

REGIONAL COOPERATION IN A THRIVING ENTREPRENEURIAL ECONOMY: A HOLISTIC VIEW ON INNOVATION, ENTREPRENEURSHIP AND ECONOMIC DEVELOPMENT

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ABSTRACT

In this research we investigate the role of innovation and entrepreneurship as well as entrepreneurial communities in the process of economic growth and development. Current research on development issues strongly focus either on the micro level or the macro level of national economies disregarding the holistic nature of economic development. Entrepreneurial communities represent a conceptual link between the macro perspective on economic development and the micro perspective on entrepreneurial initiatives as a tipping point for economic development. In this article we present a theoretical construct of entrepreneurial communities. Additionally, we introduce a qualitative model of thriving entrepreneurial economies following a holistic perspective on development issues. The theoretical analysis is based on systems thinking and systems approaches to management. Structures of entrepreneurial communities and networking between regional communities will be explored and reflected in a theoretical exploration. The introduced theoretical construct of an entrepreneurial community is based on living systems theory. The qualitative systems model of the thriving entrepreneurial economy is deduced from a descriptive model (word model).

Key words: Entrepreneurship; entrepreneurial community; systems perspective; economic development; thriving entrepreneurial economy

INTRODUCTION AND RESEARCH APPROACH: ECONOMIC DEVELOPMENT AND ENTREPRENEURSHIP – A HOLISTIC VIEW

The basic purpose of the research presented in this article¹ is to explore the role of innovation and entrepreneurship as part of the economic development process. The research approach followed is exploratory in nature (Cooper and Schindler, 2014) and makes use of an appropriate literature review to uncover and interpret innovation, entrepreneurship and economic development aspects from a macro and micro perspective. In this approach a research method grounded in systems thinking (Haines, 1998; Meadows, 2008; Ramage and Shipp, 2009) is also followed and the nature of entrepreneurial communities is explored.

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To achieve this research aim the exploration in this article is organised as follows: 1) the rest of this section presents a holistic view of economic development and entrepreneurship; 2) the next section explores development stages in an entrepreneurial economy; 3) thereafter entrepreneurial communities in a dynamic economy are discussed; 4) in a further section the cooperation in entrepreneurial communities is addressed; 5) lastly as a culmination of the current research a qualitative conceptual model developed for the system of entrepreneurial communities is presented based on a systems thinking and design science approach (Wessels, 2013; Oosthuizen and Pretorius, 2016). Firstly, theories on development issues list non-economic (e.g. history, geography, culture, politics) and economic variables (e.g. market systems and processes, innovation and entrepreneurship, financial systems) as relevant for economic development (Wagner *et al.*, 1989; Davids, 2014). The many theoretical concepts establish that the development process of an economy should be recognized as a multi-level phenomenon. Consequently, problems in economic development can have various possible causes.

Schumpeter (1912: 463-548) differentiates between processes of development and adaptation. In traditional economic theory the central point is the quest for an equilibrium (focus: efficiency) and the recovery of the equilibrium after economic crises (focus: adaptation). In a dynamic economic theory, innovation is the issue at stake (focus: process of creative destruction). In the process of adaptation, the driving forces lie outside the economic system (e.g. new technology, growth of population, cultural changes). Economic development from inside the economic system is triggered by entrepreneurship (Schumpeter, 1912: 469-492). According to Schumpeter (1912: 464-466) the two perspectives in economic development (adaptation and development) are intertwined. Events in the economic cycle (improving efficiency, adaptation processes) and events in economic development (innovation processes) shape a macroeconomic duality. Therefore, entrepreneurial initiatives to identify and pursue business opportunities are of key importance in the endogenous triggered process of economic development (Witt, 1987: 41).

Entrepreneurial experiments, learning, and adaptation shape an evolutionary process of economic development (Nelson and Winter, 1982). In this process entrepreneurship is continuously generating further entrepreneurship. Thus, a dynamic economic development occurs (Metcalf, 2005: 48-49). Coordination and transformation are connecting impulse on the demand side and decentral interaction with innovation processes and change at the macro level (Dosi *et al.*, 2017; Robert *et al.*, 2017). Consistent with Davids (2014), interactions at the personal level, local knowledge, and social learning are important drivers for economic development. At the organizational level the management function with focus on efficiency and adaptation should be complemented by an entrepreneurial function with focus on innovation (Baumol, 1968; Platzeck *et al.*, 2014).

