PAN-EUROPEAN STRUGGLE FOR INTEROPERABILITY IN E-GOVERNMENT ENVIRONMENTS
ANALYSIS OF INTEROPERABILITY APPROACHES OF EU MEMBERS, SWITZERLAND AND RUSSIA

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1

AGENDA

Research question

Theoretical background

Methodology

Results of analysis

Discussion of results

RESEARCH QUESTION
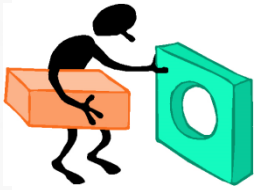
- Analysis of
  - e-Government Interoperability Frameworks (e-GIFs)
  - 6 EU member states + EU + Switzerland & Russian Federation
  - UK, Germany, France, Estonia, Belgium, Denmark

- Research Questions
  - How different / equal are the approaches?
  - How could a framework look that is suitable for all?

Interoperability - Overview
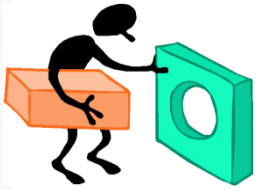

(http://techreviews.in/)

Question　　**Theory**　　Method　　Results　　Discussion

- *"defining interoperability means to define how technical systems, people and organisations work together"*
- Collaboration of systems, services and people
  - IT systems support processes
  - Integration of technical systems = Compatibility
  - Ensuring precise meaning of exchanged information = Interoperability
- E-Government Interoperability Framework
  - Cover the tools enabling and promoting interoperability
  - e.g. Standards Profiles, Repositories, Enterprise Architecture etc.
- Different dimensions of the interoperability problem
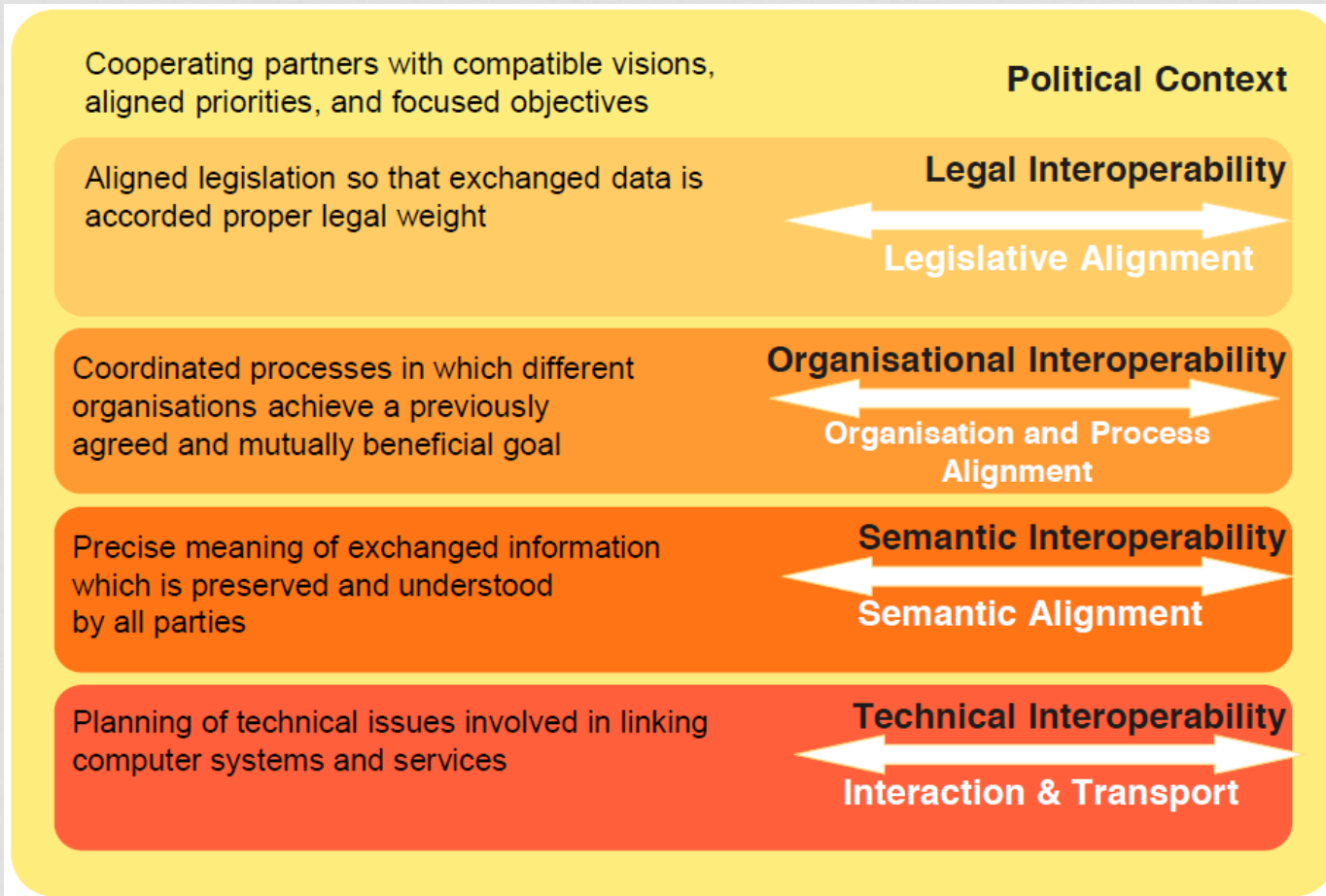
INTEROPERABILITY - DIMENSIONS

EIF v2.0 draft

EIF v1.0

Cooperating partners with compatible visions, aligned priorities, and focused objectives — **Political Context**

Aligned legislation so that exchanged data is accorded proper legal weight — **Legal Interoperability** / **Legislative Alignment**

Coordinated processes in which different organisations achieve a previously agreed and mutually beneficial goal — **Organisational Interoperability** / **Organisation and Process Alignment**

Precise meaning of exchanged information which is preserved and understood by all parties — **Semantic Interoperability** / **Semantic Alignment**

Planning of technical issues involved in linking computer systems and services — **Technical Interoperability** / **Interaction & Transport**

(IDABC 2009a, 20-22)

6

E-GOVERNMENT - INTRODUCTION

- *"the use of modern ICTs in public administrations"*
- *"involves customers of administrations in government activities"*

- Policy & Managerial concept = Strategy & Implementation

- Expected advantages
  - Improved service delivery towards citizens, businesses, and administrations
  - Efficiency gains and government modernisation
  - Democratic participation (vs. e-Democracy)
  - Increased access, transparency and accountability of public sector
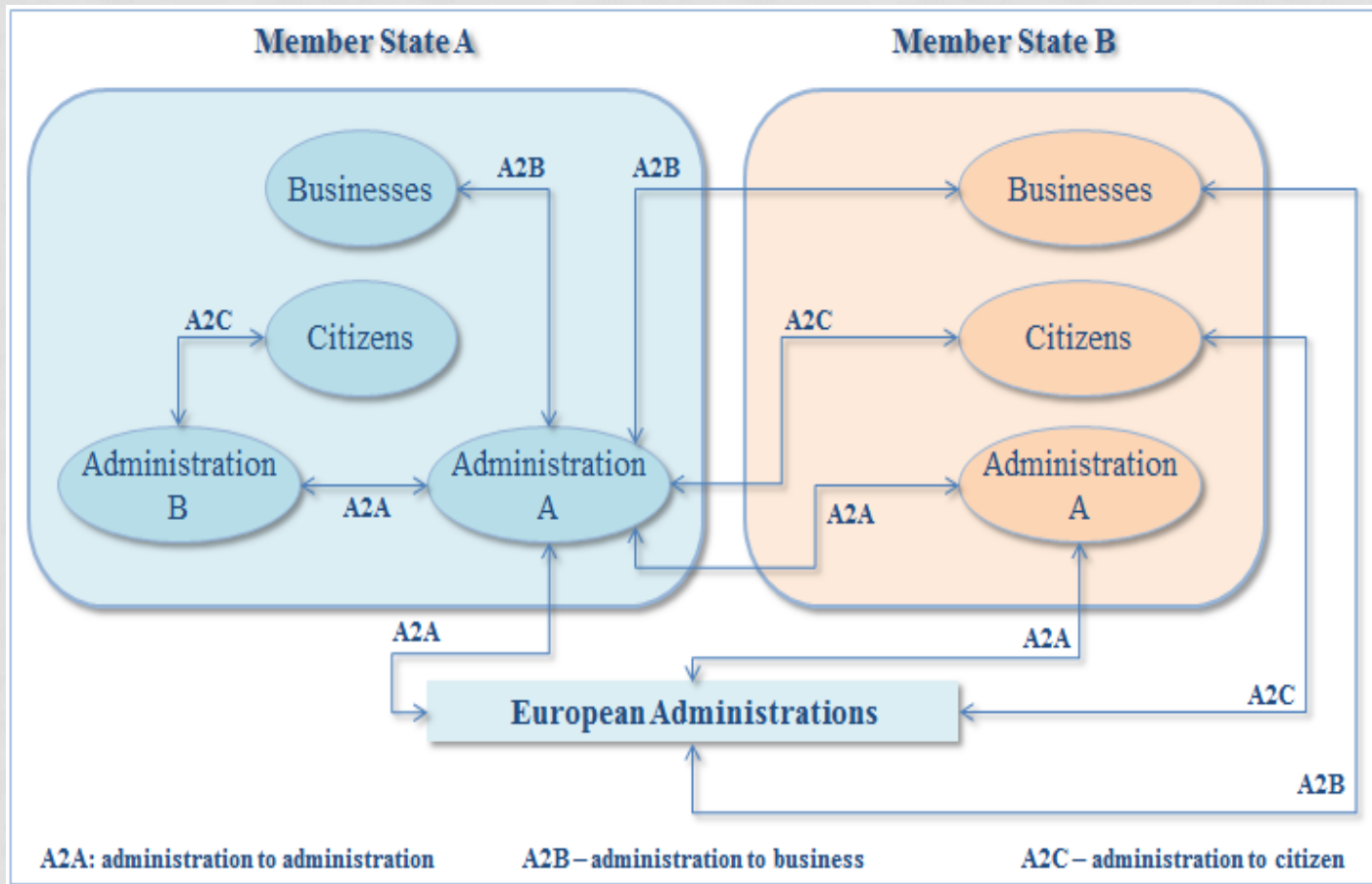
E-GOVERNMENT – RELATIONS

