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Department of Finance
AUSTRALIA

Seeking industry comment on Government Content Management System – GovCMS Draft Statement of Requirements

First of all, a lot of thanks to the Department of Finance (Australia) of organising this interesting 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.
Department of Finance (Australia) can add the PDF file of this opinion on a relevant web page

Annex 1 holds information about disclaimers and copyright.

Best Regards,

Jukka S. Rannila
citizen of Finland (Europe)

signed electronically

[Continues on the next page]

Previous consultations and previous opinions about information technology (Annex 1)

Annex 1 contains information about my opinions related to information technology – both in Finnish and English. Opinions written in English are the majority of different opinions, and there is also some opinions about other issues.

The European context

In the European Union there is the Joinup [1] web page dedicated interoperability solutions for public administrations, and that web page consolidates information about different aspects of interoperability information.

An example is the Open Source Observatory (OSOR), which collects together information about different open source solutions in the public sector.

It can also be concluded, that the in the European Union level the European Commission (EC) [2] has been very active for organising different [3] consultations related to different domains.

Some contributions from the previous consultations?

One of the main contributions from the previous consultations has been simplified descriptions of information technology. In many consultation documents, there has been quite ambiguous descriptions about information technology in different application fields.

It can be also concluded, that there are hundreds (or thousands) of different information systems in the European Union member states (28 states at the moment), and some cases there is an actual need to consolidate some of those member states information systems.

It can also be concluded, that the Directorate-General for Competition (of the European Commission) has been very active in antitrust proceedings, and companies have selected between two options: EITHER comply voluntary with presented demands OR issuing [4] a complaint for the Court of Justice of the European Union.

The Australian case – consolidating to just one governmental content management system (CMS)?

The Australian idea of just one governmental content management system (CMS), referenced as "Whole-of-Government Content Management System (GovCMS)", is an interesting case. Experience can be later assessed in the European Union level and in the member state levels.

National Audit Office of Finland [5] has issued some critical reports about governmental waste related

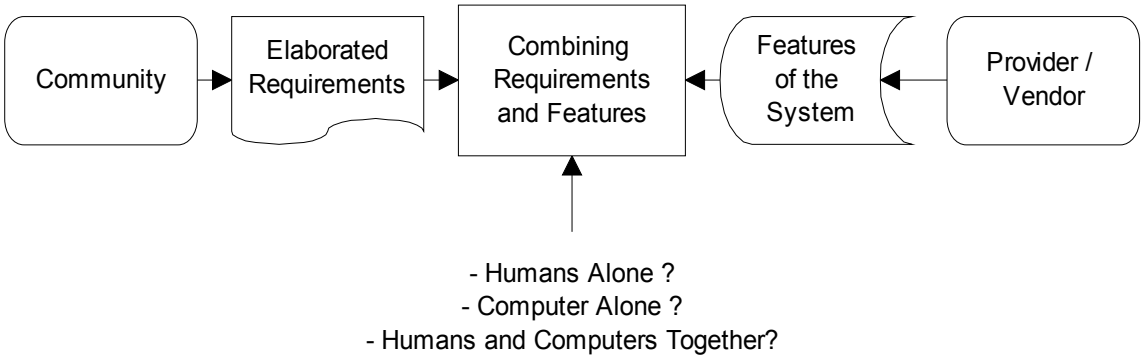
1 https://joinup.ec.europa.eu/, Joinup web page
2 http://ec.europa.eu/, European Commission, welcome page
3 http://ec.europa.eu/yourvoice/consultations/index_en.htm, Your voice in Europe, web page for consultations
4 http://curia.europa.eu/, Court of Justice of the European Union, welcome page
5 http://www.vtv.fi/en, National Audit Office of Finland

to Finnish public sector information systems.

In the Finnish context it can be concluded, that different (public sector) institutions have different content management systems, and the idea for consolidating for just one governmental content management system is worth considering.

Actual solutions and actual experience of consolidating to just one governmental content management system in Australia can provide on example for reducing redundant information systems in the Finnish context.

General / Relations with requirements and features



It can be said, that the Department of Finance is now a community for elaborating different requirements to a (new) information system. The (new) information system features should conform to the requirements.

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:

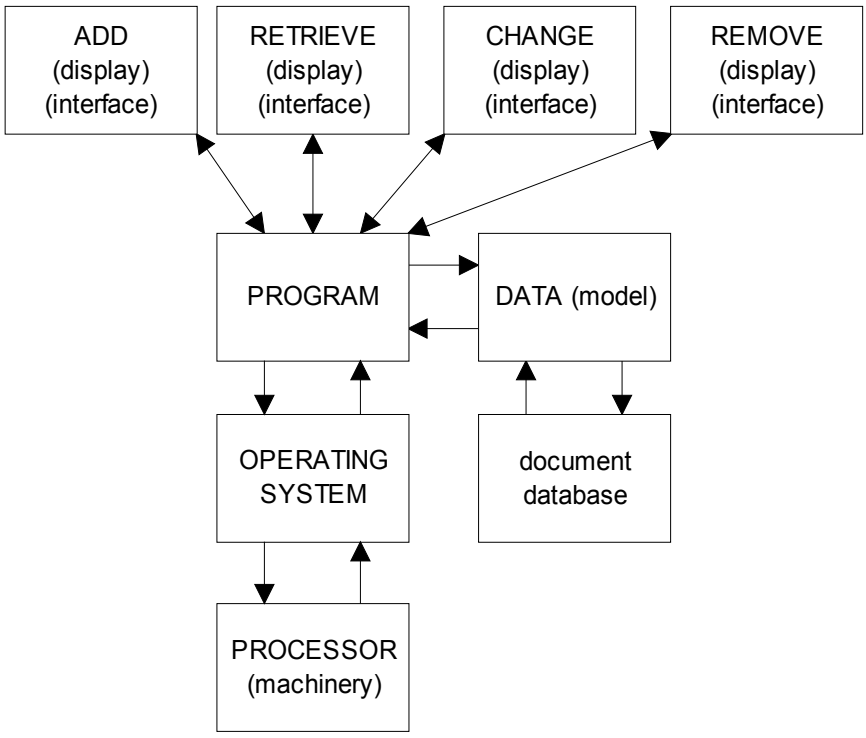
1) discovery
2) specification
3) validation and verification.

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

Actual implementation of the (new) information system can open totally new scenes for new and unforeseen requirements – thus opening a way for a new information system failure.

General notes for the GovCMS

One simple conception of information technology solutions is the following figure.



The figure gives us four basic functions: add, retrieve, change and remove. Then there are databases and documents used in different systems. Users use different displays (interfaces). Different systems need administration (also maintenance) for keeping a system functional. Then there is communication (also standards) for direct and indirect usage of an information system.

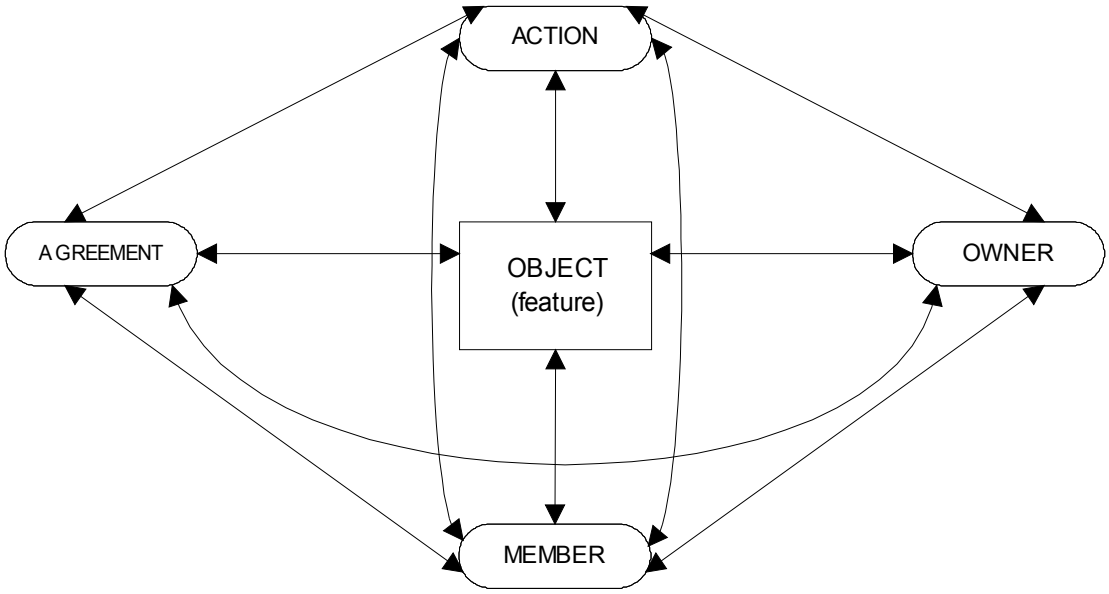
It can be said, that in all parts of an information systems there can be open solutions and closed solutions.

In short:

* the world is full of different objects (things)
* objects can be nowadays be digital in all phases
* someone owns some objects
* usage can be based on ownership, agreements and membership
* the linkages between ownership, agreements and membership can be very complex
* the linkages between ownership, agreements and membership can change very often.

The mentioned linkages linkages between ownership, agreements and membership can also be divided to two actions: distribution and usage.

There is nothing new on the previous explanations. However, the difference between distribution and usage should be as clear as possibile; also the juridical text should explicate this difference between distribution and usage.



Next table gives us some possibilities for assessing possibilities for open solutions and closed solutions.

