



Reuse: from theory to reality

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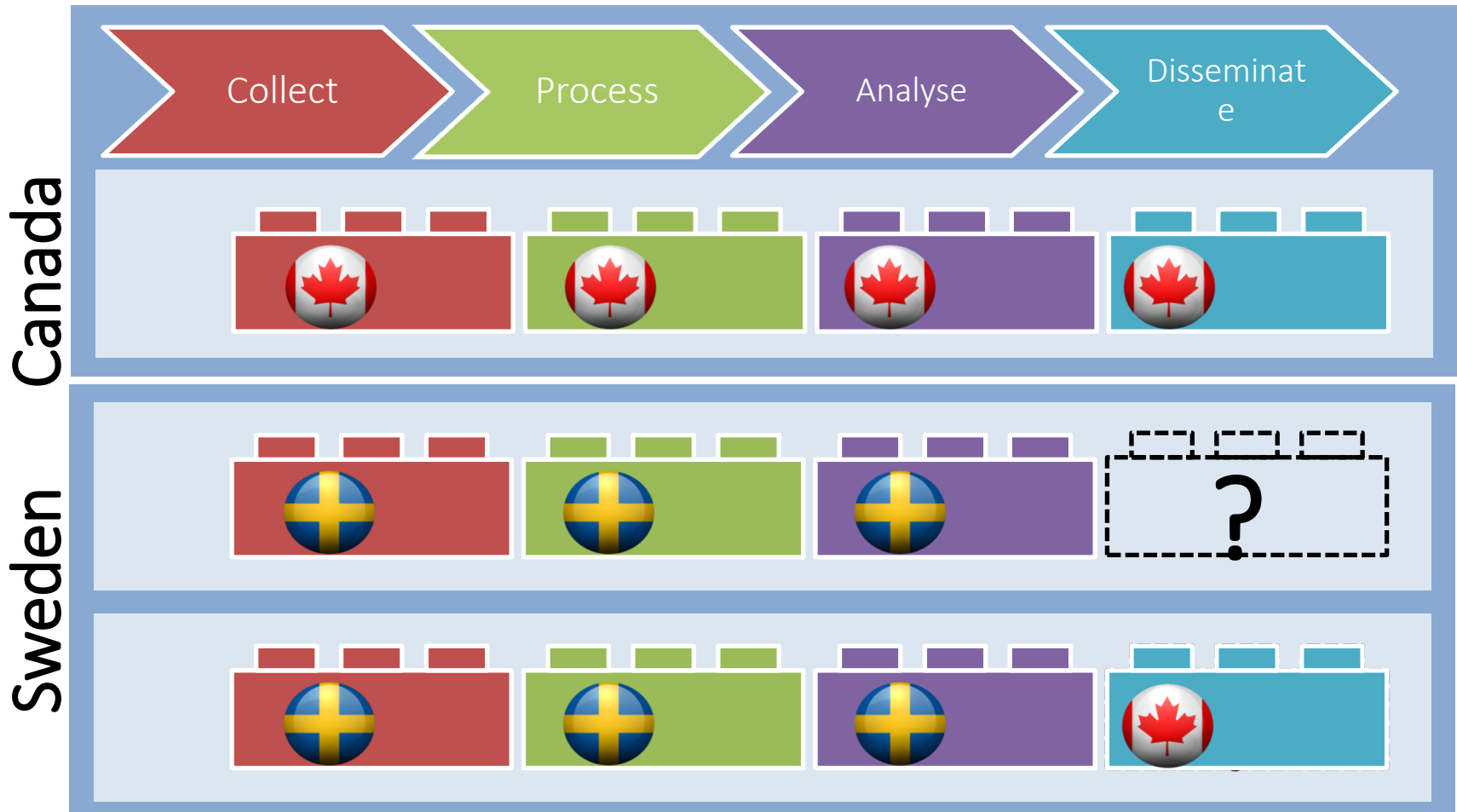


Theory

- Reuse is poorly understood
- Not as simple as reusable / not reusable
- More than one dimension of reuse
- Many ways to reuse