(IDABC 2004, 13)

8

E-GOVERNMENT – LAYERS OF INTERACTION

Data Transfer — e-Participation

- Transaction layer — Complex request handling (e.g. car registration, e-forums, e-payment)
- Contact and Communication layer — Enhanced communication options (e.g. instant messaging, e-mail-forms)
- Information layer — Mostly textual information (e.g. web portals)
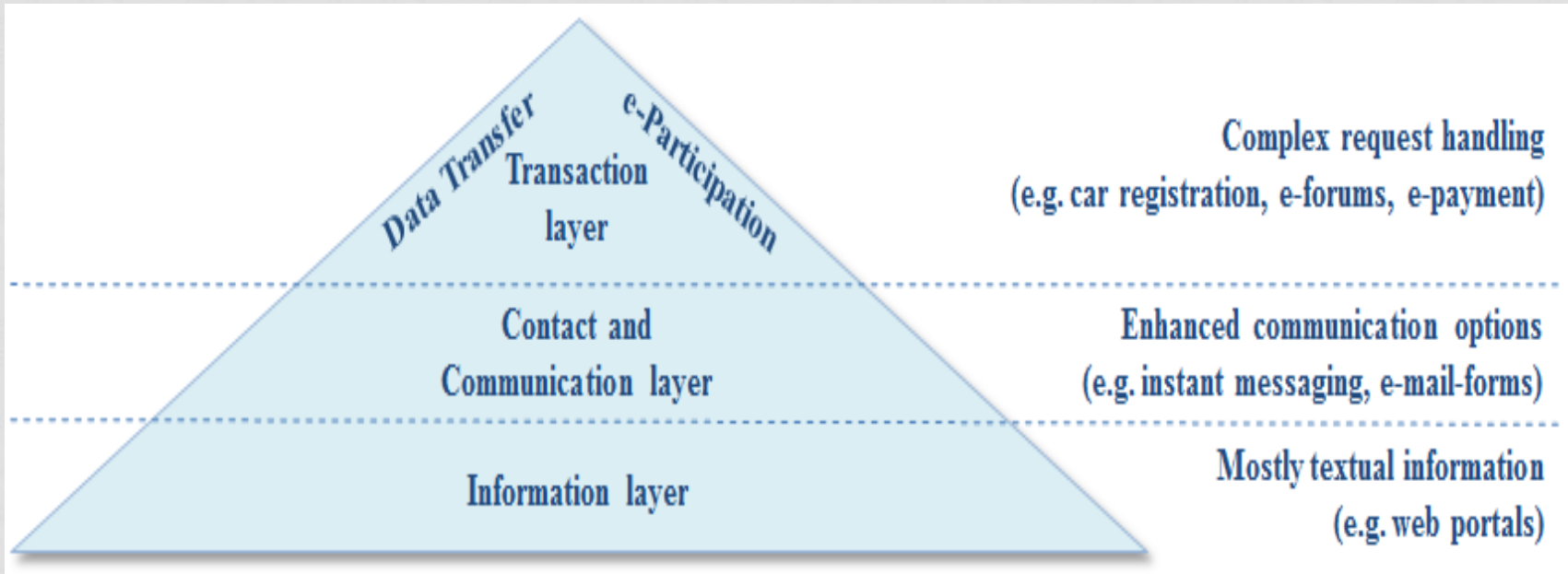
(Bekkers/Homburg 2007, 375)

RESEARCH HYPOTHESIS

	Description
H-1	**Duplication of work**
D-01	e-Government Environment
I-01	Special Body Structure
I-02	Networked Document
I-03	European Context
I-11	Dynamic Development
D-2	e-GIF Policies
I-04	Aims & Principles
I-05	Web Focus
I-06	Scope & Binding Effect
I-07	Inclusion of Interested Public
D-3	Concepts & Tools
I-08	Classification System
I-09	Interoperability Dimensions
I-10	Applied Tools (e.g. Technical Profile, EA)
I-12	Applied Concepts (e.g. Modularisation)

