



# The European Commission's science and knowledge service

## Joint Research Centre

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# Smart Specialisation in Sub-Saharan Africa: industrial & technological opportunities for localized sustainable development

## OUTLINE

- 1. Policy Background:** Industry & Innovation for sustainable development in Africa
- 2. What are Smart Specialisation Strategies? :** priority domains and entrepreneurial discovery
- 3. Smart Specialisation Strategies for industrial innovation and technological development**



# Industry & Innovation for sustainable development in Africa (1/2)

1. **Background**

2. Smart Specialisation Strategies : priority and discovery
3. Smart Specialisation for industrial innovation & tech. development

## 3<sup>rd</sup> Industrial Development Decade for Africa, UN



- ▶ AIDA, STISA 2024
- ▶ SMEs Strategy
- ▶ BIAT
- ▶ AfCFTA



## REGIONAL ECONOMIC COMMUNITIES (RECs)



## "Africa-EU Alliance for Sustainable Investments and Jobs"

# Industry & Innovation for sustainable development in Africa (1/2)

1. **Background**

- 2. *Smart Specialisation Strategies : priority and discovery*
- 3. *Smart Specialisation for industrial innovation & tech. development*

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- ▶ **AIDA, STISA 2024**
- ▶ **SMEs Strategy**
- ▶ **BIAT**
- ▶ **AfCFTA**



## REGIONAL ECONOMIC COMMUNITIES (RECs)



- ✓ R&D and Innovation Ecosystems
- ✓ Sustainable agricultural/industrial/manufacturing processes and competitiveness
- ✓ Industry diversification and value-added
- ✓ Transformative capabilities and activities
- ✓ Industrial, technological and managerial knowledge/skills ; Skilled Human Capital

