



S4 - Smart Specialisation

Ljubljana
Slovenia | 26 October 2017



TEHNOLOŠKI PARK LJUBLJANA
81

HI.TECH  **SLOVENIA**

**I FEEL
SLOVENIA**

etiDynamics

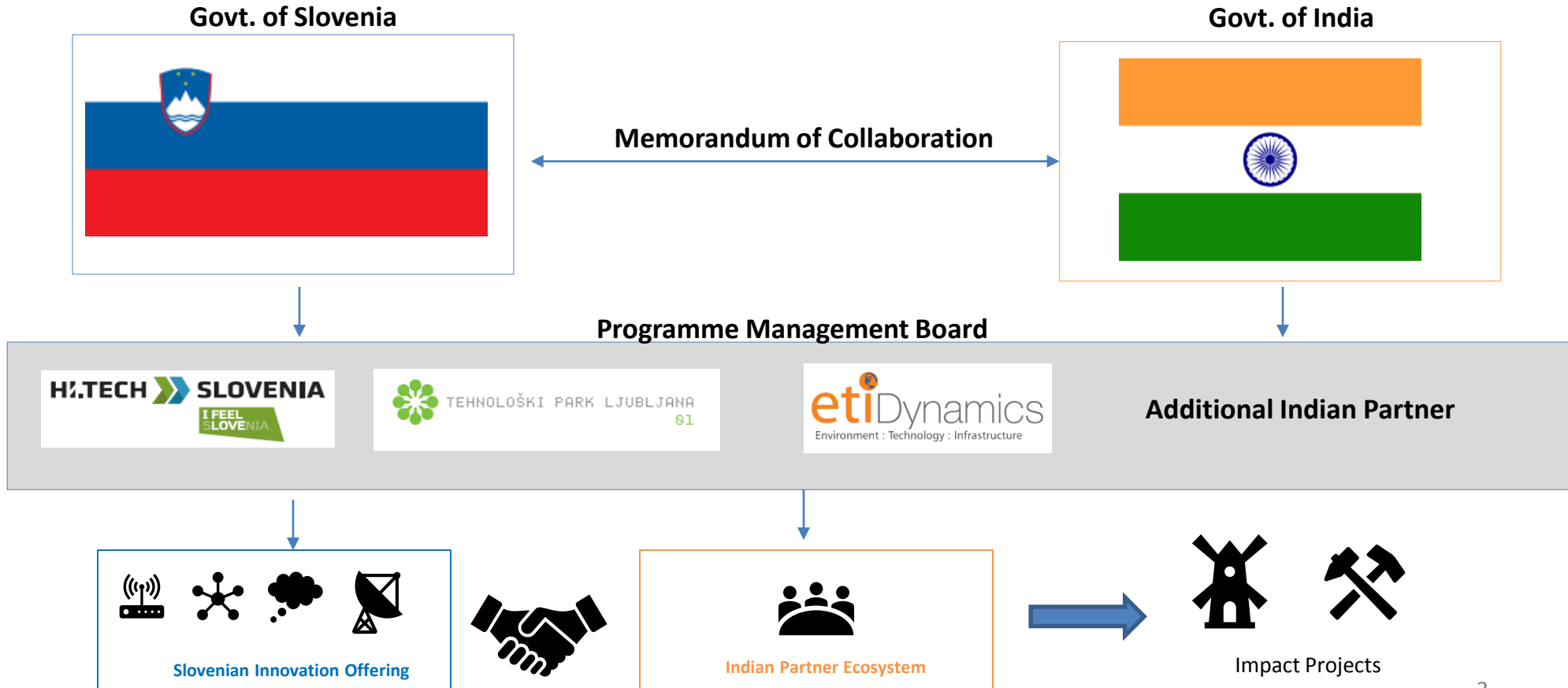
Environment : Technology : Infrastructure

Objective



An initiative to establish a global platform for Slovenian innovation companies and eco-system players in the area of Smart Specialisation, that will provide international project opportunities, key partnerships and economic gains

Collaboration Model



Project Suite 1: India



Project 1: Uttarakhand

- Smart Habitat + Sustainable Mfg + Sustainable Tourism
- Additional Projects: Food & Wine, Pharma, Wood

Project 2: Uttar Pradesh / Ganga

- Smart Habitat + Sustainable Mfg + Sustainable Tourism
- Additional: Big Data, IoT, Analytics

Project 3: Chhattisgarh

- Smart Habitats + Sustainable Mfg + Sustainable Tourism
- Additional Projects: Electronics, Steel, Iron, Mining

Project 4: Andhra Pradesh

- Smart Habitat + Sustainable Mfg + Sustainable Tourism
- Additional Projects: Oil & Gas, Dairy

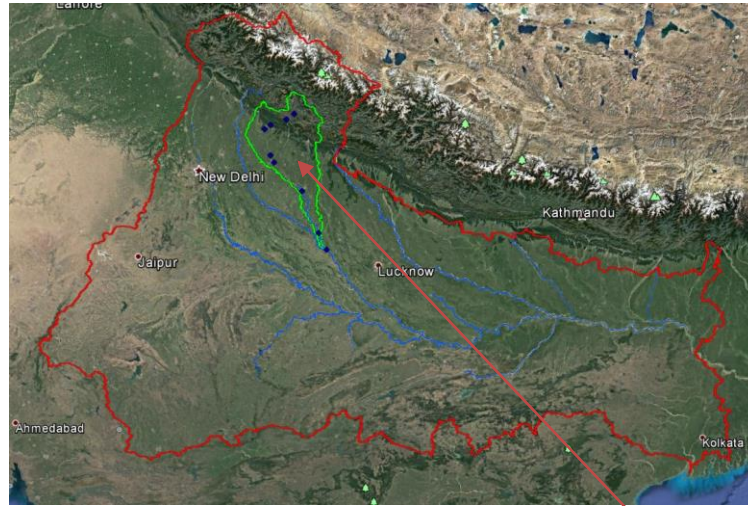
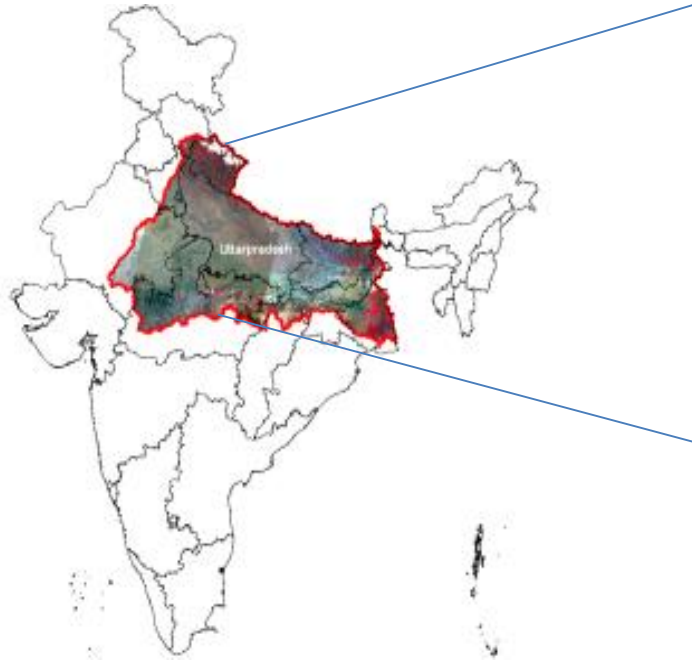
Impact for Slovenia

1. Highly Collaborative
2. Addressing all issues within the sustainability – demonstrates of comprehensiveness and completeness of Slovenian knowhow
3. Resource and Knowledge Pooling
4. Joint Innovation and Co-Creation
5. Addressing technology transfer issues
6. Highly Targeted to deliver maximum impact
7. Big Visibility for Slovenian solutions
8. Major new market and huge economic gains
9. Value addition in key environmental programmes in the world
10. Team Slovenia + Team India
11. Go Global
12. Creation of new entrepreneurs
13. Increase exports
14. Increase Foreign Direct Investment
15. Increase competitiveness
16. Job creation in Slovenia
17. Global societal and community impact

Tech Transfer Case Studies



Case Study 1. Water/Energy Nexus and Security | Ganga Basin



- River Ganga – c 2500 kms
- Basin: 907,000 sq. km
- Population coverage is 45% of India – c600mn
- Transboundary river
- Needs USD 100bn capital spend
- 20 year plan
- Coverage is 11 States in India
- All major climate and environment issues related to water – floods, contamination, water scarcity, water misuse, dams, draughts
- **River Ramganga** – c 600 kms
- Ramganga Runs through state of Uttarakhand and Uttar Pradesh



