# The Basel Core Principles

- Risk factor
  - Criteria
    - Per criterion: compliant, largely compliant, materially non-compliant, non compliant



## Risk factor 22: Market risk

- Do banks have an adequate market risk management process that takes into account their risk appetite, risk profile, and market and macroeconomic conditions and the risk of a significant deterioration in market liquidity?
- Are there policies and processes to identify measure, evaluate, monitor, report and control or mitigate market risks on a timely basis?





## Market risk criteria (2)

- Laws, regulations require banks to have appropriate market risk management processes that provide a comprehensive bank-wide view of market risk exposure
- Banks' strategies, policies and processes for the management of market risk have been approved by the banks' Boards and that the Boards oversee management in a way that ensures that these policies and processes are implemented effectively and fully integrated into the banks' overall risk management process



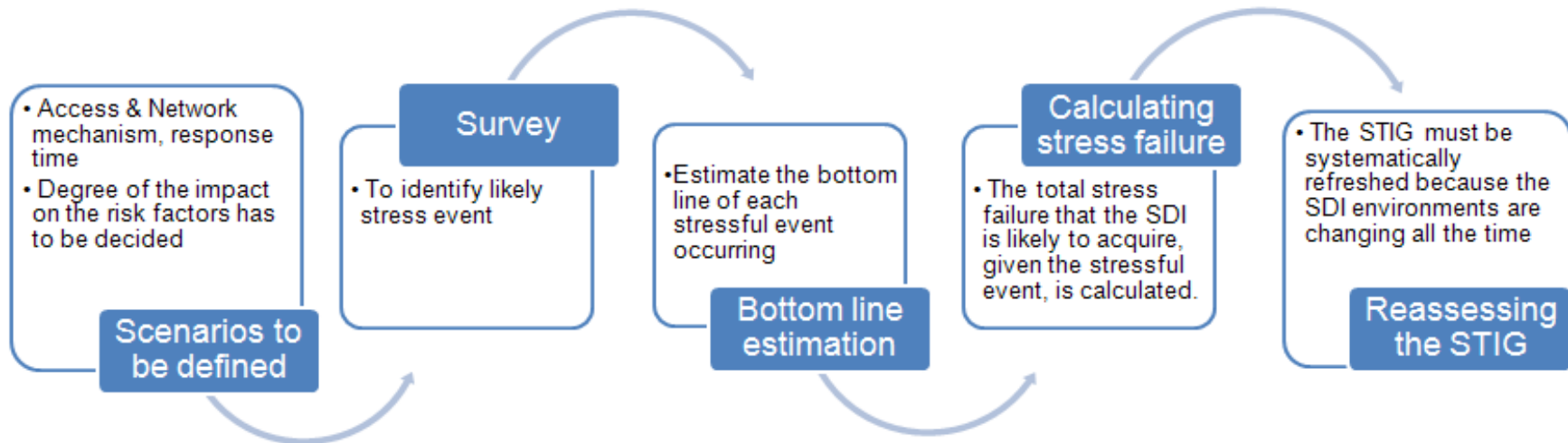
## Market risk criteria (3)

- Bank's policies and processes establish an appropriate and properly controlled market risk environment
- There are systems and controls to ensure that banks marked-to-market positions are revalued frequently
- Banks hold appropriate levels of capital against unexpected losses and make appropriate valuation adjustments for uncertainties in determining the fair value of assets and liabilities
- Banks include market risk exposure into their stress testing programmes for risk management purposes



# The STIG framework

- “How fast/ far can the SDI drive before it breaks down?”
- What are the SDI risk factors and their assessment criteria?
- How do these relate to each other?
- What is their impact?
- What is the minimum level for each SDI component to still perform sufficiently?





# Conclusion and further research

- The stress test methodology is a new approach for assessing SDIs
- Stress testing as an SDI assessment method once implemented in the decision making process, can effectively increase SDIs system robustness
- The issues to be addressed in the further research:
  - modelling the interaction of different risk factors and their impacts;
  - integrating stress testing at different levels;
  - how to make stress tests workable, realistic and timely.



To be continued....

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