## “Africa-EU Alliance for Sustainable Investments and Jobs”

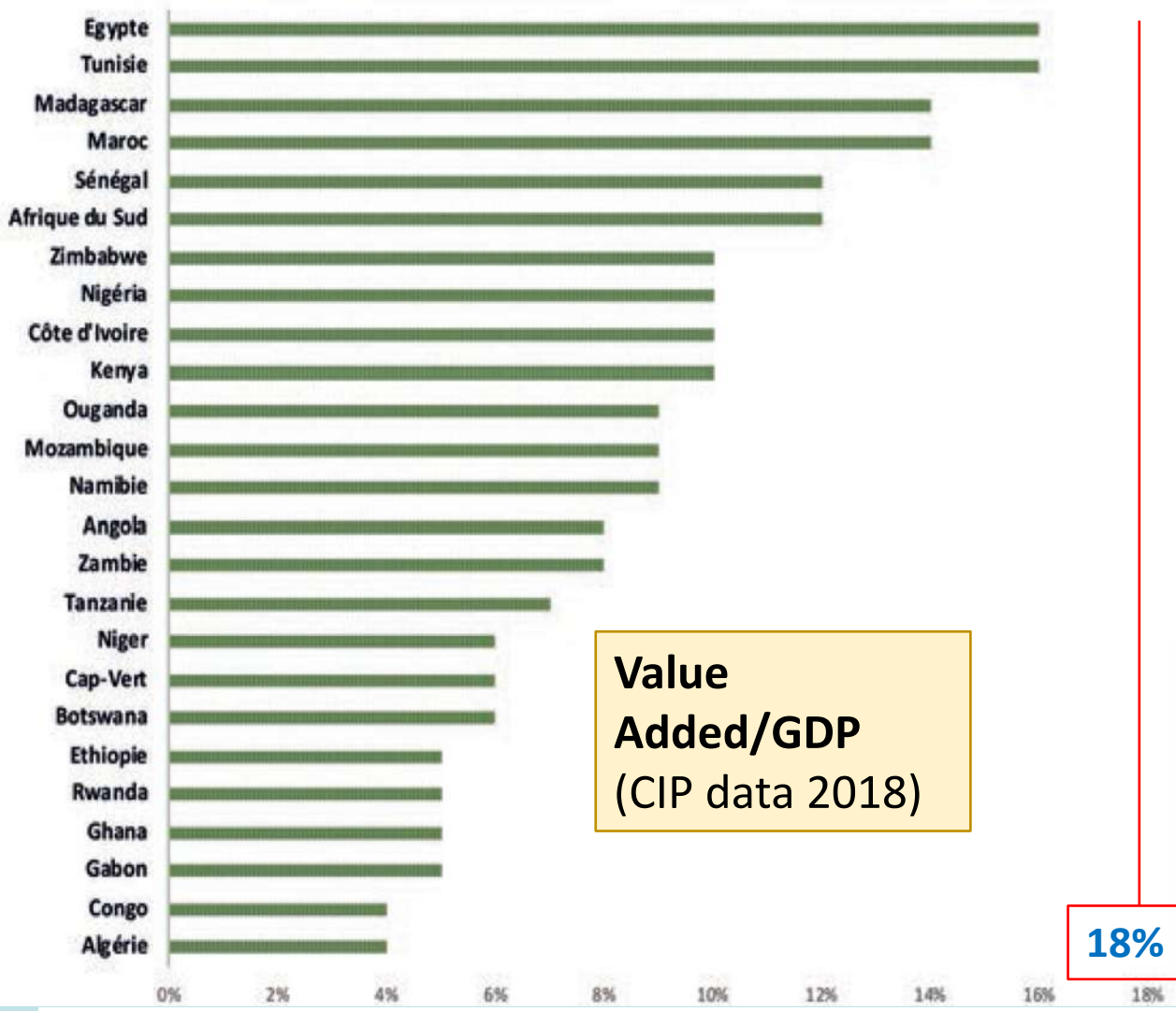


# Industry & Innovation for sustainable development in Africa (2/2)

1. Background

2. Smart Specialisation Strategies : priority and discovery

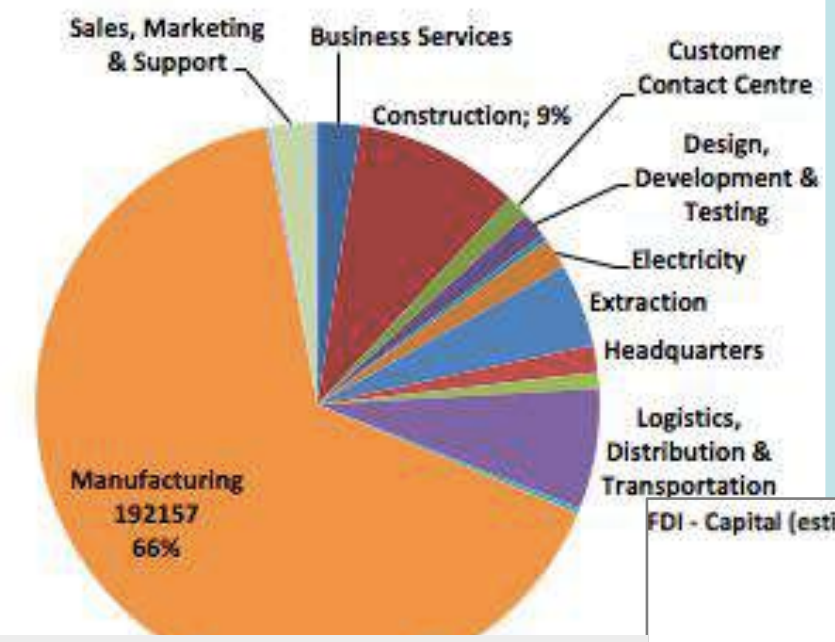
3. Smart Specialisation for industrial innovation & tech. development



**Value Added/GDP (CIP data 2018)**

**18%**

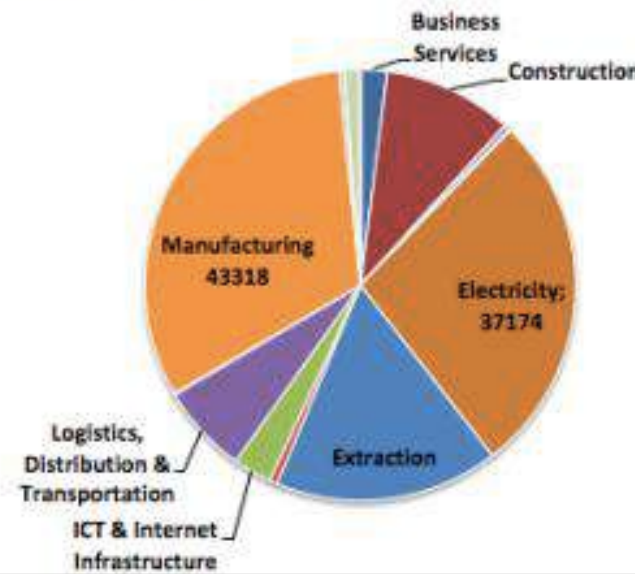
FDI - Jobs created (estimation)



**Inward Foreign Direct Investment (FDI) Greenfield projects to Africa (2017/2018- Jobs creation & Capital→**

*Own calculations from FDI database, Financial Times )*

FDI - Capital (estimation)



