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SUSTAINABLE DEVELOPMENT: CREATING A VIRTUOUS PRODUCTION- CONSUMPTION CYCLE

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ABSTRACT

Asian Tiger economies grew on the “consumption = development” paradigm. However this leads to development that is not sustainable environmentally and economically as evidenced by rising environmental degradation and inequality. We need a new paradigm of Conscious consumption that can lead to sustainable development. In the emerging economies of the world, most workers do not earn enough to consume the goods they produce. Can producers making sustainably sound goods, earn enough to be the next wave of consumers who are conscious in their consumption habits and create a virtuous production-consumption cycle that is sustainable by its very nature? There is a case therefore, to build an ecosystem known as the “6C Model” that enables these producers to be consumers next. Mobile technology allows for distributed manufacture and design at a global scale with the so far ignored informal sector being at the forefront of sustainable development.

Key words: Producer-ownership, Distributed design & Manufacturing, Conscious-consumption, Sustainable-development

INTRODUCTION

A purely consumption = development model as followed by the Asian Tigers, is so high on material, human, and environmental cost that it cannot be the option for burgeoning youth populations of South Asia and Africa. Can a new paradigm of “Sustainable Development through Conscious Consumption”, with a virtuous production-consumption cycle with ecosystem support, replace it? Further with increases in automation, machine learning and artificial intelligence, labor, without creative input could soon be an anachronism.

One way to achieve sustainable livelihoods is a Creative Manufacturing system that leverages cultural creative skills to link previously underserved populations to engage with modern, mainstream markets. A professionally managed ecosystem can support sustainable, distributed, grassroots, producer-owned enterprises.

The food, fashion and lifestyle industries conventionally serve big customers placing big orders on big producers who use efficiencies and economies of scale to deliver at low prices. The digital revolution allows smaller entities order smaller volumes from decentralized units that deliver profitably. These buyers are discerning about quality, customization, ethics, fairness and environmental footprint. Such production enterprises can be majority owned by producers who earn from fair wages, profits of production, market and brand.

Currently, the industry is poised perfectly for this shift as there is a growing trend of conscious consumption, light living, slow food, fashion and up-cycling. Design to meet customer needs and aspirations is key along with training of professionals and leadership.

Tapping into conscious consumerism, using a more inclusive production framework creates an opportunity for producers to move to being conscious consumers themselves, creating a flywheel effect.

The professionally managed ecosystem provides for a supply chain that is digitally connected, transparent and traceable with full visibility across the value chain ensuring and maintaining standards.

A ‘6C ecosystem’ framework has been developed to guide this ecosystem building which consists of building channel (markets), create (design and innovation), access to capital, capacity building (training), construct (aggregation and mobilization) and digital connect.

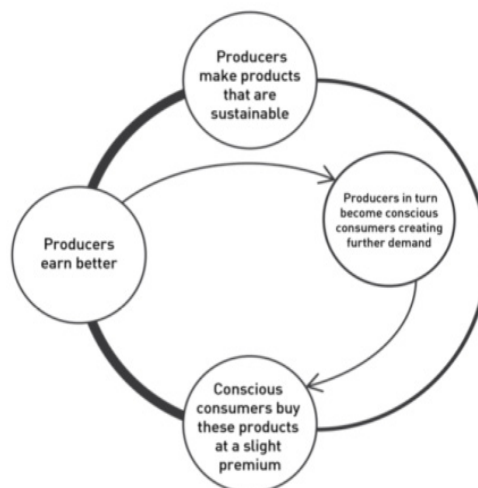


Fig 1 Producers become conscious consumers

Most supply chains lie in the organized sector and are recognized by financial institutions with institutional mechanisms of credit, have codes of conduct and instruments that are recognized, enforceable and protected by law, yet very little enables the informal sector although in emerging markets informal economies constitute a significant part of the economy.

