

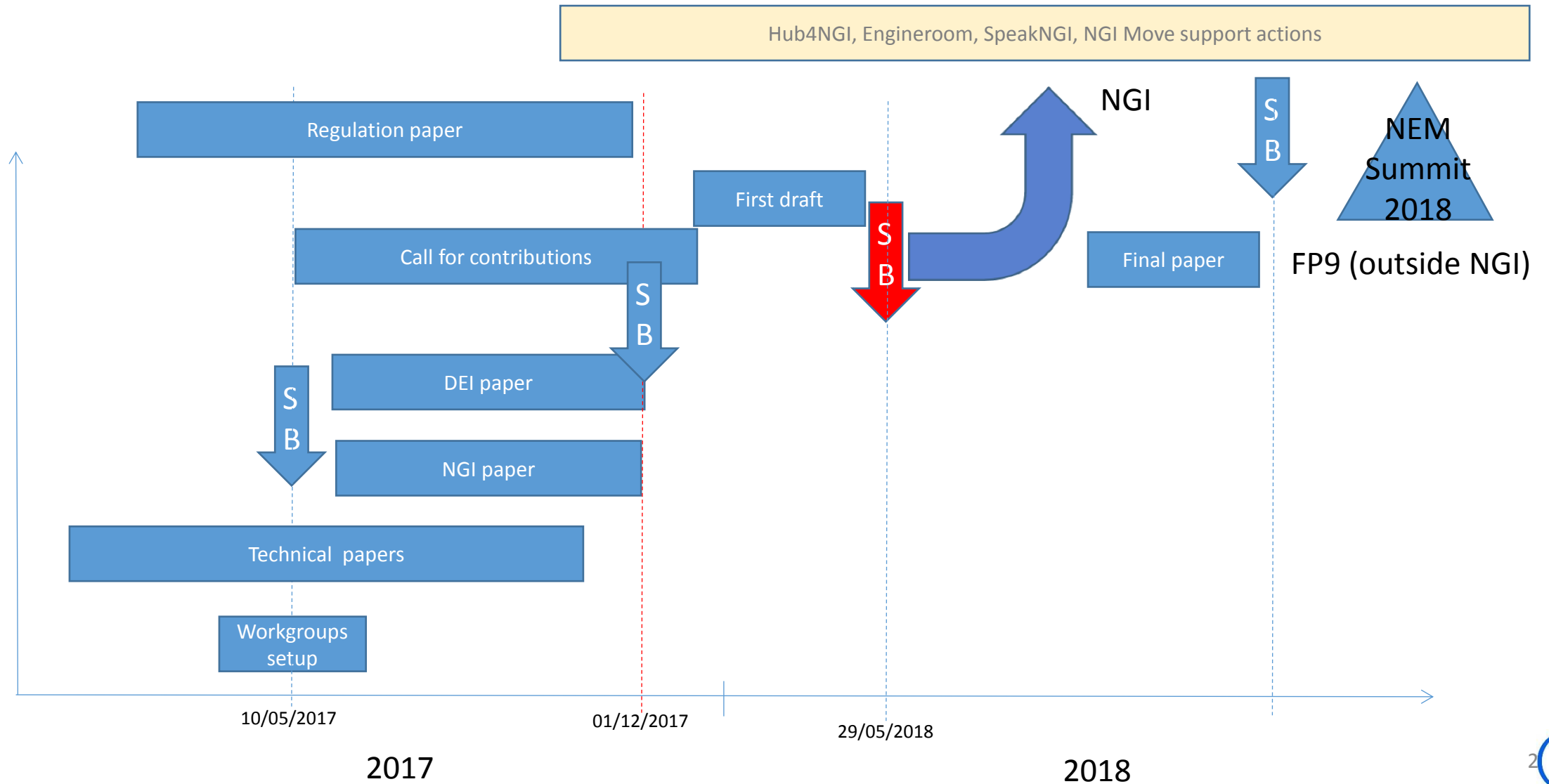


NEM Strategic Research and Innovation Agenda 2018

NEM General Assembly, 30 May 2017

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SRIA 2018 development timeline and FP9 (Horizon Europe)