Source: Dosso Mafini (2019), Industrie et innovation pour un changement structurel et un développement territorial durable en Afrique, Annales des Mines, (open @ <http://www.anales.org/ri/2019/ri-aout-2019.pdf>)



## 2. What are Smart Specialisation Strategies?\* : priority domains and entrepreneurial discovery

**Smart Specialisation Strategies are place-specific/localized transformation agendas** enabling

- ✓ to match limited STI resources with societal and business challenges
- ✓ to prioritise innovation and industrial domains with high and long term welfare returns
- ✓ to identify collectively the trajectories for achieving Sustainable territorial competitiveness



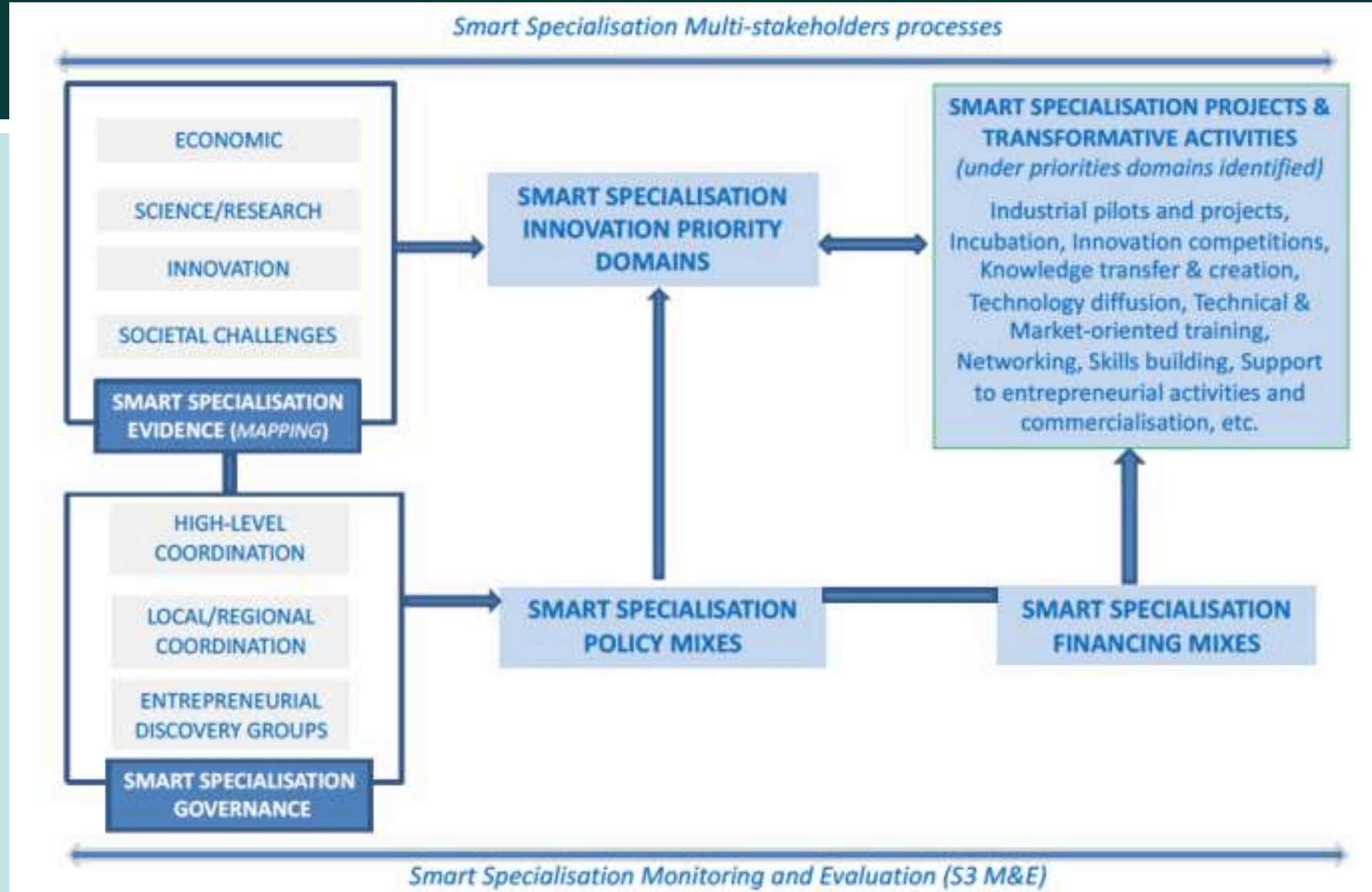
\* *Foray et al (2012); Foray (2015); UNCTAD (2018); Dosso et al (2020)*

