IL PROGRAMMA HORIZON 2020

VERSO IL NUOVO FRAMEWORK IN RICERCA E INNOVAZIONE

**Energie rinnovabili
Ambiente
Protezione Civile**

Serena Borgna

H2020 *NCP SC2 Bioeconomy*

H2020&FP7 *NCP NMP - ERC*

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APRE

www.apre.it

Agenda

- Horizon 2020: contesto politico
- Horizon 2020: budget e architettura
- Implementazione: schemi e struttura
- Focus tematico: energia, ambiente, protezione Civile
- Supporto e contatti

APRE
AGENZIA
PER LA
PROMOZIONE
DELLA
RICERCA
EUROPEA

ENERGIA

PROTEZIONE

CIVILE

AMBIENTE

Europe 2020

Innovation Union

Horizon 2020

Strategia per una crescita intelligente, sostenibile ed inclusiva

Iniziativa faro di sostegno alla ricerca e all'innovazione

Quadro strategico comune su ricerca e innovazione (2014- 2020)

enterprise
europe
network
Business Support on Your Doorstep

RINA

Europe 2020 – 5 obiettivi

EMPLOYMENT   75% of the population aged 20-64 should be employed

R & INNOVAZIONE   **3% del PIL dei Paesi EU investito in R&D**

A reduction of CO_2 emissions by 20%

CLIMATE/ENERGY   **A share of renewable energies up to 20%**

An increase in energy efficiency by 20%

EDUCATION   The share of early school leavers should be under 10%

At least 40% of the younger generation should
have a degree or diploma

POVERTY   20 million fewer people should be at risk of poverty

7 "Flagship Initiatives"

Smart Growth	Sustainable Growth	Inclusive Growth
Innovation « Innovation Union »	**Climate, energy and mobility** « Resource efficient Europe »	**Employment and skills** « An agenda for new skills and jobs »
Education « Youth on the move » **Digital society** « A digital agenda for Europe »	**Competitiveness** « An industrial policy for the globalisation era »	**Fighting poverty** « European platform against poverty »

Innovation Union

KIC: Energy – Raw Material –Smart Cities and Communities

Developing ew curricula

4. ERA Framework

6. Programmes focusing on EU2020

nvolvement of Es in R&I

8. Forum Forward L Activities

9. EIT to expand its activities

11. Free Ven Capital funds

EU Patent

Horizon 2020
- SC3 – Energia
- SC5 – Ambiente
- SC7 - Sicurezza

15. Screen key regulatory frameworks

standard-setting

public procurements

18. Eco-innovation action plan

19. European Design Board

22. Euro market f

Water - Raw Materias - SSC

on n the tural Funds

26. European Social innovation pilot

Research programmes on public sector and social innovation

consultation on knowledge economy

29. European Innovation Partnerships

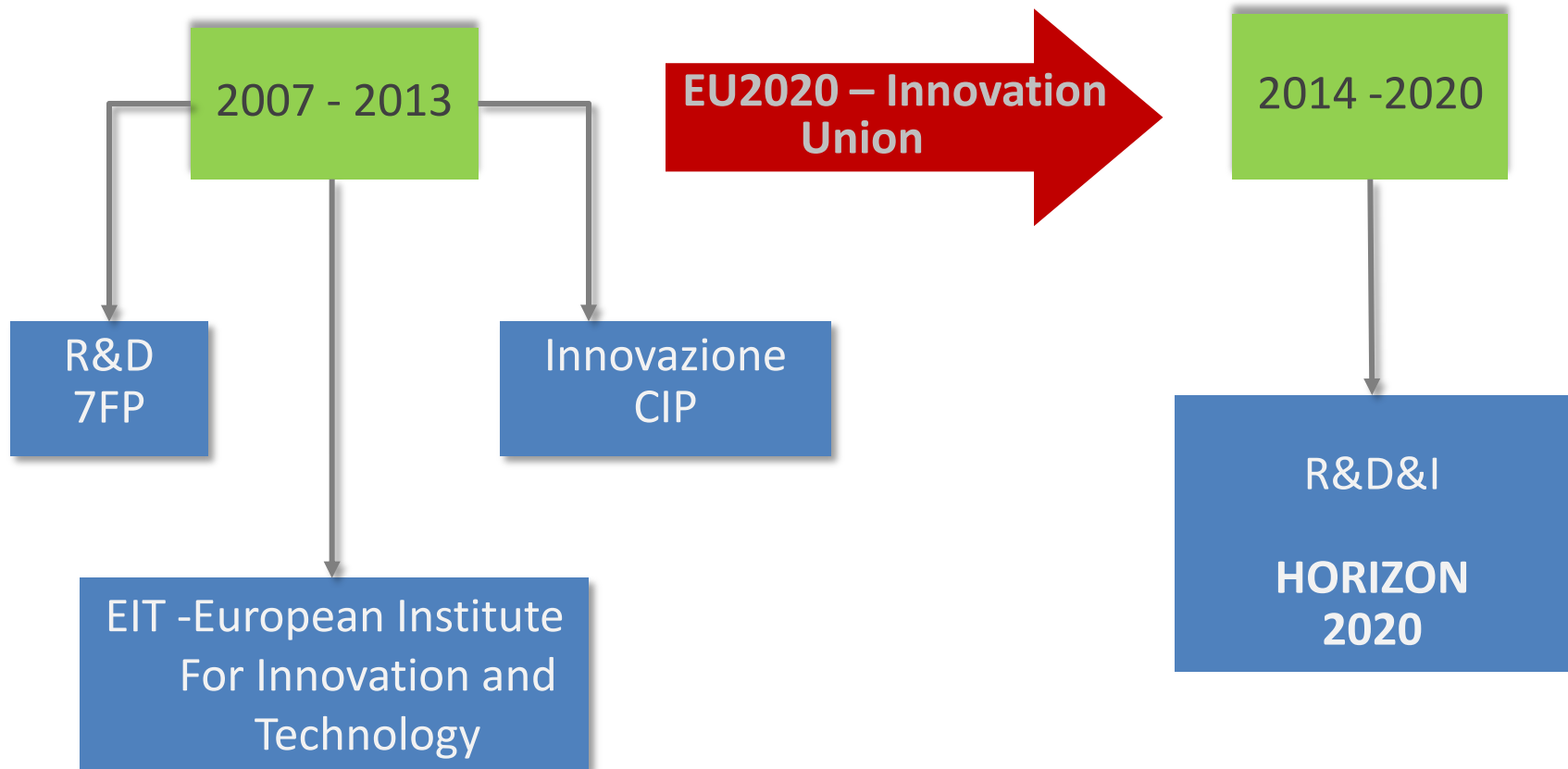31. Scientific cooperation with third countries

