The new world order
for e-Infrastructures

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TTC Meeting, Amsterdam

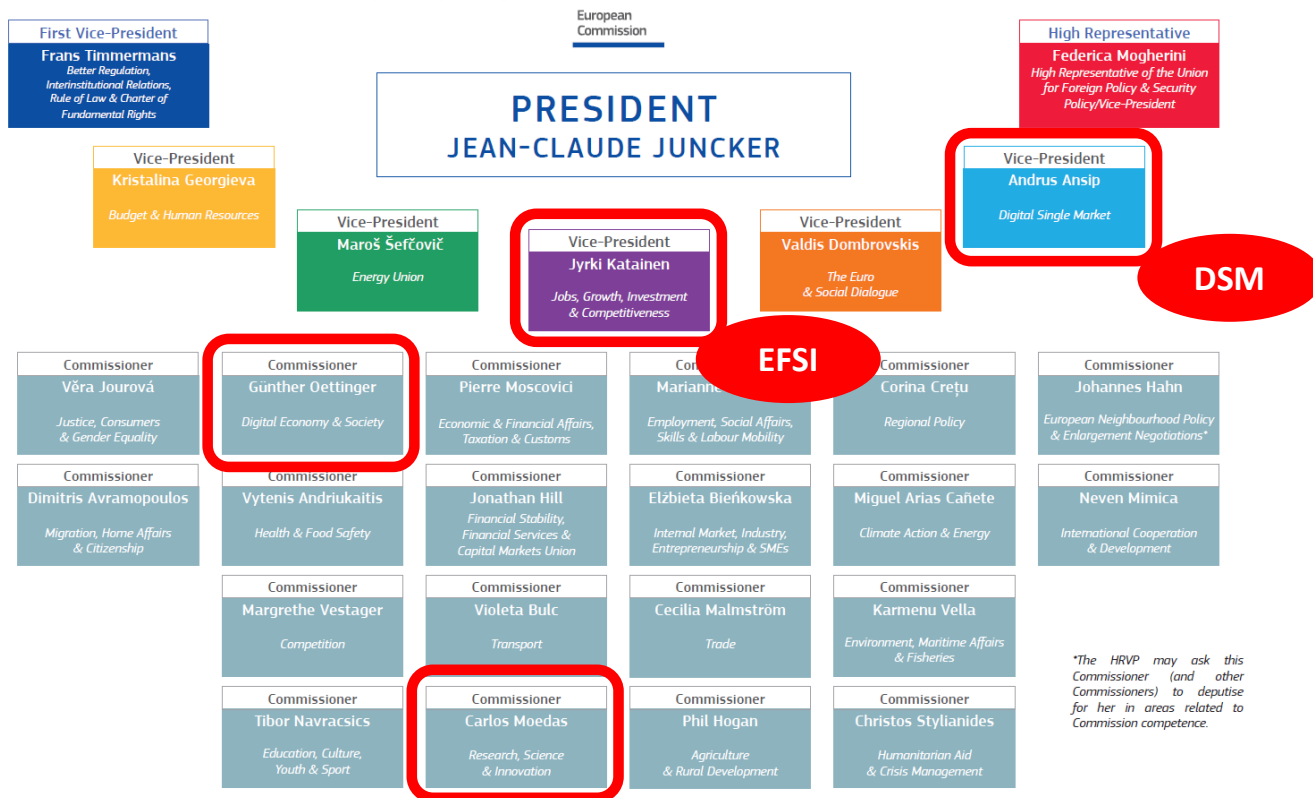22nd November 2015

Lots of changes
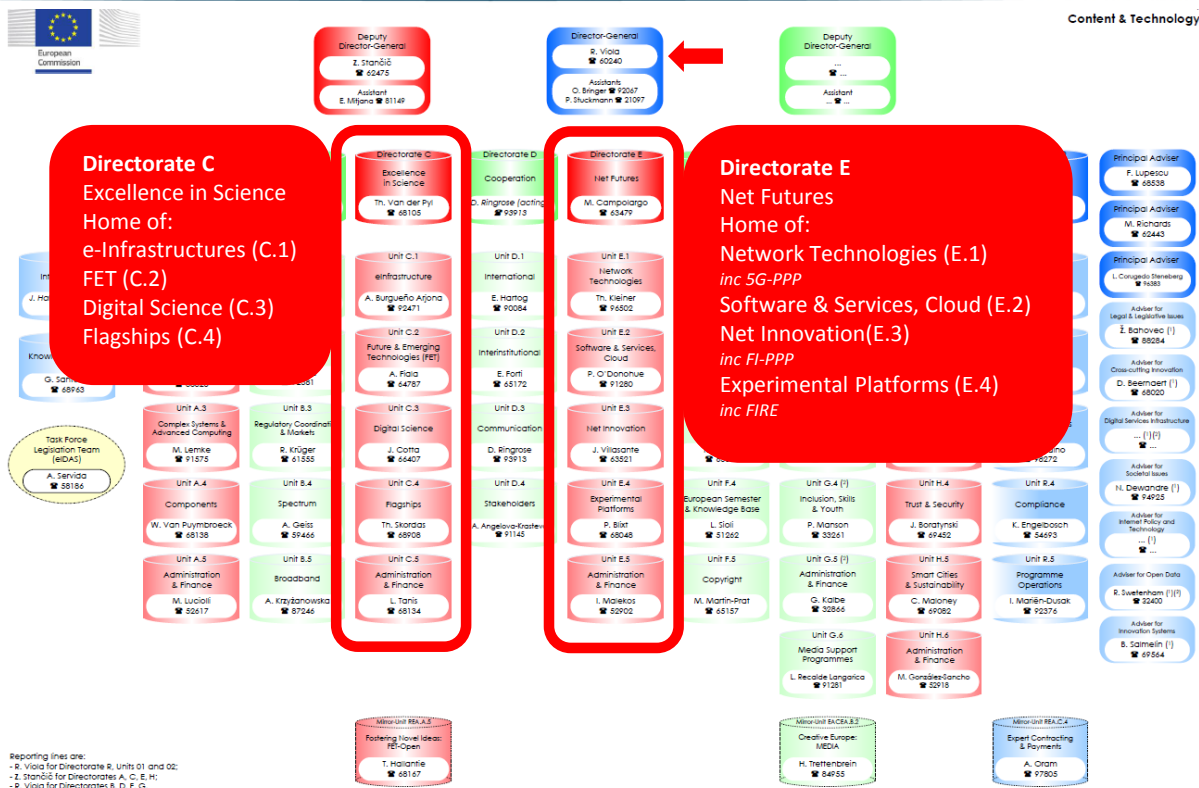*Out with the old, in with the new*

- New(ish) European Commission

- Lots of VPs with substantive cross-departmental remits

- Increasing emphasis on industrial cooperation and PPPs

- Has the funding pendulum swung back (away from R&E)?

- Changes in DG-CONNECT

- Changes in RI Programme – especially for e-Infras

- Changes for GÉANT (the project)

- Last, but not least, changes in GÉANT (Assoc)

European Commission organisational chart

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Content & Technology

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Excellence in Science
Home of:
e-Infrastructures (C.1)
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Flagships (C.4)

Directorate E
Net Futures
Home of:
Network Technologies (E.1)
inc 5G-PPP
Software & Services, Cloud (E.2)
Net Innovation(E.3)
inc FI-PPP
Experimental Platforms (E.4)
inc FIRE

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Adobe Acrobat Document

- **"Integration and consolidation"** of e-Infrastructures including service portfolios

- Operational services, operational services, operational services

- Opening up e-Infrastructures to "new markets"

e-Infra Work Programme 16/17 – A new landscape

- EC focus is on **combined and integrated e-infrastructures**

- What will this mean in practice??

  - GEANT, EGI , PRACE, EUDAT, OpenAIRE + others will work together more often with joint priorities and goals for some projects
    e.g. **EINFRA-22-2016 (part 2) Open Call programme**
  - All e-Infrastructures will sign "collaboration" agreements with each other setting out what work will be done together
  - There will be an integration of service catalogues and new service sets
    i.e. e-Infrastructure "portfolio" of services for the end-user
  - More and more that end-user 'may' be commercial SMEs

- EC focus is on **<u>Operational services</u>**

- What will this mean in practice for new products/services?