Consequently, for a holistic understanding of economic development, it is useful to consider entrepreneurial interactions at different levels of the system (Miller, 1995; Haines, 1998) to align personal, organizational, and social goals (see Figure 1). The relationship between the market system and the political system play complimentary roles in the development process. As stated by Baumol *et al.* (2007), there are four basic archetypal designs for national system: (1) state directed market economy, (2) oligarchic dominated market economy, (3) market economy dominated by big firms, and (4) innovative market economy. The different archetypes require different development strategies and face different challenges. In all four archetypes entrepreneurship is the driving force behind economic development.

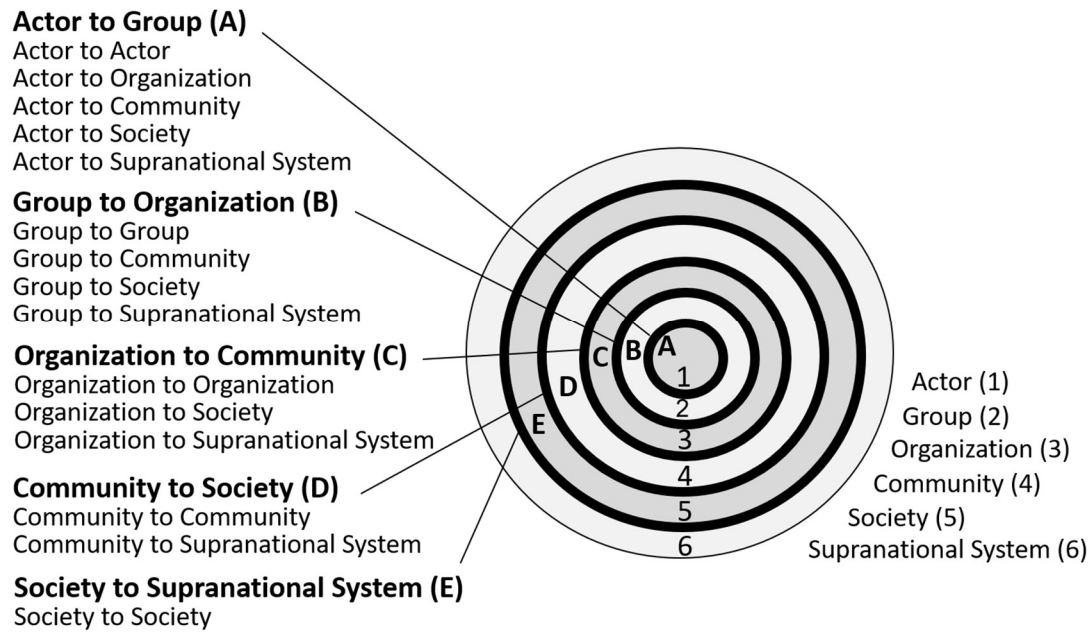


Figure 1: Hierarchy, levels, and interrelationships of Living Systems

As stated by Mazzucato (2015) the symbiotic relationship between companies and the state is an important source for innovation-driven economic development. The state has to act in an entrepreneurial way and should take risks the private sector could not take over. The government should develop and shape new markets via public investments, innovation policy, and public venture capital. With entrepreneurial strategies at the macroeconomic level the state can induce technological and economic progress. Further, economic policy has to direct demand and industrial development.

Myrdal (1974) describes economic development as an upwards or downwards directed process in the various regions of the economy. Some regions have advantages as a result of natural characteristics and historic chances. These advantages can be strengthened by trade and industrialization processes, qualified workers, modern infrastructure, and entrepreneurship (Myrdal, 1974: 37-40). Consequently, the movement of production factors, labour and capital, as well as the trade in goods and services bring unequal development to different regions of the economy. Regions with substantial economic growth attracts motivated workforce from stagnating or backwards developing regions. As stated by Myrdal (1974), economic policy can moderate these effects to achieve a balanced economic development of the whole economy: upcoming regions can benefit from upwards directed processes, and in declining regions upwards directed processes can be stimulated by economic policy.

The starting point for endogenous impulses for economic development in regions and economies is entrepreneurial initiative at the micro level. Entrepreneurial actors collect and exploit information from both isolated and regional networks. Companies use new knowledge from local interaction and collective learning processes for innovation. Therefore, the local networks are important components of economic development as well as offering the companies in the entrepreneurial community agglomeration advantages from local division of labour, information sharing, knowledge creation and technology transfer. Each reactive or proactive company adaptation effects on the one hand the regional economic development, and on the other hand the regional milieu that represents the context for entrepreneurial activities (Baldegger and Julien, 2011).

