

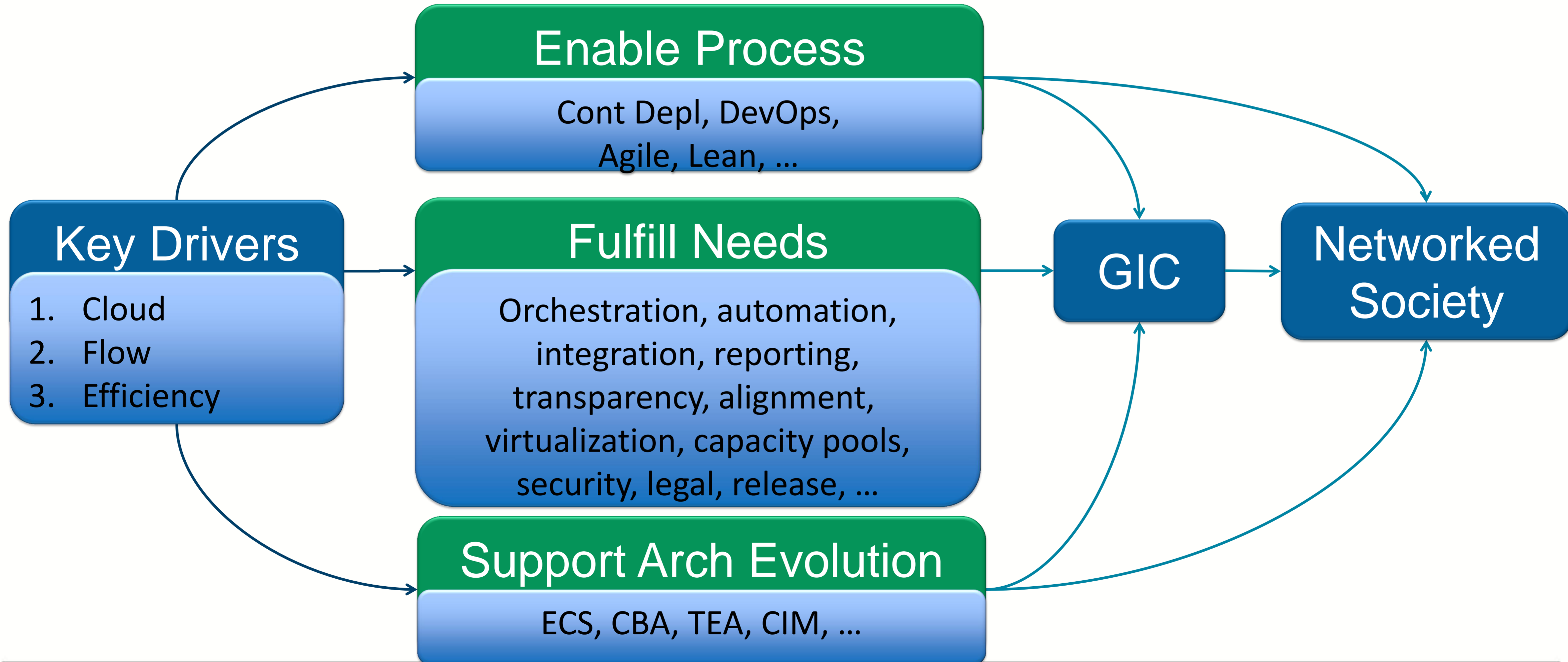


# Principles for Tool Integrations: Recipes for successful tool integration framework





# Mission of R&D Tools Development



# Why integrations





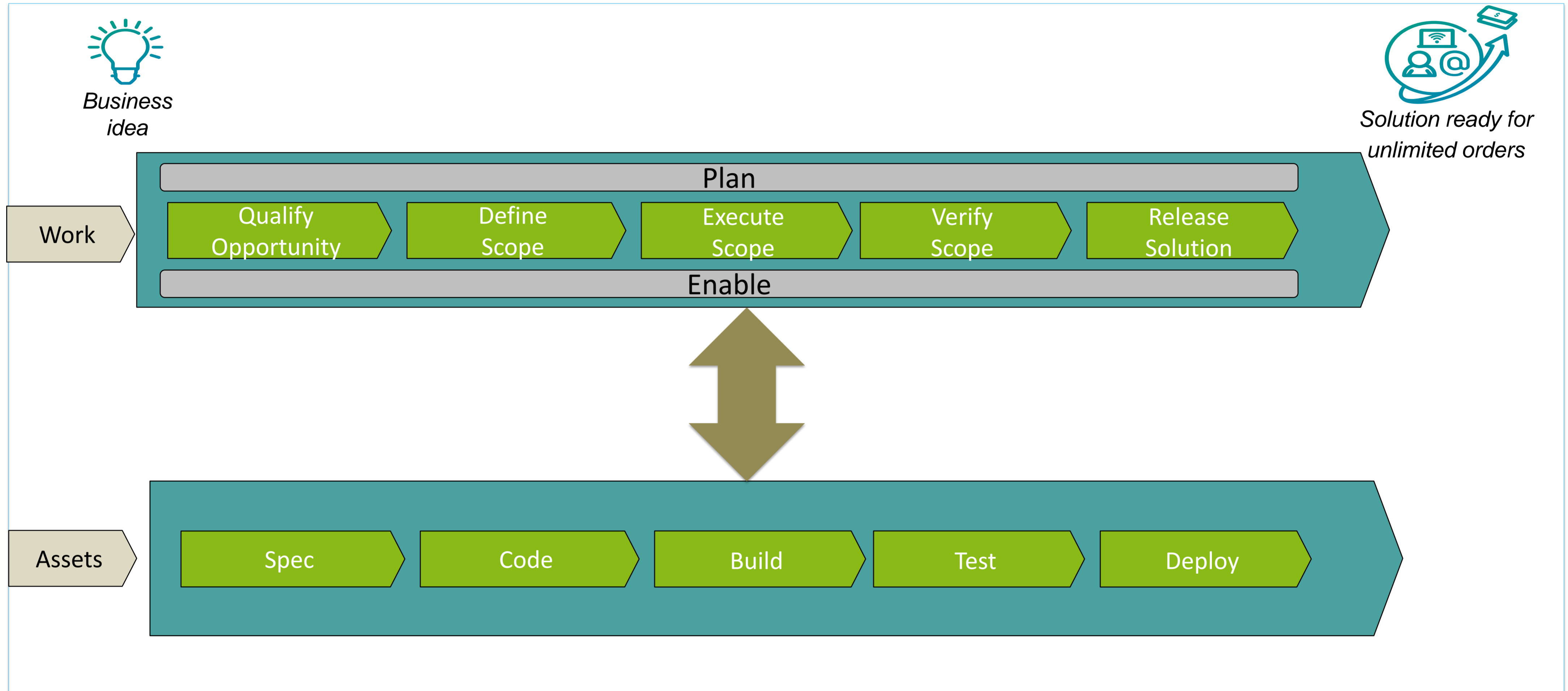
## Why integrations

- Breaking Tools and Processes Silos
- Heterogeneous tools
- Collaboration on context
- Traceability
- “Continuous Engineering”
- Over 3000 tools
- Efficiency (time, cost)
- Quality





