



Enterprise Architecture
Conference Europe 2014



Business Process Management
Conference Europe 2014

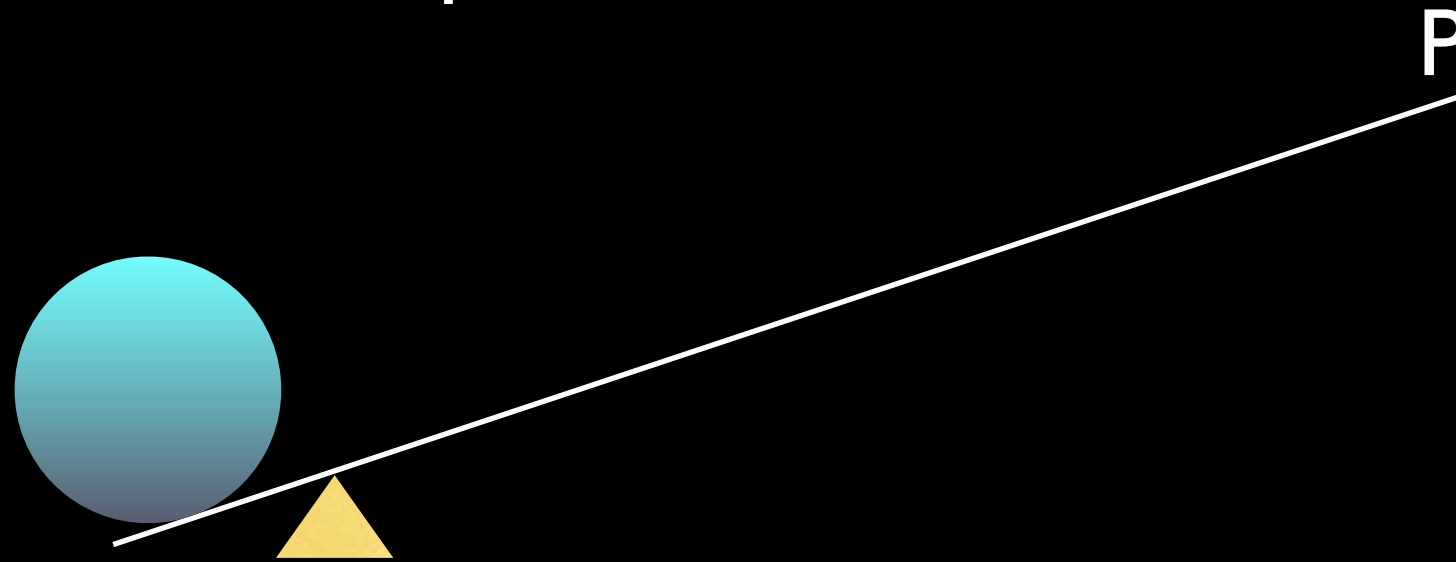
16 - 18 June 2014

Produced By



The Power of Principles

Graham McLeod
inspired!



Abstract

Principles guide decision making and shape actions. EA principles should connect strategic intent and organisational ethos with resulting projects and how they are carried out. Defining good principles across EA domains of business, process, application, information and technology is challenging. Done well, principles can offer the highest return on effort of almost any EA activity.

Drawing on experience of many EA implementations in various industries, including assurance, banking and telecommunications, as well as recent literature, we will explore:

- The power of principles

- Ways to engage stakeholders in defining principles

- Great examples of good principles

- How you can do this in your organisation or project

Abstract

Principles guide decision making and shape actions. EA principles should connect strategic intent and organisational ethos with resulting projects and how they are carried out. Defining good principles across EA domains of business, process, application, information and technology is challenging. Done well, principles can offer the highest return on effort of almost any EA activity.

Drawing on experience of many EA implementations in various industries, including assurance, banking and telecommunications, as well as recent literature, we will explore:

- The power of principles

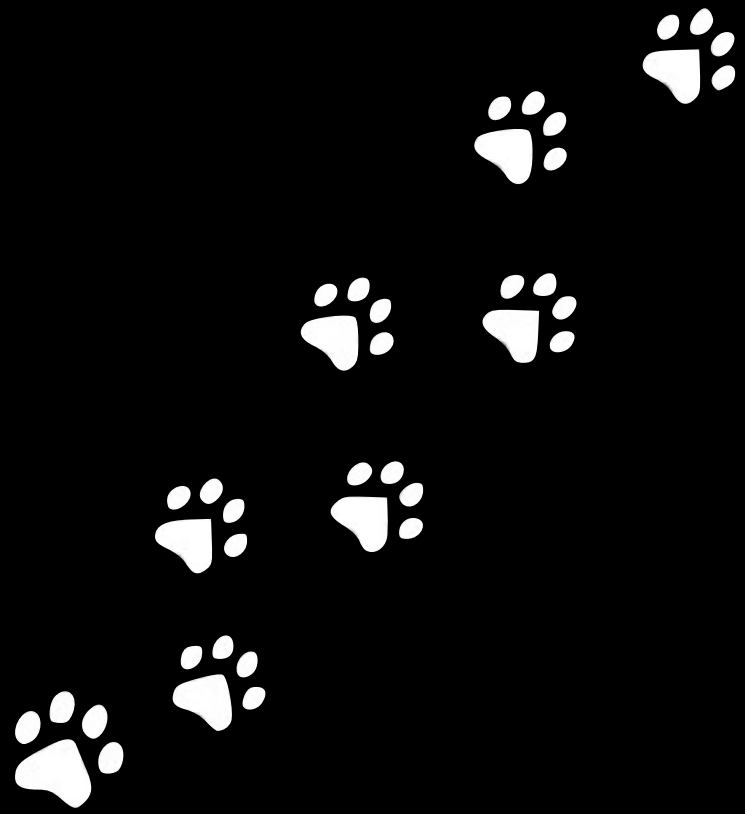
- Ways to engage stakeholders in defining principles

