Delft University of Technology

Software Improvement Group

Kwaliteitsmetrieken voor software architecturen

Eric Bouwers

Landelijk Architectuur Congres, 24 november 2010

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1096 HA Amsterdam
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Ontworpen architectuur

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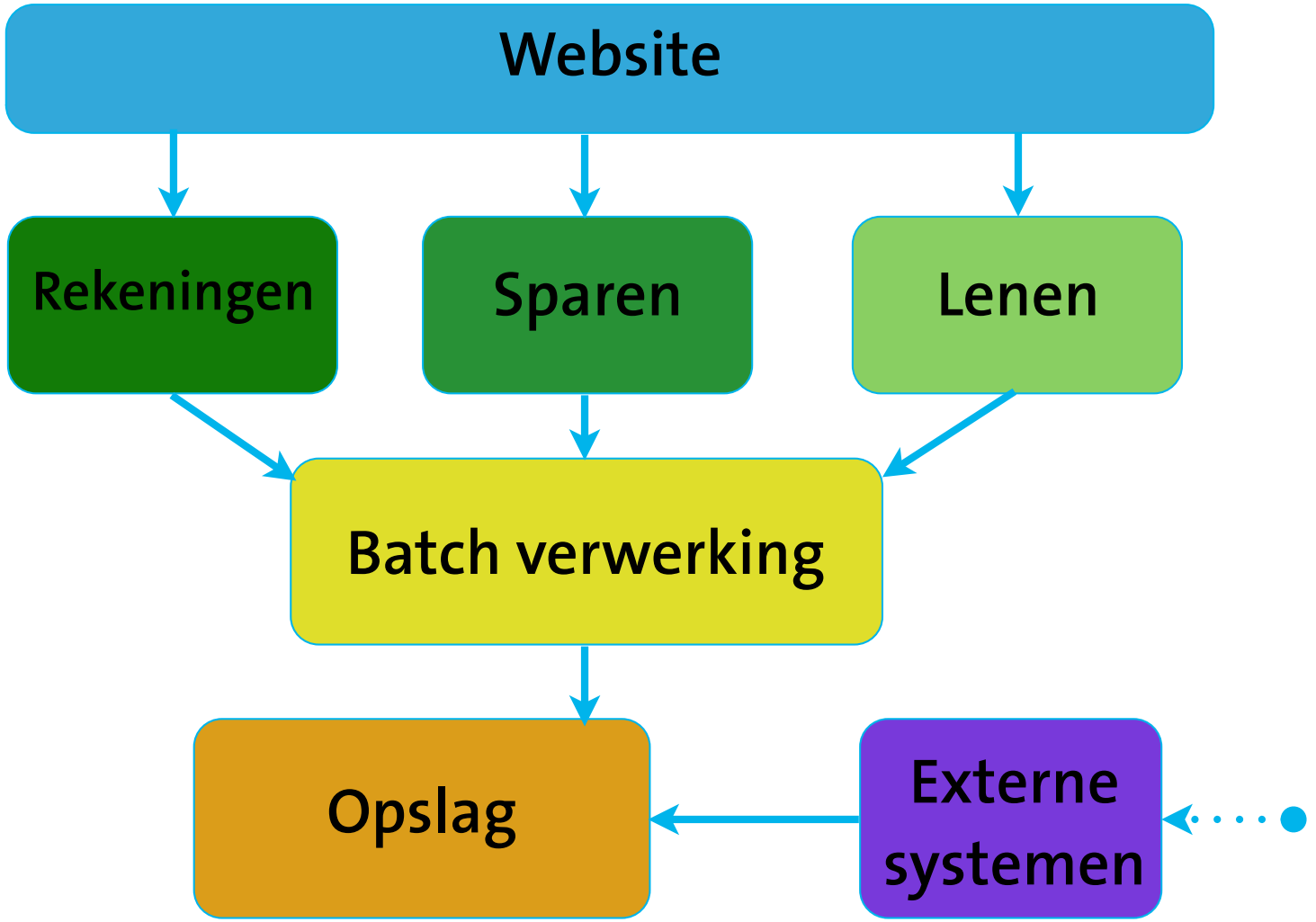

De ideale wereld

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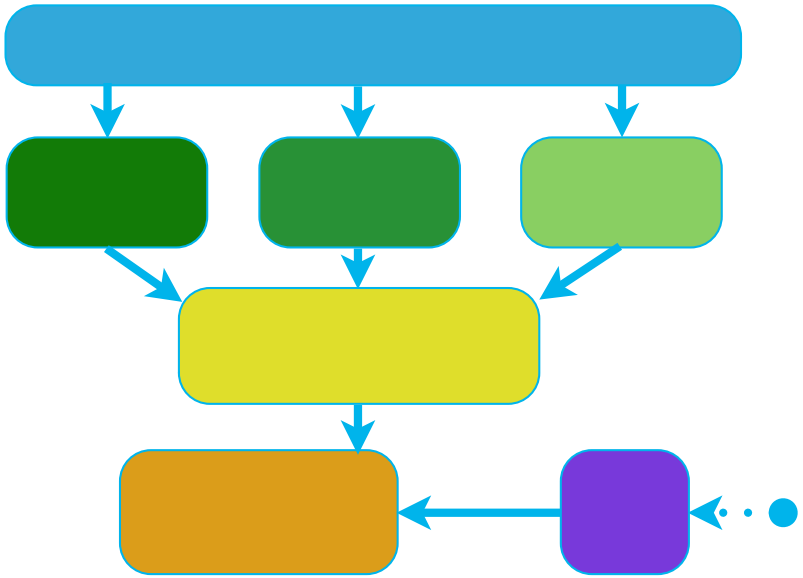

