TÜBİTAK
Uluslararası İşbirliği Daire Başkanlığı

Ufuk Avrupa Programı
Dijital, Endüstri ve Uzay Kümesi
Endüstri Alanı

Dr. Hale AY
Ulusal İrtibat Noktası

Ufuk Avrupa Programı

Horizon Europe

Çözüm gerektiren güçlüklerin merkezde olduğu yaklaşımlar birlikte izleniyor

Nitelikli Bilgi, Nitelikli İnsan

Çözüm Gerektiren Güçlükler

Birlikte Geliştirme (Co-Creation)

Bilimsel Mükemmeliyet

- Avrupa Araştırma Konseyi
- MSCA Eylemleri
- Altyapılar

Küresel Sorunlar ve Endüstriyel Rekabet

- Sağlık
- Kültür, yaratıcılık ve kapsayıcı toplumlar
- Sivil güvenlik
- Dijital, endüstri ve uzay
- İklim, enerji ve mobilite
- Gıda, biyoekonomi, doğal kaynaklar, tarım ve Çevre

Ortak Araştırma Merkezi

Yenilikçi Avrupa

- Avrupa Yenilik Konseyi
- Avrupa Yenilik Ekosistemi
- Avrupa Teknoloji ve Yenilik Enstitüsü

Katılımın Yaygınlaştırılması ve ERA'nın Güçlendirilmesi

- Mükemmeliyetin Paylaşımı ve Yayılımı
- Avrupa Araştırma & Yenilik Sisteminin Reformu ve Geliştirilmesi

Küme 4: Dijital, Endüstri ve Uzay

Genel Amacı

AB endüstrisinin rekabet üstünlüğünü ve özerkliğini garantiye almak için endüstrinin daha fazla dijitalleşmesini sağlamak, iklim-nötr, döngüsel ve temiz endüstriyi teşvik etmek

Desteklenecek Konular

- Dijital kilit teknolojiler
- Veri, yapay zeka ve robotik
- Yeni nesil internet
- Uydu haberleşmesi
- Yer gözlemi
- Uzay ulaşımı
- İmalat teknolojileri
- İleri malzemeler
- Döngüsel endüstriler
- Düşük karbonlu ve temiz endüstriler
- Ham maddeler

Bütçe

- **15,3 Milyar Avro (%16)**

Öngörülen Çağrı Takvimi

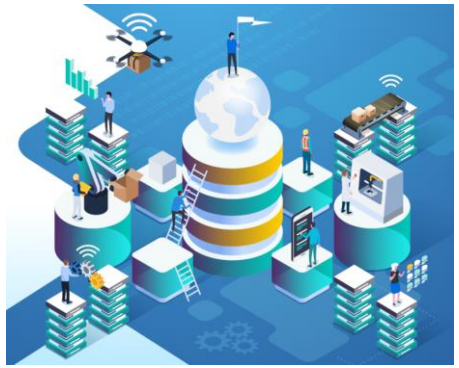
TWIN-TRANSITION, RESILIENCE Çağrıları
08.12.2022-20.04.2023 (Tek aşamalı)
08.12.2022-07.03.2023 (1.aşama), 05.10.2023 (2.aşama)

DATA, DIGITAL EMERGING, HUMAN Çağrıları
08.12.2022-29.03.2023 (Tek aşamalı)

SPACE Çağrıları
22.12.2022- 28.03.2023 (Tek aşamalı)

İlgili UİN İletişim

- **Dr. Hale AY**
- **Dr. Özlem GEZİCİ KOÇ**
- **H. Burak TİFTİK**
- **Erencan BAL (ncpdis@tubitak.gov.tr)**



Küme 4 Hedefleri

1. İklim nötr, döngüsel ve dijitalleştirilmiş üretim
2. Dayanıklı endüstri için kilit stratejik değer zincirlerinde artan özerklik

3. Dünya lideri veri ve bilgi işlem teknolojileri
4. Rekabet ve yeşil mutabakata uygunluk için dijital ve gelişmekte olan teknolojiler

5. Küresel uzay-tabanlı altyapıların, hizmetlerin, uygulamaların ve verilerin geliştirilmesinde, konuşlandırılmasında ve kullanılmasında açık stratejik özerklik

6. Dijital ve endüstriyel teknolojilerin insan merkezli ve etik gelişimi

Avrupa Yeşil Mutabakatı, 11 Aralık 2019

"Avrupa Birliği'ni 2050 yılında net sera gazı emisyonlarının olmadığı ve ekonomik büyümenin kaynak kullanımından ayrıştırıldığı, modern, kaynak-verimli ve rekabetçi bir ekonomiye sahip, adil ve müreffeh bir topluma dönüştürmeyi amaçlayan yeni bir büyüme stratejisidir."