- Great examples of good principles

- How you can do this in your organisation or project

**Architecture principles are the cornerstones of enterprise architecture
and bridge the gap between high-level strategic intents and concrete designs**
- Greefhorst & Proper

Agenda



Agenda



A Picture...

Agenda



A Picture...

Nature of Enterprises and
their Behaviour

Agenda



A Picture...

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Role and Realities of EA

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Examples

Conclusions



Crossroads, Cape Town
Circa 1990

© inspired!

Each house serves
a purpose



Crossroads, Cape Town
Circa 1990

© inspired!



Each house serves a purpose

There is very little discernable overall structure

Crossroads, Cape Town
Circa 1990

© inspired!



Each house serves a purpose

There is very little discernable overall structure

There are no standards for safety or impact

NO LAND NO HOUSE
NO VOTE

ABANGI
BASE MONDLO
RAFI

Crossroads, Cape Town
Circa 1990



Each house serves a purpose

There is very little discernable overall structure

There are no economies of scale

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Each house serves a purpose

There is very little discernable overall structure

There are no economies of scale

There are no standards for safety or impact

Basic infrastructure and services are lacking and difficult to impossible to access

Crossroads, Cape Town
Circa 1990

One Well Architected Block
doesn't solve the problem



Crossroads, Cape Town

© inspired!



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Linz Publicity Association

Building Codes:
Don't restrict creativity or individualism, but ensure safety, control impact on others



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Economies of Scale



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Economies of Scale

Shared Infrastructure



Linz Publicity Association

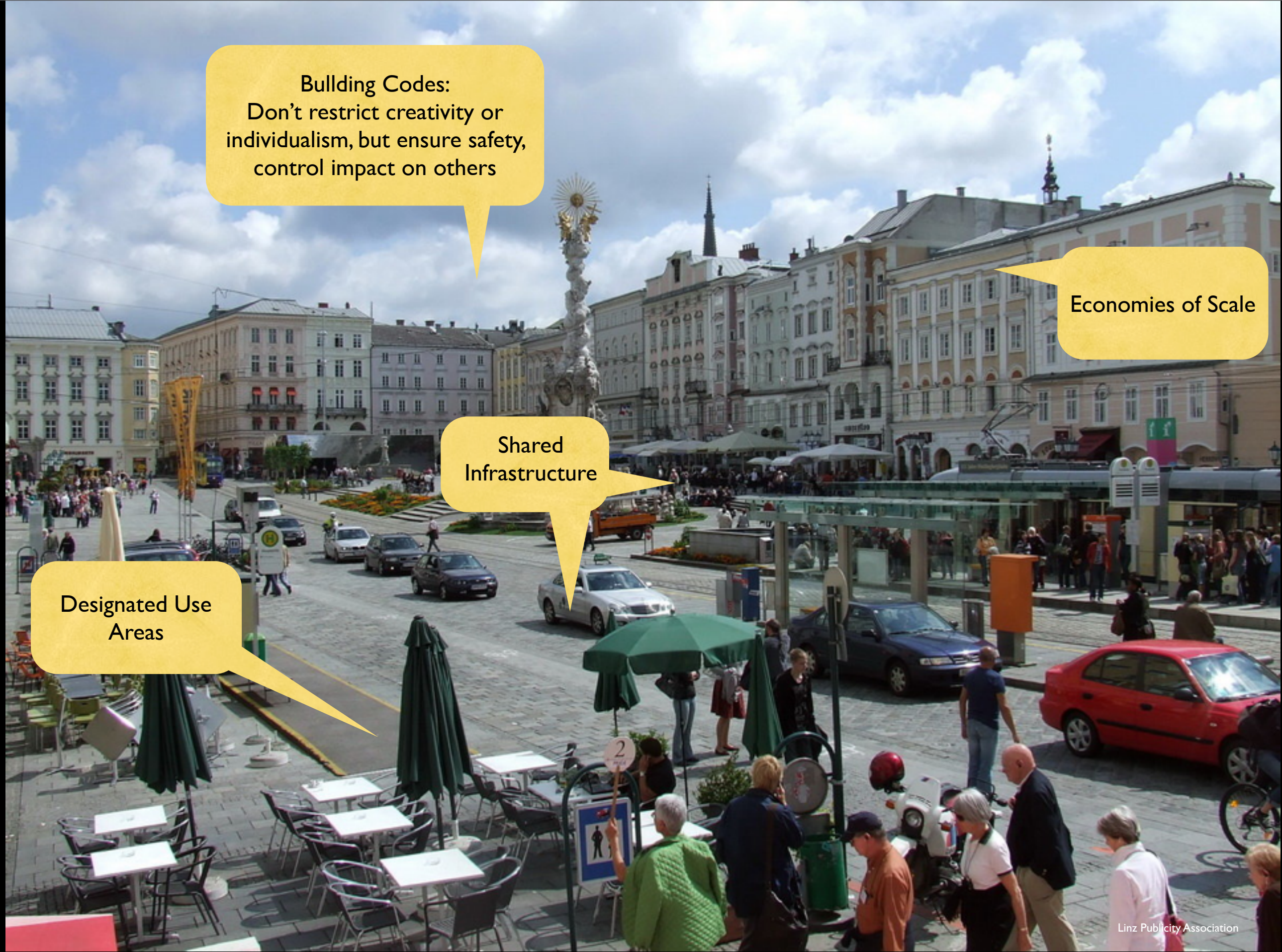
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Building Codes:
Don't restrict creativity or individualism, but ensure safety, control impact on others