32. International agreements on research infrastructures

33. MS to carry out self assessments

34. New indicator for fast-growing companies and monitoring

Verso un unico programma R&D&I

2007 - 2013

R&D
7FP

Innovazione
CIP

EIT -European Institute
For Innovation and
Technology

EU2020 – Innovation Union

2014 -2020

R&D&I

HORIZON
2020

Horizon 2020…

Development

Research

Innovation

Excellent Science

Industrial leadership

Societal challenges
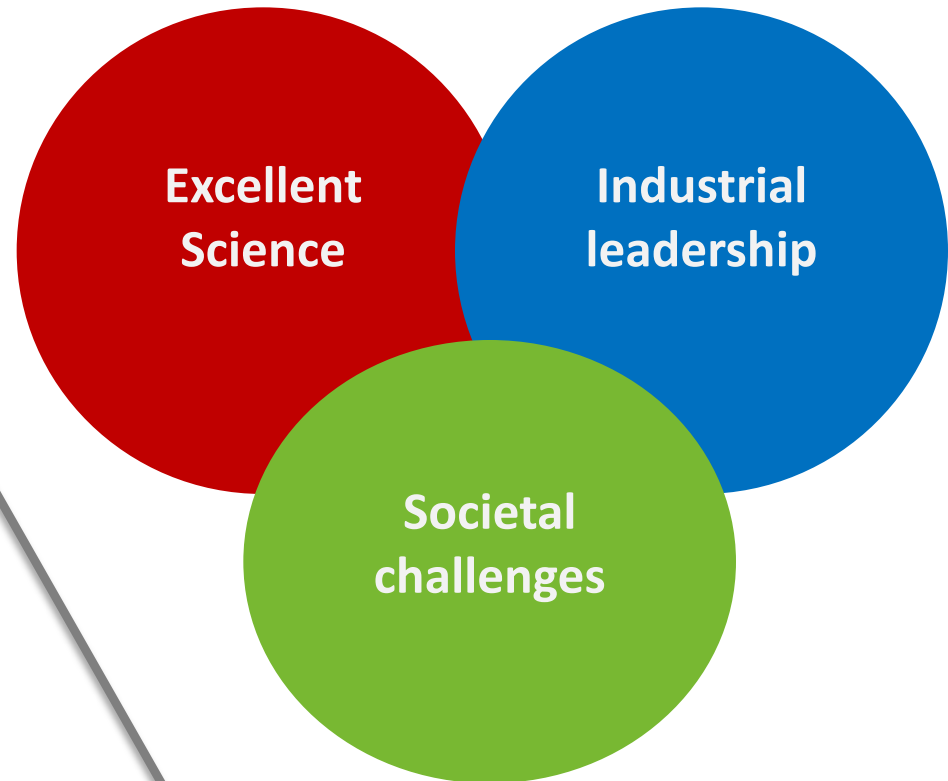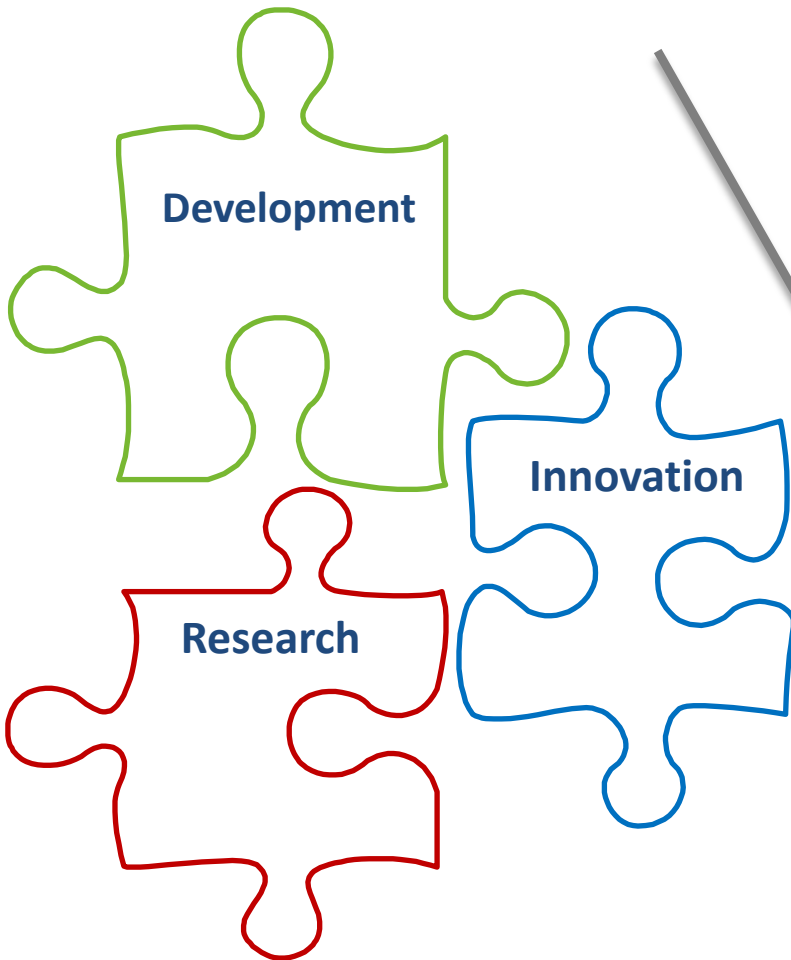
…a stronger, clear focus