	Owner? Member? Agreement?	OPEN	CLOSED
1. Device / Machinery			
2. Operating system			
3. Program(s)		**This consultation?**	
4. Data models / Conceptual models			
5. Documents			
6. Databases			
7. Communications			
8. Retrieve / Interface / Display			
9. Add / Interface / Display			
10. Remove / Interface / Display			
11. Change / Interface / Display			

From this simple conception we can differentiate several standard classes.

1) Data (documents) standards
2) Data (database) standards
3) Standards for adding data to a system.
4) Standards for retrieving data from a system.
5) Standards for changing data in a system.
6) Standards for removing data from a system.
7) Display standards
8) Interface standards

In the previous consultations I have advocated following solution as the maximum solution:

* public sector institute owns 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
* public sector institute owns the source code of the information system
* public sector institute owns the database of the information system
* the database is based on open-source solution and on relevant open standards
* public sector institute owns all data in the information system.

Naturally, there can be solutions, which are not based on the maximum solution. In this case (GovCMS) can be concluded, that Department of Finance actually would not own some parts of the (GovCMS) system, since those parts can be open-source solutions.

Proposal: There is need to assess openness of several parts of the proposed (GovCMS) system: machinery (processor), operating system, programs using the operating system, documents, databases, communication, adding data, retrieving data, changing data, removing data, needed interfaces, needed displays.

Proposal: Department of Finance could use and/or demand open standards in several layers of the proposed system (GovCMS).

It is quite normal situation in the information technology field that there is competing standards. Therefore there is all the time ongoing “standards wars” or “format wars”. The information technology standards tend to be interrelated and one “standards war” or “format war” can lead to another similar situation.

In practice public sector has very important role when some standards are competing in the market place. Because public sector has a considerable buying power due to its size, it can sometimes direct markets to certain standard.

On the other hand public sector has to stick to certain procurement regulations even though there might be pressure from the commercial market.

More general notes for the GovCMS

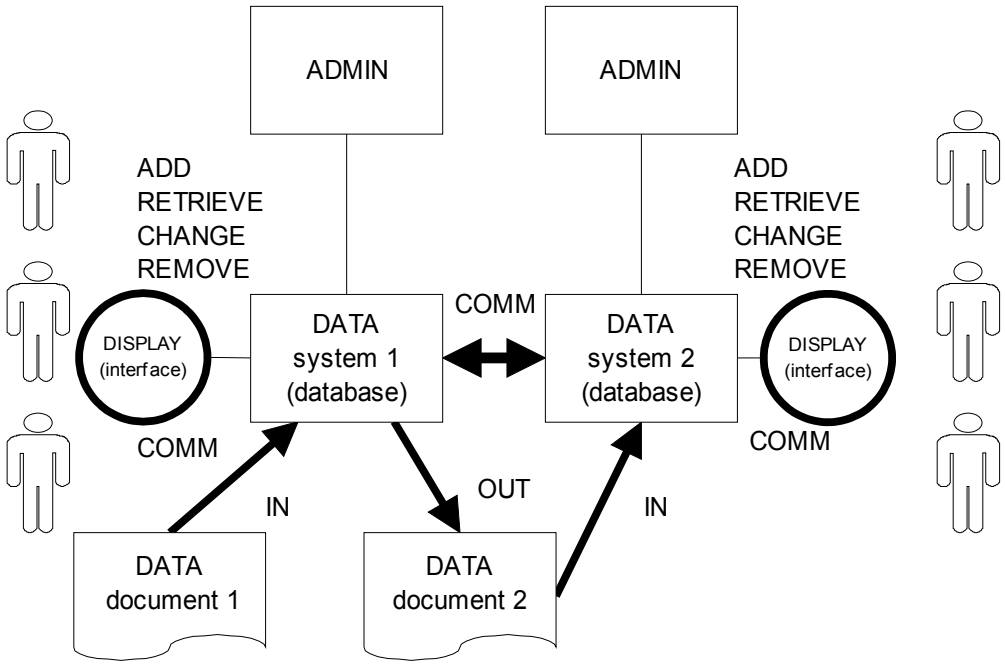
I suppose, that there are several systems in Australia (federal level and state level), and those systems have their own life-cycle at the moment. I also suppose, that there is need for transmitting data from other system to GovCMS system. This situation can be described in the following figure.

There are two options:

* direct system-to-system communications
* communication based on transmitted documents.

Proposal: Different systems can be classified:
1) direct system-to-system communication
2) communication based on transmitting documents.

Both options for system-to-system communications have weaknesses and strengths, and the situation with tens (or even hundreds) different systems has to be assessed carefully.



There are a lot of different standard setting organisations (SDO), and one comprehensive list is provided [6] for us by ConsortiumInfo.org.

Examples are naturally different XML documents and CSV documents.

Proposal: Department of Finance could systematically assess existing standard setting organisations (SDO) and assess standards provided by those communities.

6 http://www.consortiuminfo.org/links/linksall.php, Standard Setting Organizations and Standards List

Proposal: The number of redundant standardisation efforts should be minimal.

