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2 **To: BEREC (Body of European Regulators for Electronic Communications)**

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5 **Enabling the Internet of Things / EWG NGN Project Advanced connectivity of devices,**
6 **systems and services (M2M) / BoR (15) 141**

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9 First of all, a lot of thanks to BEREC for organising this important consultation.

10
11 This opinion represents an opinion of an individual citizen, not any legal entity.

12
13 This opinion does not contain:
14 – any business secrets
15 – any trade secrets
16 – any confidential information.

17
18 This opinion is public.
19 BEREC can add PDF file of this opinion to a relevant web page.

20
21
22 Annex 1 holds information about previous consultation on the European Union level.
23 Annex 2 holds information about disclaimers and copyright.

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27 Best Regards,

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30
31 Jukka S. Rannila
32 citizen of Finland
33
34 signed electronically

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General notes / Simple analysis

Here we can note that this opinion focuses just on one question, i.e. question six (6). So this analysis is very simple and there are much more complexity with five (5) other questions.

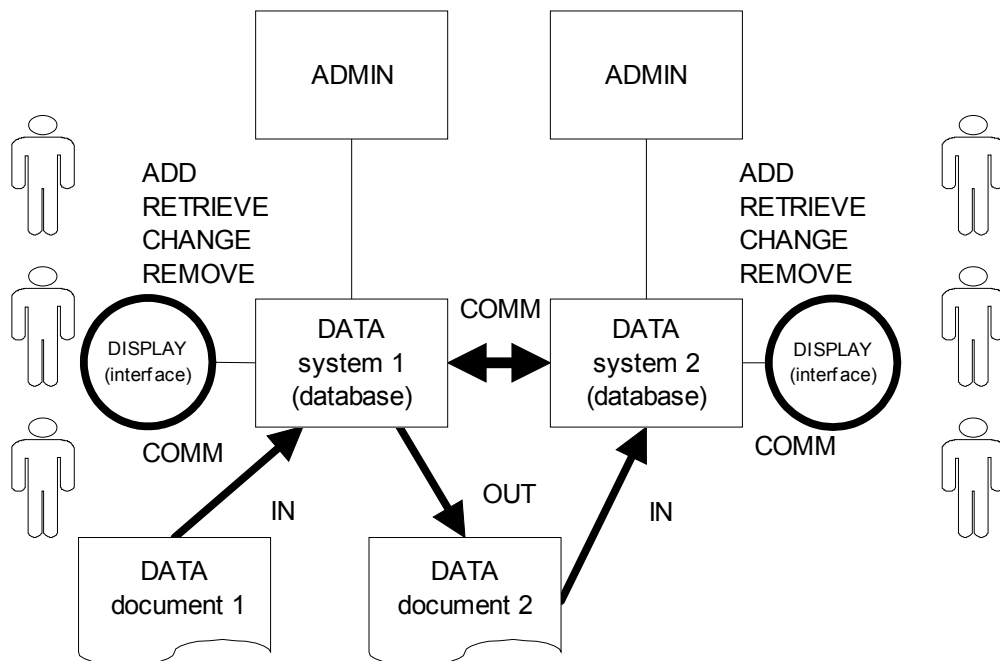
Question 6 / Actually two questions

Here we can note these two questions:

(1) What is the impact of open and proprietary standards on the development of the M2M sector?

(2) What are the advantages and disadvantages of open and proprietary standards, taking in account that M2M services may be provided on private or public networks?

A simple conception of information technology (IT)



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

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

67

	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		THIS CONSULTATION?	
8. Retrieve / Interface / Display			
9. Add / Interface / Display			
10. Remove / Interface / Display			
11. Change / Interface / Display			

68

69 Here we can note this consultation is mostly about communication between different systems. Here
70 we have to note that there are other opinions (check annex 1) related to other issue on the IT
71 domains.

72

73 **Different standardisation efforts exists / Standard developing organisations (SDO)?**

74

75 There are several standard developing organisations in the information technology field and one
76 comprehensive ¹ list is provided by ConsortiumInfo.org.

77

78 **Proposal: There could be some serious assessments based on the list of standard**
79 **developing organisations (the list is provided by ConsortiumInfo.org).**

80

81 Based on some assessments there could be some industry standards to be evaluated.

82

83 **Already something going on? / Internet of Things**

84

85 Here we can note something about standards developing organisations. Based on a casual web
86 search there can be a following list about some standards developing organisations related to
87 Internet of Things (IoT). Possibly there are other standards developing organisations concentrating

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

88 on some parts/aspects in this domain – internet of things (IoT).

