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Australia – EU Registry Linking
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Also forwarded/copied to European Commission Directorate General for Climate Action

Opinion about registry options to facilitate linking of emissions trading systems

First of all, a lot of thanks to the European Commission Directorate General for Climate Action (European Union) and Department of Climate Change and Energy Efficiency (Australia) for organising this consultation.

This opinion represents an opinion of an individual citizen, not any legal entity.

This opinion does not contain:

- any business secrets
- any trade secrets
- any confidential information.

This opinion is public.

The European Commission Directorate General for Climate Action and Department of Climate Change and Energy Efficiency can add the PDF file of this opinion to a relevant web page(s).

Annex 2 holds information about licence, disclaimers and copyright.

Best Regards,

Jukka Rannila
citizen of Finland

signed electronically

General / Terms

The European Commission Directorate General for Climate Action (European Union) is referred hencefort as **The Commission**.

Department of Climate Change and Energy Efficiency (Australia) is referred hencefort as **The Deparment**.

General / Procurement of a new system or using an old system?

It is possible, that the Commission and the Department have not yet issued a request for quotations (RFQ) for a new information system, which would facilitate linking of emissions trading systems.

It is possible, that the Commission and the Department decide to modify/alter/update an old information system, which would facilitate linking of emissions trading systems.

General / Relations with requirements and features

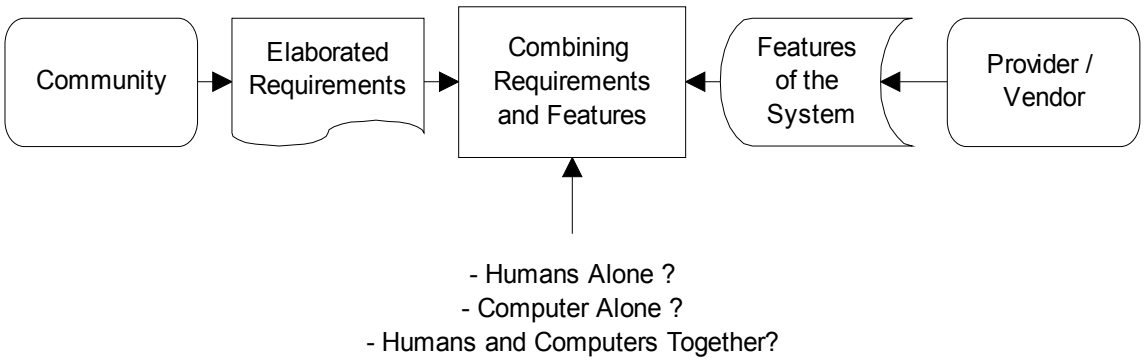


Figure 1: relations with requirements and feature

It can be said, that the Commission and the Department are now a communities for elaborating different requirements to a (new) information system. The (new) information system features should conform to the requirements.

However, the scientific information about requirements engineering is not cumulated extensively. Mainly the scientific information about requirements is still based on describing different issues in the requirements process. (Jarke et al. 2011)

One thing is sure, requirements engineering is very high-risk task in the information and communication technology (ICT) field. Therefore we have even today very high-risk projects failing because of the requirements engineering problems.

Traditionally requirements engineering has been divided in to three distinct areas:

1) discovery
2) specification
3) validation and verification.

In the traditional terms it can be said that this consultation of the registry options is specifying different requirements for a new information system.

However, it can be said with high certainty, that this consultation will not result full discovery and totally unambiguous specification. Therefore the actual implementation of the (new) information system can open totally new scenes of new and unforeseen requirements – thus opening a way for a new information system failure.

A simplification of ICT / Some figures

In the following figure is one simplification of information and communication technology (ICT).

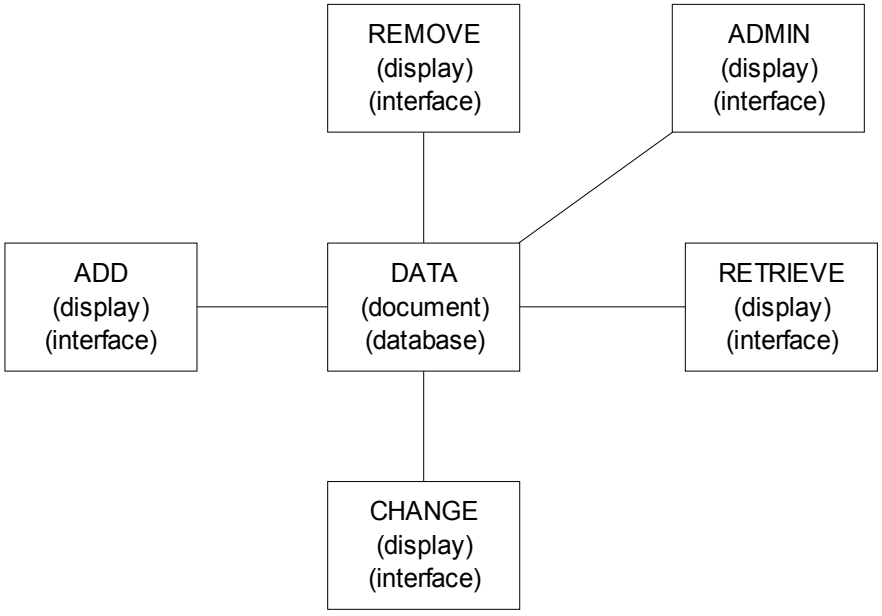


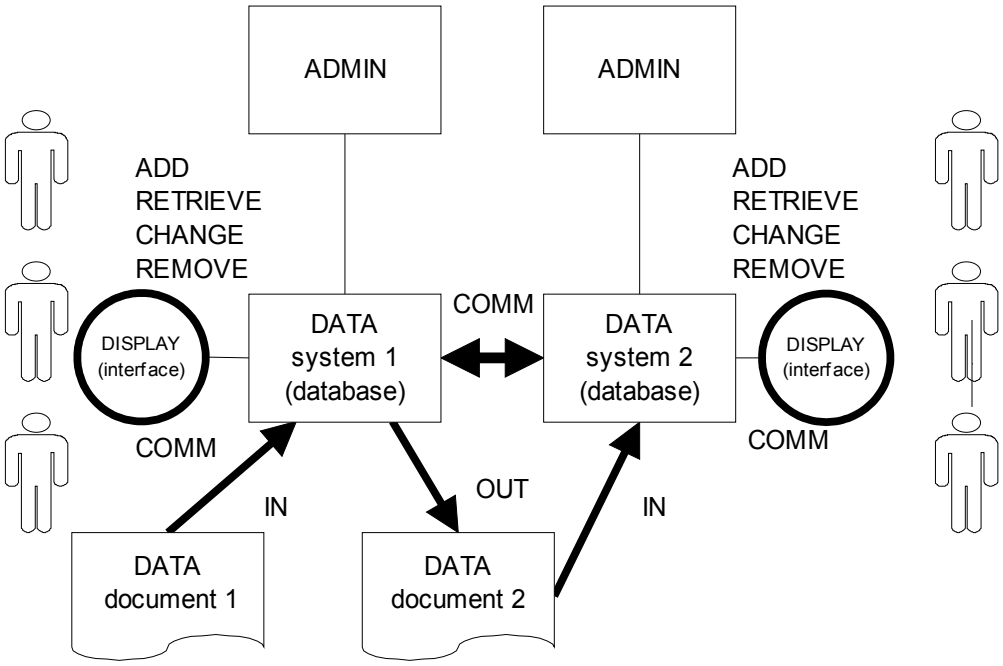
Figure 2; First simplification of ICT

In all information systems there is following features:

- adding data
- retrieving data
- changing data
- removing data
- administration of a information system
- data is contained in document(s) and/or in database(s)

On the other hand, a computer program (software) is in the heart of all ICT exercises. Without

104 computer program ICT machinery (hardware) would be useless.
105
106 All data will be useless, if there is not technical measures to have a data model. Also data needs in
107 many cases measures about semantic meanings and/or conceptual model. In principle, there is
108 basically two kinds of data containers: document and database. Both document and databases are
109 handled with programs.
110



111 *Figure 3: Second simplification of ICT*
112
113

Table 1: Open and closed possibilities for different functions

	OPEN	CLOSED
1. Device / Machinery		
2. Operating system		
3. Program(s)		
4. Data model / Conceptual model	**This consultation?**	**This consultation?**
5. Document (Standard)		
6. Database (Standard)		
7. Communications (Standard)		

8. Retrieve / Interface		
9. Add / Interface		
10. Remove / Interface		
11. Change / Interface		

The actual reality is very complex. In practical terms there are several situations:

- systems must communicate directly with each other
- there will be several communications methods for direct communication
- there are different standards for direct communication
- data in the system is added by processing different documents
- data from the system is extracted and loaded to different documents
- there are different standards for different documents
- there will be several types for different documents
- there are several displays / interfaces to system(s)
- there are several user groups.