# Smart Specialisation: key building Blocks

Source:

Dosso, Kleibrink & Matusiak (2020), *Smart Specialisation in sub-Saharan Africa: opportunities, challenges and initial mapping for Côte d'Ivoire\**

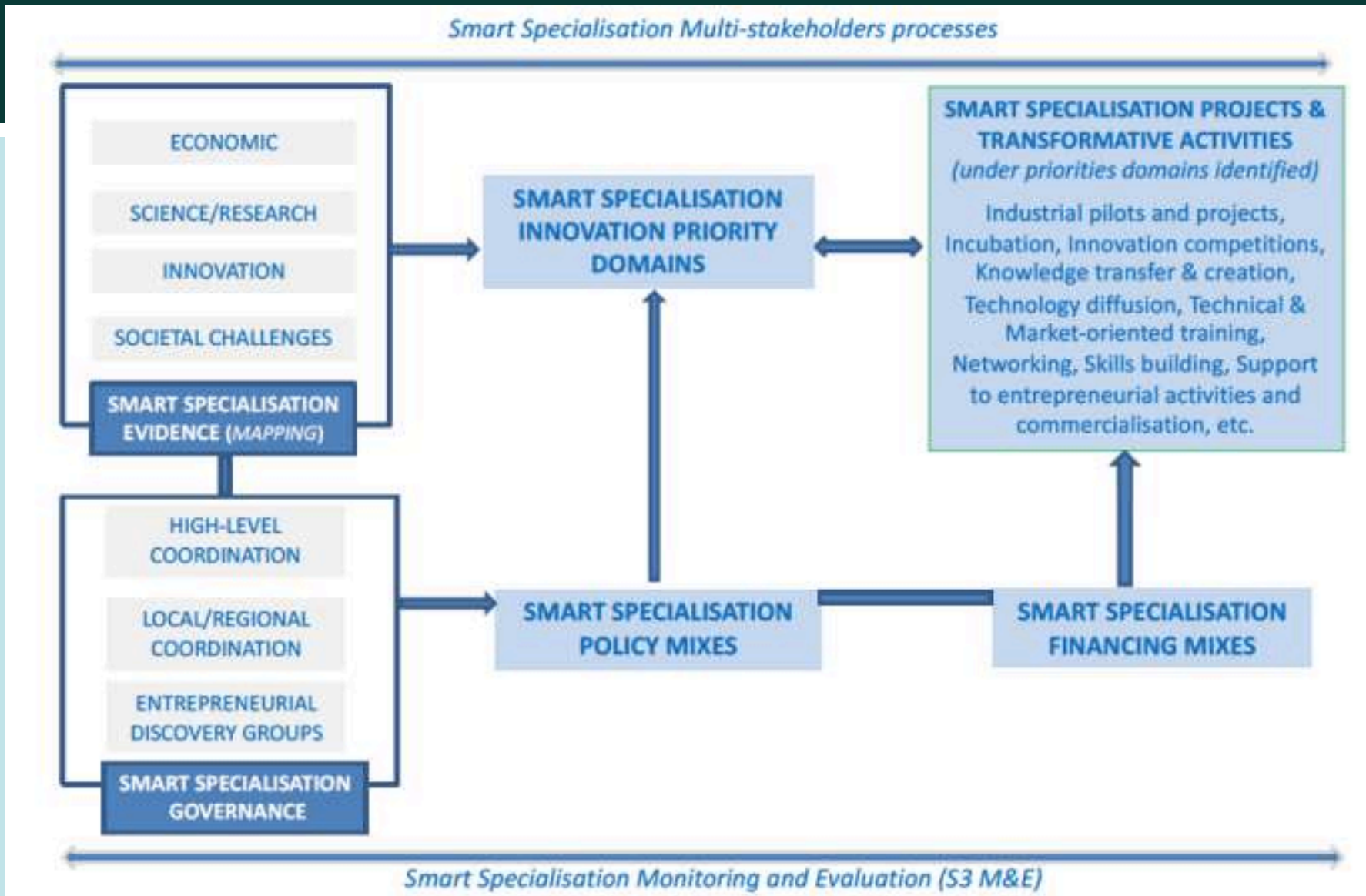
*African Journal of Science Technology, Innovation and Development, South Africa*





