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Innovation Performance of Social Enterprises: An Empirical Study in India

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Abstract Social enterprises pursue innovation to create socio-economic impact for the marginalized communities. The founders of social enterprises drive goal-oriented innovation, whereas, interactions with ecosystem is crucial to create and diffuse innovation. However, studies are scant on creation as well as diffusion of innovation emerging from social enterprises. This paper attempts to understand innovation emerging from social enterprises through an exploration of innovation focus, interactions with ecosystem, and measurement of innovation performance. A cross-sectional study is performed to understand the relationship between founders' orientation and innovation performance, and the mediating role of innovation focus and ecosystem interactions. A cluster sampling across four states in India - Karnataka, Telangana, Maharastra and Tamil Nadu - resulted in participation from 207 social enterprises. The results of partial least squared structural equation modeling (PLS-SEM) demonstrate the positive complementary mediating role of innovation focus in the relationship between founders' orientation and innovation performance. Moreover, this paper illustrates that founders' persistent focus on innovation creates positive results for social enterprises as well as beneficiaries.

Keywords Social enterprises, innovation performance measurement, ecosystem, innovation

I. Introduction

Social entrepreneurship is defined as innovative, and social value creating activity that can occur within or across the non-profit, business, or government sectors (Austin et al., 2006). Innovation is one of the three key components of social enterprises, along with market orientation and sociality (Nicholls and Cho, 2006). Furthermore, social enterprises are perceived as a cluster of social value creation, social entrepreneur, market orientation and social innovation

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(Choi and Majumdar, 2014). Besides, innovation is one of the core outcomes of social enterprises. For instance, in state-sponsored health care delivery, social enterprises in UK's health sector are more responsive and innovative than their public sector counterparts, and extended support to the disadvantaged, offered wide range of benefits to the society; and reduced stigma among marginalised communities to improve the health outcomes (Roy et al., 2014). Furthermore, social enterprises are perceived as a means of innovation in the third sector (Nicholls, 2010), and the governments in USA, France, Belgium, Italy, UK, and Finland legislated separate legal entities with incentives and tax benefits to promote social enterprises.

Two key components for innovation in an organization are founders or leadership, and the interactions with the ecosystem. Founders or leaders develop goals, build strategies for innovation, and pursue opportunities to create and diffuse innovation aligned with the goals of organization. The support system in ecosystem facilitates creation as well as diffusion of innovation. Refining innovation to the ecosystem dynamics showed an effective implementation and profitability of innovation (Adner, 2006). However, studies are scant to understand innovation measure and discern innovation performance of social enterprises. Therefore, an opportunity exists to understand innovation emerging from the social enterprises, and motivates to study innovation and measurement of innovation performance among the social enterprises. Furthermore, Dutt and Ganesh (2014) observed that innovation from social enterprises in India is spreading to other South Asian & Southeast Asian countries. Thus, studying innovation creation from social enterprises in Indian is a starting point to understand wider implications of innovation diffusion. Therefore, this study explores the relationship among founders' orientation, focus of innovation, interactions with ecosystem, and innovation performance.

To conduct the study, primary data was collected through cluster sampling across four states in India - Karnataka, Telangana, Maharastra, and Tamil Nadu. A total of 207 social enterprises participated in the survey. A partial least squared structural equation modeling (PLS-SEM) technique is applied to understand the relationship between founders' orientation and innovation performance, and explore the role of ecosystem interactions and innovation focus.

This paper is organized into five sections. The literature review as well as hypotheses are discussed in section 2. The conceptual framework is proposed in section 3. Furthermore, research methodology, data collection process, as well as choice of statistical method are described in section 3. The results and discussions are presented in section 4. At the end, the conclusions as well as limitations are discussed in section 5.

II. Literature Review

In this section, literature on founders' orientation, ecosystem, innovation focus, innovation performance measurement, and hypotheses are discussed in detail.

1. Founders' Orientation

In entrepreneurship studies, founders' orientation at firm level has three dimensions - risk-taking ability, emphasis, and innovativeness (Lee et al., 2001; Miller et al., 2011; Lee et al., 2015). The emphasis and risk-taking ability impact success of a firm (Jaworski and Kohli, 1993). The founders' emphasis provides direction for employees to implement actions to achieve targets, whereas the founders' risk-taking ability fosters innovation within a firm, determines acceptance or rejection of failures as well as the introduction of new products, services, and programs. In addition, founders' emphasis as well as risk-taking ability positively influence the market orientation (Jaworski and Kohli, 1993; Lee et al., 2015). Furthermore, founders' orientation showed a positive influence on firm performance (Wiklund and Shepherd, 2005). In a study by Kim and Kim (2016), founders' orientation showed an inverted-U relationship with the firm performance. A possible reason for an inverted-U relationship in the long-term is an excess emphasis on results without building capabilities adversely influences firm performance. Furthermore, Liu et al. (2014) conducted a study on commercial and social performances of the social enterprises, and observed that founders' orientation alone showed a positive influence on commercial and social performances of the social enterprises in UK and Japan. However, when mediated by the market orientation the founder's orientation did not affect commercial and social performance of social enterprises (Liu et al., 2014).

In sum, innovativeness is inherent to founders' orientation, emphasis creates goals for innovation, and the risk-taking ability of founders' orientation fosters innovation. Extant literature discussed the influence of founders' orientation on market orientation and performance of commercial and social enterprises. However, studies are scant on the relationship between founders' orientation, innovation and innovation performance of social enterprises, and an opportunity exists for further exploration.

2. Ecosystem

Sabeti (2011) observed that the supportive ecosystem leads to socially passionate entrepreneurs to create social enterprises, and advocated new

legislations granting legal status, accounting practices, and resources for social enterprises. Kim and Yoon (2012) noted that while promoting social enterprises, government is expected to address the market flaws, frame policies to support the ecosystem as well as promote educational programs to improve the competency of social entrepreneurs rather than directly supporting social enterprises.

To promote new industry segments, governments encourage formation or participation in entrepreneurial clusters - defined as a geographical agglomeration of related and complementary firms to capitalise on horizontal and vertical networks integrated in the ecosystem. Such clusters help firms co-evolve, co-create value, strengthen the markets and support systems, and benefit from each other. Furthermore, participation in clusters increases firms' net advantages, and enhances infer-firm cooperation (Pitelis, 2012).

On challenges from the government in the ecosystem, the knowledge-intensive firms in Italy find administrative formalities during business formation as bureaucratic, time consuming and expensive, high tax rates as a burden, and lack of access to finance from formal institutions (Corno et al., 2014).

In Singapore, government organisations, network associations, and innovation parks are encouraged to work together to create a sizable ecosystem for social enterprises. This initiative shaped Singapore as a social investment hub of the region. Furthermore, Singapore government encourages mentorship programs and competitions to increase success rates of social enterprises (Prakash, and Tan, 2014). In case of India, a majority of social enterprises are located in urban areas, and rely on finance providers, incubators, network platforms, consultants, market access facilitators, and others enablers in the ecosystem. Two types of support in the ecosystem exist for innovation in social enterprises in India. First, inclusive business incubation, financial and non-financial support for developing a business plan, market research, prototyping, and other support services. Second, micro venture capital, invests in established and incubated social enterprises (Sonne, 2014).

