PUNE INTERNATIONAL CENTRE

Enabling Waste–to–Wealth and Circular Economy

Building Ecology, Environment and Employment - Triple-E Startups

A Playbook

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Introduction

At the Social Innovation (SI) Lab at Pune International Centre (PIC), over 80 social startups have been mentored by our team of seasoned entrepreneurs and professionals over eight years through the Social Enterprise Mentorship Programme (SEMP). We observed that some themes repeat many times, providing an opportunity to take a closer look at a diverse set of startups working on various forms of the same theme. Some patterns could be observed around processes, challenges, and what works and what does not. These insights could be useful not only for the startups in the SEMP but also for any startup working on or even planning to start working on a similar theme.

The term "playbook" comes from sports, where coaches build playbooks for each game with the objective of winning it. The playbook does not explain the basics of the game, which are expected to be known well by the players. Similarly, we will not cover the general principles of running a business or a startup. The focus will be on the special aspects of the theme of the playbook. Also, just as in sports, the playbook by itself does not win the game. The players still have to go and play the game well on the ground and react to the situations they face in the course of the game. Similarly, what we provide are not prescriptive guidelines or operating procedures but important patterns and lessons from the experiences of other startups to keep in mind when running a startup. Success still depends on the ability and drive of the founders and the fit they find with the market around them.

All startups are unique in their own way; however, it may help founders to know that there are others who have worked on similar themes, and they don't have to figure out each and everything from scratch. Our objective is to pass on the knowledge and save the time and effort of the founders in

areas where they can benefit from the experience of others. We encourage the founders to reach out to the PIC SI Lab with their specific questions coming out of what they see in the playbook. Specific solutions for their startups could evolve from those discussions.

The first playbook of this series is based on our observations of many startups in our cohorts who were trying to solve an ecology or environment problem by using them as sources of raw material to build products that can be commercially sold. Their aspiration is to solve the ecology/environment problem, sustain themselves by selling their product or service and, in the process, also create employment, including for underprivileged people, hopefully at scale. This goes beyond the theme of "circular economy". This also goes beyond the theme of "Waste to Wealth". It may not just be waste that they are using, and it is certainly not just wealth they are targeting. Hence, we are calling them Ecology, Environment and Employment (Triple-E) startups.

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Typical Journey of a Triple-E Startup

Most entrepreneurs start with the objective of wealth creation by making a difference in the world at scale. Social entrepreneurs differentiate themselves by not being so concerned about wealth creation for themselves but wanting to make a difference in the world by providing a long-lasting solution to a social problem.

Almost all social enterprises come out of the desire of the founders to do something about a social problem that they feel strongly about. In many cases, it is a problem that most other people do not care about. Thus, it is their indomitable spirit that many times draws the attention of society and creates awareness of the problem. The flip side is they do not know the size of the problem, how hard it is to solve, whether they are best suited to solve it, or who else would be, whether the solution they are thinking of is feasible or the best solution, and how they will sustain themselves in their lonely journey. However, unless they take the first step, nothing happens to address that social problem.

In the case of Triple-E startups, it is no different. We find that these social entrepreneurs usually find one of the two starting points for their journeys:

- They find an ecology/environment problem that they see nobody is trying to solve, and they want to be the ones to try to at least reduce the impact of the problem or eliminate the problem if possible.
- They find a category of underprivileged people struggling for livelihood and they want to generate sustainable employment for them despite their lack of privileges, based on their native skills or their native surroundings.

Depending on the starting point, the other aspects are subsequently figured out. If the founder identifies an ecology/environment problem, determining what can be done with the unwanted outputs with what technology and team becomes the next step. If the founder identifies a particular category of people with livelihood issues, finding the commodity they have access to and determining the required skills to convert the raw material to commercial products become the next step.

Then begins the hard work of operationalising the idea, which becomes even harder if the steps mentioned above are not executed with sufficient thought and iterative vetting. This includes finding a reliable supply of the raw material in the needed quantity, transporting it, hiring and skilling of the team for quality output, continuously improving the process and product as per market inputs, marketing and selling, and, of course, the funding required to keep the venture going, till the customer revenues are sufficient for a long-term sustainable operation.

For any startup, whether it is social or not, it is not at all an easy journey to survive. Only a few are going to get past this initial high-risk stage. Those who do, must then make efforts to scale their operations, and to make the most of the opportunity to become an enterprise. Most importantly, this requires a founding / leadership team that covers all the bases of domain expertise, technology, finance, and business savvy.
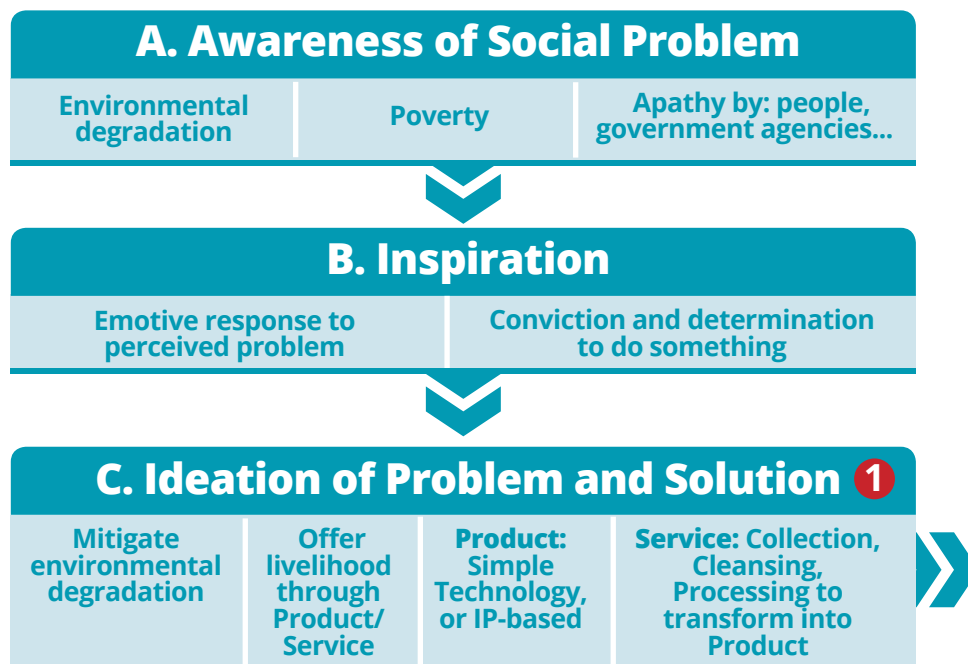
However, as is typical with most social enterprises, sustainability and scalability is not thought through upfront, and these are the aspects where SEMP has been able to contribute the most as explained in the following sections.