# SMART

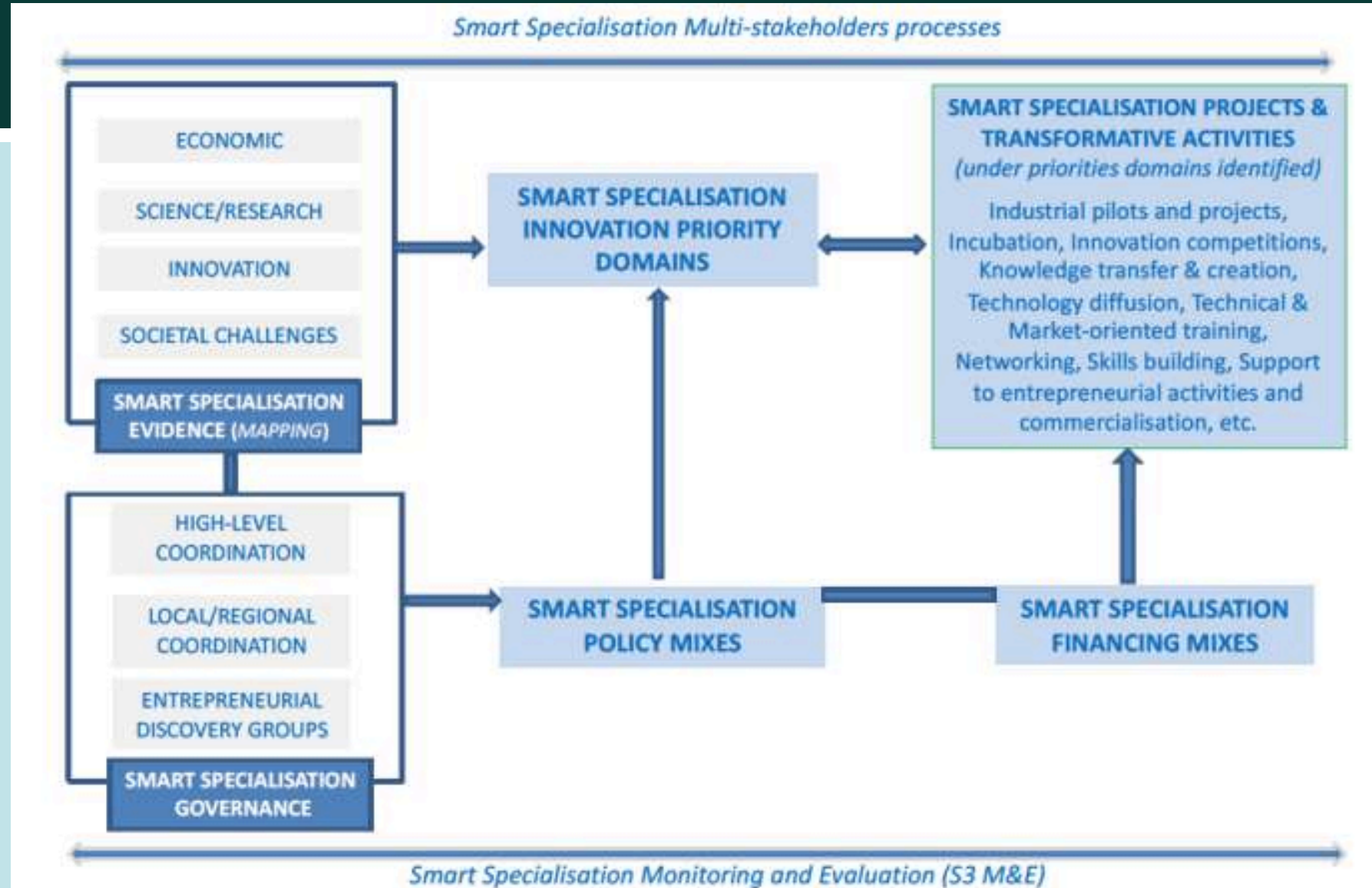
- **Own strengths and comparative assets** (place-based)
- **Inclusive and participatory** (not top-down)
- **Not only technological innovation**
- **Innovation Ecosystem; change-enabling environment**





## STRATEGIC

- **Differentiation:** competitive advantage, niche market
- **Few priorities to reach critical mass for innovation**
- **Governance synergies and cross-sectoral links**
- **Socio-Economic transformation plans** (including revamp traditional activities and techniques *via* higher value-added activities)