Caratteristiche

- Un **singolo programma** che riunisce tre iniziative fino ad ora separate

- **Value chain** che va dalla ricerca di frontiera , allo sviluppo tecnologico, dimostrazione, valorizzazione dei risultati e innovazione

- **Innovazione**, in tutte le sue forme

- Focus su **societal challenges**

- **Accesso semplificato** per le imprese, le università, etc in tutti gli stati europei

- Sinergie con i **Fondi Strutturali**

APRE
AGENZIA
PER LA
PROMOZIONE
DELLA
RICERCA
EUROPEA

Excellent Science

- **European Research Council**
  - Frontier research by the best individual teams

- **Future and Emerging Technologies**
  - Collaborative research to open new fields of innovation

- **Marie Skłodowska Curie actions**
  - Opportunities for training and career development

- **Research infrastructures** (including e-infrastructure)
  - Ensuring access to world-class facilities

Industrial Technologies

- **Leadership in enabling and industrial technologies**
  - ICT, nanotechnologies, materials, biotechnology, manufacturing, space

- **Access to risk finance**
  - Leveraging private finance and venture capital for research and innovation

- **Innovation in SMEs**
  - Fostering all forms of innovation in all types of SMEs

Societal Challenges

- **Health, demographic change and wellbeing**

- **Food security, sustainable agriculture, marine and maritime research & the bioeconomy**

- **Secure, clean and efficient energy**

- **Smart, green and integrated transport**

- **Climate action, resource efficiency and raw materials**

- **Inclusive, innovative and reflective societies**

- **Security society**

European Institute of Innovation and Technology (EIT)

Spreading Excellence and Widening Participation

Science with and for society

Joint Research Center (JRC)

enterprise europe network

RINA

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Spreading Excellence and Widening Participation

Science with and for society

Joint Research Center (JRC)

Simplified Access

International Cooperation

Europe 2020 Priorities

Shared Objectives and Principles

European Research Area

Coherent with other EU and MS Actions
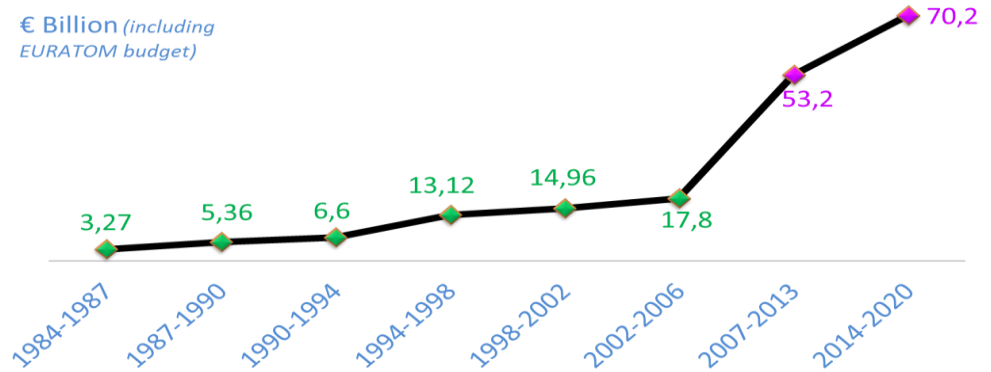
Common Rules, Toolkit of Funding Schemes