Case Study 1: Riverhealth / Co-Creation

A. Data Sources



Satellite



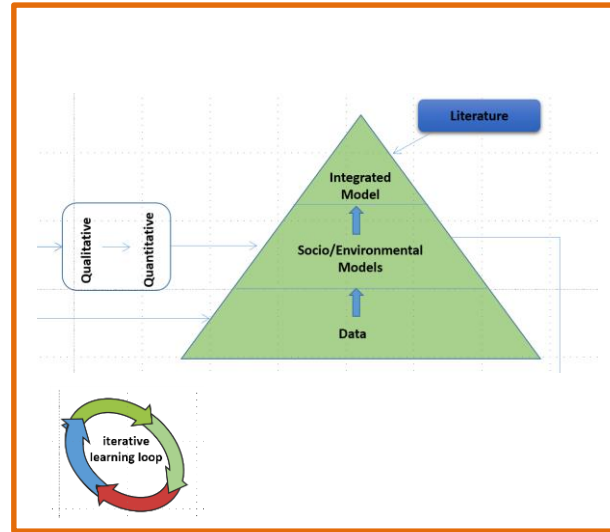
Drones

In-situ sensors

Handheld Sensors and devices



B. Data Storage & Modelling



C. Analytics

Hydro power

Potential of hydropower generation, sites, conflicts, trade-offs

Agri & Water

Irrigation demand/supply, tracking over-extraction

Water Supply

Core water supply systems / management and rights

Flood Warning

Flood/Landslides/Disaster Management and Warning Systems

Simulations
 S_1, S_2, \dots, S_n

Lead Organisation and Partners



UNIVERSITY OF
Southampton

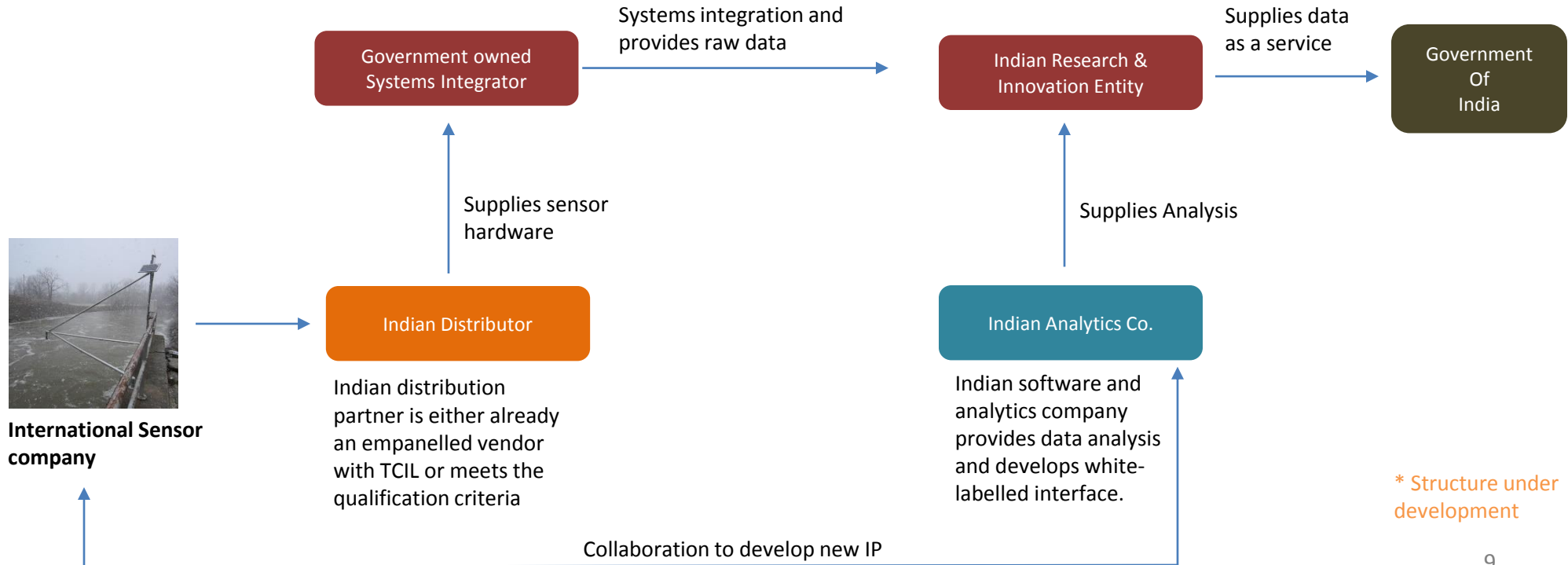


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The James
Hutton
Institute

Case Study 2: Sensors > Data / (Collaboration) *



* Structure under development

Case Study 3: Smart Food and Agri / (India as a global base)

The Technology

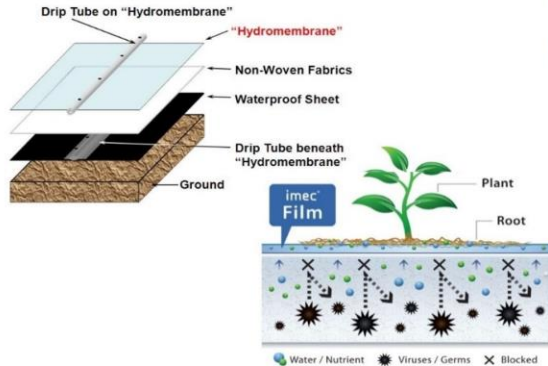


"Hydro-Membrane" has numerous nano-sized pores which allow only water and nutrients such as various ions, amino acids and sugar to pass and not viruses and microbes as they are too large to penetrate through the pores.

The plant synthesizes a large quantity of sugar, etc. to raise the intracellular osmotic pressure. As a result, the culture medium is transferred from "Hydro-Membrane" to plant by osmolality gap, leading to high nutrition by water stress induced by "Hydro-Membrane". The traditional method of the acceleration of the sugar synthesis has been to raise ionic strength of the culture medium by up to 20 times. The method significantly reduces the product yield by salt damage. Imec® achieves high quality of products without reduction in the productivity, using the pure water stress instead of conventional ionic stress, which is totally innovative technology.

The Imec® Hydro-Membrane acts as a substrate that replaces soil which has been one of the most challenging aspects of conventional farming as soil is variable that suffers from degradation from contamination through global warming, population growth and industrial waste. On the contrary, the Hydro-Membrane is a polymer with characteristics that remain constant which allows the farmer to focus on cultivating better yields of safe and quality produce in a consistent manner resulting in better profitability and customer satisfaction all in all in a sustainable manner. The Imec® Hydro-Membrane is bio-degradable and dissolves in hot water.

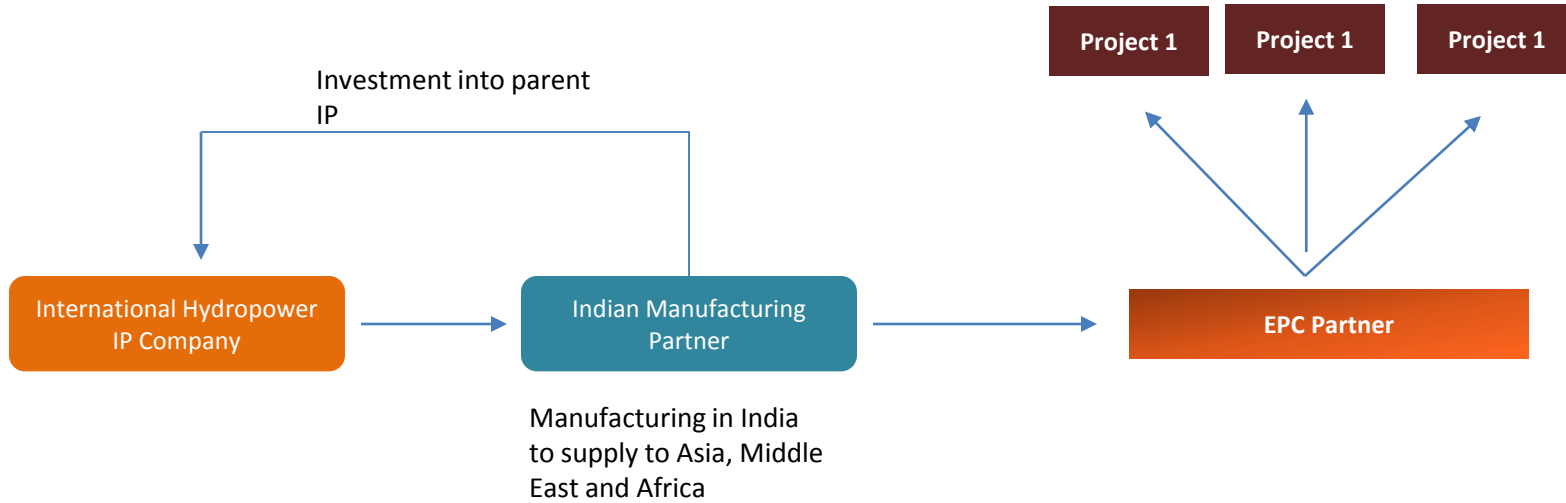
The Imec® Hydro-Membrane Farming Systems comprises of the Hydro-Membrane and the Water and Nutrient Feeding System that is economical and simple to set up and operate which allows anybody and everybody to grow food.