Economies of Scale

Shared Infrastructure

Designated Use Areas



Difference is Principles!

and resulting Architecture

Complicated, but....



© inspired!

Complicated, but....



Can be designed

Complicated, but....



Can be designed

Built, assembled, operated

Complicated, but....



Can be designed

Built, assembled, operated

Predictable

Complicated, but....



Can be designed

Built, assembled, operated

Predictable

Parts have no autonomy





Can't be predictably designed



Can't be predictably designed
Parts have autonomy



Can't be predictably designed

Parts have autonomy

Must be influenced



Can't be predictably designed

Parts have autonomy

Must be influenced

Enterprises are Social Systems

© inspired!

“EA 3”



“EA 3”

Erik Proper



“EA 3”

Erik Proper

Steering Enterprise in Flight



“EA 3”

Erik Proper

Steering Enterprise in Flight

End Target is Moving



“EA 3”

Erik Proper

Steering Enterprise in Flight

End Target is Moving

Enterprise and Actors have Own Ideas



“EA 3”

Erik Proper

Steering Enterprise in Flight

End Target is Moving

Enterprise and Actors have Own Ideas

We need to continually influence in desirable directions



“EA 3”

Erik Proper

Steering Enterprise in Flight

End Target is Moving

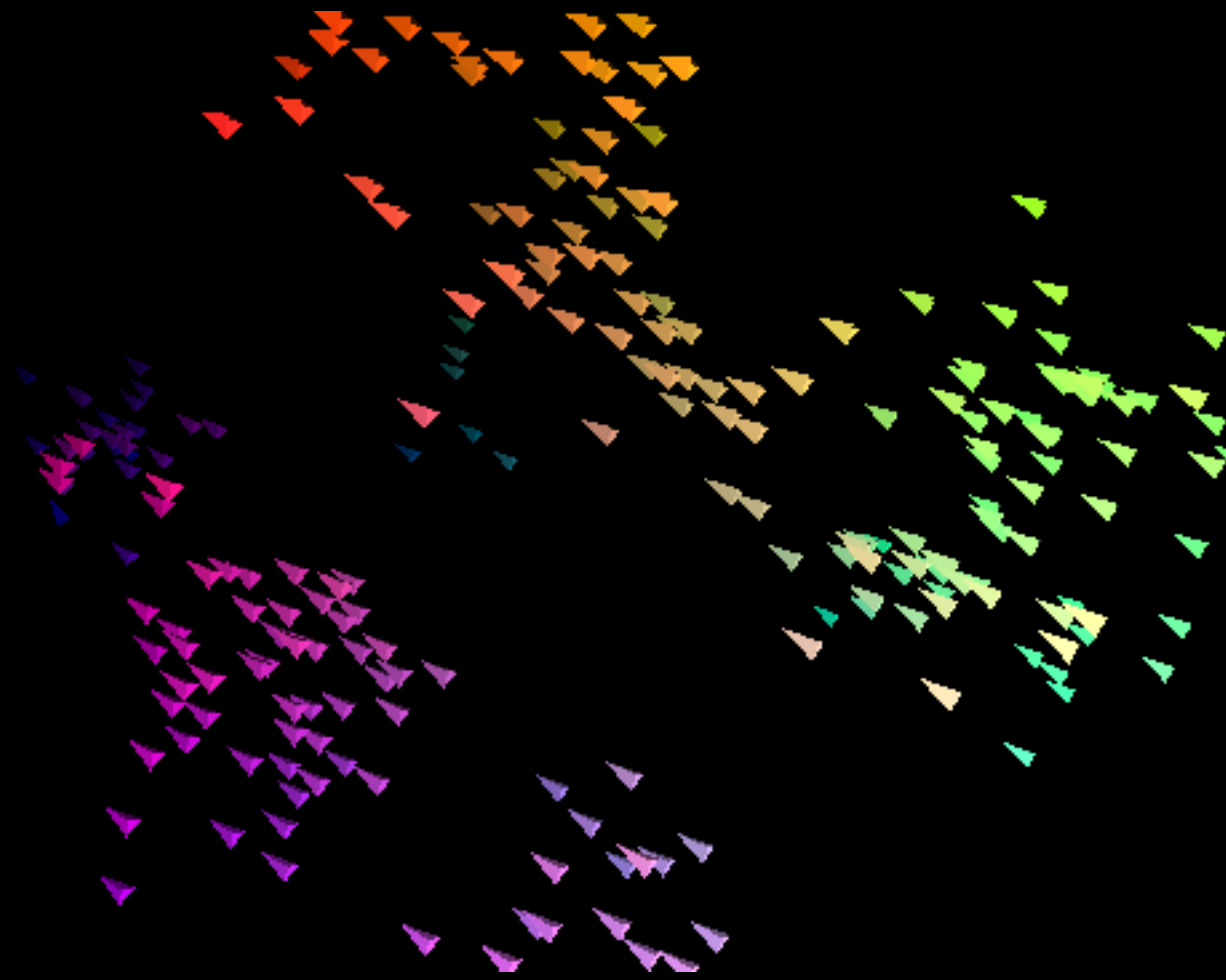
Enterprise and Actors have Own Ideas

We need to continually influence in desirable directions

Its more like air traffic control than firing a cannon...



Behaviour is Emergent



Congress Ave Bats: <https://www.youtube.com/watch?v=E6GllhK2hS>
Bats Swarming: <https://www.youtube.com/watch?v=D8a79EVrC6A>

Rules Shape Behaviour



<https://www.youtube.com/watch?v=03nEqjPqZSQ> (first 1.5 min)

© inspired!

What Do Principles Look Like

Normative Rules

Express Desirable Properties of Artifact

Restrict Design Freedom

Enduring

Congruent

You Aren't There at Midnight



<http://c.tadst.com/gfx/600x400/international-programmer-day.jpg?l>

Principles have to be clear on their own

Congruent

Enduring ∴ Abstract

Widely published

Help decision maker

Have weight

© inspired!