Proposal: Department of Finance could consult different stakeholders to find out support for different standards.

Proposal: Department of Finance could support and/or demand usage of open standards.

Avoiding lock-ins

Previously mentioned functions (1-11) can be based on open solution or closed solutions. Sometimes there can be different lock-ins based on some closed solutions. Depending on the actual situation of an lock-in, there can be serious problems during the life-cycle of an information system. Depending on the situation, there might be (near) monopoly situation with some lock-ins.

Proposal: Department of Finance could gather together information about different lock-ins in different cloud application fields.

Proposal: Department of Finance could start serious negotiations with some communities, which are causing some lock-in situations.

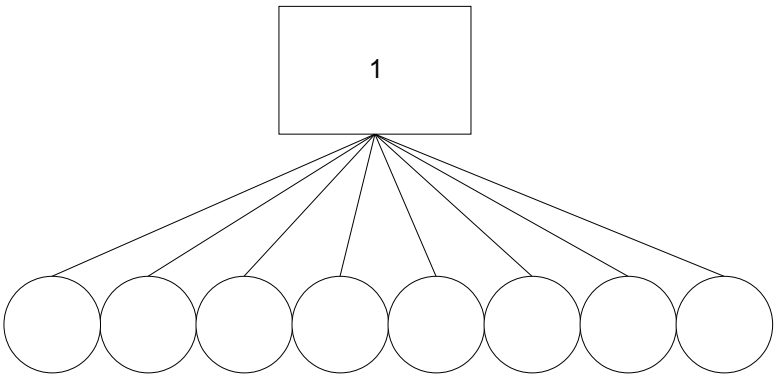
The needed amount of different interfaces

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.

Based on the previous differentiation between databases and documents, there can be several different interfaces in a specific system. There is a need for several interfaces to serve external systems / stakeholders.

One solution can be standardisation efforts for different interfaces in several systems. Department of Finance could work with global and regional partners for creating standardised user interfaces for different stakeholders. These standardised user interfaces could then be implemented by different information systems.



Proposal: Department of Finance can could support work, which rigorously develops and tests different interfaces for different purposes.

Proposal: Department of Finance can advocate standardised user interfaces in different levels.

For example, there could be one standardised interface for security configurations for different applications, which mean that there could be one standardised interface even though the technology underneath a cloud application could vary.

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).

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

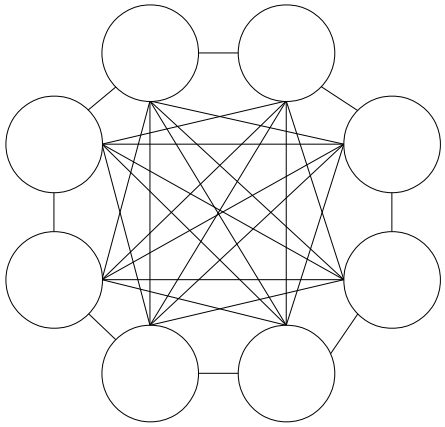
1. There can be possibly tens of different interfaces (displays)
2. There can be several interfaces (displays) for different user groups
3. Different interfaces will be added and removed irregularly.

Generally speaking, creating highly usable interfaces is not the norm in many cases; also the problem multiplies when there is just one non-usable interface for a system. Therefore, creating, testing and standardising several interfaces could be an option.

Avoiding redundant work (or standards)

There can be hundreds of different informations systems. It can be concluded, that these systems are layered in different ways and implement several standard (technology) generations. Generally speaking, there can be several many-to-many connections, which are very cumbersome to implement and maintain.

1

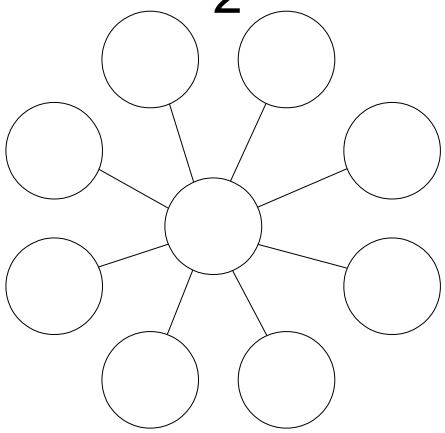


Proposal: Department of Finance could assess the situation with complex many-to-many relations between different systems.

The problem with complex many-to-many systems is that changes/updates in a system causes a large amount of internal changes (also in source code) in other systems. This situation can be called "spaghetti", which means a large number of different interrelations, that changes/updates can be very cumbersome.

The opposite solution is naturally having just one central system, and with that central system cooperation between systems can be different one-to-many situation.

2



The problem with this option is dependence on a single system, and defects in a central system causes instantly problems with dependent systems.

Proposal: Department of Finance has to assess the situation of different central

systems.

