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Original Research Article**Effect of Symbiotic Relationship on self-organized Startup
entrepreneurship, an Innovative synergy****Abstract**

Self-organized theory-series are improving constantly with strong explanation base for entrepreneurship, with symbiotic theory as the most important one of which plays very crucial role for startups 'symbiotic relationship survival rate, goodwill and growth potential on self-organized startup entrepreneurship. The study used structural equation model in analyzing the sampled data of 399 responses, showing that all the measurement models and constructs used fit the data well thus Absolute fit index, Incremental fit index and Parsimonious fit index were all within the acceptable ranges. The three constructs, symbiotic relationship, innovative ideas and social relationship, are indicative that they have the ability to influence self-organized startup businesses. The results of the test on the two hypothesis are confirmed and supported. A unit change in symbiotic relationship can lead to 0.192 increase in small business startups whilst a percentage change in innovative ideas can positively influence small startups by 0.274%.

Key words: Symbiotic Relationship, Self-Organized Startup, Entrepreneurship, Innovation.

1 Introduction

Technological and globalization change have brought new opportunities for small and medium enterprises (SMEs), but they have also created risks, which needs strategic team building for symbiotic relationship. The complementary nature of innovation and resource-based theory in the study of symbiotic innovative relationships of self-organized startup

businesses⁵ takes cognizance of the environmental context, problems and offers strategies on how to leverage on the inherent benefits in their applications.

The research advanced to ongoing debates on entrepreneurship as an anchor for economic growth and stability. It impacts on symbiotic relationship of entrepreneurs for startup business which plays a crucial role on the survival rate of new businesses with goodwill and growth potential.

The major problem that has led to this research is the lack of team work and symbiotic relationship on the part of entrepreneurs which leads to low growth rate and high failure rate of enterprises. The aim⁵⁰ of the study is to establish a positive relationship between symbiotic relationship and self organized startup business's being successful.

The theoretical foundations of symbiotic relationship⁵ offer a wide array of opportunities to small businesses. Similarly, several studies reinstates the need for small businesses to develop their capabilities. The importance of developing their capabilities forms the root of recent research with evidences that it may translate to growth and invariably lead to sustainable competitive advantages in different frontiers of operations.

Self-organized entrepreneurial startup according to research is likely to be more successful if there is a symbiotic relationship consisting of individuals with different levels of innovative and insightful ideas and not just a single physical person⁷ (Schumpeter 1965). Recent business research has paid increasing attention to entrepreneurship symbiotic relationship, which describes close interaction between two or more different species or people ready to solve problems. In modern day business, symbiosis relationship is⁷ touted to be “the superior entrepreneurial start-up concept”. They are regarded as the major catalyst of new venture creation. “Entrepreneurial symbiosis relationships are responsible for many (or perhaps most) of the major start-ups today” Similarly, Astley and Fombrun (Astley and Fombrun 1983)⁷ suggests that “entrepreneurial symbiosis relationships are at the heart of any new venture”. In addition, several studies claim that firms founded by entrepreneurial symbiotic relationship are more likely to survive and to achieve faster growth than ventures started by individual entrepreneurs.

The network social relationships on Self-organized startups, Innovative businesses,⁵³ Symbiotic Relationship, Opportunity recognition, etc. plays very important roles in the present exploratory study on the effect of symbiotic relation on startups in China, especially for the importance of symbiotic relationship on self-organized startups.

60 2 Conception description

61 2.1 Self-organized startup and basic process

62
 63 One famous definition of startup given by ³⁴Ries (2011) in *The Lean Startup*, state that a
 64 startup is an organization ²⁷designed to create new products and services under conditions of
 65 extreme uncertainty (Ries 2011). In his book, *Four Steps to the Epiphany*, Steve Blank
 66 (2012) iterated that a startup is a temporary organization designed to search for a repeatable
 67 and scalable business model (Blank 2012). Thus, the four defining qualities of startups that is
 68 offered by Ries and Blank are: (1) creating “new products and services”; (2) operating “under
 69 conditions of extreme uncertainty”, (3) “temporary organization” and (4) a “repeatable and
 70 scalable business model.” In another view, Vesper (1990) have presented evidence
 71 concerning ²⁹success and non-success, as well as abstract systems for analyzing and developing
 72 entrepreneurial action in order to offer strategies for business entry and startup (Vesper
 73 1990). And it greatly works in self-organization (Zhang 2015), which combining external-
 74 organization as the two broad categories for Organization, is ³²a goal-directed social entity that
 75 is premeditated as a consciously structured and coordinated dynamic system connecting with
 76 the external environment (Santos and Eisenhardt 2005).

