The role of FPOs in developing socially responsible supply networks

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Flagship Project 5 (FP5)

Supply Chains:
Modelling Water Use for Sustainable Livelihoods
Motivation

• Focus on relational elements and the processes key to network integration within supply networks

• Informing set of operating principles and protocols—applicable to all stakeholders ‘cooperating’, within a ‘shared’ environment

• Advanced Manufacturing Technologies; Product-Service Systems

• Economic impact

• Focus now on how digital technologies and societal needs may influence future operating philosophies

• Practical Solutions - Economic and Social impacts
Your map

The map shows places where answers most closely match your own, based on more than 73,000 respondents who said they were from Ireland or Britain.

Thank you! We have where you were raised as:
Cork, Ireland

**FP5 research focus**

**Design of socially responsible supply networks**
- Nascent research area in operations management (Tang, 2018)

**FPO contexts - constraints**
- Lack of access to finance...
- Lack of access to market...
- Low productivity...

**ERG Theory**
- **Existence** e.g., Health & Wellbeing
- **Relatedness** e.g., Social cohesion; Ecological health
- **Growth** – Purpose & expression; Influence & respect; Freedom & autonomy

**Digitalisation**

**Establishing norms for social responsibility in supply networks**

**New “Concepts of Operation”**

**Economic and social value of information**

**Advanced Manufacturing Technologies**

**User-Technology Adoption Matrix**
- Develop a portfolio of resource-efficient technology interventions
- Identify different user profiles
- Understand potential application of technology interventions
- Update the matrix and document case studies
Digitalisation and Societal Needs
- impacting the creation and workings of the FPO?

• This research examines societal needs, social impacts, and strategic behaviours of FPOs, and their potential role in developing socially responsible supply chains in India.

• A key issue this research looks to address is how to balance the often conflicting pressures created by the need for sustainable development e.g.,

  Overall industry and FPO-level economic performance
  v.
  Environmental degradation and social disruption
  (and other unintended consequences...)

4 stages of FPO success?

• **Communicating** a compelling vision of a potentially successful enterprise with significant rewards to farmer-members

• **Creating** (and registering) the member organisation **best designed** to deliver...

• Utilising early success to institute **rules/norms** that reinforce **patronage cohesiveness, governance effectiveness**, and **operating performance**...

• At ‘**maturity**’, utilise the strength from enterprise growth to enhance member, patronage and domain **centrality**

Stages of FPO emergence - traditional

• Pre-formation – Formation – Implement

- ‘Identification’
  - ‘Organisation’
  - ‘Collection’

- ‘Decision’
  - ‘Incorporation’

- ‘Activation’
  - ‘Phase-out’

• Cluster analysis
• Organisation of FIGs and education about activity and intended benefits
• Financials e.g., share money
• Timescale: 12-18 months
• Membership drive and formulation of the management structure
• Documentation and registration
• Capacity building of FPO functionaries
• Actual operation of production, value addition, marketing, etc.
• Regulatory approval for activities (if needed)
• Overall timescales: 2-3 years

Leveraging next-generation supply networks…
…that demonstrate technology platforms, new routes to market, new markets…

- **Maritime** - Fragmentation of Vertically Integrated **Clusters** – globalisation
- **Built-Environment** - New **Sustainable** Supply Networks – policy generated
- **Industrial Biotechnology (IB)** - Platform Technology with **multiple intermediate/end users**
- **Photovoltaics (PV)** - Multiple generations of **co-existing** supply networks
- **Last Mile (LM) Logistics** - **Customer/Information driven** multi-echelon supply networks
- **Defence Aerospace** - **Servitization**/ Service Supply Networks - revenue driven


- **Plastic electronics** - Commercialisation of new technologies, **nascent supply networks**
- **Pharma** – Digital Factory concepts, continuous technologies, business transformation, personalised products, new therapy areas…**alternative Supply Network models**…


Network evolution – research focus

‘Inside-out’ network effects

- The path to ‘maturity’ is usually long, and needs supportive investment through a range of planned and sequenced business services (Poole and Frece, 2010)
- No ‘one size-fits all’, and no guarantee that individual successes can be upscaled and replicated (ibid)
- Fragmentation - Leveraging legacy systems