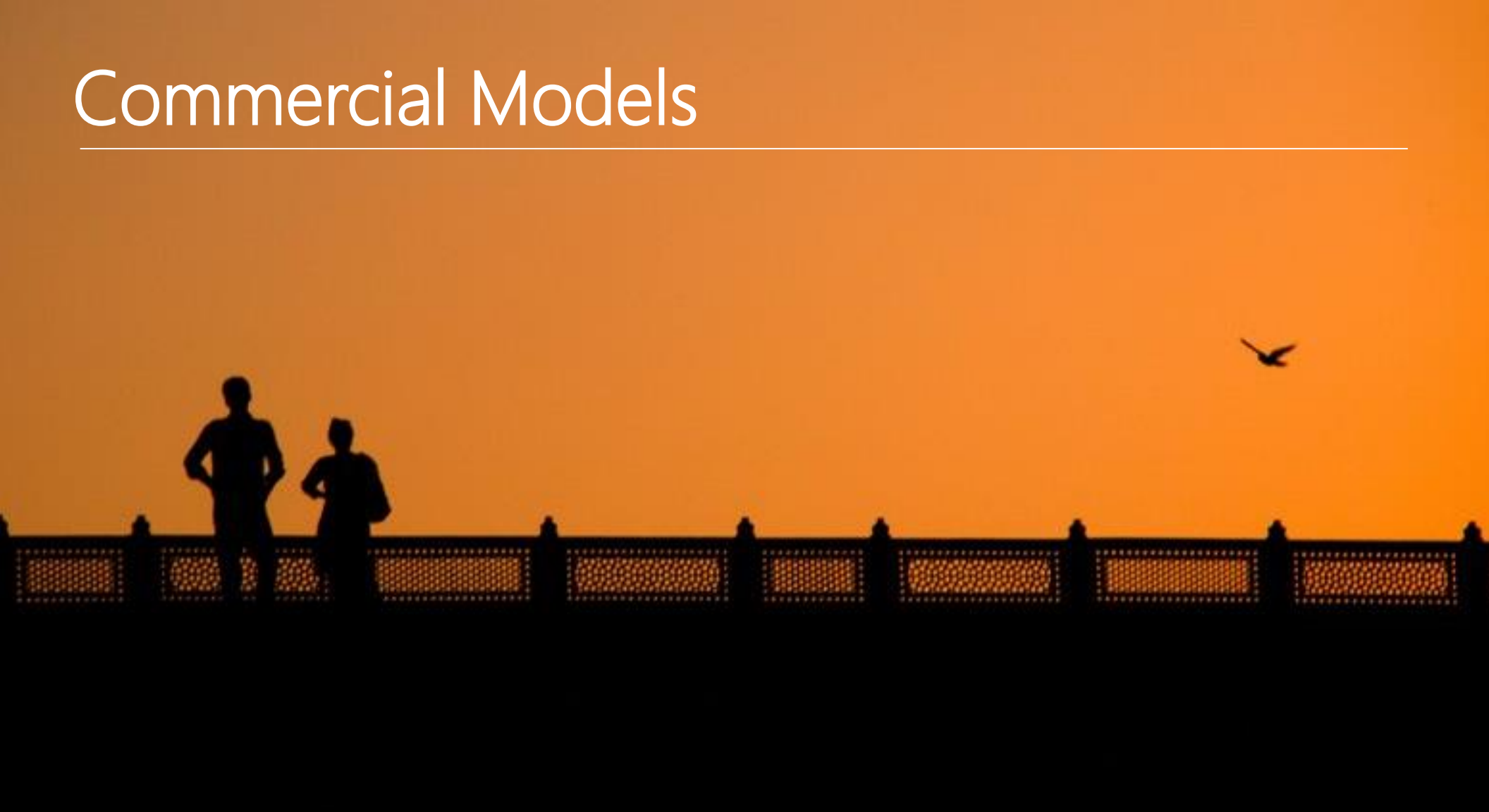


Implementation in UAE

Case 4: Hydropower / (Make in India – investment from India)



Commercial Models



Commercial Models

1

Build Own Operate Transfer (BOOT)

- Where Revenues possibilities are distinct and risk-free
- Off-takers – Industry, Government, Entities with (bankable) good credit ratings
- The developer funds the Capex of the project and recovers the investment (and profits) through a tariff based or a pre-agreed revenue model

2

Hybrid Annuity Model (HAM)

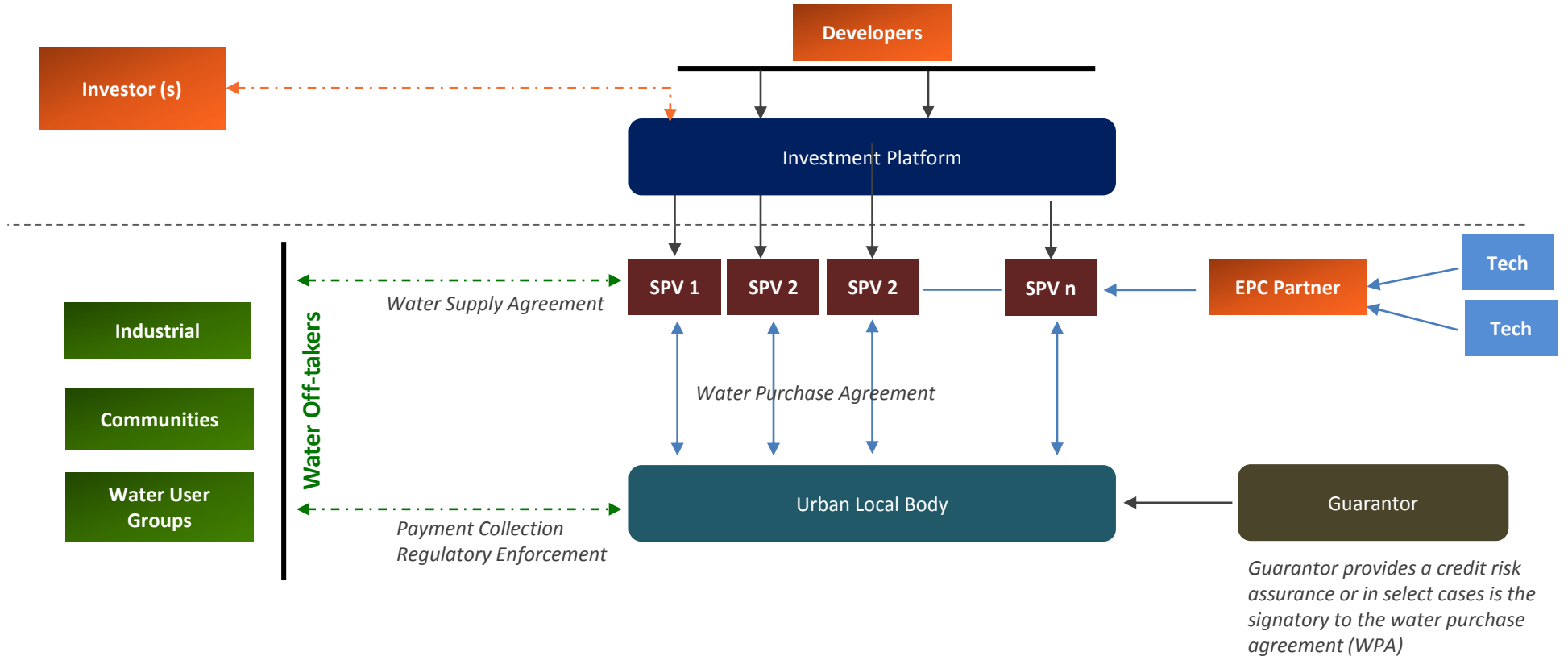
- Where a clear revenue model is not available or is weak and Government has limited resources to pay for the utility/service. However Government still wants to proceed with the project.
- Developer funds the construction of the project and gets paid 30-40% of the aggregate of Capex + Opex for the concession period on the day project is commissioned.
- The balance amount is paid as an annuity over the remainder of the concession.

3

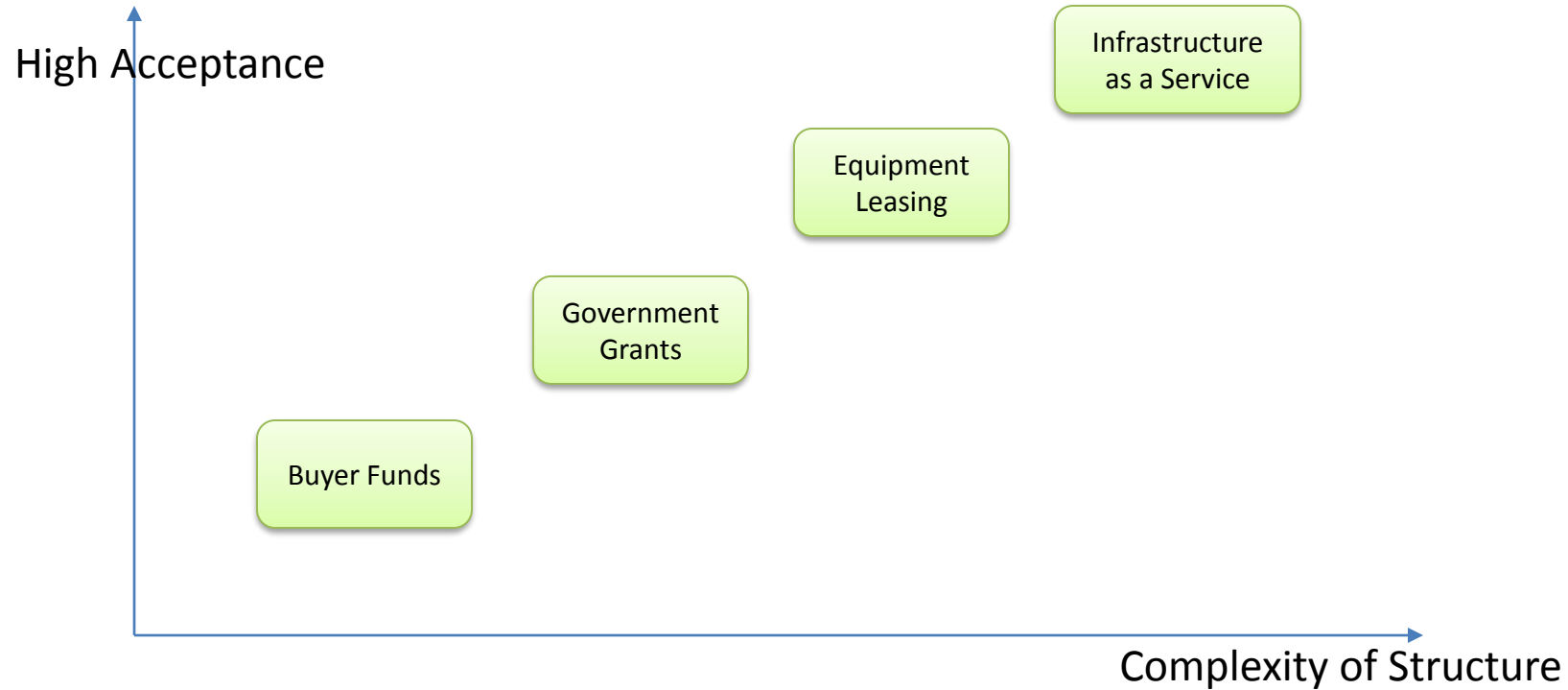
Client Funded Turnkey delivery model (EPC)

- Where there is no revenue model possible.
- The solution still must be provided.
- The client has clearly allocated funds for procuring the service and the O&M that goes with it over the lifetime of the project.
- Selected company shall deliver a turnkey job to the client.