10
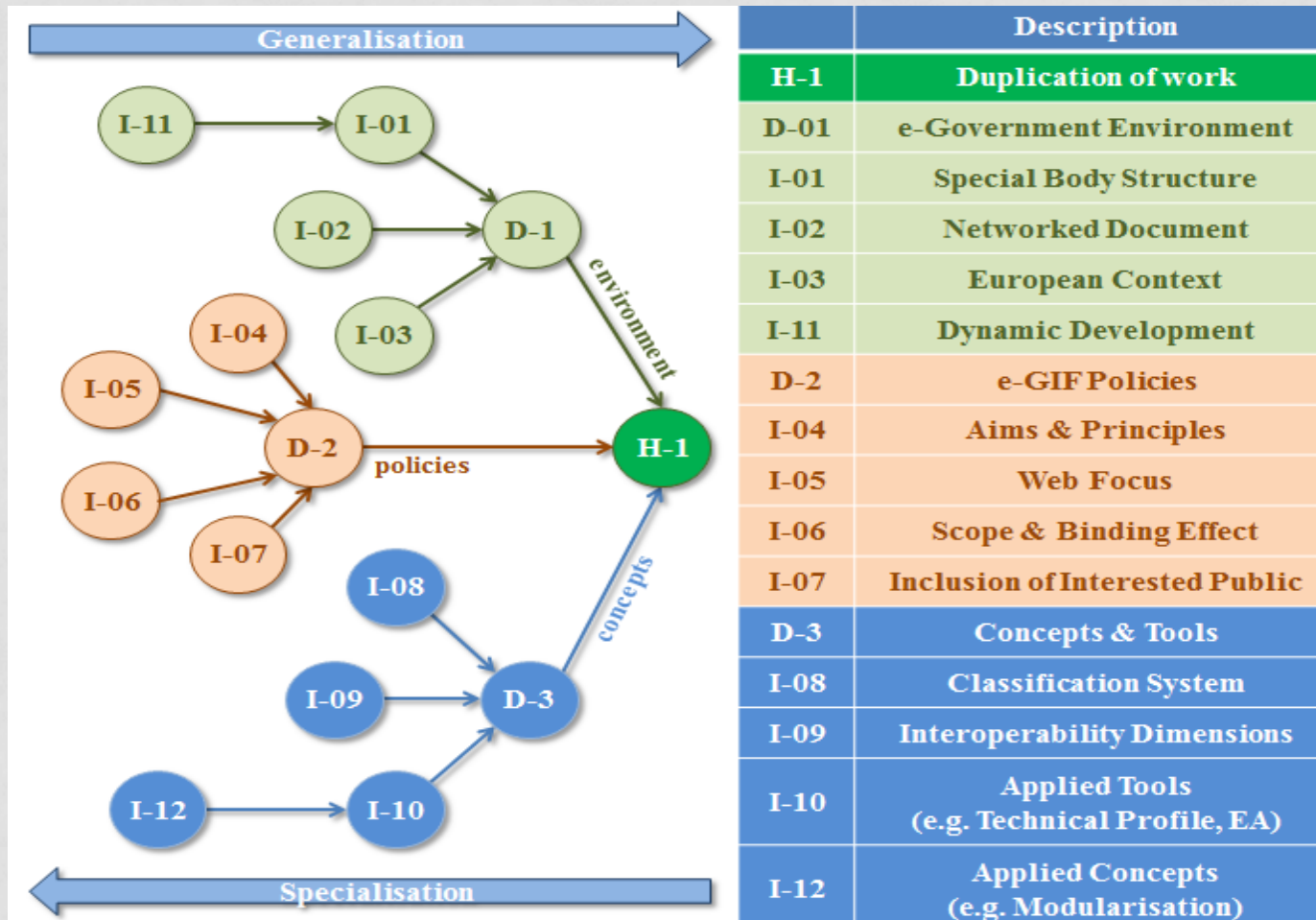
QUESTIONNAIRE

- Gaining practical insight by asking practitioners

- Two expert communities
  - SEMIC.eu = Semantic Interoperability Centre Europe
  - Gosbuk.ru = Russian Competence Network on Public Administration
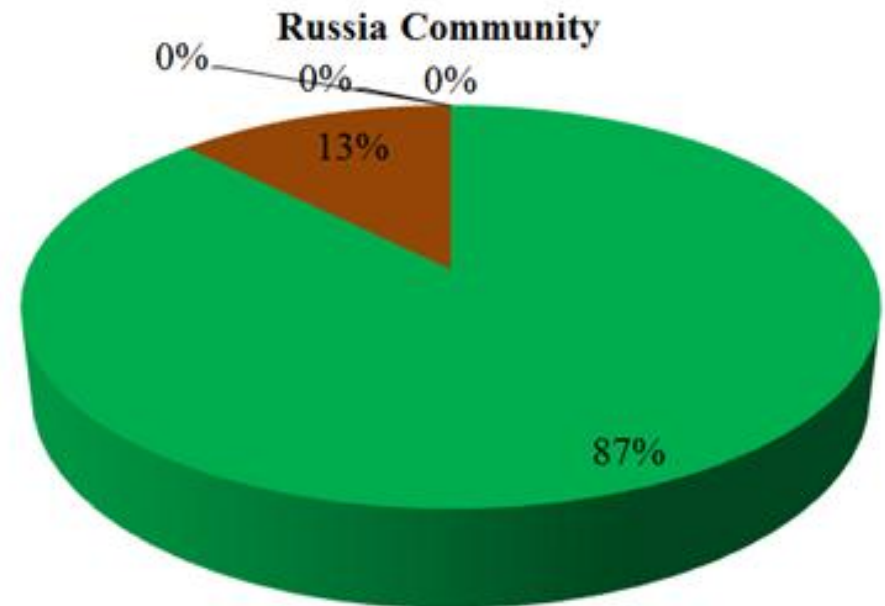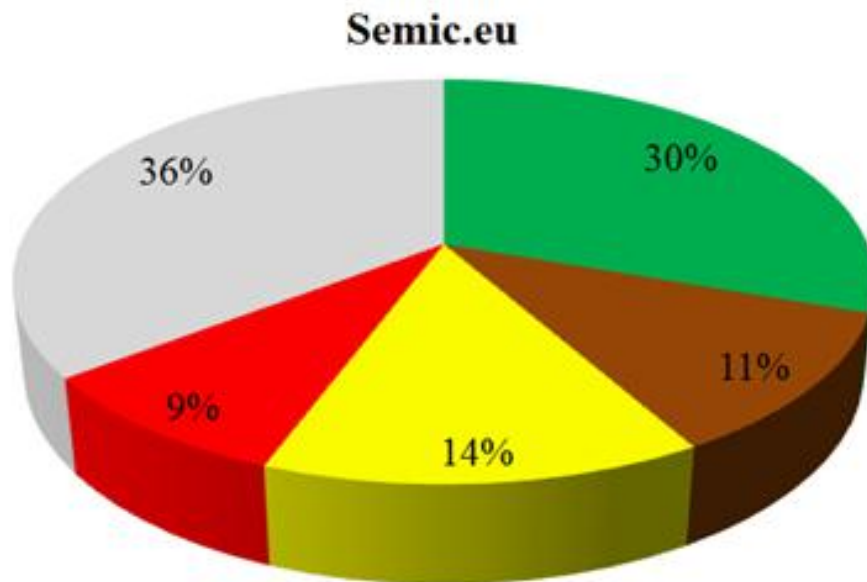
- 15 questions

FINDINGS – QUESTIONNAIRE (Q1)

- How many of the new projects apply the regulations?

GRAPHS   Semic.eu: n=77   Russia: n=7

Semic.eu

- 30%
- 11%
- 14%
- 9%
- 36%

Russia Community

- 0%
- 0%
- 0%
- 13%
- 87%

■ < 25 %   ■ 25%-50 %   ■ 50%-75%   ■ > 75%   ■ Unknown

FINDINGS – QUESTIONNAIRE (Q2)

- Does your approach reflect all relevant topics?