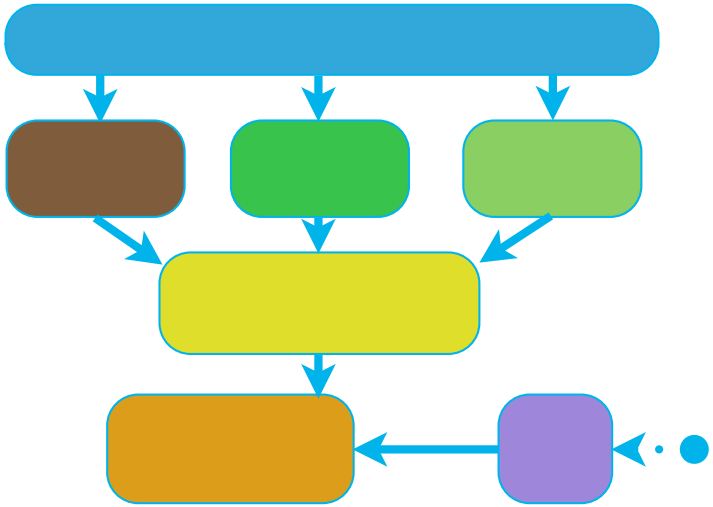

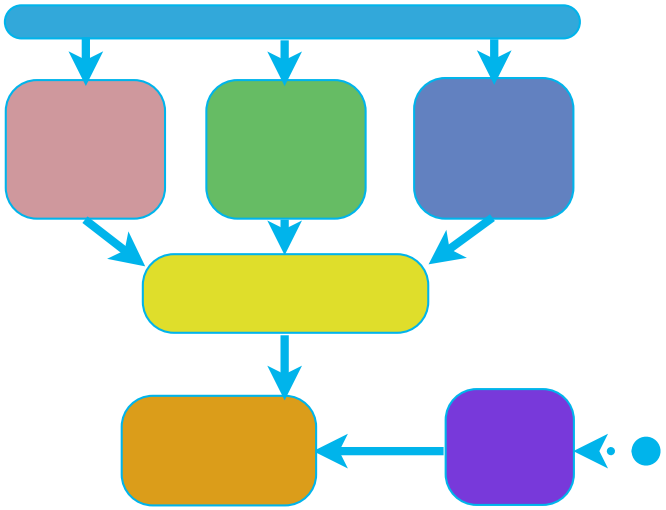

In werkelijkheid ...

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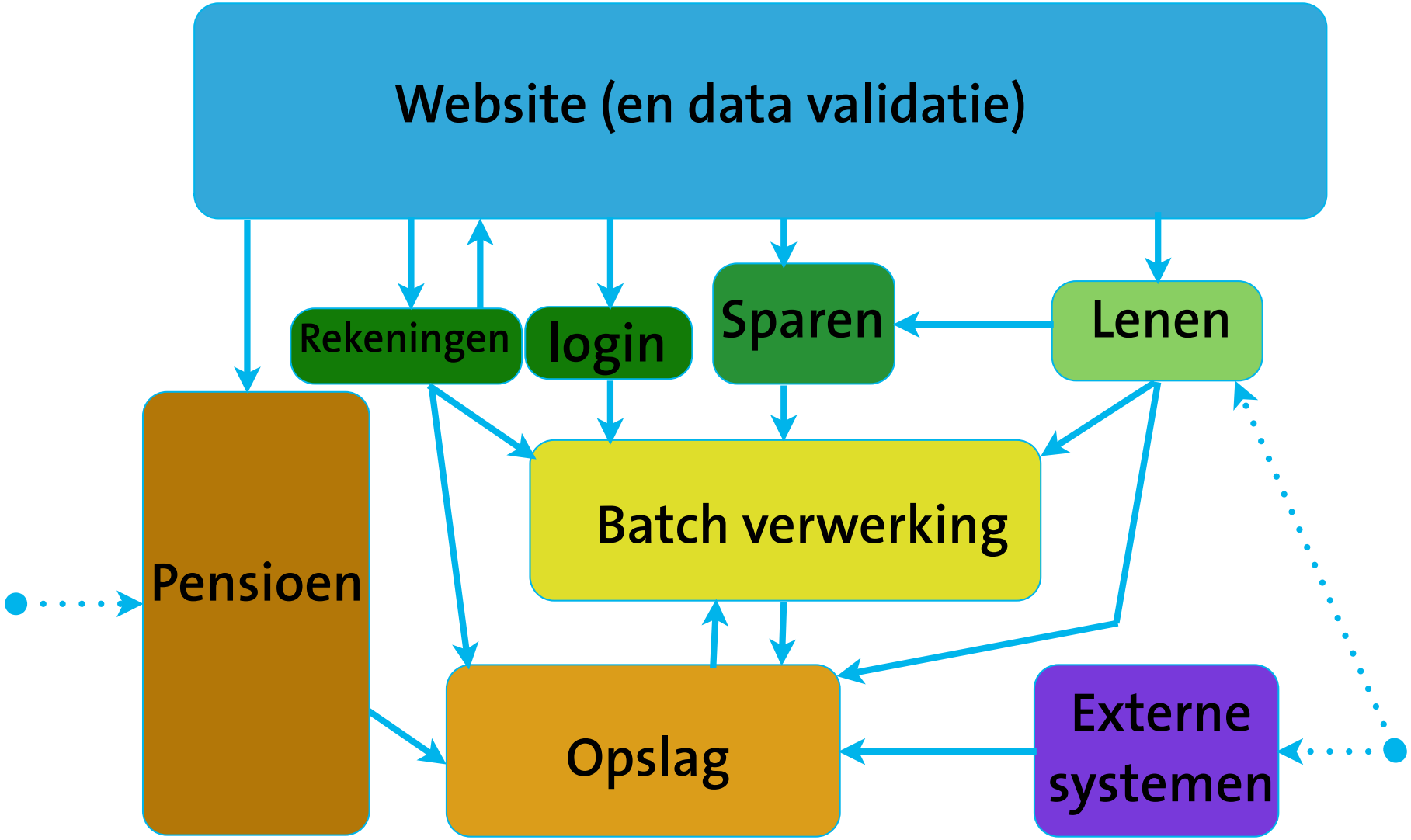

