

Info dan

19. februar 2014, Kragujevac

HORIZONT 2020

Nanotehnologije, napredni materijali, napredne proizvodnje i procesi

Snežana Omić

NCP za nanotehnologije, napredne materijale, napredne proizvodnje i
processe

Ministarstvo prosvete, nauke i tehnološkog razvoja

Liderstvo u industriji (*Industrial Leadership-LEIT*)

Grantovi za mala i srednja preduzeća i indirektno finansiranje kompanija putem Evropske investicione banke i ostalih finansijskih posrednika.

Zašto:

- Strateške investicije u ključne tehnologije pospešuju inovacije u postojećim i novim sektorima
- Evropa mora da razvije i privuče više privatnih investicija u istraživanje i inovacije
- Evropi je potrebno više inovativnih malih i srednjih preduzeća za sveukupni rast i stvaranje novih radnih mesta

Cilj:

Poboljšanje dostupnosti finansiranja za inovativna preduzeća. Krediti i garancije za rizične projekte će biti dostupni preko kredita Evropske investicione banke i Evropskog investicionog fonda.

Programi:

- Liderstvo u omogućavajućim i industrijskim tehnologijama (Leadership in enabling and industrial technologies)
- Pristup rizičnom finansiranju (Access to risk finance)
- Inovacije u MSP (Innovation in SMEs)

Liderstvo u industriji (*Industrial Leadership-LEIT*)

- Ključne tehnologije (KETs) i partnerstvo sa privredom, u cilju oporavka od ekonomske krize
- Naglasak na R & D i inovacije sa jakom industrijskom dimenzijom
- Aktivnosti prvenstveno razvijene kroz relevantne industrijske mape (ETPs, PPPs)
- a da maksimizuju očekivani uticaj
=> ključni aspekt evaluacije predloga
- e biti orijentisani ka rezultatima, razvijanju ključnih tehnologija
sa rezultatima “bliže tržištu”

Ključne omogućavajuće i industrijske tehnologije

(Key Enabling Technologies - KETs)

Šta su KETs?

- Šest strateških tehnoloških oblasti
- Multidisciplinarne, na znanju utemeljene tehnologije
- Relevantne za različite sektore
- Temelj za ostvarivanje značajne konkurentske prednosti evropske industrije
- Doprinos za rešavanje velikih društvenih izazova (prioriteta)

KETs – Tehnološke oblasti

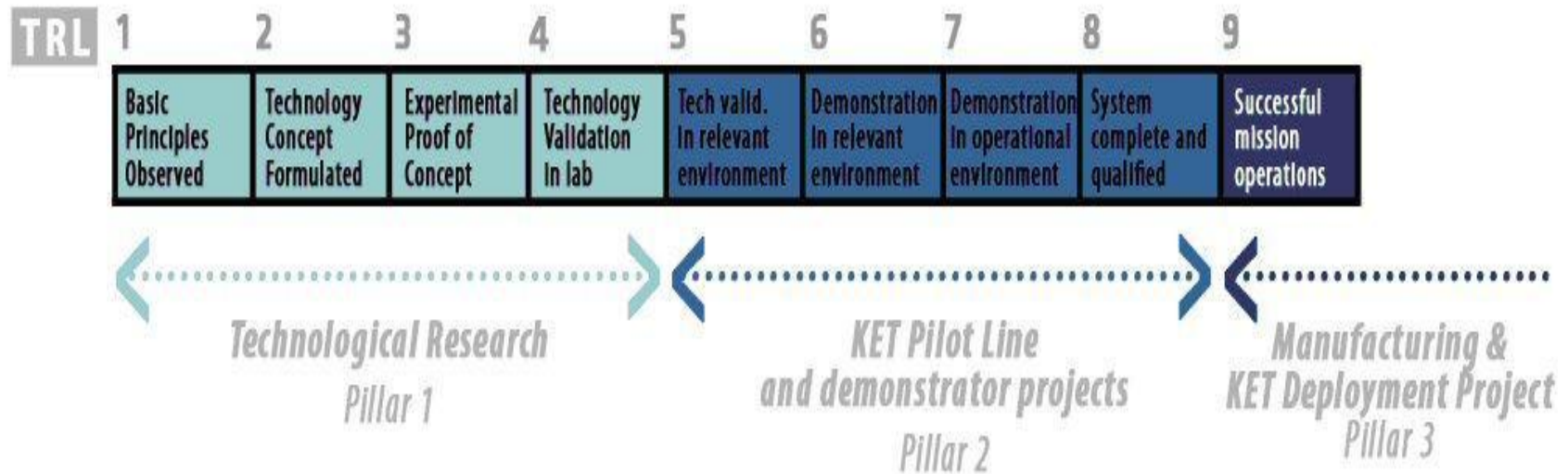
- Biotehnologije (Biotechnology)
- Nanotehnologije (Nanotechnologies)
- Napredni materijali (Advanced materials)
- Napredne proizvodnje & procesi (Advanced manufacturing & processing)
- Mikro- i nano-elektronika & fotonika (Micro- and nano-electronics & photonics)
- Svemirske tehnologije (Space technologies)

Osnovni prioriteti KETs-a

Od laboratorije, industrije do tržišta!