# Software Lifecycle (work vs assets)





# Background

- The Lean and Agile transformation have caused an explosion of tools
- Disconnected tool causes a disconnected development environment
- There will be no one-best-toolset
- Loosely couple is the way to go!



See also <http://www.infoq.com/articles/Integrated-ALM>



# Background

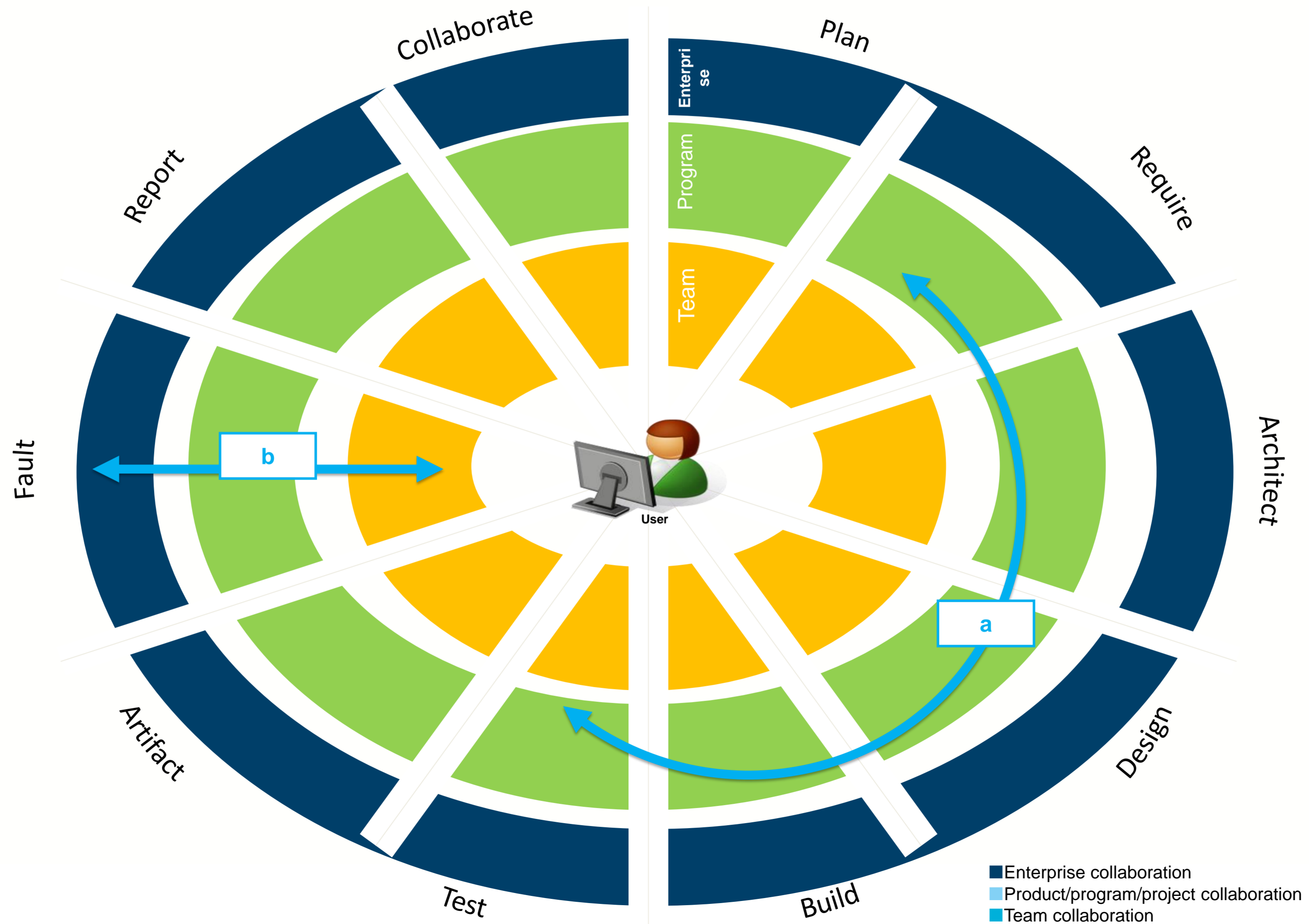
- Heterogenous tools landscape
- Many approaches have been tried
- Report in mid 2012 ...