‘Outside-in’ network effects

- Networks mutually dependent on their surrounding environments and constantly adapting to it
- Coupling internal and external ecosystems
- Network integration - New systems and new regulations

Stages of supply network emergence - revisiting

- Nascent – Emerging – ‘Mature’
- Conventional – Digital

**‘Embryonic’**
- Little or no network structure
- Weak or non-existent product definition

**‘Fragmented’**
- Stage capturing both network ‘fragmentation’ and increasing ‘order’ within the supply network
- Characteristics include an emerging commercial strategy and potential for partnering arrangements

**‘Formation’**
- This network ‘creation’ stage broadly covers the transition from viable pilot production - of a new technology or delivery platform - to a completed value chain with an ‘end-user’ in the form of an early adopter
- Characteristics include trust building, various selection processes etc.

**‘Expansion’**
- At this point multiple customers begin to develop and competitive technologies emerge
- Supply network elements often undergo rapid and continual change as the value chain evolves

**‘Stabilisation’**
- The supply network here starts to cohere into the form it will take for a mature, viable industrial system
- Clusters of network actors start to form, as collaborative models begin to gain traction over competitive technologically differentiated approaches

Inclusive design

- How should SR supply networks be configured that deliver specific FPO objectives and mission statements?

Ethical norms

- How can FPOs establish ethical norms as they collectivise and grow?

Measures of Fairness

- If FPOs really create shared value, how should/can this created value be shared between its members?

Platform Thinking

- How can digital platforms promote the creation of both economic and social value?

Information Provision

- How can FPOs expand product portfolios to include e.g., information services?

Market Decisions

- How can FPOs use market information to make crop planning and selling decisions?
Inclusive design
Ethical norms
Measures of Fairness
Platform Thinking
Information Provision
Market Decisions