77 Typically, a small self-organized ¹startup will commence by building a first minimum viable
 78 product (MVP), a pattern, to validate, consider and develop new ideas or business thoughts
 79 (Ries 2011). Additionally, Park (2005) postulated that startups initiators ¹do research to
 80 develop their understanding of the ideas, technologies or business models and their
 81 commercial potential (Park 2005). In another instance, business prototypes ¹for startups are
 82 generally found ¹through a "bottom-up" or "top-down" approach (Zettel, Maurer et al. 2001).
 83 Companies can cease to be a startup firm as it passes through various milestones, such as
 84 becoming publicly traded on the stock market in an Initial Public Offering (IPO), or ceasing
 85 to exist as an autonomous entity via a merger or acquisition (Blank 2012).

86 Another critical mechanism contributed is the Startup process, which start with idea
 87 formulation which emanate from ⁴⁰past experience, training and education, human capital
 88 creativity, and influence of family and friends (Zimmerman and Zeitz 2002), the idea
 89 formulation the second stage of startup is opportunity recognition, followed by prestart
 90 planning and preparation, the ensuing stage is entry and launch and finally the post entry
 91 development.

13
 92 According to Zimmerman and Zeitz (2002), business start-up process can be categorized into
 93 a number of stages: (1) the formation of the idea, (2) opportunity recognition; (3) pre-start
 94 planning and preparation including pilot testing (4) entry into entrepreneurship; (5) launch
 95 and subsequent development. Each of these stages will have a number of dynamics that will
 96 impact on the process. These may either encourage further development or have a negative
 97 influence, perhaps causing the individual promising entrepreneur to terminate the process.
 98 These factors will include the nature of the local environment, culture, access to finance,
 99 local support networks, role models and enterprise support and reassurance. A new startup
 100 needs to combine different legitimation strategies, such as selecting a favorable environment,
 101 manipulating expectations and creating new ways of doing things (Zimmerman and Zeitz
 102 2002). From the present findings over the years evolutionary of the self-organized startup
 103 business have not united the process, it is the production of different government policies,
 104 market environment and condition of the players (Deakins and Whittam 2000). In certain
 105 instances, firms may also be unsuccessful and cease to operate completely, an outcome that is
 106 very likely for startups, given that they are developing disruptive innovations which may not
 107 function as anticipated and for which there may not be market demand, even when the
 108 product or service is finally developed (Ries 2011).

109 2.2 Synergetic Theory of self-organized

110 Synergetic theory is an important part of series of the complex and gigantic self-organized
 111 which is broadly accepted and adopted. Synergetic theory is one of the three main different
 112 theories of self-organization: the synergetic (Haken 2004), dissipative structure theory
 113 (Glansdorff and Prigogine 1971, Brogliato, Lozano et al. 2007), and catastrophe theory
 114 (Saari 1977). It was originally founded by the physician Hermann Haken in 1969; it is an
 115 interdisciplinary approach that enables examination of the self-organization of complex
 116 systems. Haken was the first to show that laser light can be explained only by self-
 117 organization phenomena. He describes the self-organized as the establishment of order within
 118 systems through the behavior of their components. This term refers to systems characterized
 119 by openness, dynamic behavior, and complexity (Haken 2004), stimulated by the laser
 120 theory.

3
 121 A prerequisite for the self-organization progression is that the system must be an open system
 122 because a system can only be self-organizing if power is added externally. Only open systems
 123 can create self-organized evolutionary structures, as all other systems die of heat exhaustion

124 which in the business context can emanate from either macro or micro level. One can also
 125 speak about control parameters in this context, although they can at most symbolize
 126 unspecific control by the environment. Haken's analysis of the laser principles as self-
 127 organization of non-equilibrium systems paved the way at the end of the 1960s to the
 128 development of synergetic theory. There is indication that Synergetic theory has already got
 129 further developments from researchers (Schiepek, Tominschek et al. 2014). Synergetic theory
 130 can equally be related to the business and entrepreneurial environment where the
 131 entrepreneur should exert order and orderliness in a well-organized manner to be successful.
 132 To sum up, there are three main arguments from synergetic theory: first, within the existence
 133 of a large number of subsystems, on the basis of equal input of the necessary material, energy
 134 and information, the business must fuel competition, form the network of influence and
 135 interaction. Secondly, promote cooperation, form the necessary pressure that contends with
 136 competition, and do not interfere with some benefits of collaboration naturally to form a
 137 greater gain independently. Thirdly, once the order structure is formed, it should be noted that
 138 the domination of the order parameter cannot be organized and the dynamical process of the
 139 system should be organized in accordance with the rule of the self-organization process of the
 140 system. Once, there is order, the entrepreneur can initiate ideas and be creative enough for a
 141 sustainable startup business.