- Live with a heterogeneous environment – need a good integration strategy
- OSLC highlighted as preferred integration technology



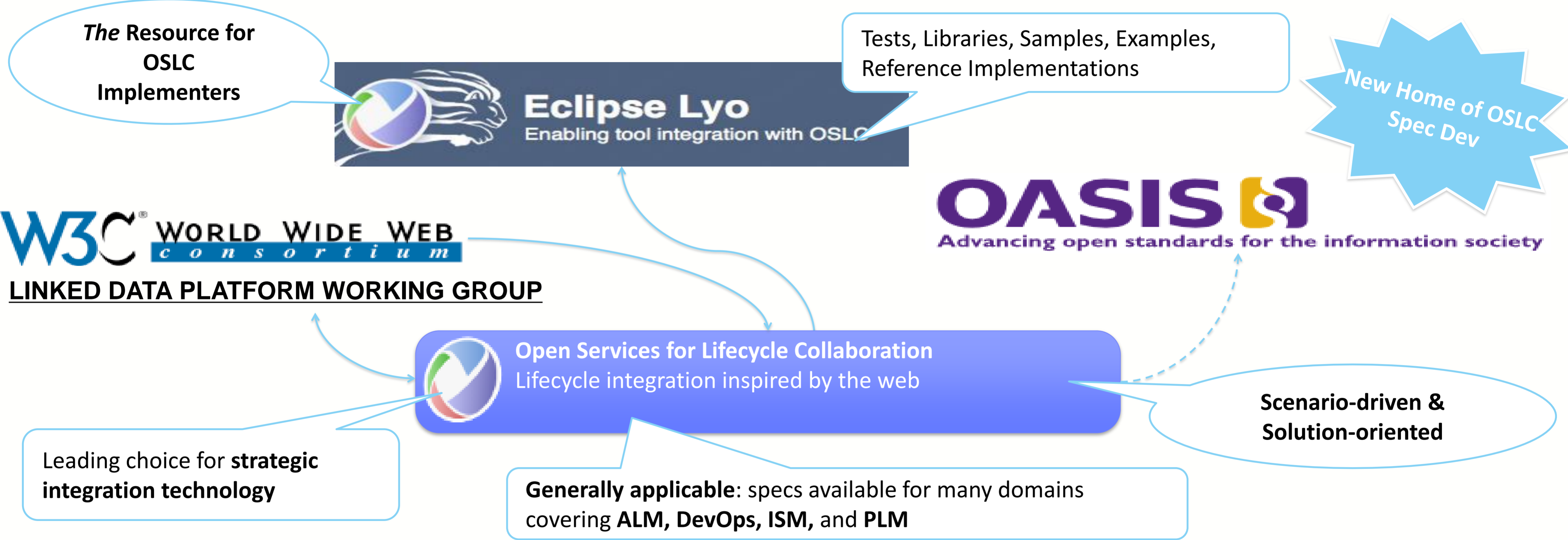
# “ALM Dart” Functional Landscape







# OSLC's Big Picture



  
**OSLC:**

  
 Inspired by the web  
**Proven**

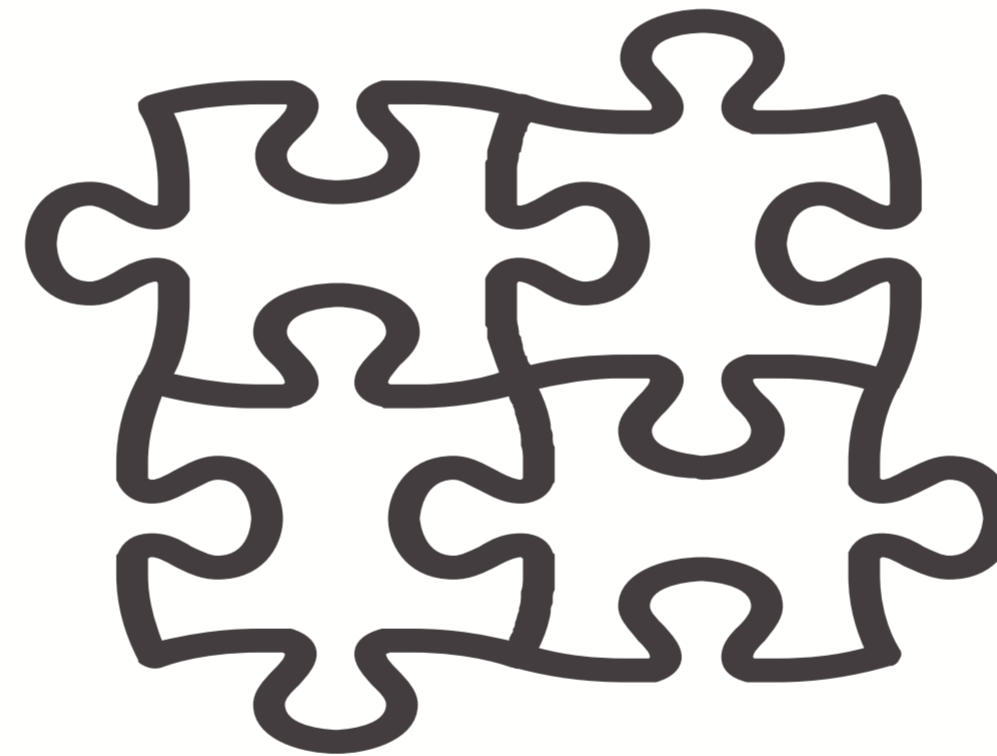
  
 Free to use and share  
**Open**

  
 Changing the industry  
**Innovative**



## Product Development Principles

*“We constantly strive to use the **best available tools** having **open integration-interfaces**”*



*The Integration Principles act as an evolving guide for how to collect and construct new integration recipes for different integration scenarios*



# Integration Principles, part I

1. Evaluate the **use case before technology** when analyzing user demands for integration
2. Always prefer **domain standard** for integration technology within domain
3. Avoid **duplication of writable data and logic** between tools
4. Strive to **make integrations general**