There is one very distinctive differentiator in the ICT field: things can be open or closed. In the table above, there is one small list of options to be selected: either open or closed. There can be different high-profile examples of different open and closed solutions

It can be said that different high-profile examples have combinations of open and closed information technology solutions, and they provide those combined solutions as services and/or products.

However, in some cases some closed solutions spread so large, that a specific closed solution can be a bedrock for several other solutions. Also, in some cases even a small change in a specific closed solution can wreak an ICT havoc, since some of the relevant information is closed.

Naturally, there can be ICT havocs also in open solutions – the latest leap second [1] problem in 2012 caused outages both in closed and open solutions.

Generally can be mentioned, that there is difference between direct system-to-system communications and document-to-system communications.

This complexity can be described in the following figure.

[Continues on the next page]

1 http://en.wikipedia.org/wiki/Leap_second contains links to leap second problems and solutions.

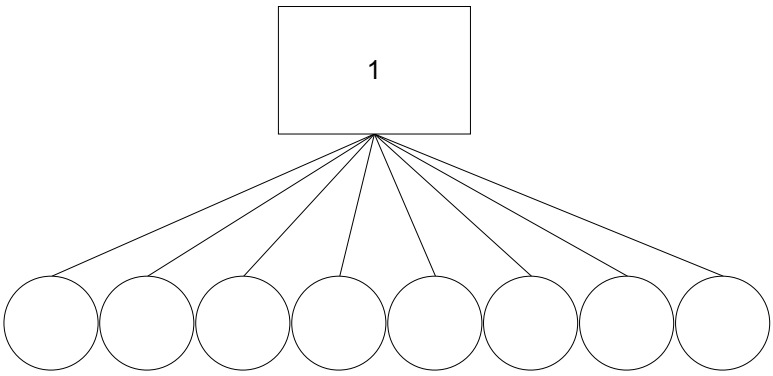


Figure 4: Need for several interfaces/displays

One system will have several connections and several interfaces (displays).

General / The dream of one good interface

Most probably the following claims will cause a lot of unrest among ICT specialists.

1. There has to be possibly tens of different interfaces (displays)
2. There has to be several interfaces (displays) for different user groups
3. Different interfaces will be added and removed irregurarly.

One interface to all users will not work, and so-called heavy users will complain about the one interface being too complex and demanding several selections before the actual functions (add, remove, change, retrieve).

For certain ICT specialist, i.e. programmers and database specialists, one interface is a good target, since just getting one interface to work is a good challenge. Therefore creating several interfaces (displays) might cause unrest.

For certain ICT specialist, i.e. usability experts, several displays can be totally non-understandable challenge, since they are used to create one interface with maximum usability – maximum meaning all instructions and all selections well-explained. Also user interface testing is thought to demand several days of testing.

How to move to different and slightly different solutions with the (new) system? Here are some solutions:

1. Ask interface proposal from different stakeholder groups
2. Demand several interface proposal to different usage – from one-time usage to heavy usage
3. Collect several interface proposal together
4. Refine several interface proposal – i.e. redundant proposal are extracted together
5. Calculate initial support for different interface proposal

6. Distribute extracted interface proposals to different stakeholder groups
7. Calculate support for proposed interface proposals.

My own modest research (Rannila 2003) concludes, that one interface (display) to all user groups is not a feasible solution. There should be several simple interfaces (displays) to several user groups:

- one-time users
- users using the very rarely – e.g. yearly
- users using the system rarely – e.g. monthly
- user using the system rather often – e.g. weekly
- user using the system almost daily – not every day
- users using the system daily
- users using the system hourly
- etc.

The user interface to heavy users must be as simple as possible with very few options to select. They need the most reduced user interface (display) for the following functions:

- add information
- retrieve information
- change information
- remove information.

The user interface will more complex to other users and for one-time users it will be rather explanatory but also simple at the same time.

General / Open and closed solutions as business strategies / Antitrust

What is your lock-in? This is a question, which a venture capital representative can raise in negotiations. In lock-in situation the customers are finally locked in to a specific solution.

In some cases these lock-in situations can be very severe, and in some cases there might be de-facto monopolies locking in customers. In some cases there might need for some antitrust action, e.g. by the European Commission (in specific Directorate General for Competition).

General / Who will be the expert – in which context?

Like Jarke et al. (2011) describe, one of the prevailing models is, that requirements engineers come outside the community and then they “find and document” different requirements. In practical reality this does not work and requirements are not elicited, specified, validated and verified well enough.

My proposal is, that traditional roles of ICT experts and domain experts should be altered in many ways. I have tried to explain the idea in the following figure.

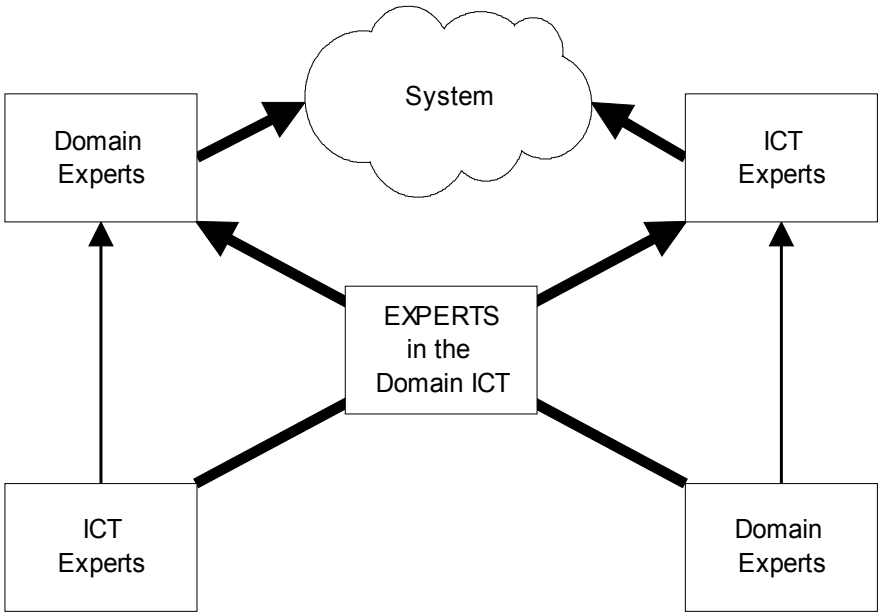


Figure 5: Expertise in different domains

In practical reality ICT experts try to become domain experts, since they are total newcomers in many situations. What is the problem in this approach? In some domains it will take some years to become a real expert in some domain.

On the other hand many domain experts are total newcomers in the many situations. Even though many domain experts use ICT every day, the understanding of inner workings of different ICT solutions is very limited.

What we need? Naturally we need experts in the domain ICT. How could this possibly achieved? My conclusion is that we need some blurring of ICT knowledge and domain knowledge in very straightforward way. My proposal is something like this:

1. Domain experts/engineers give education to the ICT experts
2. ICT experts/engineers give education to the domain experts/engineers.

My humble opinion is, that in some cases acquiring the needed knowledge in some domain can take several years, and ICT experts can not learn everything in a certain domain. On the other hand, I think that pure ICT skills can be learned faster than many specialised skills in different domains.

What we are missing, is the format for doing this two-stage education process, which can take some time – e.g. several weeks in some cases.

My proposal is, that after this education process there can be a lead requirements engineer, who can successfully navigate in the requirements jungle in a specific domain. This lead requirements engineer should be accompanied with another requirements engineer, who can navigate in the

requirements jungle of ICT solutions.

Therefore my proposal is following:

1. Specify the registry option(s) as planned
2. Plan the ICT procurement process
3. Select suitable persons for giving domain education for ICT experts
4. Select suitable persons for giving general ICT education for domain experts
5. Proceed with the ICT procurement process.

It can be said in the procurement process documents, that certain education will be provided by domain experts and ICT experts. With the current information I have, I would not recommend the traditional ICT procurement process, since it is not resulting best possible results.

The Standish Group International (1995a, 1995b, 1999, 2001) has published the famous CHAOS reports, which indicate a large amount of ICT failures in several fields. Naturally, those CHAOS reports has been presented badly or misunderstood. Haigh (2001, 2006) gives us another view for ICT failures from a longer time period.