89 Internet of Things Global Standards Initiative ²

90 IPSO Alliance ³

91 Allseen Alliance ⁴

92 Open Interconnect Consortium ⁵

93 Industrial Internet Consortium ⁶

94

95 **Proposal: After serious review of existing standards and standards developing**
96 **organisations BEREC could join to some standards developing organisations.**

97

98 **Non-profit foundations for developing different aspects of IT**

99

100 I have proposed that there should be non-profit foundations which takes care of different aspects of
101 IT domain. Then different communities (both non-profit and for-profit) can join a foundation based
102 on serious review of standards developed by a specific foundation. There are some foundation as
103 example of this approach:

- 104 • LINUX Foundation ^{7 8}
- 105 • The Document Foundation ^{9 10}
- 106 • MariaDB Foundation ^{11 12}
- 107 • Python Software Foundation ^{13 14}
- 108 • The Apache Software Foundation ^{15 16}
- 109 • OpenStack Foundation ^{17 18}
- 110 • The Open Group ^{19 20}
- 111 • The Eclipse Foundation ^{21 22}
- 112 • Open Invention Network ^{23 24}

113

2 <http://www.itu.int/en/ITU-T/gsi/iot/Pages/default.aspx>

3 <http://www.ipso-alliance.org/>

4 <https://allseenalliance.org/>

5 <http://www.openinterconnect.org/>

6 <http://www.iiconsortium.org/>

7 <http://www.linuxfoundation.org/>

8 https://en.wikipedia.org/wiki/Linux_Foundation

9 <http://www.documentfoundation.org/>

10 https://en.wikipedia.org/wiki/The_Document_Foundation

11 <https://mariadb.org/>

12 <https://en.wikipedia.org/wiki/MariaDB>

13 <https://www.python.org/psf/>

14 https://en.wikipedia.org/wiki/Python_Software_Foundation

15 <http://apache.org/>

16 https://en.wikipedia.org/wiki/Apache_Software_Foundation

17 <http://www.openstack.org/>

18 <https://en.wikipedia.org/wiki/OpenStack>

19 <http://www.opengroup.org/>

20 https://en.wikipedia.org/wiki/The_Open_Group

21 <https://www.eclipse.org/org/>

22 https://en.wikipedia.org/wiki/Eclipse_Foundation

23 <http://www.openinventionnetwork.com>

24 https://en.wikipedia.org/wiki/Open_Invention_Network

114 When browsing web pages of these communities we can conclude that every foundation has a clear
 115 mission for developing specific technology in some specific IT domain.

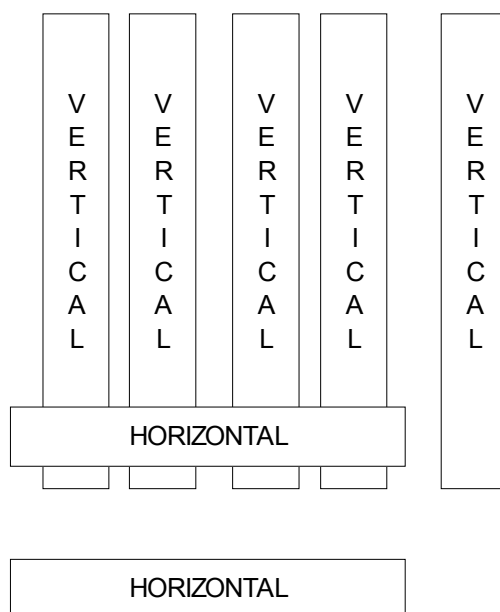
116

117 **Proposal: After a serious review of existing (non-profit) foundations BEREC could join**
 118 **to some (non-profit) foundations.**

119

120 **Horizontal standardisation and vertical standardisation**

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122

123

124 Personally I advocate using different horizontal standards. For example email standards (horizontal)
 125 are implemented with very different technologies (vertical).

126

127 **Proposal: BEREC could asses both vertical and HORIZONTAL standards.**

128

129 **Proposal: BEREC could favour development of HORIZONTAL standards.**

130

131 Here we can note that developing horizontal standards is very demanding compared to developing
 132 vertical standards. Therefore BEREC has to carefully assess situation of horizontal standards before
 133 developing new horizontal standards. On the other hand BEREC could/can endorse and enforce
 134 usage of different horizontal standards.