GRAPHS   Semic.eu: n=76   Russia: n=7

Semic.eu

29%
41%
30%

Russia Community

0%
17%
83%
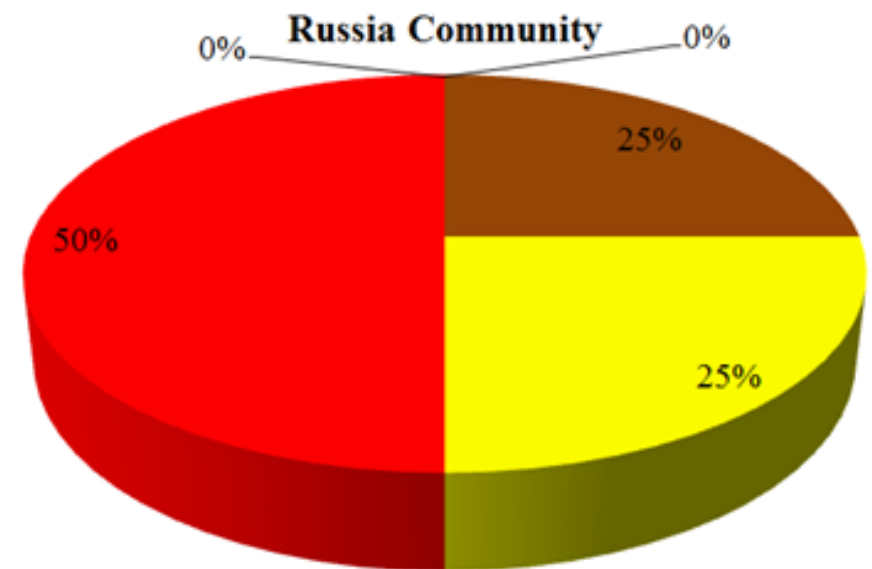
■ Yes ■ Do not know ■ No

13
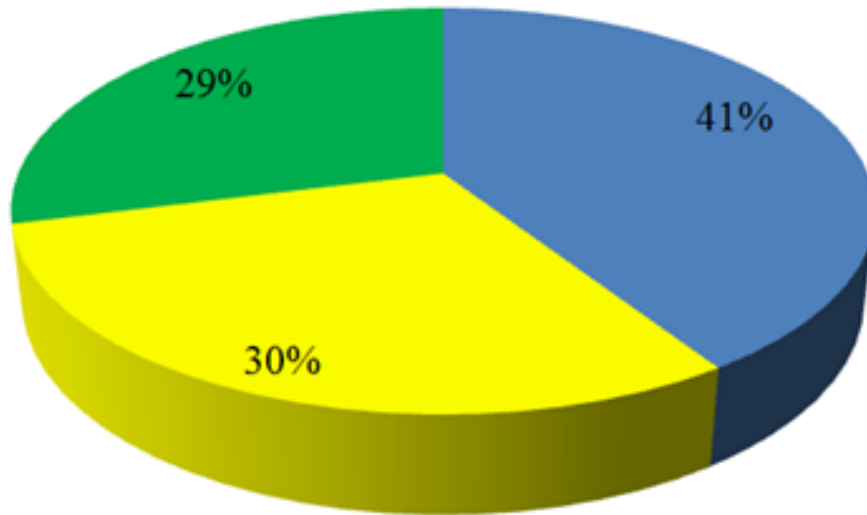
FINDINGS – QUESTIONNAIRE (Q3)
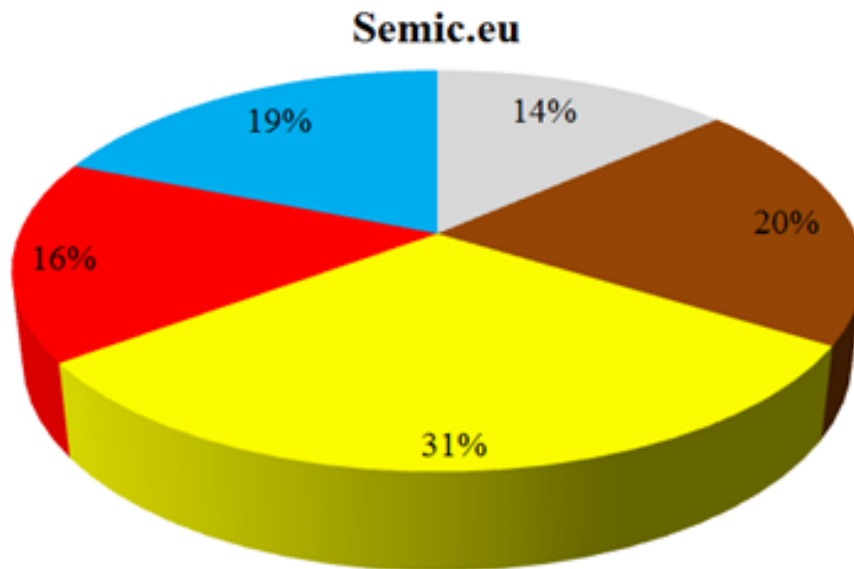
- What is the most important element of an e-GIF?

GRAPHS　　Semic.eu: n=75　　　　　　Russia: n=4

Legend:
- Technical Profile
- Infrastructure Elements
- Organisational description
- Architecture
- Others

FINDINGS – QUESTIONNAIRE (Q4)

• What milestones help developing e-government? [multiple choice]

FINDINGS – QUESTIONNAIRE (Q5)

• Which department should have the lead in e-GIF development?

GRAPHS   Semic.eu: n=73   Russia: n=7

16
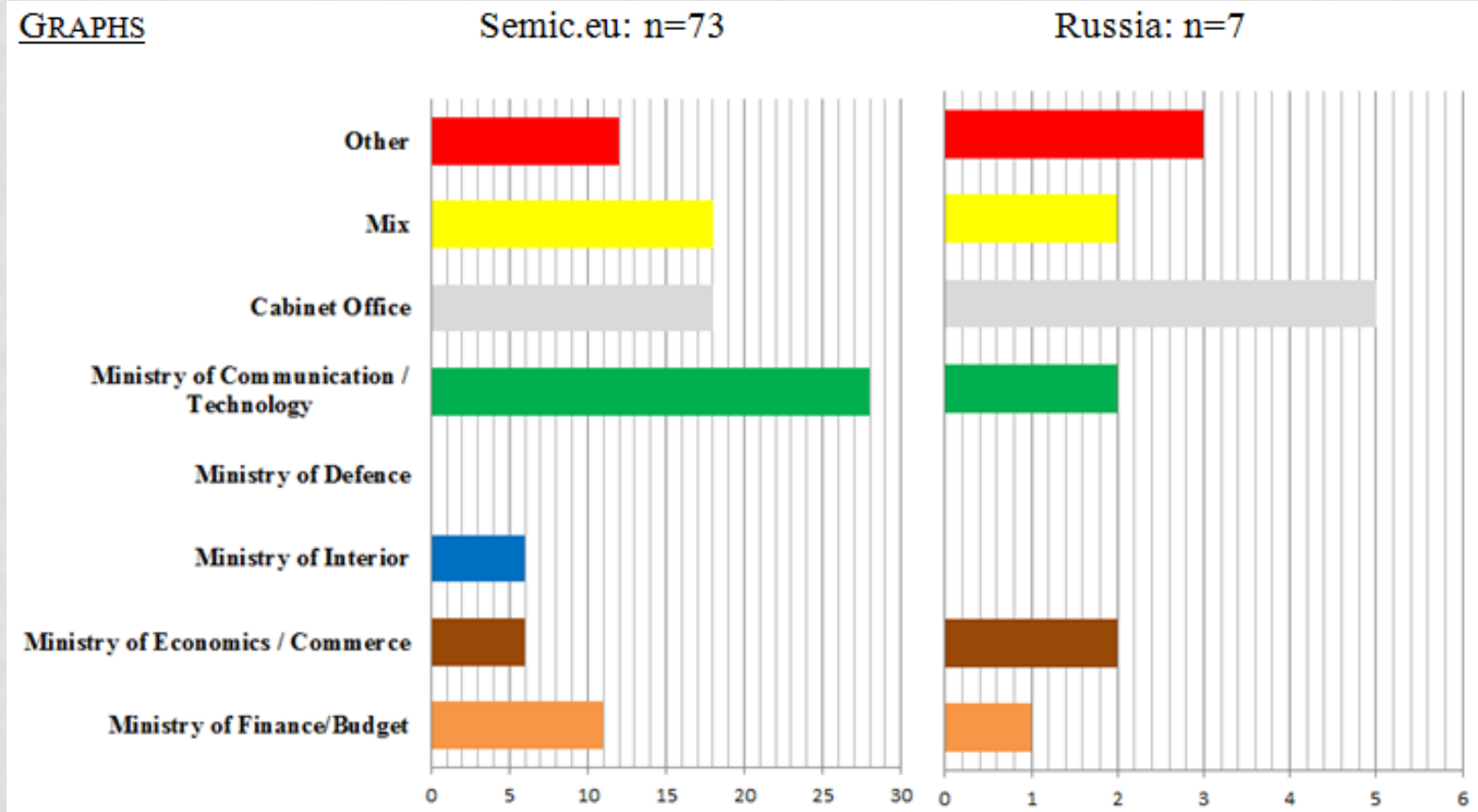
FINDINGS – QUESTIONNAIRE (Q6)

- Which part should be stressed more in the framework document?

GRAPHS   Semic.eu: n=70   Russia: n=7

Semic.eu

- 12%
- 9%
- 9%
- 20%
- 50%

Russia Community

- 0%
- 29%
- 28%
- 14%
- 29%

■ Technical ■ Organisational ■ Semantic ■ Legal ■ Other
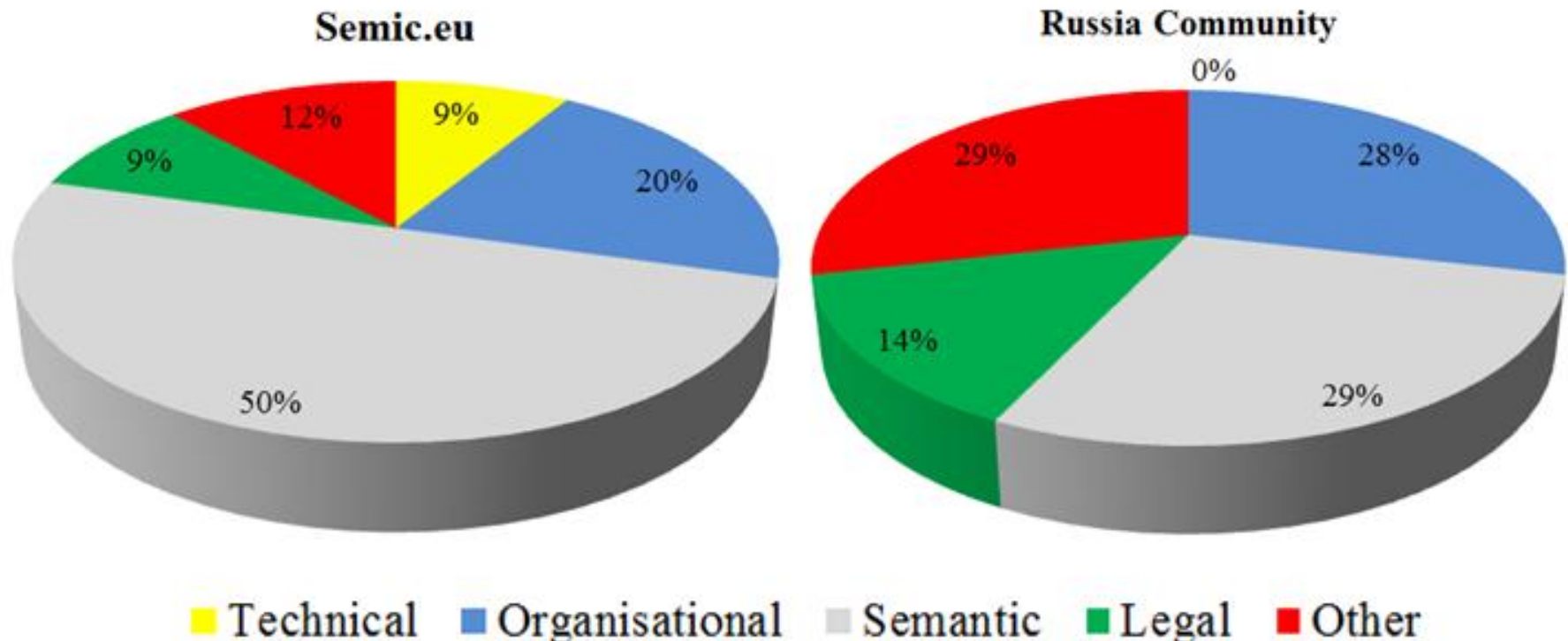
FINDINGS – QUESTIONNAIRE (Q7)