IN short, the development information system can be heading for a ICT failure, and the real ICT success of the (new) information system can take some years after some rework and redirections – just referring to the success rate in the before mentioned CHAOS reports.

General / Basic premise / The source code of the (new) information system for registry options must be owned by the Department and the Commission

Sledgianowski, Tafti and Kierstead (2008) provide an example of an self-developed enterprise system for a specialised SME (small and medium enterprises). The main conclusion, which I conclude, is the importance of source code ownership of the procuring legal entity.

The normal situation is, that the procuring legal entity does NOT own the source code of an information system. This wrong ownership of the source code of an information system lead to numerous problems.

A simplification of ICT

In the following figure there is yet another simplification of ICT.

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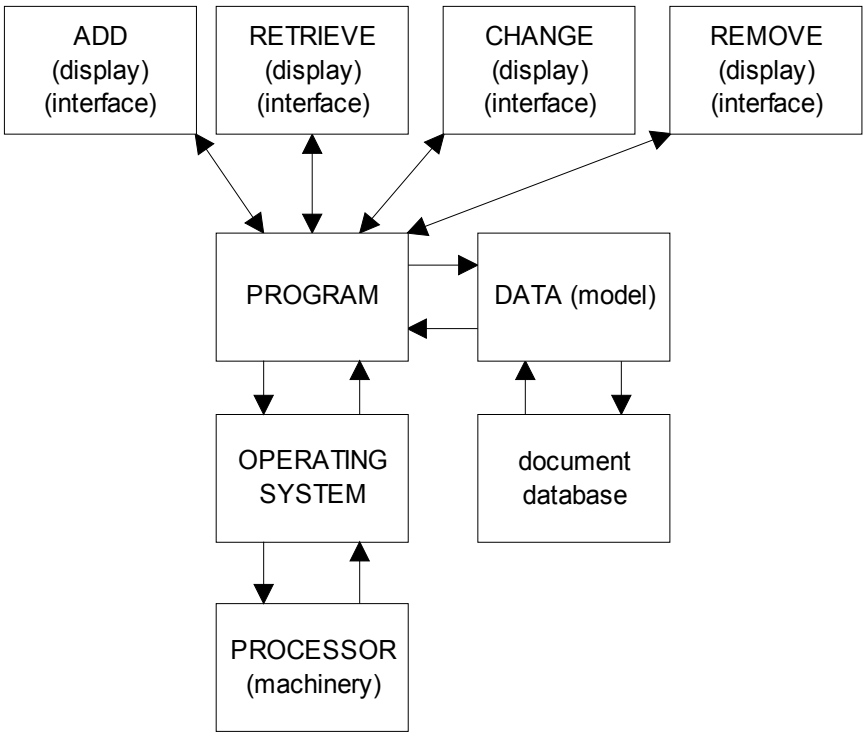

Figure 6: Third simplification of ICT

It can be said, that registry options are about the data model for the (new) information system. The actual data is processed with documents and/or databases.

What I would recommend as the minimum solution:

- the Commission and the Department own the database of the (new) information system
- the Commission and the Department own the source code of the program behind the (new) information system

The maximum solution would be following:

- the Commission and the Department own the machinery and processor of the information system
- the machinery and processor are based on relevant open standards
- the operating system is based on an open-source solution
- the Commission and the Department ownthe source code of the information system
- the Commission and the Department own the database of the information system
- the database is based on open-source solution and on relevant open standards.

Naturally, the maximum solution might not be select as the preferred solution.

What would be the advantages of the maximum solution?

- the operator for machinery and processor can be selected based on skills and not on lock-in for certain technology
- operating system can be maintained by an operator, which is not locked in certain technology
- source code developers can be hired in irregular basis since the source code would be owned by the Commission and the Department
- open technologies mean that operators could be certified professionals.

In practical terms it can be said, that ICT people are divided to three camps:

- information systems are owned by providers
- information systems are owned by the customers
- information system are developed in an open environment.

On the other hand it is quite clear that there will not be several hundred thousands installations of the (new) information system – there will be only one (registry option) system and therefore it is better that the Commission and the Department own all relevant parts of the (new) information system.

Naturally the Commission and the Department can use technologies, which are developed in an open environment, but these open technologies can be the base for actual solutions with direct ownership.

The Commission and the Department will most probably face a fierce resistance from several stakeholder groups when/if the Commission and the Department are demanding total ownership of the whole information system.

It can be said, that customer´s total ownership of the information system is somehow non-understandable for some ICT persons.

General / The Commission and the Department should select a feasible integrator system

The practical reality is that the (new) information system must communicate with other information systems. The practical reality is, that some parts of the information system may be a legacy technology in distant future – it depends on the basic technology selections when procuring the system. However, the integrator systems are nowadays even better, and it might be feasible to the Commission and the Department procure a feasible integrator system,AND then the actual information system.

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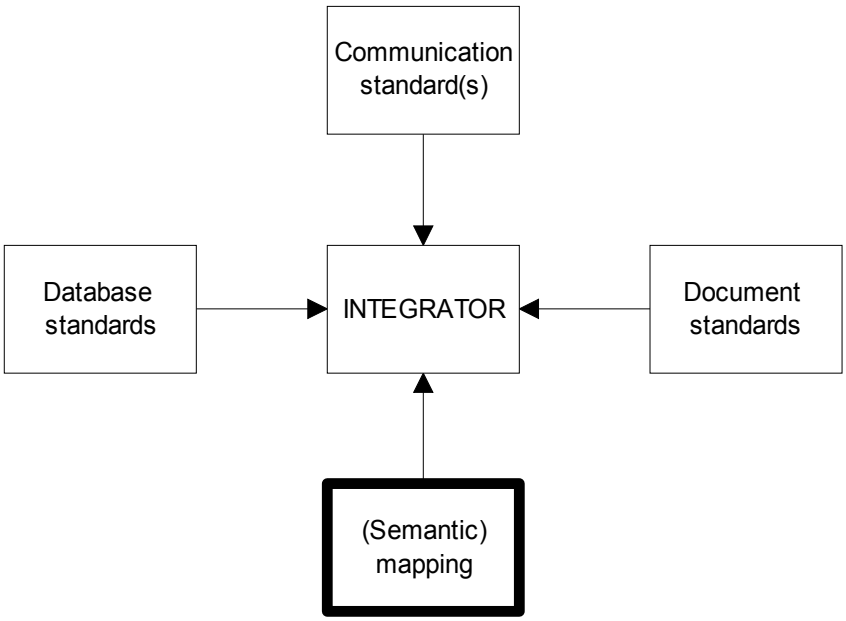

Figure 7: The nature of integrator systems

Why a separate integrator system? Without a separate integrator system the time will pass, and the (new) system will ultimately be integrated to several system. This might result so-called (infamous) spaghetti situation, where everything is integrated to everything and it is impossible to move/change/remove anything in the system.

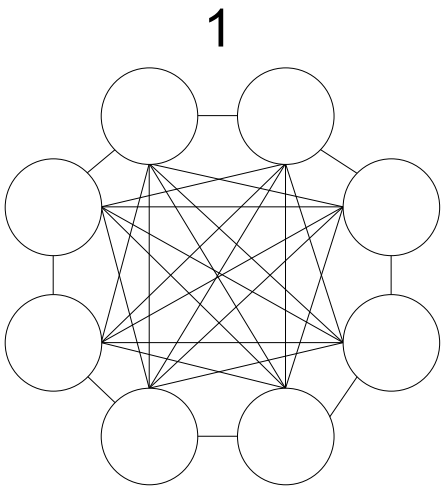

Figure 8: All-to-all connections

In the perfect world there would be just one integrator system, and other systems are systematically added, changed, removed, etc. and integrator system would handle all situations.

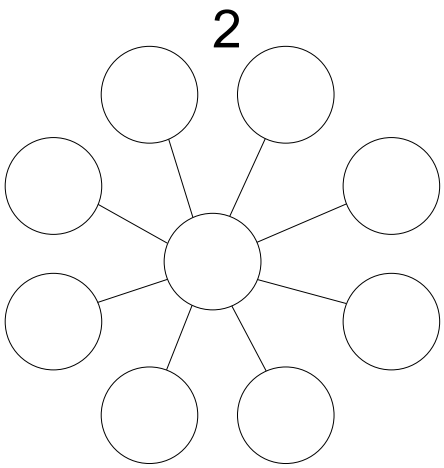

Figure 9: One-to-many connections

Naturally, there can be several integrator systems, and those integrator systems can communicate with each other.