142

143 2.2.1 Self-organized startups and Innovative ideas

144

145 Joseph Schumpeter's innovation theory of entrepreneurship (Schumpeter 2017) identified an
 146 entrepreneur as one having three major characteristics: innovation, foresight, and creativity.
 147 Self-organized startup generally takes place when the entrepreneur (1) creates a new product
 148 (2) introduces a new way to make a product (3) discovers a new market for a product (4)
 149 finds a new source of raw material and (5) finds new way of making things or organizing.
 150 However, Schumpeter's innovation theory build on the hypothesis which applies to large-
 151 scale businesses, and ignores the entrepreneur's risk taking ability (Zahra 2005) and
 152 organizational skills, and place undue importance on innovation, especially for the self-
 153 organized small business. In most economies, economic conditions force small entrepreneurs
 154 to imitate rather than innovate. Other economists have added a dimension to imitating and
 155 adapting to innovation (Pil and Cohen 2006). This entails successful imitation for self-
 156 originated startup by adapting a product to a niche in a better way than the original product
 157 innovators innovate.

Globally innovation is now accepted on macro level that is a driver of economic and social progress as well as a driver of business success and competitive advantage at the firm (micro level) (Kramer 2011). However, if countries want to move towards a more ecologically sound and successful society, it is important to promote specific areas of innovation (Jansson, Marell et al. 2010), especially in self-organized startup, which for china economic development with more than 70% contribution on service industry. Now new paths continuously explored by such innovation, try to allow for new ways of addressing current and future environmental problems and decreasing energy and resource consumption, while promoting sustainable economic activity (Schaltegger, Lüdeke-Freund et al. 2012), for example, eco-innovation (or green innovation). Norman and Verganti (2014) have iterated that there are three types of eco-innovation: *Incremental*, *Disruptive* and *Radical innovation*. For self-organized startup, incremental innovation is to modify and improve existing technologies or processes to raise efficiency of resource and energy use. Disruptive innovation alters how things are done or specific functions are fulfilled, without necessarily changing the underlying technological regime itself. And finally radical eco-innovation involves a shift in the technological regime of an economy and can lead to changes in the economy's enabling technologies (Norman and Verganti 2014).

2.3 Critical factors of self-organized startups

Factors plays very crucial role for startup business in many findings discussed, but according to Ann (2017), this study will consistently especially concentrate on social relations, symbiotic relations and opportunity recognition, as enumerated below.

2.3.1 Social Relationship and self-organized startup

One of the most important factors for self-organized startup is no doubt social relationship which is formed by individuals such as family, friends, acquaintances, and employees (Zhou, Wu et al. 2007). There are a number of research findings related to social relationship which plays very important role in self-organized startups. Enumerated below are the results from different views. For instance, social relations assist firms to seek financial benefits (Uzzi 1999) (Maas, Seferiadis et al. 2014). People use family and other strong ties for getting resources or support (Oh, Chung et al. 2004). They use weak ties to pass on information they would not get from their close ties (Greve and Salaff 2003).

Social networks are distinct by a set of actors or players (individuals or organizations) and a set of links between the actors (Borgatti 2006). Social network members can contact and

191 organize themselves and thereby increase the opportunities they make available to
 192 entrepreneurs (O'Murchu, Breslin et al. 2004). Zimmer and Aldrich (1987) and Chard,
 193 Bubendorfer et al (2012) find that a preexisting web of relationships, in particular among
 194 friends and family, are resource providers in the new venture process and in addition
 195 (Zimmer and Aldrich 1987), the relationships between entrepreneurs and other actors provide
 196 resources that are important to establishing a business (Chard, Bubendorfer et al. 2012).

197 The individuals being targeted by the entrepreneur are connected through social relationships
 198 (Bott and Spillius 2014) and are part of a social network, which is a sub-network within a
 199 business network. In these models the social relationships are developed mainly during
 200 intermediate stages and social circles. In China for instance, personal relationship is known as
 201 *guanxi*. The later exists between two persons (Yen, Barnes et al. 2011) and they are
 202 frequently related to a common background, such as having gone to school or having studied
 203 together, coming from the same part of China, or having worked together.
 204 However, symbiotic relationship is the core of self-organized startups. The entrepreneur
 205 needs to partner with other technical people to have a steadily growing organization.