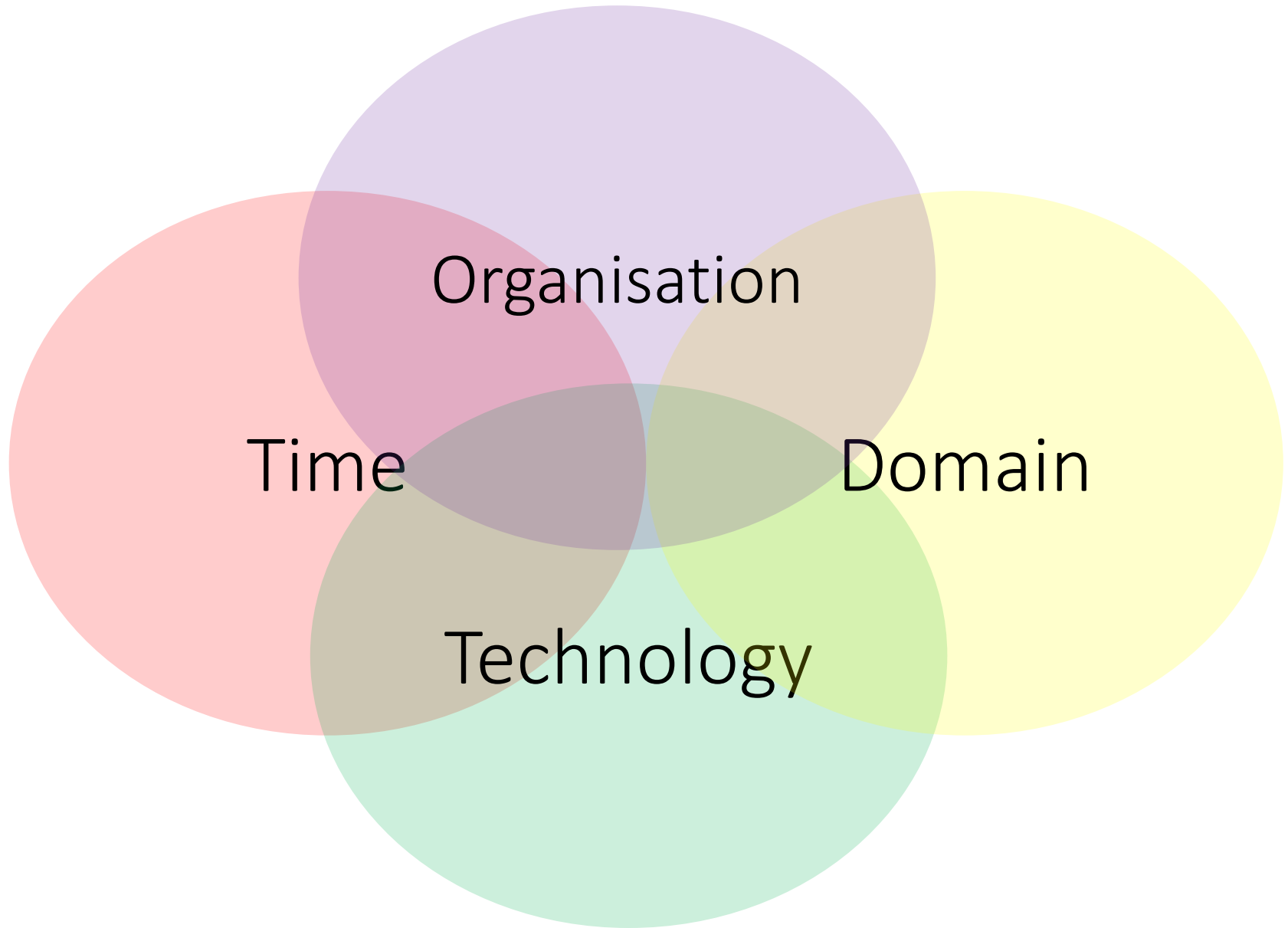


Theory





Reuse dimensions





Reuse



Time

Example:

Same implementation of the service applied every month. The service is robust to minor changes by tuning by statistical end-users.