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Flow Chart of the Typical Journey of a Triple–E Startup

The flow chart below illustrates the typical birth and evolution of a social enterprise from awareness of a problem to sustainable operations and scaling. While this is a general roadmap for any social enterprise, we have alluded to those aspects that are pertinent to the theme of this document: Triple-E startups. Risks at various stages are marked using a risk number (as ❶). The next section details all the risks numbered here.

A. Awareness of Social Problem

Environmental degradation	Poverty	Apathy by: people, government agencies...

B. Inspiration

Emotive response to perceived problem	Conviction and determination to do something

C. Ideation of Problem and Solution ❶

Mitigate environmental degradation	Offer livelihood through Product/ Service	Product: Simple Technology, or IP-based	Service: Collection, Cleansing, Processing to transform into Product

D. Experimentation, Trial & Error

Product: Material treatment, Design, Prototype	Material sourcing

E. Market Determination

Customer segments, Market size, Channel-B2B, B2C, B2B2C

F. Core Team **2**

Founder(s), Core Domain/Product/Technology Experts

G. Initial Funding

Self, Friends & Family

H. Minimum Viable Product/Product Market Fit **3**

Technology and/ or Process Development	Creation of Product & Initial Sales

I. Enterprise Entity **4**

Appropriate Structure and Formation: Pvt. Ltd., LLC, NGO, Hybrid

J. Funding **5**

Government grants, CSR Funding, Awards	Debt, Equity

K. Business Planning **6**

Financial Modelling: Breakeven, Cashflows	Forecasting	Goal Setting	Hiring

L. Sustainable Operations, Logistics & Scaling

Production facility & Process **7**	Production of end product	Sales and Delivery **8**

4

Risks and Challenges faced by Triple–E Startups

The risks and challenges faced by startup businesses, particularly Triple-E startups, are listed below. They are associated with different stages in the life cycle of the startups and are appropriately referred in the flowchart in the previous section using a risk number (as ❶). We have listed below the risks and best practices from our experience, which when followed, have greatly reduced the impact of the risk on startups we have mentored. Readers may find the path to solving some of their challenges in the list below, and if a particular article is referred to, go through that article for more detailed information.

1. Jumping on to a problem and its solution without proper ideation can be a big cause of failure.

   a. **Problem:** The founders are clear on the impact they want to create (for example, creating employment for an underprivileged category of people), but sometimes the same impact can be achieved by different initiatives. Picking the right one as the problem to solve can be based on the founder's background or prevalent situation. Spending time to list candidate problems and picking one after analysis can save a lot of time and effort later.

   b. **Solution:** Similarly, there could be multiple ways a problem can be solved – using alternative technologies or workflows. As required by design thinking, if the various alternatives are compared and the most suitable one chosen, rather than the one first coming to mind, much rework can be avoided later.

To learn more about this specific risk and to manage it, please refer to the article "Scale and Sustain" mentioned in the reference section.

2. Lack of complementary capabilities among the Co-Founders may leave critical weaknesses in the startup.

a. **Founder Skills:** While the founders of social enterprises want to do good, they can do so sustainably and at scale only if they have:

   i. deep domain knowledge of the problem they want to solve,

   ii. the technical skills to come up with a scalable solution, and

   iii. the business savvy to generate customer revenue or raise funds for their company.

It is necessary for the founders to enhance their skills in these areas or find co-founders with the requisite complementary skills.

b. **Role Division among Co-Founders:** Establishing a founders' agreement during entity formation and agreeing on exact roles and responsibilities of the founders leads to lessen ambiguity and conflicts later.

To learn more about managing these challenges, please refer to the PIC article "Importance of Time Management for Founder CEOs" listed in the reference section.

3. Scaling before product-market fit can prove to be very costly.

a. **Product-Market Fit:** Solving a problem in the lab is quite different from solving it in the market. The solution (product or service) created on an experimental basis can take various forms in terms of its design and price, which may see different traction from different target segments in the market. When the startup starts seeing pull from the market, i.e., when the product-market fit is achieved, only then scale should be planned.

b. **Product Design Evolution:** The product-market fit can only be achieved through iterations with early adopter customers and acting on their feedback. Many times, the final product that evolves may be very different from the initial minimum viable product (MVP). Without waiting for the "perfect" solution, as soon as possible, the MVP has to be brought to customers and the loop repeated. This is especially true for Triple-E solutions as they may not have precedents in the industry.

To learn more about this specific risk, refer to the articles "Mentoring Social Innovators towards Sustainability" and "Scale and Sustain" mentioned in the reference section.