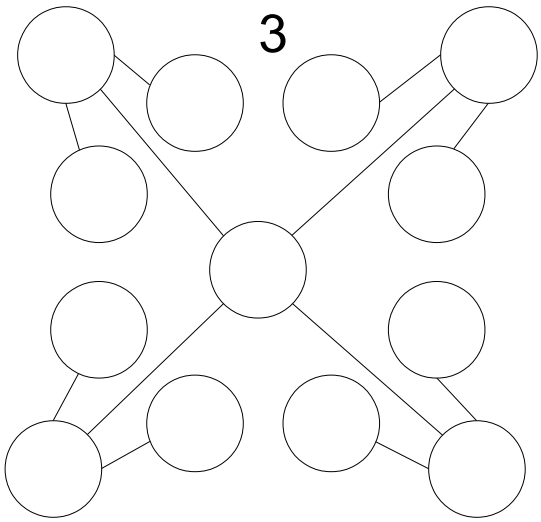
Proposal: Department of Finance could select one central system for cooperation between different systems.

The proposed GovCMS system may not be the needed central system, and that situation has to be assessed carefully.

One option is to have a hierarchical system-to-systems connections, when there is less dependence on just one central system.

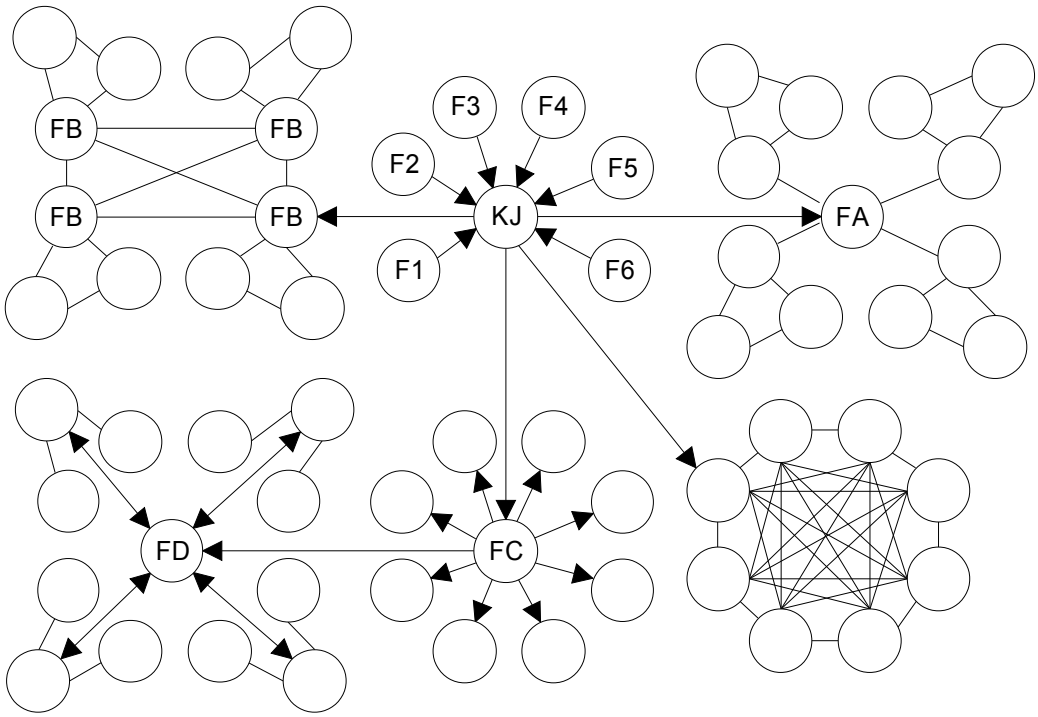
Proposal: Department of Finance could assess the needed hierarchy between the systems.

NOTE: It is possible, that GovCMS could be a needed central system.



Different layered systems

Like indicated in the next figure, different informations systems are tightly integrated, and the feeds (e.g. formats F1-F6, FA, FB, FC, FC, FD) between systems can be non-standard or standardised. Generally speaking, there are numerous feeds provided by different information systems. Department of Finance could assess the situation, and it could fund the conversion work for some information systems.



In reality different systems are layered, and there can be several standards and different versions of different standards.

Proposal: There might be need for several versions of different standards to be used for system-to-system cooperation.

It depends on a system, how easy it is to use different systems. I also suppose, that in Australia there are different public sector systems with different life-cycles.

