TO:
EUROPEAN COMMISSION
Directorate-General for Migration and Home Affairs
B-1049 BRUSSELS

Opinions related to the following six (6) co-decision (COD) proposals

- 2016/0105 (COD) – COM(2016) 196 final
- 2016/0106 (COD) – COM(2016) 194 final
- 2016/0357 (COD) – COM(2016) 731 final
- 2016/0407 (COD) – COM(2016) 881 final
- 2016/0408 (COD) – COM(2016) 882 final
- 2016/0409 (COD) – COM(2016) 883 final

Revised opinion based on six (6) co-decision (COD) proposals

First of all, a lot of thanks to Directorate-General for Migration and Home Affairs 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 on the European Union level.
Annex 2 holds information about disclaimers and copyright.

Best Regards,

Jukka S. Rannila
citizen of Finland
signed electronically

[Continues on the next page]
Previous opinion – 2016/0408 (COD) – COM(2016) 882 final

Previously I have presented opinion 97.

When publishing that opinion (23 December 2016) I was not aware of other five (5) co-decision (COD) proposals.

Here we can note that previous opinion (number 97) was rather limited after all.

Amount of background material / Limited opinion

Here we can note that there is a lot background material based on different COM documents. I have not read all background material – therefore this opinion is rather limited.

Epilogue / Several mismatches between ICT experts and domain experts?

Based on previous opinions (check Annex 1) I have presented the previous figure. Generally speaking different ICT experts try to understand a specific domain. Generally speaking different domain experts try to understand ICT. There can be several mismatches between ICT experts and domain experts.

Experts in the domain ICT means a lot of education for different stakeholder groups. ICT experts
try to implement system to a certain domain and there is always some learning processes for ICT experts. Domain experts have always some learning processes for understanding possibilities of ICT in a specific domain.

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).

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 information systems?

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.

From this simple (figure) 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
9) Different communication standards.

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Proposal 1: There could different standardisation efforts for communication, data, document, database, display/interface standards.

Proposal 2: Different system-to-system connections could be assessed after this consultation.

Proposal 3: Need for different documents for transmitting data between systems could be assessed after this consultation.

Proposal 4: Assessing previously developed standards could be done seriously.

Here we can note that there can be direct system-to-system connections, which can mean some standardised interfaces. Also we can note that different document formats can be used when there is system-to-system connections.

Note: There may be a need for both solutions – direct system-to-system connections and transmitting different documents between systems.

Proposal 5: Probably there has to both options implemented – direct system-to-system connections and transmitting different documents between systems.

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 information systems?

4) There are different and competing standards on different levels.

5) Different standard versions means security problems.

6) Different information systems means implementation of several standards.

7) There can different mismatches between different standards in an information system.

[Continues on the next page]
What this means to information systems

8) There can be several computer programs.
9) There are several providers of different computer programs.
10) There are naturally competing programs.
11) 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.

Here we can note the difference between owners, agreements and members. In reality ownerships agreements 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.

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.

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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.

Proposal 6: 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 agreements 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.

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What this means to information systems?

12) There could be clear information of membership, ownership and agreements of different information systems.
13) There could be some (new?) regulations for keeping the catalogue of different information systems up-to-date.
14) There can be problems with private ownership.
15) Ownership changes have implications for security issues with information systems.
16) Complex layers of ownership, membership and agreements mean several problems when developing and maintaining different software.

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 information systems?

17) Complex networks of membership, ownership and agreements can chance during life-cycles of different information systems.
18) Assessing complex networks of membership, ownership and agreements could be done regularly.

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

Proposal 7: There could different standardisation efforts for communication, data, document, database, display/interface standards.
Proposal 8: Assessing previously developed standards could be done seriously.
Proposal 9: Providing (open) data with different timeframes could be assessed carefully.
Proposal 10: Providing (open) data directly from database(s) could be assessed carefully.
Proposal 11: Providing (open) data as documents could be assessed carefully.

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

What this means to information systems?

19) There are several standardisation issues.
20) There is a need for several standards on different levels.
21) There are several standardisation organisations.


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Assessing and selection of standards mean more work.