Case 1: Wastewater Treatment / Decentralised Infrastructure (Illustrative)



Commercial Offering



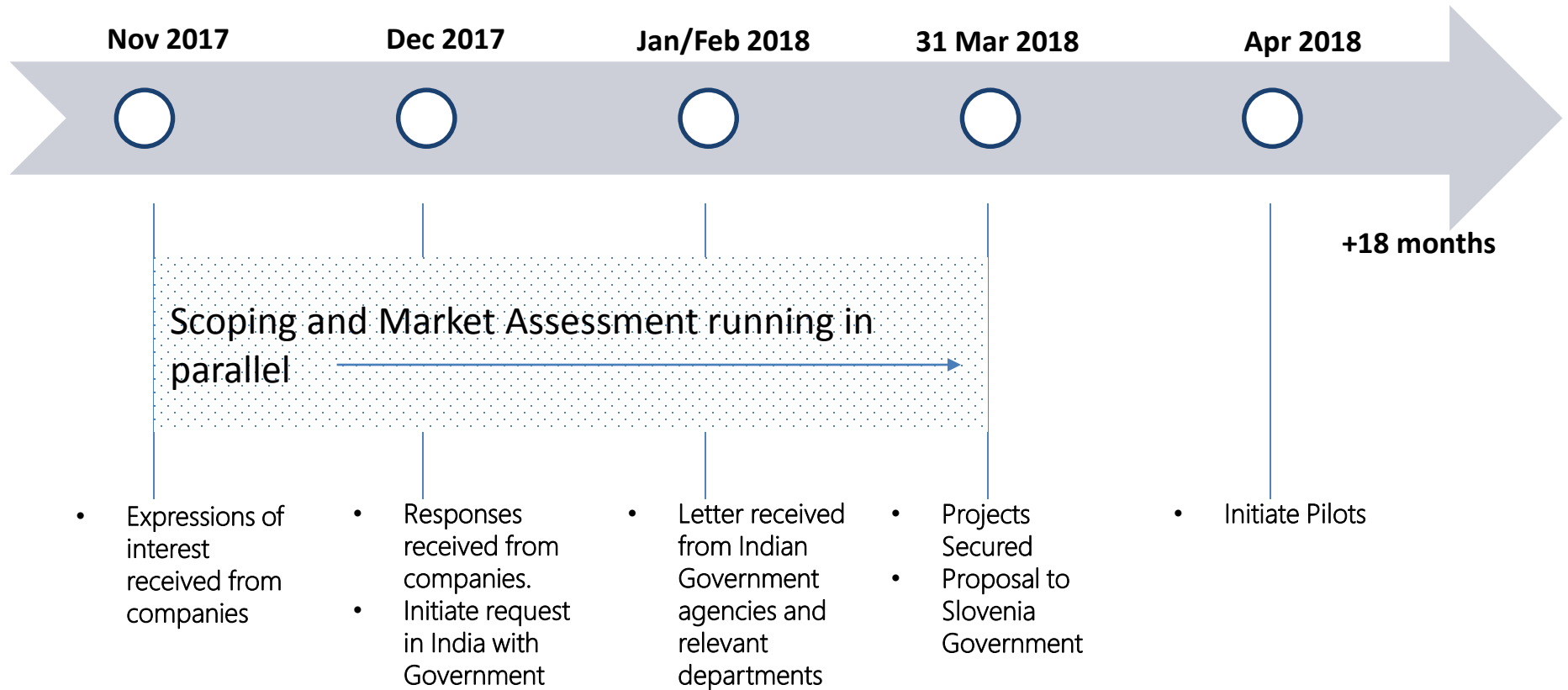
Project Ganesha – Steps and Approach



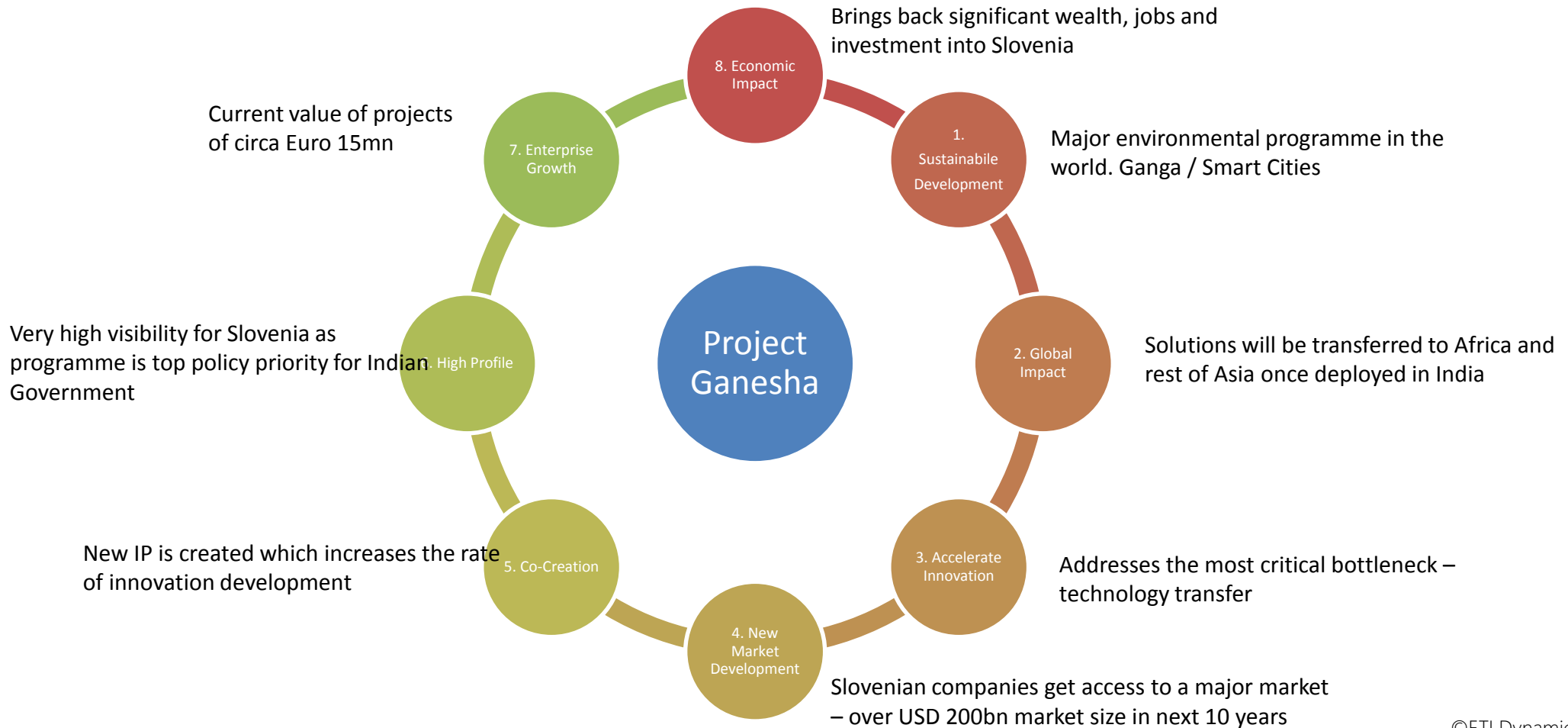
Financing and Rollout Approach

- Build a consortium of donors, partners and collaborators
- Types of Partners in India:
 - Government – licenses, approvals, permits, land etc
 - Private Sector – Shall provide engineering design support
 - Public Sector Utilities – Construction, Design, Scoping
 - Development Finance – ADB, World Bank
 - Donors – Foundations
 - NGO Partners
 - Research Partners – various IITs
 - Private Sector – Technology Companies
 - Venture Finance
- Proposed Approach
 - Initiate programme – (Programme Management, Consortium Building, Visits and Scoping)
 - Field Trips in July for scoping and partnership establishment
 - All partners to submit detailed proposals which get vetted by Programme Managers
 - Pilot/Demonstration Starts