Furthermore, ecosystem facilitates innovation diffusion. Refining innovation to the ecosystem dynamics showed an effective implementation and profitability of innovation (Adner, 2006). Besides, ecosystem dynamics have a positive impact on innovation in a study on Italian technology firms (Giudici and Paleari, 2000). The limited studies on ecosystem and innovation of social enterprises provide a motivation to investigate the relationship between ecosystem interactions, and innovation. In addition, to understand innovation, the literature on focus of innovation as well as innovation performance are explored further.

3. Innovation Focus

This sub-section reviews the literature on innovation in social enterprises, discusses definition and theoretical perspectives on social innovation, and types of innovation.

Innovation is described as a 'process of development' achieved through implementation of creative ideas, processes, products, or services (Felício et al., 2013) whereas social innovation is defined as 'a complex process of introducing new products, processes or programs that profoundly change basic routines, resource and authority flows, or beliefs of social system in which innovation occurs (Antadze and Westley, 2012). Phills et al. (2008) defined social innovation as a "novel solution to a social problem that is more effective, efficient, sustainable, or just better than the existing solutions, and due to which the value created accrues primarily to society as a whole rather than private individuals".

Three theories consider social innovation as a consequence of interrelationship between agents, social systems, and context (Cajaiba-Santana, 2014). First, the 'agent centric perspective' theory, suggests social innovation is created through actions undertaken by specific individuals driven by individualistic and behaviourist approach. Second, the 'structuralist perspective' theory, considers social innovation influenced by external structural context. Third, context-centric perspective suggests that different contexts provide different initial conditions and lead to different entrepreneurial trajectories. The entrepreneurial process is dependent on the context in which entrepreneurs operate, and national, regional, and industrial contexts influence innovation. The opportunities at national level arise due to national public institutional systems, spillovers and contracts from public sector enterprises, incentives, and level of support for entrepreneurship as well as innovation. At regional level, the entrepreneurial clusters and start-up ecosystem have a spillover effects on knowledge, resources, and finances. Silicon Valley in California, and Route 128 Corridor in Massachusetts are two widely cited cases on innovation dynamics evolving from divergent regions. The industrial contexts are important because the infrastructure, institutional arrangements, access to talent and finances, and regulations are different for different types of industries. Culture at national and regional levels, and in the industrial sectors is a key contextual factor to influence innovation (Garud et al., 2014).

The core outcome of innovation emerging from social enterprises is social value creation (Weerawardena and Mort, 2006). Cajaiba-Santana (2014) stressed that to stimulate social innovation, agents in the ecosystem should be empowered to adapt to social contexts, and develop as well as implement ideas

for social change. Furthermore, social enterprises are perceived as innovative agents in social economy for new welfare services and new ways of delivering existing welfare services (Shaw and Carter, 2007), and the state policies are formulated considering social enterprises as innovative organisations in the Third Sector (Nicholls, 2010). In addition, high levels of social innovation is found in countries where the business environment is sophisticated, the standards of living are high, and the continuous innovation in products and services supports growth (Kerlin, 2013). At this juncture, it is pertinent to note that social enterprises focus on innovation capabilities only during favourable contexts (Felício et al., 2013).

Four examples of social innovation emerging from social enterprises are enumerated below

- First, community transport services like 'on-demand' travel, group transport contracts, driver training, and transport advice services (Nicholls, 2010).
- Second, financial support to small entrepreneurs and achieving financial inclusion through micro-finance institutions and bank-linkages models (Sonne, 2012).
- Third, identifying and using alternative seeds like Nexera canola and sunflower seeds that have multiple benefits like fewer fats for consumers, double yield than traditionally used crop for farmers, longer shelf life, low operating costs in supply chain, competitive in market and profitable (Pfitzer et al., 2013).
- Fourth, health sector initiatives like Arogya Parivar, which provide selected drugs for 11 disease areas at affordable prices through a network of local distributors, creates awareness and refers patients to physicians, and supplies incubators for premature infants at affordable prices (Pfitzer et al., 2013).

Similar to other organizations, goals of social enterprises drive the focus on innovation. Five types of focus on innovation are identified from the literature. Social enterprises may focus on: (1) new beneficiaries who are different from existing beneficiaries (Westall, 2009), (2) beneficiaries in new or emerging markets that are different from beneficiaries in the current market (Ozkaya et al., 2015), (3) identification of new opportunities to serve different social needs of beneficiaries and markets (Ozkaya et al., 2015), (4) organic growth through investments in internal R&D, and (5) product or services diversity to provide a wide range of offerings to the beneficiaries (Chen et al., 2009).

4. Innovation Performance Measurement

This sub-section discusses motivations to study innovation performance, challenges to measure innovation, and frameworks for innovation performance measurement.

The extant literature on innovation of social enterprises focuses on context, relationship with social value creation, and policies to diffuse innovation from social enterprises to the beneficiaries. The literature on innovation performance of for-profit organisation is widely discussed, however, the academic debates on innovation performance of social enterprises is scant, and practitioners may appreciate useful ways to measure as well as understand innovation performance of social enterprises.

Innovation has "a range of performance implications within and across firms, from effects on turnover and market share to improved productivity or efficiency". Two observations in the literature review motivated to measure the innovation performance of social enterprises. First, often initiatives labeled as 'innovation' aim more at minor improvements than significant reforms. Representing short-term improvements as fundamental changes may lead to 'lock-in' within the existing institutional structures i.e., create further rigidity and even strengthen current practices that drive complex and intractable social problems (Westley et al., 2011). Second, social enterprises fail due to lack of capabilities to manage innovation (Kirkman, 2012). The two reasons motivate to quantify innovation, and explore innovation measurement.

Two approaches identified to measure innovation are directional and conversational measurement. Directional measurement is a top-down process, captures innovation performance through specific as well as unidirectional metrics, and widely applied for incremental innovation performance. Conversational measurement is a bottom-up approach, collects multiple, ambiguous as well as conflicting measures of innovation performance, and recommended to measure radical innovation performance (Brattström et al., 2018). The approaches to capture different stages innovation are useful, however, what to measure in order to capture innovation performance depends on the goals of the organisation as well as the nature of innovation.

The for-profit as well as sustainability literature is reviewed to understand the innovation performance measurement, and assess their application for social enterprises. The literature is dominant on measures at different stages as well as processes of innovation. The innovation performance is related to outputs of innovation and consequences of innovation on the organizational goals as well as benefits in the ecosystem. To evaluate sustainable innovation performance, Calik and Bardudeen (2016) recommended to capture economic,

environmental, and societal dimensions, and the measures for the dimensions are shown in Table 1.

Table 1 Sustainable performance measurement by Calik and Bardudeen (2016)

Economic	Environmental	Societal
• Innovation expenditure • New sustainable products (for process) • Sustainable patent creation and citation	• Material usage • Energy usage • Other resources usage • Waste, emission & pollution, • End-of-life management • Certification and eco-label	• Health & safety • Quality & durability (for product) • End-of-life management (for product) • Ergonomic Certification (for process)

The dimensions of innovation performance are discussed in detail beginning with economic innovation performance measurement followed by environmental and societal innovation performance measurement.

