RESULTS & IMPACT

Vanguard Pilot Projects Progress, Successes and remaining Challenges

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S3 SMART SPECIALISATION PLATFORM

VI Pilot Projects

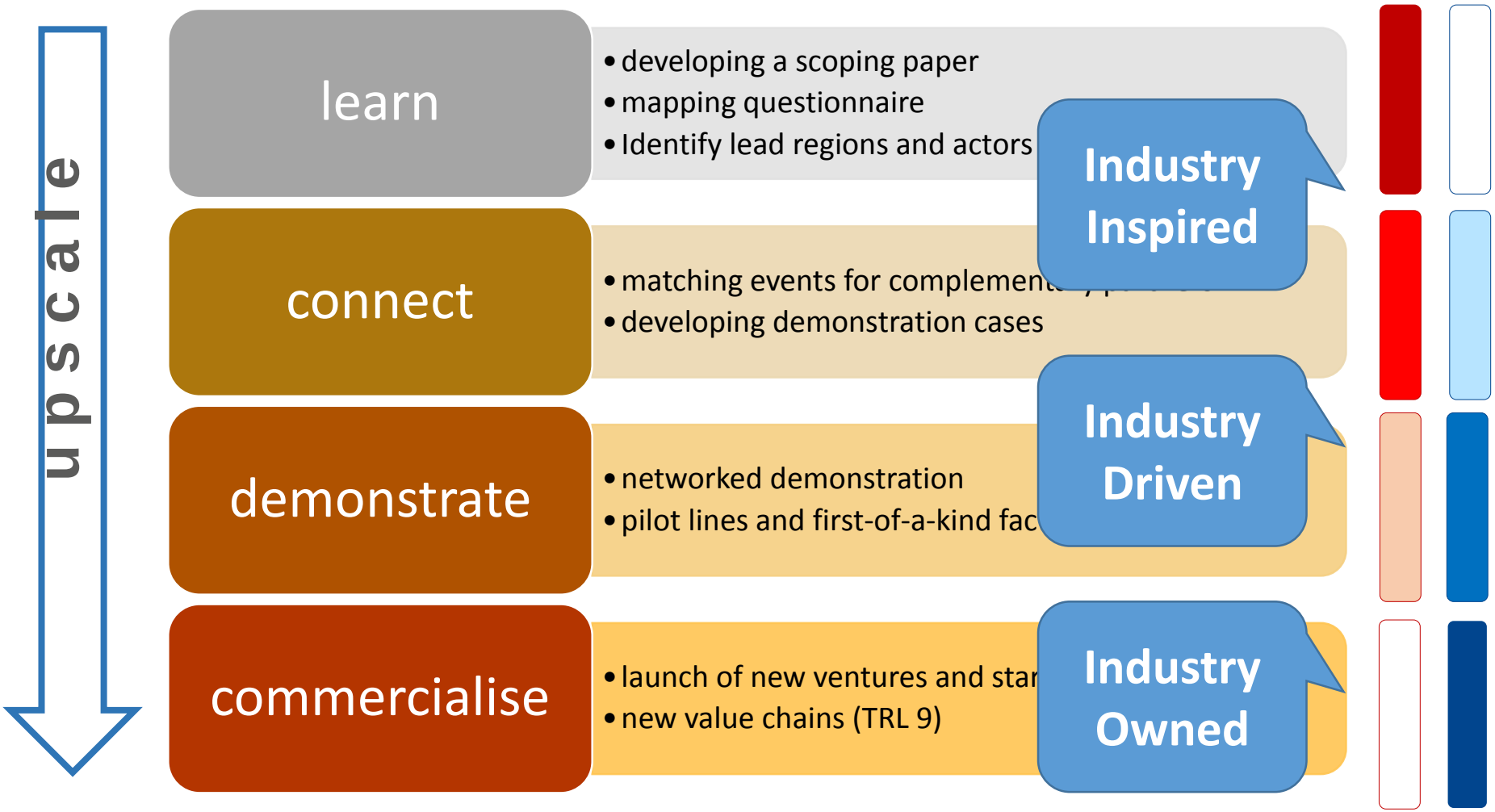
- new industrial value chains / accelerate market development / industry-led cross-regional demonstration projects