So far, this discussion has identified entrepreneurial actors as a focal point for development processes starting at the micro level. The coordination in market systems is directed by the price mechanism, networks, and market-oriented discovery processes. Different economic systems require different varieties of entrepreneurship to trigger the development process. The impulse to make adaptations in the economic cycle and entrepreneurial initiatives renew the economic system (we could call it “Schumpeterian dynamics”).

The entrepreneurial state offers appropriate infrastructure, takes care of the necessary public goods to serve the collective needs, and is a risk-taker, initiating social and technological developments. Public authority directed processes (e.g. to develop new markets), as well as self-organized market-driven processes in entrepreneurial communities, create agglomeration advantages and synergistic effects. As a result, dynamic development processes occur at the organizational, community, and national levels. To achieve a sustainable economic development in the whole economy, the entrepreneurial state moderates and promotes appropriate cumulative processes in and between entrepreneurial communities (we could call it “Myrdal-Moderation”). In that process the entrepreneurial state uses upwards directed forces and positive diffusion effects and has to moderate the downwards directed forces and negative effects of networks (Munshi, 2014).

Against this background the following section considers historic development processes as part of the exploratory research approach. This allows a better understanding of the imperative role of entrepreneurship and regional entrepreneurial communities in the dynamic development of the economy and its regions.

STAGES AND PROCESSES OF DEVELOPMENT IN A THRIVING ENTREPRENEURIAL ECONOMY

According to Rostow (1967: 18-32), economic enhancement takes place in stages. Therefore, a society needs a group of innovators (Rostow, 1967: 68-70). Consequently, entrepreneurship is an important driver for development processes in the several development stages. However, in today’s business arena, countries and regions have to compete with other mature and dynamic economies and communities to achieve economic development (Knox and Marston, 2007: 271-273).

Ehrlich (1990) describes three aspects to explain the different development stages of national economies and regions. The central influences on the endogenous growth and development process are (1) uneven number and quality of human resources, (2) differences in entrepreneurship and market dynamics triggering technological change, (3) various political concepts to encourage development initiative. As a result, different levels of economic development occur, and information and knowledge can be seen as important lever to stimulate economic progress.

The success of knowledge based entrepreneurial activities depends on organisation-specific competences and country-specific advantages (e.g. level of education, state-of-the-art of science and technology, quality of institutions, political and social conditions). Therefore, the locational choice of companies depends on the local conditions as determinants of agglomeration advantages and firm-specific competitive advantages (Porter, 1990). Entrepreneurial organizations identify and pursue opportunities in interaction with specific regional networks. Consequently, entrepreneurship, competitiveness, and adaptability determine the viability of the thriving entrepreneurial learning organization (Platzek *et al.*, 2014).

However, entrepreneurial organizations use regional networks and collective learning in the process of entrepreneurial gathering of information and knowledge. Further, valuable impulse from interaction and co-evolution in the entrepreneurial community direct decisions in the entrepreneurial shaping of the future. To pursue entrepreneurial initiatives, entrepreneurial organizations employ synergies in the local networks in the entrepreneurial shaping of the organization.

New jobs in fast-growing small and medium sized organizations support economic development (Drucker, 1985: 21-44; Carree and Thurik, 2013). Entrepreneurial economies cultivate flexibility, life-long learning and the ability to change at all levels of the national economy. As stated by Drucker (1985: 355-372), market-driven actors in the vital entrepreneurial economy have to develop an entrepreneurial orientation as well as the entrepreneurial state has to create non-bureaucratic framework conditions and appropriate taxation and financial systems.

Inside the organization and inside the entrepreneurial community it is possible to activate creative collective processes and to develop common mental models about the markets and opportunities by balancing inquiry and advocacy (Senge, 2003). Scharmer (2009) describes a mental process to use on individual and collective sensing to identify future-oriented opportunities (Scharmer, 2009). The cooperation in entrepreneurial communities permits a dynamic sharing of information and knowledge as well as the realisation of individual and common entrepreneurial initiatives.