206

207 2.3.2 Symbiotic relationship and self-organized startups

208

209 In self-organized startups, symbiotic relations describes close interaction between two or
 210 more different people whose interaction provide benefits to both of them (Pringle, Dirzo et al.
 211 2011). There are many different types of symbiotic relationships that occur in nature (Astley
 212 and Fombrun 1983). Gilbert, Sapp et al. have identified that the word symbiosis literally
 213 means 'living together,' (Gilbert, Sapp et al. 2012) but when the word symbiosis is used in
 214 biology, it is being referred to a close, long-term interaction between two different species.

215 Astley and Fombrun (1983) and Astley (1984) proposed an analytical framework for inter-
 216 organizational relations (Astley and Fombrun 1983). They suggested a procedure which is
 217 called the collective strategy that incorporated the population ecology concept of symbiotic
 218 relationships. They applied the term "commensalistic" in their study, considering that the
 219 concept of symbiotic relationships could be applied to corporate strategy. To date, the theory
 220 of commensalism in collective strategy has been applied in the literature of management
 221 strategy and self-organized entrepreneurship. (Haak 2004). Rigorous empirical studies of this
 222 concept, however, have yet to be presented.

223 In self-organized startups a symbiotic partnership comes together because they solve
 224 problems. Sometimes one half of the partnership benefits more, (Lichodziejewski and
 225 Heywood 2008) while the other half finds itself barely benefiting but it does not matter
 226 as long as both sides can grow their business and get better results.

227 Symbiotic relationships are important to entrepreneurs and self-organized startups for a
 228 number of reasons the most important of these is that by developing symbiotic relationships,
 229 a competitive advantage can be achieved which may not have been possible without the
 230 contribution of each firm's resources. In his research, Dickenson (2012) iterated that, there
 231 are five outcomes of symbiotic marketing termed networking that contributes to this
 232 enhanced competitive advantage (Dickinson 2012). He argued that, by focusing on the whole
 233 value chain, rather than only the firm, managers have the opportunity to enhance quality or
 234 reduce costs in domains that were inaccessible prior to symbiosis.

235 Davis and Eisenhardt (2011) also added that self-organized startups involved in symbiotic
 236 relationships have access to external technical expertise which is crucial and gives the firm
 237 access to market information (Davis and Eisenhardt 2011), locating partners with resources to
 238 increase revenue (Dana, Etemad et al. 2008) and market risk by spreading such risk among
 239 all of the individual members of the symbiotic relationship (Dickinson 2012). Building a
 240 good symbiotic relationship can lead to opportunity recognition for any self-organized startup
 241 businesses.

242

243 **2.3.3 Opportunity recognition and self-organized startup**

244

245 Translating an idea into a business opportunity (Zimmerman and Zeitz 2002) is the key
 246 element of the process of self-organized startup business creation. Moving from the idea
 247 stage to the exploitation of the opportunity requires many elements to be in place. The
 248 economic environment has to be conducive, the culture must be suitable for risk-taking and
 249 the promising entrepreneur must have the confidence to take an idea suggested by
 250 opportunities through to fulfilment. Opportunities are generated by change. Change may be
 251 political, economic, social, demographic or technical.

252 Scholars have given augmented attention to straightening out the antecedents of opportunity
 253 recognition (e.g. (Baron and Ensley 2006); (Casson and Wadeson 2007). One of the findings
 254 in this stream of research is that, some people are better at detecting new business
 255 opportunities than other people, and that this superior ability makes them more likely than

other people to start businesses (Yoon 2012). Entrepreneurship for instance is seen as “the pursuit of opportunity beyond the resources currently under one’s control” (Stevenson and Jarillo 2007). Opportunity recognition is one of the most important aspects of entrepreneurship. It is particularly crucial for new enterprises, as the recognition of opportunities is a requisite initial step for entrepreneurial activities. Baron (2004) has indicated that opportunity recognition is a means of creating economic value that have not been formerly exploited or currently being used by other people. Combining the paper’s central objective, researchers built the conceptual framework below.