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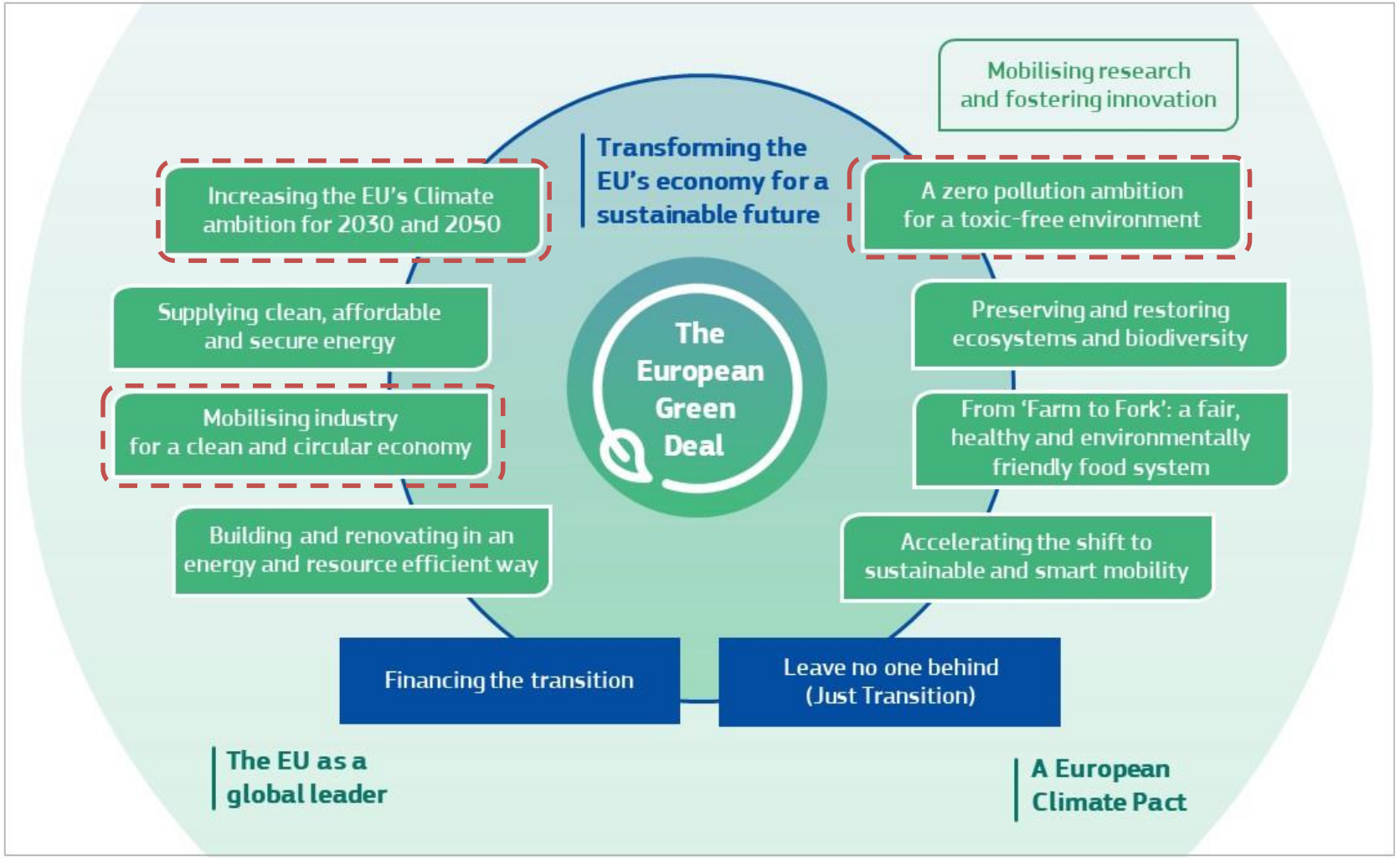
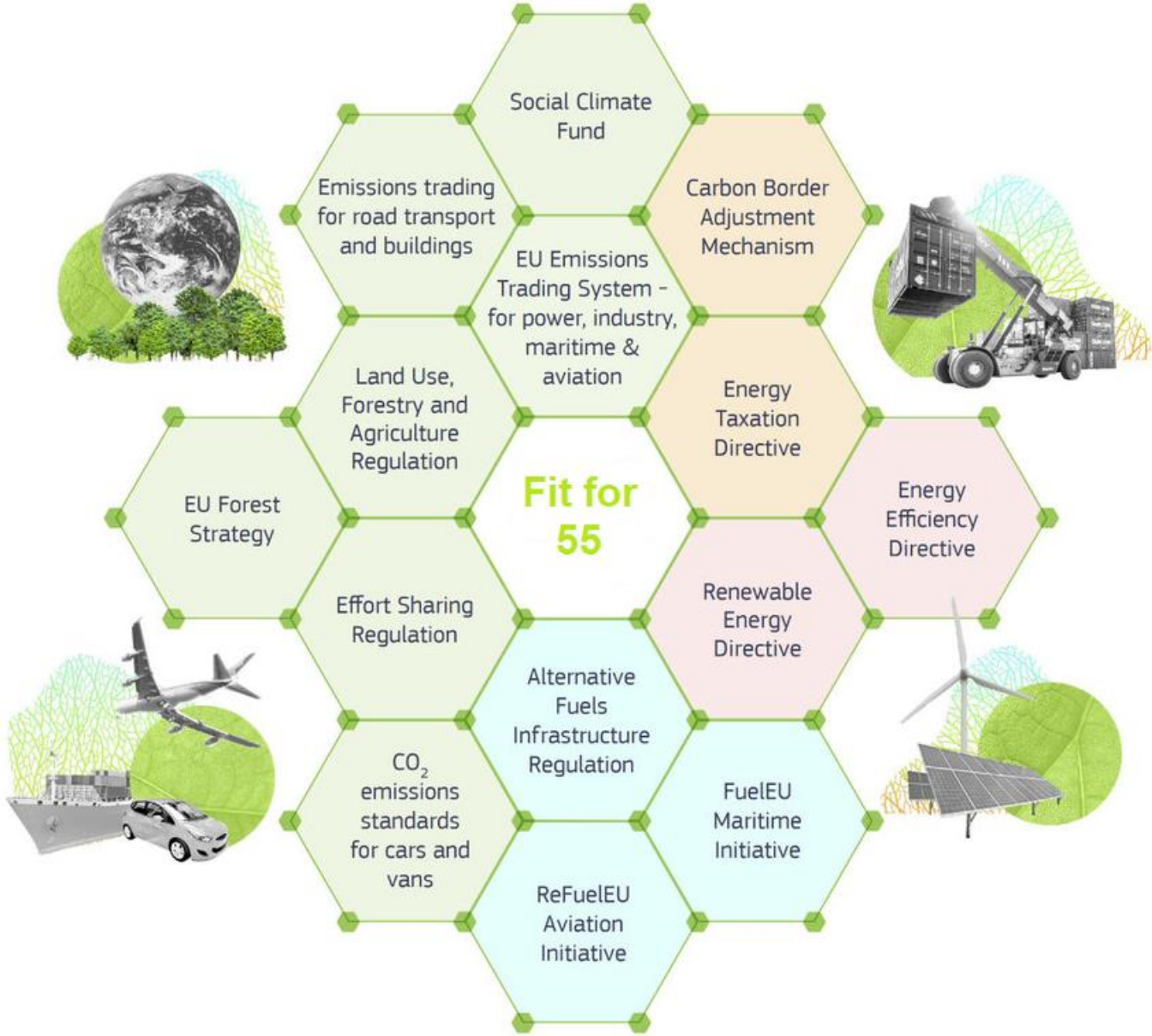


55'e Uyum Paketi, 14 Temmuz 2021

Avrupa'nın 2030 İklim Hedefi'ni Hızlandırma Planı, 17 Eylül 2020

55'e Uyum Paketi, 14 Temmuz 2021



Avrupa için Yeni Sanayi Stratejisi, 10 Mart 2020

GREEN TRANSITION

The European Green Deal is Europe's new growth strategy.

At the heart of it is the goal of becoming the world's **first climate-neutral continent** by 2050.

GLOBAL COMPETITIVENESS

The right conditions are needed for entrepreneurs to turn their ideas into products and services and for companies of all sizes to thrive and grow.

The EU must leverage the impact, the size and the integration of its single market to make its voice count in the world and **set global standards**.

DIGITAL TRANSITION

Digital technologies are changing the face of industry and the way we do business.

They allow **economic players** to be more proactive, provide workers with new skills and support the decarbonisation of our economy.

Achieving industrial transformation

Yeni Döngüsel Ekonomi Eylem Planı, 11 Mart 2020

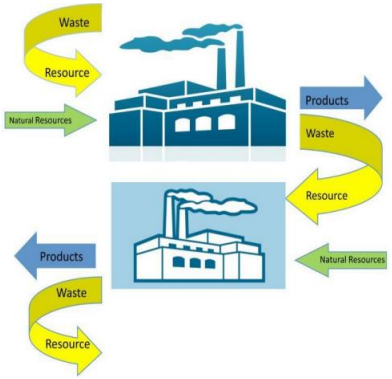
SUSTAINABLE PRODUCT POLICY FRAMEWORK

Up to **80%** of products' environmental impacts are determined at the design phase

Designing sustainable products

Public authorities' purchasing power represents **14%** of EU GDP

Empowering consumers and public buyers



Circularity in production processes

KEY PRODUCT VALUE CHAINS

Electronics and ICT

Batteries and vehicles

Packaging

Plastics

Textiles

Construction and buildings

LESS WASTE MORE VALUE

MATERIALS 2030 MANIFESTO, 7 Şubat 2022

New Technology & Innovation: resources and processes optimization (energy, production, performance increase), materials data, digital twins & passports, big database, AI, blockchain, mass customization, sensoring, new biotechnology methods