Defining Principles

Cover Business, Services,
Applications, Information,
Technology, Security

Facilitative Process with
Stakeholders

Seed with ideas and good
examples

Careful crafting of wording



http://s93.photobucket.com/user/hyperion_prime/media/moses_jobs_tablet.jpg.html

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Best Book

Greefhorst & Proper

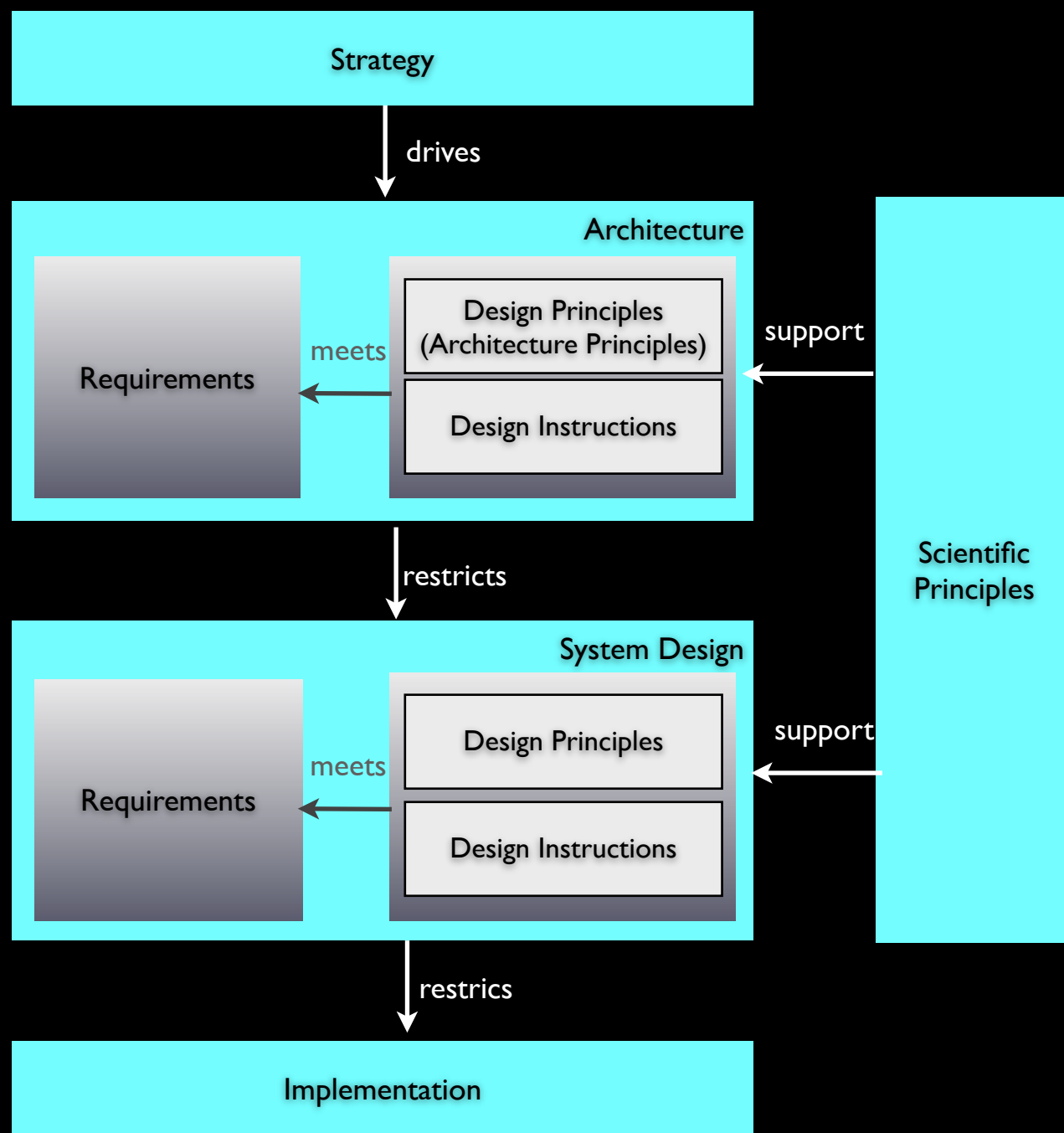
Theory

Practical Issues

Examples



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Bridging Strategy to Design

Source: Greefhorst and Proper

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Structure of Principle

Short Name

Statement

Description

Plus

Plus

Rationale

Implications

Structure of Principle

Short Name

name

Statement

actions

Description

Plus

Plus

definitions

Rationale

assurance

Implications

Structure of Principle

Short Name

name

domain relevance

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scope

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actions

Plus

genericity

Rationale

definitions

stakeholders

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assurance

state (curr / target)

quality attributes

meta level?

representation language

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representation language

Greefhorst & Proper also provide a useful classification scheme

© inspired!

Stealth Payloads



http://www.popularmechanics.com/cm/popularmechanics/images/pi/b2-bomber-04-05_13-de.jpg

Principle Statements = Irrefutable

Principle Rationale = Strong

Principle Implications the Sting in the Tail

A Business Principle

Statement	Changes proposed and made to the business, processes, applications, data, technology and other elements under architecture governance, must deliver business value.
Rationale	Changes should not be made for the sake of technology or change. They must offer clear business value in the medium to long term and must be aligned with strategic intent of the business.
Description (HTML)	Architectures, Designs, Solutions, Initiatives/Projects must demonstrate clear business value.
Implication	<ul style="list-style-type: none">● Business cases will be required to motivate changes● Value achievement should be validated after implementation of changes● Appropriate measurements and benchmark values for validation must be identified during the planning stages and built into the process up front

A Business Principle

Statement	Customers and Stakeholders should be able to access relevant functions and services through multiple interfaces of choice.
Rationale	Self service should be encouraged and supported via product and service design, processes, applications, information and appropriate technology. Done well, this can increase customer satisfaction, improve IS productivity (by offloading work to external parties), improve data quality (by obtaining it and updates direct from source/owner).
Description (HTML)	<ul style="list-style-type: none">● Customers and Stakeholders should be able to access relevant and authorised functions via multiple interfaces/channels including: Portal, Organizational APIs (e.g. through web services), Mobile Devices etc. as appropriate. The customer experience should be consistent across channels and devices and the same function should be linked to the same underlying process and back end applications services, so that functionality and information across access points are always consistent. User interfaces should conform to common User Experience guidelines across all IS products and services.