The academic debates are yet to arrive at consensus on exact measures of economic dimensions of innovation performance. Patents (frequency and number) is a standard measure to evaluate innovation performance (Ahuja and Katila, 2001). Possession of patents indicate innovativeness of an organization, and potential to generate revenues. Furthermore, patents showed a correlation with other measures of innovation performance - invention counts, new products, and sales growth (Ahuja and Katila, 2001). However, patents as a measure of innovation performance suffers from two limitations. First, patents depict the later stages of innovation process, but not the whole process of innovation. Second, inventors of patents reveal selective information about patents to protect their interests (Nelson, 2009). Furthermore, a study by Graham and Higgins (2007) suggest that patents may not be an exact measure of innovation performance. To address the limitations due to patents as a single measure of innovation performance, multiple measures are suggested - patent counts, patent citations, R&D expenditures, and new product announcements (Hagedoorn and Cloodt, 2003). Furthermore, Nelson (2009) recommended to apply different measures to capture distinct aspects of innovation diffusion.

Industries across the world are developing environmental friendly solutions through eco-innovation, and therefore, arises the need for metrics for environmental measures for innovation performance. After a thorough meta-analysis on eco-innovation literature, García-Granero et al. (2018) developed 30 key eco-innovation performance indicators shown in Table 2 across four groups of innovation: (1) product innovation, (2) process innovation, (3) organization innovation, and (4) marketing innovation. The eco-innovation performance measurements indicators essentially capture sustainability, resources utilisation - energy (renewable and non-renewable), and water, and

recycling in products, services, and process life-cycle. Furthermore, the indicators constitute green internal resources - human resources, intellectual capital, and outreach capabilities, levels of waste generation and the measures that accrue benefits as well as adverse effects on environment.

Table 2 Eco-innovation performance indicators (García-Granero et al., 2018)

Innovation Type	Performance Indicators
Product	1. Use new cleaner material or new input with lower environmental impact 2. Use of recycled materials 3. Reduce/optimize use of raw materials 4. Reduce number of product components 5. Eliminate dirty components 6. Product with a longer life cycle 7. Product ability to be recycled
Process	8. Reduce chemical waste 9. Reduce use of water 10. Reduce use of energy 11. Keep waste to a minimum 12. Reuse of components 13. Recycle waste, water or materials 14. Environmental-friendly technologies 15. Renewable energy 16. R&D 17. Acquisition of machinery and software 18. Acquisition of patents and licenses
Organizational	19. Green human resources 20. Pollution prevention plans 21. Environmental objectives 22. Environmental audit 23. Environmental advisory 24. Invest in research 25. Cooperation with stakeholders 26. New markets 27. New systems (remanufacturing systems and transport systems)
Marketing	28. Returnable/reusable packaging 29. Green design packaging 30. Quality certifications

Social innovation from social enterprises is difficult to capture. The initiatives labeled as 'innovation' in social enterprises are aimed more at minor improvements than significant transformation. Social enterprises may fail to manage innovation due to complexities in evaluation as well as implementation of innovation, faulty perceptions to accept and adopt an innovation, and eagerness to extract financial benefits than building capacity to

adopt an innovation (Kirkman, 2012). Furthermore, social innovation as a concept is vague, uncertain, and poses challenges to measure (Vander and Rubalcaba, 2016). Besides, short-term improvements pitched as funda-mental changes may create further rigidity and even strengthen current practices that hinder any progress to address social problems (Antadze and Westley, 2012).

Table 3 Factors and variables related to measuring performance of innovation (Dewangan and Godse, 2014)

Factor	Variable	Explanation
Exploitation	Customer	Rate of customer adoption of new offerings Percentage impact on customer satisfaction index
Exploitation	Internal Processes	Rate at which new offerings being launched Percentage commercial success rate (i.e. percentage innovations that met financial benefit projections)
Exploitation	Innovation & Learning	Number of marketing partners added Percentage increase in innovation revenues per employee
Exploitation	Financial	Commercialisation expenditure for the innovation portfolio
Exploitation	Financial	Innovation portfolio ROI realised
Invention	Customer	Percentage of ideas created with customer participation Number of ideas incubated in collaboration with customer
Invention	Internal Processes	Ratio of selected ideas to ideas submitted Percentage of incubated ideas found viable for commercialisation
Invention	Innovation & Learning	Percentage of ideas generated in new domains Number of patents filed
Invention	Financial	Average expenditure per selected idea
Invention	Financial	Current idea portfolio NPV/ROI/RR (Net present value/return on investment/internal rate of return)

So far, the literature looked at innovation as a process, challenges to capture innovation, and methods to measure innovation performance at different stages. Another approach is to consider innovation as a combination of invention and exploitation. A meta-analysis of innovation performance framework by Dewangan and Godse (2014) proposed that innovation is a combination of invention and exploitation, where invention implies conceiving and developing an idea into a workable application, and exploitation entails a process of commercialization and reaping benefits. This framework proposes to capture invention and exploitation innovation performance in an entire life cycle of a

firm's innovation processes - customer participation, internal processes, innovation and learning processes, and financial outputs. The factors and variables related to measuring performance of innovation in a social enterprises' are mentioned in Table 3.

Innovation = Invention + Exploitation

The process to quantify innovation performance appear to pose conceptual and practical challenges. Furthermore, innovation performance measurement in social enterprises is complex due to challenges in evaluation of social component of innovation. However, perceived innovation benefits are the strongest indicators on adopting an innovation (Kirkman, 2012), and therefore, the outcomes of innovation adoption may be reasonable measures for innovation performance measurement.

5. Summary of Research Gaps and Objectives

Emphasis, risk-taking ability, and innovativeness of founders' orientation drive innovation of an organisation (Lee et al., 2001; Miller et al., 2011; Lee et al., 2015). Furthermore, innovation from social enterprises in India is spreading to other South Asian & Southeast Asian countries (Dutt and Ganesh, 2014). Prior studies focused on the relationship between founders' orientation and performance of for-profit organisations (Wiklund and Shepherd, 2005) as well as social enterprises (Liu et al., 2014). However, studies on relationship between founders' orientation and innovation of social enterprises are scant. Therefore, this study aims to understand innovation emerging from social enterprises, precisely the relationship between founders' orientation and innovation. For a comprehensive study on innovation, the focus of innovation and performance of innovation are explored. Besides, the creation as well as diffusion of innovation is influenced by interactions with the players in the ecosystem. Therefore, this study aims to explore the influence of founders' orientation, on innovation performance mediated by focus of innovation, and ecosystem interactions.

6. Hypotheses Development

The founders of social enterprises confront multiple challenges due to operations in markets or quasi-markets, unique processes to cater the needs of low-income beneficiaries, difficulty to access financial resources, necessity to innovate, and other issues. Founders are driven by the necessity to interact with the ecosystem. Therefore, founders' orientation may strive towards participation in the ecosystem as well as creation of a conducive ecosystem to

create and diffuse innovation. Furthermore, founders pursue specific innovation that is aligned with social enterprises objectives. Therefore, the innovation focus of social enterprises may lead to further interaction with ecosystem to acquire resources, knowledge as well as diffuse innovation. The assumption is, the ecosystem of social enterprises appreciates the innovation for beneficiaries. The innovation created from social enterprises interacts with the ecosystem that constitutes institutions as well as facilitators to take the innovation to beneficiaries. In particular, to diffuse innovation to the intended beneficiaries, the founders' build collaborations with players in the ecosystem through replication, licenses, franchises, and open sourcing. Eventually, these activities together may be measured to evaluate innovation performance of social enterprises. Therefore, the following hypotheses are proposed to understand the relationship between founders' orientation and innovation performance through the mediating role of ecosystem interactions and innovation focus

Hypothesis 1: Founders' orientation has a positive influence on innovation performance.
Hypothesis 2: Founders' orientation has a positive association with ecosystem interactions.
Hypothesis 3: Founders' orientation has a positive influence on innovation focus.
Hypothesis 4: Ecosystem interaction has a positive influence on innovation performance.
Hypothesis 5: Innovation focus has a positive relationship with innovation performance.
Hypothesis 6: Innovation focus has a positive influence on ecosystem interactions.
Hypothesis 7: Ecosystem interaction positively mediates the relationship between founders' orientation and innovation performance.
Hypothesis 8: Innovation focus positively mediates the relationship between founders' orientation and innovation performance.