Consequencies

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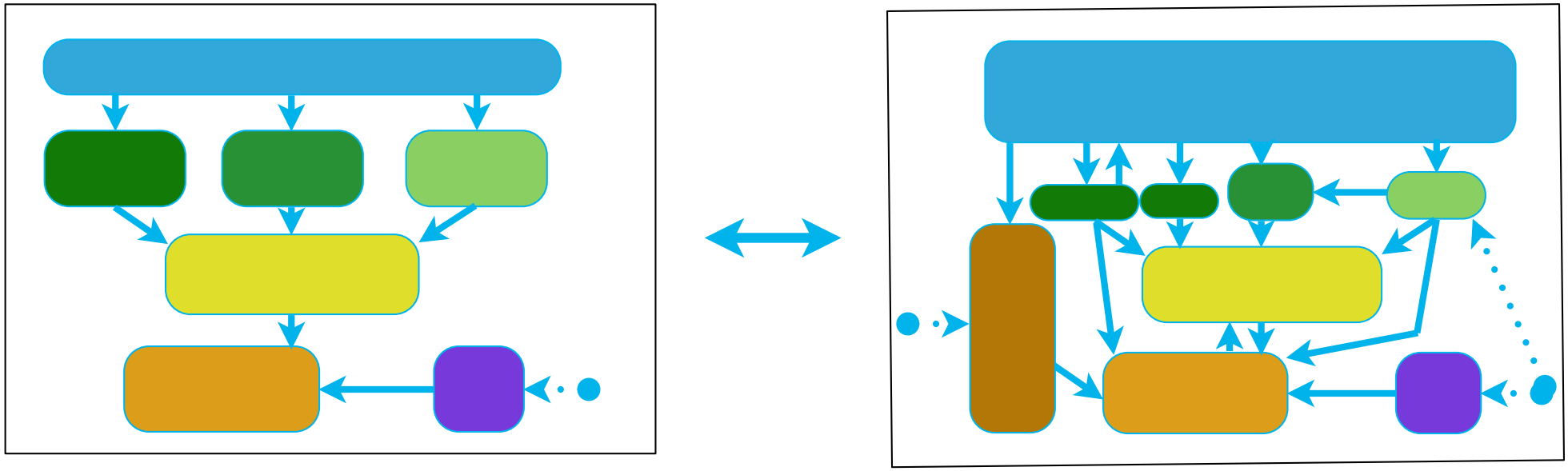

Oorzaken

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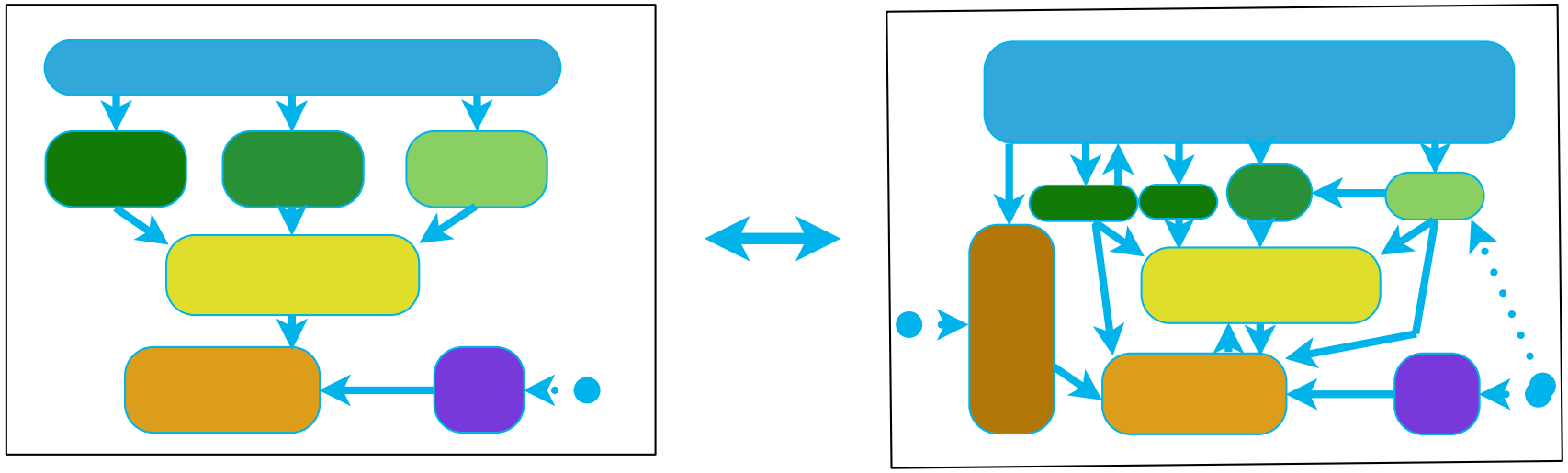