- 5 Pilot Projects
  - Efficient and Sustainable Manufacturing (Catalonia + Lombardy)
  - High Performance Production through 3D Printing (Flanders + Norte + South Netherlands
  - ADMA for Energy related Applications in Harsh Environments (Basque Country + Scotland)
  - New Nano-enabled Products (Skane + Tampere)
  - Bioeconomy (Lombardy + Randstad)

VI Pilot Projects

- 30 DemoCases
  - cooperation projects between companies and knowledge institutes in specific technology field or application domain
    - demonstration, no research (post prototyping, distance to market <5 years)
    - added value compared to what exists at regional level
    - industrial commitment (to lead/participate/co-invest)
    - (expected) significant impact (economic and social returns)
  - European Network of Demonstrators
  - no "one off" projects / building of VCs through pipeline of (investment) projects
- NEW : Shared Funding of the Pilot Management Cost
  - coordination of the work is huge effort, and thus cost
  - VI is an open initiative, and the Pilot Projects even more
  - but : no more participation if no contribution to management cost (from 2017 onwards)
  - the réal cost is the cost of each region's own organised engagement

VI Methodology – 4 step approach



VI Methodology – 4 step approach

LEARN → CONNECT → DEMONSTRATE → COMMERCIALISE


Bio-economy


ESM


3D-printing

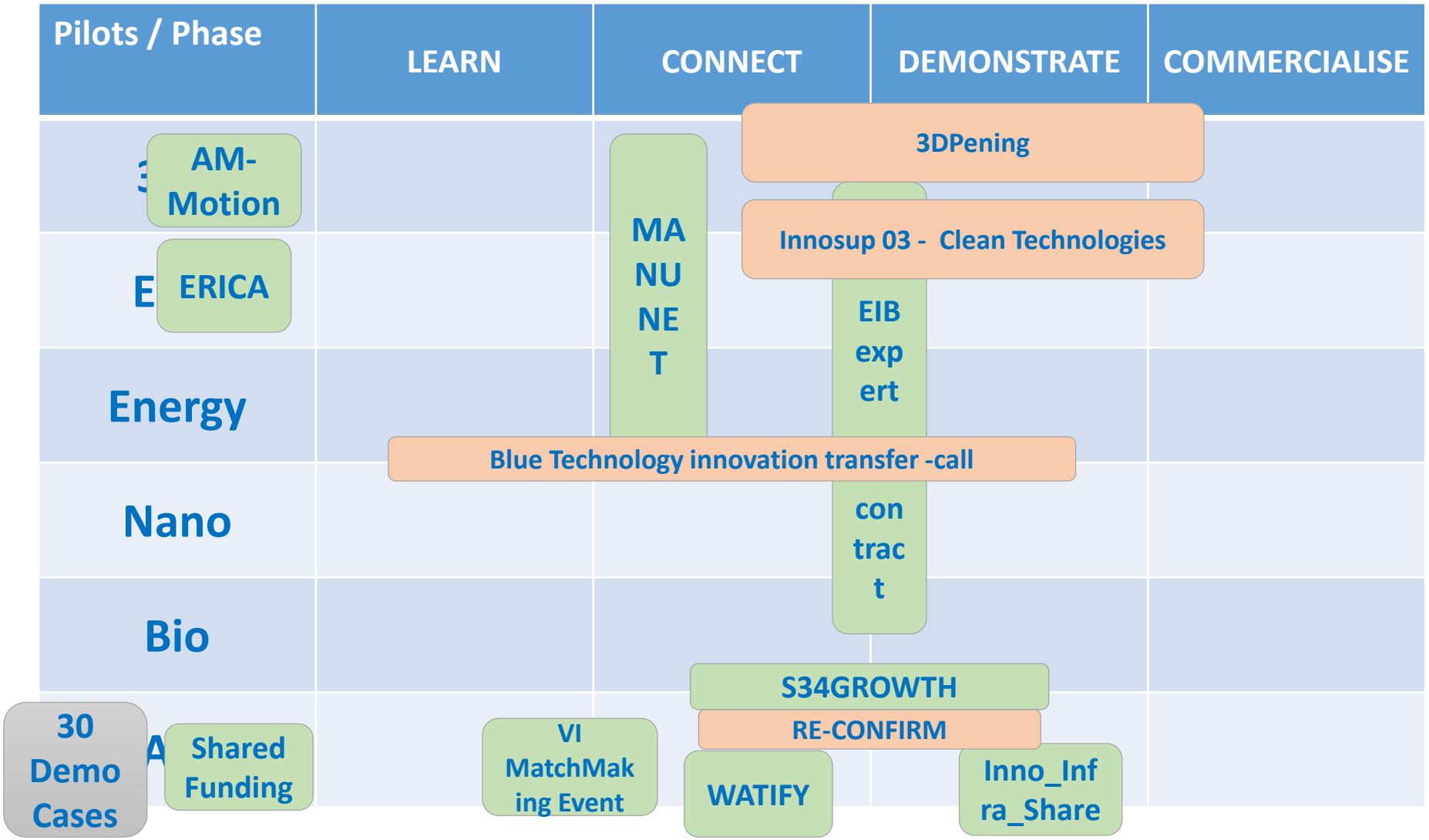

ADMA-Energy


Nano-technology

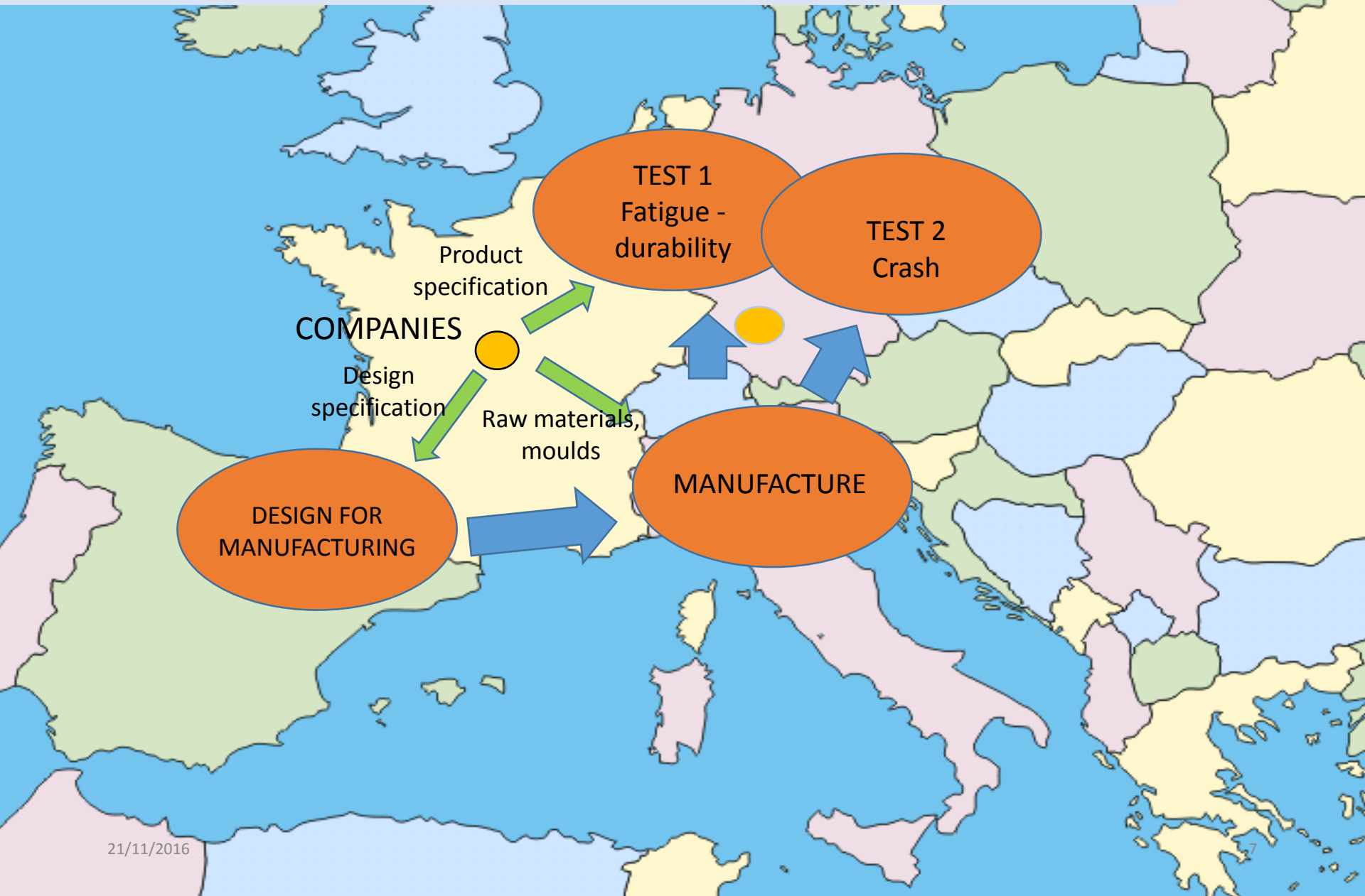
UPSCALE

TODAY'S CHALLENGE

projects/activities per Pilot phase



3DP Case: ‘Reducing weight in automotive, machinery and aerospace applications’ via 3D-Printed hybrid components



Funding & Investment Needs

- VI at a turning point ...

  ➔ No further progress without appropriate funding for demo-cases

- however: specific investment & funding needs ...

- ... calling for new, ad hoc solutions (adjusted / new funding instruments)

- ... and mobilising experts from our regions...

Funding & Investment Needs

- VI DemoCases common objectives
  - establish shared facilities for demonstration of new technologies
  - facilitate access to shared facilities
  - lower technology uncertainty, risks and costs
  - stimulate industrial replication & upscale (hence market uptake)
- each DemoCase =
  - combination of complementary demonstration facilities
  - group(s) of companies accessing infrastructure (TRL6-8)
  - industrial replication & upscale (if the above is successful) (TRL8-9)
- 3 types of DemoCases
  - connecting existing infrastructures
  - building brand new demonstration infrastructure
  - connect & upgrade existing infrastructure (hybrid format)