Budget Agreement
*28th June 2013

70,2 Billion €
(EURATOM included)

Multiannual Financial Framework
2014/2020

Budget for activities

	Compromise % 27.06.13	Million € (27.06.13)
I. Excellent Science, of which:	31,73%	22.274
1. ERC	17,00%	11.934
2. FET	3,50%	2.457
3. MS Curie Actions	8,00%	5.616
4. Research Infrastructures	3,23%	2.267
II. Industrial Leadership, of which:	22,09%	15.507
1. Leadership in Enabling and Industrial Technologies	17,60%	12.355,20
1. Access to Risk Finance	3,69%	2.590,38
1. Innovation in SME's	0,80%	561,60
II.I Societal Challenges, of which:	38,53%	27.048,06
1. Health, demographic change and well being	9,70%	6.809,40
2. Food security, sustainable agriculture, marine and maritime research & the bio economy	5,00%	3.510
3. Secure, clean and efficient energy	7,70%	5.405,40
4. Smart, green and integrated transport	8,23%	5.777,46
5. Climate action, resource efficiency and raw materials	4,00%	2.808
6. Europe in a changing world – Inclusive, innovative and reflective society	1,70%	1.193,40
7. Secure societies – Protecting freedom and security of Europe and its citizens	2,20%	1.544,40
Spreading Excellence and Widening Participation	1,06%	744.120
Science with and for society	0,60%	421.200
European Institute of Innovation and Technology - EIT	3,52%	2.471,04
JRC Non-nuclear	2,47%	1.733,94
EURATOM		2.098,48
Total	100,00%	70.200

[1] Budget elaborated by APRE, based on Council Agreement

EIT

K I C s

BOTTOM UP RESEARCH

ERC – frontiera
MSCA - mobilità
FET open – high risk

SME instrument

Excellent Science	Industrial Technologies	Societal Challenges
■ **European Research Council** ■ Frontier research by the best individual teams ■ **Future and Emerging Technologies** ■ Collaborative research to open new fields of innovation ■ **Marie Skłodowska Curie actions** ■ Opportunities for training and career development ■ **Research infrastructures** (including e-infrastructure) ■ Ensuring access to world-class facilities	■ **Leadership in enabling and industrial technologies** ■ ICT, nanotechnologies, materials, biotechnology, manufacturing, space ■ **Access to risk finance** ■ Leveraging private finance and venture capital for research and innovation ■ **Innovation in SMEs** ■ Fostering all forms of innovation in all types of SMEs	■ Health, demographic change and wellbeing ■ Food security, sustainable agriculture, marine and maritime research & the bioeconomy ■ Secure, clean and efficient energy ■ Smart, green and integrated transport ■ Climate action, resource efficiency and raw materials ■ Inclusive, innovative and reflective societies ■ Security society

European Institute of Innovation and Technology (EIT)

Spreading Excellence and Widening Participation

Science with and for society

Joint Research Center (JRC)

10

Pillar
SOCIETAL CHALLENGES

SC2 - Secure, clean and efficient energy

Pillar
SOCIETAL CHALLENGES

SC5 - Climate action, resource efficiency and raw materials

Pillar
SOCIETAL CHALLENGES

SC7 - Secure societies
Protecting freedom and security of Europe and its citizens

H O R I Z O N 2 0 2 0

enterprise europe network

RINA

Struttura del programma

Excellent Science

- **European Research Council**
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- **Future and Emerging Technologies**
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  - Opportunities for training and career development
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BOTTOM UP

TOP - DOWN

Industrial Technologies

- **Leadership in enabling and industrial technologies**
  - ICT, nanotechnologies, materials, biotechnology, manufacturing, space
- **Access to risk finance**
  - Leveraging private finance and venture capital for research and innovation
- **Innovation in SMEs**
  - Fostering all forms of innovation in all types of SMEs

TOP - DOWN

BOTTOM UP (SME)

Societal Challenges

- **Health, demographic change and wellbeing**
- **Food security, sustainable agriculture, marine and maritime research & the bioeconomy**
- **Secure, clean and clean energy**
- **Smart, green and integrated**
- **Climate action, resource efficiency and raw materials**
- **Inclusive, innovative and reflective societies**
- **Security society**

TOP - DOWN

BOTTOM UP (SME)

European Institute of Innovation and Technology (EIT)

Spreading Excellence and Widening Participation

Science with and for society

Joint Research Center (JRC)

Strategic programming approach

2014	2015	2016	2017	2018	2019	2020
Strategic Programme						
Work Programme 1		Strategic Programme				
		Work Programme 2		Strategic Programme		
				Work Programme 3		
						Work Programme 4
Smaller and continuous updates to respond to unexpected developments						
Calls published on basis of WP	Ad hoc financing decision	Calls published on basis of WP	Ad hoc financing decision	Calls published on basis of WP	Ad hoc financing decision	Calls published on basis of WP

Strategic programmes: short documents outligning priorities over 3 years, updated every two years

Work Programmes mirror the strategic programme and are updated over the same 2-year cycle

Leitmotif of the first work programme is the

ECONOMIC CRISIS AND THE PATH TO SUSTAINABLE GROWTH www.apre.it

Focus Area

Strategic programming identifies focus areas, each covered by a specific call, that:

- Bring together activities from different challenges and enabling technologies

- Provide support across the innovation chain from research, to development, to proof of concept, piloting, demonstration projects, and to setting standards and policy frameworks.

