Smart Villages and Smart Cities

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The best, quickest and most efficient way is to build up from the bottom . . . Every village has to become a self-sufficient republic. This does not require brave resolutions. It requires brave, corporate, intelligent work. ..

If we interpret brave as entrepreneurial and risk taking attitude, corporate to mean setting & meeting strategic goals and objectives, intelligent with IT enabled governance models, called smart nowadays, we implement Mahatma’s vision.
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Motivation and Approach

Ecosystem Aware

Global Supply Chain Management
Motivation for the Study

- In India there are 610 districts, (200 backward) 600,000 villages (125,000 backward.)
- About 800 M people in India live in villages and at least half of them are below 25 years of age.
- The Government is taking responsibility for uplifting the rural and the economically poorer regions. There is lot of public spending to improve the infrastructure, water and sanitation in these areas.
- However, these efforts are disparate, fragmented and piecemeal and not much improvement has been achieved in most of the villages.
- There is a need for designing and building Smart Villages which are independent in providing welfare services and employment and yet well connected to the rest of the world.
Government Programs for The Villages

- **Major Programs in Agriculture**
  - National Agricultural Development Program
  - Accelerated Irrigation Benefit Program
  - Fertilizer Subsidy
  - Bank loans, Free Electricity

- **Major Programs to Improve Employment**
  - Public Distribution System
  - Mahatma Gandhi National Rural Employment Guarantee Scheme
  - National Food Security Bill

- **Major Programs & Partnerships to Improve Nutrition Security**
  - Mid Day Meal Scheme
  - Integrated Child Development Scheme (ICDS)
  - Annapurna Scheme (Ministry of Rural Development) for senior citizens
  - The Nutritional Program for Adolescent Girls
  - Emergency feeding program (in eight districts in Orissa)
A **Smart Village** is a bundle of dozens of services delivered effectively to the residents and businesses in an efficient manner.

These services could be location specific depending on the demography of the village and occupations of the residents.

These services such as Power, Water, Buildings, Retail, Health care, etc. were built several decades ago. New designs, technologies and management models should be used to upgrade the existing ones and in building the new ones. This requires standardization, use of IT and sensor networks.

Requires strategy, integrated planning and above all monitoring and execution of the activities using appropriate governance models.
The Five STERM forces

- *Science* research generates new and or improved products
- New *Technologies* (Internet, Search, Solar) rapidly emerging
- New *Engineering* materials and designs come out every day.
- *Institutions* including Government and Social Institutions play a very important role in service chains. *Regulations and policies* with regard to infrastructure, climate change, immigration, trade, outsourcing require attention
- New *Management* techniques and business models such as outsourcing, sell direct, supply hubs, e-retail, telemedicine, are invented to face competition and enable growth.
The Smart Village Ecosystem
The Basic Ecosystem

Village Ecosystem

Institutions

Delivery Services
Infrastructure

Supply Chains

Resources

Investment Climate
Innovation, Coevolution
Village: Investment Climate

- **Investment climate** of a village is the policy, resources, infrastructure, institutional, and behavioral environment that influences the returns and risks of an investment.
- The investment climate of villages differs depending upon the *significant occupation* of the village and its *natural resources*.
- The primary occupation of the villagers can be farming, aqua culture, working for industries such as apparel or leather goods or Toys.
- The village can be *a tourist location, pilgrimage centre, or a place of historical importance etc.* Mines, Forests, Ocean shores or River banks can be part of the natural environs of the village.

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The Service Chains

- Some of the service chains like the Water, Power, Health care are standard and could be part of larger services.
- Affordable housing, Retail, Education, Skill based training, Rural employment, Farm to market could be specific to the Village.
- Mapping each of these and identifying strategic players and coordinating their actions could be critical for success.
- These services could redesigned to be smart using cloud, ICT and data analytics.
Resources

- Land and water are the natural resources
- Education, Finance, Seed, Fertilizers, etc are necessary resources
- The Government support from various programs provides either cash or subsidies
- Entrepreneurial environment would require Micro Financing organizations, Supporting industries and Orchestrators to connect the SMEs to the Global Value Chains
Delivery Services

- Telecom, IT, Mobile, E-Kiosk and Spoken Web are the delivery services.
- Post office serves both as a logistics service provider and Bank.
- Food Courts supplying nutritious food is essential for countering malnutrition.
- Warehousing and Marketing services as relevant are needed both for Agriculture or SME oriented environs.
- Connectivity to the external world is important.
Institutions

- The village Panchyat, State and Central Governments are the regulators and providers of the basic services.
- NGOs, Social Groups organize health care and food security programs.
- The Farmers are subject to APMC and other acts.
Formulate Growth Strategies for the Village

- Formulate Growth Strategies for the village to make it self-sufficient taking into account the *investment climate* and protecting native occupation and heritage of the village.

- If a village is a tourist location, then the growth strategies should be aligned *towards construction of restaurants and hotels*, development of transportation services like cabs or buses, *vocational training to act as guides, security, working as chefs in restaurants* or kirana shops selling the unique products made in the village, pharmacies and hospital services in a mobile van etc.

- The residents can be trained in providing these services & the funding agencies, Micro finance Institutions or NGOs can be approached.
Performance Measurement

- Measure the performance of individual services & the village
- For each service, the metrics such as timeliness, reliability, accessibility, user satisfaction, innovations in services, etc are measured.
- Village performance depends on the effectiveness of the individual services rendered, vocational training and its impact on betterment of skill development and employment, New innovations improving welfare, increase in connectivity to outside markets, growth in trade and per-capita income.
- All the components of the balanced score card must ultimately meet the objectives of the Smart Village which are to improve the utility services, investment climate, enhance promote economic development
Balanced Score Card and Smart Village Performance

**Strategy Themes**
- Enhance Living Conditions
- Improve Investment Climate
- Enhance Job Security
- Promote Entrepreneurship
- Connectivity with other Villages and Cities

**Customer Perspective**
- Reliable Service Delivery
- Connectivity with outside world
- Improve Service Quality
- Skill Development, Ensure Job Security

**Financial Accountability Perspective**
- Attract Business Funding
- Integrate SMEs into Global Value Chain
- Promote Business Mix (Industries SMEs, Agriculture)

**Internal Processes Perspective**
- Upgrade utility services
- Standardize Processes, Improve Productivity
- Improve Supply Chain Connectivity Using ICT
- Growth Oriented Strategy Formulation

**Learning And Growth Perspective**
- Enhance Primary Education
- Provide Vocational Training
- Provide Employment Opportunities
- Encourage Entrepreneurship
Innovations

- Audio visual interfaces for all applications
- Local language support
- Equipment that can withstand harsh environments
- Low cost medical services
- Low cost housing
- Processed food & food courts with hygienic affordable and nutritious food
- Investment climate based innovations
Ecosystem Aware
Global Supply Chain Management

Risks

- Failures in the supply chain due to lack of communication & management expertise
- Weak Infrastructure and resultant Operational inefficiencies
- Availability of resources from Govt. and other FIIs due to lack of confidence
- Inertia in adapting to anything new due to lack of awareness and education among the villagers
- Exploitation by political parties, corruption and mismanagement of funds
Supply Chain Execution

- A visionary strategy that is not linked to excellent operational and governance processes cannot be implemented.
- Operational excellence may lower costs, improve quality, and reduce process and lead times.
“While the fear for big change and sticking to familiar markets may tempt companies to focus on “bargain shopping” in the Urban markets, building a position in the growing Village Markets will provide important sources of future growth for many industries”