New Policies: Harmonized norms & standards, certification schemes, Eco-label compliance on all products levels, insure sovereignty & EU autonomy, lifecycle assessment

1 Healthcare & medicine	2 Sustainable Constructions	3 New Energy	4 Sustainable Transportation	5 Home & personal care	6 Sustainable Packaging	7 Sustainable agriculture	8 Sustainable Textiles	9 Electronics appliance
Renewables & recyclable materials	Renewable energy & efficiency	Renewable energy & efficiency	Renewable energy & efficiency	Renewables & recyclable materials	Renewables & recyclable materials	Carbon capture & storage	Renewables & recyclable materials	Renewables & recyclable materials
Alternative active ingredients	Design for circularity	Alternative active ingredients	Sustainable additives & catalysts	Alternative active ingredients	Sustainable additives & catalysts	Sustainable additives & catalysts	Alternative active ingredients	Renewable energy & efficiency
Design for circularity	Sustainable additives & catalysts	Carbon capture & storage	Advanced surfaces	Sustainable additives & catalysts	Alternative active ingredients	Alternative active ingredients	Design for circularity	Design for circularity
Lightweight materials	Renewables & recyclable materials	Renewables & recyclable materials	Renewables & recyclable materials	Lightweight materials	Carbon capture & storage	Lightweight materials	Advanced surfaces	Alternative active ingredients
	Advanced surfaces	Advanced surfaces	Lightweight materials	Advanced surfaces	Design for circularity	Advanced surfaces	Renewable energy & efficiency	Advanced surfaces
	Lightweight materials	Sustainable additives & catalysts	Design for circularity	Renewable energy & efficiency		Renewables & recyclable materials		Sustainable additives & catalysts
	Alternative active ingredients	Design for circularity		Design for circularity				Lightweight materials
		Lightweight materials						

Circularity of materials
Transparency & trackability
Zero pollution & nonharmful
Climate contribution

Küme 4 – Endüstri Alanı Hedefleri, Hedef 1

Hedef 1: "İklim nötr, döngüsel ve dijitalleştirilmiş üretim"

- Manufacturing Industry
- Energy Intensive Process Industries
- Accelerating disruptive change in construction

https://ec.europa.eu/digital-single-market/en/news/info-session-horizon-2020-artificial-intelligence-manufacturing

JRC Reference Report, Best Available Techniques (BAT) Reference Document for Iron and Steel Production Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and) Control

JRC Science for Policy Report: Digital Transformation in Transport, Construction, Energy, Government and Public Administration

Küme 4 - Hedef 1: "İklim nötr, döngüsel ve dijitalleştirilmiş üretim"

MANUFACTURING INDUSTRY

TWIN-TRANSITION-01-02: High-precision OR complex product manufacturing – potentially including the use of photonics (IA)
TWIN-TRANSITION-01-04: Factory-level and value chain approaches for remanufacturing (IA)
TWIN-TRANSITION-01-07: Achieving resiliency in value networks through modelling and Manufacturing as a Service (RIA)
TWIN-TRANSITION-01-08: Foresight and technology transfer for Manufacturing as a Service (CSA)

https://ec.europa.eu/digital-single-market/en/news/info-session-horizon-2020-artificial-intelligence-manufacturing

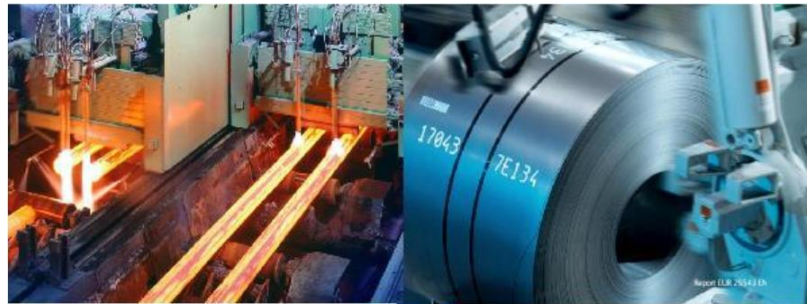
https://digital-strategy.ec.europa.eu/en/consultations/white-paper-artificial-intelligence-european-approach-excellence-and-trust

Küme 4 - Hedef 1: "İklim nötr, döngüsel ve dijitalleştirilmiş üretim"

ENERGY INTENSIVE PROCESS INDUSTRIES

TWIN-TRANSITION-01-31: Energy efficiency breakthroughs in the process industries (RIA)
TWIN-TRANSITION-01-33: Electrification of high temperature heating systems (IA)
TWIN-TRANSITION-01-36: Modelling industry transition to climate neutrality, sustainability and circularity (RIA)
TWIN-TRANSITION-01-37: Hubs for circularity for near zero emissions regions applying industrial symbiosis and cooperative approach to heavy industrialized clusters and surrounding ecosystems (IA)
TWIN-TRANSITION-01-40: Sustainable and efficient industrial water consumption: through energy and solute recovery (RIA)
TWIN-TRANSITION-01-42: Circular economy in process industries: Upcycling large volumes of secondary resources (RIA)
TWIN-TRANSITION-01-43: Low carbon-dioxide emission technologies for melting iron-bearing feed materials OR smart carbon usage and improved energy & resource efficiency via process integration (IA)
TWIN-TRANSITION-01-45: Circular economy solutions for the valorisation of low-quality scrap streams, materials recirculation with high recycling rate, and residue valorisation for long term goal towards zero waste (RIA)

https://ec.europa.eu/environment/industry/stationary/index.htm



JRC Scientific and Policy Reports, Prospective Scenarios on Energy Efficiency and CO2 Emissions in the EU Iron & Steel Industry

Küme 4 - Hedef 1: "İklim nötr, döngüsel ve dijitalleştirilmiş üretim"

A NEW WAY TO BUILD, ACCELERATING DISRUPTIVE CHANGE IN CONSTRUCTION

TWIN-TRANSITION-01-11: Intelligent data acquisition and analysis of materials and products in existing built works (RIA)

JRC Science for Policy Report, Digital Transformation in Transport, Construction, Energy, Government and Public Administration, EUR 29782 EN, Publications Office of the European Union, Luxembourg, 2019

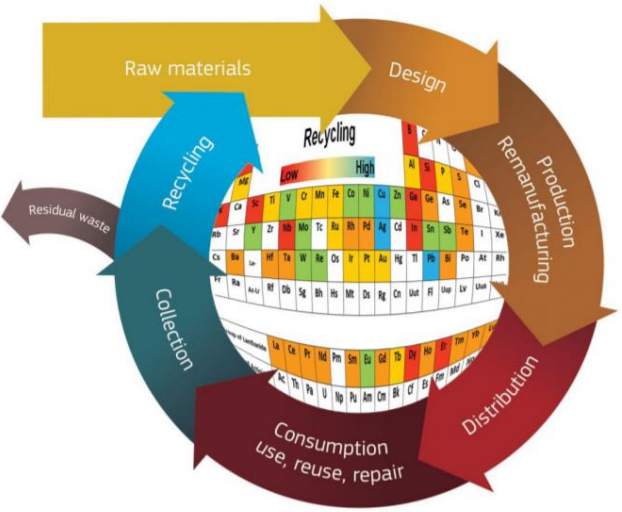
JRC Science for Policy Report, Digital Transformation in Transport, Construction, Energy, Government and Public Administration, EUR 29782 EN, Publications Office of the European Union, Luxembourg, 2019

