TO: digitalengagement@gov.scot
Scottish Government

Opinion: A Digital Strategy for Scotland – 2017 and beyond

First of all, a lot of thanks to the Scottish Government for organising this important 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.
PDF file of this opinion can be added to a relevant web page

Annex 1 holds information about previous consultations related to information systems.
Annex 2 holds information about disclaimers and copyright.

Best Regards,

Jukka S. Rannila
citizen of Finland
signed electronically

[Continues on the next page]
This opinion is rather limited / Mostly about information systems

I will not answer to all questions since this opinion is mostly about information systems.

Previous consultations (about information systems) / Annex 1

Annex 1 holds a list of previous consultations organised related to information systems.

Based on previous opinions I have explained several issues in detailed way. It can be noted that some issues are repeated since many consultations concentrated on information technology.

This opinion does not repeat all previous issues (mainly information technology) mentioned on the previous opinion documents.

Conception for information systems

Generally speaking an information system contains displays and/or interfaces which can be used in different ways. There can be several users and/or user groups for an information system.

Here we can note four basic functions for an information system: adding data, retrieving data, changing data and removing data.

Then we can note that different information systems can have some cooperation based on different communication methods (COMM).

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Cooperation between systems can be direct system-to-system communication (COMM). Then we can note that cooperation between systems can be based on transmitting documents between different information systems. There is also different administrative (ADMIN) duties when different systems are used.

What this means to the Digital Strategy for Scotland – 2017 and beyond?

1) There can be several users / user groups for an information system.
2) There can be several systems which can have direct system-to-system cooperation.
3) There can be several systems which can transmit documents between different systems.

Like the figure indicates, there are databases in different information systems. Then there are different documents for transmitting data between different systems. Here we can note especially
following standardisation needs for different parts of different parts of an information system.

- communication standards
- data standards (also document standards)
- database standards
- display / interface standards.

Proposal: There could be different standardisation efforts for communication, data, document, database, display/interface standards.

Second conception for information systems

Generally speaking we have different techniques on the information technology field. Here we can note that programs (most arrows) are in the middle of different information systems. Then programs handle the data in a system (documents and/or databases). However we have to have one specific program which is different – i.e. operating system. Operating systems handle connections with machinery and processors. Generally speaking programs can work with an operating system and developers of programs use different parts of an operating system.

What this means to the Digital Strategy for Scotland – 2017 and beyond?

4) There can be several computer programs.
5) There are several providers of different computer programs.
6) There are naturally competing programs.
Different programs comply with different standards.

We have to note that data can have different models and data (models) are developed and/or used by different stakeholders (four basic functions). Especially in databases there are possibilities for several data models; depending on the modellers there can be different data models in databases. Generally speaking changing data models can be very difficult in many cases.

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.

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Naturally, there can be solutions, which are not based on the maximum solution. It can be concluded, that this consultation is not (yet) about technical details.

Note: The relations between different aspects of information systems can result rather complicated (legal) network(s): i.e. Ownership, Membership, Agreement.

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Proposal: There could be some considerations for assessing possible / future changes in
ownerships, agreements and memberships.

Here we can note the difference between owners, agreements and members. In reality
ownerships and memberships cause very complex networks, and those networks are changing all
the time: divisions, mergers, ownership changes, agreement changes, cooperation with other
entities, life-cycles, etc.

What this means to the Digital Strategy for Scotland – 2017 and beyond?
8) There could be clear information of membership, ownership and agreements of
different information systems.
9) There could be some (new?) regulations for keeping the catalogue of different
information systems up-to-date.

Here we can note that ownership, agreement and membership are interlinked in different ways.
Generally speaking average usage of a system means an unique combination of ownership,
agreement and membership. When everything works fine there are not problems. However changes
with ownership, agreement and membership can result difficult situations.