- Who should participate in a standardization committee?
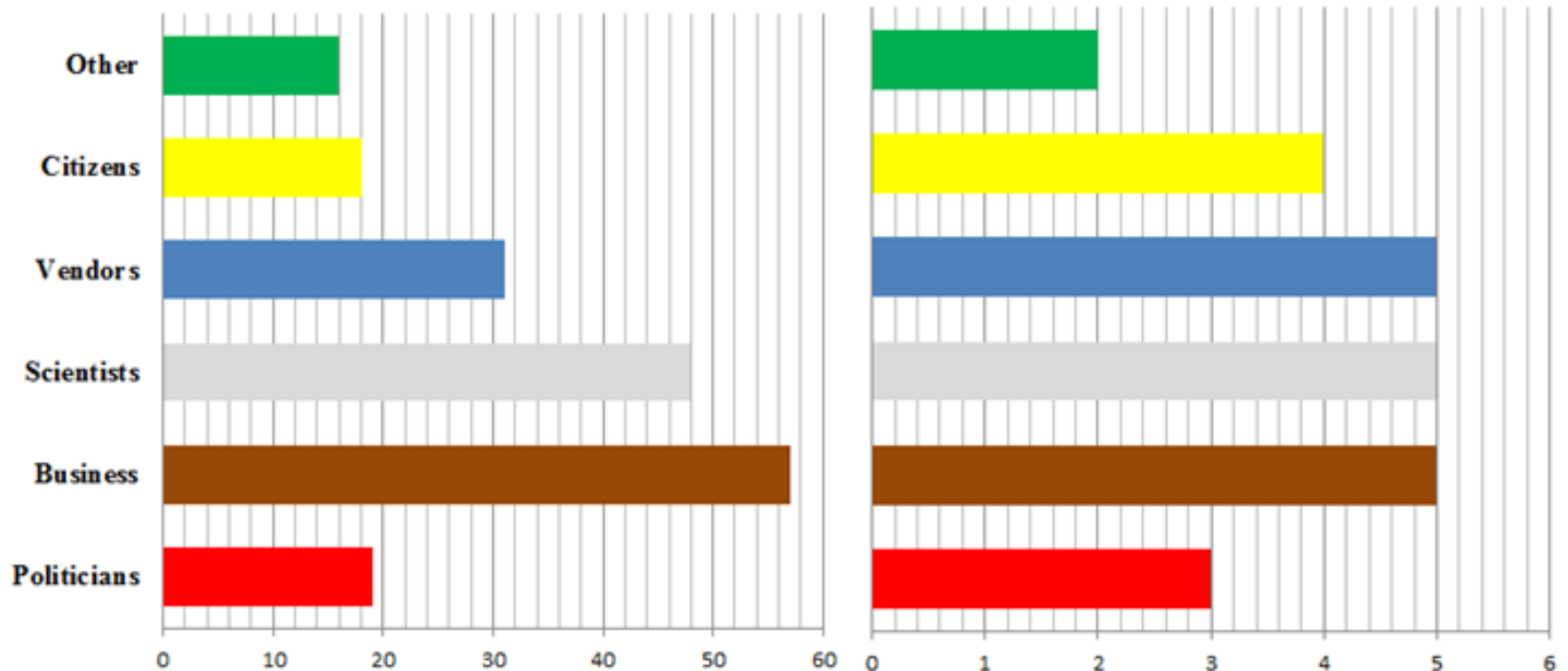
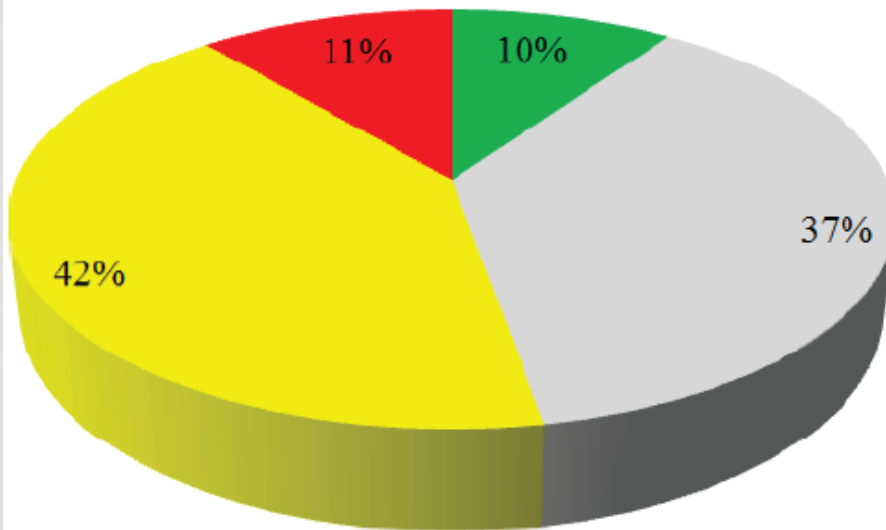# FINDINGS – QUESTIONNAIRE (Q8)

- Which dimension causes most interoperability problems?
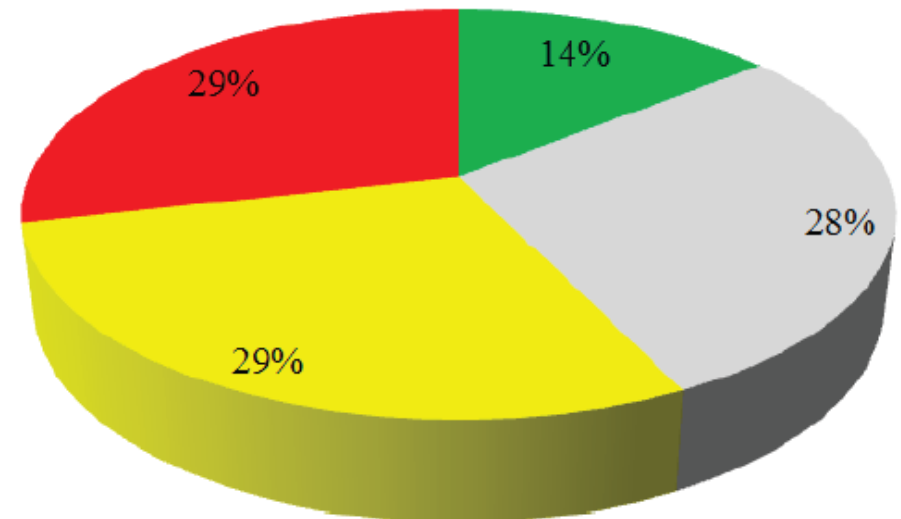