III. Data and Methodology

In this section, conceptual model, the methodology, sampling technique design for primary data collection, measures to study the research objective, and statistical technique applied are discussed in detail.

1. Conceptual Model

Ecosystem constitutes the social enterprises, funders (private, governments, and non-profits), educational institutions such as universities, and networks of social entrepreneurs. The founders and leaders of social enterprises are part of the ecosystem, and interact with different players in the ecosystem. Therefore, the research objective is to study the relationship between founders' orientation and innovation performance and mediated by interactions with ecosystem and innovation focus. Accordingly, a conceptual model is proposed.

The proposed conceptual framework with hypothesized relationships as well as direct and path-mediated effects are depicted in Figure 1. The direct effect is the relationship between founders' orientations and innovation performance is shown by path 'a'. However, the relationship between founders' orientations and innovation performance may be dependent on focus of innovation, ecosystem interactions, as well as other factors. Therefore, to account such factors, the path mediating effects are considered in the hypothesized conceptual model. The path-mediated effects through ecosystem interactions are shown by paths 'b' and 'd', whereas, the path-mediated effects through innovation focus are shown by paths 'c' and 'e'. Furthermore, the effects between innovation focus and ecosystem interactions is shown by the path 'f'.

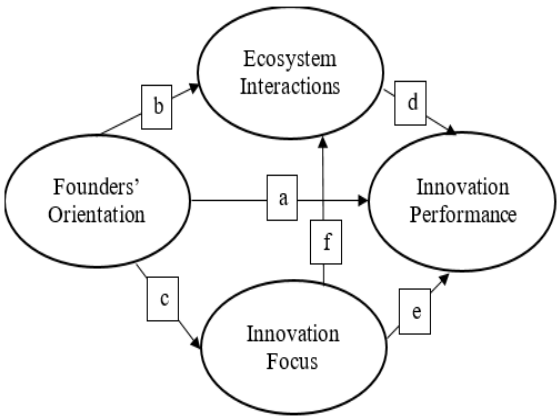

Figure 1 Conceptual framework with direct and path-mediated effects

2. Methodology

The entrepreneurship research revolves around developing, exploring, and confirming theory and research findings. Hair et al., (2016) recommended exploratory study when prior knowledge on relationships among the variables

is limited. In some instances, an independent study of variables does not uncover the underlying latent phenomenon. The group of independent variables, collectively termed as a construct are studied to unveil latent relationships. Structural Equation Modeling (SEM) is recommended to explore latent relationships among the constructs. Two types of SEM approaches are: (1) covariance-based SEM (CB-SEM) - applied to confirm extant theories, and (2) partial least squares SEM (PLS-SEM) - applied in exploratory research, and uses composite variables to study latent phenomenon through individual measures. The PLS-SEM technique demonstrated higher statistical power than CB-SEM, identifies population relationships better than CB-SEM, and highly recommended for exploratory research. Furthermore, PLS-SEM technique emphasises prediction rather than explanation, and therefore, an ideal candidate to explore the relationships between founders' orientation, and innovation performance components of social enterprises through the mediating factors - innovation focus, and ecosystem interactions. Therefore, PLS-SEM is selected for analysing the proposed research objectives.

A PLS-SEM illustrates hypotheses and relationship among variables through the path diagram. The path diagram in a PLS-SEM has two components. First, the structural or inner model - constitutes endogenous constructs, and explains the relationships among the constructs. Second, the measurement or outer model - constitutes exogenous constructs, and explains the relationships between the constructs and measures (Hair et al., 2016). The proposed sequence of constructs and the hypothesised relationship among the constructs are helpful to build the structural model, whereas, the assumed relationship between constructs and their respective measures guide the development of measurement model.

Reflective and formative are two approaches used to develop the constructs for measurement models. In case of reflective measurement model, the measures are considered as manifestations of the construct, whereas, in formative measurement model, the measures determine the construct. In this study, measures are considered to represent the effects of underlying constructs, and therefore, reflective approach is preferred. Furthermore, literature review is the basis for the choice of constructs as well as their variables.

3. Measures[1]

The measures to develop the proposed constructs are explained in tables presented in this sub-section. The measures for constructs - founders'

[1] Data is available at: https://www.dropbox.com/sh/zr287l6ksgxc8af/AAAVslJTmvIVPrG4a3Lnioqha? dl=0

orientation, ecosystem interactions, innovation focus, and innovation performance - are shown in Table 4, Table 5, Table 6, and Table 7 respectively. The descriptive statistics of the measures are shown in Table A in the Appendix I.

The final measures to capture innovation performance are selected after pilot study through feedback from the practitioners. The respondents cited lack of expertise as well as resources to measure innovation at different stages. Furthermore, social enterprises do not have mechanisms to measure innovation, and do not capture economic, environmental as well as societal components of innovation performance.

Table 4 Measures for founders' orientation (exogenous construct)

Measure	Description
Emphasis on beneficiaries' preferences	Top management of the organisation is emphases on needs and satisfaction of beneficiaries that are aligned with organisation's social objectives (Lee et al., 2015; Ozkaya et al., 2015).
Financial risk aversion	Risk aversion of founders' and top management to taking higher financial risks for better social impact, acceptance of new product/service failures, as well as develop innovative strategies irrespective of failure (Lee et al., 2015).
Financial decisions based on certainty of success	Top management takes financial decisions like the implementation of plans based on the certainty of success (Lee et al., 2015).
Emphasis on market trends	Founders' emphasis on understanding the market trends (Lee et al., 2015).
Emphasis on responding to the competitors' actions	Founders' emphasis on responding to the competitors' actions (Ozkaya et al., 2015).
Invest in research and development	Founders as well as leadership team emphasises on investments into research and development (Bhattacharya and Bloch, 2004)

Measure type: Likert scale from strongly disagree (1) to strongly agree (5) on a scale of 1 to 5

Among the measures recommended in the framework proposed by Dewangan and Godse (2014), the pilot study respondents suggested to stick to the four innovation performance output measures: (1) beneficiaries' rate of adoption of new products and services, (2) change in beneficiaries' satisfaction after introduction of products and services, (3) rate of innovation in social enterprises, and (4) number of marketing partners added to distribute products and services.

Table 5 Measures for ecosystem interactions (endogenous construct)

Measures	Description
Common legal organisational type	Availability of common legal organisational type like "Section-8" companies in India, "CICs" in the UK, and "L3Cs/B-Corps" in the USA facilitating the growth of social enterprises (Nicholls, 2010).
Regulatory barriers	The regulatory barriers either during formation or operations of the organisation are creating the hassles in the sector US National Advisory Board (2014).
Bureaucratic barriers	The bureaucratic barriers either during formation or operations of the organisation are creating the hassles in the sector US National Advisory Board (2014).
Entrepreneurship policy	Well framed entrepreneurship policies are helping the social enterprise and sustainable non-profits sector (Acs and Audretsch, 2013).
Corporate Social Responsibility	Corporate Social Responsibility is impacting the prospects of the social enterprise and sustainable non-profits sector (Kerlin, 2010).
Access to talent and human resources	The availability of talented human resources in this sector (Ghani et al., 2014)
Access to technologies	Technological progress is may impact the prospects of the social enterprise (Kerlin, 2010). A conducive ecosystem facilitates access to latest technologies.
Enterprises cluster	Availability of enterprises clusters, and start-ups are impacting the prospects of the social enterprise and sustainable non-profits sector (Acs and Audretsch, 2013).