Pilot Programme Timeline



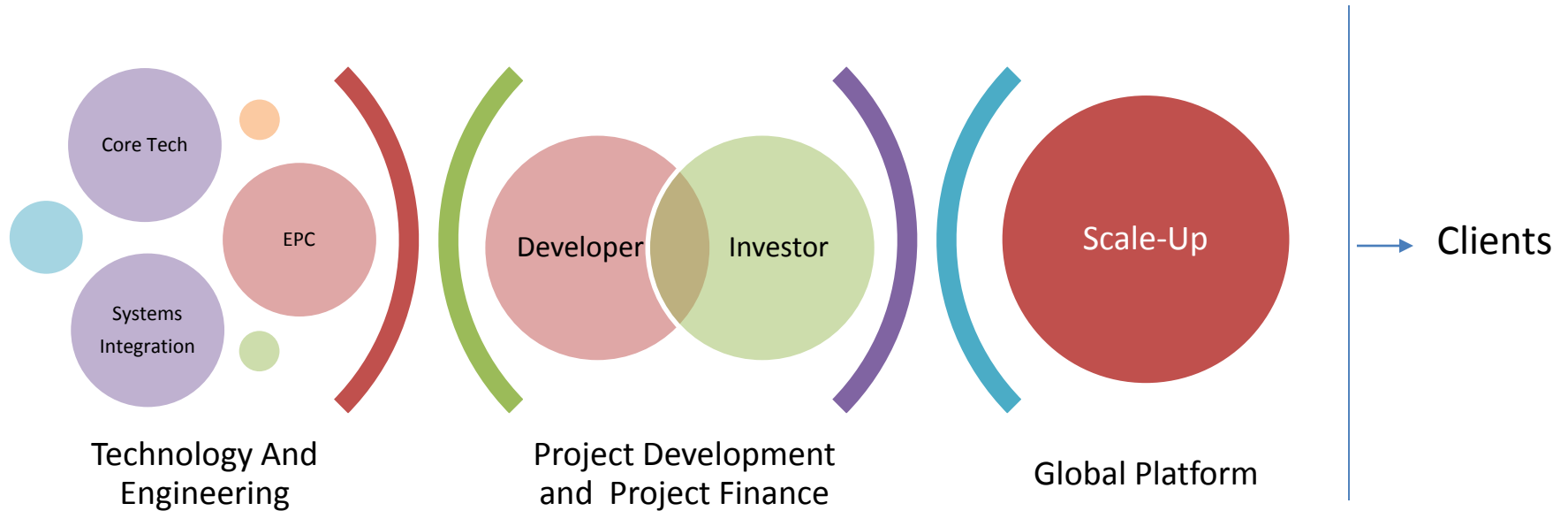
Impact



Technology Transfer Models and Frameworks

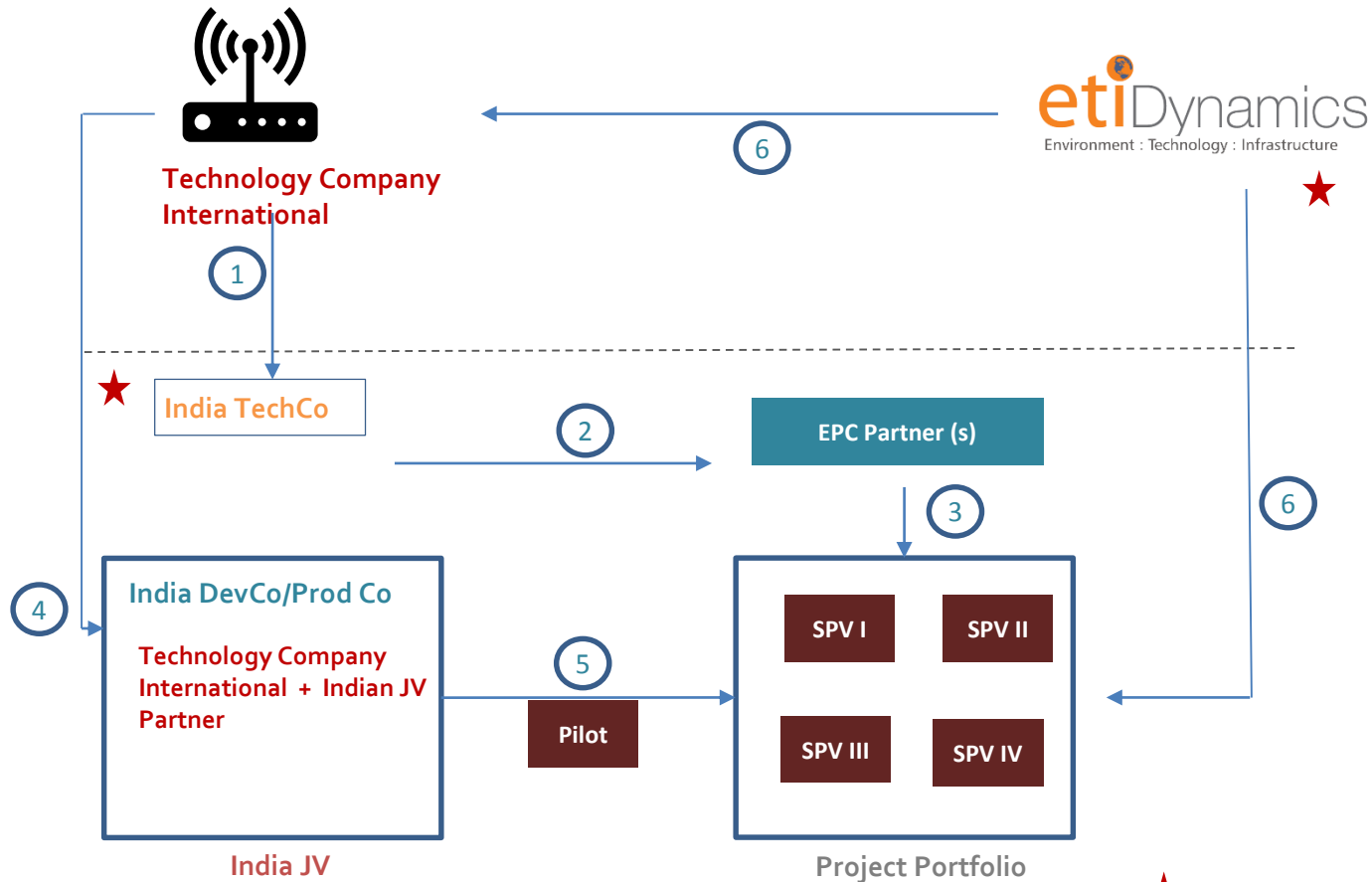


Who and Where are you in the Value Chain



ETI Dynamics Distributed Infrastructure Aggregation Platform

Proposed Partnership Roadmap in India

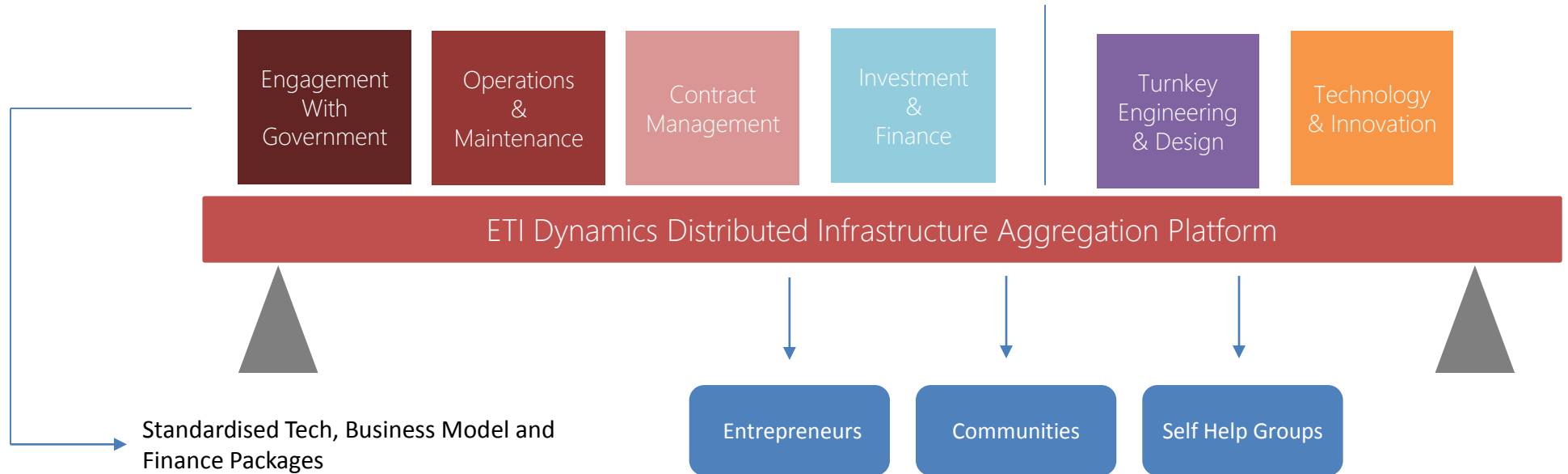


1. Tech-International licenses technology to Tech-India (TechCo) which is a wholly owned subsidiary
2. TechCo partners with a Systems Integrator and an EPC company for marketing and execution in India.
3. The EPC partner would then contract with project development entities.
4. In case the Tech Company also wants to develop projects then it would enter into a separate partnership to form a Development Company. In case a production partner is also needed then it would establish a partnership to form a Production company which will manufacture /assemble technology.
5. The DevCo identifies and develops a pilot project and also create a pipeline of projects. As the pilot project progresses, India TechCo also identifies and confirms its EPC and Distribution partners. The India JV and EPC jointly deliver the portfolio of projects.
6. The India JV gets into a strategic agreement with ETI Dynamics which establishes a financing platform for the projects © ETI Dynamics