4. Inappropriate entity structure creates problems for fund-raising.

a. **Organisation Structure:** The funding mechanism is core to the success of Triple-E startups as they cannot always rely on customer revenue. Depending upon whether revenue or grants or CSR funds are sought, the entirety could be:

i. Non-profit and/or for-profit

ii. NGO, Trust, LLP, or Private Limited.

b. **Ownership:** Sometimes, entrepreneurs should be catalysts and not owners. Community members should be the owners. Such initiatives are sustainable but may not scale. The entrepreneurs can then bring the benefit of scale by facilitating such initiatives in multiple communities.

To learn more about this specific risk, please refer to the article "Navigating the Legal Landscape: A Comprehensive Guide to Compliance for Social Enterprise".

5. Lack of funding is the biggest reason for Triple-E startups to fail.

a. **Forecasting Financial Needs:** Since Triple-E startups may not have sufficient customer revenues to bootstrap the venture, external funding is required through the life-cycle, from the initial product-building stage to the steady state. Hence it is crucial to create a Financial Plan in advance to know the quantum of funding required for various needs.

b. **Fundraising:** Awareness of types of funding available for various activities (grants for product-building, CSR for skilling, etc.) is important. One of the founders may have to continuously focus on fund-raising to be in contact with sources of such funds much ahead of the need.

To learn more about this specific risk, please refer to the article "Fundraising for Social Entrepreneurs" and "Managing Financial Aspects of Start-ups and Social Enterprises" mentioned in the reference section.

6. Triple-E startups desire to create jobs but the beneficiaries may not be ready.

a. **Beneficiaries:** For many Triple-E startups, the beneficiaries are the underprivileged whom they provide employment. Different aspects of the business – like collection of raw material, conversion processes, operations, distribution, etc. – can all create employment. However, the availability of the rightly skilled resources can be

a challenge. For the employees to be productive, they must be trained for all the roles required, with particular focus on work ethic and quality standards. Operating under the assumption that any planned resource availability will be automatic or easy may lead to significant time and cost overruns.

b. **Team:** The Triple-E startups also need to attract talent (employees and volunteers) for different functional areas such as technology development, operations, marketing/sales, HR, finance, fund raising, business strategy, etc. Continuous communication of vision by the founders within the organisation and to external stakeholders can help.

To learn more about managing this specific risk, the article "Mentoring to let go" mentioned in the reference section can be referred to.

7. Process bottlenecks may lead to delays in product manufacturing.

a. **Supply Chain:** The raw material (natural, agricultural waste, or industrial waste) may not be available in sufficient volume or may be seasonal. The economics of collection, transport and storage of raw materials must be feasible.

b. **Conversion/Manufacturing Process:** The technology may be new and require time to be proven at scale. Similarly, setting up the processes and training people may also cause delays.

To learn more about this specific risk, please refer to the article "Social Entrepreneurs Must Create a Great Customer Experience to Succeed" mentioned in the reference section.

8. Not achieving customer traction and growth.

a. **Go-to-Market Strategy:** While the product or the service design may be good, the enterprise will fail if the founders are not able to execute the go-to-market strategy planned for the product, such as the pricing and the target customer segment. This requires iterations in the market.

b. **Channels and Partners:** Without right partnerships, for example, in other regions, startups may not scale even if they get initial success.

To learn more about this specific risk and how to manage it, please refer to the articles "Social Entrepreneurs Must Create a Great Customer Experience to Succeed" and "Mentoring to Let Go" mentioned in the reference section.

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What has worked, what has not?

After listing the typical challenges and potential solutions, this section presents an orthogonal view of the experiences of various social enterprises in our SEMP cohorts in their journey. More than finding a solution to a particular challenge, which was the objective of the previous section, this section hopefully helps the reader to not get into those challenging situations in the first place! The points listed below have been gleaned from first-hand experience of mentoring Triple-E startups over the past eight years. Several Triple-E startups are listed in a separate section and references are made to the relevant venture startup for each of the points below.

What works

1. Founders' fit to the problem and solution
Triple-E founders enter social entrepreneurship to solve a problem of ecology, environment or employment. Typically, these problems can be very large, and it is observed that quality time spent upfront by founders in picking the appropriate problem and deciding on the solution to the chosen problem, that was fitting to their own capabilities, increased the chances of success significantly.
- **Example: Earth Tatva**

2. Building strong tech capability for a scalable solution

For many Triple-E founders, both the problem and the solution are first of its kind. The solution involves technology or training people in technology, which may be a tall ask for most founders. Support of renowned and well-equipped incubators and accelerators such as NCL Venture Centre in Pune or agencies such as DST has proved to be a crucial success factor for Triple-E startups. Not only is the product likely to be of the best quality, but it also provides credibility for the product in the market.

● **Example: Craste, Padcare Labs, Shramik Janta**

3. Proximity of production unit to raw material sources

This was another clear factor coming across as the raw material in the case of Triple-E startups is an output of some environment or ecology problem. Taking the production unit close to the source of raw material played a big role in making the raw material available easily and at low cost. At times, this increases the shipment cost for the goods manufactured, but overall, it was still beneficial.

● **Example: Pirul, Eco-Regain, Tribal Smart Technologies, Craste**

4. Creative and Design background/inclination of the founder(s)

This plays a significant role towards the success of many ventures because even if the Triple-E startup was started to solve an ecology, environment, or employment problem, their products would need to meet the approval of consumers in the open market. Founders with National Institute of Fashion Technology (NIFT) or National Institute of Design (NID) background brought priority towards the need for product aesthetics and look-touch-feel. Beyond product aesthetics, this helped with the storytelling around the product, creating very impressive marketing material, product packaging, and the overall customer experience.