Preventie

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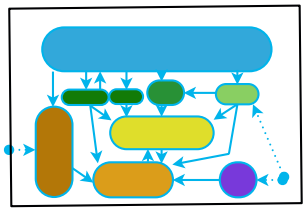


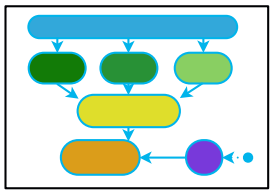
Check | Check | Check | Check | Check | Check | Check

Start project

Continu checken

Go Live

Evaluatie | Evaluatie | Evaluatie | Evaluatie



Evaluatie
Ontworpen architectuur

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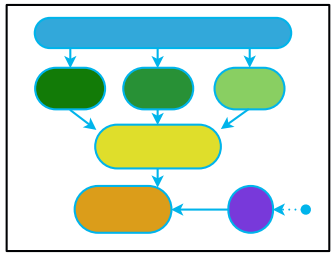

A survey on software architecture analysis methods,
L. Dobrica and E Niemelë, IEEE Transaction 2002

A framework for classifying and comparing software architecture evaluation methods,
M. Babar, L. Zhu and D. R. Jeffery, ASWEC 2004

ATAM, ARID, ALMA, ALPSM,
SAAM, SAAMER, SAAMCS,
SBAR, ESAAMI, SAEM, QASAR, ...

Evaluatie
Geïmplementeerde architectuur

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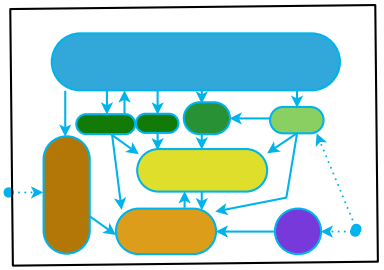

'There is limited out of the box process and tool support for organizations that want to start [architecture] reviews.'

'Software Architecture Review: The state of Practice' by M. Babar, I. Gorton, IEEE Computer July 2009

Attribuut identificatie

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- Abstraction
- Layering
- Logic in Database
- Module Inconsistency
- Module Size
- Source Grouping
- Technology Combination
- Textual Duplication
- Functional Duplication
- Libraries / Frameworks Usage
- Module Dependencies
- Module Functionality
- Relation Documentation and Implementation
- Technology Age
- Technology Usage

'Criteria for the Evaluation of Implemented Architectures'
by E. Bouwers, J.Visser and A. van Deursen, ICSM 2009