“Repeatable”

Provides:

- Reduced effort
- Robustness

Facilitated by:

- Configurability
- Parametrization
- Metadata



Reuse



Domain

Example:

Same service applied in different topic areas. The service makes 'sense' in statistics and has been configured to use different data in each case.

“Generic”

Provides:

- Reduced effort
- Standardization

Facilitated by:

- Statistical* service orientation
- Data architecture & standards
- Parametrization



Reuse



Organisation

Example:

A service is shared with other organisations as either a service or a piece of code. The service has a licence that allows those organisations to use it and a support arrangement.

“Shareable”

Provides:

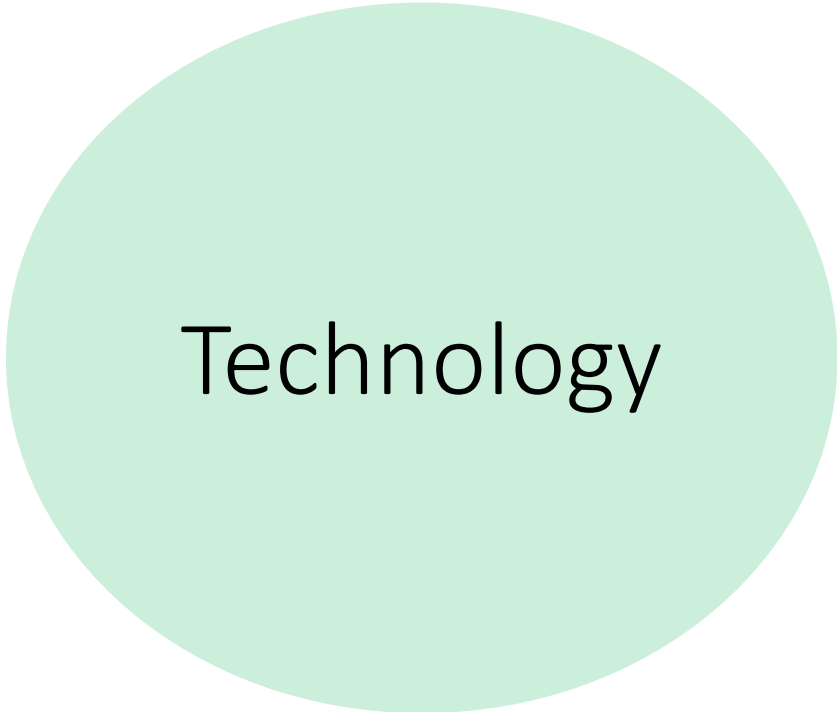
- Quality
- Trust / partnerships

Facilitated by:

- Shared standards
- Licences / source code
- Documentation
- Interfaces
- Support arrangements / SLAs / security



Reuse



Technology

Example:

A service has been deployed and made available over an API. The service consumes data and parameters using a clearly defined open standard.

“Technology agnostic”

Provides:

- Robustness
- Flexibility

Facilitated by:

- Interfaces
- Technology choices (OS)
- Standards (e.g., CSPA)
- “Good design”



Approaches to reuse

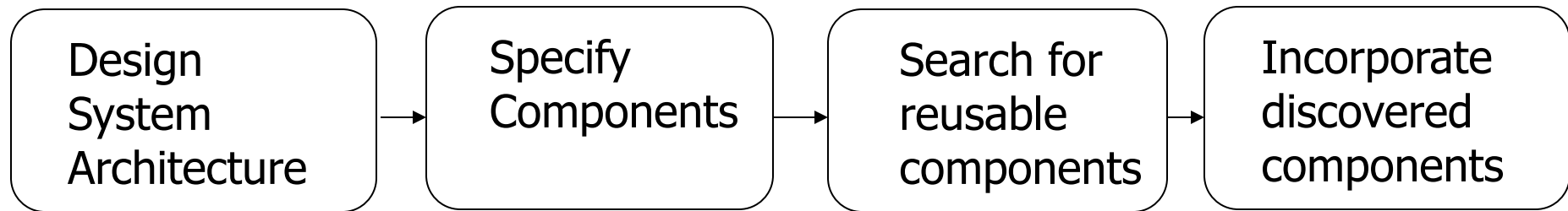
- Shared – one common instance accessed across reusing NSIs
- Replicated – each NSI holds a duplicate service instance
- Interoperable – separately built services designed for effective joint operation