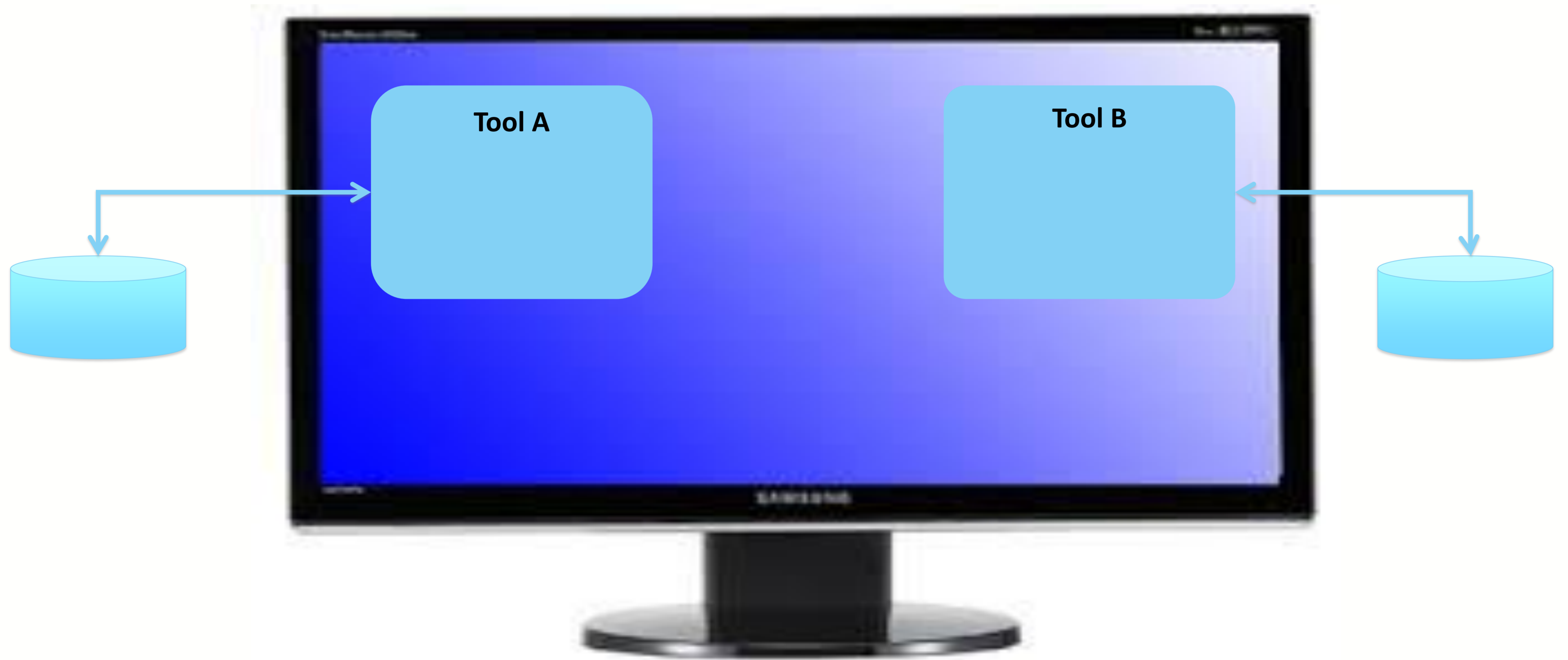
# Integration Principles, part II

5. Strive to **have integrations be maintained in conjunction with the core tool**
6. Avoid **duplicating functionality between tools**
7. Provide **data for consolidated Reporting**
8. Cooperate to facilitate an **integration test environment**
9. Strive to provide a **single-sign on solution**