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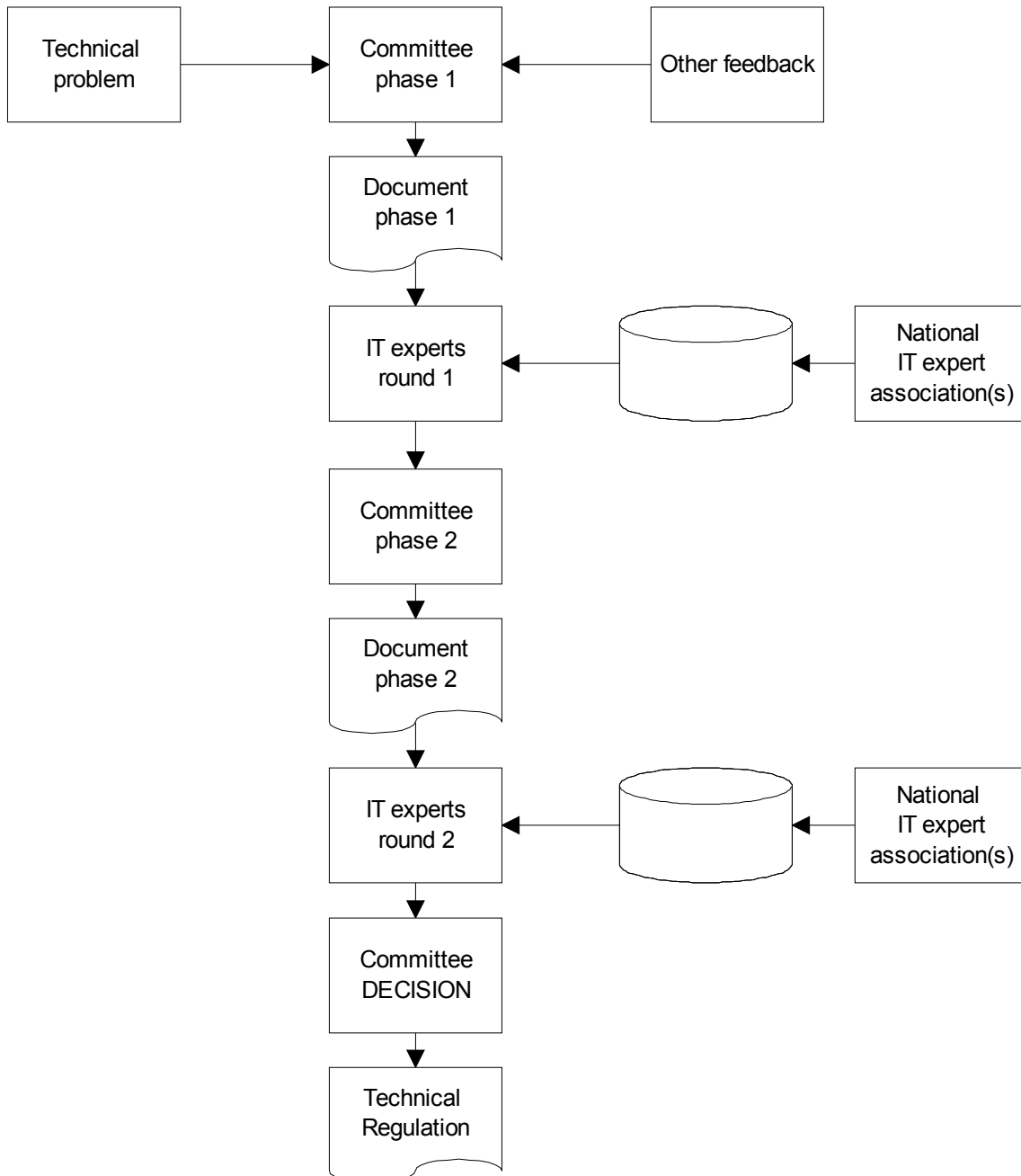
136 **Analysing different standards and standard versions / National IT experts associations**

137

138 In some opinions I have proposed cooperation with different ²⁵ national IT experts associations. I
 139 have proposed distribution of different questionnaires to national IT experts associations' members.

²⁵ <http://tivia.fi/in-english>, The Finnish Information Processing Association, TIVIA; an example of a national IT experts association

140 Naturally there must be a limited number of different questionnaires in a year.
141



142
143
144 This procedure of sending different questionnaires to national IT experts associations' members
145 could be tested. Possibly this idea does not work and the idea could be abandoned after real
146 results.
147
148

149 **Proposal: BEREC could test proposed cooperation model (different questionnaires)**
150 **with different national IT experts associations.**

151

152 This approach has been tested at least once on the European Union level; The European
153 Commission asked opinion to the following standards:

154

155 * DomainKeys Identified Mail Signatures (DKIM)

156 * Domain ECMAScript-402 Internationalization API Specification

157 * Domain Name System Security Extensions (DNSSEC) from Internet Engineering Task
158 Force (IETF)

159 * Internet Protocol version 6 (IPv6)

160 * Extensible Markup Language (XML) produced by World Wide Web Consortium (W3C)

161 * Lightweight Directory Access Protocol version 3 "LDAPv3"

162

163 The web page for this consultation is on the following address:

164

165 Public consultations on ICT standardisation

166 <https://ec.europa.eu/digital-agenda/en/news/public-consultations-ict-standardisation>

167

168 Actual results of this consultation can be asked from the European Commission.

169

170 **An example of a horizontal standard – web feeds / RSS and Atom**

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173

174 I have advocated usage of web feeds on several previous opinion documents. Actually there are two
175 standards for web feeds: RSS^{26 27} and Atom²⁸.

176

177 **Proposal: BEREC could advocate usage of web feeds (RSS and/of Atom) in different**
178 **systems (horizontal) which then can implement other approved standards (vertical).**

179

180 **Current reality / There are several systems without connections to other systems**

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182 This consultation is about connectivity of devices, systems and services (M2M) and Internet of
183 Things (IoT).