JRC Science for Policy Report, Digital Transformation in Transport, Construction, Energy, Government and Public Administration, EUR 29782 EN, Publications Office of the European Union, Luxembourg, 2019

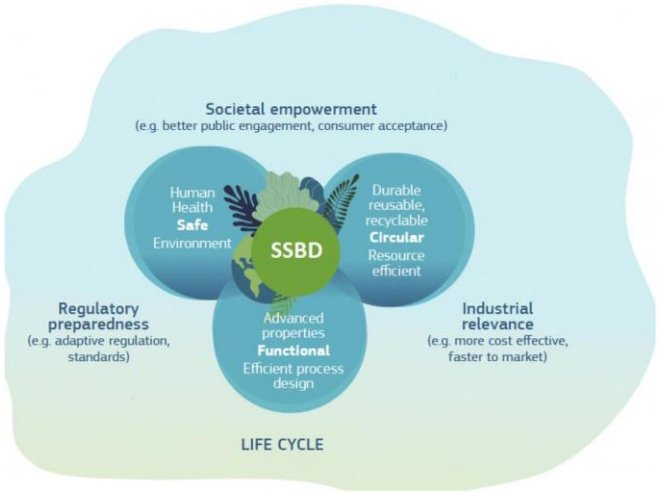
Küme 4 – Endüstri Alanı Hedefleri, Hedef 2

Hedef 2: "Dayanıklı endüstri için kilit stratejik değer zincirlerinde artan özerklik"

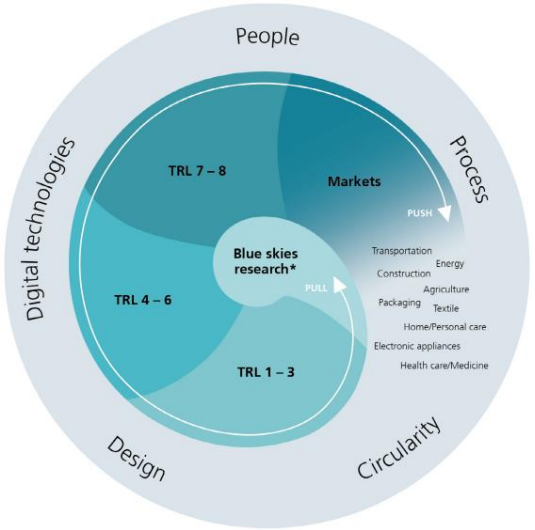
- Raw Materials for EU open strategic autonomy
- Safe and Sustainable by Design Chemicals and Materials
- Strategic innovation markets driven by advanced materials
- Improving the resilience of EU businesses, esp. SMEs and start-ups



JRC Science for Policy Report, Critical raw materials and the circular economy, December 2017



https://joint-research-centre.ec.europa.eu/jrc-news/contributing-greener-eu-safe-and-sustainable-nanomaterials-design-stage-2021-04-19_en



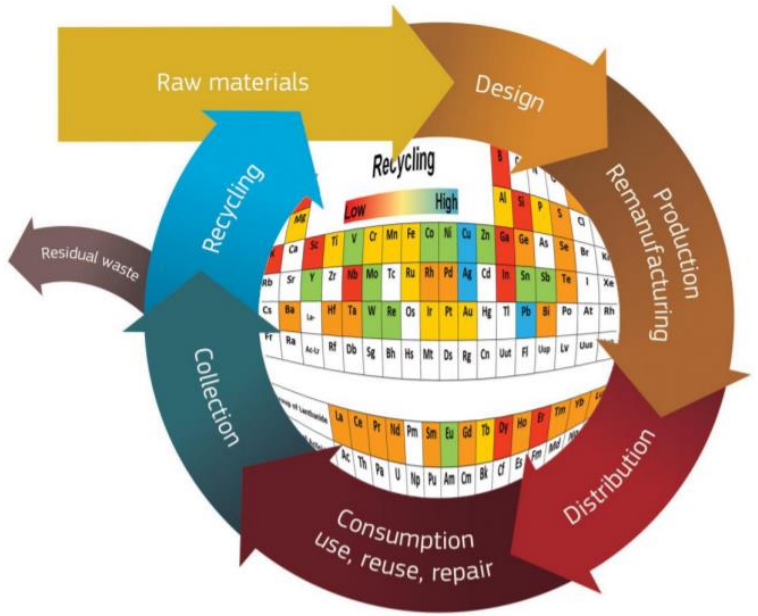
MATERIALS 2030 MANIFESTO Systemic Approach of Advanced Materials for Prosperity – A 2030 Perspective

https://clustercollaboration.eu/news/eu5m-call-aims-help-smes-adopt-new-technologies

Küme 4 - Hedef 2: "Dayanıklı endüstri için kilit stratejik değer zincirlerinde artan özerklik"

RAW MATERIALS FOR EU OPEN STRATEGIC AUTONOMY AND SUCCESSFUL TRANSITION TO A CLIMATE-NEUTRAL AND CIRCULAR ECONOMY

RESILIENCE-01-02: Innovative technologies for sustainable and decarbonised extraction (RIA)
RESILIENCE-01-03: Technologies for processing and refining of critical raw materials (IA)
RESILIENCE-01-05: Recycling technologies for critical raw materials from EoL products (IA)
RESILIENCE-01-06: Earth Observation platform, products and services for raw materials (IA)
RESILIENCE-01-07: Expert network on Critical raw materials (CSA)
RESILIENCE-01-09: Recyclability and resource efficiency of Rare Earth based magnets (IA)

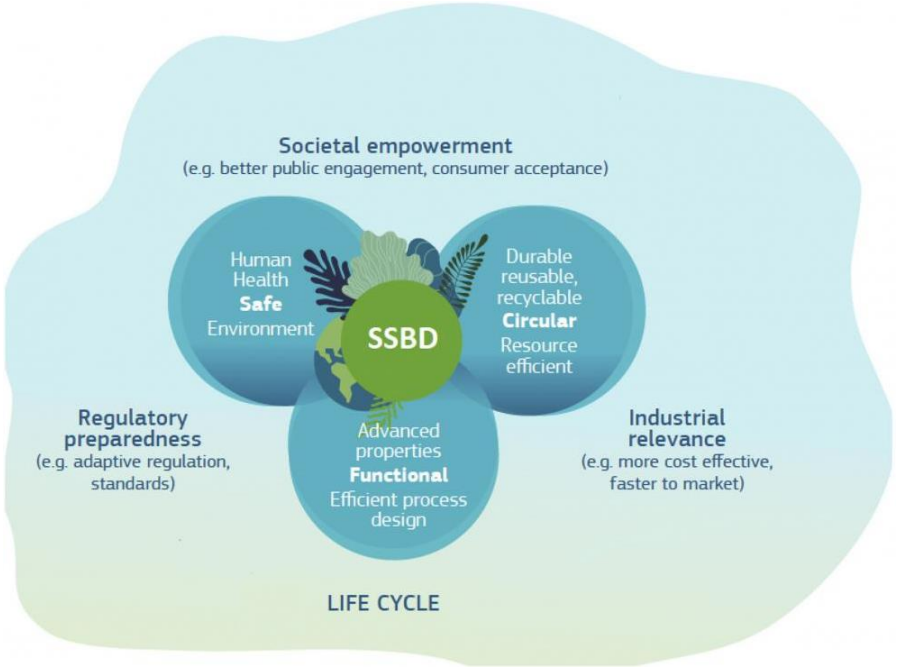


JRC Science for Policy Report, Critical raw materials and the circular economy, December 2017