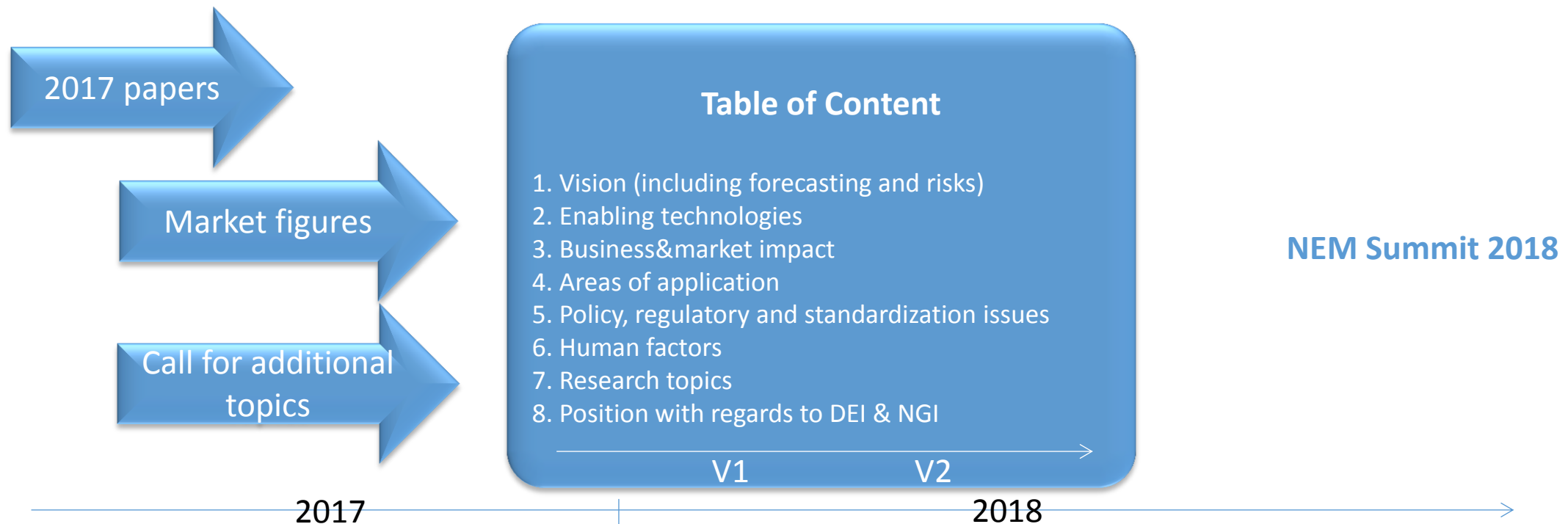


Toward NEM SRIA 2018 and detailed roadmap 2020/22

The actual version of the NEM SRIA is from 2016, now we need to provide a new version in order to propose some new research topics for WP2020 and further

There are already a number of ideas collected during the writing of the papers but there is still some work to do in order to provide a comprehensive document with the relevant market figures.

In order to achieve this goal, the overall workplan is the following :



SRIA 2018 Status

- 1) Introduction (Orange) → Done
- 2) Vision (Telecom Italia) → Done
- 3) Business&Market impact (Eurescom) → Done
- 4) User vision & requirements (UPM)
 - 4.1) Human factors (UPM) → Done
 - 4.2) Areas of applications (Engineering) → To be finalised
- 5) Policy, regulatory and standardization issues (Engineering) → Done
- 6) Enabling technologies (Orange) → Done
 - 6.1) Position with regards to DEI & NGI (Orange)
 - 6.1.1 Digitalising European Industry
 - 6.1.2 Next Generation Internet
 - 6.2) Research topics (Orange) → Done
 - 6.3) Detailed roadmap 2020/22 (UPM) → To be completed
 - 6.4) High-level roadmap 2020/25 (UPM) → To be completed
 - 6.5) International cooperation (HC) → Done
- 8) Conclusions (UPM) → To be completed

SRIA 2018 Vision

NEM vision towards 2025 is driven by a number of evolution of the sector. MEN was initially focusing on media&entertainment which is moving very fast in a number of aspects:

- Media sector is moving to even more **personalized services**, conceding more power to users, aiming at having users more engaged by powering emotional and social connectivity with the content and people.
- Technological innovation will be able to break down many of the functional barriers opening a wide scenario of **convergence** of broadcasting, internet, and communication services
- Next Generation Internet will take content and **media experience** to a new era, going beyond improving technical capabilities such as bandwidth, intelligence, scalability and performance but also immersivity
- Immersive technologies are going to enable even more natural experiences and **natural interactions** with objects and/or remote people very similar as real-time face-to-face experiences and interactions.
- **Users demand tailor-made solutions** and a personalized customer experience independent of the context of consumption, and service providers are required to achieve a successful seamless cross-device and cross-channel content delivery and user identification.
- Users demonstrated they are keen to give away much **personal data** in exchange for good and free of charge services. Users should be aware of the level of privacy they get in accessing a given service. This personal data management back to end-user is one of the next challenge
- The explosion of **Internet of Things (IoT)** will generate more synergies between devices and people thanks to the information they exchange.
- The integrity, **confidentiality** and authenticity of content and users data managed within services platforms are going to be key point for the future successful deployment of media services. Fake news should be fought.