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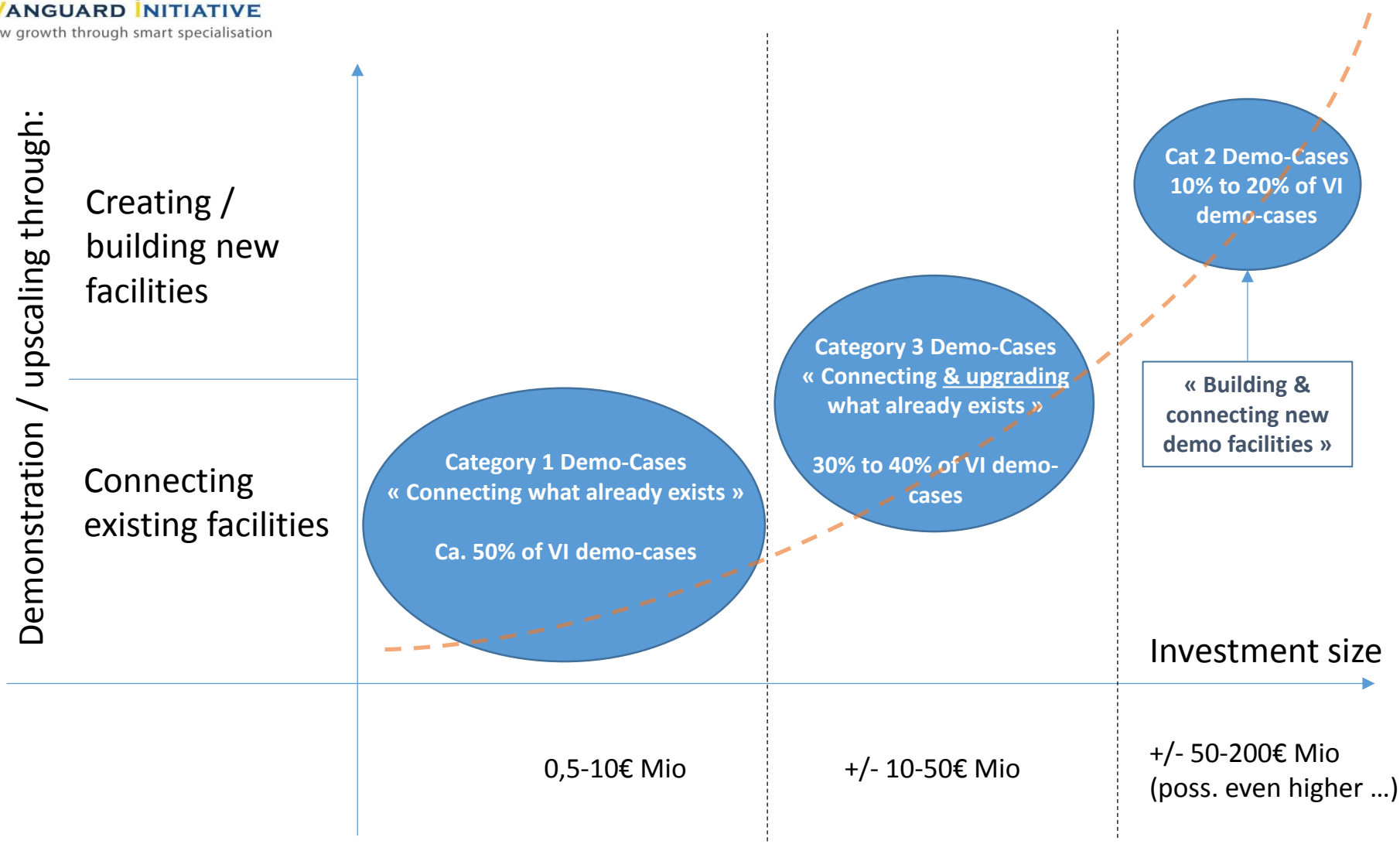