Implication	<ul style="list-style-type: none">● User interface will need to be separated from business logic● User Experience and User Interface guidelines must be defined and adhered to across the organization● Interface preferences for a stakeholder should be centrally managed and available to all authorised applications as a service

An Application Principle

Statement

Applications systems, whether acquired or developed, should follow good patterns of architecture and design, as set out in Description.

Rationale

Applications which follow good patterns provide the following advantages:

- They are easier to maintain, enhance and extend
- They are easier to integrate and allow easier interoperation
- They will tend to be smaller and require less skills to maintain
- The above benefits reduce costs and improve business agility

Description (HTML)

Good Patterns Include:

- Information Provider systems (including separately purchasable components of an 'ERP' style system) must have published, stable APIs conforming to approved standards that expose data and functionality to authorised users
- Data exchanged must adhere to a canonical data model
- Wherever possible, applications should communicate through standard mechanisms and formats rather than point to point interfaces. The goal would be to have each application only need to interface in one style to one point
- Interfaces should be explicit, documented and standards compliant (in terms of code set, message format, encoding mechanism, protocol for sending/verifying/receiving)
- User interface should be separated from business logic which should be separate from data access
- Applications should use common facilities/services for common tasks (e.g. security authorisation, storage management, printing, logging, audit trails etc.)
- Configuration should be achieved via user interface and data not code
- Data model should have high correlation with canonical/ organization domain model
- Applications will have a minimal level of accurate and clear documentation including at least: (architecture diagram; logical data model; API documentation; Technology requirements; Dependency upon any other application components)

This principle has major implications for the way in which applications are selected, acquired, integrated, designed, built and maintained. Specifically:

Implication

- Organization will have to elucidate and document the chosen patterns and ensure that I.T. staff are aware and educated in their application
- Applications will have to be selected to comply to the principles
- Data models inherent in applications will have to be verified to have a high correlation to the organizational domain model before acquisition
- Mechanisms and technologies necessary for the chosen style of integration and interoperation will need to be chosen and put in place. These may include components such as an Enterprise Service Bus (ESB), Queue Manager, Object Request Broker, Web Services infrastructure etc.
- Message formats and standards must be chosen and adhered to
- Standards will need to be chosen for User Interface technology and for Platform Services that applications will call upon
- Relevant technologies conforming to these standards and providing good implementations of them will need to be put in place

inspired!

A Data Related Principle

Statement

Data is a corporate asset and must deliver business value.