SRIA 2018 Business & market trends

- The European Media&entertainment sector GDPD share is decreasing in the world due to OTT development and change of consumers habits.
- However, technologies developed for this sector could be offered to many other sectors such as
 - Education including serious gaming
 - Industry (promotion, advertising, design, construction, ...)
 - Health
 - Environment
- In another hand, AI and 5G technologies should boost the media & content sector helping people to consume contents in a most convenient way, it is chance for Europe to come back on the front
- Worth to say that IoT will bring additional content that will complement regular media content giving a new experience dimension to consumers

SRIA 2018 User vision & requirements

- This chapter encompasses Human factors and Area of applications
- Human factors:
 - Human Factors are concerned with improving the understanding of human behaviour and facilitating the design and development of emerging technologies involving the process of interaction design
 - User experience
 - Adoption of technologies
 - Human-Machine interface
 - Sustainable development
- Area of application:
 - *Regular entertainment areas: Cinema, culture, cultural heritage, eLearning, entertainment, remote collaborative work, TV, digital cinema video streaming, press*
 - *Education, health, manufacturing design, smart cities, AAL, tourism, environment*
 - *Live events (concert, sport,)*

→ A need to keep research capacities for human behaviour studies and for user experiments

SRIA 2018 Policy, regulatory and standardization issues

- The impact of the Internet and new technologies on the media and content world is enormous: new business models, new players and new challenges await antitrust and regulatory authorities
- issues like data protection, privacy, customers protection but also the policy framework for supporting research and innovation in the media sector represent relevant topics to be constantly addressed for supporting the right growth of the sector.
- Standards support market-based competition and help ensure the interoperability of complementary products and services.
- Standards facilitate companies' market access worldwide and two main objectives are instrumental in this respect, as identified by the Communication from the Commission to the European Parliament (COM/2017/0453 final)

→ **There is still a question to rise: Which standards and regulation NEM should push in the next period ?**

SRIA 2018 Enabling technologies

The main hot topics identified are the following:

1. Immersive technologies including holographic, AR/VR, 360°
2. Hyper-personalisation including personal data management
3. Content distribution including 5G Slice for media&content
4. Social media
5. Human-Machine interaction
6. Artificial intelligence including deep learning
7. Block chain
8. Cultural heritage technologies
9. Disinformation detection including content verification

SRIA 2018 Position with regards to Digitalising of European Industry

- This initiative addresses 4 main aspects
 1. Digital Innovation Hubs: NEM has the objective to setup a network of Media&content DIH which should help to Exchange of experience, to share complementary competence and infrastructure, to ensure rationalization of investment and to help SMEs internationalisation & expand
 2. Digital platform: NEM is willing to establish a catalog of media&content platform that could be used by EU Industry
 3. Digital training: NEM academic competencies should contribute to help EU Industry to digitalise
 4. Digital policy and standardisation: NEM should bring ideas to be pushed at the standardisation and regulation level



SRIA 2018 Position with regards to Next Generation Internet

- NEM is actively contributing to the NGI initiative through a number of contribution to the support actions Hub4NGI (policy), EU.Engineerroom (research topics), NGI Move (governance) and SpeakNGI (community activation)

Broad Lines of Activities

- Technologies and systems for trusted and energy-efficient Next Generation Internet network and service infrastructures (beyond 5G connectivity, software defined infrastructures, Internet of smart things, cognitive clouds), leveraging real-time needs, virtualisation and decentralised management (edge computing, blockchains, shared contexts and knowledge);
- **Next Generation Internet applications and services for consumers, industry and society building on better user control of data, transparent language access, new multi modal interaction concepts, highly personalised access to objects, information and content, including immersive and trustworthy media, social media and social networking;**
- Software technologies embedding Artificial Intelligence, data analytics and security in Internet applications and services predicated on the free flow of data and knowledge

10 topics have been identified: Personal Data Spaces, Internet Of Things, Blockchain, Artificial Intelligence, Distributed architectures and decentralised data governance, The future of Social media, New forms of interactions and immersive environments + Discovery and identification tools , Software defined technologies, Networking solutions beyond IP

SRIA 2018 Research topics (1/2)