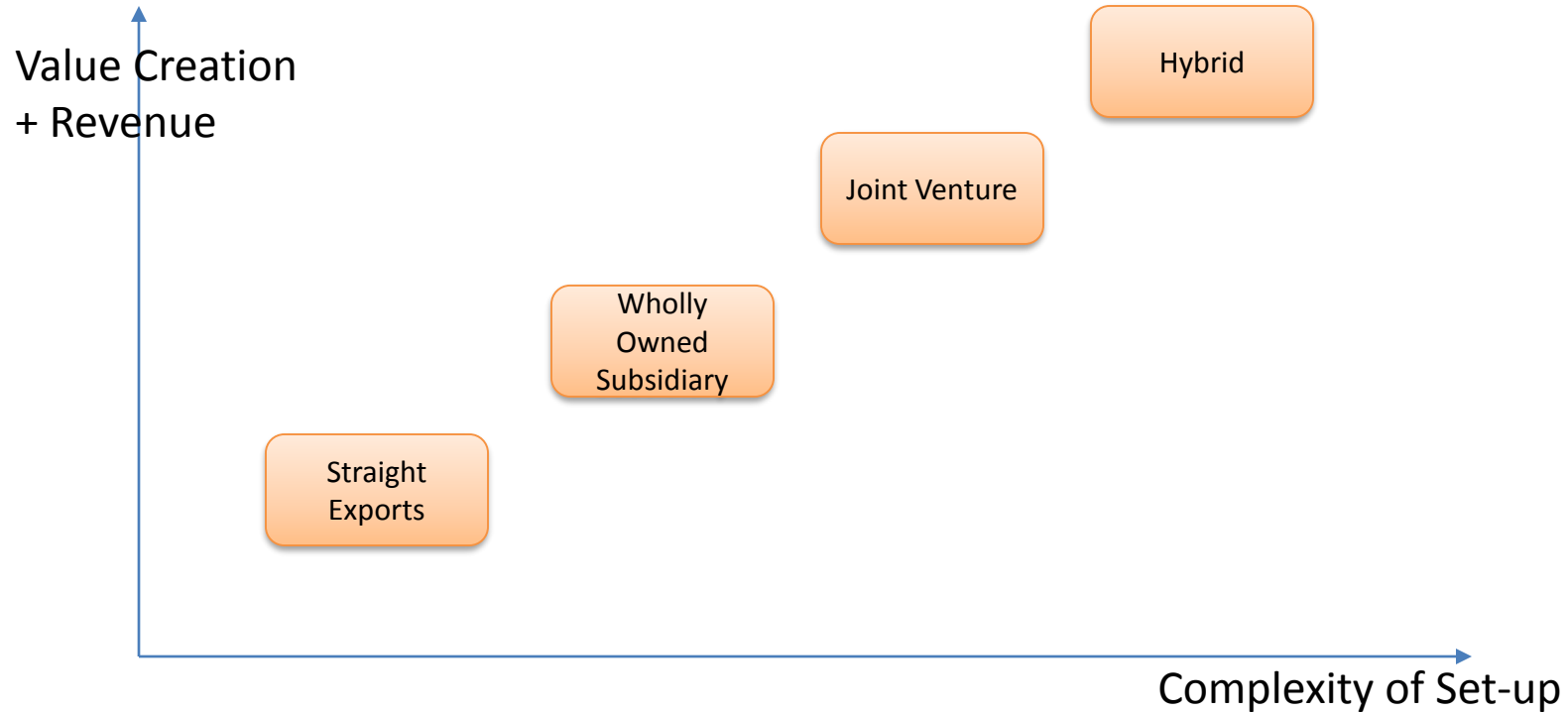
★
Arms length relationship

For community led initiatives - How to rollout

ETI Dynamics will standardize all aspects of the solution and pass it down to the implementation groups which include: Entrepreneurs, Communities and other Self Help groups



Technology Transfer Models



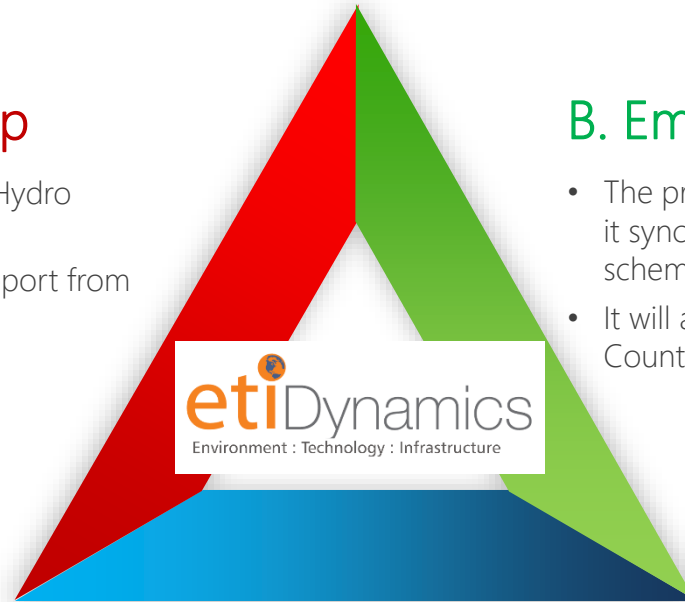
3E Approach

A. Entrepreneurship

- Create thousands of Water/Hydro entrepreneurs
- Entrepreneurs to get full support from a qualified team

B. Employment

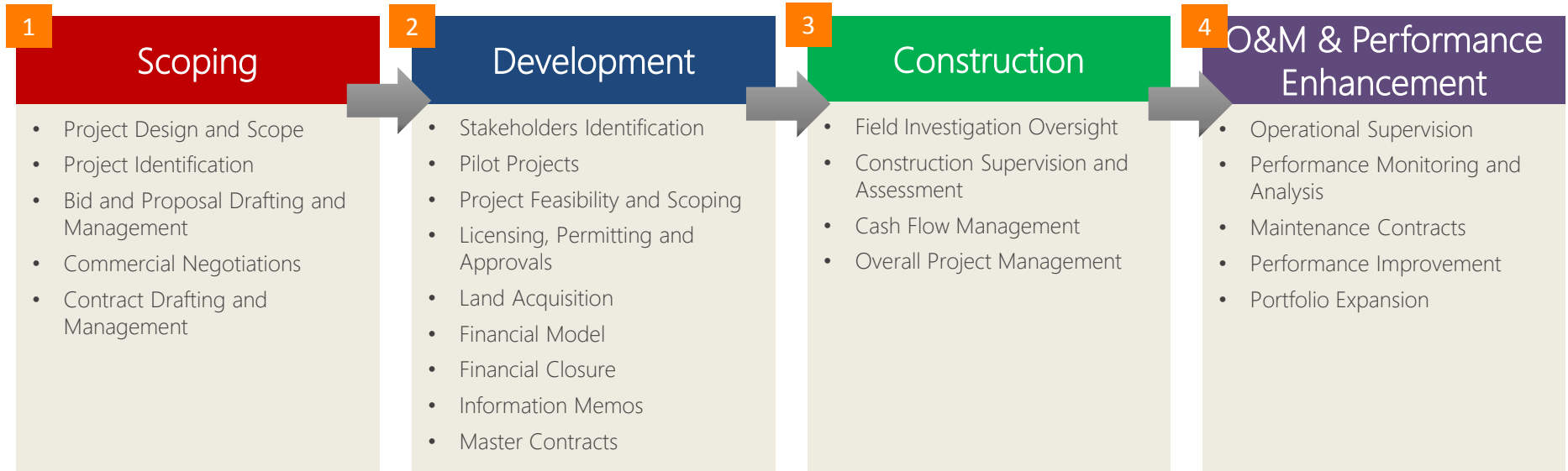
- The project can deliver hundreds of thousands of jobs as it syncs in with Indian Government's apprenticeship scheme
- It will also create a major skilling programme for the Country



C. Economic Development

- Brings in advanced technology and Foreign Investment into the Country
- Creates local manufacturing hubs

Asset Lifecycle Management

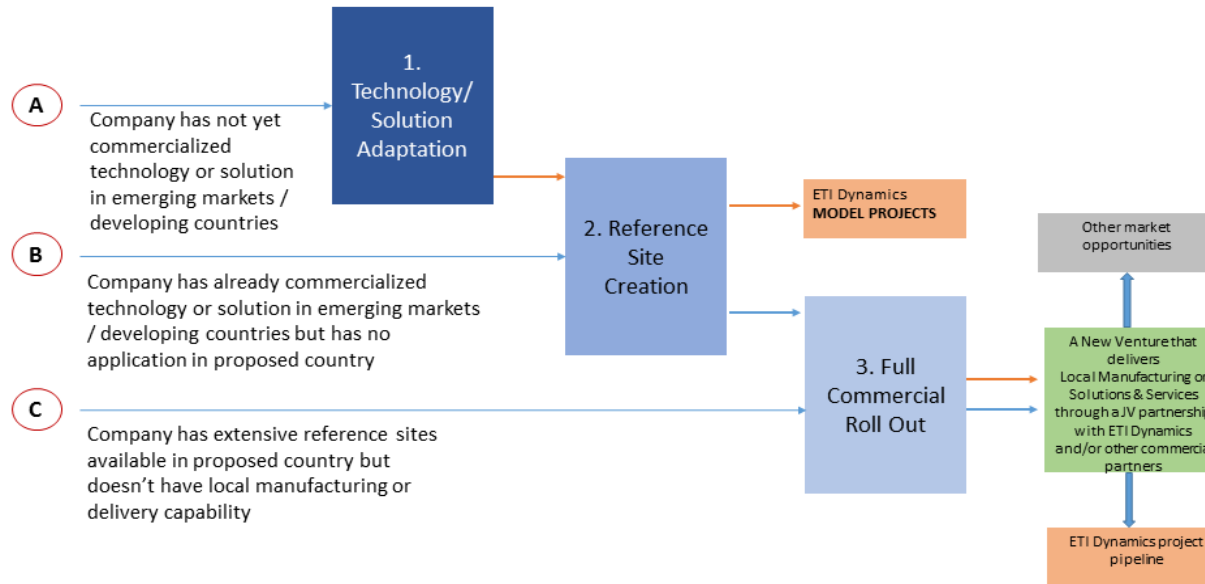


Value Creation

ETI Dynamics is present across the entire value chain of the project development lifecycle. Through specialist “DevCo” and “OpCo” entities it manages project development and operational lifecycle. Our understanding of the total lifecycle allows us to identify where value can be created and risks can be plugged thereby giving superior returns to our investors.