What this means to the Digital Strategy for Scotland – 2017 and beyond?
10) Complex networks of membership, ownership and agreements can chance
during life-cycles of different information systems.
11) Assessing complex networks of membership, ownership and agreements could
be done regularly.

What this means to the Digital Strategy for Scotland – 2017 and beyond?
12) There are several standardisation issues
13) There is a need for several standards on different levels.
14) There are several standardisation organisations.
15) Assessing and selection of standards mean more work.
16) This means constant reviews of different standards.
17) It is possible to implement “wrong” standards.
18) Part of selected standards can be failures.
19) This means constant work for implementing existing and new standards.
20) Constant modifications of software can result new security problems.

Standards / “standards wars” or “format wars” / Standardisation organisations

There are different standards setting organisations on the information technology field. One list ¹ of
these standards setting organisations is provided by ConsortiumInfo.org.

What this means to the Digital Strategy for Scotland – 2017 and beyond?
12) There are several standardisation issues
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19) This means constant work for implementing existing and new standards.
20) Constant modifications of software can result new security problems.

One warning can be said about standards setting organisations. All standards setting organisations
are not successes based on several factors and there can may irrelevant standards setting
organisations. Market situation on different vehicle markets varies a lot based on different factors.


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Here we can note some problems:

* some systems are based on de-facto standards
* some systems are based on de-jure standards
* there can be confrontations between de-facto and de-jure standards
* there can be a monopoly situation in some domain
* some standards may inhibit possible actions of some stakeholders
* there can be a standard war on some domains
* standards have different life-cycles
* systems have different life-cycles
* there can be mismatches between different life-cycles
* there can be failed standards
* there can be deprecated standards.

It is quite normal situation in the information technology field that there are competing standards for some application field. Therefore there are 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.

**What this means to the Digital Strategy for Scotland – 2017 and beyond?**

21) Different standards should be assessed carefully.
22) There could be a catalogue of different standards
23) There could be some (new?) regulations for keeping the catalogue of different standards up-to-date.

I have advocated open standards even though in some cases open standards are not de facto standards. In practice public sector has very important role, when some standards are competing in the market place. Because public sector has a considerable power when buying/developing information systems and therefore public sector can sometimes direct markets to certain standards. Therefore there should be serious vigilance when assessing different standards and “standards” in some application fields.

**Proposal: Current standardisation (e.g. list provided by ConsortiumInfo.org) efforts by different organisations could be assessed carefully.**

There are differences between horizontal and vertical standards. A simple example is naturally email solutions. There are several vertical standards when creating technically email solutions. Then there are horizontal standards which enable sending messages between technically different email solutions.

**Proposal: There could be assessment of vertical and horizontal standards.**

**Proposal: Using horizontal standards could be favoured when creating different information systems.**

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Horizontal standards enables technological solutions which can work together. Horizontal standards hides different complexities in information systems.

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

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

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

Personally I have advocated using different horizontal standards. For example email standards (horizontal) are implemented with very different technologies (vertical).

Proposal: Government should especially concentrate on open horizontal standards.

Proposal: Some government agencies could apply for memberships of different standard setting organisations which develop especially open horizontal standards.

Proposal: Government agencies should not be passive by-standers when different open horizontal standards are developed.

Proposal: Government agencies could financially support development of open horizontal standards.

Here we can note that developing horizontal standards is very demanding compared to developing vertical standards.
What this means to the Digital Strategy for Scotland – 2017 and beyond?

24) There can be different standardisation organisations which provide different standards.
25) There can be competing horizontal standards.
26) Some government agencies could join some standardisation organisations which develop especially open horizontal standards.
27) Some government agencies could fund development of open horizontal standards.
28) Sometimes there are no open horizontal standards.
29) Development of new (open) standards means hired personnel and other monetary costs.
30) Absence of open horizontal standards means several problems.
31) Horizontal standards based on private solutions mean several problems.

More and more new identifiers (ID) / Challenges to privacy?