Operationeel maken

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http://www.sig.eu/en/liscia

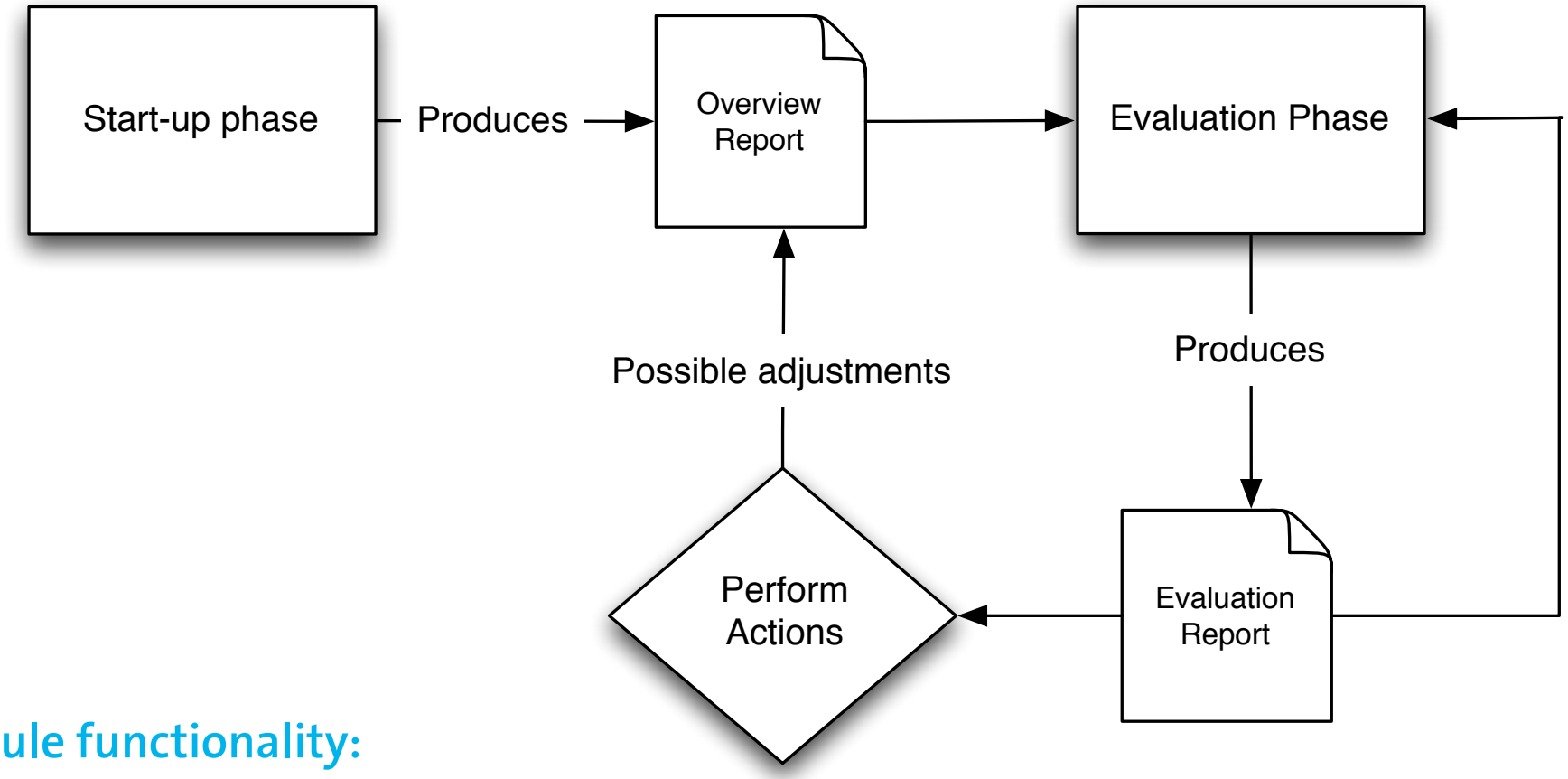
28 vragen

28 acties

5 onderwerpen

'A Lightweight Sanity Check for Implemented Architectures'
by E. Bouwers and A. van Deursen, IEEE Software July 2010

LiSCIA proces



Module functionality:

3.2.3: *Can the functionality of each module be described in a single sentence?*

Module dependencies:

3.4.5: *5. Are there any new dependencies? Is this to be expected?*

Architectuur metrieken

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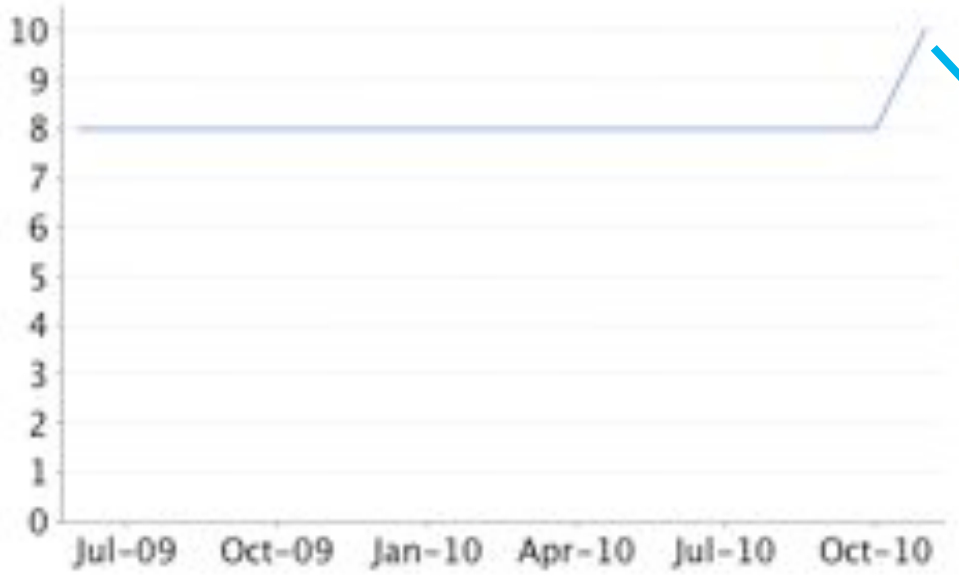
Aantal afhankelijkheden over tijd