- Make use of the full spectrum of funding schemes and types of action e.g. research and innovation actions, innovation actions, ERANets,SME instrument…

- Integrate different perspectives, including from the social sciences and humanities, gender perspectives, and international strategy

Work Programme TOPICS Structure

SPECIFIC CHALLENGE	• sets the context, the problem to be addressed, why intervention is necessary
SCOPE	• delineates the problem, specifies the focus and the boundaries of the potential action BUT without describing specific approaches
EXPECTED IMPACT	• describe the key elements of what is expected to be achieved in relation to the specific challenge

Tipologie progetti

Ricerca collaborativa
- Research and innovation action
- Innovation action
- Strumento PMI
- Eranet

CSA
- Coordination and Support Action

Innovazione
- Pre commercial procurement
- Prize
- Fast track to innovation

Progetti collaborativi

R&I actions

Basic research, applied research, technology development and integration, and testing e validation on a small scale prototype in a laboratory or simulated environment

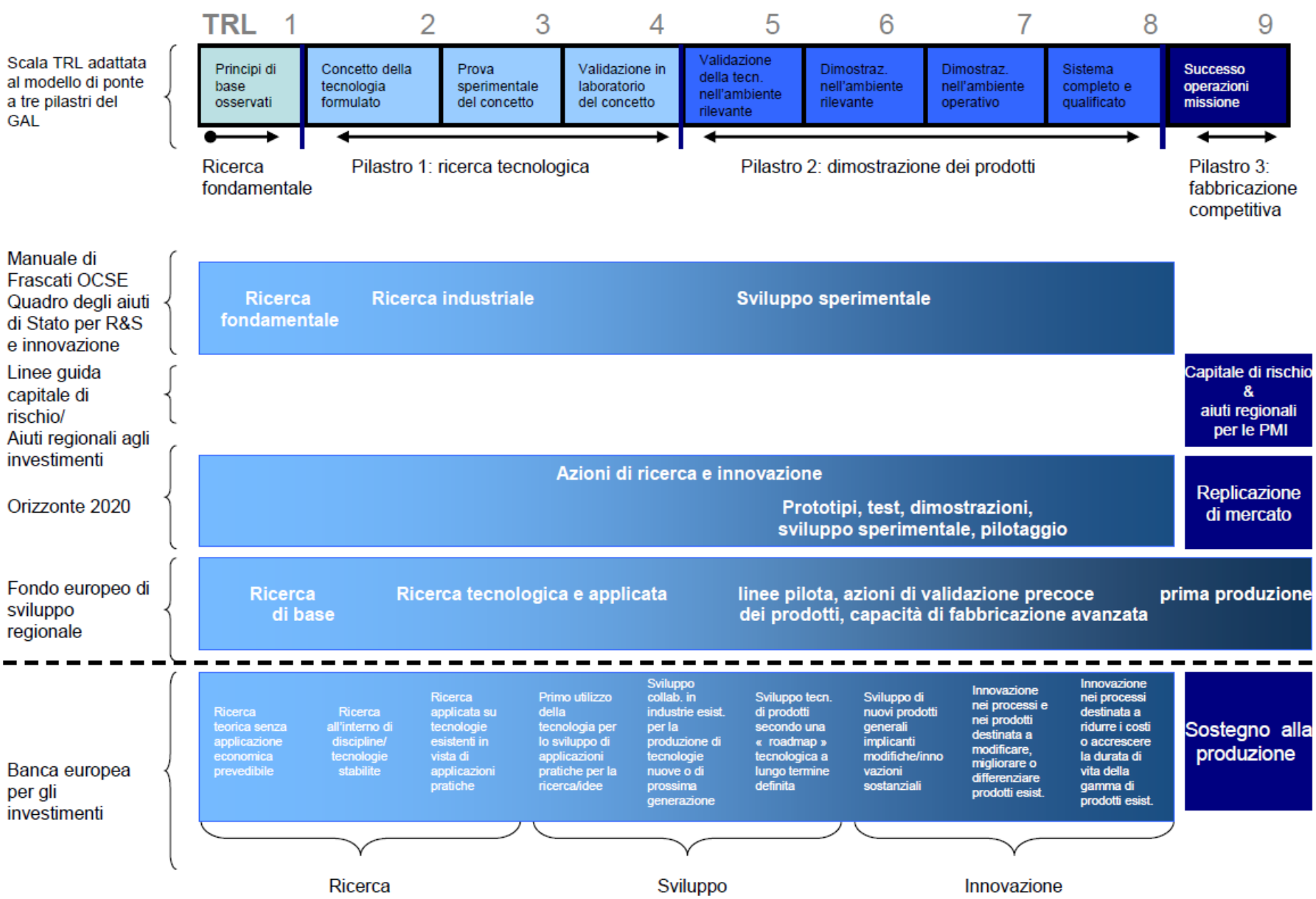TRL, Technology Readiness Level: 1 – 5/6 + clinal trials in phases 1 to 3