● **Example: Pirul, Earth Tatva**

5. Selling products at premium rather than as commodity

Following up from the point above, it helped immensely to the sustainability and scalability of triple-E startups, when they changed their strategy from competing with similar products commoditised in the market, to selling them at a premium as gift items, decorative pieces, even jewellery. The background story of how the products got created is a big part of selling the product. Working with accelerators dedicated to the domain, both in India and abroad, has helped with customer access and determining product-market fit.

● **Example: Tribal Smart Technologies, Craste**

6. Other factors

The following factors are not specific for Triple-E startups and apply to all social startups.

- **Founder Conviction:** We have seen that the founders are very committed to the cause. They truly believe in making the difference. This helps them stay the course even in the face of adversities, which invariably happen in a startup.
- **Founder Openness:** The more successful founders were those who were hungry for suggestions, were able to internalise the feedback and suggestions. They were able to have a fast follow up and acted decisively on those.

What does not work

1. Lack of appropriate entity structure

Many Triple-E startups nowadays choose the private limited for-profit format. However, the cost, for example, of skilling underprivileged resources in building their products can easily make the for-profit unviable. It is better to plan a separate non-profit entity or work as implementation partners of NGOs, who can provide indirect access to CSR funds for the startup or their beneficiaries. The beneficiaries can even form cooperatives or Self Help Groups (SHGs) for sustaining the project, if it cannot scale beyond a certain point. The product development, production, distribution activities remain for-profit, and the scale that the startup desires can be achieved by supporting multiple such projects.

- **Example: Shramik Janta - Wild Honey**

2. Lack of committed workforce

This problem is particularly severe in Triple-E ventures targeting employment in tribal areas. There is an assumption that the workforce will be more than eager to have a source of income or augment their income. This is not always the case. These communities give priority to harvesting, festivals, and other domestic needs. This results in the skilled workforce not being available when badly needed. One needs to over-provision for skilled manpower. Support is also required from experienced personnel, especially in the initial years, to stabilise operations and troubleshoot problems.

- **Example: Tribal Smart Technologies**

3. Unpredictable demand

The products of Triple-E startups are usually not for regular consumption and so the demand is varying. It is very difficult to plan for optimal

inventory in such cases. This comes in the way of scaling when needed. While this problem does not have a clear solution, reducing the product mix, number of variants, etc. can reduce the problem to some extent.
- **Example: Pirul**

4. Excessive product spread

Often, the founders are focused on creating employment for the underprivileged and end up with too many product types, variants and sizes, due to their creativity and enthusiasm. This leads to various problems. One cannot train the workforce for many items easily, one cannot keep enough inventory for all variants, and increased inventory creates cash flow issues. Continuous innovation is also not possible if there are too many products. The founders need to take a market view of what is selling, what has good margins, etc. and trim down the number of items/variants.
- **Example: Pirul, Mudita and Radesh**

5. Lack of funding and cash-flow buffer

The product and project economics is invariably stressed in the initial years for Triple-E startups. This is caused by poor pricing, uneven or poor visibility in demand, remote location overheads, etc. All this makes it very difficult to scale such ventures just through customer revenues. There is a need for some cash flow cushion which one should procure either through grants or investments. Some of the government-offered benefits are often either inadequate or not available in a timely manner. CSR money from corporations is not a dependable stream and should be treated as one off. Financial planning and fund-raising ability from the beginning are crucial for success.

6. Others

The following factors are not specific for Triple-E startups and apply to all social startups:

- **Lack of stakeholder management:** A common shortcoming observed is the lack of communication on an on-going basis to all stakeholders including potential ones. The founders have to share their vision and expertise to get them excited and keep them engaged, so that they can contribute when the need arises.
- **Chasing awards over business focus:** Visibility is important and initially awards from social organisations bring that, along with some much-needed cash. However, founders have gone overboard and lost focus on their business in pursuit of awards, which is to be avoided.

6

Policy Recommendations

Based on our experiences, we offer a few policy insights and actions that can help accelerate the formation and scaling up of Triple-E startups.

1. Accelerate Innovation & Entrepreneurship:

As part of the 'Startup India' initiative, several hundred Atal Innovation Hubs and DST lead Incubators have been created in the nation. In addition, several fund-of-funds have enabled capital formation for funding these startups in a more sustainable and long-term manner. These initiatives are an existing asset to drive innovation in the Triple-E space. The following initiatives will bring additional focus on the Triple-E theme:

a. Designate at least five incubators as national centres of excellence with 'Triple-E' as a key theme with an additional allocation of 10Cr over 5 years to each centre.

b. With additional support and funding for world-class facilities and equipment, one of these centres may be declared as the national lead for technology development. It may run EIR programmes as a funnel to its own and other incubators. One of these may be declared as the national lead for coordination of knowledge management, dissemination of best practices, and feedback to policy-making entities.

c. Designate at least 1 incubator in each state with focus on 'Triple-E' startups as a primary theme. Allocate each such incubator an additional 5Cr over 5 years.

d. Run "themed challenges" at these incubators where all kinds of founders should be encouraged to apply. It will attract more technology founders to Triple-E problems as well as help non-technology founders get a reality check on the business challenge of social enterprises.

2. Support Market Formation:

The current market mechanisms are largely linear, where raw materials are consumed to make products via value-added processes, marketed, and sold to customers, and then discarded to create waste.

    a. Procurement: The government and corporate entities should adopt procurement policies at all levels to encourage Triple-E products and services and aim to minimise processed waste. E.g., companies using recycled plastics in their packaging would be given preference in the tender evaluation for commodity products. As Triple-E companies scale, cost efficiencies will accrue, driving further cost optimisations for all stakeholders in the long term.

    b. Skills Formation & Job Creation: Large number of people need to be skilled or re-skilled to work in the sector; grants for skilling/re-skilling may be offered to relevant players to create the large talent pool needed to drive the growth of companies in this sector. Startups can benefit from easier access to a trained pool.

    c. CSR Funds Usage: Issue clear guidelines that corporates can deploy their CSR allocations on these waste-to-wealth related projects and NGOs. Most of the CSR money goes to education and health and very few venture into new areas due to risks associated with interpreting the CSR guidelines.