- Konvergencija i interakcija između Ključnih omogućavajućih tehnologija
- Različiti inovacioni ciklusi i vrednosni lanci
- Povećanje učešća industrijskih partnera
- Razvoj industrije
- Strateška važnost KETs-a u rešavanju društvenih izazova-prepoznata u Strukturnim fondovima u okviru Strategije pametnih specijalizacija

Nivoi tehnološke spremnosti (*Technology Readiness Levels - TRLs*)



- TRLs- korisni instrument za razvoj i specifikacije KETs-a
- NMP u FP7: TRLs 1 – 4;
- TRLs do 5-6 u 2012-13 (pilots and demonstrators)
- LEIT KETs: TRLs 3/4 – 7; većinom TRLs 5-6

H2020 – LEIT/KETs: Od R&D do aktivnosti “bliže tržištu”

- Korišćenje “nova tehnološke spremnosti”
(TRLs od 3-4 do 8)
- Dve šeme finansiranja
100% finansiranje: TRLs 3-6
70% finansiranje: TRLs 5-7
- Neprofitne organizacije mogu potraživati 100% finansiranje
- Cross-cutting KETs (kombinacija KETs i proizvodnje - 30% KETs budžeta)

Osnovna pravila u LEIT -u

- Biznis plan i plan eksploatacije rezultata
(eksploatacija rezultata - verodostajan put ka inovacijama)
- Industrijski projekti sa ciljem konkurisanja za dodatna sredstva/finansijske izvore
- Učešće malih i srednjih preduzeća – ne samo kroz SME Instrument
- Doprinos rešavanju društvenih izazova sa fokusom na određene oblasti
- Međunarodna saradnja
- Uključenost društvenih nauka
- Odgovoran pristup istraživanju i razvoju

Radni program – Izazovi/Teme

Struktura se ogleda u pristupu izazovima kroz 3 ključne karakteristike:

- **Specifični izazov**

Postavlja kontekst, ukazuje na problem i zašto je neophodno rešavati ga

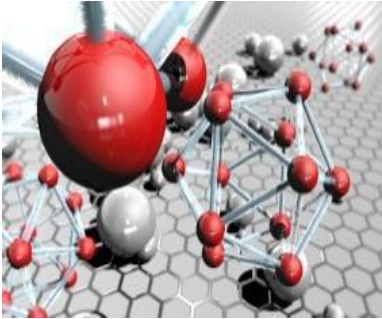
- **Obim**

Definiše problem, navodi fokus i granice mogućih akcija ali bez detalja o specifičnim pristupima

- **Očekivani uticaj**

Opisuje ključne elemente onoga što se očekuje da bude postignuto u vezi sa specifičnim izazovima

Izazov NMP



Bridging the gap between nanotechnology research and markets

- Addresses 3 of key European nano-enabled industrial value chains :
 - Lightweight multifunctional materials and sustainable composites
 - Structures surfaces
 - Functional fluids
 - SMEs invited to participate
- Expected activities :
Deployment and market introduction by scaling up lab experience to industrial scale
and by demonstrating viability of variety of manufacturing technologies

IZAZOV NMP - *Bridging the gap between nanotechnology research and markets*

- *NMP 1: Open access pilot lines for cost-effective nanocomposites, [RIA](#)*
- *NMP 4: High definition printing of multifunctional materials, [IA](#)*
- *NMP 5: Industrial scale production of nanomaterials for printing applications, [IA](#)*

Izazov NMP



Nanotechnology and Advanced Materials for more effective Healthcare

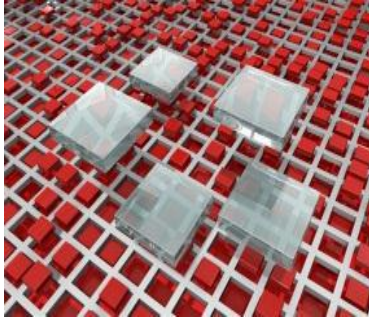
Support **more effective therapies** in health care for important diseases.

- ☐ Required development : reach point where they can be considered **fit for purpose** in preparation of, but not including, clinical trial stages.
- ☐ Gender issues important : technologies and innovations should suit both women and men.