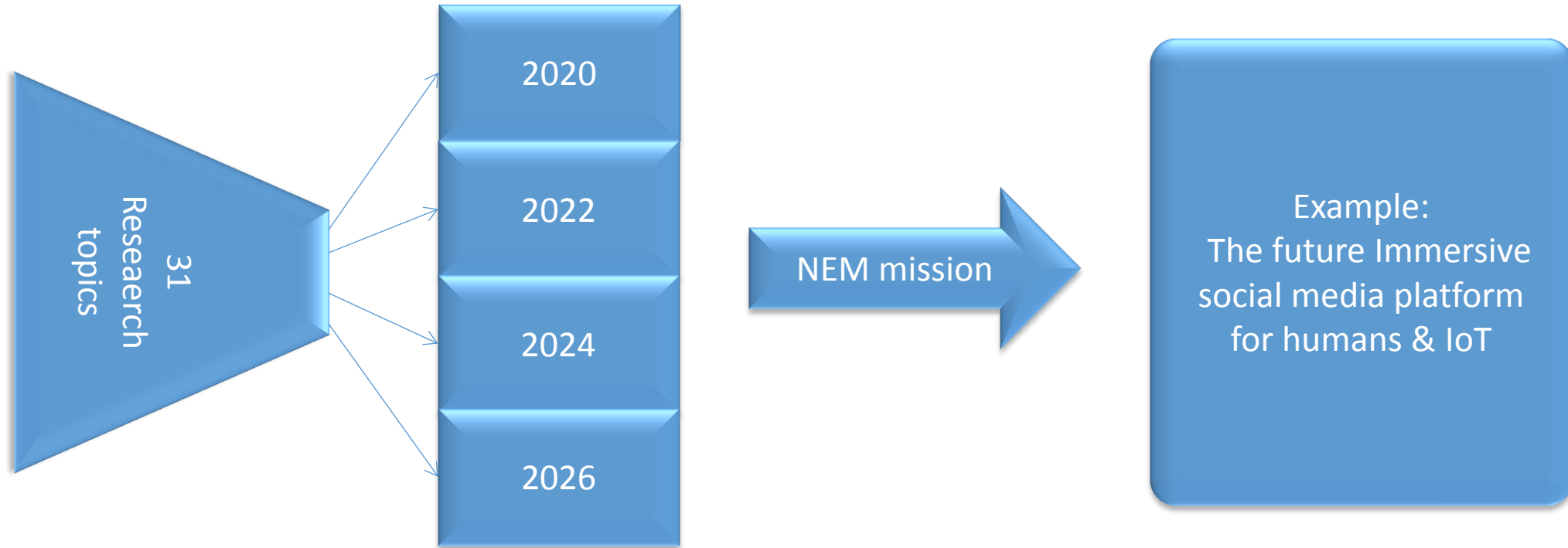
1. Sensing and Interpretive technologies - creating and deploying technologies that capture and preserve data from multiples sensors, extract relevant features, and infer relations from an increasing array of data and sensor inputs
2. Wireless sensor networks, immersion and multi-sensory data
3. Interpretative and semantic technologies and metadata
4. Design and human-machine interaction
5. Human-human interactions through devices
6. Augmented reality and virtual reality
7. Holography
8. Immersion and multi-sensory data
9. Semantic technologies and metadata
10. Human-machine interaction including BCI, haptics, vocal
11. Storytelling
12. Data visualization
13. Design
14. On-demand cloud resources
15. Security including block chain
16. Multi-cloud environments (private, public, multipurpose, specific)
17. Virtualization including 5G slices for media&content
18. COTS and open architectures with self-describing, well-documented APIs
19. Annotation and metadata
20. Crowdsourced digitization
21. Interoperable and user-friendly DRM
22. Quality control (end2end)

SRIA 2018 Research topics (2/2)

23. Online catalogues and data visualisation
24. Multi-platform access
25. Multi-device reading software to read standard formats and with accessibility features
26. Standards and tools for the interoperability of learning platforms
27. Standards and tools for the management of copyright information and licences, and rights data management in general
28. Standard technologies and tools for production and distribution of accessible digital books for visually impaired and print disabled people
29. Content discovery online ATAWAD
30. Infrastructure for the use of Big data by SMEs, i.e.: how to transpose the tradition of precompetitive collaboration of the sector about data (with elements such as the ISBN and the books-in-print databases, which allowed ecommerce being launched first in the book sector) to the big data environment
31. Personal data management

→ A need to complete, rank and roadmap the list

SRIA 2018 Detailed roadmap 2020/22/24/26



What is the NEM mission ?