Rationale

Data is defined to include:

- **Structured data (e.g. customer records, orders, invoices)**
- **Documents (e.g. spreadsheets, presentations, word processing documents, graphical models)**
- **Binary data (e.g. Images, Scanned documents, Audio Recordings)**
- **Streaming data (e.g. Voice, Video)**

Data includes data that is externally sourced, such as data about the industry, competitors, competitive products etc.

Description (HTML)

- **We spend to acquire, capture, maintain, archive and analyse data**
- **Data should generate returns on this expenditure. These can take the form of support for operational efficiency and effectiveness, improved decision making and insights facilitating business innovation**
- **Data should not be acquired and managed if there is no associated business value**

Implication

- **Data must have appointed owners**
- **There must be appropriate maintenance to keep data in good condition (accurate, available)**
- **There should be appropriate security to ensure that data is not lost, corrupted, inappropriately updated or compromised in terms of privacy**
- **There should be processes, tools and facilities that allow the proper exploitation of data**
- **Personnel should be trained to use data and analytical tools to enhance their performance**
- **There should be a corporate domain model which allows the mapping of all data components to facilitate proper management**
- **Meta data must be maintained to properly plan, manage and exploit data and information**
- **Appropriate technologies should be in place for the capture, storage, exploitation, archival and disposal of data, including the various types defined under Description**
- **Data should be appropriately classified to ensure that it is correctly treated. This may include aspects such as: criticality; security; privacy; retention**
- **Data quality requirements should be identified, metrics chosen and measurement done on a regular basis to continually improve quality and usefulness**
- **Data should be able to move without technical hindrance across applications and business boundaries (subject to authority and security)**

A Global Example

Statement	Quality in everything we do is vital.
Rationale	Higher levels of quality reduce waste, rework and prevent service delivery problems. Over time higher quality leads to higher productivity and more agility.
Description (HTML)	Quality should be achieved using the Prevention philosophy, which includes the following tenets: <ol style="list-style-type: none">1. Build quality in. Do it right first time, rather than checking and correcting after things are done2. If any errors are found, do root cause analysis to find out the original problem that allowed that error to occur3. Once the source of an error is identified, perform all actions necessary to prevent any recurrence of that type of error again4. The measurement of quality is the Price of Conformance which is equal to the sum of the Price of Non-Conformance (everything that is spent to correct problems) plus the Cost of Conformance (everything that is spent to ensure correctness)5. The quality standard is zero defeats, i.e. No deviation from requirements6. Note that requirements can specify a tolerance level. Zero defects means that products and services operate within tolerance
Implication	Training will be required in quality concepts and practices to achieve a change in culture. Requirements must be well defined and unambiguous with expected performance levels specified. Measures must be defined to allow monitoring and improvement of quality.

Steering

Principles Guide the Work of

Architecture Board

Enterprise Architects

Domain Architects

Solution Architects

Business Analysts and Process Engineers

Programme, Project and Portfolio Managers

Steering

Principles Guide the Work of

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**All for an investment of effort
usually less than 1% of the change
effort!**

**If we have a lot of people on the bus
for a long journey, best we have
some roadsigns and someone
steering ;)**

Ranking Compliance

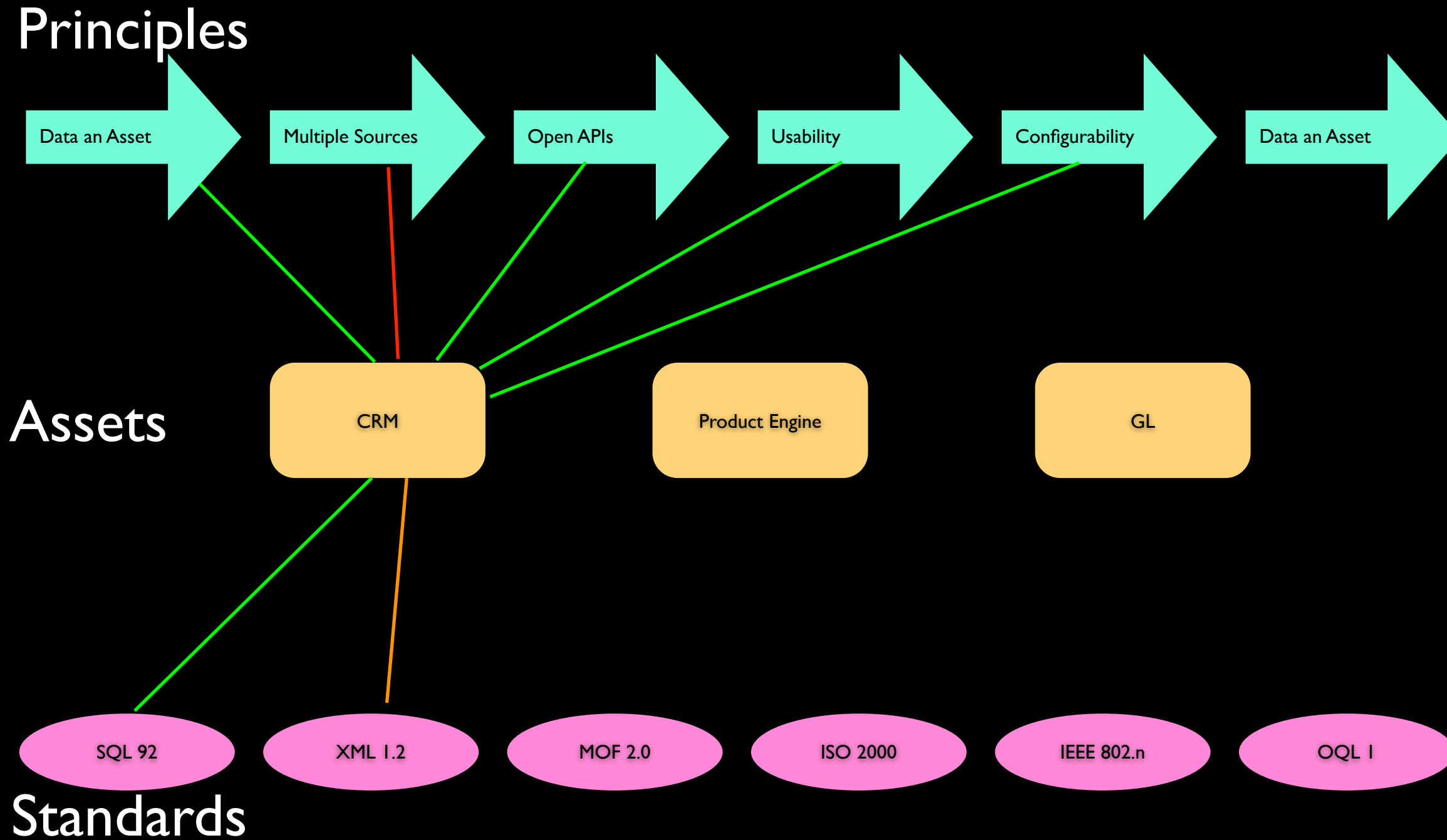
Map Architecture Assets to Relevant Principles and Standards