In recent years even the organized sector especially in fast moving fashion is increasingly found to have parts of its supply chain embedded in the informal sector where forced labor and exploitation is rampant. Small wonder then that in several developed market economies there are talks of legislation that will require organized sector players to pay heed to unfair practices deep within their supply chains. UK passed the Modern Day Slavery Act in March 2015. (House of Parliament, UK, 2015)

Another recent debate has been over the payment of “fair living wages” to all the players in a supply chain. Hyper-competition among brands has triggered a race to the bottom as far as wages to producers are concerned. One bright spot however, could be a coalition of fast fashion retailers who are coming together to agree not to compete on fair living wages. (Chua, 2018)

Industree’s 6C model creates an ecosystem in which formerly informal sector producers can earn steady incomes through decent and equitable work, gain access to consistent demand for their products, and thus lift themselves out of poverty and attain social empowerment. The model seeks to address the neglected rights of producers at the sub-contractor level by using a decentralized approach, where each producer, even in the smallest enterprise, is still a willing and documented participant in a compliant value chain.

THE 6C MODEL

The 6C model seeks to bring the informal sector in conformance with formal sector practices, in order to create supply chains that are traceable, transparent and have complete visibility across the value chain. This is done not through mere regulation and enforcement but through creating an enabling ecosystem. Central to the 6C model is the concept of the producer owned enterprise, where producers earn from their labor, from the profits of production and if there is ownership of a brand then from the profits of the brand.

The 6c model operates in two modes,

- Deep Hand Holding (DHH) where in mobilization of producers, forming an enterprise with professional management support done in a very hands-on way.
- Light Hand Holding (LHH) each of the locations where an enterprise in the DHH mode is created acts as a hub for LHH. In the LHH mode independent entrepreneurs, family groups and master artisan led enterprises can tap into the 6C enabling ecosystem that has been created for the DHH mode.

The mix of DHH to LHH producer owned enterprises will eventually be in an 1:4 ratio. The ability to serve enterprises in the LHH mode will depend on a fairly wide geographical spread of DHH enterprise hubs and the use of mobile-based technology.

This model takes into account the key elements required to establish sustainable supply chains:

1. Construct:

Mobilizes producers into groups that bring in economies of scale albeit at a micro enterprise level, it's the aggregation of these micro enterprises that allow the informal sector to interface with the formal sector. The construct element brings together producers who can typically walk up to work or take a small commute to work making migration for work unnecessary. The concept is about taking work to people and not people to work. The challenges that need to be overcome, range from availability of built infrastructure, access to roads and uninterrupted energy. Professional Management Teams handhold the ecosystem with high-level administrative support and mentorship, leveraging digital tools to create a traceable, transparent value chain. The professional management layer operates as the hand holding implementers, ensuring development and production of new designs, competitive costing through productivity improvements and access to well negotiated bulk raw materials, quality and timely supply hence ensuring customer satisfaction and repeat orders, and access to a wide variety of markets and working capital. Formal sector players' difficulty to interact with informal without a network of middlemen and intermediaries who also distance the primary producer from the organized sector user, can be offset by Professional management teams.

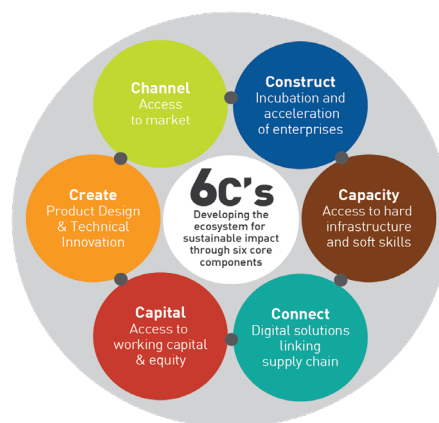


Fig2 The 6C model

India's largest dairy co-operative AMUL distributes what is called a patronage bonus to its 3.6 million farmer owners. A professional management cadre who are in effect employed by the coop members runs AMUL. AMUL has an annual revenue of USD 4.5 Billion, and is growing with new product launches. (Amul, 2011)

In this day and age co-ops have become unwieldy and susceptible to political agendas, with lax governance structures are prone to interference from vested political influence and from excessive government control rendering them less than nimble to face the dynamics of a modern market economy. A more promising model is board-run private companies with producers or producer groups as shareholders. In India a new class of companies called producer companies were created for the agriculture sector but are now finding application in non-farm sectors too. They bring together the advantages of producer ownership with the discipline of a private enterprise.