  - EC have now split innovation and production services

  - Focus must now be primarily on Operational services >= **TRL 6**

  - Blue sky research and JRA style research is funded "**elsewhere**"

  - Earlier stage innovation belongs in other parts of the work programme

EC Assessment - Technical Readiness Levels

Horizon 2020 TRL definitions

- A way to formally assess the status of products
  - Provides a common understanding of technology status
- Assists Risk management
- Used to make decisions concerning technology funding
- Used to make decisions concerning transition of technology

https://en.wikipedia.org/wiki/Technology_readiness_level #Brief_history_of_Technology_Readiness_Levels

- **TRL 9 –actual system proven in operational environment**
- **TRL 8 –system complete and qualified**
- **TRL 7 –system prototype demonstration in operational environment**
- **TRL 6 –technology demonstrated in relevant environment**
- TRL 5 –technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 4 –technology validated in lab
- TRL 3 –experimental proof of concept
- TRL 2 –technology concept formulated
- TRL 1 –basic principles observed

Research Infrastructure WP

- Parts most affecting e-Infras…

Code	Description	Actions	Budget	Closing Date
INFRADEV-04-2016	European Open Science Cloud for Research	RIA	€10M	June 16
INFRAIA-01 thru 02	Integrating & opening RIs of European interest	RIA	€200M	March 16 & 17
EINFRA-11,12,21,22	e-Infrastructure calls	RIA	€122M	various
INFRASUPP-03-2016	Support to policies and international cooperation for e-Infras	RIA	€3M	March 16

e-Infrastructure part

Code	Description	Actions	Budget	Closing Date
EINFRA-11-2016	PRACE	RIA	€15M	March 16
EINFRA-12-2017	Data & distributed computing e-Infras for Open Science	RIA	€40M	March 17
EINFRA-21-2017	Platform-driven innovatioin	RIA	€20M	March 17
EINFRA-22-2016	User driven innovation (4 parts)	RIA	€21M	March 16

EINFRA-22 – User-driven e-Infra innovation

Part	Description	Actions	Budget (/prop)	Closing Date
Part 1	Support specific requirements of initiatives addressing societal challenges	RIA	€2-3M	March 16
Part 2	Stimulate the innovation potential of "innovative actors" – i.e. SME-focussed joint Open Call	RIA	€5-6M (x1)	March 16
Part 3	Pan-European ID fed services	RIA	€2.5-3M (x1)	March 16
Part 4	Open access repos & publishing platform infrastructure for prototyping new services in support of open science	RIA	€1-2M	March 16

INFRASUPP-03-2016 –
Support to policies and international cooperation for e-Infras

Part	Description	Actions	Budget (/prop)	Closing Date
(a)	RIAs for International Co-operation on high-end e-Infra reqs – **SKA**	RIA	€2-3M	March 16
(b)	CSAs for International Co-operation and Policy Dev…	CSA		
(b) Part 1	…major societal challenges	CSA	€0.5-1M	March 16
(b) Part 2	…eIRG secretariat	CSA	€0.5-1M	March 16
(b) Part 3	…dissemination (including joint service catalogue)	CSA	€1-1.5M	March 16
(b) Part 4	…foresight roadmap	CSA	€0.3-0.4M	March 16

Need to look elsewhere... (for TRL < 6)

- Self funding
- National funding

> Ideal for bringing together, coordinating, influencing, steering (?) etc under auspices of TFs/SIGs

- ICT programme
- FET programme (?)
- European Fund for Strategic Investments (EFSI) (???)

What does this all mean for a joint e-Infra "Open Call" programme?

- First a quick reminder of the context of the previous (**and first**) GÉANT Open Call…

The Context of our (GÉANT) last Open Call
The "GÉANT Innovation Programme" (was RTD focussed)

JRA1: Network Architectures for Horizon 2020

SA1: Core Backbone Services

SA2: Testbeds as a Service

JRA2: Technology Testing for Specific Service Applications

SA3: Network Service Delivery

SA4: Network Support Services

GÉANT Open Call

SA6: Service Management and Operation

Testbeds:
GOFF, GTS (TaaS)