Checklist >> Evaluatie

Architectuur metrieken

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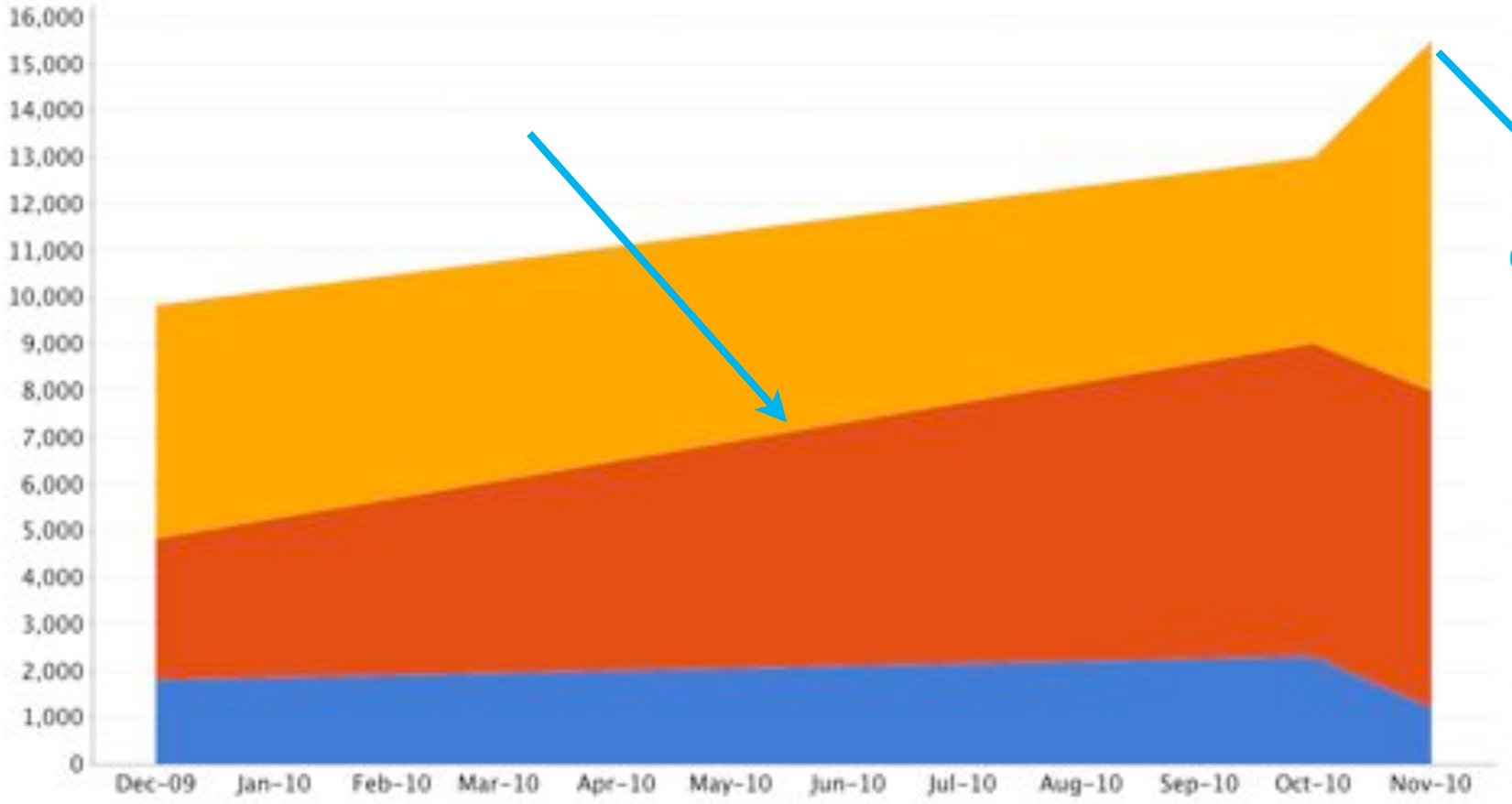
Module grootte over tijd



Checklist >>
Evaluatie

Metriek hergebruiken
Gini-coëfficiënt

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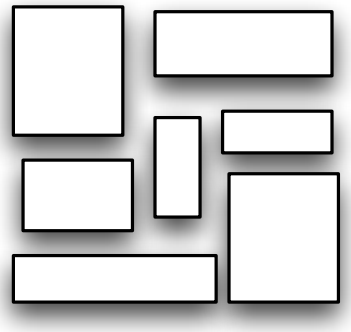
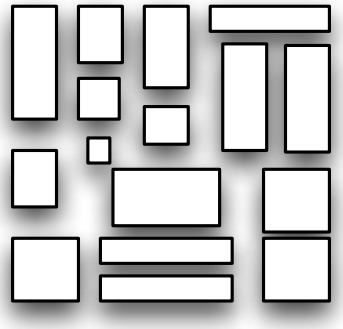
C. Gini. *Measurement of inequality of income.*
Economic Journal, 31:22–43, 1921.