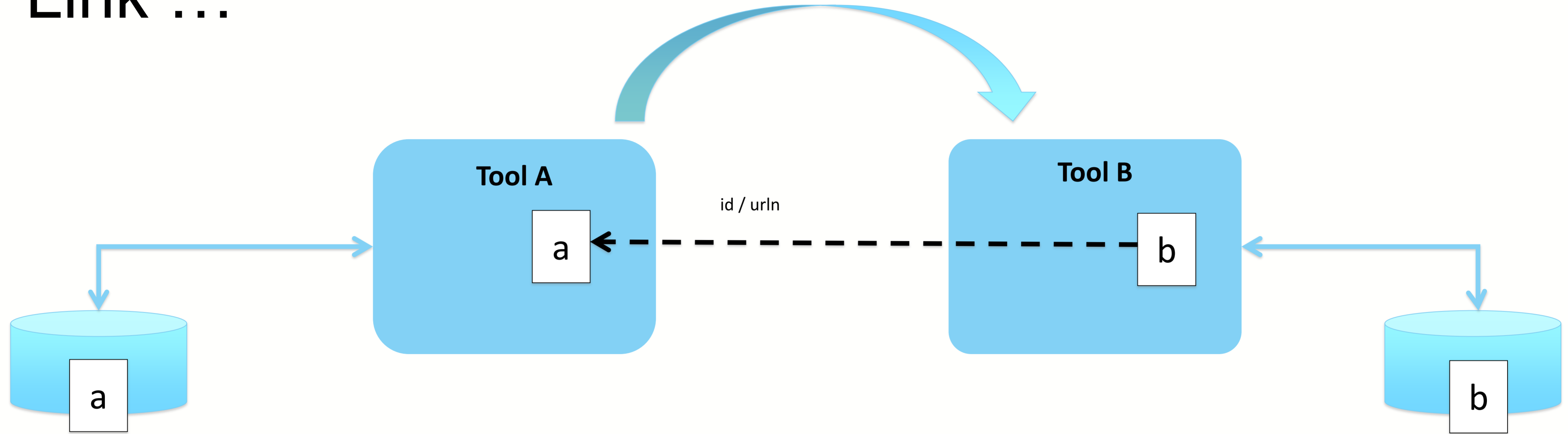


# What do we mean by integration?





# Link ...

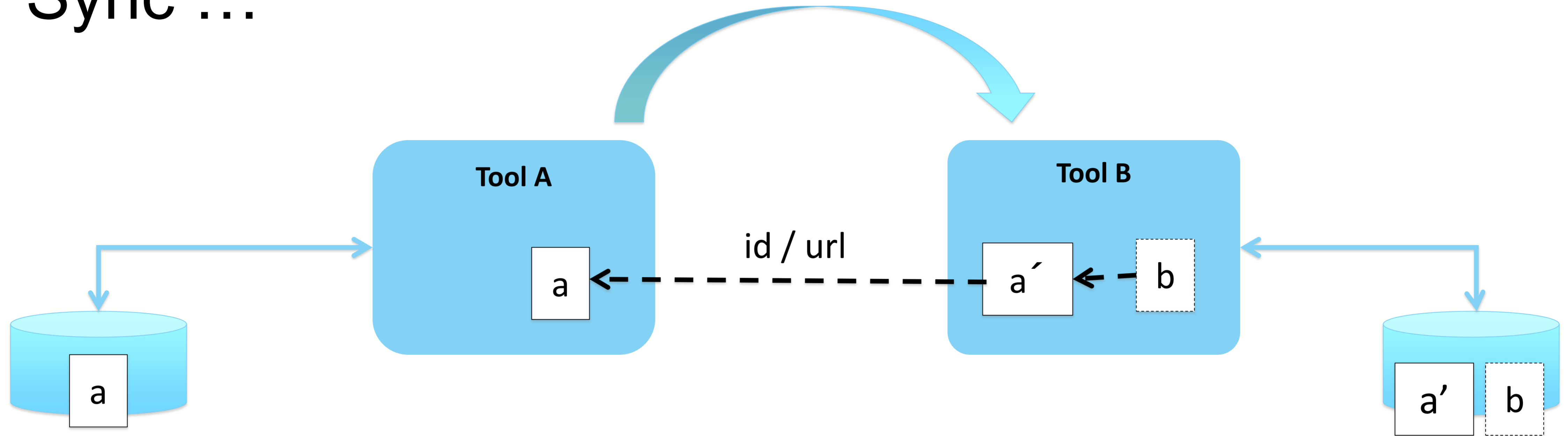


## Link

- No or little data copied
- REST popular and proven
- OSLC adds standard semantic and usability
- Need for license in linked tool if navigated



# Sync ...

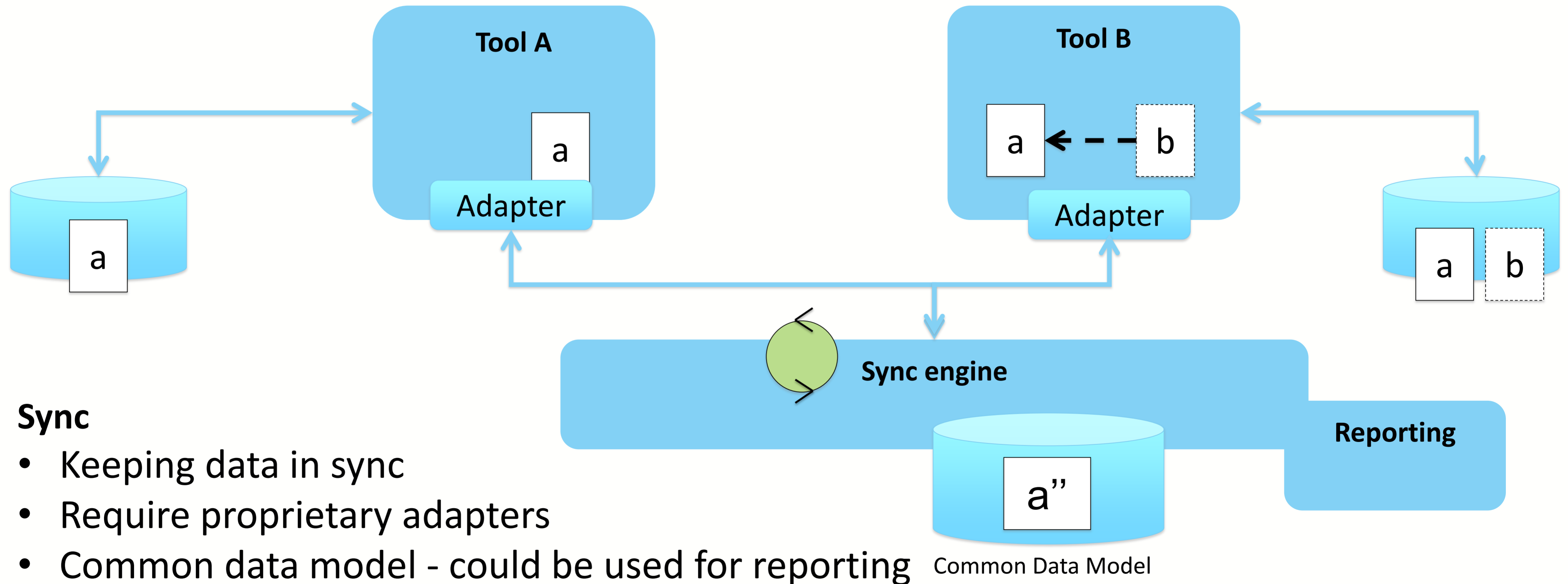


## Sync

- Data copied – keep in sync?
- Allow user to work in their favorite tool
- Fewer tool licenses per user



