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Public consultation on the safety of apps and other non-embedded software

First of all, a lot of thanks to (Unit H1) the European Commission Directorate-General for Communications Networks, Content & Technology (DG CONNECT) 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

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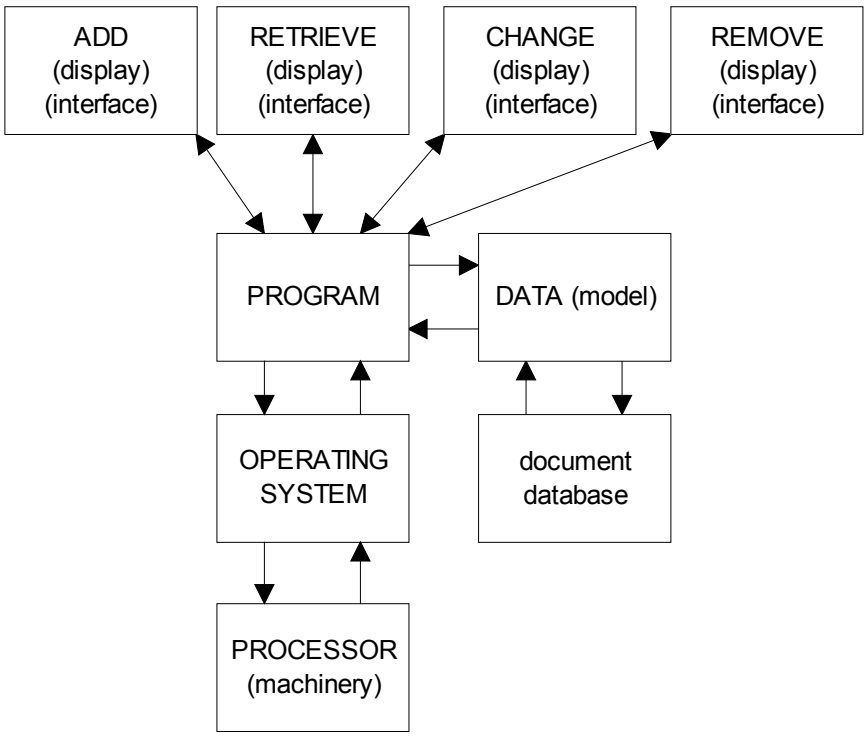
Previous consultations (about information systems) / Annex 1

Annex 1 holds a list of previous consultations organised by different European Union organisations – mainly organised by the European Commission.

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.

One conception of information technology / membership, ownership and agreements



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.

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.

Naturally, there can be solutions, which are not based on the maximum solution.

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

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

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 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.

[Continues on the next page]

	Owner? Member? Agreement?	OPEN	CLOSED
1. Device / Machinery			
2. Operating system			
3. Program(s)			
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			

What this means to safety of apps and other non-embedded software?

1) **There can be problems with private ownership.**
2) **Ownership changes have implications for security issues with information systems.**
3) **Complex layers of ownership, membership and agreements mean several problems when developing and maintaining different software.**

One conception of information technology / Direct system-to-system connection / Connection using different documents

Basic functions in an information system (retrieve, add, change, remove, data and documents) can be noted once more. Cooperation between systems can based on direct system-to-system connections (standards) or transferring documents (standards) between systems.