2.4 Conceptual Framework

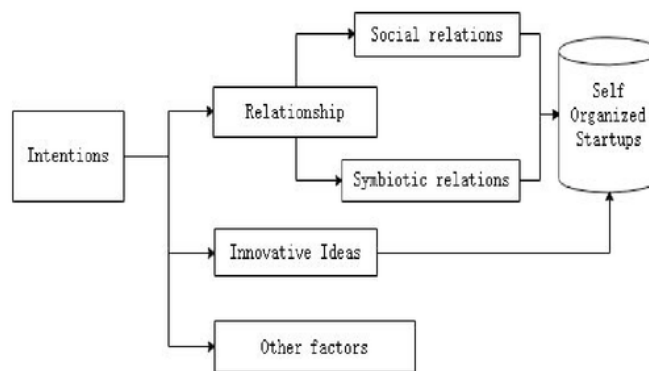


Figure 1: Symbiotic relations with self-organized startups

Based on the above theoretical and conceptual framework, to explore the effect of symbiotic relationship on self-organized startup entrepreneurship, as an innovative synergy, the followed Hypotheses were developed:

H₁: There is a positive and significant relationship between symbiotic relationship and self-organized startup businesses.

H₂: There is a positive and significant relationship between social relationship and self-organized startup businesses.

H₃: There is a positive and significant relationship between innovative Ideas and self-organized startup businesses.

3 Methodology

This study aims at the effect of symbiotic relationship on self-organized startup business and employed quantitative research design in its data collection process. In this view, detection and

280 surveying of different solutions were performed by combining secondary and primary
281 sources of information. More specifically raw data on symbiotic relationship for self-
282 organized startups were collected from young entrepreneurs from Zhenjiang city in the
283 Jiangsu Province. A questionnaire was developed based on entrepreneurship.

284 The study uses structural equation model (SEM) for the testing of its hypothesis. Under SEM
285 factor loadings are usually affected by the number of indicators in the model that constitute
286 various constructs. Some studies show that the number of indicators per factor has a negative
287 effect on some model fit indices. For example, there is evidence (Anderson and Gerbing
288 1984) that a larger number of indicators per factor leads to poor model fit as indicated by
289 GFI, AGFI. (Ding, Velicer et al. 1995) found that NFI, NNFI, RNI, and CFI were negatively
290 affected by increasing the indicator per factor ratio.

291 The factor loading of an indicator to its underlying factor is dependent rather than fixed. The
292 value of the factor loading of a specific indicator may change if more indicators are added to
293 the model. According to Kim and Mueller (1978) factor loading level of 0.30 is considered as
294 the cut-off point for the magnitude of standardized factor loadings (Kim and Mueller 1978).
295 In the view of Ford, MacCallum and Tait, (1986) a standardized factor loading value of 0.40
296 is accepted (Ford, MacCallum et al. 1986).

297 The questionnaire is divided into five main sections. Section one consists of demographics
298 where there is age, gender, and intends to set up a business. Sections two dealt with social
299 relationships. The third section centers on startup businesses, the fourth on symbiotic
300 relationship and the last part on innovative ideas.

301 Based on matured method of Econometric Model, in the above discussions for the variables
302 the equation below was arrived at:

$$303 \quad SB = \alpha + \beta_1 SY + \beta_2 IND + \beta_3 SR + \mu$$

304 Where

305 SB = the dependent variable,

306 α = constant

307 β = influencing coefficient

308 SY, IND, SR = Independent variables

309 μ = disturbance/error term

310 The above model seeks to establish whether the dependent variable (SB) is influenced by the
311 independent variables which includes SY, SR and IND.

312 **3.1 Sampling Analysis**

313 Questionnaire that was sent to the field total 450 copies based on the cluster sampling and
314 random sampling, cluster here means focusing on Zhenjiang city area. The responded
315 questionnaire that was received was 399 which constitute 88.75% of respondents. That
316 indicates that more than half of the questionnaires were received back. Other questionnaires
317 were not received due to reasons like missing questionnaire, respondents not available,
318 relocation of respondents and inability to collect back questionnaire sent to respondents.

319 ⁸ The study uses a Likert-type five-point scale adopted from Keat, Selvarajah et al. (2011)
41 ranging from 1 “strongly disagree to 5 “strongly agree” for all the constructs measuring self-
321 organized startup business. Social relation (SR) which is one of the constructs was measured
322 by five (5) indicators, for instance; “my friends see entrepreneur as a good means of
323 succeeding in life”; my relatives will give me the opportunity to acquire entrepreneurial
324 experience. The second construct which is symbiotic relationship (SY) was measured by 5
325 indicators among which included; I always benefit from partnering with experienced
326 entrepreneurs for advice, I have a lot of experience from getting close to my entrepreneur
327 friends. The third construct is innovative ideas with 4 indicators (IND), and was measured by;
328 “I have the ability to easily recognize innovative ideas”, “I am good at detecting new business
329 opportunities”. The last construct is startup business (SB) with 5 indicators with examples as
330 “I have the passion to create jobs for people, I am ready to set up a business with any least
331 opportunity”.