Note: Likert scale from strongly disagree (1) to strongly agree (5) on a scale of 1 to 5

Table 6 Measures for innovation focus (endogenous construct)

Measures	Explanation
Focus on new beneficiaries	Focus on new beneficiaries different than existing beneficiaries (Westall, 2009).
New markets	Target new beneficiaries and emerging markets different from the current beneficiaries (Ozkaya et al., 2015).
Identify new opportunities	Identify new opportunities to serve different social needs of beneficiaries and markets (Ozkaya et al., 2015).
Product or services diversity	Providing a wide range of products or services to the beneficiaries (Chen et al., 2009).

Note: Likert scale from strongly disagree (1) to strongly agree (5) on a scale of 1 to 5

Table 7 Measures for innovation performance (endogenous construct)

Measures	Explanation
Beneficiaries' rate of adoption after introducing the new offering	Rate at which the beneficiaries are adopting the new products/services offered (Dewangan and Godse, 2014).
Change in beneficiaries' satisfaction after introducing the new offering	The difference in beneficiaries' satisfaction after the new products/services are introduced (Dewangan and Godse, 2014).
Rate of innovation in organization	Rate at which the new products or services launched by the organization (Dewangan and Godse, 2014).
Number of marketing partners added	Number of marketing partners added indicates the acceptance of the innovation (Dewangan and Godse, 2014).

4. Sampling Technique and Sample Size

The academics are yet to arrive on consensus to define social enterprises. However, Lepoutre et al. (2013) proposed a definition of social enterprises in which social enterprise is recognized as "an organization characterised by the predominance of a social mission, importance of innovation and defined role of earned income". Section-8 companies (Companies Act, 2013) in India fall under the definition suggested by Lepoutre et al. (2013) and therefore, considered as subjects for sampling. The legal provisions of Section-8 companies state that "Section-8 companies should promote commerce, arts, science, sports, education, research, social welfare, religion, charity, protect environment or any such other objectives; apply profits or other income in promoting objectives; should not distribute profits to promoters and members; and in case of winding up, their assets should be transferred to another 'Section - 8' company with similar mission". A random clustered sampling technique is employed to identify the respondents from four states in India - Karnataka, Telangana, Tamil Nadu, and Maharashtra. The four states are identified based on the presence of social enterprise incubators, impact investors, frequent training programmes on social entrepreneurship, and availability of at least 300 social enterprises in each state. Due to budget, time-constraint, and low response rate, the data collection was stopped after responses from 207 social enterprises.

5. Response Rate

In this study, the response rate is 7.88%, i.e., the ratio of responded social enterprises (207) to total number of social enterprises survey requests sent (2628). Despite sending three reminders over emails and telephones (which

ever available), the response rate did not improve. Among the 207 responses, the face to face (direct) interviews constitute 161 responses, followed by 27 web and 19 telephonic responses. Furthermore, 19.75% (519) of survey request emails sent were bounced. Therefore, the revised response rate is 9.82%. Detailed break up of population, responses, and percentage of responses per state is provided in Table B in Annexure III.

Sample Size

Hair et al. (2016) suggested that the minimum sample size required to conduct PLS-SEM should be larger than either 10 times the largest number of indicators used to develop a single construct or 10 times the largest number of paths directed at a particular construct. In this study, a maximum of eight paths are directed towards a single construct, and the sample size of 203 social enterprises exceeds the minimum required sample of 90.

The Smart PLS version 3.2.7 software is used to run the PLS-SEM algorithm, and recommendations by Hair et al. (2016) are followed to evaluate the PLS-SEM model. The path weighting scheme is chosen as the weighting method, initial value of +1 is assigned for all outer weights, a stop criteria of 10-7 is applied, and a maximum of 300 number of iterations are selected. The mean replacement technique is used for missing values in the measures. After the PLS-SEM algorithm is executed and path model is established, a bootstrapping algorithm is executed with 3000 samples to analyse the significance of path coefficients. Finally, blindfolding algorithm is executed to understand the predictive relevance of the PLS-SEM model. The PLS-SEM algorithms are executed, and iterative method is followed to arrive at a final PLS-SEM model that meets all the measurement and structural model assessment criteria as suggested by Hair et al. (2016). The findings are provided and inferred in the results and discussions sections of this paper.

IV. Results

The evaluation of PLS-SEM followed the guidelines suggested by Hair et al., (2016) that constitutes assessment of reflective measurement model followed by structural model. The assessment metrics for measurement model constitute reliability, convergent validity, and discriminant validity. The structural model assessment metrics constitute size and statistical significance of the structural path coefficients, explained variance - R^2, effect size - f^2, and predictive relevance - Q^2. The goodness-of-fit measures for PLS-SEM are at the nascent stages of development (Hair et al., 2016), and therefore, the goodness-of-fit measures are reported and not used for the model evaluation

1. Measurement Model Assessment

The reflective measurement models are evaluated through internal consistency reliability, and validity. Traditional approach to evaluate internal consistency reliability is to report Cronbach's alpha. However, Cronbach's alpha suffers from two limitations: (1) sensitive to number of items in the scale, and (2) underestimates the internal consistency reliability. Therefore, Hair et al., (2016) suggested to use composite reliability - acceptable range between 0.7 and 0.9 - to evaluate internal consistency reliability. The assessment of validity constitutes evaluation of convergent validity and discriminant validity. The outer loadings of the measures and average variance extracted (AVE) evaluate convergent validity of the constructs. The constructs with AVE higher than 0.5 and the outer loadings of measures higher than 0.7 indicate convergent validity. However, the measures with outer loadings between 0.4 and 0.7 may be retained based on their contributions to the average variance extracted (AVE).

Fornell-Larcker criterion states that the square root of AVE values must be higher than latent variables correlations for the discriminant validity (Hair et al., 2016). The measures not meeting the criteria for internal consistency reliability, and validity are excluded from the model.

The outer loadings, composite reliability, average variance extracted, and collinearity values for each construct and their respective measures are shown for exogenous constructs, mediators, and endogenous constructs in Table 8. The variables that did not meet internal consistency reliability, and validity criteria are shown in Table 9.

The Fornell-Larcker criterion and Hetrotrait-Monotrait ratio (HTMT) values for discriminant validity are reported in Table 10 and Table 11 respectively. The tables indicate acceptable internal consistency reliability, and validity to move on to further analysis on structural model assessment.

2. Structural Model Assessment

After the assessment of measurement model through the constructs' reliability and validity, the next step is to evaluate structural model i.e., the relationships between the constructs, and predictive capability of the PLS-SEM model. Hair et al, (2016) recommended six steps to evaluate the structural model: (1) collinearity through variance inflation factor (VIF) scores, (2) significance of path coefficients, (3) level of the coefficient of determination (R^2), (4) f^2 effect size, (5) the predictive relevance (Q^2), and (6) the q^2 effect size.

