S4 - Smart Specialisation

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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.
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

Source: CGanga © ETI Dynamics
Case Study 1: Riverhealth / Co-Creation

A. Data Sources
- Satellite
- Drones
- In-situ sensors
- Handheld Sensors and devices

B. Data Storage & Modelling
- Literature
- Integrated Model
- Socio/Environmental Models
- Data
- Iterative learning loop

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

Lead Organisation and Partners
- Riverhealth
- Co-Creation

Source: CGanga and University of Southampton

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

Government owned Systems Integrator

Supply sensor hardware

Indian Distributor

Indian distribution partner is either already an empanelled vendor with TCIL or meets the qualification criteria

Indian Research & Innovation Entity

Supply Analysis

Indian Analytics Co.

Indian software and analytics company provides data analysis and develops white-labelled interface.

Supplies data as a service

Government Of India

Collaboration to develop new IP

* 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 sugars 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 osmotic 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)

Investment into parent IP

International Hydropower IP Company → Indian Manufacturing Partner → EPC Partner

Manufacturing in India to supply to Asia, Middle East and Africa

Project 1 → Project 1 → Project 1

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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)

Investor(s)

SPV 1

SPV 2

SPV 2

SPV n

Developers

Investment Platform

Urban Local Body

Water Supply Agreement

Payment Collection

Regulatory Enforcement

Water Off-takers

Guarantor provides a credit risk assurance or in select cases is the signatory to the water purchase agreement (WPA)
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

- Nov 2017: Expressions of interest received from companies
- Dec 2017: Responses received from companies. Initiate request in India with Government
- Jan/Feb 2018: Letter received from Indian Government agencies and relevant departments
- 31 Mar 2018: Projects Secured Proposal to Slovenia Government
- Apr 2018: Initiate Pilots

Scoping and Market Assessment running in parallel +18 months
Impact

Project Ganesha

1. Sustainable Development
   - Major environmental programme in the world. Ganga / Smart Cities

2. Global Impact
   - Solutions will be transferred to Africa and rest of Asia once deployed in India

3. Accelerate Innovation
   - Addresses the most critical bottleneck – technology transfer

4. New Market Development
   - Slovenian companies get access to a major market – over USD 200bn market size in next 10 years

5. Co-Creation
   - New IP is created which increases the rate of innovation development

6. High Profile
   - Very high visibility for Slovenia as programme is top policy priority for Indian Government

7. Enterprise Growth
   - Current value of projects of circa Euro 15mn

8. Economic Impact
   - Brings back significant wealth, jobs and investment into Slovenia

- ©ETI Dynamics
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.
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.
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

1. Scoping
   - Project Design and Scope
   - Project Identification
   - Bid and Proposal Drafting and Management
   - Commercial Negotiations
   - Contract Drafting and Management

2. Development
   - Stakeholders Identification
   - Pilot Projects
   - Project Feasibility and Scoping
   - Licensing, Permitting and Approvals
   - Land Acquisition
   - Financial Model
   - Financial Closure
   - Information Memos
   - Master Contracts

3. Construction
   - Field Investigation Oversight
   - Construction Supervision and Assessment
   - Cash Flow Management
   - Overall Project Management

4. O&M & Performance Enhancement
   - Operational Supervision
   - Performance Monitoring and Analysis
   - Maintenance Contracts
   - Performance Improvement
   - Portfolio Expansion

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.
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

**R&D Stage**
- Technology Introduction Stage
- Early Adoption Stage
- Commercial Scale-Up Stage

**Technology Maturity**

- Sourcing, Assessment and Applications
- Technology unbundling to ascertain which components can be manufactured locally
- Adaptation and Pilot Project/ Demonstration site
- Technology Enhancement
- Compliance and Standards Assessment
- Intellectual Property Management
- Licencing and Commercialisation Framework

**Market Penetration**
- Detailed framework for Reference Site
- Access to Finance
- Establish Pilots
- Establish Manufacturing/ Assembly Line
- Engaging Stakeholders
- Develop Distribution Network
- Sales

- Identify and engage Stakeholders
- Capital investment/ Access to Finance
- Develop product and market
- Secure grants
- Overall Project Management
- Network access – Government, Entrepreneurs, Investors, Industry Experts
Project and Corporate Financing Solutions

Stage of Project

- **Project Development Finance**
  - Solutions
    - Seed capital
    - Angel investment
    - Grant financing
    - P2P lending
    - Crowd funding

- **Construction Finance**
  - Solutions
    - Construction Equity
    - Debt Finance
    - Mezzanine / Bridge Loans
    - Hire/Purchase
    - Insurance

- **Portfolio / Expansion Finance**
  - Solutions
    - Strategic Investments & Buy-Outs
    - Portfolio Expansion/ M&A
    - Bonds – Green, Masala, Others
    - IPO
    - Take-out Finance – REITS, INVITS, YIELD CO
    - Asset/Portfolio Refinance
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

ETI Dynamics Pivots along this line to address requirements of both camps and brings capital from all 6 sources.
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.

**Output Formats**

- Marquee Projects
- Project Development Companies
- Project Lifecycle Asset Managers
- Intellectual Property
- New Technology Ventures
- Technology Licensing
- Venture/PE Funds
- Trading Platforms and Exchanges
- Financial Instruments and Facilities

**High Impact Platforms**

- Marquee Projects
- Project Development Companies
- Project Lifecycle Asset Managers
- Intellectual Property
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- Technology Licensing
- Venture/PE Funds
- Trading Platforms and Exchanges
- Financial Instruments and Facilities
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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