Küme 4 - Hedef 2: "Dayanıklı endüstri için kilit stratejik değer zincirlerinde artan özerklik"

SAFE AND SUSTAINABLE BY DESIGN (SSBD) CHEMICALS AND MATERIALS

RESILIENCE-01-21: Innovative methods for safety and sustainability assessments of chemicals and materials (RIA)
RESILIENCE-01-22: Integrated approach for impact assessment of safe and sustainable chemicals and materials (RIA)
RESILIENCE-01-23: Computational models for the development of safe and sustainable by design chemicals and materials (RIA)

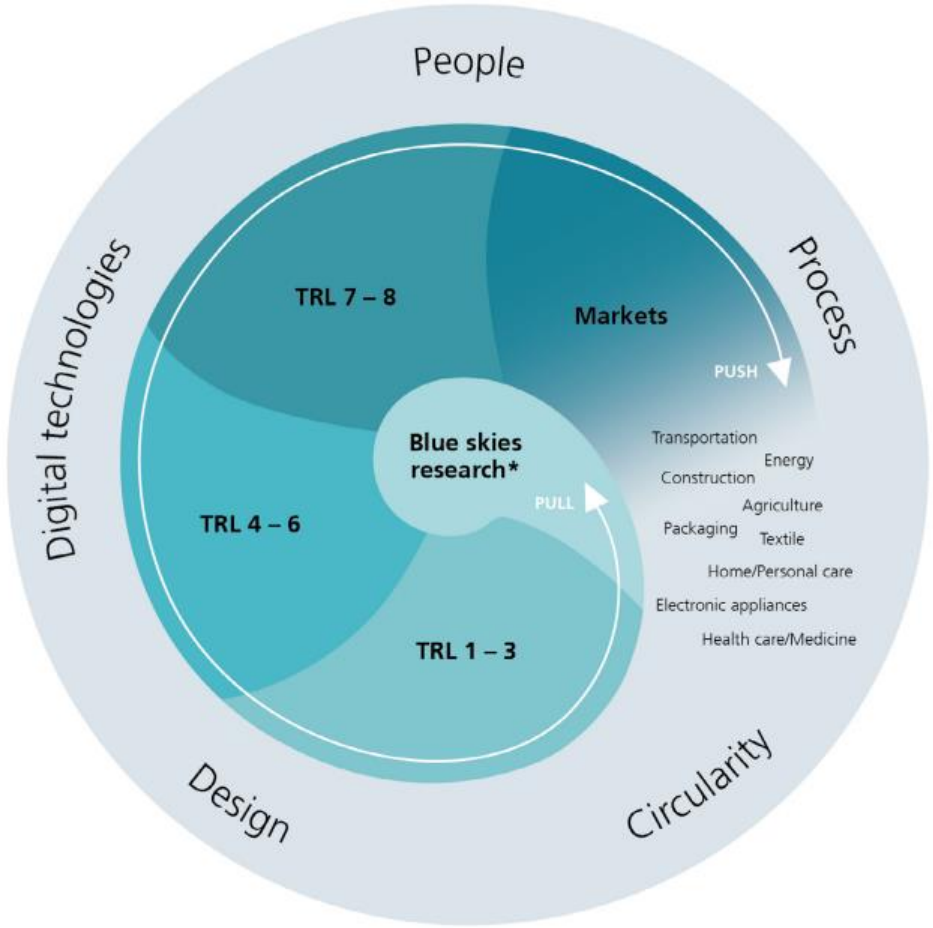


https://joint-research-centre.ec.europa.eu/jrc-news/contributing-greener-eu-safe-and-sustainable-nanomaterials-design-stage-2021-04-19_en

Küme 4 - Hedef 2: "Dayanıklı endüstri için kilit stratejik değer zincirlerinde artan özerklik"

STRATEGIC INNOVATION MARKETS DRIVEN BY ADVANCED MATERIALS

RESILIENCE-01-32: Bioinspired and biomimetic materials for sustainable textiles (IA)
RESILIENCE-01-33: Smart sensors for the Electronic Appliances market (RIA)
RESILIENCE-01-34: Advanced (nano and bio-based) materials for sustainable agriculture (RIA)
RESILIENCE-01-37: Advanced materials for magnets in applications for the New Energies Market (RIA)
RESILIENCE-01-39: Coordination and knowledge sharing across materials development communities (CSA)



Systemic Approach to Sustainable Advanced Materials Solutions 2030, Materials 2030 Manifesto

Küme 4 - Hedef 2: "Dayanıklı endüstri için kilit stratejik değer zincirlerinde artan özerklik"

IMPROVING THE RESILIENCE OF EU BUSINESSES, ESPECIALLY SMES AND STARTUPS

RESILIENCE-01-42: Boosting generation and diffusion of advanced technologies in SMEs based on a supply chain model (CSA)
2023-RESILIENCE-01-44: Affordable Housing District Demonstrator (IA)

https://clustercollaboration.eu/news/eu5m-call-aims-help-smes-adopt-new-technologies

JRC Science for Policy Report: One-stop shops for residential building energy renovation in the EU, Publications Office of the European Union, Luxembourg, 2021

Ufuk Avrupa Programı Ortaklıkları

Types of partnership

The aim of European Partnerships with EU and associated countries, the private sector, foundations and other stakeholders is to deliver on global challenges and modernise industry.

The Horizon Europe proposal lays down the conditions and principles for establishing European Partnerships. There are 3 types.

Co-Programmed European Partnerships

These are partnerships between the Commission and mostly private (and sometimes public) partners.

A memorandum of understanding is the basis for the cooperation in these partnerships, as it specifies the partnership's objectives, the commitments from both sides and the governance structure.

Co-funded European Partnerships using a programme co-fund action

These are partnerships involving EU countries, with research funders and other public authorities at the core of the consortium.

Institutionalised European Partnerships

These are partnerships in the field of research and innovation between the Union, EU member states and/or industry.

These partnerships require legislative proposals from the Commission and are based on a Council Regulation (Article 187) or a Decision by the European Parliament and Council (Article 185) EN. They are implemented by dedicated structures created for that purpose.

Partnership candidates and contact details

The current list of candidate European Partnerships is found in Annex 7 of the Orientations towards the first Strategic Plan for Horizon Europe EN.

Results from the structured consultation of EU countries are summarised in the report European Partnerships under Horizon Europe: results of the structured consultation of Member States

The partnership candidates are collected across 5 areas.

Full details of candidates, draft proposal documents and contact details below.