According to Kirzner (1997), economic development is driven by an entrepreneurial discovery process. Specific knowledge of entrepreneurial actors can stimulate a dynamic economic development. As stated by Hayek (1945), every entrepreneurial actor holds valuable specific information which can be used in entrepreneurial initiatives. Entrepreneurial actors collect and interpret information together and derive entrepreneurial activities in a specific context. In that process, the individual, specific, and unique knowledge of the entrepreneurial actors is not accessible to everyone. Creative entrepreneurs pursue uncertain entrepreneurial activities, and generate dynamic markets and spontaneous order (Huerta de Soto, 2008).

The entrepreneurial activities create information, entrepreneurial knowledge and new opportunities. Therefore, dynamic markets have two functions: coordination at present and initiation of future-directed creative activities (Huerta de Soto, 2009). Hence, entrepreneurship leads to effective coordination in imperfect markets (Kirzner, 1997), the execution of risky entrepreneurial initiatives (Knight, 1921), and a dynamic economic development (Schumpeter, 1912) in the entrepreneurial community as well as in other linked communities of the economy. Economic development and an improved standard of living is, therefore, the result of an evolutionary process in complex and adaptable networks with ongoing entrepreneurial activities and interactions to share information and knowledge (Beinhocker, 2007; Huerta de Soto, 2008).

As stated by Krugman (1996), the decentral impulse to the development process are superior to central directed regulation at the macro level. The decentral entrepreneurial actors possess specific knowledge about the markets and the local circumstances. Political agents can hardly have such deep insights. However, at the macroeconomic level it is necessary to moderate the local developments. Therefore, there is a need for complex regulation at the macro level to direct the development impulse from entrepreneurship and entrepreneurial communities in favour of the economy as a whole. The national and regional innovation system has to thus focus on the accumulation of knowledge and the integration of industry with research and educational institutions (Freeman, 1995).

Complementary public and private efforts in research, as well as interconnected research-based companies in exchange with a local market base, allow interactive learning processes and economic development in the entrepreneurial community. So, local development processes and market-driven discovery processes create a thriving entrepreneurial economy. At the same time, an entrepreneurial state moderates the economic development via political regulation at the macro level.

The development of the local communities and the innovation systems follow a historic process, based on the systemic interaction of technology, institutions, and companies (Groenewegen and Steen, 2006). Entrepreneurial actors are integrated in institutional arrangements (e.g. contracts, organizations, networks), formal institutions (e.g. state and political system, public administration, legal system) and informal institutions (culture, values, norms, technology).

A holistic configuration of the national and regional institutions in line with the stages of development can be the result of experimentation and learning in the process of development. The focus of the following exploratory section is on the entrepreneurial organizations and the entrepreneurial communities as initiators of development processes in the vital entrepreneurial economy.

ENTREPRENEURIAL COMMUNITIES AND ECONOMIC DEVELOPMENT

As stated by Hoselitz (1952) to identify and support entrepreneurial individuals is a central lever to achieve dynamic economic development. Therefore, an important goal for economic policy is to support an entrepreneurial climate throughout the economy. As a result, the potential entrepreneurial individuals see acting like an entrepreneur as a desirable career.

Leibenstein (1968) describes entrepreneurship as driving force behind development processes: entrepreneurial actors take chances offered by imperfect markets and realize entrepreneurial initiatives. Thus, entrepreneurship education and knowledge sharing can strengthen regional and national economic development.

Entrepreneurial organizations and their supporters create a specific structure of the entrepreneurial community. New and established companies evolve in parallel and drive the development processes (Drucker, 1985; Feld, 2012). In line with Mack and Meyer (2016) entrepreneurial communities evolve in four phases: In Phase 1 more new companies arise than weak companies disappear from the market arena. In Phase 2 entrepreneurial orientation as well as networking throughout the local community grows. In Phase 3 the dynamic development weakens. In Phase 4 important relationships disappear and the entrepreneurial orientation gets lost – if no new impulse arises. Consequently, initiating and maintaining entrepreneurial dynamic inside the local network is a central task in the development process of the region and the economy.

According to Brekke (2015), the development of entrepreneurial communities is based on regional structures and history. Impulse from outside the local community and collective action inside the local network foster a thriving regional development. The foundation of economic and technological enhancement are entrepreneurial thinking, motivation, and action throughout the local community (Zahra and Wright, 2011).

New and established organizations realize a symbiotic relationship with local political and social systems (Schramm, 2004). As a result, positive externalities from connected entrepreneurial initiatives and cumulative location decisions occur (Knox and Marston, 2007: 274).