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185 The current reality (0) is that several systems are not connected to other systems.

186

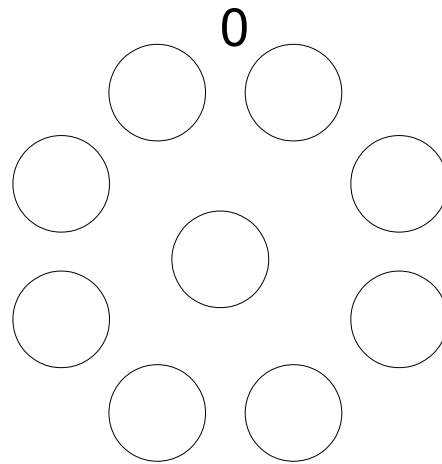
187 However in the future there can be several ways for cooperation between systems. The problem in
188 the future may be very complex system-to-system (1) connections.

26 <http://www.rssboard.org/rss-specification>, RSS 2.0 Specification

27 <https://en.wikipedia.org/wiki/RSS>, Wikipedia / RSS

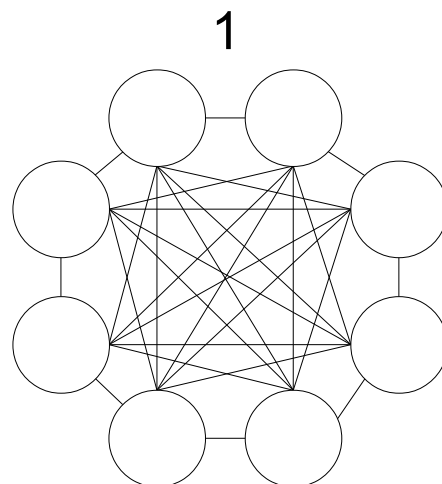
28 [https://en.wikipedia.org/wiki/Atom_\(standard\)](https://en.wikipedia.org/wiki/Atom_(standard)), Wikipedia / Atom (standard)

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The current reality: Several systems without connections

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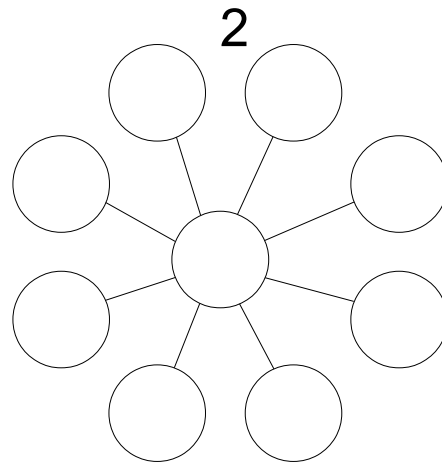


The possible future: Several systems have very complex system-to-system relations and/or several connections

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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.

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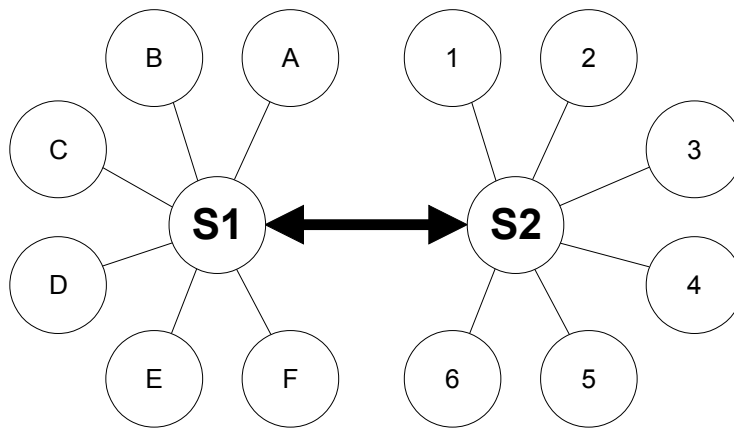


The possible future: One central system for cooperation between other systems

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The next option could be some operation between some central (1-2) systems. In this way failure of the central system (S1/S2) does not cause outages in all (sub)systems.

1-2

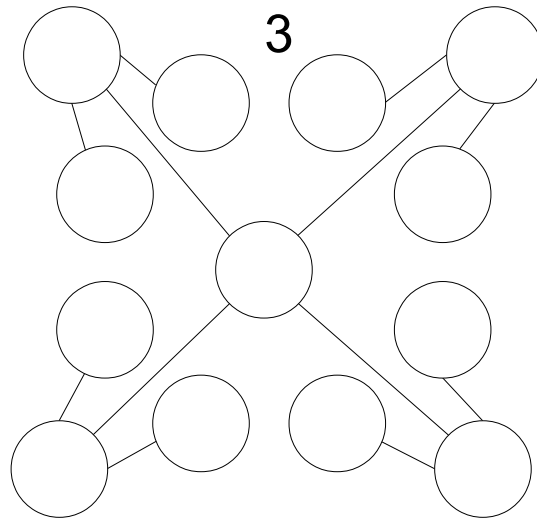


The possible future: Some central systems (S1 ↔ S2) can have some cooperation

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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.