For example GreenKraft a producer company that makes natural fiber products predominantly out of banana bark, (the waste from trees after the bananas are harvested) has largely women producers. Through a professional management layer these rural women are able to supply to global players like IKEA and H&M. (Ikea, 2012)

2. Create:

Designing product, system, services that are desired by the market, designers study what customers and end users need and want, not even what they say they want. The 6C ecosystem approach brings together a range of designers who want to work in the sector. Among these are students who are seeking experience and the very real possibility that some of their design work will materialize. The Impact Edge lab in Srishti has engaged more than 120 students from the undergraduate program work with social enterprises in a rather fertile interaction. (Srishti, 2014). The second are young professionals who are looking to build a portfolio of work especially built work. The third are mature professionals who want to give back to society. Connect, where a mobile app codenamed I Got Design is being built, based on other apps in the I Got X (IGX) series developed by Mindtree Consulting.

3.Capacity:

Training in skills, improved technology and professional leadership capability. Three levels of training and skilling are carried out, one for the producers or micro entrepreneurs and micro entrepreneur leaders through the Grass Roots Business Academy (GBA). Curriculum has been developed and is being delivered and refined continuously with iterations in both content and delivery method. The GBA curriculum covers

- Life skills called 5Y (You, Your Family, Your Work, Your Community and your Impact, a 5 part modular course that aligns women Micro entrepreneurs towards essential life skills that range from food and nutrition, awareness of rights, gender equality issues, education for their children, financial literacy and leadership.
- Entrepreneurial Skills, PROVEB-T (Productivity, Value Addition, Business Processes and Technology) Productivity is key to be able to compete in modern markets, and the adoption of lean manufacturing adapted from the automobile industry reduces wastage, increases throughput of quality product and helps meet deadlines at predetermined costs.
- Training of paraprofessionals. Emulating Amul, and its founder Verghese Kurien, who set up IRMA (Institute of Rural Management Anand*) to train the professionals required for the dairy sector and the
- development management sector. Industree Foundation has chosen to partner with Srishti Institute of Art Design and Technology to develop entrepreneurially inclined professionals to serve the Creative Manufacturing Sector in India.
- Cadre of Entrepreneurs: Leadership Training. The Professional Practice in Impact Entrepreneurship, a two year Master of Arts program is currently being piloted in Srishti. Based on the feedback this program will be disseminated across more colleges in India and some of the material will be migrated onto “moocs” courseware as part of the platform initiative.

4.Channel:

Connecting enterprises to buyers, creates the market channels and awareness. The model goes through two stages of market development. Initially the focus is on getting up to speed in terms of quality and productivity when the market focus is on business to business (B2B) customers. As expertise is built up business to consumer (B2C) will be taken up. Industree has already been through the B2C cycle, having incubated Mother Earth, a B2C brand but with experience of the really deep pockets and time required to break into the B2C market advocates a ladder approach now.

Channel is considered along 3 markets, the local, national or regional and international. The international market needs the most handholding and professional support to ensure conformance to compliance and standards. The delivery to market will be omni channel and one of the delivery modes is an online market place called Hastti. Hastti will be very useful when it comes to the light hand holding model that will help independent craft enterprises to participate in the market channel.

5.Capital:

Access to capital, de-risking products and wealth creation instruments. The 6c model is funded by a blend of grants, debt and equity. Most mainstream businesses are able to access long term seed and working capital at rates of interest between 8% and 14% per annum. Producer owned enterprises however are subject to the usual micro-finance rates of interest which are usually at a low of 18% and going up to 27% rendering it difficult for them to compete with mainstream enterprises often with collateral for loan guarantees. The capital C looks at aggregating loans and providing the necessary guarantees through the form of first loss guarantees to enable these enterprises to borrow money internationally, hedge currency risks and yet deliver capital at acceptable rates of interest which would be the higher end of the spectrum for mainstream enterprises.