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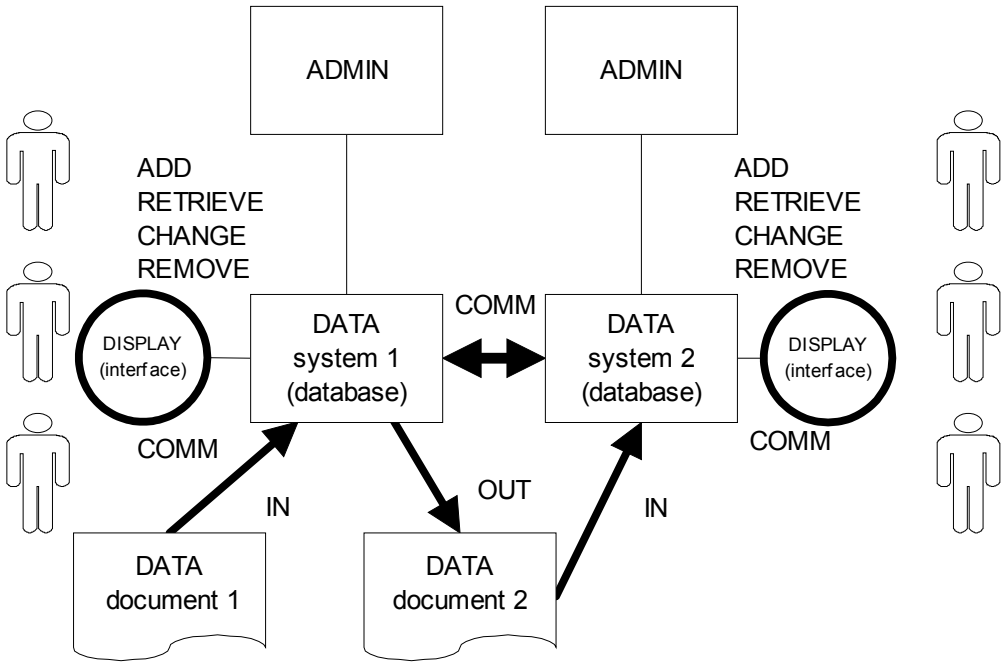


From this simple (figure) conception we can differentiate several standard classes.

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.

This actually means at least nine (9) different standard classes, and there can be both open and closed standards in different layers.

What this means to safety of apps and other non-embedded software?

1) **There are different and competing standards on different levels.**
2) **Different standard versions means security problems.**
3) **Different information systems means implementation of several standards.**
4) **There can different mismatches between different standards in an information system.**

Basic functions in an information system (retrieve, add, change, remove, data and documents) can be noted once more. Cooperation between systems can based on direct system-to-system connections (standards) or transferring documents (standards) between systems.

What this means to safety of apps and other non-embedded software?

1) Direct system-to-system connections mean more security problems.

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 different standardisation efforts for communication, data, document, database, display/interface standards.

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

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 safety of apps and other non-embedded software?

1) Assessment of different standards means a lot of work.

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.

Here we can note some problems:

1 Standard Setting Organizations and Standards List, www.consortiuminfo.org/links/linksall.php

- 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.

What this means to safety of apps and other non-embedded software?

1) **This means constant reviews of different standards.**
2) **It is possible to implement "wrong" standards.**
3) **Part of selected standards can be failures.**
4) **This means constant work for implementing existing and new standards.**
5) **Constant modifications of software can result new security problems.**

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.

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.

Horizontal standards enables technological solutions which can work together. Horizontal standards

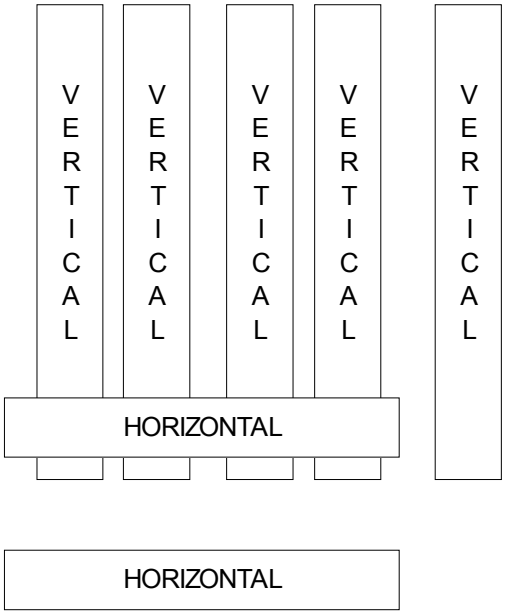
hides different complexities in information systems.

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). (New) Horizontal standards should be open.



Proposal: Governments should especially concentrate on 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 safety of apps and other non-embedded software?

1) **Sometimes there are no open horizontal standards.**
2) **Development of new (open) standards means hired personnel and other monetary costs.**
3) **Absence of open horizontal standards means several problems.**
4) **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. On the European Union level there can be several identifiers (ID), e.g. following:

* global identifiers (ID)
* EU-wide identifiers (ID)
* general member state identifiers (ID)
* several identifiers (ID) in member states.