Technology Acceleration Platform

ETI Dynamics provides an accelerated and structured route to market for Technology and Solution providers (TSPs). It divides the whole process in three stages and engages with the TSP at every stage of the process, depending on the stage that the TSP is at.



1. Technology and Solution Adaptation

For TSPs that haven't yet commercialised their solutions for **emerging/ developing and high-growth markets**, ETI Dynamics provides framework and co-investment to adapt the Technology or Solution to suit local needs.

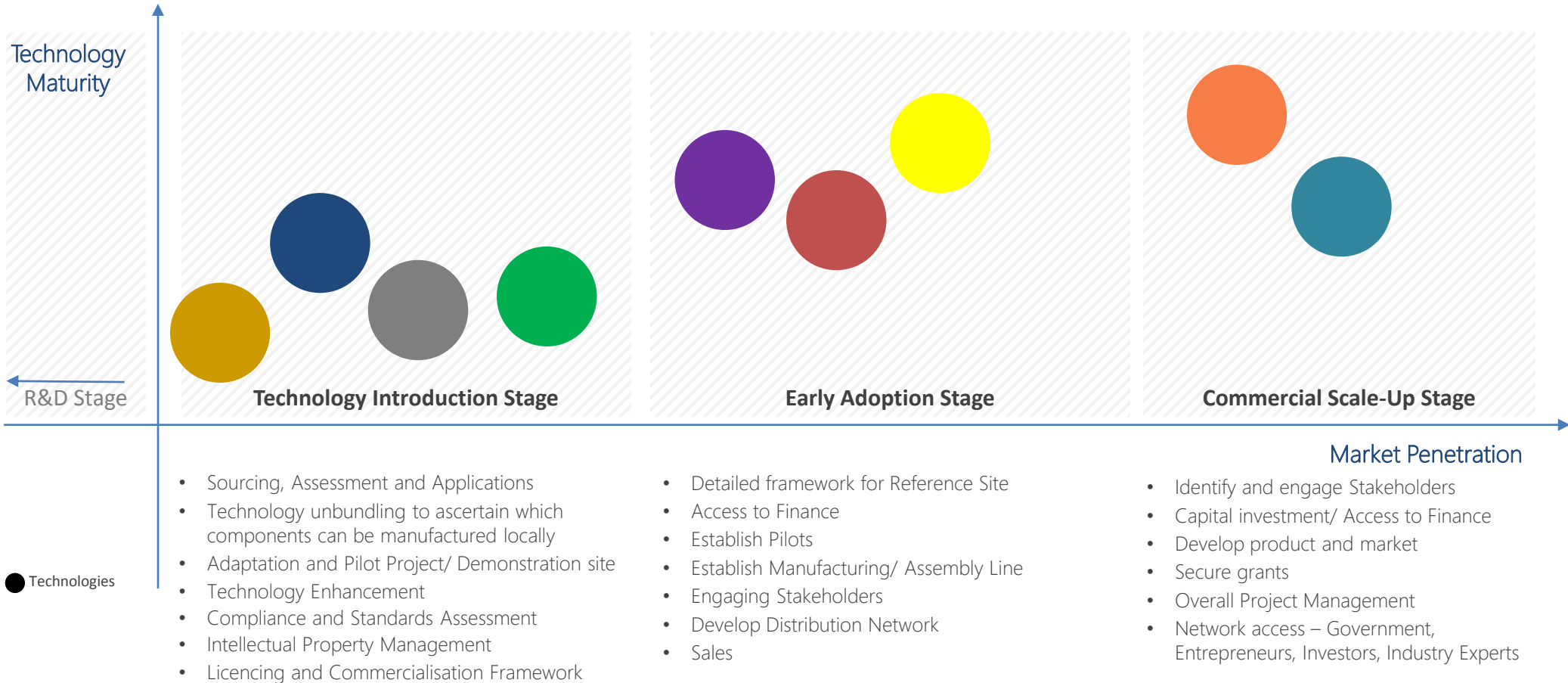
2. Reference Site Creation

Reference sites boost local market receptivity and response. ETI Dynamics provides TSPs with framework for creation of reference site on ground.

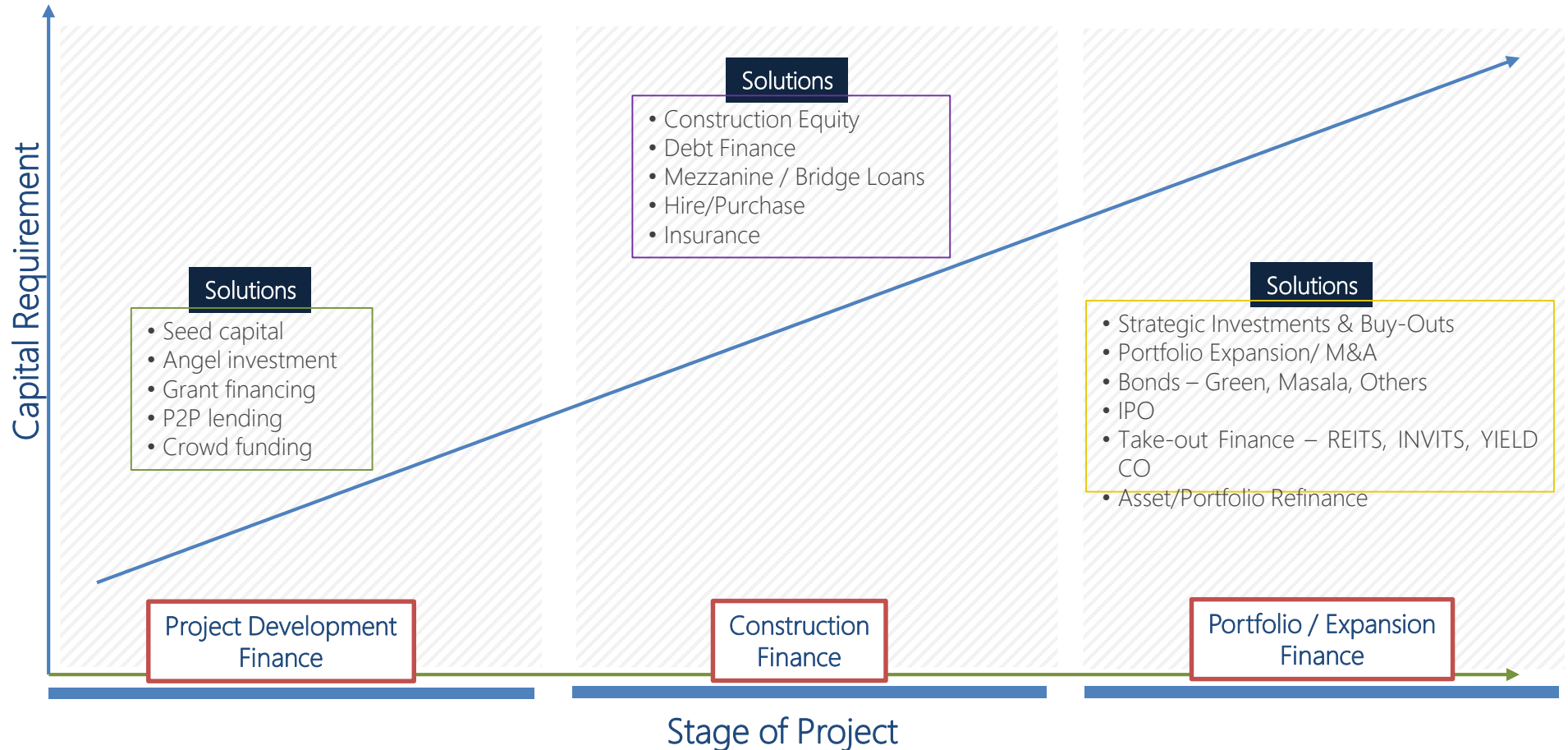
3. Commercial Roll Out and Scale Up

ETI Dynamics develops local delivery framework through its own investments and/ or partnerships in the area for effective and efficient delivery of the Technology or Solution.