6. Connect:

Building an information technology backbone that provides transparency and traceability in supply chain, financial and environmental dimensions.

Supply chain transparency is vital to solving issues of substandard working conditions. In order to develop this, leveraging technology is crucial to gain access and visibility into each step of the value chain. This tech intervention is in the form of mobile and web apps to monitor value chains, or at a larger level, a platform that provides a space for the ecosystem players to interact and develop independently. The same technologies that are employed for traceability of payments and supply chain can also be used to provide verifiable data on carbon footprint, water footprint

and even gender footprint along with precise information on how much of the purchase price paid by a customer actually reached the producer. As today’s customers seek more meaning and experience in their shopping this level of transparency can be a powerful tool of competitive advantage.

PLATFORM BUILDING

The technology backbone of this model is what ties it all together bringing in ease of interaction, high level of transparency and traceability, efficiency and the ability to scale. To this end, the creation of a digital platform makes the ecosystem accessible to producers and service providers and allows for the scaling up of impact.

A digital platform will enable the producers to run an end-to-end business. The platform enables key functions in the areas of production and supply chain, value addition and market. The technology platform supports the producers in designing portfolios, periodic interventions, risk management, gap assessment, skilling, and micro-entrepreneurship and market linkages. It is a multi-sided, multi-stakeholder approach, which enables multiple stakeholder interactions. Combined with technologies like block chain traceability and transparency up and down a supply chain can be made full proof with distributed ledgers that cannot be altered or tampered with.

BUILDING NETWORKS

The success of this system depends highly on the relationships between the various players that form the end-to-end value chains. The identification of the various stakeholders in the value chain can be broken down into the 6Cs identified earlier.

This 6C model takes into account the key components of building a successful enterprise. Each of the components has the input and expertise of different ecosystem players contributing to completing the entire value chain that will enable small, decentralized enterprises to cater to consumer driven market demands efficiently.

The key challenge with multiple players is enabling interaction in a smooth and free manner such that the relationships built will serve the overall goal. Here, building networks between each of the ‘C’s can be enabled through technological interventions by bringing them on to a common platform to interact. For example, designers would need to interact with the market to gauge what trends to focus on, and would also need to interact with trainers to ensure that producers are trained accordingly. The technological platform makes constant and simultaneous interaction a possibility.

BUILDING EFFECTIVE SYSTEMS

Lean manufacturing is associated with the automobile sector; in 2015 as an experiment Industree introduced it in GreenKraft Producer Company, in artisanal manufacturing to see if the principles worked in crafts as well as they do in industrial situations.

Overall wastage from over ordering, cutting wastage, rework and rejection dropped from 30% to less than 10% in about 2 months of adopting lean processes in Green Kraft producer company. By month 4 of adopting lean process, wastage was contained within 5% and in some standardised products as low as 0.2%.

BUILDING SCALE

The overall goal is to reach more and more producers and provide support to increase incomes and generate livelihoods. This scale can be achieved through connecting with wider networks and enabling the ecosystem for larger numbers with the support of these networks. Technological intervention plays a key role in helping achieve this scale. Digital access can be achieved by equipping producers and stakeholders with the necessary technology tools.

Industree’s Basket Case	Labour cost of one basket	INR 100	
1 Skilled basket weaver	Can make 2 baskets a day	Earns INR 200 a day	1X
Using lean manufacturing methods of matching skill to operation teams were formed in a pilot			
Team of 5	Make 40 baskets a day	Earns INR 4000 a day	8X
Unskilled helper normally earns I 100 a day	Splices banana bark	Earns 400 a day	4X
2 Semi skilled weavers	Do bottom of basket on a jig	Earn 600 each a day	3X
2 skilled basket weavers	Do sides and top tie of basket	Earn 1200 each a day	6X
In actual production in the field the minimum a team of 5 achieved was 25 baskets a day and the maximum was 45, the higher earnings of semiskilled and skilled weavers worked as an incentive for the unskilled weaver to practice and move up the earning ladder.			