It can be noted, that some member states (EU) are federations, and different federal states can have their own identifiers (ID).

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 Instrumens 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: member states (EU), European (inside EU and outside EU) and global.

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 safety of apps and other non-embedded software?

1) **Digitalisation of everything means more identifiers (ID).**
2) **All new identifiers (ID) mean more work for developing existing and new informations systems.**
3) **New identifiers (ID) mean new security problems.**
4) **Some new identifiers (ID) can be private solutions.**

Problem with several interfaces?

Here we can note people learn usage of an information system with different timeframes ($T_n \leftrightarrow T_n$). 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.

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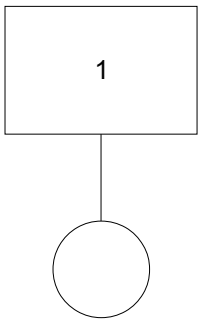
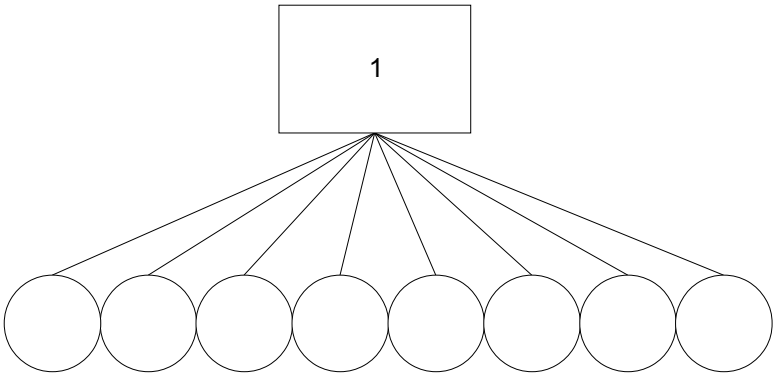
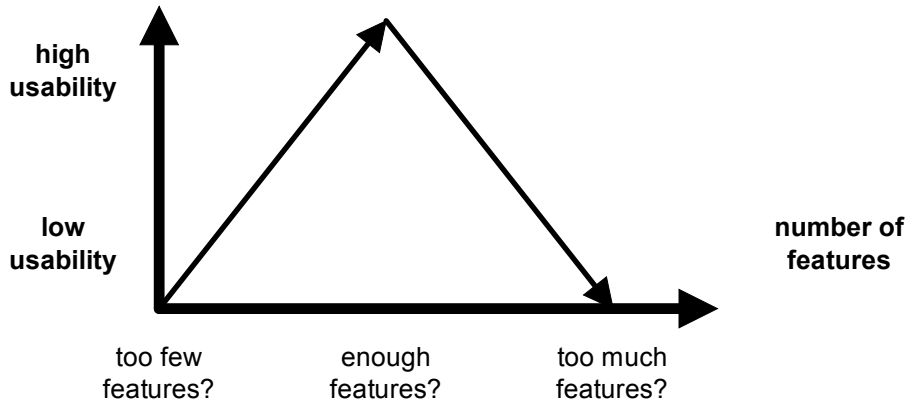


In reality expert users need efficient shortcuts to all functions in an information system. After creating an interface to experts users there can be development of interfaces to other stakeholder groups.

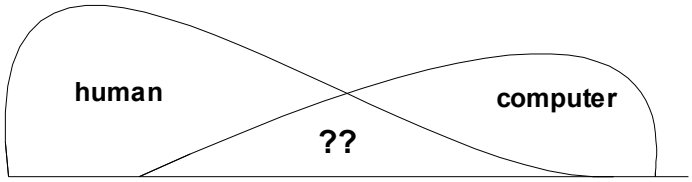


Proposal: Number of different interfaces should be assessed carefully.

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



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 safety of apps and other non-embedded software?

1) **(New) interfaces and/or displays mean new security problems.**
2) **Number of features in interfaces and/or displays can be overwhelming.**
3) **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 implement 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: After some serious assessment there could be some serious work for standardised (SPEX) interfaces and displays.