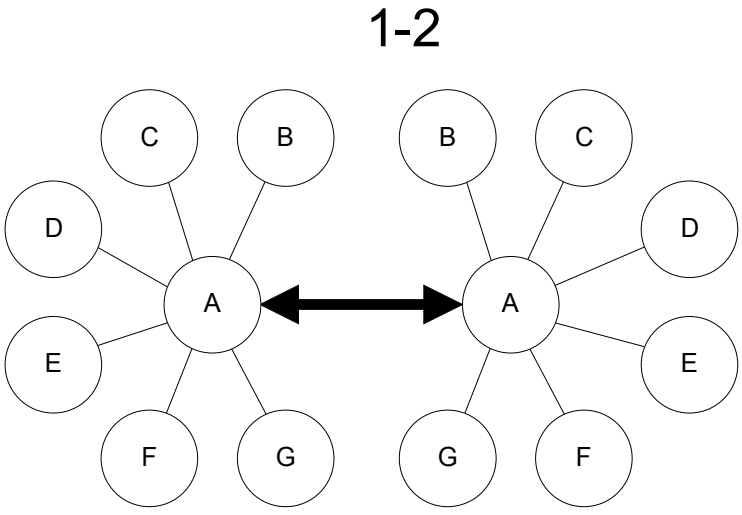

Figure 10: Connecting two systems

However, we do not live in the perfect world, and different systems are interconnected in several layers. The following figure is an example of a simple layered situation.

[Continues on the next page]

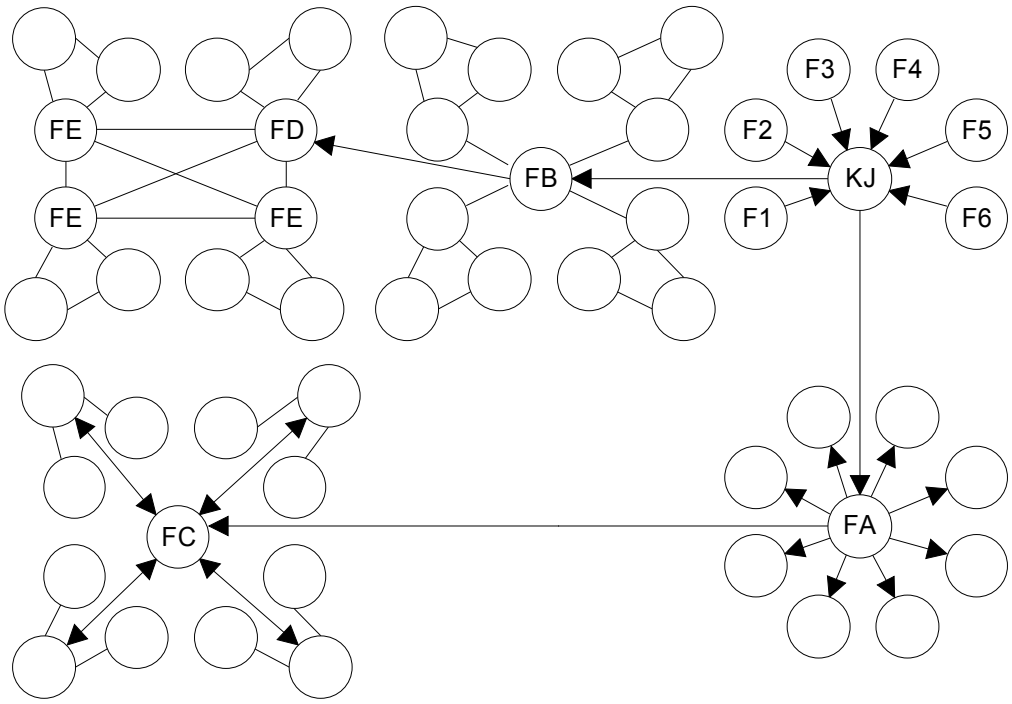

Figure 11:Connected and layered information systems

The practical reality is, that there will numerous IDs (Identifier) in several layers. Therefore one identifier for the registry is practical impossibility. Therefore the (new) system must handle numerous external IDs and most probably there will numerous external IDs added later.

Therefore dreams about one all-powerful ID must be ditched/dumbed.

This resolution might be upsetting in the first place, but the practical reality hard – there are existing ID and there will be several (partly new) external IDs to be handled. It is better to accept this fact in the first place and start planning the (new) system with understanding of this practical reality. Most probably the ID done by the (new) system will be a new layer of IDs for several external systems.

General / Different replicated systems for different types of retrieval

Also different retrieval needs complicate the situation. Naturally adding, changing and removing data in the systems are important, but retrieval is the most needed function.

Retrieval needs also vary: sometimes a real real-time system is needed and sometimes a daily retrieval is needed. Therefore the Commission and the Department must also consider, if there is a reasoned need for different retrieval data systems. If there is a need for different levels of retrieval, a good integrator system is once again a feasible option.

General / New buzzword: Cloud Computing

Most probably there will be several old and new buzzwords used when reading the opinions based on the public consultation paper. One the newest buzzword is Cloud Computing. The Commission and the Department should be very concerned about different and new buzzwords, and the Commission and the Department should check the practical reality behind different buzzwords.

Cloud Computing is according to my understanding/judgement just adding more stuff to web servers and those actions are standardised in many ways. There are possibilities for external and internal use of more powerful web servers. Since the communication speed in information networks is nowadays considerable, there is possibilities to add more stuff to web servers. Since the client computers nowadays are extremely efficient, the load between a server and a client can be divided in more efficiently.

However, there are always different high-profile risks in different ICT solutions – also in Cloud Computing. There is not a magical bullet to everything, and a new buzzword is always a high-profile risk.

What should actually be in the cloud (so-called)?

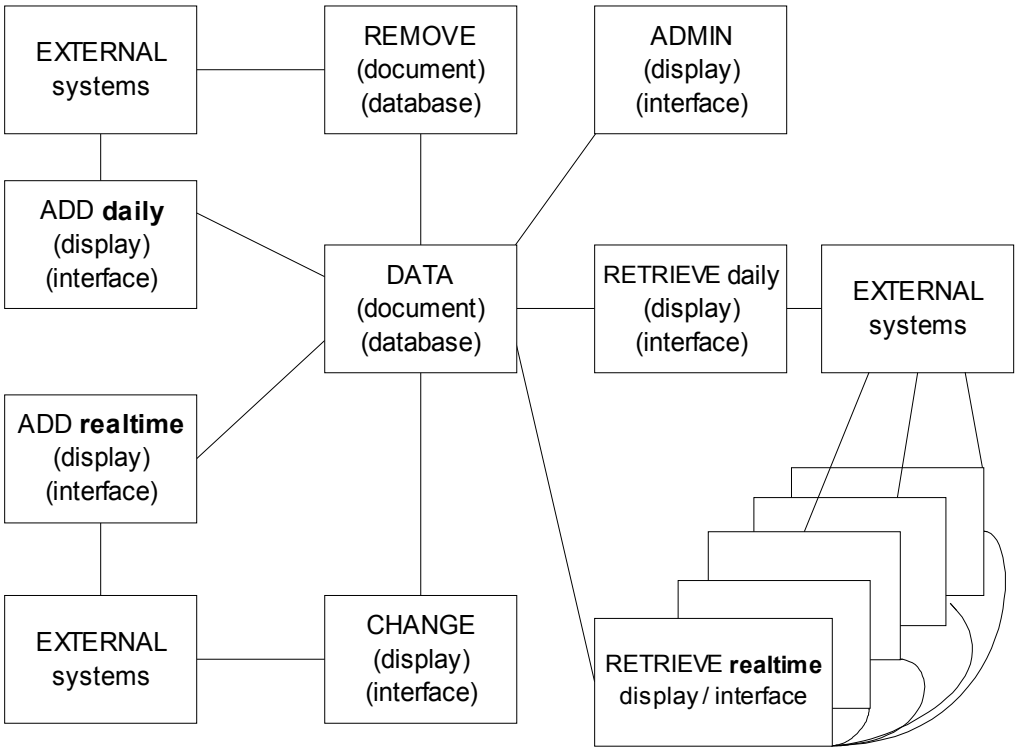

Figure 12: Layreded and connected systems for different functions

In practical reality different communication needs and different interfaces (displays) demand replication of some parts of the (new) system. Since retrieval is the most needed function, the might be replications for different communication methods, e.g. possible real-time retrievals come from

different replicated data system. These replicated retrieval systems might work on thousands of retrievals per second. Naturally some external systems might work on real-time basis and they are some-how connected to the (new) information system.