GRAPHS   Semic.eu: n=72   Russia: n=7

Semic.eu   **Russia Community**

■ Technical   ■ Organisational   ■ Semantic   ■ Legal

19

SELECTED COUNTRIES – EIU RANKING

Country	EIU 2002[48]	EIU 2004[49]	EIU 2006[50]	EIU 2008[51]	EIU 2010[52]
Belgium	41	42	44	48	45
Denmark	7	1	1	5	2
Estonia	/[53]	26	27	28	25
France	17	18	19	22	20
Germany	8	13	12	14	18
Russian Fed.	45	55	52	59	59
Switzerland	4	10	3	9	19
United Kingdom	3	2	5	8	14

- EIU = "The Economist" Intelligence Unit: e-readiness rankings

SELECTED COUNTRIES – UN RANKING

Country	UN 2003[54]	UN 2004[55]	UN 2005[56]	UN 2008[57]	UN 2010[58]
Belgium	23	16	18	24	16
Denmark	4	2	2	2	7
Estonia	16	20	19	13	20
France	19	24	23	9	10
Germany	9	12	11	22	15
Russian Fed.	58	52	50	60	59
Switzerland	8	15	17	12	18
United Kingdom	5	3	4	10	4

- UN = United Nations e-Government Survey

FINDINGS – DYNAMICS OF FRAMEWORKS

Country	Name	Current	First
European Union	EIF = European Interoperability Framework	v1.0 (2004)	/
United Kingdom	e-GIF = e-Government Interoperability Framework	v6.1 (2005)	2001
Germany	SAGA = Standards and Arch. for e-Gov. Applications	v4.0 (2008)	2002
France	RGI = Référentiel Général d'Interopérabilité	v1.0 (2009)	2002 (CCI v1)
Denmark	OIO Catalogue of Technical Standards	/	2008
Belgium	BELGIF = BELgian Gov. Interoperability Framework	/	2005
Estonia	Estonian IT Interoperability Framework	v2.0 (2006)	2004
Switzerland	SAGA.ch = SAGA Switzerland	v5.0 (2010)	2004
Russia	"E-Russia" projects for interoperability and architecture	/	/

FINDINGS – SPECIAL BODY STRUCTURE

Country	Political Responsibility	Technical coordination
European Union	European Commission	Directorate-General for Informatics (DIGIT)
United Kingdom	Cabinet Office	CTO Council (division of the CIO Council)
Germany	Ministry of Interior	CIO Bund
France	M. o. Budget, Public Accounts & State Reform	Directorate-General for State Modernisation
Denmark	Ministry of Finance / Digital Task Force	National IT & Telecom Agency
Belgium	Minister for Entrepreneurship and Simplification	Federal Department for ICT
Estonia	M. o. Economic Affairs and Communications	Department of State Information Systems
Switzerland	Steering Committee / Federal IT Council	Federal Strategy Unit for IT

FINDINGS – CLASSIFIERS FOR STANDARDS

Question   Theory   Method   **Results**   Discussion

Country	Binding	Recommended	Observed	Proposed	Dated	Rejected
Germany	X	X	X	X	X	X
UK	X	X	X	X		
France	X	X	X			
Denmark	X	X	X	X	X	X
Belgium	X	X		X		
Switzerland	X	X	X			X

FINDINGS – OBJECTIVES

- The commonly stated goals are:

  - Government modernisation, effective and efficient public administration

  - Building skills and infrastructure

  - Improved services delivery and free access to information

  - Promote inclusion, reduce digital divide, and personal development

  - Improved transparency, accessibility, and accountability

  - Enabling and promoting democratic participation

  - Sustainability of investments; Flexibility of the public sector

  - Unique collection of data

FINDINGS – FURTHER RESULTS

- EIF interoperability dimensions recognised by all
- Reference to European context in all EU frameworks
- Most frameworks apply the following tools
  - Organisational descriptions (Organisational, Legal)
  - Standard profiles (Technical)
  - Common XML schemas (Semantic)
  - Service infrastructure (Technical, Semantic, Organisational)

DISCUSSION (1/3)

- Main difference: In Russia no official standardised framework
  - Only project reports from "Electronic Russia" (2002 – 2010)
  - Government architecture investigated – but no regulation
  - Do not reflect key issues of interoperability
- A lack of systematic work to establish a framework in Russia
- Problems of institutional design in Russia
  - The respondent wish a body in the government
  - Enabling sufficient law enforcement and coordination

- Information Society programme 2011 – 2020 (88 млрд. Рублей)

DISCUSSION (2/3)

- SEMIC.eu:
  - Emphasis of technical issues (i.e. standards) and security (i.e. infrastructure)
  - Focus on development of solutions of semantic interoperability
    - Number of respondents and interdisciplinary nature of work suggest objectivity
  - Emphasis on infrastructure elements, such as *Repository*
- Interoperability Frameworks, Repository etc.
  - Enable public discussions
  - Enable knowledge exchange between experts, politics, scientists etc.
  - Promote a central reference of standards & best practices
  - Promote coordination of work and reduce island solutions

DISCUSSION (3/3)

- Big Bang solutions often fail!

- Approach needs to balance different aspects:
    - Set up organisational structure with clear responsibilities
    - Communicate organisational structures and responsibilities
    - Setting legal environment and promote law enforcement
    - Promote standardisation → Need for knowledge exchange!

- Only then there is a reason to step further:
    - Promote common data models and a common public repository
    - Promote common architecture

Thanks for attention! Any questions?

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For further material please feel free to mail me!

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Appendix - Questionnaire

- Links
  - Questionnaire:
    http://dynacont.net/sys/modules/questionnaire/questionnaire-rpc.php?&if=EGov20110207&cmd=Login&SLANG=En
  - Call for participation on SEMIC.eu
    http://www.semic.eu/semic/view/snav/currentInformation/News.xhtml?newsId=eee65a43-9c12-45ab-be32-e4d183741036&tmpl=News
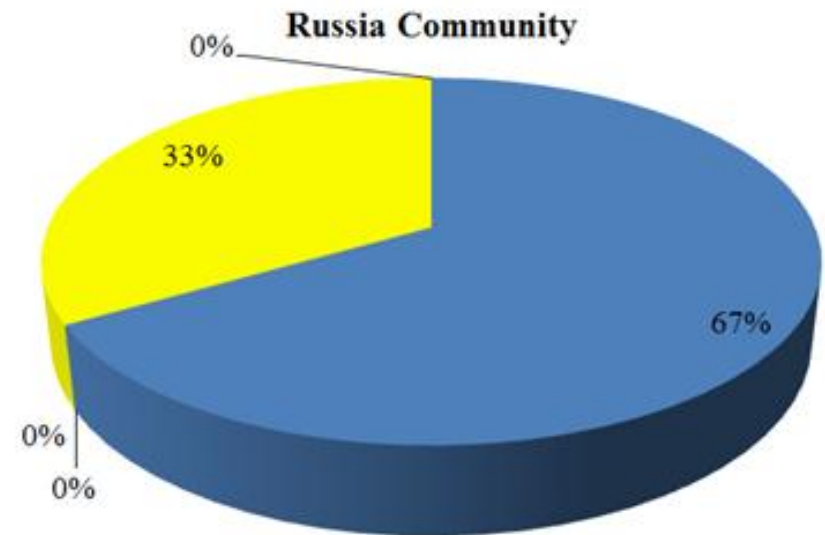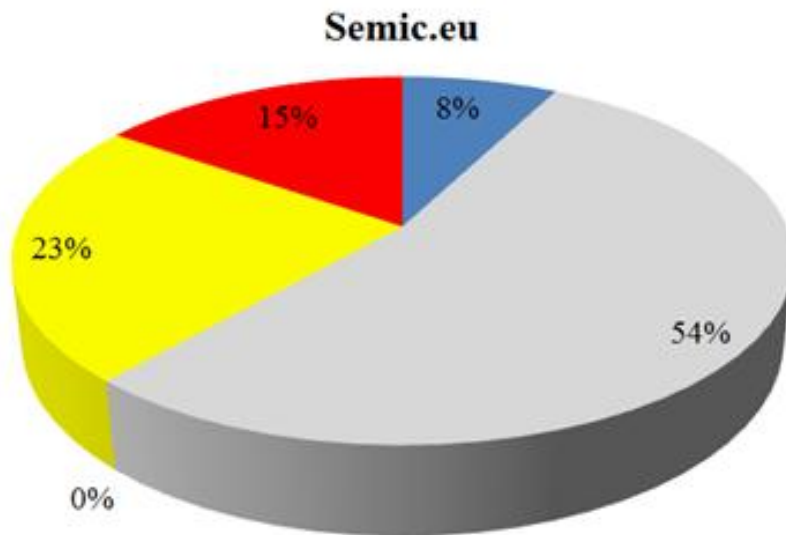 - SEMIC.eu
    http://www.semic.eu
  - Gosbuk
    http://www.gosbook.ru/

FINDINGS – QUESTIONNAIRE (Q9)

- Who can lead a supranational framework?