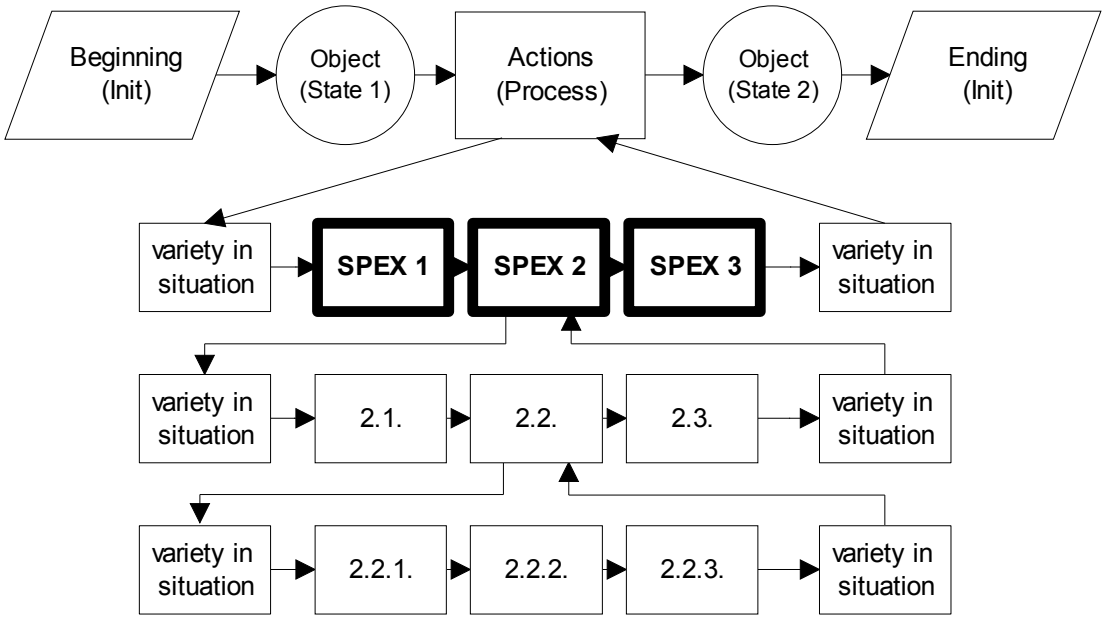
Proposal: Some parts of the processes could be standardised for interfaces (SPEX) for different stakeholders.

Proposal: 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.



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 safety of apps and other non-embedded software?

1) **Ambiguous specifications (SPEX) for standardising interfaces mean more problems.**
2) **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: Different processes between different stakeholder groups can be modelled.

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

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

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

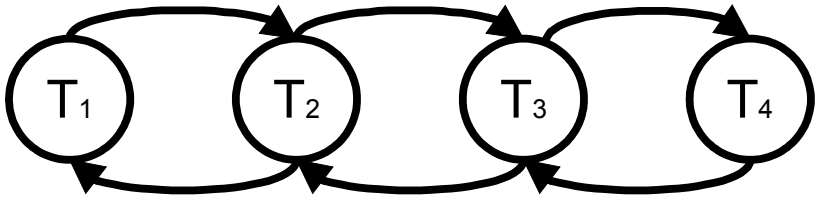
After modelling traditional user interfaces (e.g. paper-based forms) it could be possible to have all relevant concepts explicated. After explicating different concepts it can be possible to model user interfaces based on different concepts.

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 [2] 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.

2 http://pencil.evolus.vn, open-source GUI prototyping tool (Pencil by Evolus)



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

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

Problem of complicated requirements?

(New) information system features should conform to the different 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.

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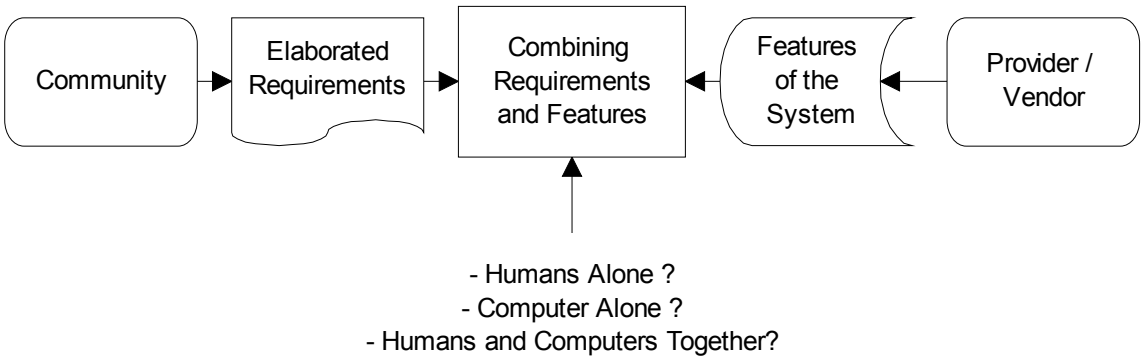