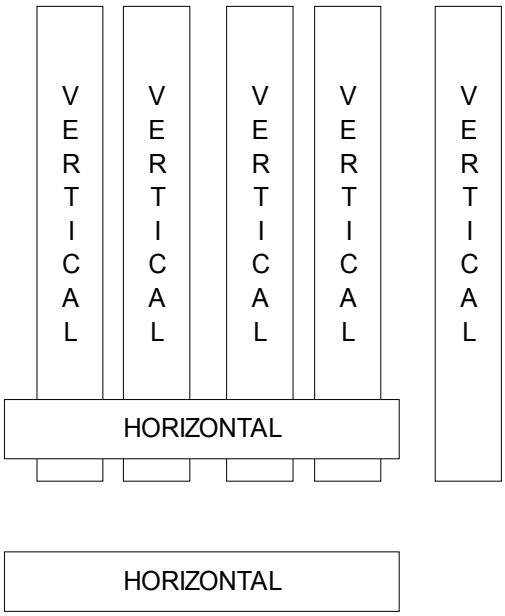
One theme: horizontal standards and vertical standards

One of the main themes can be division standards: horizontal standards and vertical standards. What this means? Generally speaking, different ICT solutions will implement a large collection of different standards: open standards and closed standards. In many cases, different ICT solutions do not work together and this might not constitute a problem. However, in many cases different ICT solutions has to work together seamlessly – possibly without further problems.

Proposal: There could be separation of horizontal standards and vertical standards.

Proposal: There could be different standardisation efforts to horizontal standards and vertical standards.

Proposal: Developing horizontal standards should favoured in the development of new and/or revised standards.

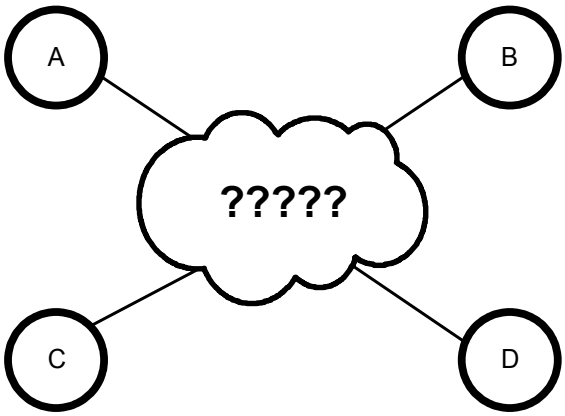


It can be said, that in some point there will be need for horizontal standardisation. This means, that several vertical systems can cooperate in different levels. The general development is, that there can be several vertical solutions for the same computerisation area. An example for this standardisation is the email standard (horizontal), when there are numerous email systems (vertical) created with very wide variety of technologies.

Proposal: Department of Finance can collect all relevant information about horizontal standards.

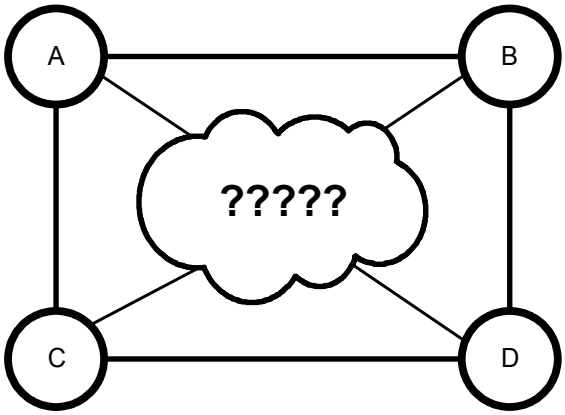
Proposal: Department of Finance can collect all relevant information about vertical standards.

About cloud systems



In theory, a cloud can be an application, and the users just add data to the application, and there is no need to have local computing resources – e.g. "just have an internet conncetion". In this Opinion, the serious risks in "cloud" computing are not assessed.

In practical reality, different systems (e.g. A, B, C, D) can be joined together with one-to-one connections, and systems can be joided with one-to-many system (E.g. 28 systems → System A, etc.). Then these systems (e.g. A, B, C, D) use "the cloud" with non-Australian systems, which are relevant. In some cases, the global IDs are free to use. In some cases, there is fees for these global IDs.



An example [7] of different IDs is C-SPAN video library, where there is IDs for persons, events, organisations, etc. On the other hand, e.g. in the European context European Commission has very vast amount of material, which have different IDs, and those services are usable with different information technologies. Similarly, several other EU institutions provide material with different IDs, and their usage is free world-wide.

Proposal: Department of Finance could collect information about different IDs provided in different systems.

NOTE: There might be some private sector IDs, which are causing troubles for public sector systems.

Proposal: Possibly Department of Finance has to have serious negotiations about the usage and licences for using IDs in some private sector systems.