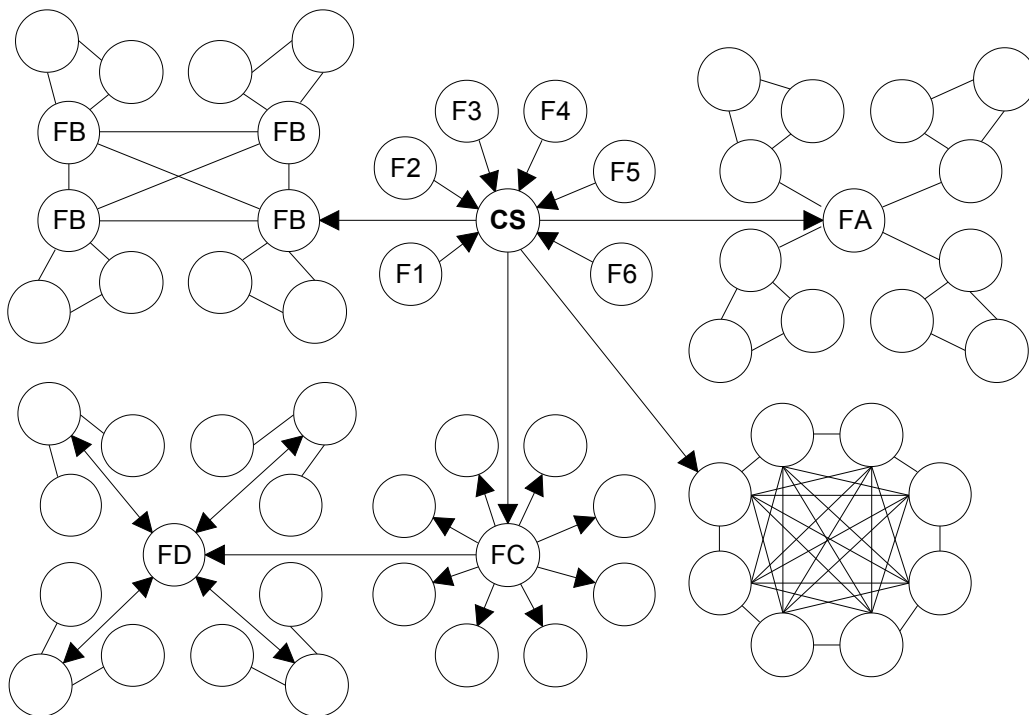
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The possible future: Some systems are organised into a hierarchical structure

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



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The reality: There will be complex cooperation networks between different systems

Here we can note that there can some central systems (CS) and information from those central systems can be distributed to several other systems.

231 Here we can note some problems:

- 232 • some systems are based on **de-facto** standards
- 233 • some systems are based on **de-jure** standards
- 234 • there can be confrontations between **de-facto** and **de-jure** standards
- 235 • there can be a monopoly situation in some domain
- 236 • some standards may inhibit possible actions of some stakeholders
- 237 • there can be a “standard war” in some domains
- 238 • standards have different life-cycles
- 239 • systems have different life-cycles
- 240 • there can be mismatches between different life-cycles
- 241 • there can be failed standards
- 242 • there can be deprecated standards.

243

244 In some cases the European Commission (Directorate-General for Competition) have organised
245 serious reviews on some IT domains.

246

247 Different for-profit companies have selected different approaches: either (1) voluntary cooperation
248 with the European Commission (Directorate-General for Competition) **OR** (2) juridicial
249 proceedings against the European Commission (Directorate-General for Competition). Some for-
250 profit companies have lost their case after juridicial proceedings and the decisions of the European
251 Commission (Directorate-General for Competition) has been enforced after all.

252

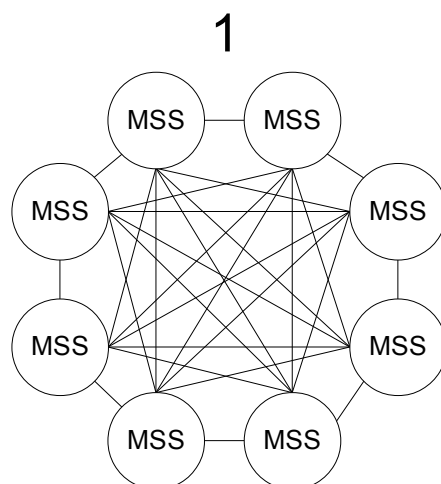
253 **Proposal: BEREC could organise independently serious reviews of standardisation
254 situation in some domains.**

255

256 **Proposal: Possibly BEREC could ask the European Commission (Directorate-General
257 for Competition) for organising serious review of standardisation situation in some
258 domain for determining anti-trust situation.**