Initially, all the measures are assessed for collinearity through VIF, and in case of PLS-SEM, the VIF values less than 5 indicate absence of collinearity problem. The VIF values for each measure used in this study are shown in Table 8, and fall under the accepted limit of 5. Therefore, the PLS-SEM model results for the measures used to develop constructs indicate absence of collinearity problem.

Table 8 Assessing measurement model for the exogenous constructs

Construct	Measures	Outer loadings	Composite Reliability	Average Variance Extracted	VIF
Founders' Orientation	Emphasis on beneficiaries' preferences	0.639	0.871	0.581	1.686
	Financial risk aversion	0.904			4.001
	Financial decisions based on certainty of success	0.916			4.126
	Emphasis on market trends	0.630			1.577
	Invest in research and development	0.667			1.475
Ecosystem Interactions	Regulatory Barriers	0.913	0.859	0.679	2.511
	Bureaucratic barriers	0.931			2.713
	Access to talent and human resources	0.579			1.214
Innovation Focus	New markets	0.596	0.785	0.554	1.081
	Identify new opportunities	0.828			1.349
	Product or services diversity	0.787			1.366
Innovation performance	Rate of beneficiaries' adoption of new offerings	0.704	0.81	0.602	1.413
	Impact on beneficiaries' satisfaction index	0.867			1.553
	Rate at which new offerings being launched	0.748			1.206

The strength and significance of structural path coefficients for the complete model are shown in the Table 12. To evaluate the structural path coefficients of this model, a significance level of 10% (p-value < 0.1) is followed as per recommendations of Hair et al. (2016) for exploratory studies

Table 9 Assessing measurement model for the exogenous constructs (do not meet requirements of measurement model)

Construct	Measures	Outer loadings	VIF
Founders' Orientation	Emphasis on responding to the competitors' actions	0.395	1.118
Ecosystem interactions	Common legal organisational type	0.008	1.220
	Entrepreneurship policy	0.499	1.277
	Corporate Social Responsibility	0.356	1.124
	Access to Technology	0.496	1.121
	Enterprises cluster	0.495	1.141
Innovation focus	Focus on new beneficiaries	0.544	1.183
Innovation performance	Number of marketing partners added	0.498	1.073

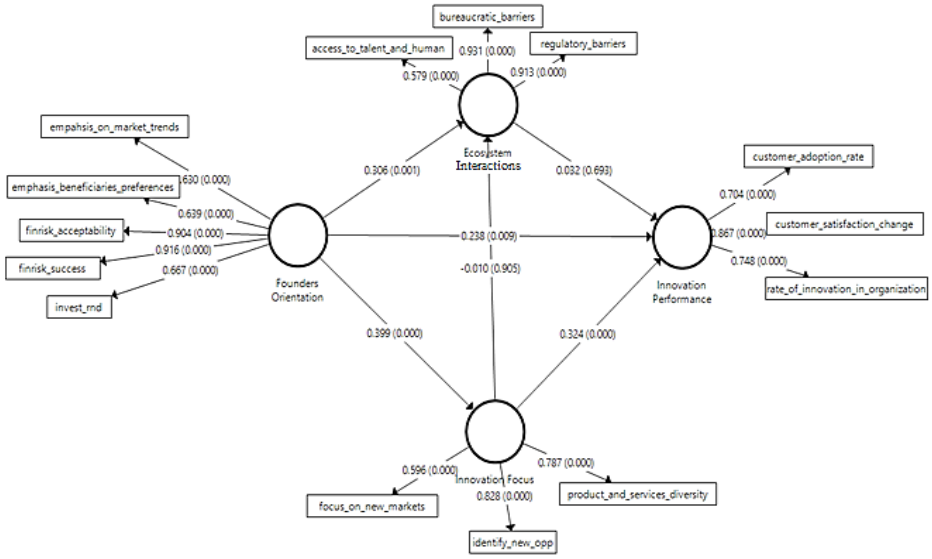

Figure 2 PLS-SEM model for founders' orientation and innovation

Table 10 Fornell & Lacker criterion for discriminant validity

	Ecosystem Interactions	Founders Orientation	Innovation Focus	Innovation Performance
Ecosystem	0.824			
Founders Orientation	0.302	0.762		
Innovation Focus	0.112	0.399	0.744	
Innovation Performance	0.140	0.377	0.423	0.776

Table 11 Hetrotrait-Monotrait (HTMT) ratio for discriminant validity

	Ecosystem Interactions	Founders Orientation	Innovation Focus	Innovation Performance
Ecosystem				
Founders Orientation	0.292			
Innovation Focus	0.181	0.502		
Innovation Performance	0.188	0.463	0.660	

Table 12 Structural path coefficients

Path	Path Coefficient	T-statistic	P-value	f^2 effect size	Hypotheses
Founders' Orientation → Innovation Performance (path 'a')	0.238	2.604	0.009	0.057 (small)	Hypothesis 1 (Supported)
Founders' Orientation → Ecosystem Interactions (path 'b')	0.306	3.208	0.001	0.087 (small)	Hypothesis 2 (Supported)
Founders' Orientation → Innovation Focus (path 'c')	0.399	6.171	0.000***	0.189 (medium)	Hypothesis 3 (Supported)
Ecosystem Interactions → Innovation Performance (path 'd')	0.032	0.395	0.693	0.001	Hypothesis 4 (No Support)
Innovation Focus → Innovation Performance (path 'e')	0.324	4.092	0.000***	0.115 (small)	Hypothesis 6 (Supported)
Innovation Focus → Ecosystem Interactions (path 'f')	-0.01	0.083	0.119	0	Hypothesis 5 (No Support)

***p-value < 0.0001; ** p-value < 0.05; * p-value between 0.05 and 0.1

The f^2 effect size indicates the degree of impact of exogenous construct on the endogenous constructs. The standard guidelines to infer f^2 are that values less than 0.02 indicate no effect, between 0.02 and 0.15 indicate small effects, 0.15 and 0.35 indicate medium effects, and values higher than 0.35 imply large

effects. The path from founders' orientation to innovation performance and ecosystem interactions reveal small effect size ($f^2 < 0.15$), whereas, the path founders' orientation to innovation focus suggest medium effect size ($f^2 = 0.189$). The path from innovation focus to innovation performance imply a small effect size ($f^2 = 0.115$). Along with R^2 values for predictive power, Hair et al., (2016) recommended to examine Stone-Geisser's Q^2 values - greater than zero indicates predictive relevance of the endogenous constructs, and values below zero indicate lack of it. The Q^2 values are reported along with R^2 values in Table 13. The endogenous constructs - ecosystem interactions, innovation focus, and innovation performance - showed Q^2 values higher than zero, and therefore, imply predictive relevance. The R^2 values suggest that founders' orientation explains 15.9% of variance in innovation focus, whereas, founders' orientation and innovation focus explain 23.1% of variance in innovation performance.

Similar to f^2 effect size values for R^2 values, the q^2 effect size implies the degree of predictive relevance of the endogenous construct for a given Q^2 value. The q^2 effect size follows the guidelines suggested for f^2 effect size, and are shown in Table 13. The predictive relevance of innovation focus indicate small effect size ($q^2 = 0.144$), whereas, innovation performance indicate medium effect size ($q^2 = 0.212$).