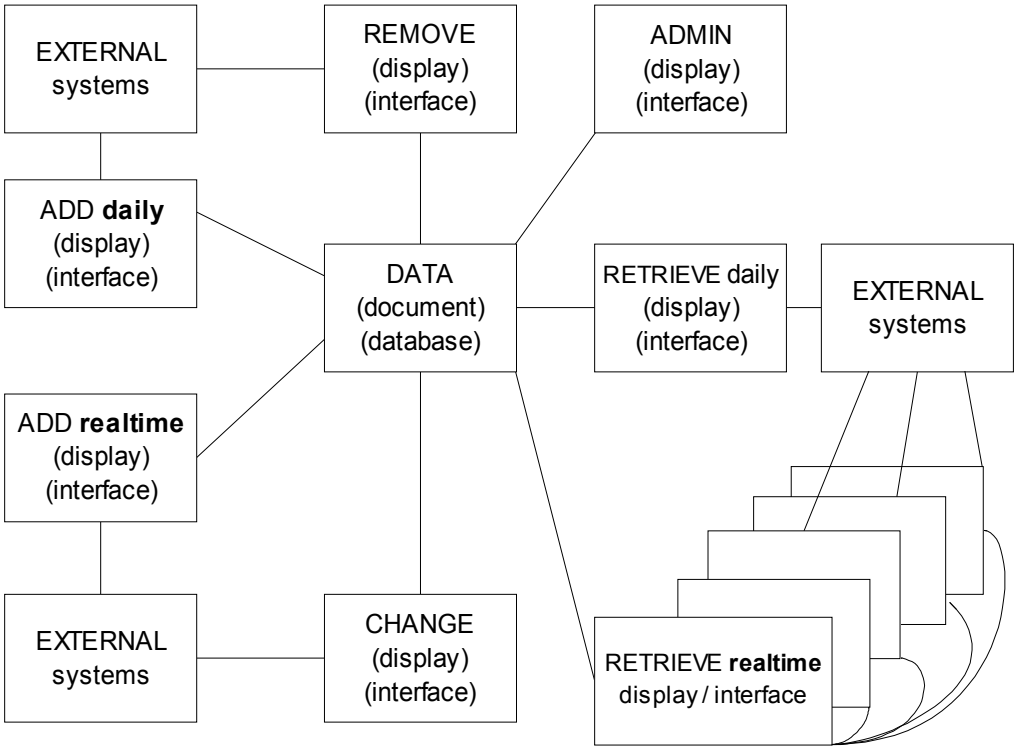
One prime example of private sector IDs is [8] Facebook IDs, since several public sector institutions have been using Facebook extensively, even though the used IDs are private.

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

7 http://www.c-spanvideo.org/, C-SPAN video library
8 https://www.facebook.com/, Facebook main page.

internal usage of more powerful web servers. Since the communication speed in information networks is nowadays considerable, there are 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.

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.



Proposal: Department of Finance has to assess cooperation between content management system and other systems (e.g. real-time, daily, weekly, etc.).

Proposal: There might be need for cooperation between different systems and the prosed content management system, and Department of Finance has to assess this situation also.

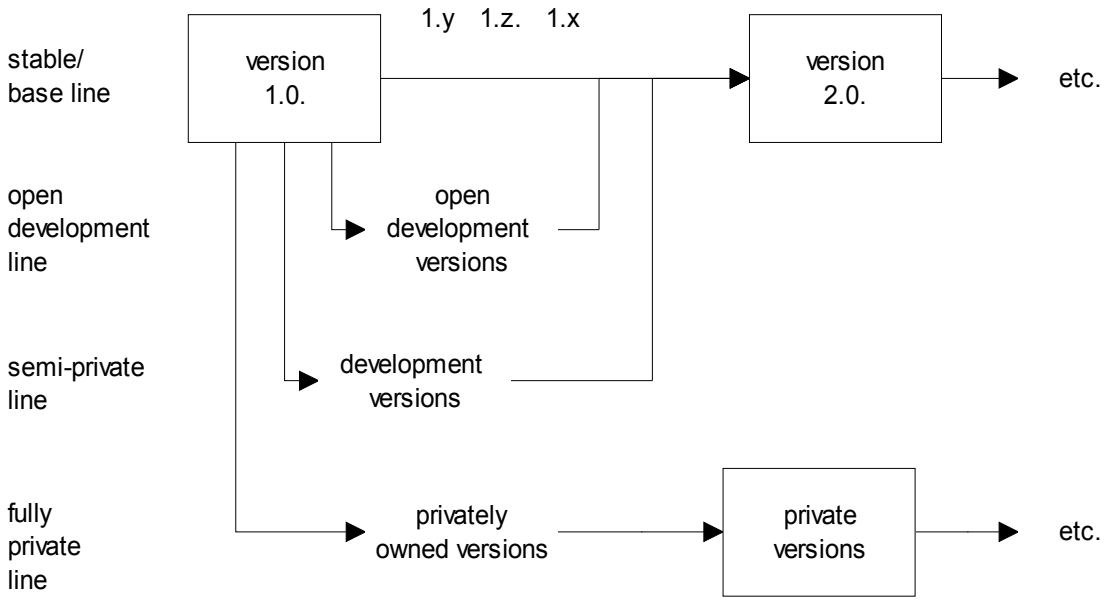
SO – so-called cloud can contain very efficient retrieval systems, and possibly other systems (add, change, remove) can be more traditional.

How and why fond development of needed special features?

Department of Finance has decided to consolidate content creation and management to one open source content management system. This decision represents an interesting case for world-wide audience.