# Tool supported Sync ...



## Sync

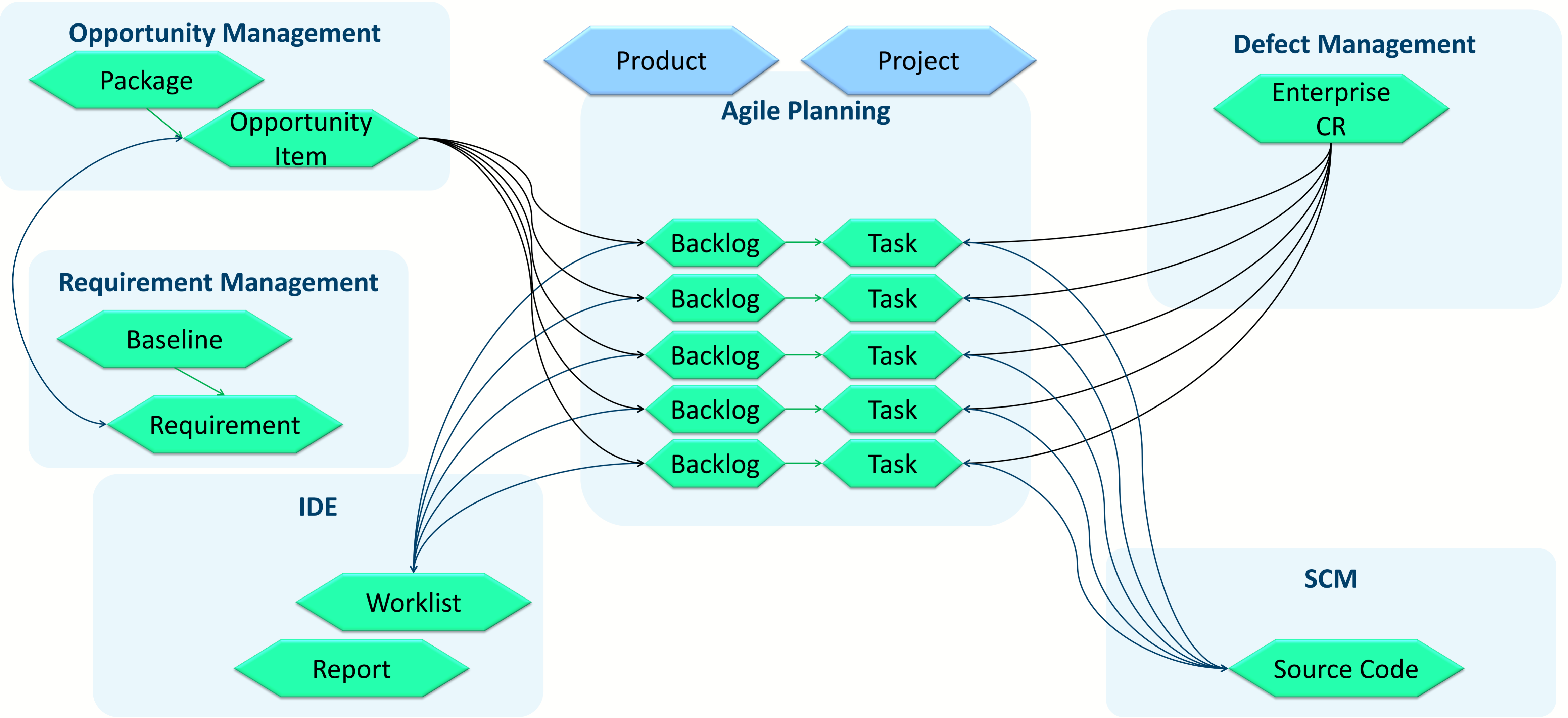
- Keeping data in sync
- Require proprietary adapters
- Common data model - could be used for reporting