Table 13 R^2 and Q^2 (predictive relevance) values of endogenous constructs

Construct	R^2	Adj-R^2	Q^2	q^2 effect size
Founders' Orientation	NA	NA	NA	NA
Ecosystem Interactions	0.091	0.081	0.051	0.0502
Innovation Focus	0.159	0.155	0.079	0.144
Innovation Performance	0.231	0.218	0.114	0.212

NA: Not applicable, because it is the endogenous construct with no arrows pointing outwards

Table 14 Model fit indicators

	Complete Model	
	Saturated Model	Estimated Model
SRMR	0.096	0.096
d_ULS	0.977	0.977
d_G	0.268	0.268
Chi-Square	301.081	301.081
NFI	0.701	0.701
rms Theta	0.221	

The standard root mean square residual (SRMR), exact fit criteria - d_ULS, and d_G, NFI, Chi^2 and RMS_theta indicate the model fit in PLS-SEM. The SRMR implies the difference between observed correlations and model implied correlation matrix (Hair et al., 2016) and values less than 0.08 are considered as good model fit measures. The NFI values higher than 0.90 indicate good model fit. The NFI is a ratio of Chi^2 value of the proposed model to the null model or benchmark model. The larger the parameters, the higher the NFI, and therefore NPI is not recommended as a model fit indicator (Hair et al., 2016). The squared Eucledian distance, d_ULS, and the geodesic distance d_G are two metrics that provide discrepancy between empirical covariance matrix and covariance matrix implied by composite factor model (Hair et al., 2016). RMS theta is only applicable for the reflective models, and evaluates the degree of outer model residuals correlation. The closer the RMS theta value to the zero, the better the PLS-SEM model, and their values less than 0.12 are considered good fit, and anything else suggest lack of fit. Hair et al., (2016) suggested that saturated model evaluates correlation between all constructs, whereas, estimated model takes total effects and model structure into account. All the metrics for goodness-of-fit for PLS-SEM model are reported in Table 14. However, the goodness-of-fit measures for PLS-SEM are at the nascent stages of development (Hair et al., 2016), and adequacy of goodness-of-fit measures is still under exploration (Henseler et al., 2016), and therefore no inferences are drawn from the goodness-of-fit metrics for the model.

Mediation

The evaluation of measurement and structural models indicate that PLS-SEM model has certain paths with significant associations, and suggest possibility of multiple mediation effects. Thereafter, multiple mediation effects in the model are further explored. The first step is to establish multiple mediation effects begins with verification of significant direct effects for exogenous-endogenous and endogenous-endogenous constructs. The mediation effect exists only when a path leading to or from the mediating constructs is significant, otherwise, the mediation effect does not exist. After the significant mediating paths are identified, the total effect as well as indirect effects are used to compute Variance Accounted For (VAF) - a ratio of indirect to total effects, where sum of direct and indirect effects is total effects. VAF indicates mediators share of direct effect. No mediation exists when VAF value is between 0 and 0.2. Partial mediation exists when VAF value lies between 0.2 and 0.8 implies, and full mediation exists when VAF value is greater than 0.8.

Three mediation paths exist in the model shown in Figure 1 and Figure 2. First, the mediation effect of innovation focus (path ‘c’ → ‘e’) between

founders' orientation and innovation performance (path 'a'). From the Table 5.9, all the paths in this mediation effects are significant, and a VAF value of 0.367 indicate partial mediation effect between founders' orientation and innovation performance. Furthermore, innovation focus acts as complementary mediator between founders' orientation and innovation performance because of positive mediating path coefficients (path 'c' = 0.399; path 'e' = 0.324). Second, the mediating effect of ecosystem interactions (path 'b' → 'd') between founders' orientation and innovation performance (path 'a'). The path between ecosystem interactions and innovation performance (path 'd') is not significant, and therefore, the mediation effect does not exist, however, direct effect exists. Third, mediating effect of innovation focus (path 'c' → 'f') between founders' orientation and ecosystem interactions (path 'b'). The path between innovation focus and ecosystem interactions (path 'f') is not significant, and therefore, mediation effect does not exist, however, direct effect exists. The mediation analysis is summarized in Table 15.

Table 15 Mediation analysis

Path	Mediation
Founders' Orientation → Innovation Focus → Innovation Performance	VAF = 0.367 Complementary mediation
Founders' Orientation → Ecosystem Interactions → Innovation Performance	Direct only Non-Mediation
Innovation Focus → Ecosystem Interactions → Innovation Performance	Direct only Non-Mediation

** P-value < 0.05; * p-value between 0.05 and 0.1 (Direct only Non-Mediation: the direct effect is significant, but not the indirect effect through mediation.)

V. Discussions and Conclusions

Results suggest that founders' emphasise on beneficiaries' preferences as well as market trends, avert financial risks, take financial decisions based on certainty of risk, and invest in research and development of their products and services. However, founders' orientation does not constitute responding to competitors' actions. The social enterprises confront difficulties during the interactions with the ecosystem due to regulatory and bureaucratic barriers, and struggle to access talent as well as human resources. Furthermore, entrepreneurship policies, start-up and enterprise clusters, corporate social responsibility, and access to technology in the ecosystem have no influence on the progress of social enterprises.

On innovation, social enterprises focus on pursuing new markets, identification of new opportunities, and products as well as services diversity. However, social enterprises do not focus their innovation on opportunities to cover different social needs of the beneficiaries. Therefore, innovation focus suggests that social enterprises pursue scaling and social impact through new markets, new opportunities and diversity of products as well as services. Furthermore, innovation performance constitutes an increase in the rate of beneficiaries' adoption of new offerings, an improvement in beneficiaries satisfaction after introduction of new offerings, and an increase in rate of launch of new offerings constitute. However, innovation performance measurement does not constitute an addition of number of market partners.

In the ecosystem, bureaucratic as well as regulatory barriers, and difficulty to find talent and human resources impede founders' orientation to achieve progress of social enterprises (path coefficient 0.306; p-value = 0.001). Furthermore, since 2000, a total of 55 impact investors deployed USD 2.5 billion (Dutt & Ganesh, 2014). 2015 alone saw USD 500 million as impact investments in India, and by 2020, the cumulative impact investments are expected to touch USD 6 to 8 billion (Pandit and Toshan, 2017). The creation of regulatory provisions by the Securities and Exchange Board of India (SEBI), and the Planning Commission's recommendation to provide incentives to impact investors in 2012 are two clear indicators for the growth of this sector in hindsight. To ensure the success of the investments, the ecosystem must play role of an enabler, and improve on availability of talent and human resources for social enterprises as well as minimize bureaucratic and regulatory barriers for the progress of social enterprises. Furthermore, the ecosystem may be further strengthened through policies for social entrepreneurship, integration of existing start-up as well as enterprise clusters with social enterprises, alignment of corporate social responsibility with social enterprises, and facilitation of technology access to social enterprises. The policy makers, funders, as well as mentors may focus on building a conducive ecosystem for creation as well as diffusion of innovation from social enterprises.

Despite the challenges in the ecosystem, founders' orientation has a positive influence on innovation focus (path coefficient 0.399; p-value < 0.0001), and innovation performance (path coefficient 0.238; p-value < 0.009). The relationship suggests that founders understand market based on beneficiaries' requirements, take calculated financial risks and invest in research and development to focus on identification of new markets, opportunities as well as diversification of products and services. Furthermore founders' approaches towards innovation steer satisfaction in rate of beneficiaries' after introduction and adoption of new offerings, and the rate at which new offerings are launched by the social enterprises. Besides, innovation focus on new markets, new opportunities as well as diversity in products and services leads to an

innovation performance (path coefficient= 0.324; p-value < 0.0001). Therefore, founders focus on innovation positively contributes to the innovation performance.