GRAPHS   Semic.eu: n=13   Russia: n=3

Semic.eu
- 8%
- 54%
- 0%
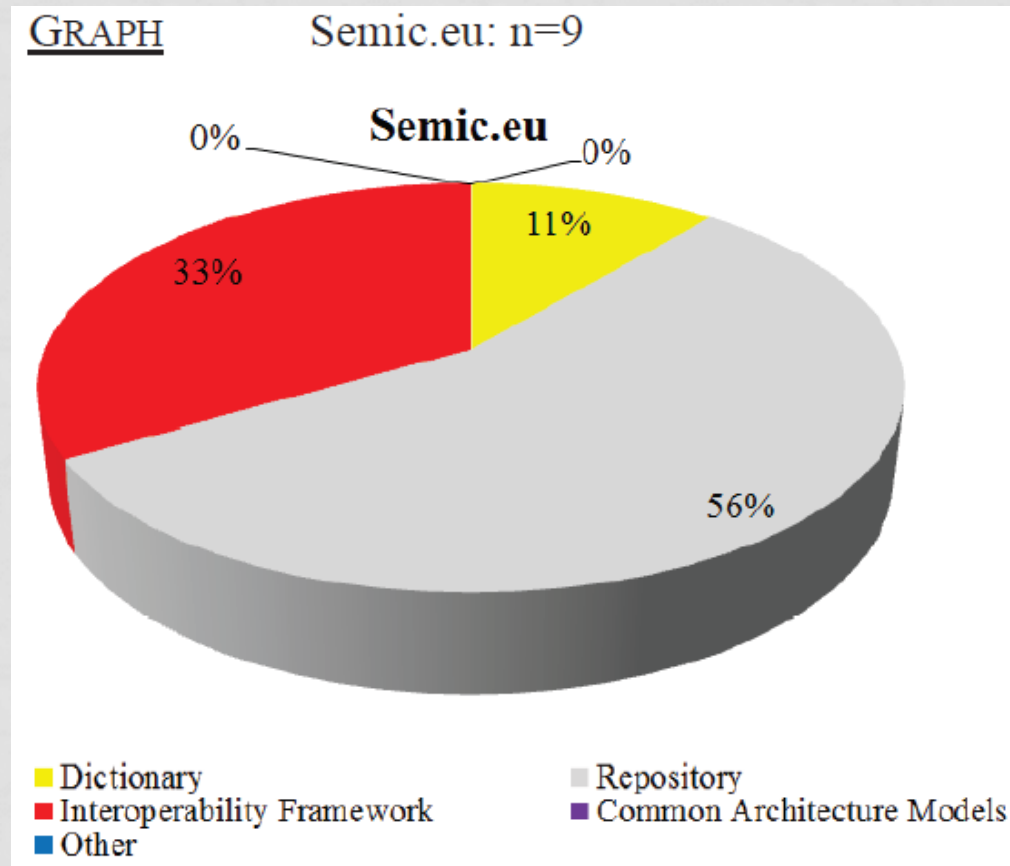- 23%
- 15%

Russia Community
- 0%
- 67%
- 0%
- 0%
- 33%

■ No way ■ European Institution ■ European Consortium
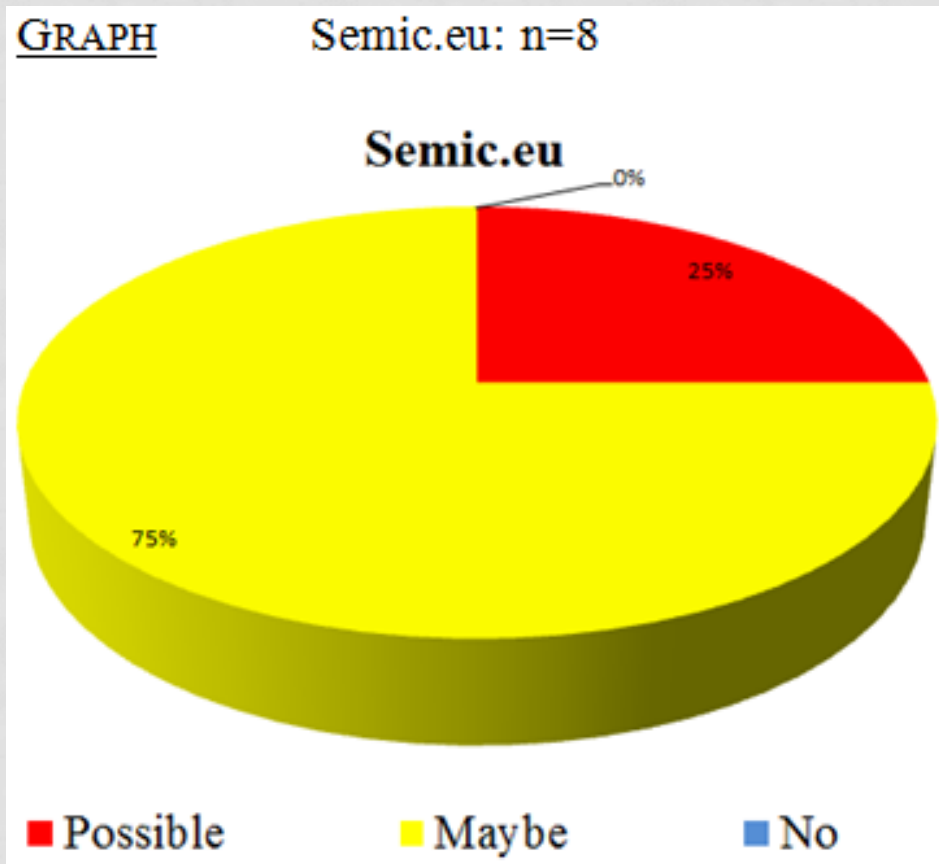■ Global Body ■ Other

FINDINGS – QUESTIONNAIRE (Q10)

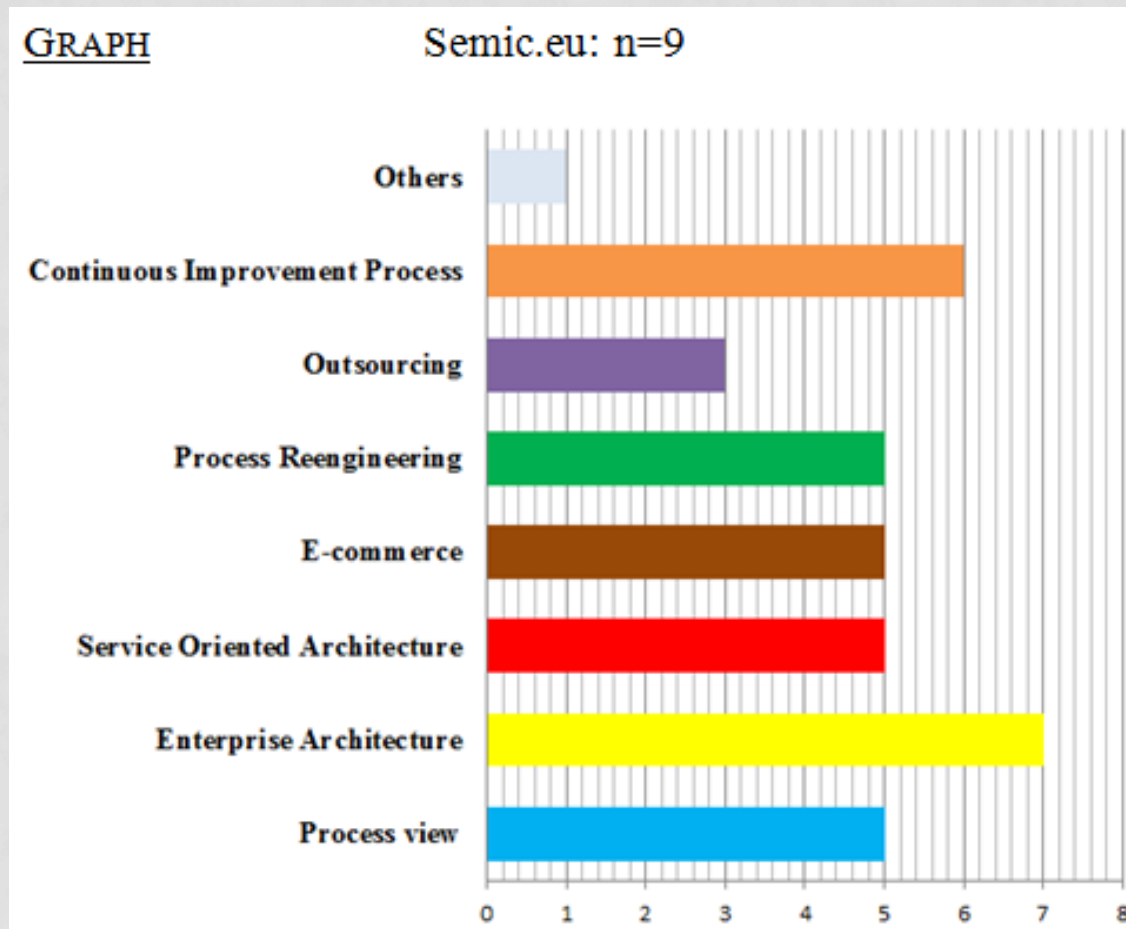- Which element can solve interoperability problems quickly?