Funding rate: 100% costi diretti, 25% costi indiretti

I actions

Prototyping, testing, demostrating, piloting, large - scale product validation and market replication

TRL, Technology Readiness Level: 6 to 7/8 or 9

Funding Rate: 70% costi diretti (100% no profit); 25% costi indiretti

TRL	1	2	3	4	5	6	7	8	9
Scala TRL adattata al modello di ponte a tre pilastri del GAL	Principi di base osservati	Concetto della tecnologia formulato	Prova sperimentale del concetto	Validazione in laboratorio del concetto	Validazione della tecn. nell'ambiente rilevante	Dimostraz. nell'ambiente rilevante	Dimostraz. nell'ambiente operativo	Sistema completo e qualificato	Successo operazioni missione

Ricerca fondamentale — Pilastro 1: ricerca tecnologica — Pilastro 2: dimostrazione dei prodotti — Pilastro 3: fabbricazione competitiva

Manuale di Frascati OCSE Quadro degli aiuti di Stato per R&S e innovazione
Ricerca fondamentale — Ricerca industriale — Sviluppo sperimentale

Linee guida capitale di rischio/ Aiuti regionali agli investimenti
Capitale di rischio & aiuti regionali per le PMI

Orizzonte 2020
Azioni di ricerca e innovazione
Prototipi, test, dimostrazioni, sviluppo sperimentale, pilotaggio
Replicazione di mercato

Fondo europeo di sviluppo regionale
Ricerca di base — Ricerca tecnologica e applicata — linee pilota, azioni di validazione precoce dei prodotti, capacità di fabbricazione avanzata — prima produzione

Banca europea per gli investimenti

| Ricerca teorica senza applicazione economica prevedibile | Ricerca all'interno di discipline/ tecnologie stabili | Ricerca applicata su tecnologie esistenti in vista di applicazioni pratiche | Primo utilizzo della tecnologia per lo sviluppo di applicazioni pratiche per la ricerca/idee | Sviluppo collab. in industrie esist. per la produzione di tecnologie nuove o di prossima generazione | Sviluppo tecn. di prodotti secondo una « roadmap » tecnologica a lungo termine definita | Sviluppo di nuovi prodotti generali implicanti modifiche/inno vazioni sostanziali | Innovazione nei processi e nei prodotti destinata a modificare, migliorare o differenziare prodotti esist. | Innovazione nei processi destinata a ridurre i costi o accrescere la durata di vita della gamma di prodotti esist. | Sostegno alla produzione |

Ricerca — Sviluppo — Innovazione

SME Instrument

Concept & Feasibility Assessment	Demonstration Market replication R&D	Commercialisation
Idea to concept, risk assessment, technological & commercial feasibility	Demonstration, prototyping, testing , market replication, scaling up, miniaturisation, research	Quality label for successful projects, access to risk finance, indirect support

Idea   continued support throughout the project   **Market**

SME Instrument

Phase 1: Concept & Feasibility Assessment

Input:
Idea/Concept in "Business Plan I"
(~ 10 pages)

Main Activities:

Feasibility of concept
Risk assessment
IP regime
Partner search
Design study
Pilot application

Output: elaborated "Business plan II"

Lump sum: around 50.000 €

~ 6 months

Phase 2: Demonstration Market replication R&D

Input:

"Business plan II" **+**
"Description of activities under Phase2" (~ 30 pp.)

Main Activities:

Development Prototyping
Testing
Piloting
Miniaturisation
Scaling-up
Market replication

Output: investor-ready "Business plan III"

Output based payments:
1 to 3 M€ EU funding

~ 12 to 24 months

Phase 3: Commercialisation

Input:
"Business plan III"

+

Opportunities:

'Quality label' for successful Phase 1 & 2

Easier access to private finance

Support via networking, training, coaching, information, addressing i.a. IP management, knowledge sharing, dissemination

SME window in the EU financial facilities (debt facility and equity facility)

No direct funding

SME instrument main features

- Targeted at all types of innovative SMEs showing a strong ambition to grow (develop and internationalise)

- Only SMEs allowed to apply for funding (single company support, but collaboration is certainly advisable)

- Competitive, EU dimension ⬜ only the best ideas pass phase I

- Market-oriented, close-to-market activities: 70% funding

- Grant-based staged funding

- Entrance possible in all phases

- Bottom-up, based on focus areas of strategic interest, specific societal challenges and political priorities, defined in a broader manner

Pillar
SOCIETAL CHALLENGES

SC2 - Secure, clean and efficient energy

Pillar
SOCIETAL CHALLENGES

SC5 - Climate action, resource efficiency and raw materials

Pillar
SOCIETAL CHALLENGES

SC7 - Secure societies
Protecting freedom and security of Europe and its citizens

HORIZON 2020

SC3. Secure, Clean And Efficient Energy

Objective of the Societal Challenge 3 'Secure, Clean and Efficient Energy' is to:

- hold 2020 energy consumption down to no more than 1474 Mtoe of primary energy consumption and 1078 Mtoe of final energy consumption and to hold 2030 energy consumption down to an appropriate level
- develop, and accelerate the time to market of, affordable, cost-effective and resource-efficient technology solutions to decarbonise the energy system in a sustainable way, secure energy supply and complete the energy internal market (SET-Plan and Renewable Energy Directive)
- provide support to partnerships created between municipalities and industries which propose deploying solutions in urban environment

SC3. Secure, Clean And Efficient Energy CALLS - FOCUS AREA WP 2014 - 15

ENERGY EFFICIENCY
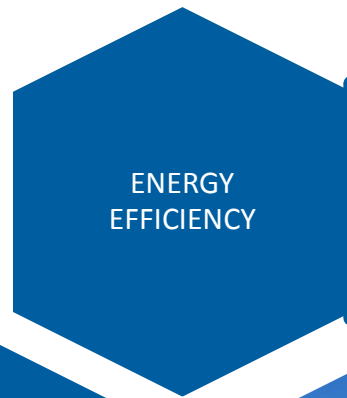
- Buildings and consumers
- Heating and cooling
- Industry and products
- Finance for sustainable energy

- Renewable electricity and heating/cooling
- Modernising the single European electricity grid
- Providing the energy system with flexibility through enhanced energy storage technologies
- Sustainable biofuels and alternative fuels for the European transport fuel mix
- Enabling the sustainable use of fossil fuels in the transition to a low-carbon economy

COMPETITIVE LOW – CARBON ENERGY

SMART CITIES AND COMMUNITIES
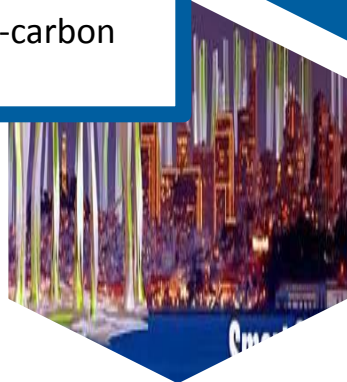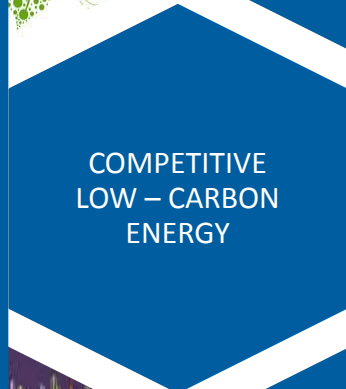
Save the dates

- SC3 EU Info-Day: **5 December**

- SC3 Brokerage event: **6 December**

- Adoption of (provisional) work programme: **10 December**

  Publication of **first calls for proposals: 11 December**

- National infoday: 9 or 16 **December (tbc)**

SC5. Climate Action, Resource Efficiency and Raw Materials

Objective of the Societal Challenge 5 'Climate action, environment, resource efficiency and raw materials' is to achieve:

- a resource, and water, efficient and climate change resilient economy and society,
- the protection and sustainable management of natural resources and ecosystems,
- a sustainable supply and use of raw materials

in order to meet the needs of a growing global population within the sustainable limits of the planet's natural resources and eco-systems.

SC5. **Climate Action, Resource Efficiency and Raw Materials**
CALLS - FOCUS AREA WP 2014 - 15

- Fighting and adapting to climate change
- Protecting the environment, sustainably managing natural resources, water, biodiversity and ecosystem
- Ensuring the sustainable supply of non-energy and non-agricultural raw materials
- Enabling the transition towards a green economy through eco-innovation
- Developing comprehensive and sustained global environmental observation and information systems
- Cultural Heritage

WASTE

SUSTAINABLE DEVELOPMENT & CLIMATE ACTION

WATER

ECO-innovation

www.apre.it

Save the dates

- SC5 EU Info-Day: **12 November**

- Adoption of (provisional) work programme: **10 December**

- Publication of first calls for proposals: **11 December**

- National infoday: **December (tbc)**

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SC7. Secure Societies – Protecting Freedom And Security of Europe and its Citizens

Objectives of the Societal Challenge 7 Secure Societies – Protecting Freedom And Security of Europe and its Citizens' are :

• to enhance the resilience of our society against natural and man-made disasters, ranging from new crisis management tools to communication interoperability, and to develop novel solutions for the protection of critical infrastructure;

• To fight crime and terrorism ranging from new forensic tools to protection against explosives;

• To improve border security, ranging from improved maritime border protection to supply chain security and to support the Unions external security policies including through conflict prevention and peace building

• to provide enhanced cybersecurity, ranging from secure information sharing to new assurance models.

SC7 Secure Societies: Protecting Freedom And Security of Europe and its Citizens
CALLS - FOCUS AREA WP 2014 - 15

FIGHT AGAIN CRIME AND TERRORISM

- Crisis Management and Civil protection with a view to strengthening prevention and preparedness against natural and man-made disasters by underpinning an all-hazard approach to risk assessment across the EU
- …developing solutions, for climate change adaptation in areas affected by natural disasters
- Critical Infrastructure Protection…
- Communication Interoperability facilitating disaster management…
- Ethical/Societal Dimension.