3. Support Capital Formation:

Existing government fund-of-funds should consider adding the Triple-3 theme as an area of focus for the next 10 years and actively participate in private capital formation to support the existing and new ventures in this space. Innovative mechanisms with public and private banks to support the working capital needs of these entrepreneurs can be enhanced.

4. Legislative & Mandate Options:

While banning certain products, mandating certain technical specifications or adding economic disincentives via various mechanisms such as taxation are available, preference should be given to create sustainable market mechanisms through innovation and market formation. An example of such programmes is Extended Producer Responsibility (EPR), which makes the producers responsible for the entire life cycle of their products, including proper disposal. Another example could be dropping the GST on all Triple-E products and services.

5. Public Awareness:

Governments should continue to invest in public awareness campaigns to educate citizens about the importance of waste reduction, proper disposal, and the potential economic benefits of recycling and the support of new innovative products in support of the circular economy ecosystem.
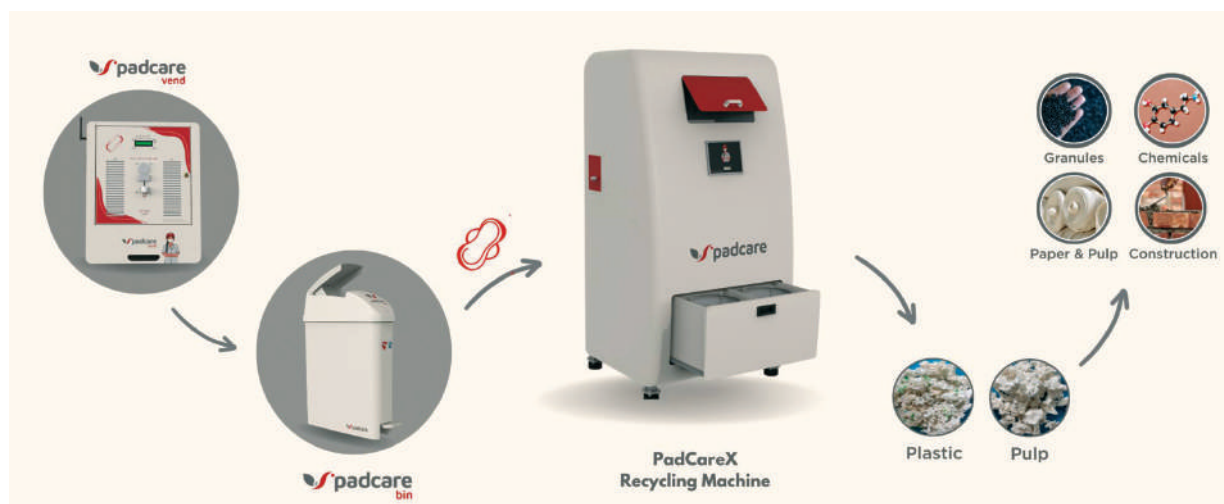
7

Examples
of Triple-E
Startups

Padcare Labs

PadCareX Recycling Machine

Granules · Chemicals · Paper & Pulp · Construction · Plastic · Pulp

▶ Founder: **Ajinkya Dhariya**
▶ Website: **https://www.padcarelabs.com/**
▶ Cohort: **2018–2019**

Padcare provides an environmentally friendly workplace for menstruating women across the world and encourages inclusiveness, equality, and healthier practices in public hygiene on a global scale. It has brought positive and significant change in the menstrual waste disposal ecosystem.

Padcare was one of the participants of the National Conference on Social Innovation (NCSI) organised by the Pune International Centre (PIC) in the year 2018. As a participant in the national event, they got an opportunity to undergo mentoring sessions under the Social Enterprise Mentoring Programme (SEMP), where the mentors were able to help with technology issues, a go-to-market strategy, pricing, and team building.

Padcare successfully closed a funding round from private markets, including the participation of Shark Tank sharks. Padcare is a good example of building a Triple-E startup that is solving a big environmental challenge while being profitable and sustainable.

Pirul Handicrafts

▶ Founder: **Nupur Poharkar and Sharvari Poharkar**

▶ Website: **https://pirul.org/**

▶ Cohort: **2022–2023**

Pirul Handicrafts was started in a small village in Uttarakhand named Khetikhan and is successful in creating an alternate source of livelihood for families by making handicraft products such as fashion accessories, gifting products, lifestyle accessories, home decor, etc., made of pine needles, which are in abundance in the village of Khetikhan.

The pine needles undergo slow degradation in the environment, posing a significant risk of forest fires in the region. Additionally, they contribute to heightened surface runoff and a decline in the groundwater table. Clearing these pine needles from the forest floor is crucial. Pirul tackles this issue by repurposing the pine needles for handicraft production, simultaneously benefiting the environment and fostering livelihood creation in the village. This exemplifies a Triple-E startup, demonstrating positive impacts on Ecology, Economy, and Employment.

Pirul was one of the participants of the National Conference on Social Innovation organised by the Pune International Centre in 2022. During this, they got an opportunity to undergo mentoring sessions under the Social Enterprise Mentoring Programme.

Through the mentoring session and with the guidance of the mentors, the organisation has benefited greatly as they are now able to showcase their operation efficiency and increase their production. Due to this, they are securing bulk orders from large-cap companies. Pirul Handicrafts' journey shows how Triple-E startups are surviving in the current competitive business environment while also contributing positively to the ecology, environment, and employment of small villages in Uttarakhand.