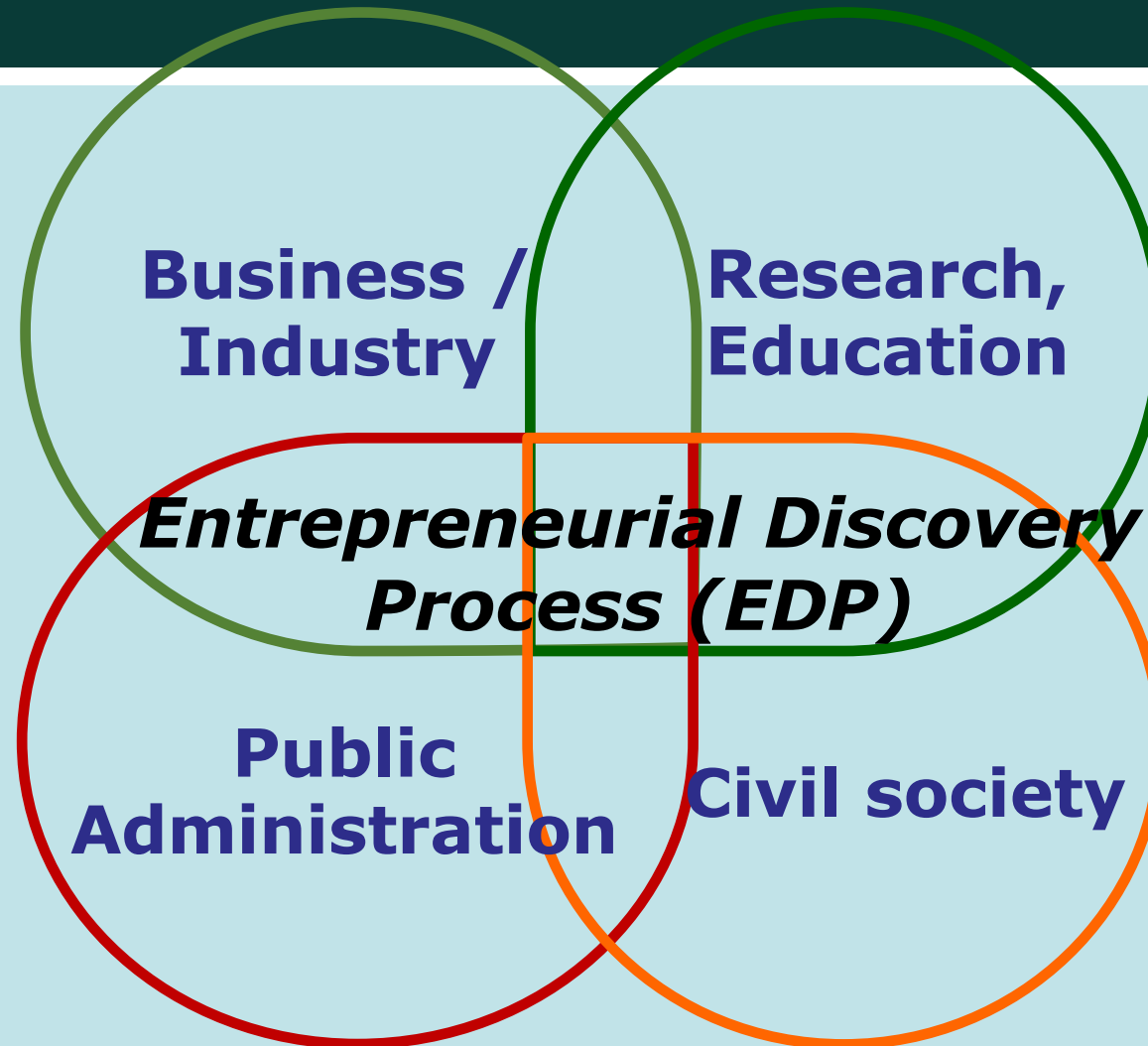


1. Background
2. **Smart Specialisation Strategies : priority and discovery**
3. Smart Specialisation for industrial innovation & tech. development