Izazov NMP - Nanotechnology and Advanced Materials for more effective Healthcare

- *NMP 8: Scale-up of nanopharmaceuticals production, [RIA](#)*
- *NMP 9: Networking of SMEs in the nano-biomedical sector, [CSA](#)*
- *NMP 10: Biomaterials for the treatment of diabetes mellitus, [RIA](#)*

Izazov NMP



Nanotechnology and Advanced Materials for low-carbon energy technologies and Energy Efficiency

- ☐ Support EU objectives to increase use of **renewable energy sources** and improve **energy efficiency**
- ☐ Demonstrate **technology readiness** for further take-up by societal challenge
- ☐ Contributions to Materials Roadmap Enabling Low Carbon Energy Technologies
- ☐ Time to market should be assessed with view of contributing to **EU2020 targets**

Izazov NMP - *Nanotechnology and Advanced Materials for low-carbon energy technologies and Energy Efficiency*

- *NMP 13: Storage of energy produced by decentralised sources, [RIA](#)*
- *NMP 17: Post-lithium ion batteries for electric automotive applications (Green Vehicles PPP), [RIA](#)*

Izazov NMP



Exploiting the cross-sector potential of Nanotechnologies and Advanced materials to drive competitiveness and sustainability

- Boosting European **industry competitiveness** and contributing to a **sustainable economy**
- Enabling **multi-sectorial potential**, by developing and advancing technological readiness of solutions with break-through potential.
- **International cooperation** particularly appropriate.

Izazov NMP - *Exploiting the cross-sector potential of Nanotechnologies and Advanced materials to drive competitiveness and sustainability*

- *NMP 18: Materials solutions for use in the creative industry sectors, IA*
- *NMP 20: Widening materials models, RIA*
- *NMP 21: Materials based solutions for the protection or preservation of European cultural heritage, IA*
- *NMP 25: Accelerating the uptake of NMP technologies by SMEs, SME Instrument (70%)*

Izazov NMP



Safety of nanotechnology-based applications and support for the development of regulation

- **Risk management** to become integral part of supply chain
- All projects should align with the **EU Nanosafety Cluster** and other international activities
- **International cooperation** encouraged, in particular with leading nanotechnology developing Nations (US, Canada, Australia, Korea, Japan, China, Brazil)
- **Responsible governance** determining for future impact of nanotechnologies on society and economy (KET-support)

Izazov NMP - *Safety of nanotechnology-based applications and support for the development of regulation*

- *NMP 26: Joint EU & MS activity on the next phase of research in support of regulation “NANOREG II”, [RIA](#)*
- *NMP 27: Coordination of EU and international efforts in safety of nanotechnology, [CSA](#)*
- *NMP 28: Assessment of environmental fate of nanomaterials, [RIA](#)*

Izazov NMP



Addressing generic needs in support of governance, standards, models, and structuring in nanotechnology, advanced materials and advanced manufacturing and processing

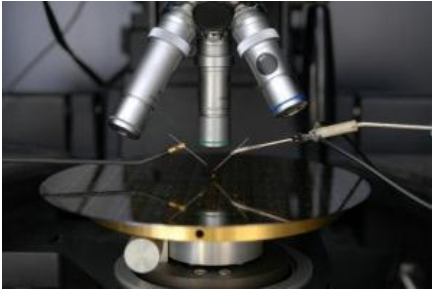
Addressing general, structural needs in areas incl.

- ☐ Infrastructure,
- ☐ metrology and standards,
- ☐ skills and networking,
- ☐ dissemination and communication,
- ☐ business models
- ☐ Other funding sources such as structural funds, are vital
- ☐ Proactive approach towards international collaboration

Izazov NMP - Addressing generic needs in support of governance, standards, models, and structuring in nanotechnology, advanced materials and advanced manufacturing and processing

- *NMP 31: Novel visualisation tools for enhanced nanotechnology awareness, CSA*
- *NMP 33: The Materials “Common House”, CSA*
- *NMP 34: Networking and sharing of best practices in management of new advanced materials through “eco-design”, CSA*
- *NMP 35: Business models with new supply chains for sustainable customer-driven small series production, IA*
- *NMP 36: Facilitating knowledge management, networking and coordination in NMP, CSA*
- *NMP 38: Presidency events, CSA*
- *NMP 39: Support for NCPs, CSA*

Izazov FoF



Factories of the Future (FoF PPP)

Aim: help EU manufacturers (incl. SMEs) to adapt to global competitive pressures

- ☐ **How:** developing necessary key enabling technologies across broad range of sectors
- ☐ Meet increasing **global consumer demand** for greener, more customised and higher quality products
- ☐ Transition to **demand-driven industry** with lower waste and energy consumption
- ☐ Activities :
 - ☐ Industry-led R&D projects (incl. Demo activities)
 - ☐ Cross-sectoral, addressing needs of SMEs
 - ☐ Contribution from ICT part (one topic in 2014)