The findings suggest that even though the interactions with ecosystem may not be conducive for innovation progress of social enterprises, the founders invest in R&D, emphasise on beneficiaries', and take less financial risks to create benefits through innovation. The founders focus on innovation and their influence on innovation performance corroborates that the core outcome of social enterprises is innovation (Weerawardena and Mort, 2006) and social enterprises are innovating agents in social economy (Shaw and Carter, 2007). Furthermore, the findings strengthen the arguments that policies may be framed to facilitate social enterprise as innovators in the Third Sector (Nicholls, 2010).

The innovation performance measures - satisfaction in rate of beneficiaries' adoption of new offerings, change in beneficiaries' satisfaction after introduction of new offerings, and the rate at which new offerings are launched by the social enterprises - imply that beneficiaries' welcome the outputs of social enterprises' innovation - products and services. Furthermore, the beneficiaries' acceptance create further opportunities to scale innovation, create impact, and generate revenues.

In sum, the founders' of social enterprises drive beneficiaries-centric innovation through low financial risks, with an extensive focus on new markets, and diverse products or services. The focus on innovation contributes towards innovation diffusion and performance - introduction as well as beneficiaries' absorption of new offerings in the ecosystem.

This paper makes three key contributions. First, an existing framework on innovation performance measurement is used to quantify innovation performance and conduct an empirical study, and therefore, serves as a reference for future studies on social enterprises' innovation performance. Second, the mediating role of interactions with ecosystem as well as innovation focus is performed on relationship between founders' orientation and innovation performance. Founders are oriented towards beneficiaries' preferences, understand market trends, minimize financial risks, as well as invest in research and development for the progress of social enterprises. The founders confront challenges during the interactions with the ecosystem from bureaucratic as well as regulatory barriers. Such founders' orientation with innovation focus on new markets, new opportunities as well as diversity in products and services has positive consequences on rate of launch and beneficiaries' adoption of new offerings, as well as beneficiaries' satisfaction after introduction of new offerings. Third, the study focused on the role of interactions with ecosystem on social enterprises' innovation. The practitioners may realise that even though the founders' focus on innovation, and

beneficiaries' response is positive to innovation, the ecosystem is not conducive for innovation, and therefore, more efforts are needed from the ecosystem enablers to facilitate creation and diffusion of innovation.

The study is confined to non-profit social enterprises. The future research may extend the study to for-profit social enterprises. The measures in this study are limited to outcomes of innovation. The future research may employ holistic economic, environment, and societal indicators to evaluate innovation performance of social enterprises. Furthermore, this study is cross-sectional in nature, the future research may capture innovation performance measures at different stages and conduct a longitudinal study to understand stages in innovation, drivers of innovation performance, and benchmark social enterprises based on their innovation performance.

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Annexure I

Table A Descriptive statistics of measures

No.	Measures	Mean	Median	Standard Deviation	Size
1	Emphasis on beneficiaries' preferences	4.674	5	0.853	181
2	Financial risk aversion	4.173	5	1.109	173
3	Financial decisions based on certainty of success	4.060	4	1.182	167
4	Emphasis on market trends	4.217	4	0.991	175
5	Emphasis on responding to the competitors' actions	3.377	3	1.130	146
6	Invest in research and development	4.168	4	0.929	155
7	Common legal organisational type	3.709	4	1.106	175
8	Regulatory barriers	3.442	4	1.278	163
9	Bureaucratic barriers	3.667	4	1.315	162
10	Entrepreneurship policy	4.000	4	1.082	169
11	Corporate social responsibility	3.463	4	1.292	162
12	Access to talent and human resources	3.670	4	1.199	176
13	Access to technologies	4.136	4	0.894	176
14	Enterprises cluster	3.700	4	1.030	160
15	Focus on new beneficiaries	4.365	5	0.839	178
16	New markets	4.194	4	0.947	170
17	Identify new opportunities	4.041	4	1.075	172
18	Product or services diversity	4.119	4	0.987	168
19	Beneficiaries' rate of adoption after introducing the new offering	4.093	4	0.823	172
20	Change in beneficiaries' satisfaction after introducing the new offering	4.221	4	0.730	172
21	Rate of innovation in organization	3.945	4	0.910	165
22	Number of marketing partners added	4.019	4	0.934	157

Annexure II

Questionnaire

1. To what extent do you agree or disagree with each of the following statements?

The founders	Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree
1.1) Emphasise on the needs and satisfaction of the beneficiaries.	☐	☐	☐	☐	☐
1.2) Take financial risks for the success of social interventions.	☐	☐	☐	☐	☐
1.3) Take financial risks to test the acceptability of the new products and services.	☐	☐	☐	☐	☐
1.4) Give priority to understand the market trends in the sector of your operations	☐	☐	☐	☐	☐
1.5) Respond to the competitors' actions	☐	☐	☐	☐	☐
1.6) Invest in R&D for products and services development.	☐	☐	☐	☐	☐

2. On the ecosystem and support systems for social enterprises, to what extent do you agree or disagree with each of the following statements?

For a social enterprise	Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree
2.1) Existence of common organisational legal framework (like "Section-8 companies") is facilitating the progress.	☐	☐	☐	☐	☐
2.2) Regulatory barriers hamper the progress.	☐	☐	☐	☐	☐
2.3) Bureaucratic barriers hamper the progress.	☐	☐	☐	☐	☐
2.4) Better entrepreneurship policies help the progress of social enterprises.	☐	☐	☐	☐	☐
2.5) Increase in CSR is facilitating the progress	☐	☐	☐	☐	☐

2.6) Access to talent and human resources is difficult.	☐	☐	☐	☐	☐
2.7) Access to latest technology is facilitating the progress.	☐	☐	☐	☐	☐
2.8) Availability of enterprise and start-up clusters is facilitating the progress.	☐	☐	☐	☐	☐

3. Regarding emphasis on innovation organisation, to what extent do you agree or disagree with each of the following statements?

Your organisation targets or focuses on	Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree
3.1) New beneficiaries	☐	☐	☐	☐	☐
3.2) New markets	☐	☐	☐	☐	☐
3.3) Opportunities to meet different social needs of the beneficiaries.	☐	☐	☐	☐	☐
3.4) Providing diverse products or services to the beneficiaries	☐	☐	☐	☐	☐

4. On innovation performance measurement in your organisation, to what extent do you agree or disagree with each of the following statements?

	Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree
4.1) The rate of adoption of the new products/services by the beneficiaries is increased.	☐	☐	☐	☐	☐
4.2) Beneficiaries' satisfaction improved after introduction of new products/services	☐	☐	☐	☐	☐
4.3) The rate at which new products/services are launched has increased in the last 2 years.	☐	☐	☐	☐	☐
4.4) New partners are added to scale the social interventions and expand the coverage of the beneficiaries.	☐	☐	☐	☐	☐

Note: Products/services introduced by your organisation are called as interventions or benefits.

Annexure III

Table B Population, responses, and percentage of responses

State	Total Social Enterprises	Responses	Percentage of Responses
Karnataka	326	48	14.72
Telangana	268	47	17.54
Maharashtra	2256	50	2.22
Tamil Nadu	478	47	9.83
Others	--	15	
Total Responses		207	