This means constant reviews of different standards.

It is possible to implement “wrong” standards.

Part of selected standards can be failures.

This means constant work for implementing existing and new standards.

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.

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 information systems?

Different standards should be assessed carefully.

There could be a catalogue of different standards

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

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Proposal 13: Based on the assessment of different standards, there could be reasoned decisions to use some standards.

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 14: There could be assessment of vertical and horizontal standards.

Proposal 15: Using horizontal standards could be favoured when creating different information systems.

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

Proposal 17: 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 18: Government should especially concentrate on open horizontal standards.

Proposal 19: Some government agencies could apply for memberships of different standard setting organisations which develop especially open horizontal standards.

Proposal 20: Government agencies should not be passive by-standers when different open horizontal standards are developed.

Proposal 21: 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 information systems?

1) There can be different standardisation organisations which provide different standards.

2) There can be competing horizontal standards.

3) Some government agencies could join some standardisation organisations which develop especially open horizontal standards

4) Some government agencies could fund development of open horizontal standards.

5) Sometimes there are no open horizontal standards.

6) Development of new (open) standards means hired personnel and other monetary costs.

7) Absence of open horizontal standards means several problems.

8) Horizontal standards based on private solutions mean several problems.

Here we can note that developing horizontal standards is very demanding compared to developing vertical standards.

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

Proposal 23: 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 24: 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 25: 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 26: The nature of different identifiers (ID) could be assessed.

Proposal 27: 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 information systems?
39) Number of different identifiers (ID) is increasing – not decreasing
40) New identifiers (ID) mean a lot work for creating and/or updating of different information systems.
41) There can new identifiers (ID).
42) There can public and private identifiers (ID).
43) Some private identifiers (ID) can limit actions of different stakeholders.
Different identifiers (ID) related to energy systems could be assessed carefully. There could be some discussions with communities which provide private identifiers (ID). Monopoly situation with some private identifiers (ID) could be assessed.

Added value of different identifiers (ID)?

Here we can note possible cooperation between different systems and usually cooperation between different systems means using different identifiers (ID). There can be some central (S1 ↔ S2) systems which collect information from other systems which have own identifiers (ID).

The number of different interfaces?

Proposal 28: Based on the results of this consultation there could be some modelling work for different interfaces.

Proposal 29: Different stakeholder groups (may) need different interfaces.

Problem with several interfaces?

Here we can note people learn usage of an information system with different timeframes (T₁ ↔ T₆). In time beginners can become expert users after some experience of using a system. A general mistake is to create just one interface to all stakeholder groups – in many cases interface is developed for beginners.

[Continues on the next page]
In reality expert users need efficient shortcuts to all functions in an information system. After creating an interface to experts users there can be development of interfaces to other stakeholder groups.

Proposal 30: Number of different interfaces should be assessed carefully.

Proposal 31: Creating different displays and interfaces could be assessed carefully.

[Continues on the next page]
It is also possible that there are too many features implemented in an information system; too many features means problems for expert users and average users. Like said before there has to be different interfaces – not just one interface for beginners.

It is also possible that there are too many features implemented in an information system; too many features means problems for expert users and average users. Like said before there has to be different interfaces – not just one interface for beginners.

In reality there are several ways for organising task: humans only; computers only; combinations for human and computers. Naturally the last task (combinations for human and computers) is hardest to implement in reality – sometimes we create wrong combinations for these tasks.

**What this means to information systems?**

47) (New) interfaces and/or displays mean new security problems.
48) Number of features in interfaces and/or displays can be overwhelming.
49) Complex interfaces mean new security problems.

In previous consultations I have advocated standardisation of interfaces. There are different processes (Beginning → Actions → Ending), which can be described in different levels of details.

Based on the previously proposed actions there can be a clear understanding of different processes.

It can noted that describing different processes can mean a lot of work for different stakeholders.
It can be noted here that describing different processes are implemented in information systems which are hierarchically structured. So there is always some possible mismatches between actual process models and actual hierarchy of system.

Here we can note, that in a process some objects change their state in different stages.

**Proposal 32:** After some serious assessment there could be some serious work for standardised (SPEX) interfaces and displays.