Traditionally requirements engineering has been divided in to three distinct areas:

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

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

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

Different requirements for an IT system can be described in many ways, and there can be mismatches between features and requirements. Also, the division of labour between humans and computers can cause problems, and there are always real possibilities for creating cumbersome IT solutions.

Proposal: Developing formalised open specifications can be supported.

<u>What this means to safety of apps and other non-embedded software</u>

1) Complex requirements mean more problems.
2) There is always danger of having too ambiguous requirements.
3) Creation of well-defined requirements mean hired personnel and other monetary costs.

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: Web feeds could be advocated when developing different informations 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.

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]

3 http://www.rssboard.org/rss-specification, RSS 2.0 Specification
4 https://en.wikipedia.org/wiki/RSS, Wikipedia / RSS
5 https://en.wikipedia.org/wiki/Atom_(standard), Wikipedia / Atom (standard)
6 https://tools.ietf.org/html/rfc4287, The Atom Syndication Format
7 https://tools.ietf.org/html/rfc5023, The Atom Publishing Protocol

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591 **ANNEX 1**
592
593
594 My opinions to the previous and relevant consultations – there consultations were mostly organised
595 by the Commission of the Europan Union. General page to all consultations – both in English and
596 in Finnish: http://www.jukkarannila.fi/lausunnot.html
597
598
599 EN: Opinion 1: Review of the rules on access to documents
600 http://www.jukkarannila.fi/lausunnot.html#nro_1
601
602 EN: Opinion 2: Schools for the 21st Century
603 http://www.jukkarannila.fi/lausunnot.html#nro_2
604
605 EN: Opinion 3: The future of pharmaceuticals for Human use in Europe- making Europe a Hub for
606 Safe and Innovative medicines
607 http://www.jukkarannila.fi/lausunnot.html#nro_3
608
609 EN: Opinion 5: Consumer Scoreboard, Questionnaire for stakeholders
610 http://www.jukkarannila.fi/lausunnot.html#nro_5
611
612 EN: Opinion 6: Consultation on a Code of Conduct for Interest Representatives
613 http://www.jukkarannila.fi/lausunnot.html#nro_6
614
615 EN: Opinion 8: European Interoperability Framework, version 2, draft
616 http://www.jukkarannila.fi/lausunnot.html#nro_8
617
618 EN: Opinion 9: CAMSS: Common Assessment Method for Standards and Specifications, CAMSS
619 proposal for comments
620 http://www.jukkarannila.fi/lausunnot.html#nro_9
621
622 EN: Opinion 15: Collective Redress
623 http://www.jukkarannila.fi/lausunnot.html#nro_15
624
625 EN: Opinion 17: Opinion to Antitrust Case No. COMP/C-3/39.530
626 http://www.jukkarannila.fi/lausunnot.html#nro_17
627
628 EN: Opinion 18: Opinion Related to the Public Undertaking by Microsoft
629 http://www.jukkarannila.fi/lausunnot.html#nro_18
630
631 EN: Opinion 19: Official Acknowledgement by the Commission
632 http://www.jukkarannila.fi/lausunnot.html#nro_19

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

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

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

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

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

EN: Opinion 30: Internet Filtering
http://www.jukkarannila.fi/lausunnot.html#nro_30
NOTE: Organised by the European Committee for Standardization (CEN) [8]

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

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

8 http://www.cen.eu/ (Accessed 2 July 2012)
9 http://www.acer.europa.eu/ (Accessed 2 July 2012)

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

EN: Opinion 66: Net Innovation for the Work Programme 2016-2017
http://www.jukkarannila.fi/lausunnot.html#nro_66

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)

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

[Continues on the next page]

ANNEX 2

DISCLAIMERS

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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 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.