In the previous consultations there has been discussion about different identifiers (ID) in different information systems. It can be noted from the previous opinions that there will be several and different identifiers (ID) for different levels.

Examples of these identifiers (ID) are following:

1) Facebook ID for an individual person
2) Facebook ID for the individual up-dates of individuals
3) Data Universal Numbering System (D-U-N-S)
4) Reuters instruments codes (RICs)
5) Social security code for individual citizens in the European Union member states
6) Business identity code for a company in an European Union member state
7) Value added tax code for a company in an European Union member state.

The examples of private identifiers (Facebook IDs, Data Universal Numbering System (D-U-N-S), Reuters Instruments Codes (RICs)) show, that persons and/or communities can use or even demand of using identifiers (ID) from privately owned information systems.

Proposal: There could be a systematic review of different identifiers (ID) on different levels.

Proposal: Possible systematic review of different identifiers (ID) should assess different situations.

Different information systems have also internal identifiers (ID) and external identifiers (ID) for (possible) public usage. The added value for different stakeholders is provided by combination of different identifiers (ID) in a specific information system.
Proposal: The could be some assessment(s) based on different versions of different identifiers (ID).

It can be possible, that there are some legacy identifiers (ID) in the near future. It can be possible, that gradually some legacy identifiers (ID) can be consolidated for more standardised identifiers (ID), but this consolidation means some serious technical and administrative actions.

Proposal: Legacy identifiers (ID) could be assessed seriously.

When information about relevant identifiers is collected, there could be a serious assessment of possible (near) monopoly situation of some identifiers. Depending on the nature of an identifier, there may be a need for serious (anti-trust?) negotiations with providers of some identifiers.

Proposal: The nature of different identifiers (ID) could be assessed.

Proposal: There could be serious negotiations with some providers of identifiers (ID).

In the European Union there has been different anti-trust cases which are related to different private sector identifiers (ID), since some of those private sector identifiers (ID) have been used in several other systems. Some private sector identifiers (ID) can mean a (near) monopoly situation.

What this means to the Digital Strategy for Scotland – 2017 and beyond?

32) Number of different identifiers (ID) is increasing – not decreasing
33) New identifiers (ID) mean a lot work for creating and/or updating of different information systems.
34) There can new identifiers (ID).
35) There can public and private identifiers (ID).
36) Some private identifiers (ID) can limit actions of different stakeholders.
37) Different identifiers (ID) related to energy systems could be assessed carefully.
38) There could be some discussions with communities which provide private identifiers (ID).
39) Monopoly situation with some private identifiers (ID) could be assessed.

An example for cooperation: Web feeds (RSS and Atom)

I have advocated usage of web feeds on several previous opinion documents. Actually there are two

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Proposal: Web feeds could be advocated when developing different information systems.

Proposal: Web feeds (RSS and/or Atom) should be used extensively for providing (real-time) information for different stakeholder(s) (communities).

Proposal: There can be different web feeds (RSS and/or Atom) for different stakeholder(s) – having just one web feed (RSS and/or Atom) may not be a feasible solution.

Proposal: Several web feeds (RSS and/or Atom) can be based on different viewpoints.

It can be easier to create web feeds in different information systems since web feeds enable connections without direct system-to-system connections.

It can be noted, that different back-office systems (with a wide variety of different technologies) can implement RSS standards, and these RSS feeds can be used in the front-office systems. With this kind solutions front-office systems dont need direct system-to-system communications with back-office systems.

What this means to the Digital Strategy for Scotland – 2017 and beyond?

40) Web feeds (RSS and/or Atom) could be used extensively.

41) There can be several web feeds (RSS and/or Atom) for different stakeholders.

Complex networks of different systems?

[Continues on the next page]
Based on previous issues (web feeds) we can note that there can several formats (e.g. 1-6, A-D) for transmitting information from some central (CS) information system. Some formats may be non-standard or standard.

What this means to the Digital Strategy for Scotland – 2017 and beyond?