Izazov FoF - *Factories of the Future (FoF PPP)*

- *FoF 1: Process optimisation of manufacturing assets, IA & CSA*
- *FoF 2: Manufacturing process for complex structures and geometries with efficient use of material, RIA*
- *FoF 3: Global energy and other resources efficiency in manufacturing enterprises, RIA*
- *FoF 4: Developing smart factories that are attractive to workers, IA*
- *FoF 5: Innovative product-service design using manufacturing intelligence, RIA*
- *FoF 6: Symbiotic human-robot collaborations for safe and dynamic multimodal manufacturing systems, IA*
- *FoF 7: Support for the enhancement of the impact of FoF PPP projects, CSA*

Izazov SPIRE



Sustainable Process Industries (SPIRE PPP)

Resource efficiency essential factor in industry

- General goal: **optimise industrial processing, reducing energy & resources consumption, minimising waste**

- Specific goals:

- reduction in **fossil energy intensity** of up to 30% from current levels by 2030.

- reduction of up to 20% in **non-renewable, primary raw material intensity** compared to current levels by 2030.

- reduction of **greenhouse gas emissions** by 20% below 1999 levels by 2020, further reductions up to 40% by 2030 and at least 80% by 2050.

Izazov SPIRE - Sustainable Process Industries (SPIRE PPP)

- ☐ *SPIRE 1: Integrated process control, RIA*
- ☐ *SPIRE 2: Adaptable industrial processes allowing use of renewables as flexible feedstock for chemical and energy applications, IA*
- ☐ *SPIRE 3: Improved downstream processing of mixtures in process industries, IA*
- ☐ *SPIRE 4: Methodologies, tools and indicators for cross sectoral sustainability assessment of energy and resource efficient solutions in the process industry, CSA*

- ☐ *EE 18: New technologies for utilization of heat recovery in large industrial systems, considering the whole energy cycle from the heat production to the delivery and end use, IA (SC 3)*
- ☐ *LCE 2: Developing the next generation technologies of renewable electricity and heating/cooling: solar cooling systems, RIA (SC 3)*
- ☐ *Waste 1: Moving towards a circular economy through industrial symbiosis, IA (SC 5)*

Izazov EeB



Energy-efficient Buildings (EeB PPP)

- Drive creation of **high-tech building industry** - Turning **energy efficiency** into **sustainable business** - Fostering EU **competitiveness in construction sector** on global level
 - ☐ Reduce energy consumption & CO² emissions in existing and new buildings.
 - ☐ Effective integration of key technologies into construction operations for sustainable, long-term competitiveness.
 - ☐ Contributes to EU industrial leadership and grand societal challenges
 - ☐ Participation of public authorities, asset for some projects as owners of large part of EU building stock.

Izazov EeB - *Energy-efficient Buildings (EeB PPP)*

- *EeB 1: Materials for building envelope, IA*
- *EeB 2: Adaptable envelopes integrated in building refurbishment projects, RIA*
- *EeB 3: Development of new self-inspection techniques and quality check measures for efficient construction processes, RIA*
- *EeB 4: Support for the enhancement of the impact of EeB PPP projects, CSA*
- *EE 1: Manufacturing of prefabricated modules for renovation of buildings, IA (SC 3)*
- *EE 3: Energy strategies and solutions for deeper renovation of historic buildings, RIA (SC 5)*

Budžet

H2020 funding	NMP RTD	ICT CNECT	Transport RTD + CNECT	Energy RTD + ENER	Environment RTD	Total ME
FoF	700	450	-	-	-	1,150
EeB	400	-	-	75+75	50	600
EGVI	70	-	600+80	-	-	750
SPIRE	700	-	-	50+50	100	900
TOTAL	1870	450	680	250	150	3,340

Objavljeni Pozivi (*Participant Portal*)

Publication: 11 December 2013

Deadlines (2014 topics):

- FoF, EeB, SPIRE calls: **20/03/2014** (single stage)
- NMP call, nano pilot lines / CSAs: **06/05/2014** (single stage)
- NMP call, other topics: **06/05/2014** (1st stage) / **07/10/2014** (2nd stage)
- Biotechnology call: **12/03/2014** (1st stage) / **26/06/2014** (2nd stage)
- SME Instrument:

Phase 1 **18/06, 24/09, 17/12/2014;**

Phase 2 **09/10, 17/12/2014**

INFO

- Horizon 2020:
<http://www.ec.europa.eu/research/horizon2020>
- Participant Portal:
<http://ec.europa.eu/research/participants/portal/page/home>
- Ministarstvo prosvete, nauke i tehnološkog razvoja
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