Visually: Red = Not Compliant; Orange = Being Made Compliant; Green = Compliant

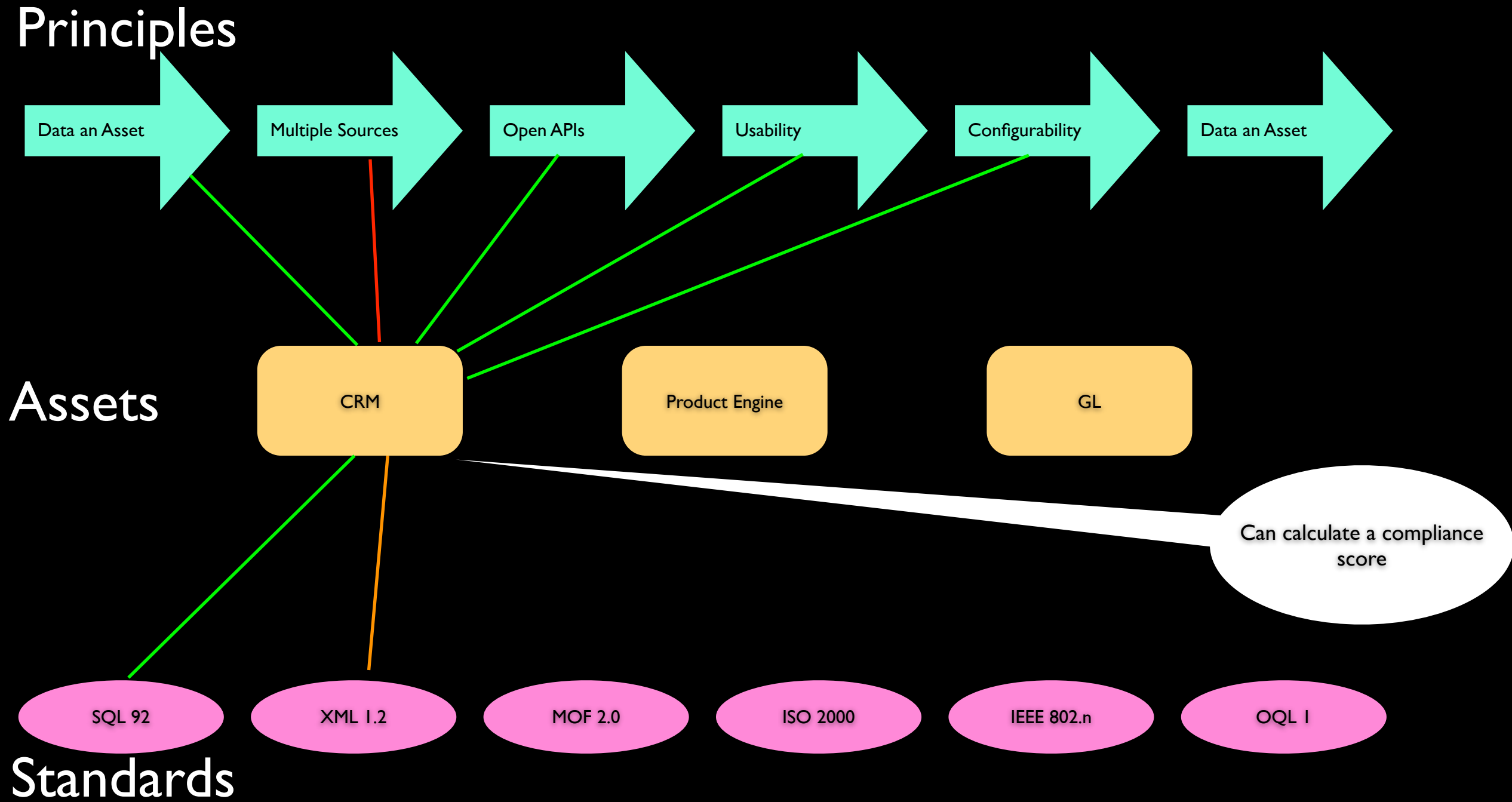
Monitor over time

Alerts anyone working on an element of relevant principles and status

Compliance Map Example



Compliance Map Example



Evolving the Principles



Ensure continuing relevance

Retain ones that are broadly used

Refine with feedback from architects,
boards and projects

Revisit periodically with major strategic shifts

Consolidate where possible

Simplify application

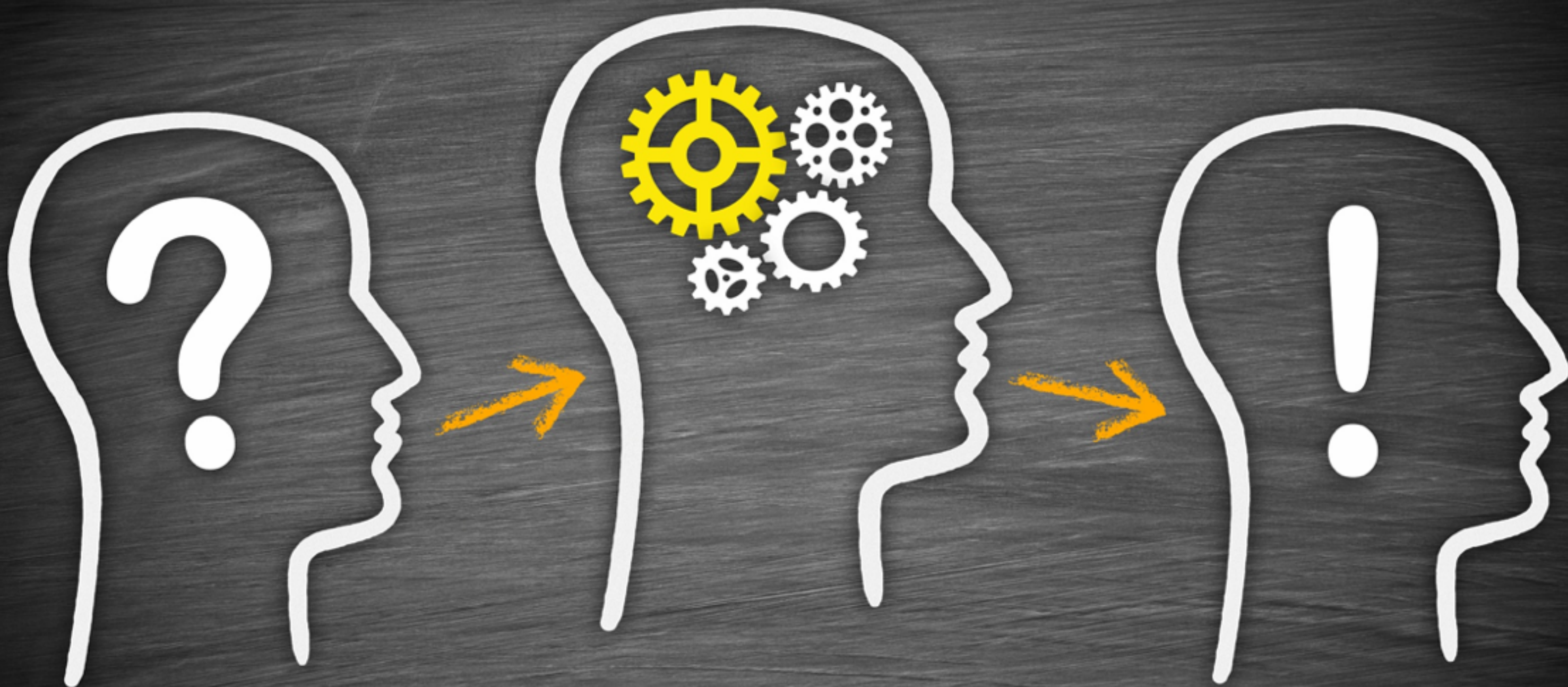
Conclusion

Relatively Low Effort
Massive Impact



Give me a lever long enough and a fulcrum on
which to place it and I shall move the world.
- Archimedes

© inspired!



Picture: <http://www.vizsec2011.org>

References

Danny Greefhorst & Erik Proper, *Architecture Principles: The Cornerstones of Enterprise Architecture*, Springer, 2011

The Open Group, *TOGAF Version 9.1*, 2011

Dietz, J. L. G., Hoogervorst, J. A. P., Albani, A., Aveiro, D., Babkin, E., Barjis, J., ... Winter, R. (2013). The discipline of enterprise engineering, 3(1), 86–114.

Acknowledgement of our client's willingness to share experience and examples

Contact

Graham McLeod

- ✉ graham@inspired.org
- 🌐 www.inspired.org
- 🌐 📄 <http://grahammcleod.typepad.com/>

■ LinkedIn: Graham McLeod



There are three constants in life... change, choice and principles.
Stephen Covey

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