42) There could be one central information system which collects information from other systems.
43) One central information system could use different standards (e.g. RSS and/or Atom).
44) One central information system could provide several web feeds for different stakeholders.

One issue for central information system could be security issues. Security notifications should be transmitted very fast for different stakeholders.

What this means to the Digital Strategy for Scotland – 2017 and beyond?

45) There could be some regulations about security notifications.
46) There could be one central information system which collects security notifications.
47) One central information system could forward security notifications to other information systems.

Proposal: More technically oriented consultations could be organised after this consultation.
Based on answers (this consultation) there could be more technically oriented consultations. Previously mentioned issues (this opinion) could be detailed for new technically oriented consultations.

Based on previous opinions a process model for technical consultations can be presented. It could be possible to inform members of different (national) information technology experts associations
about different technical consultations. There can different technical problems when developing
different information systems.

Proposal: Members of different (national) information technology experts associations
could be informed about different consultations based on different technical problems
when developing different public sector information systems.

Good luck!!

This opinion is quite limited. Hopefully there are other constructive ideas presented in other
opinions. This remains to be seen.

[Continues on the next page]
I have constructed different opinions about different issues, and on the following web page are all written (PDF files) opinions:

http://www.jukkarannila.fi/lausunnot.html

I have constructed specifically opinions related to information systems – both in English and in Finnish. Here is the list of opinions related to information systems.

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

http://www.jukkarannila.fi/lausunnot.html#nro_9

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 avamisen detaljit (ADADAD)
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EN: Opinion 53: Trade Reporting User Manual (TRUM) (Draft)

http://www.jukkarannila.fi/lausunnot.html#nro_53

EN: Opinion 54: Government Content Management System

http://www.jukkarannila.fi/lausunnot.html#nro_54

EN: Opinion 55: European Energy Regulation

http://www.jukkarannila.fi/lausunnot.html#nro_55

EN: Opinion 56: National Identity Proofing Guidelines

http://www.jukkarannila.fi/lausunnot.html#nro_56

FI: Lausunto 58: Puoluekokousaloitteet / 2010 ja 2014

http://www.jukkarannila.fi/lausunnot.html#nro_58

EN: Opinion 59: Green paper on mobile Health

http://www.jukkarannila.fi/lausunnot.html#nro_59

EN: Opinion 60: Cross-border inheritance tax problems within the EU

http://www.jukkarannila.fi/lausunnot.html#nro_60

EN: Opinion 61: European Register of Products Containing Nanomaterials

http://www.jukkarannila.fi/lausunnot.html#nro_61

FI: Lausunto 65: Lausuntopyyntö nettäänestystyöryhmän väliraportista

http://www.jukkarannila.fi/lausunnot.html#nro_65


http://www.jukkarannila.fi/lausunnot.html#nro_66

FI: Lausunto 67: Valtioneuvoston hanketiedon esiselvityksestä

http://www.jukkarannila.fi/lausunnot.html#nro_67

EN: Opinion 68: European Network Code Stakeholder Committees

http://www.jukkarannila.fi/lausunnot.html#nro_68

FI: Lausunto 69: Hallituksen esitsy (luonnos 16.4.2015) vieraslajeista

http://www.jukkarannila.fi/lausunnot.html#nro_69

EN: Opinion 70: Providing better APIs in New Zealand

http://www.jukkarannila.fi/lausunnot.html#nro_70

EN: Opinion 71: Common Schema for the Disclosure of Inside Information

http://www.jukkarannila.fi/lausunnot.html#nro_71

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I have constructed specifically opinions related to information systems – both in English and in Finnish. Here is the list of opinions related to information systems.
Based on the Finnish three-party system there is a phenomenon called extreme-centre in Finland. The 2011 parliamentary elections in Finland challenged the three-party system, since three “old” parties were not traditionally as the three largest parties. On 2015 this “new” party is part of the current Finnish Government. We all must be interested about this new development in Finland.