**Proposal 33:** Some parts of the processes could be standardised for interfaces (SPEX) for different stakeholders.

**Proposal 34:** Some standardised customer interfaces (SPEX) could be used for having better service processes for different stakeholders.

It can be noted, that several systems could implement (SPEX) the same parts of different processes, even though the technology in different systems can be totally different.

Here we can differentiate following issues:

- object of a process
- beginning of a process
- ending of a process
- actions of a process
- variety in a situation.

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There can be different objects: especially material, information and humans. Material and information is stable but humans are never in a stable state.

There could be some points in a process model where there is very detailed (SPEX) parts. Naturally in these parts (SPEX) there could be very detailed information about different concepts.

Since humans are learning entities there can be different shortcuts in different process models implemented in computerised systems.

Based on the previously proposed actions there can be a clear understanding of different processes. It can noted that describing different processes can mean a lot of work for different stakeholders.

It can be noted here that describing different processes are implement in information systems which are hierarchically structured. So there is always some possible mismatches between actual process models and actual hierarchy of system.

**What this means to information systems?**

50) Ambiguous specifications (SPEX) for standardising interfaces mean more problems.

51) Too complex interfaces mean several security problems.

Actually specifying something (SPEX) / Processes

Previously I have mentioned concepts and interfaces. It is always possible to model processes for different information systems.

Here we can note that processes can be modelled on different levels. Then it could be possible to decide which parts of the process (SPEX) are done with computers and what can be more traditional (SPEX) interfaces – e.g. paper-based forms.

**Proposal 35:** Different processes between different stakeholder groups can be modelled.

**Proposal 36:** After modelling concepts there can be more reasoned decision for computer-based interfaces (SPEX) and traditional interfaces (SPEX).

**Proposal 37:** Different traditional interfaces (SPEX) could be explicated first – e.g. paper-bases forms.

**Proposal 38:** After explicating traditional interfaces (SPEX) there can be some modelling work for user interfaces.

After modelling traditional user interfaces (e.g. paper-based forms) it could be possible to have all relevant concepts explicated. After explicating different concepts it can be possible to model user interfaces based on different concepts.

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Nowadays we have different tools for describing / modelling different user interfaces. I have browsed web pages of some user interfaces developing tools. One promising tool is Pencil (by Evolus). With that kind tool it could be possible to model different user interfaces.

I have proposed following order for modelling user interfaces:

1) Simple and powerful user interfaces for expert users should be modelled first.
2) Next user interface could be for daily user.
3) Next user interface could be for weekly users.
4) Next user interface could be for monthly users.
5) Etc. can be developed gradually.

Different expert users need shortcuts to everything and their interfaces can be very simple. People learn and forget ($T_n \leftrightarrow T_n$) different issues when using systems and therefore it should be possible to move between different interfaces. It should be possible to become an expert user ($T_1$, $T_2$, $T_3$, $T_4$) after some learning processes.

Proposal 39: Different user interfaces for expert users could be modelled first.

http://pencil.evolus.vn, open-source GUI prototyping tool (Pencil by Evolus)
Proposal 40: More complex user interfaces could be modelled after modelling user interfaces for expert users.

Generally speaking we tend to create interfaces which are not valued by expert users. Expert users need shortcuts to everything. It can be also said that users learn different issues gradually and therefore there can different interfaces based on learning processes of different users.

Depending on time \(T_1, T_2, T_3, T_4, T_n\) users learn and forget different features \((T_n \leftrightarrow T_n)\) of a specific system. Therefore there can be different shortcuts and even different interfaces for different stakeholders. Like said expert users demand very simple and powerful interfaces.

Proposal 41: There could be some efforts with some stakeholders to gather ideas for different interface proposals.

Proposal 42: There could be a consultation for gathering interface proposals from different stakeholders (communities).

Possible reality / Several systems without connections to other systems

The current reality \((0)\) is that there can several systems which are not connected to other systems. However in the future there can be several ways for cooperation between systems. The problem in the future may be very complex system-to-system \((1)\) connections.