Engagement with Standards Bodies

Engagement with Open Source Dev Communities
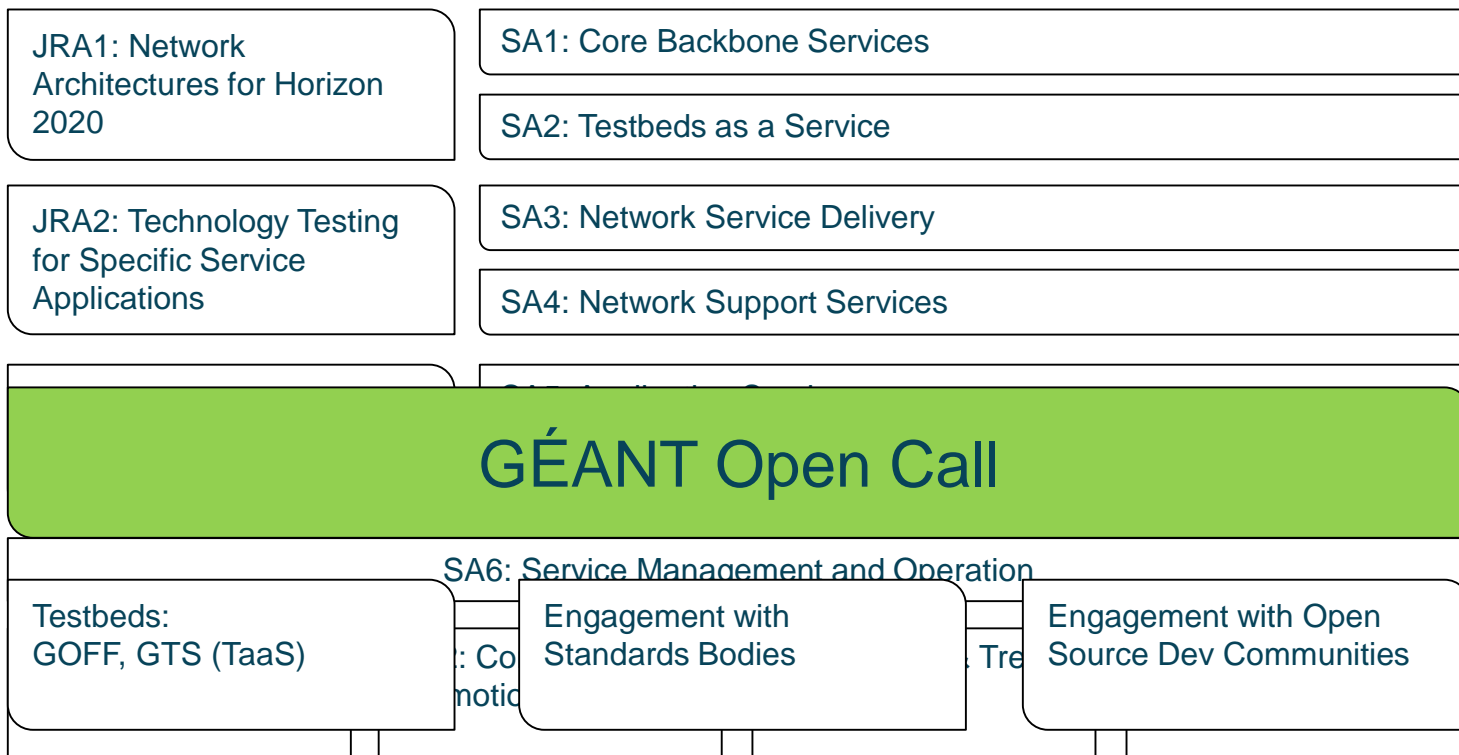
What does this all mean for a joint e-Infra "Open Call" programme??

	2014/15 (part of GN3 Plus)	2016/17 (EINFRA-22-2016 part 2)
Funding	€3.3m EC funding for GEANT (€4.2m programme in total)	€6m EC funding for all e-infras
Focus	All	Primarily SMEs and Industry
Average project size	€100-350k per project	€60k - €150k per beneficiary
Type of work	Early or late stage (many were TRL 0-6)	<u>Strictly</u> TRL6 and above only
Type of project	- Using e-infrastructure resources e.g. testbeds - Providing services to e-infrastructures	SMEs as: - New **users** of e-infras - Service **providers** for e-infras - **Innovation generators** for e-infras

Looking forward

- Working with other e-Infras much more closely and collaboratively on shared programmes and projects

- Working with innovation clusters for the first time

- "Innovating with SMEs"/working with more SMEs:
  - Enabling them to benefit from GEANT's network and services
  - Using SME skills to improve and create entirely new "user driven" GEANT products/services

- Not just SMEs (for Open Call) but also open to small consortia of universities and/or NRENs **WITH** SMEs bidding in "supply" side of open call

ICT WP 2016-17
My view on which parts of the ICT WP could be of interest to R&E networking community...