259

260 **The European Union level**



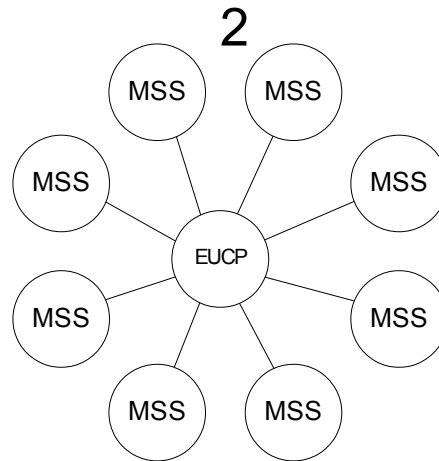
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262

MSS = Member State System (on the European Union level)

263 Like mentioned before there can be complex many-to-many connections between member state
264 systems – this can be current situation in member states.

265



266

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MSS = Member State System (on the European Union level)

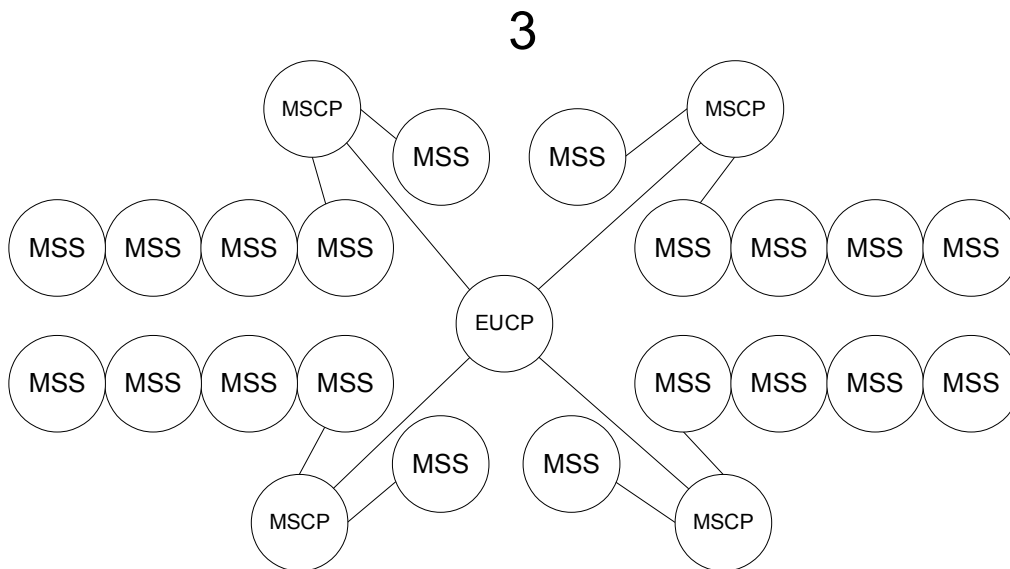
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EUCP = European Union Contact Point

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270 Like mentioned before just having one central system can be very risky. Therefore there should be
271 member state contact point which can gradually consolidate different member state systems.

272



273

274

MSS = Member State System (on the European Union level)

275

EUCP = European Union Contact Point

276

MSCP = Member State Contact Point

277

278 Here we can note that in some cases European Union Contact Points (EUCP) could take care of
279 global connections.

280
281 **Proposal: BEREC could assess the need for Member State Contact Points.**

282
283 **Proposal: BEREC could assess the need for European Union Contact Points.**

284
285 **Proposal: BEREC could assess the need for global connections.**

286
287 **Summary of answer to the question 1**

288
289 **The question: (1) What is the impact of open and proprietary standards on the development**
290 **of the M2M sector?**

291
292 **The answer: (1.a) After a serious review of standardisation situation in some domain**
293 **there could be different approaches:**

294
295 (i) **Serious negotiations with stakeholder communities which can control**
296 **some proprietary standards; possibly this can lead to anti-trust**
297 **proceedings!**

299 (ii) **Possibly funding work of stakeholder communities which develops**
300 **open standards (possibly other open issues – e.g. open source software).**

301
302 **The answer: (1.b) BEREC could support especially development of OPEN and**
303 **especially HORIZONTAL standards.**

304
305 **The answer: (1.c) After serious reviews BEREC could join formally to some**
306 **stakeholder communities which develop OPEN standards – and possibly**
307 **HORIZONTAL standards.**

308
309 Like said there can be de-facto and de-jure standards.