**Building Multi-Stakeholders coalitions/dialogues**

**Collective Discovery of new innovation and industrial domains and priorities identification**

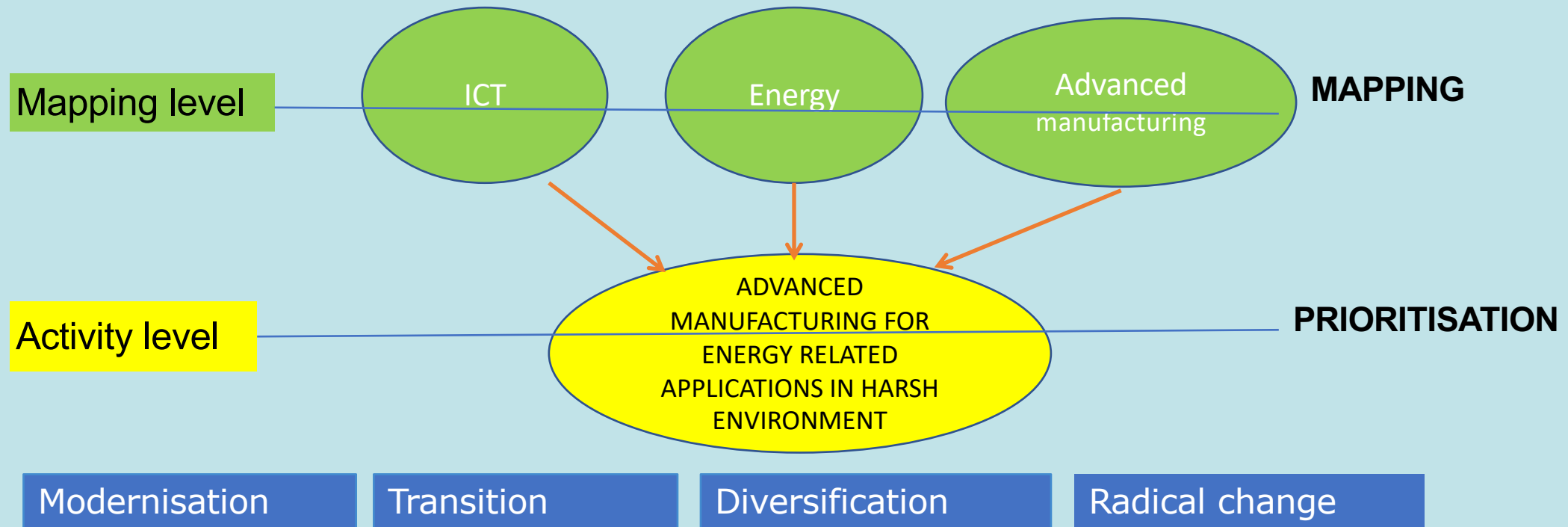
**The EDP is a participatory process for local decision-making**



# Identification of Smart Specialisation priorities

New priorities based on regional/local concentration of knowledge, competence and market potentials (dynamic)














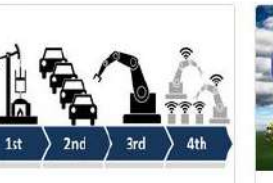












**Smart Specialisation is NOT to be understood as a sector-specialised**





# Partnerships on common Innovation & Industrial priorities

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 <b>Advanced manufacturing</b>	 <b>Non-food Biomass</b>	 <b>Efficient and Sustainable Manufacturing</b>	 <b>3D-Printing</b>	 <b>New Nano-Enabled Products</b>	 <b>Textile Innovation</b>	 <b>Medical technology</b>	 <b>Photonics</b>
 <b>Cybersecurity</b>	 <b>Social Economy</b>	 <b>Artificial Intelligence &amp; Human Machine Interface</b>	 <b>Personalised medicine</b>	 <b>Chemicals</b>	 <b>SMEs to the Industry 4.0</b>	 <b>Sport</b>	 <b>Digitalisation and Safety for Tourism</b>
 <b>High Tech Farming</b>	 <b>Traceability &amp; Big Data</b>	 <b>Consumer Involvement in Agri-Food</b>	 <b>Nutritional Ingredients</b>	 <b>Smart Sensors 4 Agri-Food</b>	<h2 style="text-align: center;"><u>Thematic Platforms:</u> Industrial Modernisation Agri-food Energy</h2>		
 <b>Bioenergy</b>	 <b>Marine Renewable Energy</b>	 <b>Smart Grids</b>	 <b>Sustainable Buildings</b>	 <b>Solar Energy</b>			



# 3. Smart Specialisation Strategies for industrial innovation and technological development



STI roadmaps for SDGs: Smart Specialisation for Territorial and Industrial Development in Rwanda - Kigali, January 9<sup>th</sup>–10<sup>th</sup> 2020



## Smart Specialisation for market-creating innovations (*examples*)

**Modernization/Diversification**



**Improvement of the traceability and variety of green children food supply chains through techno-organizational and marketing innovations**

**Radical Change**

## Smart Specialisation for market-creating innovations (*examples*)

### Modernization/Diversification



**Improvement of the traceability and variety of green children food supply chains through techno-organizational and marketing innovations**

### Radical Change



**Develop critical masses of local firms and networks with unique complementary capabilities towards high-tech industrial services in remote (and mountainous) or disconnected areas.**

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### Modernization/Diversification



**Improvement of the traceability and variety of green children food supply chains through techno-organizational and marketing innovations**

### Radical Change



**Develop critical masses of local firms and networks with unique complementary capabilities towards high-tech industrial services in remote (and mountainous) or disconnected areas.**

**The new areas should rely on unique mixes of (constructed) local firms' capabilities and address societal challenges**



**Dosso, Kleibrink & Matusiak (2020), *Smart Specialisation in sub-Saharan Africa: opportunities, challenges and initial mapping for Côte d'Ivoire***