SO – so-called cloud can contain very efficient retrieval systems, and possibly other systems (add, change, remove) can be more traditional.

General / More thoughts about the integrator system(s)

Like said before, there can be an integrator system.

The situation may be, that two systems (A, B) are integrated with a specific integrator (I) system

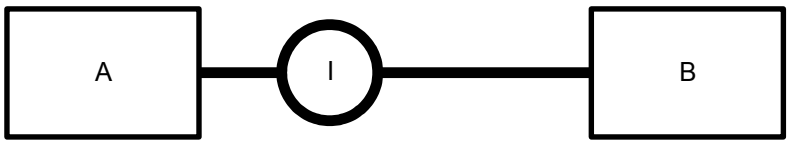

Figure 13: A simple integration

Depending on the actual situation, integrator (I) system can be also a central system (e.g. ERP, Enterprise Resource Planning), which is not a specially designed integrator system; this situation is described in the following figure.

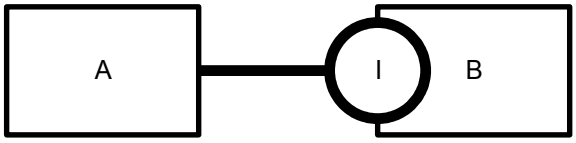

Figure 14: Ingrator in the border

It is also possible, that the integrator (I) system is a specific component of a certain system, and this component can be changed/replaced rather easily.

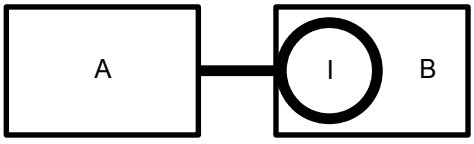

Figure 15: Integrator as a component

In many cases, the central system might integrate different systems, but the integrator component of the central system is very tightly hard-bolted to a certain system. This situation will complicate situation, where there is a need to integrate new systems to a central system.

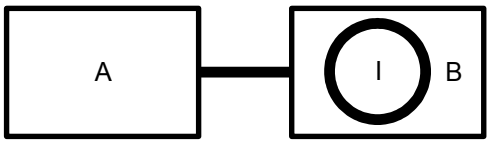

Figure 16: Integrator hard-bolted

A hard-bolted integrator system might several problems. When there is a new system (C) to be integrated, the need for a specific integrator system will rise again. Depending of the actual situation, the hard-bolted systems have to be altered/updated to work with an integrator system.

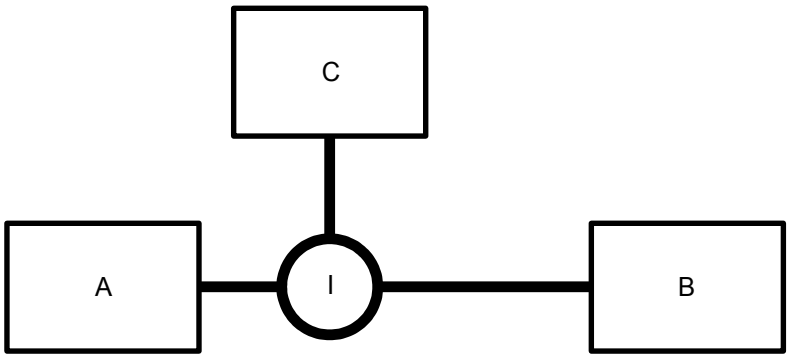

Figure 17: Integrating several systems

In practice, one integrator system does not solve all problems. Once again, depending on the actual situation, different integrator systems might be connected. Several integrator systems naturally complicate the situation. For example, the cloud computing can mean co-operation of different integrator systems.

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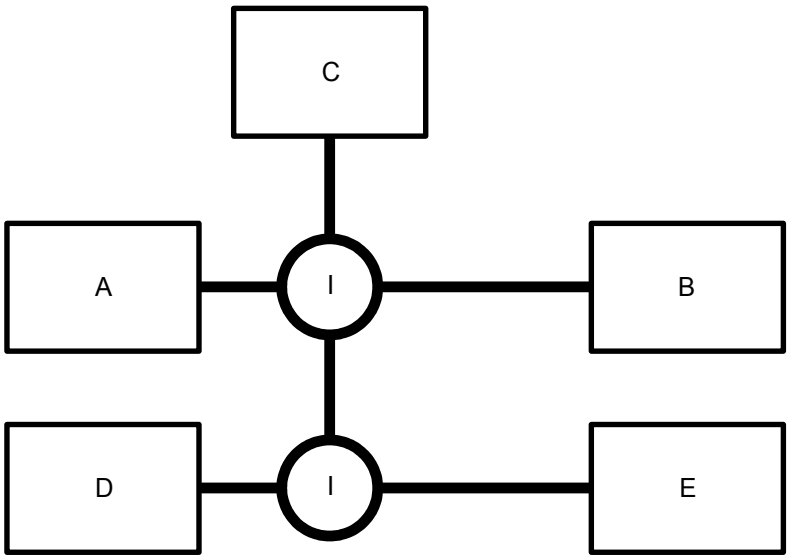


Figure 18: Integrators in different layers

The assessment of the consultation paper based on the previous general remarks

From page 8:

On 28 August 2012, the Australian Government and the Commission announced their intention to establish a **full two-way link** between the EU ETS and the Australian ETS by 1 July 2018 at the latest.

Note:

I) In figure 3 (Second simplification of ICT) the possibility for two-way link can be established by transferring documents between systems OR establishing direct link between systems.

II) In figure 12 (Layreded and connected systems for different functions) the need for real-time information needs is considered

III) In figure 12 (Layreded and connected systems for different functions) the need for irregural information needs is considered, e.g. patch processing

IV) Like said before, all-powerful ID is not possible, since there are several information systems layered and chained.

Opinion:

I) The Commission and the Department must procure systems, which can establish a direct link and document exchange between system.

II) The Commission and the Department must procure integrator system(s), which can establish direct link and document exchange between system based on several standards.

Note:

There are several standards to be selected for different functions.

From page 8:

Together, the linked Australian and EU ETS would form the world's largest carbon market and be a major driver of the global transition to a low carbon economy.

Note:

It is possible, that other ETS systems could be linked.

Opinion:

I) In figure 17 (Integrating several systems) one integrator system.
II) The Commission and the Department should procure a distinct and separate integrator system.
III) The amount and nature of ETS systems integration possibilities can change in the near/distant future
IV) With a separate integrator system the internal working/parts of an ETS can be changed based on (integration) standards.

Opinion:

There are two broad types of registry link that could be implemented: a direct registry link or an indirect registry link.

Note:

In this Opinion there has been distinction between **direct link** and **document link**. The documents can be created by different systems.

From page 11:

In 2012, these registries were replaced by the single Union Registry, which provides a harmonized basis to transfer allowances across the EU.

Note:

Previously I presented the integrator-to-integrator interoperability as a feasible solution.

In the following figure is the current situation with Union Registry:

MSS = Member State system
MSCP = Member State Contact Point
EUCP = European Contact Point

3

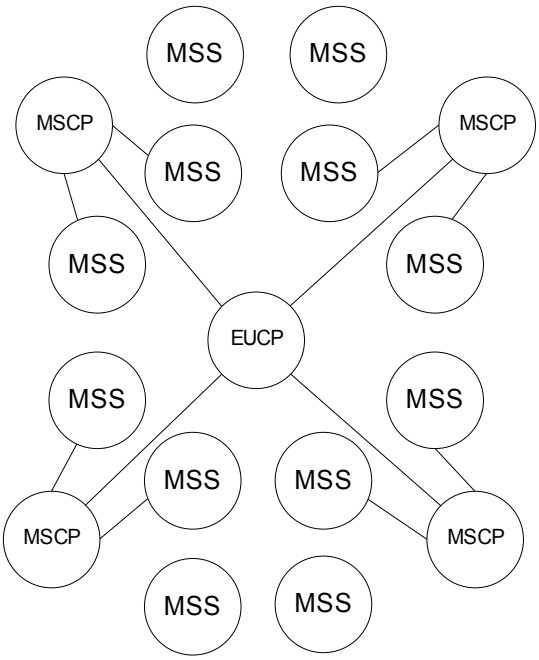


Figure 19: Relations between national and EU systems

There can be Member State Contact Points (MSCP), which integrates member state systems (MSSs), and this Member State Contact Point (MSCP) integrates to the European Contact Point (EUCP). In reality there are a huge collection of different Member State Systems (MSSs), which are constructed with wide variety of technologies.