310
311 **Summary of answer to the question 2**

312
313 **The question: (2) What are the advantages and disadvantages of open and proprietary**
314 **standards, taking in account that M2M services may be provided on private or public**
315 **networks?**

316
317 **The answer: (2.a) With open standards there can be easier cooperation solutions**
318 **between systems in the European Union level – European Union contact points.**

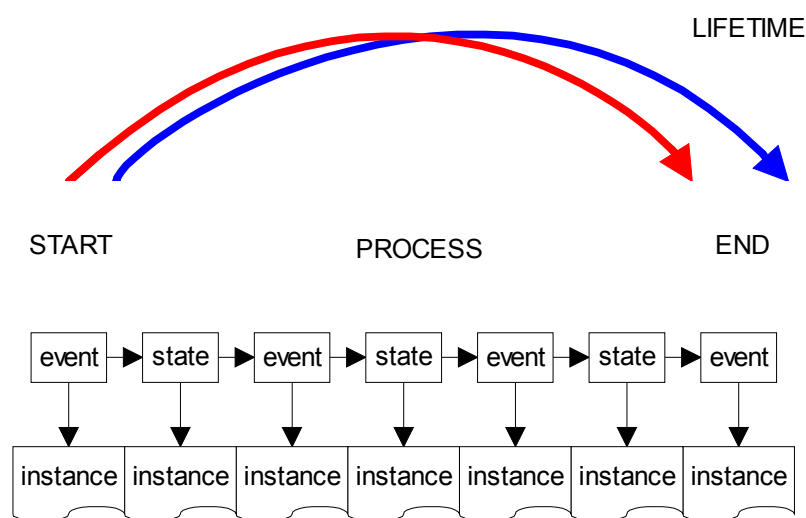
319
320 **The answer: (2.b) With open standards there can be easier cooperation on the global**
321 **level.**

322
323 **The answer: (2.c) With open standards different member state systems can be**
324 **consolidated on the member state level – member state contact points.**

325 **The answer: (2.d) With open standards there can be well organised cooperation**
 326 **between different contact points (systems) and separate systems.**

327
 328 **The answer: (2.e) There can different proprietary standards – both vertical and**
 329 **horizontal; BEREC should organise serious negotiations with stakeholder communities**
 330 **which develop/maintain/etc. proprietary standards. Possibly this can lead to anti-trust**
 331 **proceedings!**

332
 333 **General summary: Processes, events, states, lifetime, instances, start and end**
 334



335
 336
 337 Finally some important concepts can noted: processes, events, states, lifetime, instances start and
 338 end. It can noted that during the lifetime of an information system there can be significant changes
 339 with the selected and implemented standards.

340
 341 **Proposal: Based on the results of this consultation BEREC could create a roadmap for**
 342 **implementing different open and/or especially horizontal standards.**
 343

344 It can noted that there are very cumbersome information systems on the European Union level on
 345 different application fields. Therefore BEREC could have a clear roadmap for implementing
 346 different standards in the near and distant future. BEREC could formally join to some important
 347 (standards developing) organisations based on the results of this consultation.

348
 349 **Good luck!!!**
 350

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

353
 354 [Continues on the next page]

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ANNEX 1

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

364

365

366 EN: Opinion 1: Review of the rules on access to documents

367 http://www.jukkarannila.fi/lausunnot.html#nro_1

368

369 EN: Opinion 2: Schools for the 21st Century

370 http://www.jukkarannila.fi/lausunnot.html#nro_2

371

372 EN: Opinion 3: The future of pharmaceuticals for Human use in Europe- making Europe a Hub for
373 Safe and Innovative medicines