Eco Regain

▶ Founder: **Swapnil Joshi**
▶ Website: **https://ecoregain.com/**
▶ Cohort: **2020-2021**

Eco Regain is a Pune-based social enterprise that sources used garments and transforms them into assorted pouches, bags, purses, and bags for the consumer market through creative in-house patchwork design and tailoring. This prevents these garments from being consigned to landfills where they typically organically decompose over 40+ years. Eco Regain is also able to employ several full-time employees.

Some of the benefits they realised through the PIC mentorship programme were - rationalising their product portfolio, leveraging their data for business decisions, leaner operations, and putting more emphasis on product quality.

Eco Regain aims to scale up its business through various distribution channels, including its retail store, rented spaces in showrooms, distributors, trade shows, and website. They have also made initial sales overseas in Australia, and they hope to increase sales there and in other countries.

They have upcycled an estimated 75,000kg of clothing so far. Products have been sold to 10,000+ customers. The enterprise has become economically sustainable by almost trebling its revenue, and the revenue stream is relatively more constant and predictable.

Earth Tatva

▶ Founder: **Shashank Nimkar**
▶ Website: **https://www.earthtatva.com**/
▶ Cohort: **2020–2021**

This social enterprise aims to recycle fired ceramic in numerous landfills into stronger, recyclable tableware such as bowls, plates, and cups. It uses a patented process to pulverise ceramic and turn it into reusable clay. This clay can be moulded into any existing ceramic product. Tableware products are microwave-safe. This enterprise also sells ready recycled ceramic material ("TatvaMix") to small- and large-scale ceramic product manufacturers to maximise the recycling of ceramic.

The founder's "epiphany" came in August 2017 when he witnessed prodigious waste on an industrial visit as a student at the National Institute of Design, Ahmedabad. It was then started as a graduation project in the founder's Master's thesis. Earth Tatva was incorporated as a business entity three years later after creating its prototype products.

Earth Tatva's original goal was to design and sell tableware. To maximise the impact of the innovation, apart from selling the finished products, they also sell TatvaMix to other ceramic manufacturers. The founder also gained insights from PIC mentorship in focusing on operational aspects and "user experience," such as product packaging, touch and feel, and emotive appeal, which has a hand-crafted appeal in that no two products look alike. Products can be purchased through their website.

They have two applications of TatvaMix. For casting, they can use up to 60% recycled content. For pottery clay, they can use up to 45% recycled clay, thereby directly preventing these amounts of clay and minerals from being mined.

Triple-E Startups
A Playbook

TribalSmart Technologies

▶ Founder: **Anant Vats**
▶ Cohort: 2017–2018

The founder turned over control of his own Information Technology startup to create livelihood opportunities for tribals in southern Gujarat by employing them to make bamboo ballpoint pens from waste bamboo stems in the nearby forest. He used his engineering knowledge to design and build mini lathes and other machines for his operation and trained several tribal men and women to operate them to make pens. His twin goals are to reuse organic waste and provide a livelihood.

TribalSmart bamboo pens appealed to various customer segments, such as schools and individuals. Customers readily saw their eco-friendly appeal, both for their use as well as to showcase them to others to generate more sales.

The founder discovered tribal aspirations differ from those of rural-urban dwellers in that the former do not necessarily aspire to ever-increasing material well-being. They are content with working for several hours on days they feel like working. They also regarded their work at TribalSmart as a means to augment their traditional livelihood, such as making weaving baskets from bamboo and other natural materials for selling to rural traders. This ultimately limited the commercial potential of the enterprise, and they achieved sales of 1,500+ pens with a monthly income that approached Rs 40,000.

The founder has relocated to Europe for personal reasons but still retains his passion for continuing the production and sales of these bamboo pens both in India and Europe.

CRASTE

Craste

▶ Founder: **Shubham Singh and Dr. Himansha Singh**
▶ Website: **https://craste.co/**
▶ Cohort: **2018-2019**

The idea for Craste came from the annual problem of farmers in North India burning stalks of crops, creating a huge pollution problem. The founder came up with the idea of making materials for packaging and furniture out of the crop residue and providing additional revenue to the farmers, thus incentivising them not to burn the crop residue.

The startup was incubated at the NCL Venture Centre in Pune, where the technology was built with the help of government grants and the facilities available at the Venture Centre. The packaging products are pulp and paper, which are food-grade and can be tailored to customers' requirements. The furniture product is a highly durable wood-equivalent straw panel board using a formaldehyde-free adhesive. It is tested for strength at government labs.

Large multinationals have been early customers of Craste. Participating in an accelerator programme in the US and Switzerland also helped get global customer access and credibility.

The experimentation has not been limited to the technology but also focuses on how they collect the crop residue effectively by building captive units near the farms. They have now built their manufacturing facility in Morena as well.

Various awards and recognition by international organisations have made Craste a leading and well-known organisation in their space.

The founders have kept in touch with the PIC mentors even after the mentorship programme to update them on the progress and seek advice on their initiatives.

Shramik Janta – Wild honey project (Tribal Products)

▶ Founder: **Adinath Ombale**
▶ Website: **https://shramikjanta.org**
▶ Cohort: **2020-21**

The founder runs an NGO working for underprivileged Adivasis in Satara district of Maharashtra. This initiative was triggered by the loss of livelihood among the Katkaris (an Adivasi tribe) due to the privatisation of lakes where they used to fish.