Opinion:

I) Australian Contact Point and European Contact Point can be integrated, this has been discussed earlier.
II) European Contact Point (EUCP) must interoperate with Member State Contact Point (MSCP).
III) Australian Contact Point must accordingly to interoperate with national (sub)systems.
IV) However, both contact points must handle the complexity with several (sub)systems.

From page 12:

Access to Kyoto units is provided by linking the Australian Registry and other Kyoto-compliant registries through the ITL – the centralised global system of validation and exchange for Kyoto units.
(The International Transaction Log, ITL)

Opinion:

I) Like said before, there can be new systems integrated.
II) All systems must have their own internal ID.
III) All systems must have external IDs.
IV) External IDs must be distinguishable and unique.

From page 16:

Both the Commission and the Australian Government agree that, over time, further links to other mandatory emissions trading schemes in like-minded countries is in the interest of both partiesand in the interests of the long-term development of international carbon markets and action on climate change. As such, the arrangement should be designed in a manner that facilitates linking to other emissions trading systems in the future; noting the approach to linking with other ETS's is subject to negotiations.

Opinion:

I) There should be a distinct integration system or integration systems
II) other emissions trading systems (in the future) can be joined/linked to the integration system or integration systems

From page 20:

To facilitate trade, both the indirect and direct registry links would be supported by automated systems-based processes built into the registries.

Note:

In figure 12 (Layreded and connected systems for different functions) there is simple conception about systems with different timeframes.

Opinion:

I) The Commission and the Department must differentiate timeframes, and decide the amount of replicated and/or joined systems.
II) The real-time systems are different from other systems
III) There might be several systems for retrieving information, since information retrieval is the most basic function

From page 20:

Both the indirect and the direct registry link would be implemented in a manner that ensures consistent functionality for users of the Australian Registry and the Union Registry.

Opinion:

I) The Commission and the Department has to specify (SPEX) process points, where the documents, forms, functionality and/or interface (inter alia) are the same in both systems.
II) This situation can be described in the following figure.

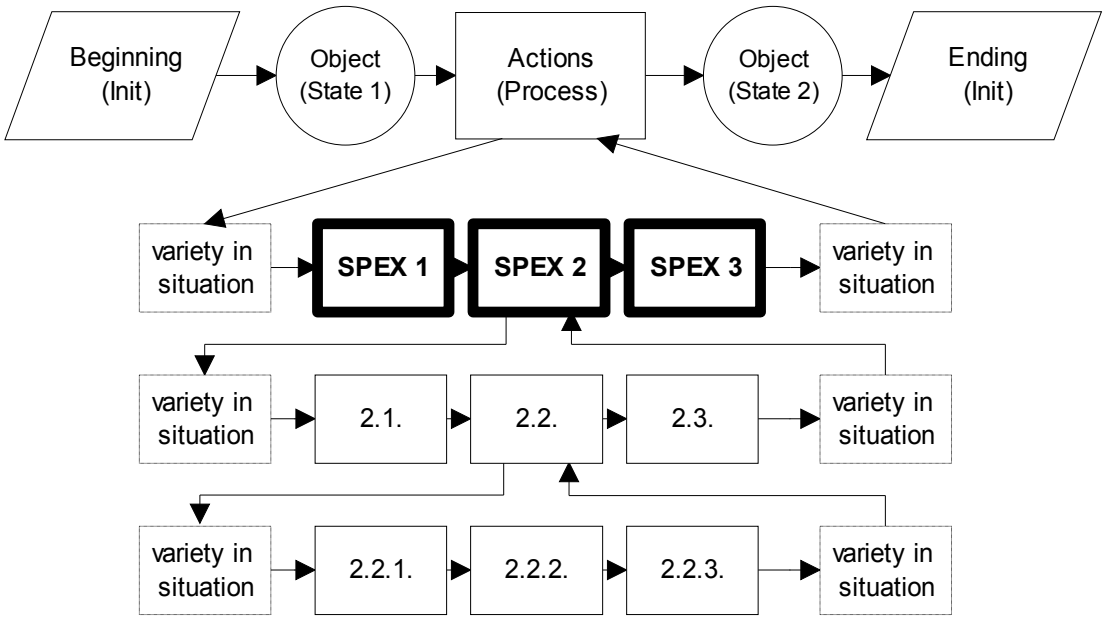


Figure 20: Specifying (SPEX) certain points in processes

Note:

The level of detail in the specification (SPEX) is very sophisticated. Also, the amount of details can be considerable.

From page 23:

A direct registry link would provide for the registry-to-registry trade of Australian carbon units and EU allowances, effectively making them fully fungible.

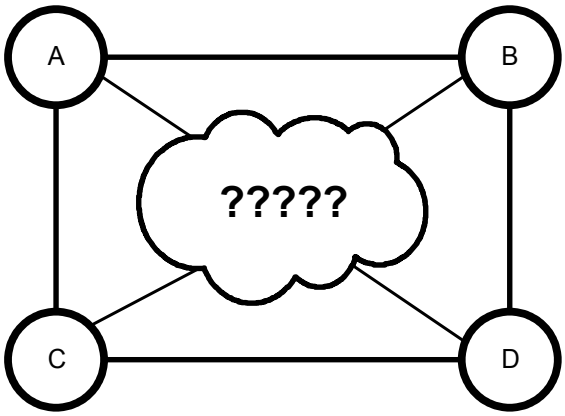
Opinion:

I) A direct link between two systems may demand real-time functionality.
II) Real-time functionality is prone to disturbances.
III) There has to be very good reasons for real-time functionalities between systems.
IV) Real-time functionalities raise the risk of several point-to-point connections
V) Several point-to-point connections demand careful development and maintenance.
VI) A separate integrator system can be created.
VII) A separate integrator system can handle functionalities, which are not real-time.

Opinion:

I) Cloud computing is a “new” idea
II) Cloud computing in fact combines several integration point/system to create a cloud.
III) Cloud computing can hide the complexity.
IV) Cloud computing has its risks.

The following figure is conception of direct links and indirect links (e.g. cloud) between several systems. However, the complexity level increases with several direct and indirect connections.



From Table 3:

The validation process; Several phases.

Opinion:

I) The proposed validation process means a large amount of:
* computer commands
* (realtime?) traffic between the (proposed) systems
* very detailed descriptions of the proposed functions.

II) The average computer user has no idea of the complexity in the information systems.

III) The Commission and the Department has to determine the amount and level of real-time functions needed in the validation process.

From page 29:

AIIUs would have serial numbers that would be made public but would be independent of the serial number of the backing EU allowance.

Opinion:

I) This is mentioned before

II) All systems must provide/use a unique identifier (ID)

III) All systems must have their internal ID.

From page 32:

The Australian Clean Energy Regulator, the European Central Administrator and National Administrators from EU Member States would work together to develop common protocols to respond to incidents involving misuse or criminal activity involving the registries and to protect the integrity of the registry link.

Opinion:

I) Developing new ICT standards is very tedious work.

II) Existing standards should be used.

Opinion:

I) In practice security co-operation between several stakeholder may mean yet another integration effort.

II) In practice establishing security co-operation and security measures mean more complexity to the systems.

III) Naturally there has to be several security co-operation and security measures

IV) The Commission and the Department have to acknowledge the needed amount work, when implementing security co-operation and security measures

About Appendix (Comparison of the Union Registry and the Australian Registry)

The Appendix (Comparison of the Union Registry and the Australian Registry) is a very detailed description of the needed functions in the proposed system(s). It can be very good starting point for a real implementation for the needed system(s).

However, the Appendix answers to the following question: "**WHAT**" the system should do? "**HOW**" the system(s) should work in practice? This is a great question!

In reality, there are numerous modelling methods for describing the actual functioning (**HOW**) of an information system. The following figure (i.e. flowchart) is just one example of describing functioning of a system.

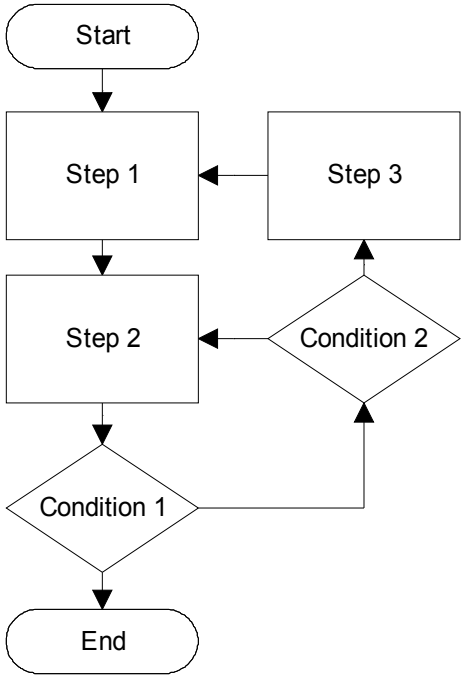


Figure 21: A flowchart example

In actual reality, describing the actual functioning (**HOW**) of an information system can result very large collection of different models.