374 http://www.jukkarannila.fi/lausunnot.html#nro_3

375

376 EN: Opinion 5: Consumer Scoreboard, Questionnaire for stakeholders

377 http://www.jukkarannila.fi/lausunnot.html#nro_5

378

379 EN: Opinion 6: Consultation on a Code of Conduct for Interest Representatives

380 http://www.jukkarannila.fi/lausunnot.html#nro_6

381

382 EN: Opinion 8: European Interoperability Framework, version 2, draft

383 http://www.jukkarannila.fi/lausunnot.html#nro_8

384

385 EN: Opinion 9: CAMSS: Common Assessment Method for Standards and Specifications, CAMSS
386 proposal for comments

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

388

389 EN: Opinion 15: Collective Redress

390 http://www.jukkarannila.fi/lausunnot.html#nro_15

391

392 EN: Opinion 17: Opinion to Antitrust Case No. COMP/C-3/39.530

393 http://www.jukkarannila.fi/lausunnot.html#nro_17

394

395 EN: Opinion 18: Opinion Related to the Public Undertaking by Microsoft

396 http://www.jukkarannila.fi/lausunnot.html#nro_18

397

398 EN: Opinion 19: Official Acknowledgement by the Commission

399 http://www.jukkarannila.fi/lausunnot.html#nro_19

- 400 EN: Opinion 20: SECOND Opinion Related to the Public Undertaking by Microsoft
401 http://www.jukkarannila.fi/lausunnot.html#nro_20
- 402 EN: Opinion 21: Opinion about the European Interoperability Strategy proposal
403 http://www.jukkarannila.fi/lausunnot.html#nro_21
404
- 405 EN: Opinion 23: Public consultation on the review of the European Standardisation System
406 http://www.jukkarannila.fi/lausunnot.html#nro_23
407
- 408 EN: Opinion 27: Public Consultation on the Modernisation of EU Public Procurement Policy
409 http://www.jukkarannila.fi/lausunnot.html#nro_27
410
- 411 EN: Opinion 28: Consultation on the Europe 2020 Project Bond Initiative
412 http://www.jukkarannila.fi/lausunnot.html#nro_28
413
- 414 EN: Opinion 30: Internet Filtering
415 http://www.jukkarannila.fi/lausunnot.html#nro_30
- 416 NOTE: Organised by the European Committee for Standardization (CEN) ²⁹
417
- 418 EN: Opinion 32: COMP/C-3/39.692/IBM – Maintenance services
419 http://www.jukkarannila.fi/lausunnot.html#nro_32
420
- 421 EN: Opinion 34: REMIT Registration Format
422 http://www.jukkarannila.fi/lausunnot.html#nro_34
- 423 NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER) ³⁰
424
- 425 EN: Opinion 35: Exploiting the employment potential of the personal and household services
426 http://www.jukkarannila.fi/lausunnot.html#nro_35
427
- 428 EN: Opinion 37: CASE COMP/39.654 - Reuters instrument codes
429 http://www.jukkarannila.fi/lausunnot.html#nro_37
430
- 431 EN: Opinion 39: Registry options to facilitate linking of emissions trading systems
432 http://www.jukkarannila.fi/lausunnot.html#nro_39
433
- 434 EN: Opinion 40: Media Freedom and Pluralism / audiovisual regulatory bodies
435 http://www.jukkarannila.fi/lausunnot.html#nro_40
436
- 437 EN: Opinion 41: AT.39398: observations on the proposed commitments
438 http://www.jukkarannila.fi/lausunnot.html#nro_41
439
- 440 EN: Opinion 42: Opening up Education
441 http://www.jukkarannila.fi/lausunnot.html#nro_42
442

29 <http://www.cen.eu/> (Accessed 2 July 2012)

30 <http://www.acer.europa.eu/> (Accessed 2 July 2012)

- 443 EN: Opinion 43: Publication of extracts of the European register of market participants
444 http://www.jukkarannila.fi/lausunnot.html#nro_43
445 NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)
446
- 447 EN: Opinion 44: Evaluation policy guidelines
448 http://www.jukkarannila.fi/lausunnot.html#nro_44
449
- 450 EN: Opinion 45: About ICT standardisation
451 http://www.jukkarannila.fi/lausunnot.html#nro_45
452
- 453 EN: Opinion 46: Review of the EU copyright rules
454 http://www.jukkarannila.fi/lausunnot.html#nro_46
455
- 456 EN: Opinion 51: European Area of Skills and Qualifications
457 http://www.jukkarannila.fi/lausunnot.html#nro_51
458
- 459 EN: Opinion 52: Trusted Cloud Europe Survey
460 http://www.jukkarannila.fi/lausunnot.html#nro_52
461
- 462 EN: Opinion 53: Trade Reporting User Manual (TRUM) (Draft)
463 http://www.jukkarannila.fi/lausunnot.html#nro_53
464 NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)
465
- 466 EN: Opinion 55: European Energy Regulation
467 http://www.jukkarannila.fi/lausunnot.html#nro_55
468 NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)
469
- 470 EN: Opinion 59: Green paper on mobile Health
471 http://www.jukkarannila.fi/lausunnot.html#nro_59
472
- 473 EN: Opinion 60: Cross-border inheritance tax problems within the EU
474 http://www.jukkarannila.fi/lausunnot.html#nro_60
475
- 476 EN: Opinion 61: European Register of Products Containing Nanomaterials
477 http://www.jukkarannila.fi/lausunnot.html#nro_61
478
- 479 EN: Opinion 64: Corporate Social Responsibility - European Commission
480 http://www.jukkarannila.fi/lausunnot.html#nro_64
481
- 482 EN: Opinion 66: Net Innovation for the Work Programme 2016-2017
483 http://www.jukkarannila.fi/lausunnot.html#nro_66
484
- 485 EN: Opinion 68: European Network Code Stakeholder Committees
486 http://www.jukkarannila.fi/lausunnot.html#nro_68
487 NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)

488
489 EN: Opinion 71: Common Schema for the Disclosure of Inside Information
490 http://www.jukkarannila.fi/lausunnot.html#nro_71
491 NOTE: Organised by The Agency for the Cooperation of Energy Regulators (ACER)

492
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494 My opinions to the previous and relevant consultations – there consultations were mostly organised
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499 [Continues on the next page]
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ANNEX 2

503 DISCLAIMERS

504

505 Legal disclaimer:

506 All opinions in this opinion paper are personal opinions and they do not represent opinions of any legal entity I am
507 member either by law or voluntarily. This opinion paper is only intended to trigger thinking and it is not legal advice.

508 This opinion paper does not apply to any past, current or future legal entity. This opinion paper will not cover any of the
509 future changes in this fast-developing area. Any actions made based on this opinion is solely responsibility of respective
510 actor making those actions.

511

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31 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.