- health EN
- digital, industry and space EN
- climate, energy and mobility EN
- food, bioeconomy, natural resources, agriculture and environment EN
- partnerships across themes EN

https://ec.europa.eu/info/horizon-europe-next-research-and-innovation-framework-programme/european-partnerships-horizon-europe_en

Ufuk Avrupa Programı Ortaklıkları

PILLAR II - Global challenges & European industrial competitiveness

CLUSTER 1: Health	CLUSTER 4: Digital, Industry & Space	CLUSTER 5: Climate, Energy & Mobility	CLUSTER 6: Food, Bioeconomy, Agriculture,...
Innovative Health Initiative	Key Digital Technologies	Clean Hydrogen	Circular Bio-based Europe
Global Health Partnership	Smart Networks & Services	Clean Aviation	Rescuing Biodiversity to Safeguard Life on Earth
Transforming Health Care Systems	High Performance Computing	Single European Sky ATM Research 3	Climate Neutral, Sustainable and Productive Blue Economy
Risk Assessment of Chemicals	European Metrology (Art. 185 of the TFEU)	Europe's Rail	Water4All "Water security for the planet"
ERA for Health	Artificial Intelligence, Data and Robotics	Cooperative, Connected and Automated Mobility (CCAM)	Animal Health and Welfare*
Rare Diseases*	Photonics	Batteries "Towards a competitive European industrial battery value chain"	Agroecology "Accelerating Farming Systems Transition"*
One Health / Antimicrobial Resistance*	Made in Europe	Zero-emission Waterborne Transport	Agriculture of Data*
Personalised Medicine*	Clean Steel - Low Carbon Steelmaking	Zero-emission Road Transport (2ZERO)	Safe and Sustainable Food Systems*
Pandemic Preparedness	Processes4Planet	People-centric Sustainable Built Environment (Built4People)	
	Globally Competitive Space Systems**	Clean Energy Transition	
		Driving Urban Transitions to a Sustainable Future	

PILLAR III – Innovative Europe

EIT (KNOWLEDGE & INNOVATION COMMUNITIES)	SUPPORT TO INNOVATION ECOSYSTEMS
InnoEnergy	Innovative SMEs
Climate	
Digital	
Food	
Health	
Raw Materials	
Manufacturing	
Urban Mobility	
Cultural and Creative Industries	

CROSS – PILLARS II and III

European Open Science Cloud (EOSC)

- Institutionalised Partnerships (Art 185 or 187 of the TFEU)
- Institutionalised Partnerships / EIT KICs
- Co-Programmed
- Co-Funded

"Made in Europe" Ortak-Programlama Ortaklığı

EFFRA
EUROPEAN FACTORIES OF THE FUTURE RESEARCH ASSOCIATION

Manufacturing community mobilised by EFFRA

PRIVATE PARTNER

European Commission

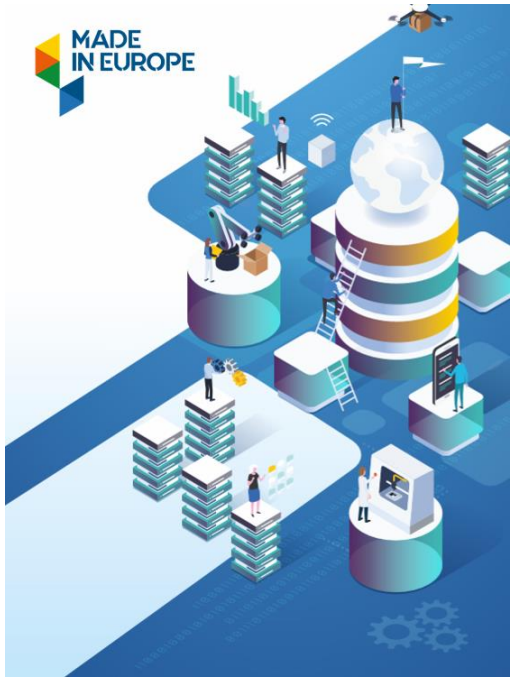
European Commission

PUBLIC PARTNER

Factories of the Future PPP (Horizon 2020)

Made in Europe Co-programmed Partnership (Horizon Europe)

PARTNERSHIP BOARD



Made in Europe General Objectives

A New Industrial Strategy for Europe (EU Policy):

1. European Leadership & manufacturing excellence

European Green Deal (EU Policy):

2. Circular and climate-neutral manufacturing

Europe fit for the digital age (EU Policy):

3. Digital transformation of manufacturing industry

Economy that works for people (EU Policy):

4. Attractive value-added manufacturing jobs

Made in Europe SRIA, https://www.effra.eu/sites/default/files/made_in_europe-sria.pdf

"Made in Europe" Ortak-Programlama Ortaklığı

Specific Objectives	Research & Innovation Objectives
1. Efficient, responsive and smart factories and supply chains	1. Zero-defect and zero-down-time high precision manufacturing, including predictive quality and non-destructive inspection methods 2. Manufacturing for miniaturisation and functional Integration 3. Scalable, reconfigurable and flexible first-time right manufacturing 4. Artificial intelligence for productive, excellent, robust and agile manufacturing chains 5. Advanced manufacturing processes for smart and complex products 6. Data 'highways' and data spaces in support of smart factories in dynamic value networks
2. Circular products & Climate-neutral manufacturing	1. Ultra-efficient, low energy and carbon-neutral manufacturing 2. De-manufacturing, re-manufacturing and recycling technologies for circular economy 3. Manufacturing with new and substitute materials 4. Virtual end-to-end life-cycle engineering and manufacturing from product to production lines, factories, and networks 5. Digital platforms and data management for circular product and production-systems life-cycles 6. Predictive Manufacturing capabilities & Logistics of the future
3. New integrated business, product-service and production approaches; new use models	1. Collaborative product-service engineering for costumer driven manufacturing value networks 2. Manufacturing processes and approaches near to customers or consumers 3. Transparency, trust and data integrity along the product and manufacturing life-cycle 4. Secure communication and IP management for smart factories in dynamic value networks
4. Human-centred and human-driven manufacturing innovation	1. Digital platforms and engineering tools supporting creativity and productivity of R&D processes 2. Improving human device interaction using augmented and virtual reality and digital twins 3. Human & technology complementarity and excellence in manufacturing 4. Manufacturing Innovation and change management 5. Technology validation and migration paths towards full industrial deployment of advanced manufacturing technologies by SMEs

Made in Europe SRIA, https://www.effra.eu/sites/default/files/made_in_europe-sria.pdf

"Processes4Planet" Ortak-Programlama Ortaklığı

European Cross-Sectoral association

PRIVATE PARTNER

European Commission

PUBLIC PARTNER

SPIRE PPP (Horizon 2020)

Processes4Planet Co-programmed Partnership (Horizon Europe)

PARTNERSHIP BOARD

Processes4Planet'in Hedefleri

1. Climate neutrality
   Net-zero emissions
2. Circularity
   Near zero landfilling and near zero water discharge
3. Competitive EU process industries