The founder decided to train the Katkaris to harvest wild honey and build processing units to produce and market wild honey. The Katkaris were trained by DST to harvest wild honey in a non-violent way, cutting 75% of the honeycombs, thus not killing the bees, letting the honeycombs grow again, and maintaining the ecological balance of the region. The Katkaris were given special protective gear for doing this job. Women were trained to process and package wild honey and sell it in metros such as Pune and Mumbai. Most of the honey sold in India is not natural, and this initiative is a commendable one to bring pure wild honey to consumers, collected in a non-violent way while generating employment for the Katkaris.

The NGO helped the Katkaris form their cooperative to sustain the initiative. It may not be possible to scale one such project beyond a certain point, but multiple such projects can be planned for scaling this initiative in other parts of the country.

PIC mentors guided the initiative, specifically in packaging, branding, and marketing.
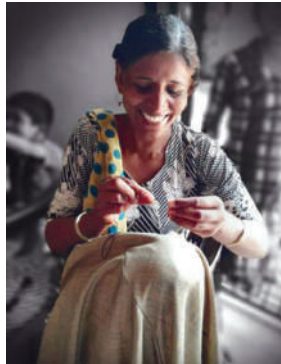
Golden Feathers
(Mudita & Radhesh Pvt Ltd)

▶ Founder: **Radhesh Agrahari**
▶ Website: **https://www.goldenfeather.co.in/**
▶ Cohort: **2022–2023**

Golden Feathers [Mudita & Radhesh Pvt Ltd], founded by Radhesh Agrahari, addresses the environmental challenges posed by the food industry, particularly the disposal of butchery chicken waste (BCW). With an annual upcycling capacity of 57,000kg of chicken feathers, the company has successfully depleted a significant carbon footprint, amounting to 762,090kg. Their innovative process involves collecting BCW from local poultry slaughterhouses, subjecting it to 27 sanitisation processes, extracting chicken feathers, converting them into pulp, and ultimately creating high-quality yarn for handloom cloth.

The Golden Feathers product line, a result of this unique upcycling method, offers cloth items such as running cloth, quilts, shawls, jackets, embroidered stoles, and mufflers. The chicken feather-based fabric proves to be ten times warmer, softer, and more durable than existing natural and manmade fibres, providing not only a sustainable alternative but also meeting consumers' preferences for chic and protective clothing.

In terms of impact, Mudita & Radhesh Pvt Ltd has made significant strides in both social and market aspects. The company engages over 200 rag pickers and employs more than 1200 tribal women. Monthly processing of 50,000kg of chicken garbage also yields 25,000kg of fertiliser. Hand-weaving activities produce 350kg of wool monthly for weaving, 2,150kg for quilts, and 1,000kg for non-woven materials and papers. The feather-based fabric showcases desirable qualities such as softness, lightweight, and durability. With the ability to pass through a finger ring and a lifespan of 50-70 years without being affected by environmental changes or damage, the product proves to be a superior alternative to natural, man-made, and synthetic fibres.

The company has received notable recognition for its contributions, winning awards such as the TATA Social Enterprise Challenge 2023-24 in association with IIM Calcutta, 10th Aegis Graham Bell Award for Innovation in Clean Tech in 2020, the Business World Future of Design Award in 2021, and the 9th CII Design Excellence Award in 2019. Additionally, Mudita & Radhesh Pvt Ltd secured the German Design Award (gold) in 2020-21 for Excellent Product Design-Lifestyle and Fashion and was featured in the Top 8 G20 Young Entrepreneurs' Alliance Summit 2023, India.

In a recent development, the company received a very large order from a global bank for their bags. The innovative feather-based fabric is now being utilised in the bank's welcoming kits, further highlighting the company's success and recognition in the industry.

The company's participation in the PIC Mentorship Programme played a role in its business growth, providing valuable guidance and support to navigate the complexities of entrepreneurship. Mudita & Radhesh Pvt Ltd continues to make strides in sustainability, innovation, and social impact, solidifying its position as a leader in the eco-friendly textile industry.

8

References

Mentioned below are some blogs that are published by the PIC Mentor team. These blogs address many of the risks mentioned in the article above and talk about suitable risk mitigation strategies for the same:

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Appendix: A Checklist for Founders

#	Item	YES/NO
A	**Identification of the Problem:** + Have you clearly identified and articulated the ecology or environment or livelihood problem that you are hoping to address?	
B	**Inspiration**: + Have you identified 'Why' (your Inspiration or emotional connect) you want to solve this problem? + Have you identified 'What' in your background makes you most suitable to address this problem?	
C	**Ideation**: + Have you brainstormed, researched, and articulated multiple possible solutions to the problem? + Have you compared the possible solutions and picked the one with the best chance of succeeding?	
D	**Early Experimentation and Trials**: + Have you validated the solution by trials till you reach the desired level of completeness?	
E	**Market Determination:** + Have you identified the market segment you should initially target with your solution and articulated the GTM (go-to-market) strategy for it?	
F	**Core Team:** + Does your founding team have the diverse skill set required (domain, tech, business savvy) to succeed? + Have you developed plans to fill those gaps through training, recruiting etc.?	
G	**Initial Funding:** + Have you developed a plan for funding the initial activities of building the technology, hiring, skilling the team, etc., required to pilot the solution end-to-end from design to deployment?	
H	**Product Market Fit:** + Have you developed the process and are well prepared to rapidly iterate to achieve Product Market Fit (PMF)?	
I	**Entity Setup:** + Do you have the right corporate structure for the next phase of growth? + If not, do you have a path to change your corporate structure to align with your plans?	
J	**Funding:** + Have you identified your funding needs and identified the sources and approach to get the required funds to scale post-PMF? Is one of the founders / leaders focused on fund-raising?	
K	**Business Planning:** + Have you developed formal business plans (target setting, financials) to scale and operate the organisation? + Have you developed proper HR policies and staffing plans to scale the deployment of your solution after the Product-Market-fit stage (Technology, Production,Sales and Marketing, Finance)?	
L	**Scaling and Sustainable Operations:** + Have you put in place the policies, systems, processes, and governance to run an efficient and sustainable organisation that can execute your plans to scale over the long-term?	