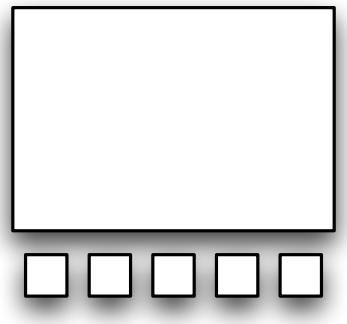
Module Size Uniformity = 1 - Gini



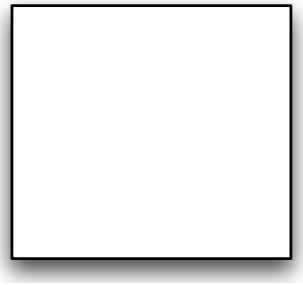
0.8



0.7



0.2



1

Modules inventariseren

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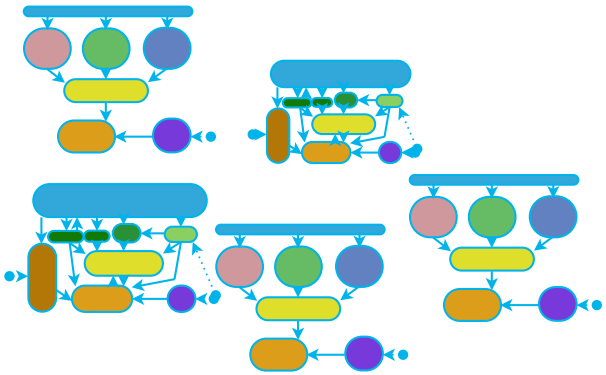

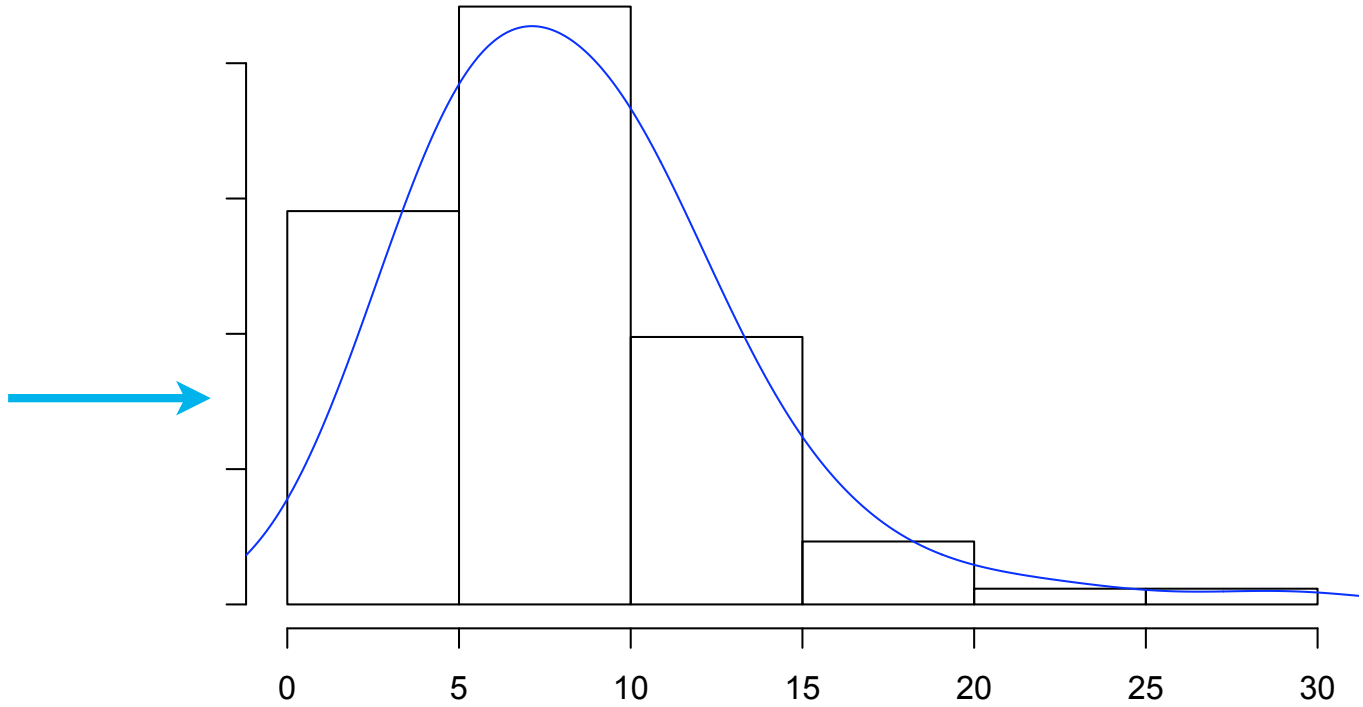

Module Balance

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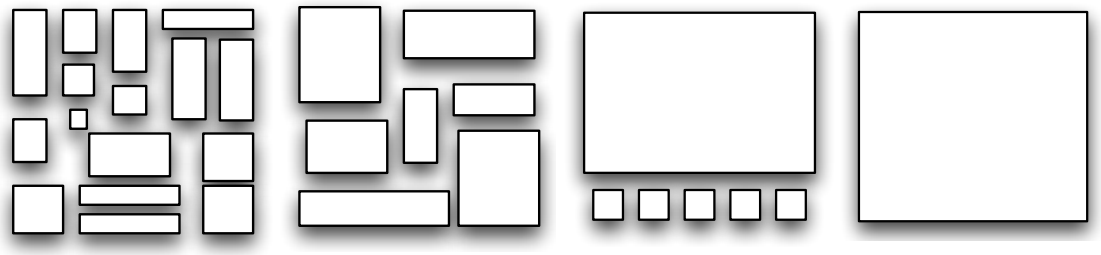

Module Size Uniformity:	0.8	0.8	0,2	1
System Breakdown Optimality:	0.1	0.8	0.8	0
Module Balance:	0.08	0.64	0.16	0