***African Journal of STI and Development, South Africa***

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# Beyond Transformation → new local/regional Value Chains

## New agro-industrial activities



## Extension Services - AgriTech

Interactive plantation map

Crop evolution tracking & remote monitoring  
Virtual Tour & Geographic information system



Source: <https://www.shutterstock.com/es/g/nivens?searchterm=technology%20agriculture>

**STI roadmaps for SDGs: Smart Specialisation for Territorial and Industrial Development in Rwanda - Kigali, January 9<sup>th</sup>–10<sup>th</sup> 2020**



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## Beyond transformation → New cross-sectoral domains?

### "Attiéké" (*Cassava couscous*)

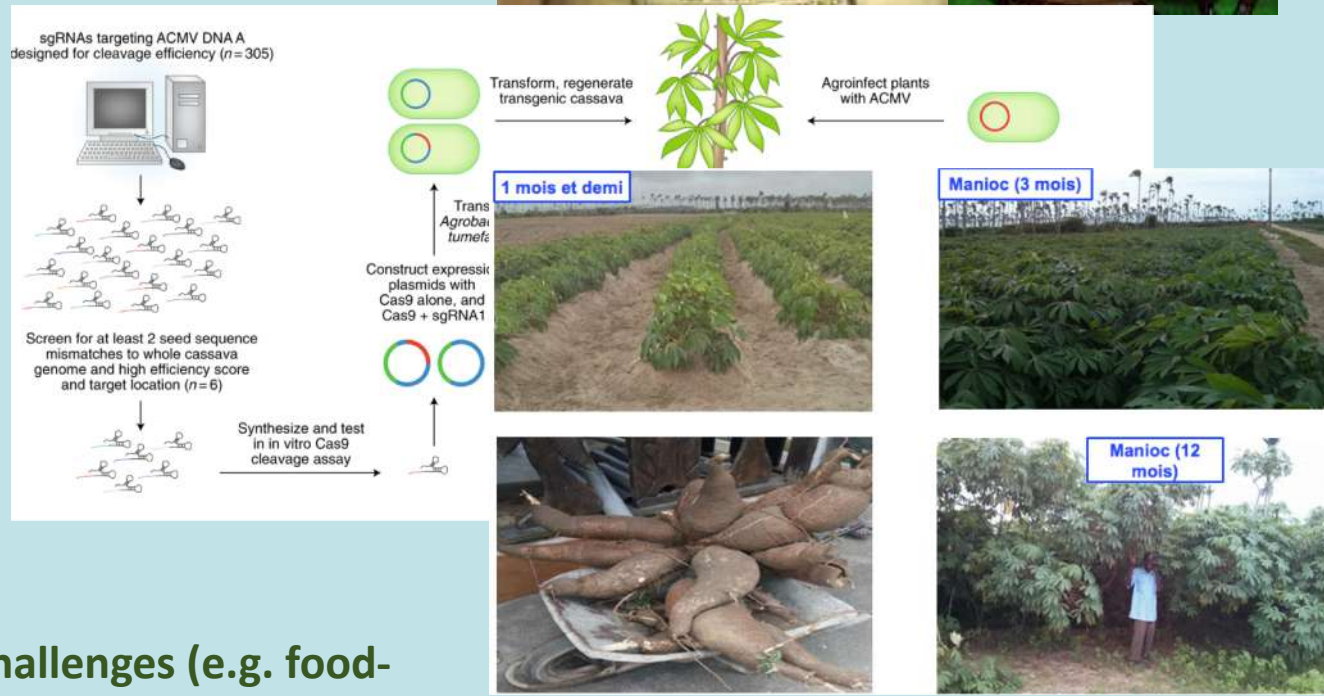
- Trademark & registered designation in progress (*Appellation d'Origine Contrôlée*)
- Production in CIV still mainly traditional & women-led
- Relevant Exports item in sub-region/Africa

Microbiology research pole - Institut Pasteur of Côte d'Ivoire - : regional & international reference Laboratory

→ Skills/research applied to fermentation for *Attiéké*

→ Waste from production process → **circular economy**

These targeted activities should primarily address local people challenges (e.g. food-producing, waste, energy), enable to generate a critical mass of Quality human capital to better leverage on own resources and outside



Sources: 1. Marché local Abidjan <https://www.nature.com/articles/s41587-019-0169-0?proof=true> Jun 3. Abidjan, Côte d'Ivoire (domaine MAKAI'S)

# THANK YOU FOR YOUR SUSTAINABLE ATTENTION



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