Common Data Model



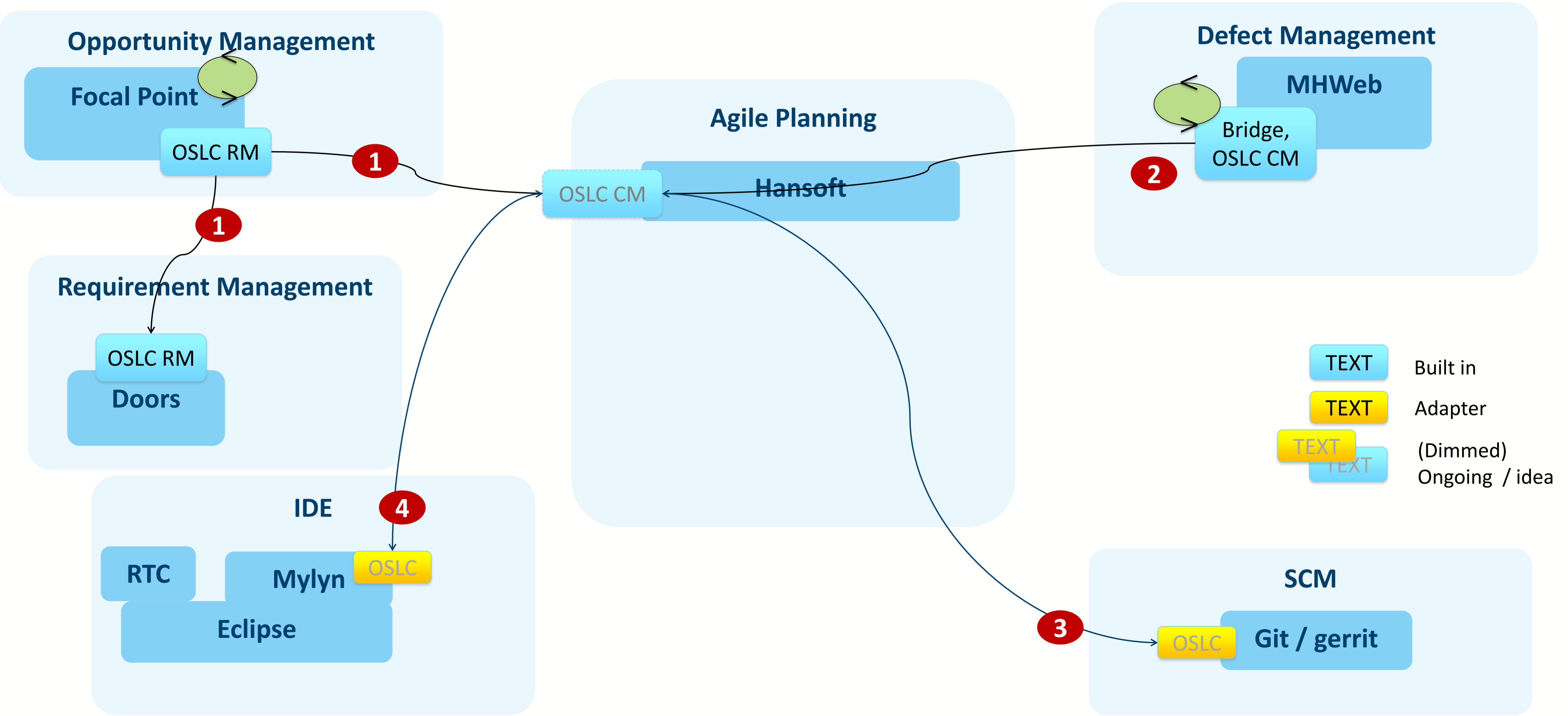


# Integration landscape - examples





# Integration in context





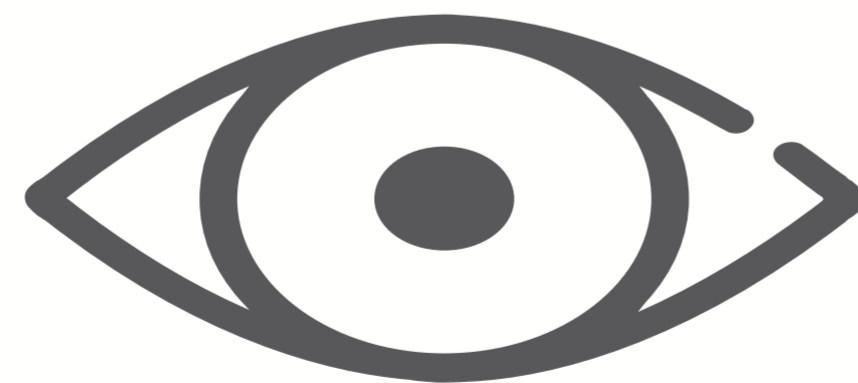
# Integration/Cooking Steps

## ■ 1- Conception

- Define Use Cases
- Agree on a Process (WoW)
- Define Roles and Responsibility
- Link vs Sync
- Specify Attribute Mapping
- Identify Master/Slave attributes
- Manual vs Automation
- Initial Load
- How to setup “Automation”?

## › 2- Implement

- Build & Test



## › 3- Validation and UAT

- Agile Testing and PoC
- Iterate if required

## › 4 - Deploy in Production

- Agree on Support Model

## › 5- Continuous Improvements

- Lessons Learned
- Review/adjust principle
- Add new UC



## Example of Use Cases

**UC 1: Create a task in Hansoft based on a FP requirement**

**UC 2: Update a task in Hansoft based on a FP requirement**

**UC 3: Create a task in Hansoft based on a TR (defect) in MHWeb**

**UC 4: Update a task in Hansoft based on a TR (defect) in MHWeb**

**UC 5: Create a TR in MHWeb based on a Hansoft Task**

**UC 6: Update a TR in MHWeb based on a Hansoft Task**

**UC 7: Connect a RM or QM artifact with a Hansoft Task (CR)**



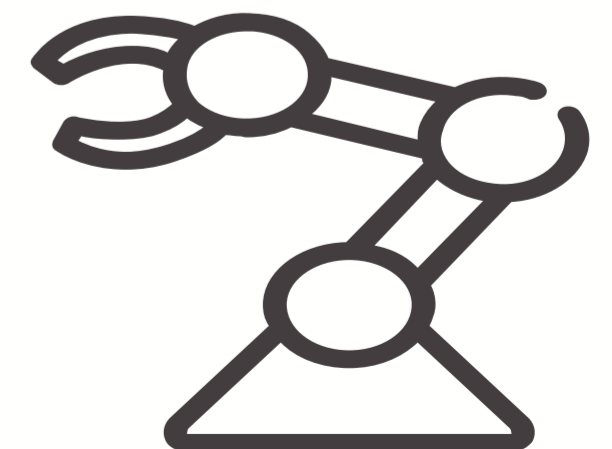
# FocalPoint-Hansoft Attribute mapping EXample

Focal Point			Create	Update to HS	Update to FP	Hansoft	
Attr name	Attr type	Text Attribute					Att type
ID	Unique Id	n/a	->			FP ID	Text
Title	Text	n/a	->			Name	Text
Revision	Version	Revision Text	->	x		FP Rev	Drop list w single choice
Title	Text	Title (duplicate)	->	x		FP Title	Text
Attached file(s)	Text List	n/a	->	x		FP Link	Multi-Line Text
Product	Link	Product (text)	->	x		FP Product	Drop list with single choice
Release	Link	Release (Synch)	->	x		FP Product Release	Drop list with single choice
Requirements Owner	Element Information	ReqOwner	->	x		FP Owner	Drop list with single choice
Priority	Float	Priority(Synch)	->	x		FP Product Priority	Text with 4 digit
Entered Date	Date	Entered Date (text)	->			FP Enter Date	Date
Last Changed Date	Date	Last Changed Date (text)	->	x		FP Change Date	Date
PM Requirement URL	Text	n/a	->			OSLC Reference	Link
R&D Requirement URL (link)	Integration Link	n/a	<--			(html link to the Hansoft task)	n/a