332 **3.2 Reliability and validity check**

333 One issue which is quite imperative in ²¹ social science research is the quantification of human
334 behavior that is, using measurement instruments to observe human behavior. The
335 measurement of human behavior is widely acknowledged by positivist view, or empirical
336 analytic approach, to discern ⁴⁴ reality (Smallbone and Quinton 2004).

337 Reliability is an important concern when a psychological test is used to measure behavior
338 ¹⁸ (Thompson and Thompson 2003). The most commonly used procedure to estimate reliability
339 is with a measure of association, the correlation coefficient, often termed reliability
340 coefficient (Drost 2011).

341 The reliability coefficient is the correlation between two or more variables (here tests, items,
342 or raters) which measure the same thing. Details of the reliability test are represented below.

343

344 **Table 1.**

Variables	Cronbach's Alpha	No of Items
Symbiotic relationship	.824	5
Innovative Ideas	.788	4
Social relationship	.830	5
Startup business	.835	5

345 Source: survey data2017

346

347 The cronbach alpha indicated up to .835 demonstrating a strong consistency.

348

349 **3.3 Findings and Data Analysis.**

350 The study used structural equation model to establish relationships between the independent
351 constructs and the dependent construct. The data was analyzed using AMOS 20.0 software
352 package. To adhere to modifications made in the indicators, the study through Amos 20.0
353 conducted confirmatory factor analysis.

354 To guarantee that the data is representative of its anticipated purpose, reliability, validity and
355 factor loadings for the constructs were assessed. We recorded a lower factor loading of 0.38
356 and a higher factor loading of 0.81. The lower loading of 0.38 was maintained as an accepted
357 factor loading according to Kim and Mueller (1978) of an accepted value of 0.30. However,
358 one of the indicators that had a lower loadings of 0.33 was deleted from subsequent analysis.
359 The deleted indicator was associated with social relations. It was removed to improve the
360 fitness of the model as it had a higher modification index.

361 The Cronbach's alpha for the constructs ranges from 0.788 to 0.835, which are well above the
362 0.70 indicating a good internal reliability of the constructs indicators. The validity of the data
363 was tested and the data was considered valid as all the values of AVE met the 0.5 threshold
364 with only AVE of social relationship (AVE of SR=0.422653) slightly missing the accepted
365 0.50 threshold. This could be attributed to the large number of indicators and sample size.
366 Discriminant validity was resolved by deleting the redundant item from the model as can be
367 seen in the structural model (figure 2).

368 The analysis shows that all the measurement models and constructs used fit the data well with
369 the exception of NFI (0.874) thus Absolute fit index, Incremental fit index and Parsimonious

370 fit index were all within the acceptable ranges (RMSEA= 0.062, CFI = 0.919, GFI = 0.919).
 371 This is shown in table 2 below. This means that the data is a true measure of the model. The
 372 low value of NFI (0.874) is as a result of many indicators in the model as indicated by Ding,
 373 Velicer et al. (1995).

374 3.4 Testing of hypothesis and Results

375 The results of the test on the hypothesis confirmed and supported hypothesis H₁ ($\beta = 0.192$, P
 376 >0.001) showing a positive and significant level whilst hypothesis H₃ ($\beta = 0.274$, P < 0.001)
 377 is also positive statistically and showing a positive and significant level. From the results we
 378 accept the alternate hypothesis that there is a relationship between symbiotic relationship and
 379 small business startups. We also accept the alternate hypothesis that there is a relationship
 380 between innovative ideas and small business startups.

381 3.4.1 Explanation for the influencing coefficients for the variables in the model:

$$382 \quad SB = \alpha + \beta_1 SY + \beta_2 IND + \beta_3 SR + \mu \quad (1)$$

$$383 \quad SB = \alpha + 0.106SY + 0.441IND + 0.126SR \quad (2)$$

384 From the above (1), if there is a unit increase in SY (β_1) it will lead to 0.192 increase in small
 385 startup business (SB) at a p-value of 0.001 which is statistically significant.

386 Also from the equation, a unit change in IND (β_2) will bring about 0.274 increase in startup
 387 businesses (SB) at a p-value of 0.001 which is also significant.

388 Lastly, if there is a unit change in SR (β_3) it will influence small business startups (SB) by
 389 0.377 which was constrained.