However, Australian requirements for the selected content management system may be implemented differently:

* there are features conforming to Australian requirements
* there are features missing features based on Australian requirements.



There are some possibilities for solving this problem.

1) In the stable/base line development there are different open development versions and final version is published also.
2) In semi-private line, some stakeholder(s) fund development of some features based on their own needs and the final solution is published.
3) In some cases it is possible to develop own solutions, but the solutions are not published.

It can be noted, that many stakeholder groups strongly disagree on the third solution, and some licences explicitly demand publishing new versions of some solutions.

However, we should be aware of real costs of using open solutions. There are real cost with open (source) solutions, but they are **different** when compared to closed (source) solutions. Therefore, Department of Finance should seriously consider following options.

1) Department of Finance could join some organisations, which are concentrating on some open solutions.
2) Based on membership (class) Department of Finance could pay the yearly membership fees.

3) Possibly Department of Finance could use own workforce for developing the selected content management system.

Like said, there are **different** costs when comparing open solutions to closed solutions.

Drupal Association membership?

There is the following link about the Drupal Association membership:
https://assoc.drupal.org/membership

Proposal: Department of Finance could join the Drupal Association.

Other organisational memberships?

Previously I have explicated different standards and different programs.

Proposal: Department of Finance could assess need for additional memberships, e.g. standard setting organisations and/or organisations developing some open solution.

An example could be LINUX foundation [9] membership, since a Drupal system installation can use LINUX as the selected operating system.

One governmental customer identifier (ID)?

Generally speaking people are not happy with ever-increasing number of different identifiers and number of different passwords.

Proposal: Department of Finance has to assess the possibility of just one governmental customer identifier and one password for a average user.

NOTE: Creation of just one governmental customer identifier and just one password may be impossible based on the life-cycle of different governmental systems.

Different test environments?

It should be noted, that testing of a content management should be done extensively. It should be possible, that the selected provider and selected maintainer of the content management systems could establish different test environments.

Proposal: Department of Finance could demand the possibility for different test environments.

Different test environments could provide possibilities for serious testing before implementation of an actual content management system (i.e. production system).

9 http://www.linuxfoundation.org/about/join, LINUX foundation

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

Here is a list of my opinions about information technology – both in English and in Finnish.

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 13: Final Committee Draft ISO/IEC FCD3 19763-2
http://www.jukkarannila.fi/lausunnot.html#nro_13

EN: Opinion 14: SFS discussion paper / SFS:n keskusteluasiakirja
http://www.jukkarannila.fi/lausunnot.html#nro_14

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 24: ISO/IEC JTC 1 / SC 34 / WGs 1, 4 and 5 in Helsinki 14-17 June 2010
http://www.jukkarannila.fi/lausunnot.html#nro_24

FI: Lausunto 29: Avoimen demokratian avoimen datan avaamisen detaljit (ADADAD)
http://www.jukkarannila.fi/lausunnot.html#nro_29

EN: Opinion 30: Internet Filtering
http://www.jukkarannila.fi/lausunnot.html#nro_30

FI: Lausunto 31: Terveydenhuollon tietotekniikasta
http://www.jukkarannila.fi/lausunnot.html#nro_31

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

FI: Lausunto 33: Julkishallinnon tietoluovutusten periaatteet ja käytännöt
http://www.jukkarannila.fi/lausunnot.html#nro_33

EN: Opinion 34: REMIT Registration Format
http://www.jukkarannila.fi/lausunnot.html#nro_34

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

FI: Lausunto 38: SADe-ohjelman avoimen lähdekoodin toimintamallin luonnos
http://www.jukkarannila.fi/lausunnot.html#nro_38

EN: Opinion 39: Registry options to facilitate linking of emissions trading systems
http://www.jukkarannila.fi/lausunnot.html#nro_39

EN: Opinion 41: AT.39398: observations on the proposed commitments
http://www.jukkarannila.fi/lausunnot.html#nro_41

EN: Opinion 43: Publication of extracts of the European register of market participants
http://www.jukkarannila.fi/lausunnot.html#nro_43

EN: Opinion 45: About ICT standardisation
http://www.jukkarannila.fi/lausunnot.html#nro_45

EN: Opinion 46: Review of the EU copyright rules
http://www.jukkarannila.fi/lausunnot.html#nro_46

EN: Opinion 47: Sharing or collaborating with government documents
http://www.jukkarannila.fi/lausunnot.html#nro_47

FI: Lausunto 49: JSH 166 -suosituksen päivitys
http://www.jukkarannila.fi/lausunnot.html#nro_49

EN: Opinion 52: Trusted Cloud Europe Survey
http://www.jukkarannila.fi/lausunnot.html#nro_52

EN: Opinion 53: Trade Reporting User Manual (TRUM) (Draft)
http://www.jukkarannila.fi/lausunnot.html#nro_53

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[Continues on the next page]

ANNEX 2

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10 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.