"Processes4Planet" Ortak-Programlama Ortaklığı

Innovation Area	Innovation Programme	
1. Integration of renewable energy and circular feedstocks as energy source	1a. Integration of renewable heat and electricity 1b. Integrating circular carbon into energy applications	1c. Hybrid fuel transition technologies 1d. Flexibility and demand response
2. Heat reuse	2a. Advanced heat reuse	
3. Electirification of thermal processes	3a. Heat pumps	3b. Electricity-based heating technologies
4. Electrically-driven processes	4a. Electrochemical conversion	4b. Electrically driven separation
5. Hydrogen integration	5a. Alternative hydrogen production routes 5b. Using hydrogen in industrial processes	5c. Hydrogen storage
6. CO_2 capture for utilisation	6a. Flexible CO_2 capture and purification technologies	
7. CO_2 utilization in minerals	7a. CO_2 utilisation in concrete production	7b. CO_2 and CO mineralisation to produce building materials
8. CO_2/CO utilisation in chemicals and fuels	8a. Artificial photosynthesis 8b. Catalytic conversion of CO_2 to chemicals/fuels	8c. Utilisation of CO_2 and CO as building block in polymers 8d. Utilisation of CO to chemicals/fuels
9. Energy and resource efficiency	9a. Next-gen catalysis	9b. Breakthrough efficiency improvement
10. Circularity of materials	10a. Innovative materials of the process industries 10b. Inherent recyclability of materials	10c. Upgrading secondary resources 10d. Wastewater valorisation
11. Industrial-urban symbiosis	11a. Demonstration of Industrial-Urban Symbiosis	
12. Circular regions	12a. European Community of Practice	12b. Development of Hubs for Circularity
13. Digitalisation	13a. Digital materials design 13b. Digital process development and engineering 13c. Digital plant operation	13d. Intelligent material and equipment monitoring 13e. Autonomous integrated supply chain management 13f. Digitalisation of industrial-urban symbiosis
14. Non-technological aspects	14a. Integration of non-technological aspects in calls	14b. Human resources, skills and labour market

Reference: Processes4Planet SRIA 2050, https://www.aspire2050.eu/sites/default/files/users/user85/p4planet_07.06.2022._final.pdf

"Clean Steel" Ortak-Programlama Ortaklığı

ESTEP
European Steel Technology Platform

+

European Commission
European Commission

→

CSP
The Clean Steel Partnership

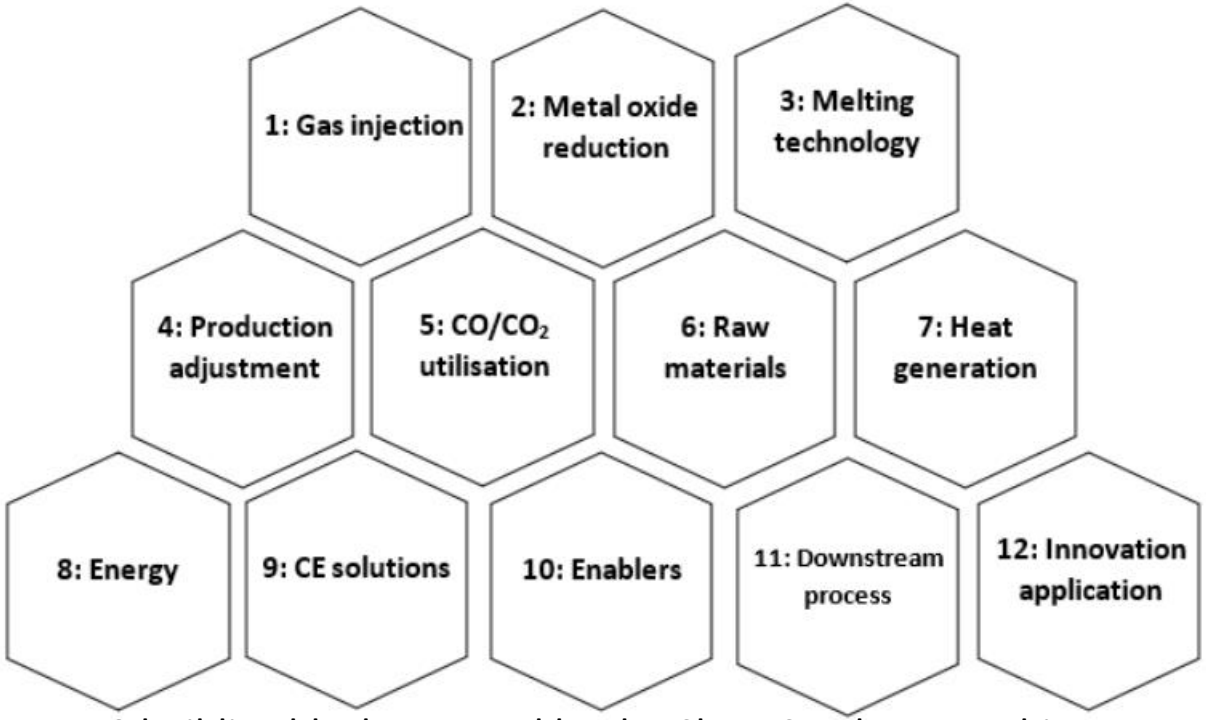
PRIVATE SIDE (on behalf of the entire European steel value chain community)

PUBLIC SIDE

PARTNERSHIP BOARD

General Objective

Develop technologies at TRL8 to reduce CO2 emissions stemming from EU steel production by 80-95% compared to 1990 levels by 2050, ultimately leading to climate neutrality



12 building blocks covered by the Clean Steel Partnership

Clean Steel SRIA, https://www.estep.eu/assets/Uploads/CSP-SRIA-Oct2021-clean.pdf

"Clean Steel" Ortak-Programlama Ortaklığı

Specific Objectives	Operational Objectives
1. Enabling steel production through carbon direct avoidance (CDA) technologies at a demonstration scale	1. Replacing carbon by renewable energy 2. Development of H_2-based reduction and/or melting processes 3. Electrolytic reduction
2. Fostering smart carbon usage (SCU-Carbon capture) technologies in steel making routes at a demonstration scale, thus cutting CO_2 emissions from burning fossil fuels in the existing steel production routes	1. Improving process integration with reduced use of carbon (e.g. gas injection in BF), upstream and downstream 2. Increasing the use of non-fossil carbon 3. Capturing CO_2 for CCU and/or CCS 4. Conditioning of metallurgical gases (containing CO_2, CO, CH_4, etc.) to meet specifications to finally produce chemical feedstock/alternative fuels
3. Developing deployable technologies to improve energy and resource efficiency (SCU - Process Integration)	1. Increasing the use of prereduced iron carriers 2. Developing technologies to reduce the energy required to produce steel
4. Increasing the recycling of steel scrap and residues, thus improving smart resources usage and further supporting a circular economy model in EU	1. Enhancing the recycling and reuse of industrial residues of the steel production process 2. Enhancing the recycling of steel scrap
5. Demonstrating clean steel breakthrough technologies contributing to climate-neutral steelmaking	1. Achieving TRL 8 by 2030 in most of the technology building blocks funded by the Partnership 2. Demonstrating clean steel breakthrough technologies by 2030 that enable at least a reduction in GHG emission compared to 1990 levels for similar plants
6. Strengthening the global competitiveness of the EU steel industry in line with the EU industrial strategy for steel	1. Creating a new market for 'clean steel' products 2. Contributing to the EU's efforts towards ensuring growth and jobs with long-term stability 3. Establishing EU steel industry as a leader in low-carbon steel and ensuring standardization and global market uptake of successful technologies developed in the EU 4. Fostering R&D collaboration between EU companies and science in the clean steel value chains 5. Upskilling steel workforce

Clean Steel SRIA, https://www.estep.eu/assets/Uploads/CSP-SRIA-Oct2021-clean.pdf

"Made in Europe" Ortak-Programlama Ortaklığı

EFFRA
EUROPEAN FACTORIES OF THE FUTURE RESEARCH ASSOCIATION

Manufacturing community mobilised by EFFRA

PRIVATE PARTNER

European Commission

European Commission

PUBLIC PARTNER

Factories of the Future PPP (Horizon 2020)