ESSNet reuse: Questionnaire Generator

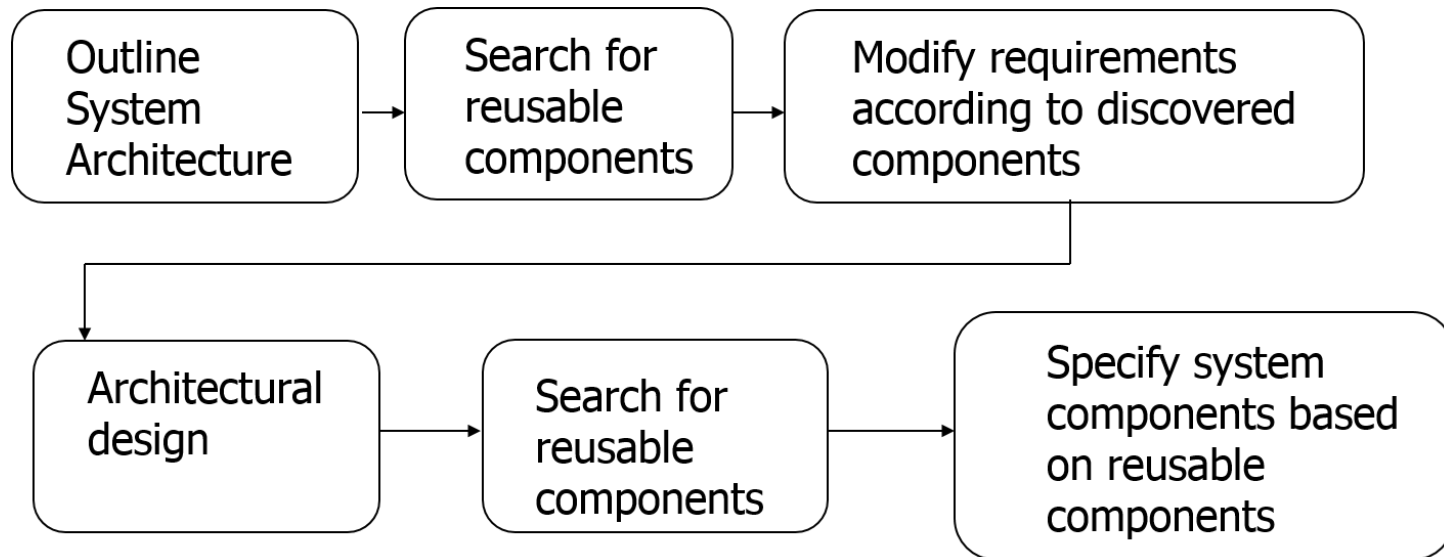
- Eno: tool that generates survey questionnaires starting from their formal description in DDI.
- Can create questionnaires in different formats from the same DDI description: Xforms, PDF, (Blaise)
- Available as a REST Web Service
- Replicated, shared, interoperable reuse - reaching real business implementation

Standard development process



- The system designer completes a high-level design and specifications of the components of that design.
- These specifications are used to find components to reuse.