Previously I have proposed, that an expert from a domain field could be educated/trained to understand the basic principles of the ICT field. One of the needed skills could be modelling of information systems. Like said before, a domain expert could create the needed models (**HOW**) in co-operation with ICT experts.

After the modelling (**HOW**), the (process) model can be assessed from several viewpoints, which could be following:

- legal ramifications
- security measures
- detailing the used concepts in models
- defining the data models/schemas
- needed co-operation with different stakeholders
- needed integration measures with other systems
- needed security measures within the system and between the systems
- needed standards
- dividing the system into components/subsystems
- division of labour between persons
- division of labour between computers
- division of labour between computers and humans
- division of labour between between different communities
- etc. viewpoints will arise during the modelling

It can be said, that a simple process will be more complicated, when different viewpoints are used extensively. Some of the viewpoints can be conflicting, and the delicate balance with different viewpoint must decided during the modelling process. **WHO** can/should/must do something during the processes (**HOW**)? This is also one of the great questions.

It can be said, that the Commission and the Department should ask a very seasoned database expert to plan the database structure based on the given opinions. **Don´t use novices to this task**, since database structure failures are very hard to correct afterwards, specially if there are several external systems using (connected to) the systems.

About hierarchy in different systems and about hierarchy between systems

In the following figure is a simple conception of hierarchy in a community. There are thinkers, who demand very low level of hierarchy in communities. On the other hand, the meaning/reason of an community will result some sort of hierarchy between humans. Also, there can be hierarchy between human communities.

In the proposed modelling endeavour/journey, the question of hierarchy can not be avoided.

[Continues on the next page]

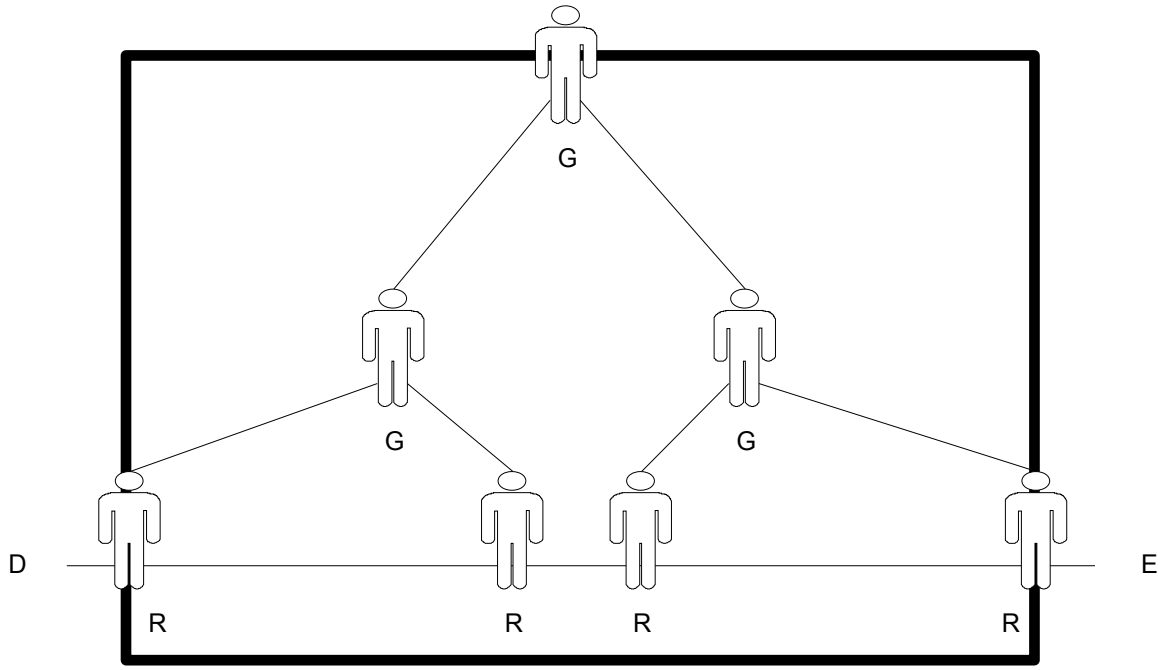


Figure 22; Hierarchy in a community – a simple model

Trusted third party, i.e. broker? When thinking the division (of labour) between different systems, the question of different brokers can not avoided.

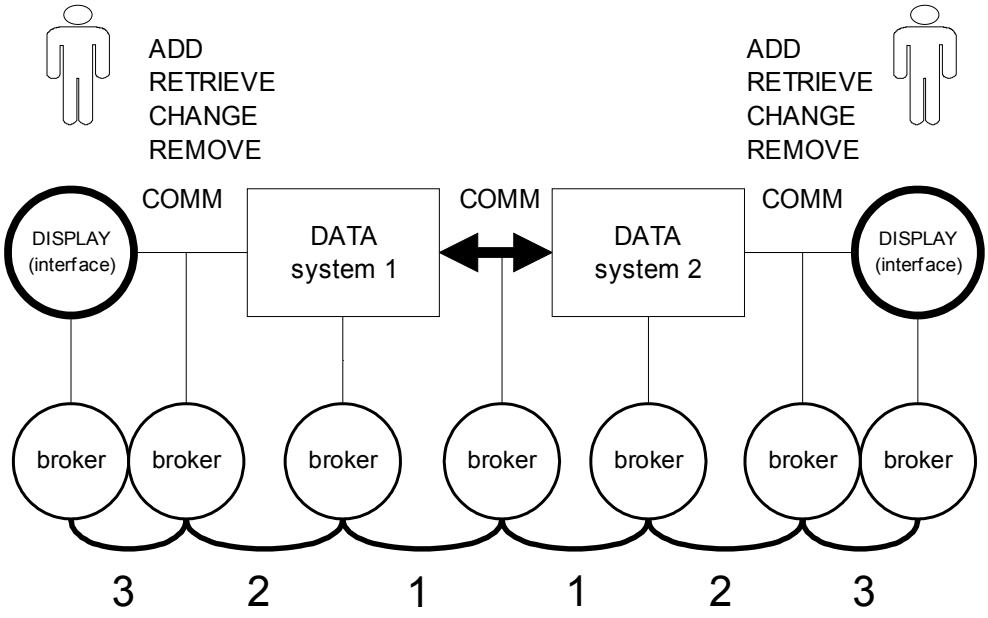


Figure 23: need for different brokers

One example of brokering could be co-operation with between basic bank systems and the proposed system(s). Co-operation with between different credit cards systems is one example of brokering.

Therefore there will be several system types:

- systems totally inside a community
- systems on the boundaries of a community
- systems totally outside of a community

This situation can be described in the following figure.