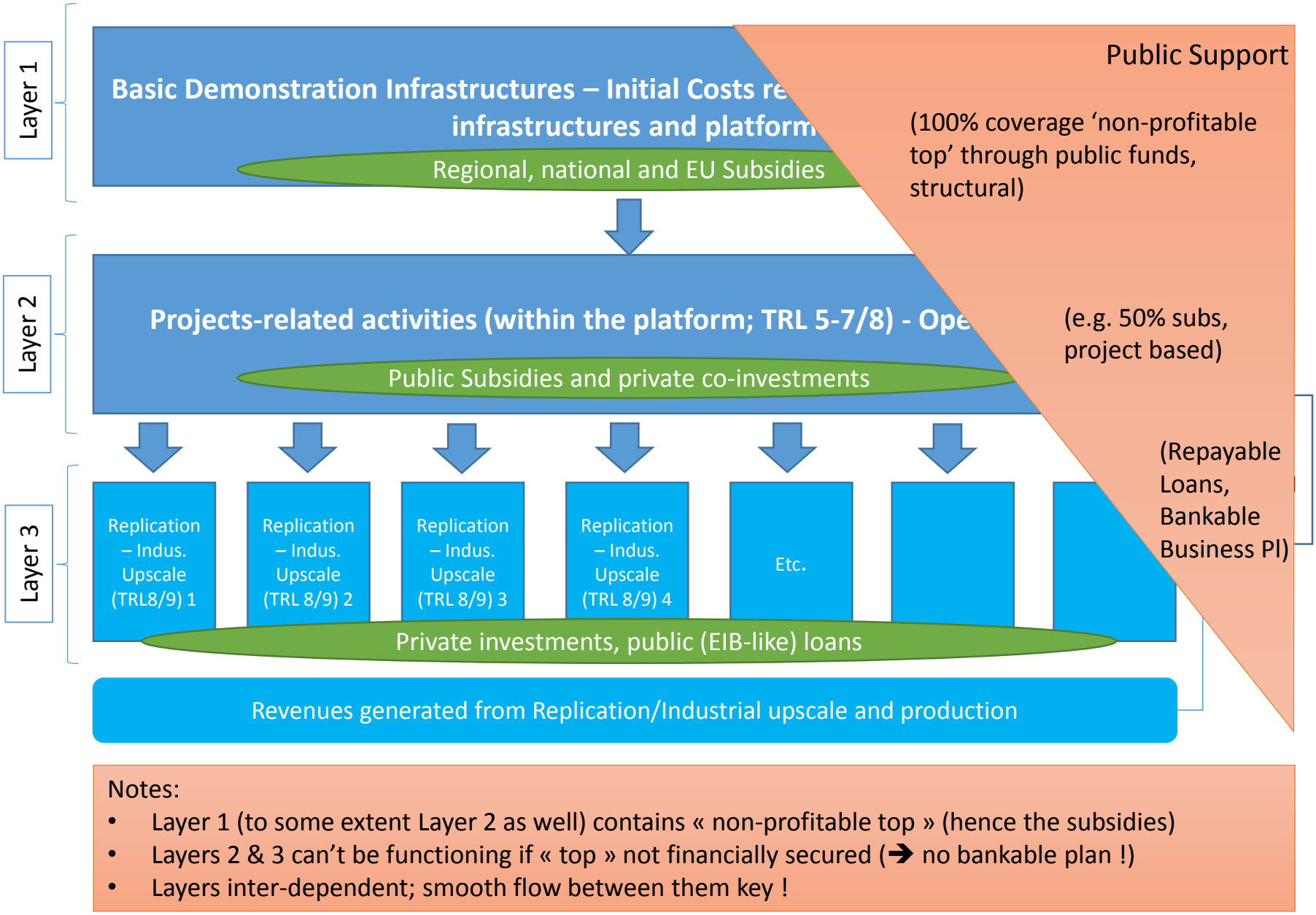
New growth through smart specialisation