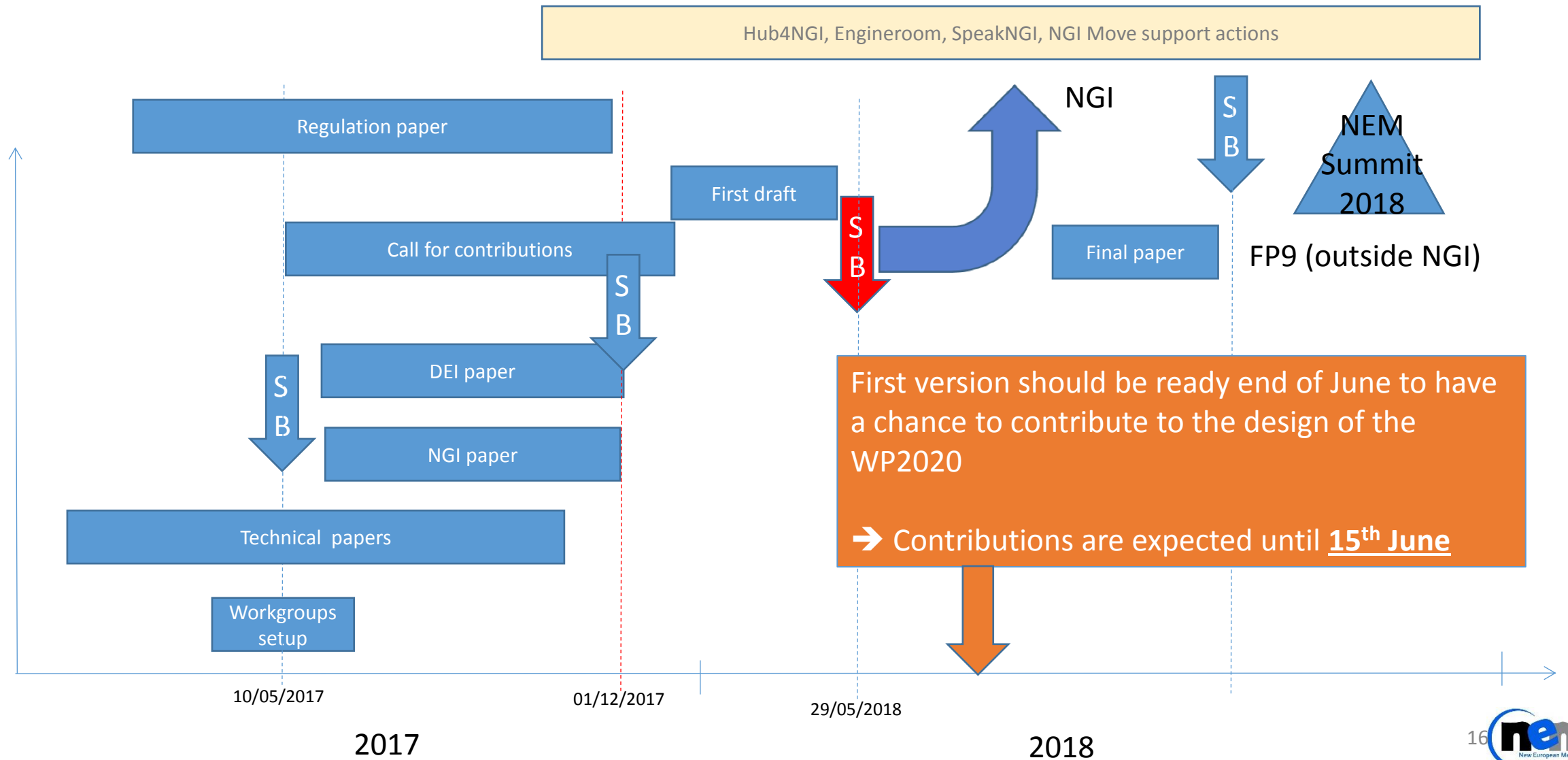
Mission-oriented innovation policy responds to these 'grand challenges' by identifying and articulating concrete problems that can galvanise production, distribution, and consumption patterns across various sectors.

SRIA 2018 International cooperation

Main interests:

1. Foster excellence of research: attract the best researchers around the world to cooperate with European researchers in the field of NEM technologies,
2. Promote NEM projects and results
 1. Widen applicability,
 2. Disseminate project outcomes,
 3. Favour exploitation and go to the market.
3. Share the NEM vision and SRIA,
4. Take into account specific needs from other worldwide regions: foster international projects with mutual interests,
5. Help the European industry to develop products/services outside Europe,
6. Establish strong links with non-European stakeholders (addressing NEM activities):
 1. Local clusters and platforms: to reach out easily all stakeholders including SMEs and web entrepreneurs,
 2. Industry representatives (with R&D departments),
 3. Academia.

You are all kindly invited to contribute !



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