FINDINGS – QUESTIONNAIRE (Q11)

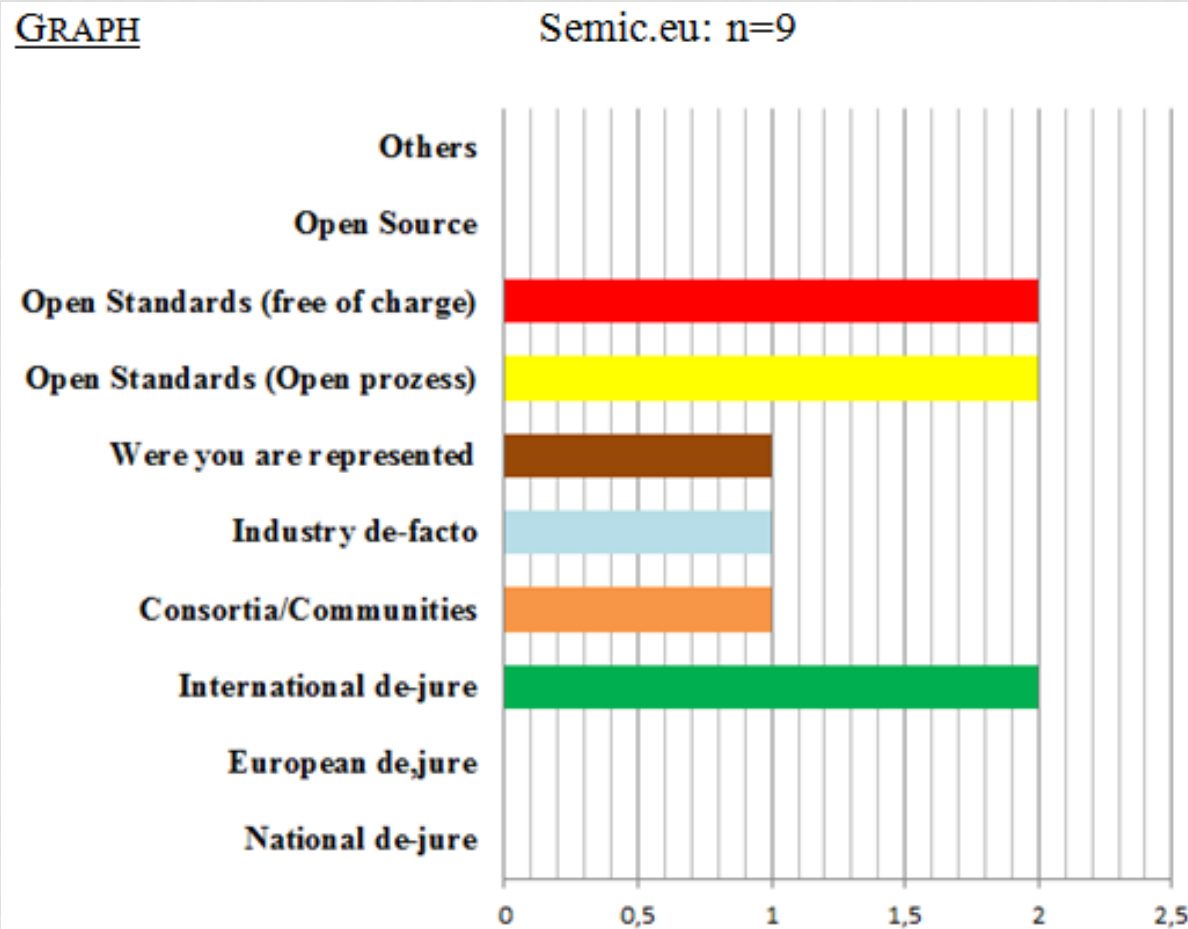- Is it possible to use corporate sector's experience?

GRAPH   Semic.eu: n=8

Semic.eu

0%

25%

75%

■ Possible   ■ Maybe   ■ No

FINDINGS – QUESTIONNAIRE (Q12)

- Where to use corporate sector experience? [Multiple choice]
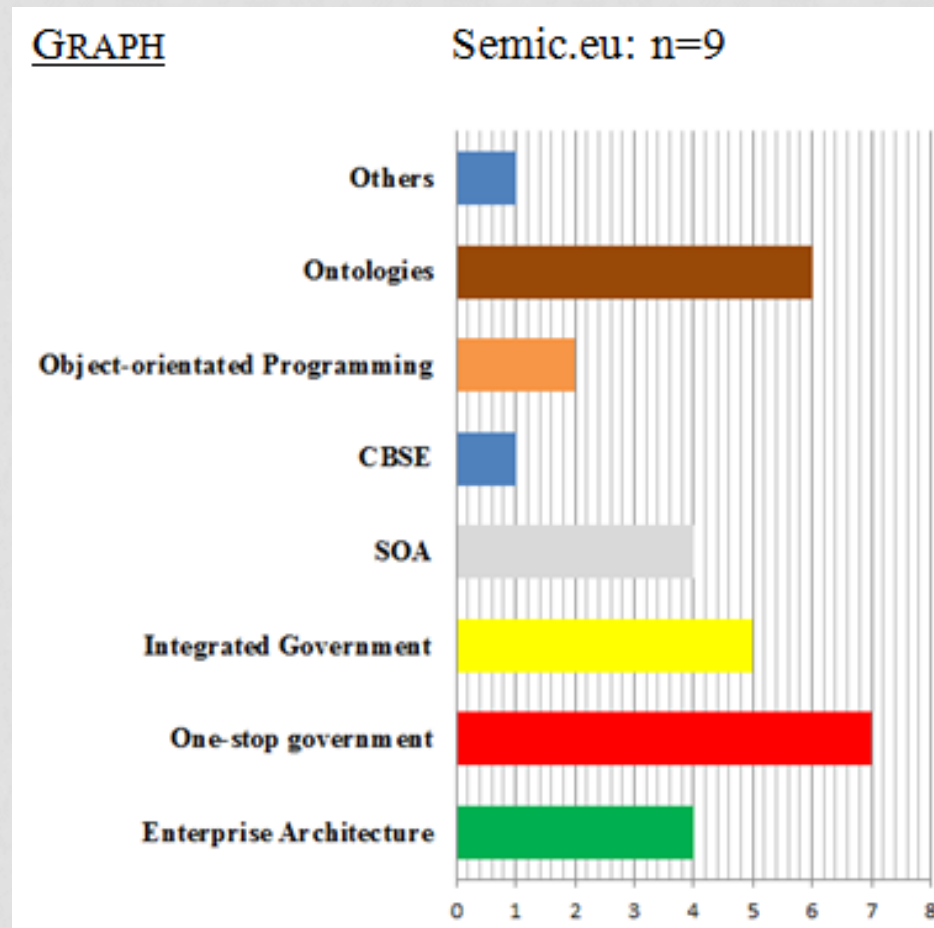
- Which standards do you trust more?

FINDINGS – QUESTIONNAIRE (Q14)

- Are you still committed to the following things? [Multiple choice]

FINDINGS – QUESTIONNAIRE (Q15)

- Is your framework / are your regulations mandatory?

GRAPH   Semic.eu: n=9

Semic.eu

- 22%
- 33%
- 45%
- 0%

■ Yes   ■ Yes, but we change   ■ No, but we change   ■ No