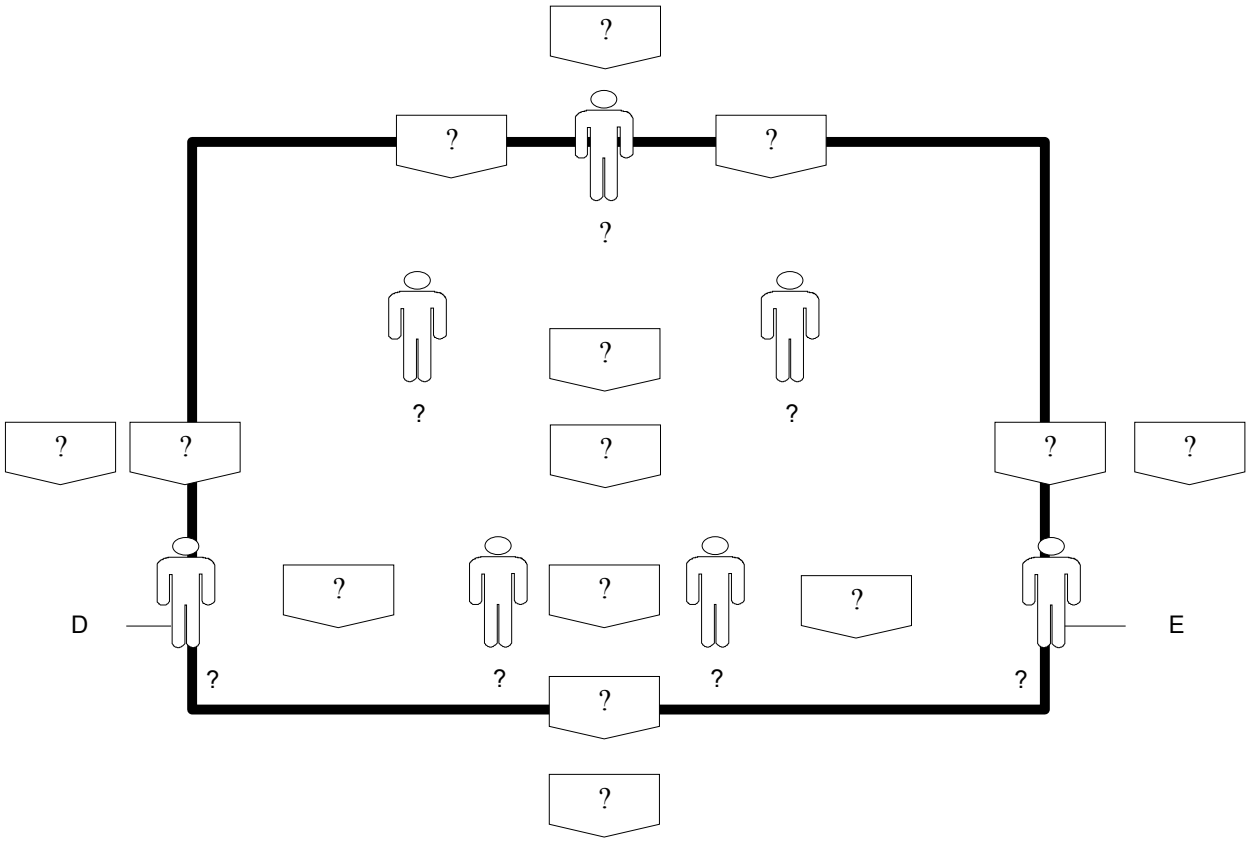


Figure 24: The problem arising: how to combine work between computer (systems) and humans?

Some of those systems outside and/or in the boundary are developed solely by an outside communities. Depending on the system, a community has to just accept some systems "as-is" without possibilities to change an outside system. An example of this kind system can be date and time functions, when outside system tells about leap seconds in time and date; also summer time and winter time in different parts of the world vary yearly.

Back to different interfaces

Like said before, the levels of hierarchy will arise again, when detailing the division of labour between humans and computers. The hierarchy will be ultimately change when introducing

computers. The new and old system of hierarchies before and after introducing computer systems should be modelled. After this modelling, the amount of different interfaces/displays can be counted and differentiated. Like said beforem there has to be several and different interfaces/displays to different stakeholders around the system(s).

About information feeds / Especially RSS feeds

Figure25: RSS icon

There is not much mentioning about information feeds and providing information feeds in the consultation paper. Nowadays, RSS feeds are the main solution in several systems, including several information services in the public sector. RSS is well-specified standard [2] and it could be the basis for different information feeds.

The Commission and the Department could (or should) consult about the need for information feeds. There is once again different needs for several stakeholders. The Commission and the Department might provide some general information feeds (e.g. RSS) from the proposed system(s). the Commission and the Department might also demand that different stakeholders provide information feeds (e.g. RSS).

> **It is possible, that some different stakeholders can provide feeds, which are not based on RSS. Therefore there might be need to convert different feeds in order to have actual RSS feeds**.

Information about different feeds can be asked in the following consultations.

Need for new consultations?

Based on previous considerations and opinions, it can be concluded, that this consultation is a good start for creating new systems. However, there could be some consultations more.

1) The structure of the data models/schemas could be presented to different stakeholders
2) The modelled issues (e.g. **WHAT, HOW, WHO**) and models could be presented to different stakeholders.
3) The proposed architectures and/or solutions in different levels (e.g. technical, data, information, process) could be presented to different stakeholders.

It can be said, that proposed consultation would be rather specific and partly highly techical.

2 http://www.rssboard.org/rss-specification (RSS 2.0 Specification)

Therefore those possible consultation documents could have general parts and detailed technical parts.

Repetition: Possibly a system based on open standards and possibly on open-source software

Like said before, there are possibilities for commercial and open-source solutions. The reality behind the new system(s) might result some hybrid solutions, both commercial and open-source solutions.

Open standards can be a feasible option, since then there is possibility to keep the system up-to-date more easily than with closed standards.

Good luck !!!!!

Information technology is never easy, and this consultation is just part of the complexity, which will be there when actually implementing new systems. The journey will be most probably somewhat unexpected, but consulting seasoned experts in right points of the decision chain might be a feasible option.

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ANNEX 1

My opinions to the previous and relevant consultations – there consultations were mostly organised by the Commission of the Europan Union.

General page to all consultations – both in English and in Finnish:
http://www.jukkarannila.fi/lausunnot.html

EN: Opinion 1: Review of the rules on access to documents
http://www.jukkarannila.fi/lausunnot.html#nro_1

EN: Opinion 2: Schools for the 21st Century
http://www.jukkarannila.fi/lausunnot.html#nro_2

EN: Opinion 3: The future of pharmaceuticals for Human use in Europe- making Europe a Hub for Safe and Innovative medicines
http://www.jukkarannila.fi/lausunnot.html#nro_3

EN: Opinion 5: Consumer Scoreboard, Questionnaire for stakeholders
http://www.jukkarannila.fi/lausunnot.html#nro_5

EN: Opinion 6: Consultation on a Code of Conduct for Interest Representatives
http://www.jukkarannila.fi/lausunnot.html#nro_6

EN: Opinion 8: European Interoperability Framework, version 2, draft
http://www.jukkarannila.fi/lausunnot.html#nro_8

EN: Opinion 9: CAMSS: Common Assessment Method for Standards and Specifications, CAMSS proposal for comments
http://www.jukkarannila.fi/lausunnot.html#nro_9

EN: Opinion 15: Collective Redress
http://www.jukkarannila.fi/lausunnot.html#nro_15

EN: Opinion 17: Opinion to Antitrust Case No. COMP/C-3/39.530
http://www.jukkarannila.fi/lausunnot.html#nro_17

EN: Opinion 18: Opinion Related to the Public Undertaking by Microsoft
http://www.jukkarannila.fi/lausunnot.html#nro_18

EN: Opinion 19: Official Acknowledgement by the Commission
http://www.jukkarannila.fi/lausunnot.html#nro_19

EN: Opinion 20: SECOND Opinion Related to the Public Undertaking by Microsoft
http://www.jukkarannila.fi/lausunnot.html#nro_20

EN: Opinion 21: Opinion about the European Interoperability Strategy proposal
http://www.jukkarannila.fi/lausunnot.html#nro_21

EN: Opinion 23: Public consultation on the review of the European Standardisation System
http://www.jukkarannila.fi/lausunnot.html#nro_23

EN: Opinion 27: Public Consultation on the Modernisation of EU Public Procurement Policy
http://www.jukkarannila.fi/lausunnot.html#nro_27

EN: Opinion 28: Consultation on the Europe 2020 Project Bond Initiative
http://www.jukkarannila.fi/lausunnot.html#nro_28

EN: Opinion 30: Internet Filtering
http://www.jukkarannila.fi/lausunnot.html#nro_30
NOTE: Organised by the European Committee for Standardization (CEN) [3]

EN: Opinion 32: COMP/C-3/39.692/IBM – Maintenance services
http://www.jukkarannila.fi/lausunnot.html#nro_32

EN: Opinion 34: REMIT Registration Format
http://www.jukkarannila.fi/lausunnot.html#nro_34
NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER) [4]

EN: Opinion 35: Exploiting the employment potential of the personal and household services
http://www.jukkarannila.fi/lausunnot.html#nro_35

EN: Opinion 37: CASE COMP/39.654 - Reuters instrument codes
http://www.jukkarannila.fi/lausunnot.html#nro_37

3 http://www.cen.eu/ (Accessed 2 July 2012)
4 http://www.acer.europa.eu/ (Accessed 2 July 2012)

ANNEX 2

DISCLAIMERS

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5 Based on the Finnish three-party system there is a phenomenon called extreme-centre in Finland. The 2011 parliamentary elections in Finland challenge the three-party system, since three “old” parties were not traditionally as the three largest parties. The is now a “new” party as the third largest party. We all must remain being interested about this new development in Finland.