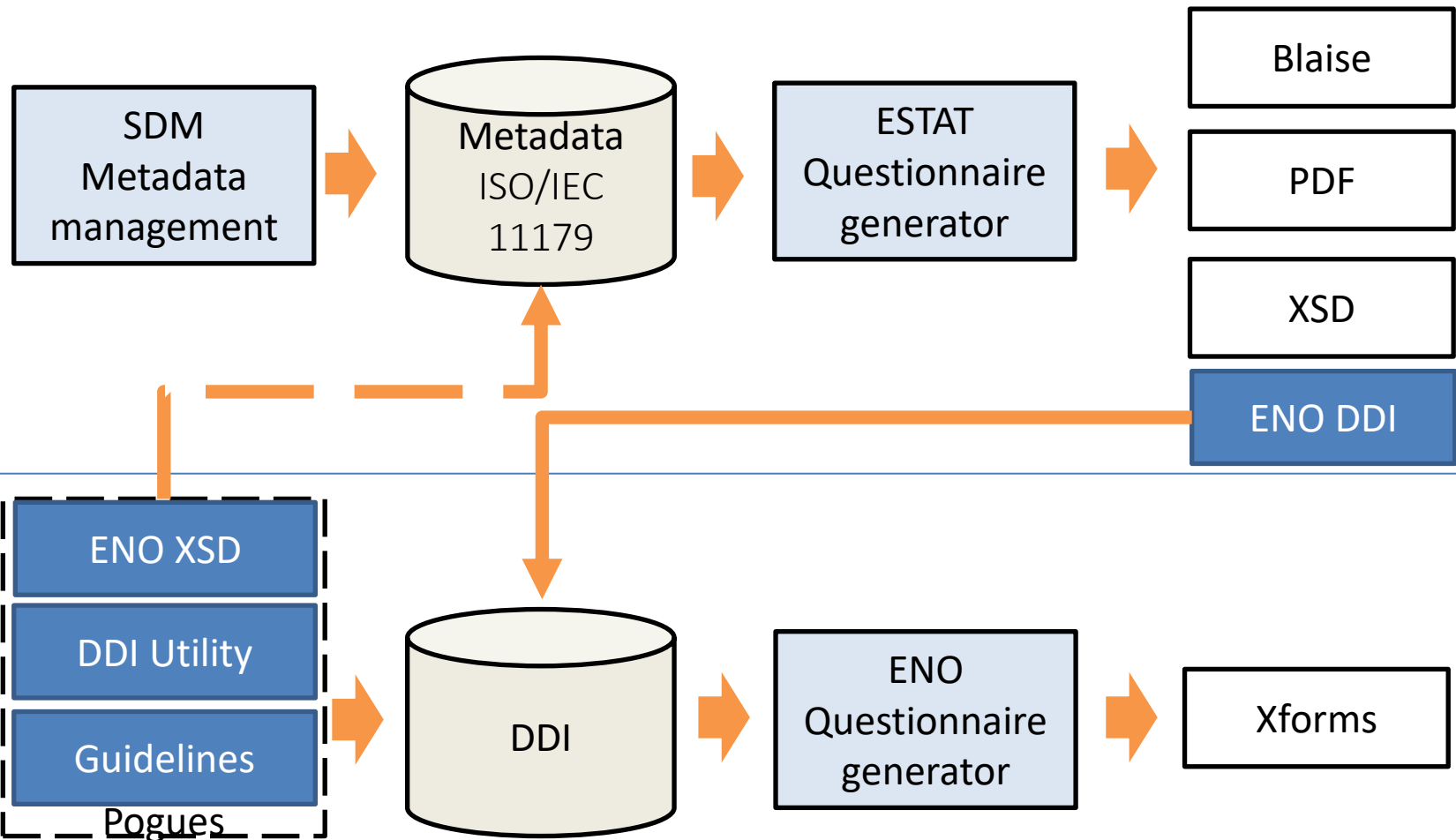
Reuse driven development process



- Reusability drives the design process.
- Rather than design then search for reusable components, designers first search for reusable components. They base their design on these components



ENO integration





Eno reuse dimensions

- Domain: Same service applied in different topic areas
- Time: Same implementation of the service applied every month.
- Technology: A service has been deployed and made available over an API. The service consumes data and parameters using a clearly defined open standard.
- Organisation: reused from INSEE to SURS by replication.



Conclusions

- Service reuse increases productivity, quality and reliability and decreases cost and implementation time.
- By far the most important part of the reuse process is the people.
- If the concept of reuse and its benefits are not understood in the organisation, reuse won't happen.
- Reuse principles and processes should be incorporated into the software development & deployment process.