Table 1. Production efficiency with lean manufacturing Industree’s basket case

DESIGN FOR SCALE : CASE STUDIES IN ACTION

Two producer owned companies - Greenkraft and Ektha Apparel Producer Companies were established as pilots of the described ecosystem. Greenkraft supplies natural fibre products globally, with IKEA as a major customer and has a distributed manufacturing base of close to 1,000 grassroots micro entrepreneurs enabled with professional managers. In the current year this number will go up to 2000 to include banana farmers who will earn at least 50% more than what they do currently without having to grow more but just utilizing the waste from their plantations. In addition Design, Research and Development is being carried out to explore how fibre from the banana tree bark can be extracted and woven into fabric creating more employment and at the very least doubling incomes for farmers extracting the fiber. Green Kraft currently has production units in Tamil Nadu, with one outside Madurai, four units in Kalpakkam, Tranquebar, Chinnangudi and Nagapattinam along the East Coast where the bulk of the producers are fisher folk. Mobilizing of producers was done by HOPE a local NGO that enjoys the trust of the local people. In all 13 discrete producer groups have a strength of 1020 producers. The other 5 units are operated by NGOs or farmer producer companies. Industree Foundation has provided the 6C ecosystem support creating a network of enterprises that reaches back into the value chain. Social impact studies have indicated that the majority of the selling price ie from 58% to 68% goes directly to producers, instead of the usual 25-30% of product value that makes up the labor cost. The big shift is that labour is not treated as a commodity but on par with capital.

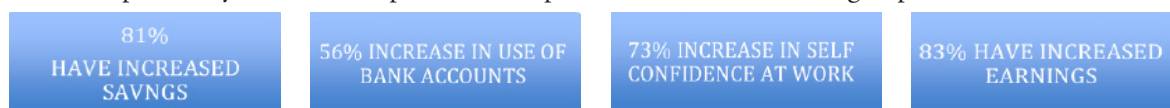
Ektha supplies garments to national brands in India, and works in an aggregated but decentralised model. The units are currently designed to employ from 25 to 225 people and 3 units with 100 -150 women have been set up in the last 6 months. Another 4,000 members are poised to be added over the next two years in the southern Indian states of Andhra Pradesh and Karnataka.

The proof of concept has now shifted to mission mode where scale up is being piloted to impact 30,000 producers, and will then grow with the help of a digital backbone to movement mode that aims to impact 1,000,000 people and then finally into platform mode where it will impact a potential 100,000,000 people. Producers who move up the sustenance to wealth creation stages are surprisingly generous when it comes to how they can help others who are in the situation that they were in. Consider the Ektha Producer Company in Kyathumgere, a village outside Mandya in Karnataka. Ektha Producer Company has a 25-member garment-making unit. The members of the company over the last year have been through a training and production ramp up stage. Today, they earn from both wages from labour and from division of profits in proportion to the contribution of time and labour. At the end of every month, they set aside the fixed costs and costs of labour and from the gross profits set aside:

- A reserve fund to see them through difficult times or slack periods
- Payback of assets and training costs including paying forward for other people who might want to embark on the same journey as themselves. This fund will be utilized towards training others.
- The balance is distributed as a profit share.

The expansion of the model is currently funded by blended capital, a mix of philanthropic grants, debt and equity. The fact that women producers are also contributing to the expansion funds is a huge moral boost that Industree's investors recognise.

A social Impact study done on two producer companies indicate the following impact.



THE VIRTUOUS FLYWHEEL

Creative Million Mission will recruit a million women in both DHH and LHH modes into producer owned enterprises. Each of them will directly influence the members of their family in their consumption behaviour and in turn will indirectly influence at least another 5. The training that each of these women receives in sustainable production also covers conscious consumption and the effect that they will have as they enter the consumption economy through increased and sustained earnings will be profound.

For example, a major cause of plastics pollution is the use of small serving sachets that are aimed at low income populations that usually do not have the means for proper disposal, awareness of these consumption practices are part of the training that these producers undergo. The more producers there are and as the model expands the more conscious consumers and their families will be generated creating a positive flywheel of change.

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