Different Investment Needs



General Financial Structure – three layers

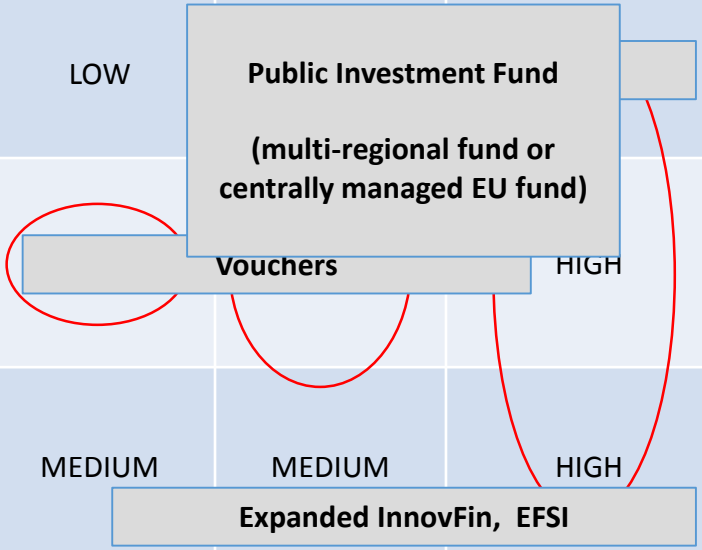


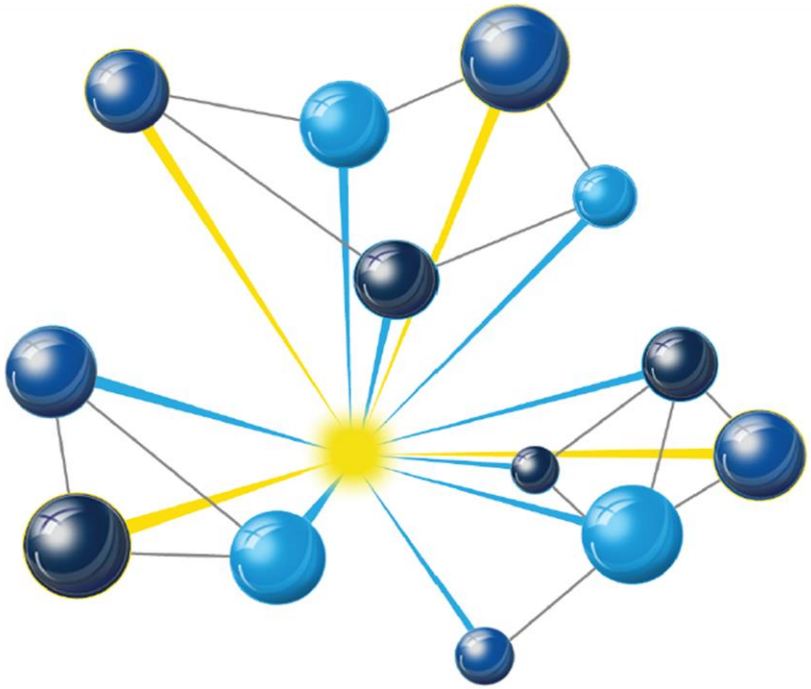
Notes:

- Layer 1 (to some extent Layer 2 as well) contains « non-profitable top » (hence the subsidies)
- Layers 2 & 3 can't be functioning if « top » not financially secured (➔ no bankable plan !)
- Layers inter-dependent; smooth flow between them key !

Crossing Investment Needs and 3-Layers' Funding Model

	Category 1 "Connecting the existing"	Category 3 "Connecting & Upgrading"	Category 2 "Building brand new demo facilities"	Blending of different solutions
Layer 1 **Initial costs – establishing the demo infrastructure**	LOW			No suitable instrument so far in cross-regional, pan-European setting. New solutions needed
Layer 2 **operating costs of the interregional demonstration platform**			HIGH	Some EU solutions in place (I4MS, ActPhast, INNOSUP, Interreg NEW BIoBase NWE etc) but with uncertain access; no structural solution
Layer 3 **industrial replication**	MEDIUM	MEDIUM	HIGH	New instruments (e.g. Energy Demo Pilot under InnovFin) available but more convergence needed





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Pilots & DemoCases (1/3)

- **3DP**
  - Automotive 1 – hybrid materials for lightweight, structural components (metal-CFRP)
  - Automotive 2 – functionally graded components (metal, non critical)
  - Machinery & tooling – structural parts with complex shapes
  - Creative industries – fashion, 3D printed wearables, lighting
  - Textiles – adding a dimension to 2D textiles
  - 3DP Smart Bike – 3DP printed bike and accessoires
  - Healthcare – customized insoles and ortheses
  - Additive Substractive transversal pilot lines

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Pilots & DemoCases (2/3)

Efficient and Sustainable Manufacturing

- Adaptive and Smart Manufacturing Systems
- De- & Remanufacturing
- Energy and environmental efficiency
- Advanced components and materials
- Digital and virtual factory

ADMA Energy

- Cost Reduction in subsea environments
- Corrosion in water
- Advanced manufacturing processes
- Composites, New Materials, and Materials Testing
- Power Transfer and conversion
- Sensing, Instrumentation and Monitoring

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Pilots & DemoCases (3/3)

BioEconomy

- Aromatics
- Bulk/fine chemicals from lignocellulosic/sugar feedstock using fermentation
- Gas fermentation from gaseous waste streams/gasified biomass
- Bioplastics for food packaging
- Aviation fuels
- Biogas
- Food applications from algae feedstocks
- Food/feed from agrofood waste

Nanotechnology

- Nano wires for ICT and energy
- Printed electronics
- Nanomedicine
- Manufacturing of nanomaterials
- Integrated nano bio systems