Our Technology Maturity-Penetration Curve

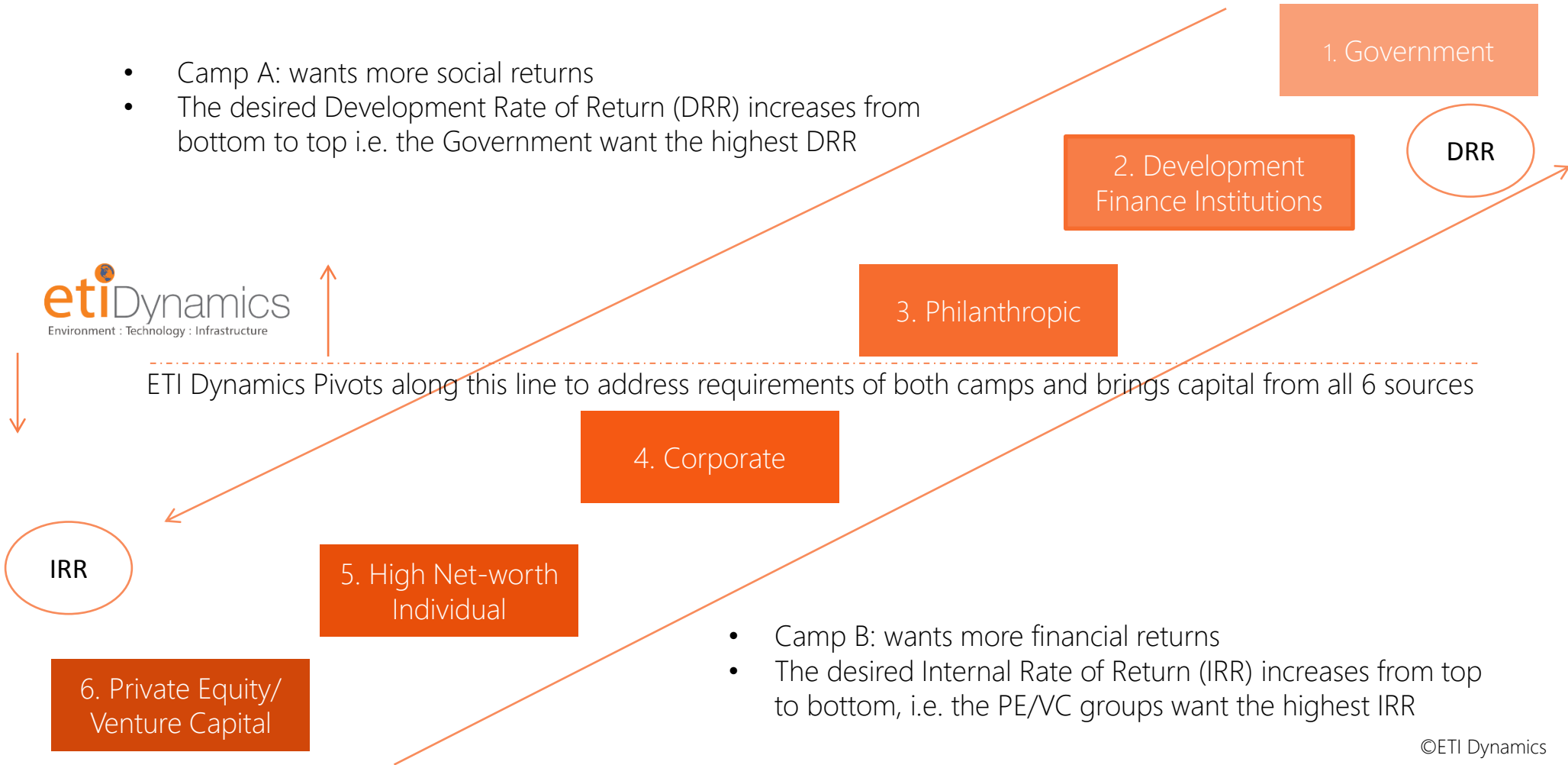


Project and Corporate Financing Solutions



Capital Curve Innovation

- Camp A: wants more social returns
- The desired Development Rate of Return (DRR) increases from bottom to top i.e. the Government want the highest DRR



- Camp B: wants more financial returns
- The desired Internal Rate of Return (IRR) increases from top to bottom, i.e. the PE/VC groups want the highest IRR

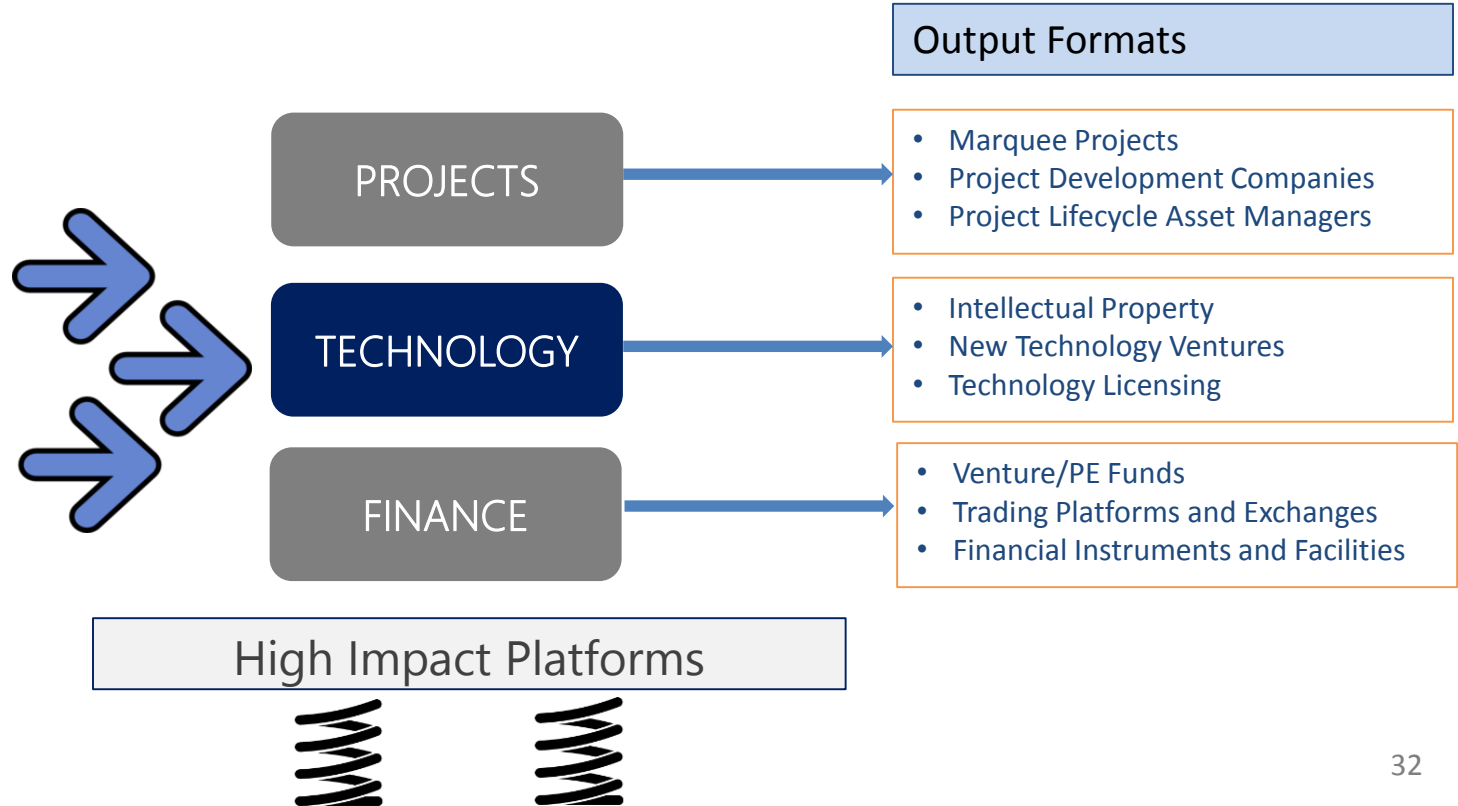
About ETI Dynamics

ETI Dynamics operates as a big impacts lab to create numerous high impact solutions in the *Environment and Sustainability area*. The company holds and manages a portfolio of these solutions that manifest in multiple formats ranging from projects, companies, ventures, new IP, investment funds and financial instruments.

etiDynamics
Environment : Technology : Infrastructure


Big Impacts Lab

Ideation
Incubation
Innovation




Expertise & Focus Areas

Core Focus Areas

 **Water**


- Drinking Water
- Wastewater Treatment
- Sanitation
- River Basin Management

 **Energy**

- Solar
- Wind
- Biomass
- Energy Efficiency
- Waste Heat Recovery

 **Waste**


- Waste Management
- Waste to Energy
- Waste to Fertiliser
- Waste to Fuel
- Waste to Biogas

 **Green ICT**


- Internet of Things (IoT)
- Sensors
- Remote Sensing
- Machine to Machine



Applied Areas

 **Transport**

- Electric Vehicles
- Charging Station Infrastructure
- Electric/Solar Hybrids

 **Food and Agriculture**

- Precision and Controlled Irrigation
- Enhancing Crop Yields
- Food Storage
- Sustainable Farming

 **Smart Habitats**

- Buildings
- Communities
- Villages
- Islands
- Cities

 **Green Manufacturing**

- Green Industrial Clusters
- Efficient Manufacturing
- Lean Manufacturing



Invitation to
Slovenia to join
Big Impact Global
Sustainability
Initiatives

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