About the Authors

Amit Bhargava

Mr. Amit Bhargava is the AVP at Birlasoft. He is an accomplished professional with over 20 years of experience in Strategy, Sales Operations, IT consulting, business analysis, stakeholder management, programme and project management. He has extensive experience in Business analysis and Requirement elicitation/ detailing for new IT applications and product feature development across conventional SDLC projects and Agile projects.

He has been recognised for Excellence in Selling, Thought Leadership and Green Belt Certification for Six Sigma.

Anil Kulkarni

Mr. Anil Kulkarni has a wealth of experience in building brands that have deep consumer connect, bringing innovative products to market and in successfully managing and growing an FMCG business. He has worked in blue chip MNCs like Britannia and Unilever and in respected Indian companies like Raymond.

He now brings that experience and expertise to help young companies and brands in the areas of customer-centricity and value proposition design.

He is passionate about developing better leaders. And as an ICF-certified Leadership Coach, he works with senior leaders and entrepreneurs to significantly improve their ability to lead.

He enjoys writing and publishes thought-provoking articles. His interest in people and design gets reflected through the lens of his camera as he develops his interest in photography.

Gireendra Kasmalkar

Mr. Gireendra Kasmalkar is the Founder and CMD of Ideas to Impacts Innovations Pvt. Ltd., Managing Partner at Pentathlon Ventures and Owner of the Ideas to Impacts Hub, a hot spot for Tech startups in Pune. The common theme is "Distributing the Future Evenly".

India's leading software testing entrepreneur, Gireendra, exited from his earlier venture, VeriSoft, after being in global and Indian leadership positions at SQS.

Gireendra is also a Founder, Member and President of the Inter-Institutional Inclusive Innovation Centre.

He is a Mechanical engineer from IIT Bombay and the University of South Carolina, USA.

Pramod Athalye

Mr. Pramod Athalye is the co-founder of Bourton Consulting India, an international boutique management consultancy helping organisations achieve operational excellence through strategy execution and continuous improvements

Prior to this, he held positions in Asset Management, Finance, and Business Development in the US at AT&T and GE before setting up Analytics services for several GE Capital SBUs in India. Pramod finds genuine fulfilment in using his experience to help social enterprises. Pramod loves to travel and experience diverse cultures and is a lifelong learner.

His academic credentials include an MBA (Haas, UC Berkeley) and B. Tech. (IIT Madras).

Ram Iyer
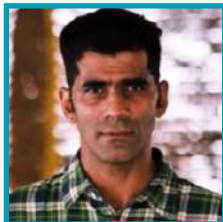
Mr. Ram Iyer is an experienced Business Strategy Consultant from the Indian Institute of Management, Ahmedabad (IIMA). After a career as an energy sector investment banker and software businessman, he has now segued to enabling social innovation enterprises and alternative education.

Sandeep Chawda

Mr. Sandeep Chawda is Managing Partner at Pentathlon Ventures, a Pune-based VC fund "For the entrepreneurs, by the Entrepreneurs" focussed on B2B SaaS companies. Before Pentathlon, he was the India head for Globant (NYSE GLOB). Sandeep was the founder and CEO of Clarice Technologies, which was acquired by Globant. Past experience includes Symantec/Veritas and Tata Motors. Would love to contribute and mentor in areas like Metrics-driven Insights for key decision making, change management and scaling startups.

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Mr. Sanjay Kanvinde is the co-founder of Lavni Ventures. Prior to founding Lavni Ventures, he worked in the Energy Industry, where over different international assignments, he worked in the functional areas of Research & Development, Knowledge Management, Business Development, and Corporate IT Management.

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Mr. Shekhar Jadhav has over 20 years of multi-disciplinary experience in Corporate Finance, Software Development and Consulting during his stints with Virgo Valves, Oracle India, Ernst & Young and PricewaterhouseCoopers. Shekhar runs a multi-family office based in Pune, managing investments across multiple asset classes, including Public Markets and direct Private Equity / Venture investments. Shekhar is a gold medalist Chartered Accountant.

Acknowledgement

Pune International Centre

Pune International Centre (PIC) is an independent, multi-faceted, action-oriented policy research think tank that seeks to foster the values enshrined in the Indian Constitution and the UN Charter.

It has five research verticals focused on Social Innovation, National Security, Energy Environment and Climate Change, Science, Technology, Innovation and National Growth, and Economic Reforms & Urbanisation.

PIC was established on 24 September 2011 under the leadership of renowned scientist Dr R A Mashelkar, FRS (President), senior economist and ex-bureaucrat Dr Vijay Kelkar (Vice President), and others. Today, PIC has grown into an institution with more than 450 distinguished members, 56 Institutional Members (ITs, IIMs universities, etc.) and 13 Corporate Members.

In addition to undertaking public policy research, PIC hosts major national and international conferences, promotes an environment for free and fair public debates, and provides a platform to promote the arts and culture.

Social Innovation Lab

The Social Innovation Lab works towards easing the challenges of scarcity and the aspirations of entrepreneurs. We foster entrepreneurship while concentrating on developing socially responsible business people.

The initiatives under the Social Innovation Lab are as follows:

- National Conference on Social Innovation (NCSI)
- Social Enterprise Mentorship Programme (SEMP)
- Shared Service Centre for Social Enterprise (SSC-SE)
- Expert Talk Sessions
- Policy Papers and Blogs

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