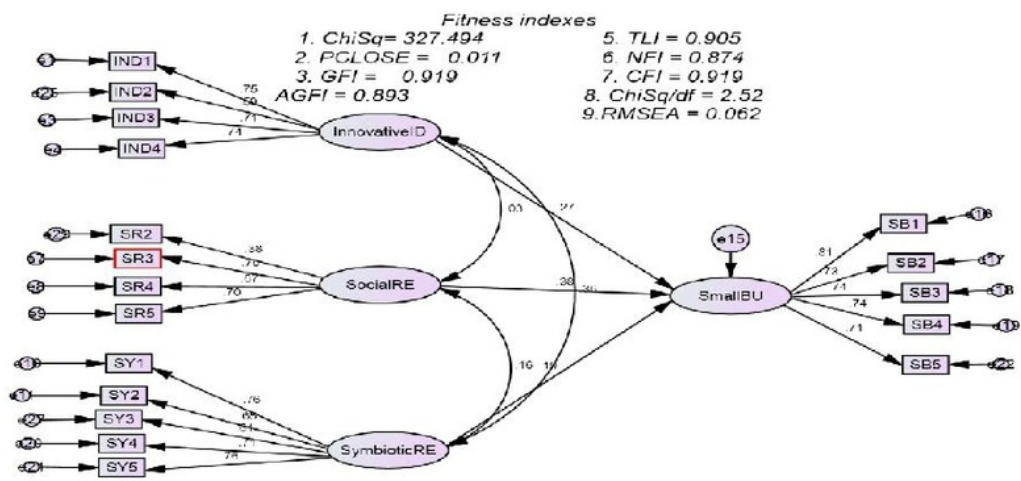


Fig 2 Regression result from AMOS

Table 2. Fitness indexes

Name of category	Name of index
Absolute fit	RMSEA = 0.062
	GFI = 0.919
Incremental fit	AGFI = 0.893
	CFI = 0.919
	TLI = 0.905
Parsimonious fit	NFI = 0.874
	Chisq/df = 2.52

Table 3. Regression result (direct effect)

	Estimate	P-value	Result
Symbiotic relationship	0.192	0.001	Significant
Innovative Ideas	0.274	***	Significant
Social relationship	0.377	constrained	

Table 4: Regression Weights

Standardized Regression		S.E.	C.R.	P	Label
Small BU	<--- Innovative ID	.077	4.516	***	par_4
Small BU	<--- Social RE				

Standardized Regression		S.E.	C.R.	P	Label
Small BU	<--- Symbiotic RE	.067	3.262	.001	par_5
IND1	<--- Innovative ID				
IND3	<--- Innovative ID	.076	12.259	***	par_6
IND4	<--- Innovative ID	.074	12.580	***	par_7
SR3	<--- Social RE	.301	8.524	***	par_8
SR4	<--- Social RE	.248	8.180	***	par_9
SR5	<--- Social RE	.261	8.332	***	par_10
SY1	<--- Symbiotic RE				
SY2	<--- Symbiotic RE	.065	12.008	***	par_11
SB1	<--- Small BU				
SB2	<--- Small BU	.060	15.013	***	par_12
SB3	<--- Small BU	.054	15.326	***	par_13
SB4	<--- Small BU	.057	15.280	***	par_14
SB5	<--- Small BU	.058	14.571	***	par_15
SY4	<--- Symbiotic RE	.064	13.112	***	par_16
SY5	<--- Symbiotic RE	.072	13.998	***	par_17
IND2	<--- Innovative ID	.077	10.447	***	par_18
SY3	<--- Symbiotic RE	.062	11.229	***	par_19
SR2	<--- Social RE				

397

398 Table 4 above shows the results of standardized estimates, critical ratio and the p- values of
 399 the different constructs and their indicators. All the p- values are less than 1% at a two tail
 400 indicating that all the standardized estimates are statistically significant.

401 4. Discussions and conclusions

402 Through assessing the effect of symbiotic relationship on self-organized startup businesses,
 403 the factors were categorized into symbiotic relationship, social relationship and Innovative
 404 ideas and to determine the relationships of these factors with self-organized startup
 405 businesses. This research has established that there exist relationships between self-organized
 406 startup businesses and the three constructs (symbiotic relationship, social relationship and
 407 Innovative ideas). The findings are indicative of the three constructs having the ability to
 408 influence self-organized startup businesses. Obviously, symbiotic relationship has a positive
 409 and significant effect on self-organized startup businesses ($\beta = 0.192$, $P > 0.001$) as indicated
 410 in table 3. (Astley and Fombrun 1983). The study also affirms the findings of Pringle, Dirzo
 411 et al. (2011) research, that many organizations are involved in symbiotic relationship because
 412 this interaction provides benefits to the individuals involved (Pringle, Dirzo et al. 2011). This

413 contributed to the existing discussions on self-organized startup businesses theoretically by
 414 examining symbiotic relationship, innovative ideas and social relationship on self-organized
 415 startup businesses. This is one of the few researches to study the exact position of small start-
 416 up businesses with synergetic theory.