Grenswaarden bepalen
Benchmarking

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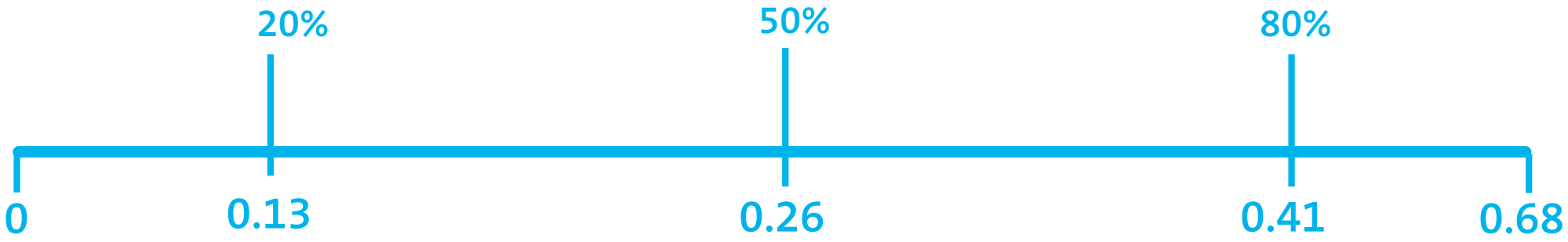
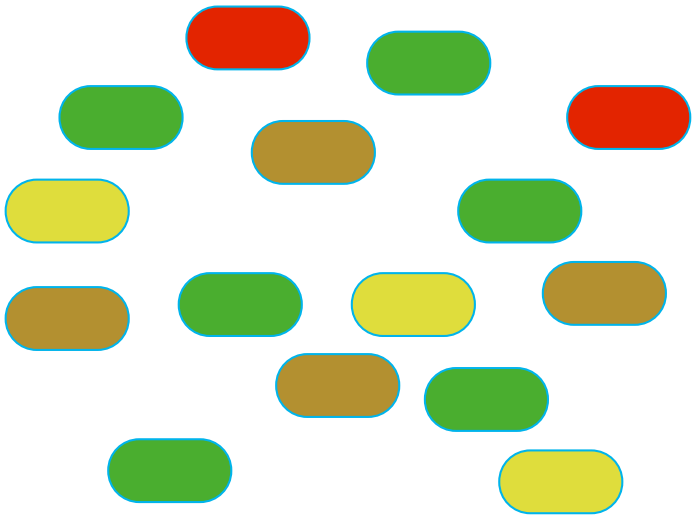


0.05 omlaag? >> checklist >>evaluatie



Toekomstplannen

Software Improvement Group

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- Layering
- Logic in Database
- Module Inconsistency
- ~~Module Size~~
- Source Grouping
- Technology Combination
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Conclusie

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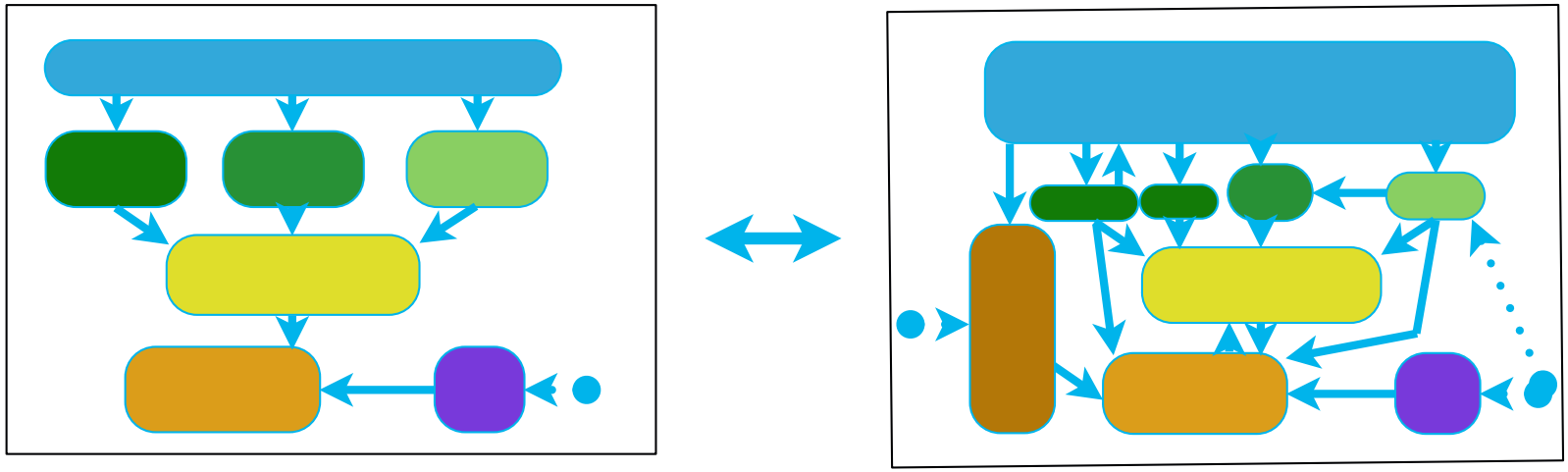

http://www.sig.eu/en/liscia

Contact

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