## Manual vs Automation

- For some work Manual steps within integration can be used
- Automation allow you to move big amount of data via Scheduler which can be controlled changed via setup
- For FocalPoint-Hansoft automation is using Filter setup under Display





# Ericson OSLC adapters as Open Source

- Ericsson decided to release commercial OSLC adapters as Open Source
- License for adapters will be based on Eclipse License model
- We also having discussion to give away adapters to Tool Owners
- Marketplace will be defined by EU ICT Labs project





# Existing and coming OSLC integrations

- Hansoft
- TFS
- Jira
- Mingle
- Tuleap OpenALM
- TeamForge
- Ericsson In-house tools

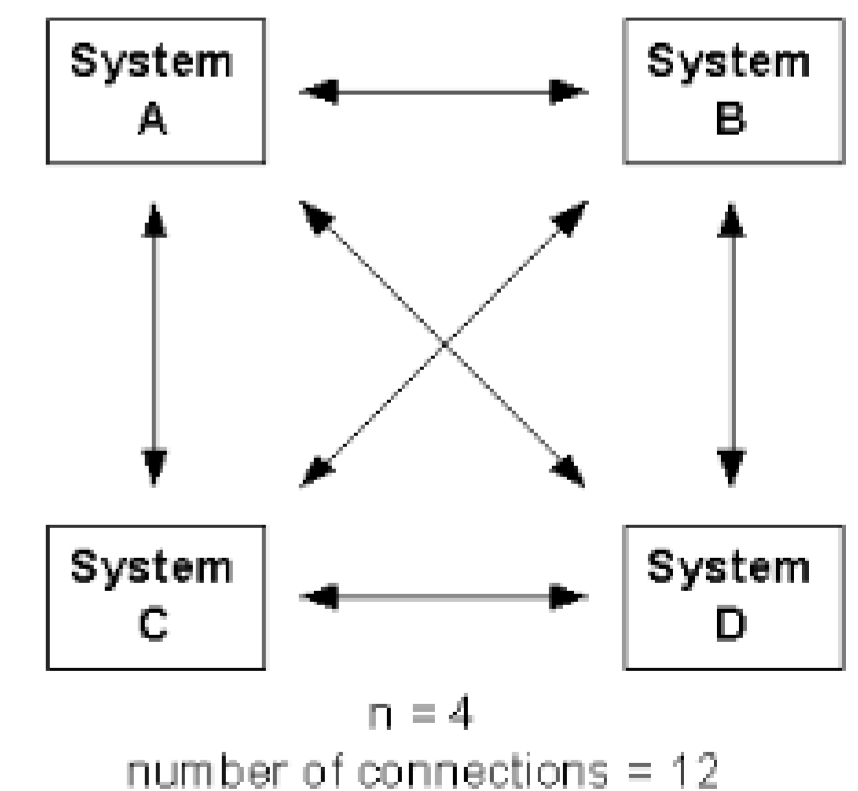






# Vendors

- **Point-to-Point integration don't scale!**
- **OSLC Based Eco System**
  - Big users wants OSLC (Ericsson, Alcatel-Lucent, Siemens, Citigroup, Bank of America, Cisco, Airbus, Boeing ....)
  - Engineering Tool vendors are starting OSLC implementation
  - PLM vendors are already having OSLC
  - ALM vendors are on way to implement REST





# SOME OSLC members!

Accenture	Advanced Computational Research	Agosense
Airbus	Alcatel-Lucent	APG
Atego	Bank of America	BigLever
Black Duck	Boeing	BSD Group
CESAR	Cisco	Citigroup
ClearBlade	CloudOne	CM-Logic
CONTACT Software	Corso	Creative Intellect Consulting
Eclipse Foundation	Emphasys	Empulsys
Ericsson	fluid Operations	Fujitsu Limited
Galorath	General Dynamics C4 Systems	General Motors
IBM	Icaro Technologies	iFEST
Imperial College London	Institut TELECOM	Integrate Systems Engineering
IRIS	JP Morgan Chase	Koneksys
Kovair	KTH	Mentor Graphics
Method Park	MITRE	MobileSmith
Nanzan University	NASA Jet Propulsion Laboratory	National Institute of Standards and Technology
National Instruments	NEC	Northrop Grumman
OFFIS	Oracle	Orb Data
Perforce	Persistent Systems	Phunware
PointSource	Price Systems	PTC
QSM	Ravenflow	Red Hat
SCM Solution	Shell	Siemens
Sodius	Software AG	Sogeti
SourceGear	Sparx Systems	SPRINT
State Street	Stamps.com	Taligent



# Users

- To implement integrations
  - Send your request to vendors! Ask for OSLC!
  - Use tool integrators (as Tasktop, Kovair .....)
  - Implement your integration – collaborate with us, contribute to Open Source





# Summary and Going forward

- Great Business Case for Integrations
- Open Source Marketplace for adapters
- Collaboration with KTH to build OSLC adapter generator
- New adapters on way





– For requesting a demo, technical discussions or further information please contact either:

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- **John Becaley** (john.becaley@ericsson.com)



## More Info

### 🎯 EIF

[https://ericoll.internal.ericsson.com/sites/Engineering\\_Integration\\_Framework/Pages/home.aspx](https://ericoll.internal.ericsson.com/sites/Engineering_Integration_Framework/Pages/home.aspx)

### 🎯 EIF Hansoft

[https://ericoll.internal.ericsson.com/sites/Engineering\\_Integration\\_Framework/Pages/Hansoft\\_OSLC\\_Adapter.aspx](https://ericoll.internal.ericsson.com/sites/Engineering_Integration_Framework/Pages/Hansoft_OSLC_Adapter.aspx)

### 🎯 OSLC

<http://open-services.net>



# Questions