DISASTER-RESILIENCE: SAFEGUARDING AND SECURING SOCIETY, INCLUDING ADAPTING TO CLIMATE CHANGE

DIGITAL SECURITY: CYBERSECURITY, PRIVACY AND TRUST

BOARDER SECURITY AND EXTERNAL SECURITY

Save the dates

- SC7 EU Info: **20-21 November (MILIPOL)**

- Adoption of (provisional) work programme: **10 December**

- Publication of **first calls for proposals: 11 December (March)**

- National infoday: **January/February 2014**

Cosa è APRE?

Ente di ricerca non profit

1989 - **nasce come "Task Force"** del Ministero dell'Università e della Ricerca.

23 **anni di esperienza**

MISSION

- Promuovere e Supportare la **Partecipazione Italiana** ai programmi europei di ricerca su sviluppo e innovazione

- Migliorare la "**Qualità**" della partecipazione italiana nei programmi europei di ricerca su sviluppo e innovazione.

www.apre.it

Informazione & Assistenza

Supporto alle Attività internazionali

Formazione

Servizi APRE

Interlocutori

Una rete di oltre **100** Soci

54 Università

37 Enti di Ricerca Pubblici / Privati

4 Finanza

4 Organismi del Sistema Camerale

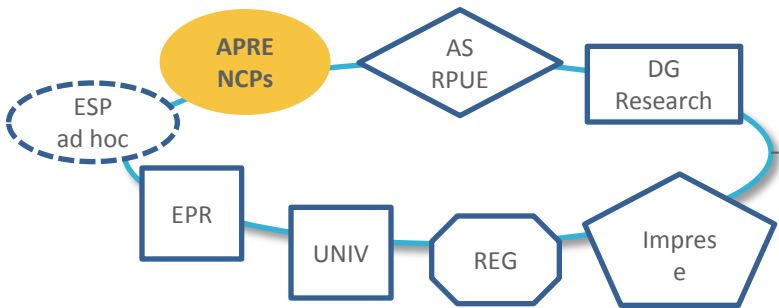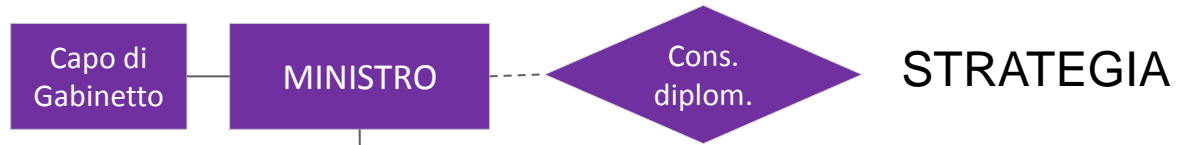**7** Pubblica Amministrazione – Enti Locali
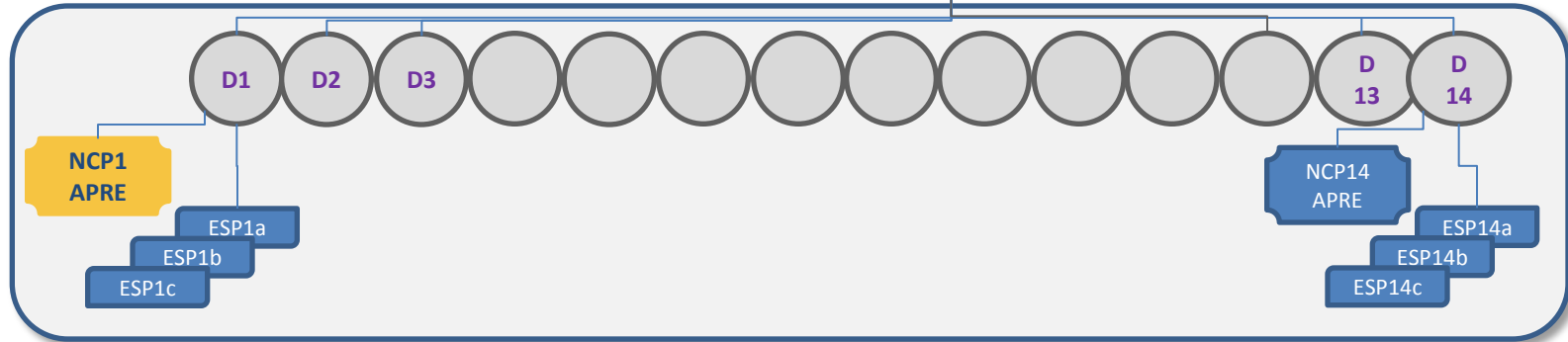
5 Associazioni di Categoria

Mission

APRE

Commissione Europea

Parlamento Europeo

Rappresentanza Italiana UE

Delegazioni Nazionali 7PQ

MIUR

Regioni

Ministero dello Sviluppo Economico

Ministero delle Politiche Agricole, Alimentari e Forestali

Ministero dell' Ambiente, Tutela del Territorio e del Mare

Collaborazione con il MIUR

STRATEGIA

Operational coordiantion (task force)

DELEGATI

APRE

www.apre.it

Facebook

Linkedin

APRE Youtube

NCP
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GRAZIE PER L'ATTENZIONE

APRE

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