Code	Description	Actions	Budget	Closing Date
ICT-5-2017	Customised and low energy computing	RIA	€24M	April 17
ICT-6-2016	Cloud computing (4 parts)	RIA	€35M	April 16
ICT-7-2017	**5G PPP Research and validation of critical technologies and systems** (1) wireless access and radio network architecture/technologies, (2) high capacity elastic - optical networks and (3) the "Software Network"	RIA	€100M	Sept 16
ICT-8-2017	5G PPP Convergent Technologies	IA	€40M	Sept 16
ICT-11-2017	Collective Awareness Platforms for Sustainability and Social Innovation	IA	€9M	April 17
ICT-12-2016	FI-PPP continued	IA	€15M	April 16
ICT-13-2016	FIRE	RIA	€25M	April 16

ICT WP 2016-17 cont

Code	Description	Actions	Budget	Closing Date
ICT-14 thru 18	Big Data PPP	various	€150M	various
ICT-22-2016	Technologies for learning and skills	IA+RIA	€31M	April 16
ICT-33-2017	Innovation procurement networks	CSA	€15M	April 16
ICT-34-2016	PCP Open	PCP	€25M	April 16
ICT-37-2016	China – collaboration on FI	CSA	€1M	Jan 16
ICT-38-2016	Mexico – collaboration on ICT	RIA & CSA	€1M	Jan 16
ICT-39	International partnership building in low and middle income countries	IA	€13M	April 17

ICT WP 2016-17 cont

Code	Description	Actions	Budget	Closing Date
EUJ-1 thru 3	EU-Japan joint calls on 5G, IoT/cloud/big data & ICN testbeds	RIA	€7M	Jan 16
EUB-1 thru 2	EU-Brazil joint calls on cloud computing & IoT pilots	RIA	€7M	Mar 17
EUK-1 thru 3	EU-South Korea joint calls on 5G, IoT & fed cloud for mobile	RIA	€6M	Jan 16
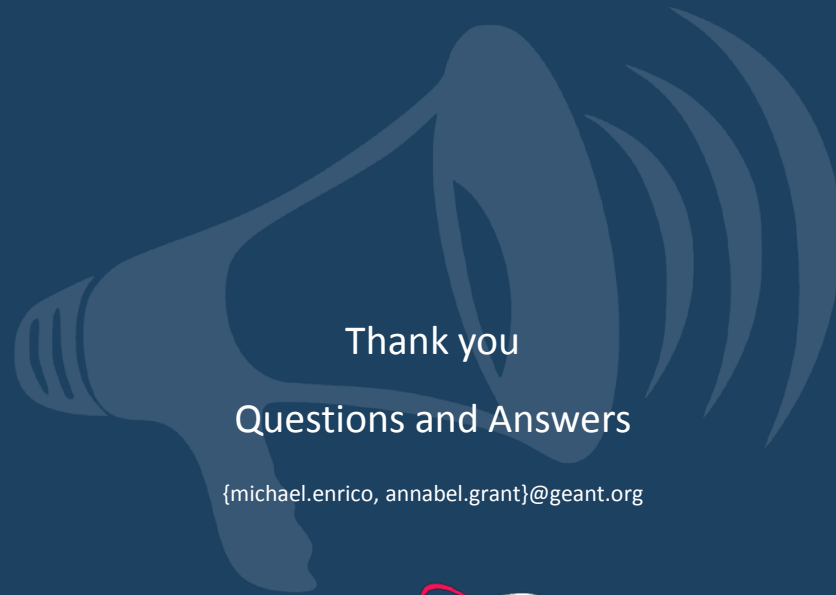
Thank you

Questions and Answers

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