<table>
<thead>
<tr>
<th>FPO</th>
<th>OMM</th>
<th>UMANG</th>
<th>VAPCOL</th>
<th>MAAHI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context</td>
<td>'Identification'</td>
<td>'Activation'</td>
<td>Exemplar</td>
<td>Exemplar</td>
</tr>
<tr>
<td>FPO Stage</td>
<td>'Embryonic'</td>
<td>'Expansion'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply network stage of emergence</td>
<td>'Embryonic'</td>
<td>'Activation'</td>
<td>'Activation'</td>
<td>'Phase-out'</td>
</tr>
<tr>
<td>Societal needs ideology</td>
<td>'ERG' discourse evidenced</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mission state</td>
<td>Local eco-system</td>
<td>Odisha</td>
<td>Uttarakhand</td>
<td></td>
</tr>
<tr>
<td>State</td>
<td></td>
<td>Maharashtra</td>
<td>Gujarat</td>
<td></td>
</tr>
<tr>
<td>Data collection</td>
<td>2019+</td>
<td>2019+</td>
<td>2008</td>
<td>2015</td>
</tr>
<tr>
<td>Turnover (M)</td>
<td>n/a</td>
<td>34</td>
<td>9753</td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>Large</td>
<td>Small</td>
<td>Medium</td>
<td>Large</td>
</tr>
<tr>
<td>Basis of Organisation</td>
<td>Female collective</td>
<td>Individual farmer families</td>
<td>Members</td>
<td></td>
</tr>
<tr>
<td>District</td>
<td>Almora</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block/Region/Mandal</td>
<td>72</td>
<td>Kumaon</td>
<td>Mokhada</td>
<td></td>
</tr>
<tr>
<td>Cluster/Panchayat</td>
<td>Mokhada</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td># villages</td>
<td>100</td>
<td>1,000</td>
<td>1685</td>
<td>86,938</td>
</tr>
<tr>
<td># participating</td>
<td>31,099</td>
<td>members</td>
<td>families</td>
<td>individuals</td>
</tr>
<tr>
<td>Female membership as % of total</td>
<td>100</td>
<td>100</td>
<td>23</td>
<td>20</td>
</tr>
<tr>
<td>Total ha</td>
<td>562</td>
<td>Agriculture</td>
<td>Horticulture</td>
<td>Animal Husbandry</td>
</tr>
<tr>
<td>Sub-sector</td>
<td>Agriculture</td>
<td>Millets</td>
<td>Mango; cashew nuts</td>
<td>Milk</td>
</tr>
<tr>
<td>Target commodities</td>
<td>Millets; Pulses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commodity-wise value addition</td>
<td>Dairy products</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td></td>
<td>FPO Promoter (NDS)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major stakeholders</td>
<td>Aajeevika (NRLM)</td>
<td>Resource Support Agency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organiser/facilitator</td>
<td>SHGs</td>
<td>Private sector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Problems/contraints</td>
<td>Scale; Taxation/VAT @ 18%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**“New Gold” - The ‘digital’ FPO?**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Co-operative</th>
<th>Producer Organisation</th>
<th>'Digital' FPO?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Registration</strong></td>
<td>Co-op societies Act</td>
<td>Amended Companies Act (2012)</td>
<td>Hybrid forms, each with discrete ConOps</td>
</tr>
<tr>
<td><strong>Membership</strong></td>
<td>Open to any individual or co-operative</td>
<td>Only to producer members and their agencies</td>
<td>By design e.g., open or closed network</td>
</tr>
<tr>
<td><strong>Board</strong></td>
<td>Not provided</td>
<td>Can be co-opted</td>
<td>Experts co-opted by design</td>
</tr>
<tr>
<td><strong>Area of operation</strong></td>
<td>Restricted</td>
<td>Throughout India</td>
<td>Unrestricted</td>
</tr>
<tr>
<td><strong>Relationships</strong></td>
<td>Transactional</td>
<td>Joint ventures and alliances possible</td>
<td>Local legitimacy – informal &amp; formal</td>
</tr>
<tr>
<td><strong>Shares</strong></td>
<td>Not tradable</td>
<td>Tradable within membership only</td>
<td>Tradable within a defined network</td>
</tr>
<tr>
<td><strong>Member stakes</strong></td>
<td>No linkage with no. of shares held</td>
<td>Articles of association can provide for linking shares and delivery rights</td>
<td>New measures of fairness</td>
</tr>
<tr>
<td><strong>Voting rights</strong></td>
<td>One person one vote, but e.g., government have veto power</td>
<td>One member one vote</td>
<td>Devolved sub-networks (coalitions)</td>
</tr>
<tr>
<td><strong>Reserves</strong></td>
<td>Can be created if profit made</td>
<td>Mandatory to create reserves</td>
<td>Co-opted scenarios linked to services</td>
</tr>
<tr>
<td><strong>Profit sharing</strong></td>
<td>Limited dividend on capital</td>
<td>Based on patronage; reserves a must and limit on dividend</td>
<td>New incentives &amp; gain share mechanisms</td>
</tr>
<tr>
<td><strong>Role of government</strong></td>
<td>Significant</td>
<td>Minimal</td>
<td>Enabling (legal, digital infrastructure)</td>
</tr>
<tr>
<td><strong>Disclosure and audit requirements</strong></td>
<td>Annual report to regulator</td>
<td>Very strict as per the Companies Act</td>
<td>Digital audit capability; Blockchain?</td>
</tr>
<tr>
<td><strong>Administrative control</strong></td>
<td>Excessive</td>
<td>None</td>
<td>Governance based on local laws</td>
</tr>
<tr>
<td><strong>Borrowing power</strong></td>
<td>Restricted</td>
<td>Many options</td>
<td>Multiple including community-based options</td>
</tr>
<tr>
<td><strong>Dispute settlement</strong></td>
<td>Through co-op system</td>
<td>Through arbitration</td>
<td>Platform governance protocols as per CoOps</td>
</tr>
</tbody>
</table>

Conclusions – next steps

1st basis for understanding current and future ‘socially responsible’ supply network configurations
- critical interconnections between industry actors and selected FPOs
- overall industry structures for specific regions

**FP5:** The framework will be applied in the case of selected FPOs in the Punjab region of India and for region-specific crops (e.g., wheat and rice)
- Using **scenarios** based on changing customer demand profiles, emerging technologies, and adoption of innovative cropping systems for sustainable water use

**Other FPs:** FPO cases **piloting intervention models** that aim to balance the interests of farmers, the food industry, and consumers in other regions of India

**Overall Goals:**
- Inform industrial policies and strategies to support nascent, emerging and ‘mature’ FPOs
- Enable FPO capability development in specific regional contexts