Made in Europe Co-programmed Partnership (Horizon Europe)

PARTNERSHIP BOARD

Arçelik, Coşkunöz Kalıp Makina, Ford Otosan, İSO, Sabancı Ünv, Teknopar

ASPIRE

European Cross-Sectoral association

PRIVATE PARTNER

European Commission

European Commission

PUBLIC PARTNER

SPIRE PPP (Horizon 2020)

Processes4Planet Co-programmed Partnership (Horizon Europe)

PARTNERSHIP BOARD

Arçelik, Borçelik, Hayat Kimya, IKMIB, Sabancı Ünv, SOCAR Türkiye, TALSAD, TÜPRAŞ

Küme 4 Endüstri Alanı 2021 Yılı Çağrılarındaki Başarılarımız

25 Türk Kuruluşunun 17 Farklı Projesine Avrupa Komisyonundan Toplam 7.9 Milyon Avro Hibe

"Hedef 1: İklim nötr, döngüsel ve dijital üretim"

• **Teknopar Endüstriyel Otomasyon San. ve Tic. A.Ş.** ve **Silverline Endüstri ve Tic. A.Ş.**: AI Powered human-centred Robot Interactions for Smart Manufacturing

• **Simularge Bilisim ve Mühendislik Teknolojileri A.Ş.**, **Siemens San. ve Tic. A.Ş.** ve **Arçelik A.Ş.**: Non-Destructive Inspection Services for Digitally Enhanced Zero Waste Manufacturing

• **Arçelik A.Ş.**: Boosting the adoption of Ultrashort Pulsed Laser large scale structuring with an agile, dexterous and efficient manufacturing platform

• **Arçelik A.Ş.**, **Farplas Otomotiv A.Ş.** ve **Tofaş Türk Otomobil Fabrikası A.Ş.**: InnoVatIve processing Technologies for bio-based foAmed thermopLastics

• **Teknopar Endüstriyel Otomasyon San. ve Tic. A.Ş.** ve **Socar Türkiye Araştırma Geliştirme ve Inovasyon A.Ş.**:AI Platform for Integrated Sustainable and Circular Manufacturing

• **Hidromek - Hidrolik ve Mekanik Makina İmalat San. ve Tic. A.Ş.**:Breakthrough European Technologies Yielding Construction sovereignty, Diversity & Efficiency of Resources

• **Korteks Mensucat San. ve Tic. A.Ş.** ve **Sun Tekstil San. ve Tic. A.Ş.**:New technologies to integrate PLASTIC waste in the Circular Economy

• **Ford Otomotiv San. A.Ş.**, **Türkiye Bilimsel ve Teknolojik Araştırma Kurumu**, **Sakarya Elektrik Dağıtım Şirketi**, **Mutlu Akü ve Malz. San. A.Ş.** ve **Türkiye Petrol Rafinerileri A.Ş.**: Digitally-enabled FLEXible Industries for reliable energy grids under high penetration of Variable Renewable Energy Sources)

"Hedef 2: Dayanıklı endüstri için kilit stratejik değer zincirlerinde artan özerklik"

• **Ford Otomotiv San. A.Ş.**:Recycling of end of life battery packs for domestic raw material supply chains and enhanced circular economy

• **İzmir Yüksek Teknoloji Enstitüsü**: Raw materials from geothermal fluids: occurrence, enrichment, extraction

• **Arçelik A.Ş.**: Plastics Recycling from and for home appliances, toys and textile

• **Arçelik A.Ş.**: Toxic Free metallization process for plastic surfaces

• **Coşkunöz Kalıp Makina San. ve Tic. A.Ş.**: Metal Matrix Nano-composite Coatings Utilization as Alternative to Hard Chromium

• **Arçelik A.Ş.**: Smart Response Self-Desinfected Biobased NanoCoated Surfaces for Healthier Environments

• **Eczacıbaşı Yapı Gereçleri San. ve Tic. A.Ş.**, **Almaxtex Tekstil San. ve Tic. A.Ş.** ve **Panasonic Life Solutions Elektrik San. ve Tic. A.Ş.**: Sustainable Antimicrobial and Antiviral Nanocoating

• **Zorlu Enerji Elektrik Üretim A.Ş.** ve **TPI Kompozit Kanat San. ve Tic. A.Ş.**: Joint Industrial Data Exchange Pipeline

• **DE Sürdürülebilir Enerji ve İnşaat San. Ltd. Şti.** ve **Kadıköy Belediyesi:** S=Smart U=Upgraded asset-values and quality of life P=Public Private Partnership E=Extended Energy Efficiency R=Renewables triggered by the project SH=Social Housing I=Investment N=Net Zero E=European

Küme 4 Endüstri Alanı 2022 Yılı Çağrılarındaki Başarılarımız

15 Türk Kuruluşunun 10 Farklı Projesine Avrupa Komisyonundan Toplam 4.9 Milyon Avro Hibe

"Hedef 1: İklim nötr, döngüsel ve dijital üretim"

• **Farplas Otomotiv A.Ş.**: SustainablY aNd digiTally driven hiErarchical laser texturing for Complex Surfaces

• **Tofaş Türk Otomobil Fabrikası A.Ş.**:Handling with AI-enhanced Robotic Technologies for flexible manufacturing

• **KOÇ Üniversitesi**: Data-driven method based on a process mining approach for Automated Digital Twin generation, operations, andmaintenance in circular value chains

• **Arçelik**: Digitalised Value Management for Unlocking the potential of the Circular Manufacturing Systems with integrated digital solutions

"Hedef 2: Dayanıklı endüstri için kilit stratejik değer zincirlerinde artan özerklik"

• **Mercedes-Benz Türk A.Ş.**: Advanced lightweight materials FOR Energy-efficient STructures

• **İstanbul Teknik Üniversitesi, Ereğli Demir ve Çelik Fabrikaları T.A.Ş, Erdemir Mühendislik Yönetim ve Danışmanlık Hizmetleri A.Ş.** ve **Memsis Çevre Teknolojileri Araştırma ve Geliştirme Ltd Şti.**: Customised membranes for green and resilient industries

• **Kansai Altan Boya Sanayi A.Ş.**: An Open Innovation Ecosystem for exploitation of materials for building envelopes towards zero energy buildings

• **Denge Kimya** ve **Sun Tekstil San. ve Tic. A.Ş.**: New Routes of Safe and Sustainable by Design Water and Oil Repellent Biobased Coatings

• **Fankom Mühendislik Makine Enerji ve Bilgisayar Ticaret Ltd. Şti.**: Open Innovation Platform for Optimising Production Systems by Combining Product Development, Virtual Engineering Workflows and Production Data

• **İstanbul Büyükşehir Belediyesi** ve **Teknoloji Arastirma ve Gelistirme Endustriyel Ürünler Bilişim Teknolojileri San. ve Tic. A.Ş.**: CircularPSP – Public Service Platforms for Circular, Innovative and Resilient Municipalities through PCP

Proje Pazarları / Ağ Kurma Etkinlikleri

https://he-industry-2023-brokerage.b2match.io/

https://brokerage-event-focusing-on-horizon.b2match.io/

Ufuk Avrupa Programı Dijital, Endüstri ve Uzay Kümesi

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