Possible reality: Several systems without connections

Possible future: Very complex system-to-system relations and/or several connections

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Possible future: Very complex system-to-system relations and/or several connections

Generally speaking these many-to-many connections can work quite well when there are not changes in different systems. The problem arises when there are changes in one system since one change can affect several other systems.

Based this problem there are in many cases one central system (2) which can handle cooperation between different (sub)systems. The problem with this option is the failure of the central system and this can lead to unwanted outage of several (sub)systems.

One central system

One option (3) is to have a hierarchy between different system. In this way there cab some systems which are not connected to the central system. With this approach not all (sub)systems face the same problem with a failure in the central system.
Possible future: Some systems are organised into a hierarchical structure

Complex networks of different systems?

The reality: There will be several layered systems developed by several stakeholder communities (both for-profit and non-profit communities).

Here we can note that there can some central systems (CS) and information from those central systems can be distributed to several other systems. In reality the added value for users (citizens and...
different legal entities) is achieved by combining different systems to provide different services.

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 information systems?

52) There could be one central information system which collects information from other systems.
53) One central information system could use different standards (e.g. RSS and/or Atom).
54) 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?

55) There could be some regulations about security notifications.
56) There could be one central information system which collects security notifications.
57) One central information system could forward security notifications to other information systems.

In reality the added value for different stakeholders is cooperation between different systems. In reality this consolidation of different systems mean a lot of work with different stakeholders.

Proposal 43: Complex networks of different systems could be assessed.
Proposal 44: Need for different central systems could be assessed.

More technical consultations?

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.

Proposal 45: More technically oriented consultations could be organised after this consultation.

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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 46: 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.

**Complexity on the European Union level**

There are 28 member states (European Union) at the moment. In reality there are unique situations with information systems in different member states. In some cases information systems can be implemented based on complex system-to-system connections. Complex system-to-system connections means a lot of work when there are changes in some systems.

**Proposal 47:** Complex system-to-system connections implemented in information systems could be assessed carefully.

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One option is to have a single European contact point for member state systems. Here we can calculate connections based on number of information systems.

\[
\begin{align*}
1 \times 28 \text{ member state systems} &= 28 \text{ systems} \\
5 \times 28 \text{ member state systems} &= 140 \text{ systems} \\
10 \times 28 \text{ member state systems} &= 280 \text{ systems} \\
15 \times 28 \text{ member state systems} &= 420 \text{ systems} \\
20 \times 28 \text{ member state systems} &= 560 \text{ systems} \\
28 \times 30 \text{ member state systems} &= 840 \text{ systems}
\end{align*}
\]

Here we can note that there can be hierarchy between different systems (EU ↔ member states) and there can be member state contact points (MCP). Then there can be some hierarchy between different systems. (EU ↔ EUCP ↔ MSCP ↔ MSS). There are unique situations with member states systems in member states. Therefore member state contact points (MCP) can reduce the complexity with European Union contact point (EUCP).

Based on those calculations there could be a lot of direct connections to the European contact point. Number of those connections can be overwhelming. The situation between member states can vary in many ways. So there can different and unique systems between member states.

I have proposed several times creation of member state contact points which could handle different system-to-system connections on member state level. Then it can be easier to create connections between member state contact points and European contact point.

**Proposal 48: There could be one information system (member state contact point) on**
Proposal 49: Different member state systems could be consolidated based on limited number system-to-system connections.

Proposal 50: One information system (member state contact point) on member state level could handle system-to-system connections on the European Union level (European contact point).

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 standards for web feeds: RSS \(^3\)\(^4\) and Atom \(^5\)\(^6\)\(^7\).

Proposal 51: Web feeds could be advocated when developing different informations systems.

Proposal 52: Web feeds (RSS and/or Atom) should be used extensively for providing (real-time) information for different stakeholder(s) (communities).

Proposal 53: 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 54: 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 don’t need direct system-to-system communications with back-office systems.

Mismatches between general knowledge and special knowledge

3 http://www.rssboard.org/rss-specification, RSS 2.0 Specification
5 https://en.wikipedia.org/wiki/Atom_(standard), Wikipedia / Atom (standard)

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Here we can note that there can be many mismatches between general knowledge and special knowledge. Generally speaking IT (information technology) skills are rather generic skills which can be applied to different domains. On the other hand persons on different domains master some special knowledge.