417 The study pioneers empirical research on the theory and practice of development frontier as
 418 facts with investigations of establishing that symbiotic relationship had positive and
 419 significant relationship with self-organized startup businesses whilst social relationship was
 420 constrained. Innovative ideas also indicated a positive and significant relationship with self-
 421 organized startup businesses. It also used Amos 20.0 software package through structural
 422 equation model.

423 The findings of the study can assist in the development of more startup businesses which is
 424 core to the growth of economies.

425 **5. Contribution and Implications**

426 This study will make significant contributions theoretically, methodological and managerially
 427 to the literature of self-organized start-up businesses in order to enrich related knowledge and
 428 understanding of symbiotic relationship on self-organized start up mechanism of
 429 technological entrepreneurship.

430 The findings will provide insights that will help regulators (government) and policy makers
 431 to formulate relevant policies, strategies, and guidelines to boost start-up businesses.

432 By adopting the structural equation model with Amos software package in the analysis of the
 433 data and establishing relationships, the study has enriched the methodology adopted in self-
 434 organized startup businesses research from the many usual regression analysis approach.

435 The study recommends that regulators (government) and policy makers should formulate relevant
 436 policies, strategies, and guidelines to boost start-up businesses and encourage activities,
 437 projects, programs and policies that will improve the capacities and abilities of young entrepreneurs to
 438 identify entrepreneurial opportunities in their environment as well as being innovative in their ideas
 439 related to startup businesses.

440 There should also be financial support to assist young and up and coming entrepreneurs to
 441 start their own businesses. The study therefore recommends that there ought to be deliberate
 442 policies and programs to ensure that the financial environment is conducive to attract people
 443 to start their own businesses.

444 5.1 Emerging Trends

445 Self-organized startup as a phenomenon ³⁷ is a fast emerging transformational trend of the 21st ²⁵
 446 century which is capable of reshaping economies globally, as the main drivers of economic
 447 growth, entrepreneurs are the lifeblood of any growing economy, generating jobs, introducing
 448 new products and services, and promoting greater upstream and downstream value-chain
 449 activities and accomplishments. ¹⁰ According to the Organization for Economic Cooperation
 450 and Development, SMEs on average contribute around 50% or more to the GDP; provide
 451 employment to an estimated 60% of local workforce; create up to 70% of new job ¹⁰
 452 opportunities; and account for about 30% of exports (Lukács 2005). In recent years, the
 453 global entrepreneurial landscape has witnessed a focal pattern in terms of trends, with SMEs
 454 playing a fundamental role in social and economic advancement.

455 5.2 Limitation and further research directions

456 Some limitations exist in this study. Firstly, the researchers just collected effective sampled
 457 data of 399 numbers, the sample data is not representative enough for the study to be
 458 generalized. The findings represents just a portion of the views of the population, just a
 459 minute of views for self-organized symbiotic research. Secondly, Different industries have
 460 different views on self-organized symbiotic relationship and its findings may not be
 461 generalized to other contexts but it is also important experience or references for other related
 462 researchers. The exploratory nature of the case in the context of a single country offers
 463 important insight in terms of understanding the effect of symbiotic relationship on self-
 464 organized startups context. Thirdly, the different data uses different methods and Amos
 465 structural equation model is not advanced enough to recreate other hidden ideas and ways of
 466 analyzing data. This is limited by the research recognition of future happening and what kind
 467 of correlation with research methods.

468 The contribution of the study is worth of our sample size which comprises of China based
 469 entrepreneurs, where self-organized entrepreneurship has already created business legends,
 470 most of which are practicing symbiotic relationship, there can also be assessing of the
 471 symbiotic relationship on self-organized startups from other countries in future work, like
 472 One Belt and One Road initiative as an additional insights. There can be further studies on
 473 the impact of self-organized startup and government oriented, the community, customer or
 474 education oriented indicating reasons, driving force, behavior preferences and evolutionary
 475 mechanism. From academic research, self-organized startup should be further studied from

self-organized theories, for example: dissipative structure, synergetic, catastrophe, and super circle etc. (Schumpeter 2017).

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