Based on mismatches between general knowledge and special knowledge there has to be serious education for IT personnel (general) and persons on the application domain (special). This serious education should happen before starting new projects.

**Proposal 55:** There could be some serious education about IT skills and domain skills for different stakeholders before starting new IT projects.

**Proposal 56:** After serious education about IT skills and domain skills for different stakeholders different stakeholders could model requirements well enough.

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Proposal 57: The community procuring some information system(s) should have the leading role when modelling different requirements.

Modelling processes?

Process modelling is one option. An example for process modelling is naturally usage of flowcharts.

Proposal 58: The community procuring some information system(s) should have the leading role when modelling different processes.

Explaining requirements and processes on different levels?

Here we can note that there can be layers (hierarchy) in different human-based systems. Understanding lower layers mean different explanations for upper levels.

Proposal 59: The community procuring some information system(s) should model processes and requirements also on lower layers (hierarchy).

Proposal 60: There has to be some education about modelling for persons on lower layers (hierarchy).

Without modelling requirements (etc.) on the lower levels (hierarchy) there will be several problems for different IT projects.
We can note that different IT experts are in many cases outsiders who have less knowledge about some application domain(s). Therefore different IT experts are asking different questions and explanations. Without some serious education there will be several mismatches between different stakeholder groups.

**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]
ANNEX 1

My opinions to the previous and relevant consultations – these consultations were mostly organised by the Commission of the European 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

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

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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) 8

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) 9

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

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

EN: Opinion 40: Media Freedom and Pluralism / audiovisual regulatory bodies
http://www.jukkarannila.fi/lausunnot.html#nro_40

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

EN: Opinion 42: Opening up Education
http://www.jukkarannila.fi/lausunnot.html#nro_42


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EN: Opinion 43: Publication of extracts of the European register of market participants
http://www.jukkarannila.fi/lausunnot.html#nro_43
NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)

EN: Opinion 44: Evaluation policy guidelines
http://www.jukkarannila.fi/lausunnot.html#nro_44

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 51: European Area of Skills and Qualifications
http://www.jukkarannila.fi/lausunnot.html#nro_51

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
NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)

EN: Opinion 55: European Energy Regulation
http://www.jukkarannila.fi/lausunnot.html#nro_55
NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)

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

EN: Opinion 64: Corporate Social Responsibility - European Commission
http://www.jukkarannila.fi/lausunnot.html#nro_64

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

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EN: Opinion 68: European Network Code Stakeholder Committees

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

NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)

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

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

NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)

EN: Opinion 74: Enabling the Internet of Things

http://www.jukkarannila.fi/lausunnot.html#nro_74

NOTE: Organised by Body of European Regulators for Electronic Communications (BEREC)

EN: Opinion 80: Mandatory Transparency Register

http://www.jukkarannila.fi/lausunnot.html#nro_80

EN: Opinion 84: Revision of the European Interoperability Framework

http://www.jukkarannila.fi/lausunnot.html#nro_84

EN: Opinion 86: 2016 Annual Colloquium on fundamental rights

http://www.jukkarannila.fi/lausunnot.html#nro_86

EN: Opinion 88: Evaluation and Review of the ePrivacy Directive

http://www.jukkarannila.fi/lausunnot.html#nro_88

EN: Opinion 89: BEREC Guidelines for net neutrality rules

http://www.jukkarannila.fi/lausunnot.html#nro_89

NOTE: Organised by Body of European Regulators for Electronic Communications (BEREC)

EN: Opinion 93: Safety of apps and other non-embedded software

http://www.jukkarannila.fi/lausunnot.html#nro_93

EN: Opinion 95: Targeted consultation on eForms

http://www.jukkarannila.fi/lausunnot.html#nro_95


http://www.jukkarannila.fi/lausunnot.html#nro_97

My opinions to the previous and relevant consultations – there consultations were mostly organised by the Commission of the European Union. General page to all consultations – both in English and in Finnish: http://www.jukkarannila.fi/lausunnot.html

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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.

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