Cluster dynamics produce a self-energizing development process (see Figure 2): (1) New companies (Start-up Entrepreneurship) use products and services from established companies; (2) Established companies (Corporate Entrepreneurship) use products and services of new companies; (3) New companies arise out of established companies (Spin-off Entrepreneurship); (4) New infrastructure and demand-effects triggered by additional actors in the region go along with a sequence of new entrepreneurial activities (Profit & Social Entrepreneurship); (5) Dynamic organizations and industries generate a spiral of regional development (Myrdal, 1974; Cusmano *et al.*, 2015).

Creativity is a key driver for deploying knowledge in producing goods and services (Florida, 2002: 44-56). At the same time, entrepreneurship as a concept for creating and implementing new ideas based on knowledge and other production factors (e. g. capital, natural resources, labour) needs a social structure: networks of research and development, venture capital, modular production systems, openness for technological, economic, cultural, and artificial creativity. However, creative clusters offer organizations a vital environment and attract creative and entrepreneurial talent (Florida, 2002: 283-297).

A successful regional development can be achieved with different structural archetypes (He and Chen, 2016). Thus, the cluster focus can be on foreign direct investments versus cluster focus on technology-based start-up organizations versus cluster focus on spin-off organizations versus cluster focus on non-technology start-up organizations. Consequently, successful clusters have specific configurations and success factors to create a local innovation system. Also, entrepreneurial communities foster dynamic development in parallel with individual and social objectives (Lundvall, 1999: 61-68).

Along with Knox and Marston (2007), the challenges in thriving entrepreneurial economies are (see Figure 3): (1) Fostering the emergence of new dynamic cluster; (2) Using positive spiral effects in dynamic cluster and at the same time controlling expanding effects; (3) Revitalisation of mature cluster; (4) Creating spiral effects in weak cluster in the outskirts; (5) Linking the cluster with other national and global clusters with a holistic perspective.

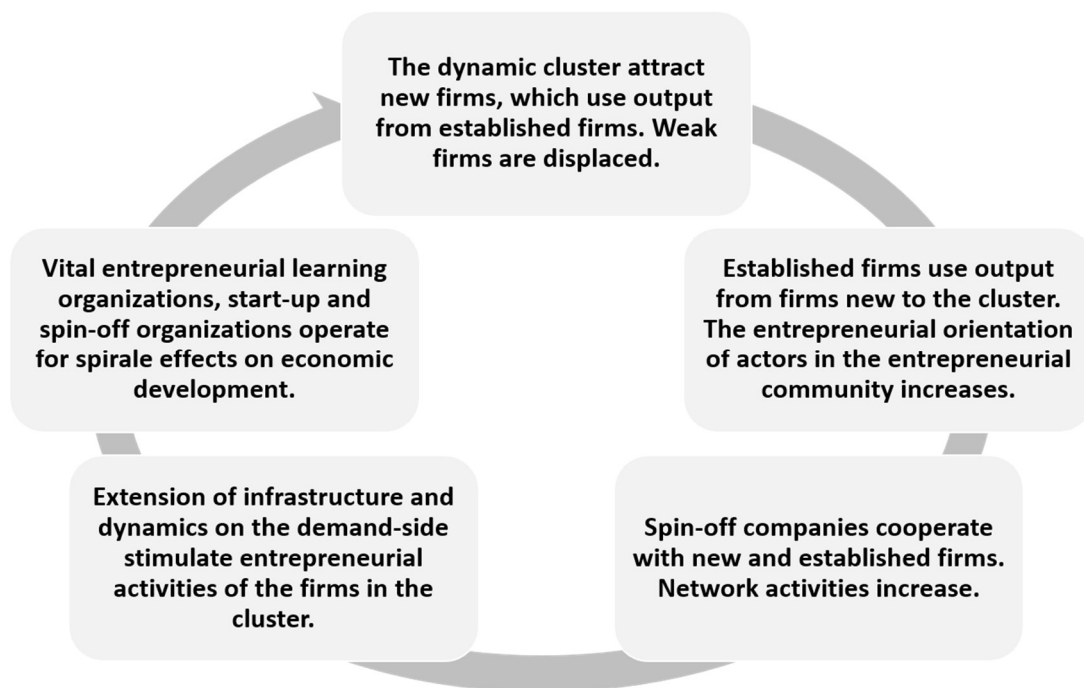


Figure 2: Cluster as a starting point for regional economic development

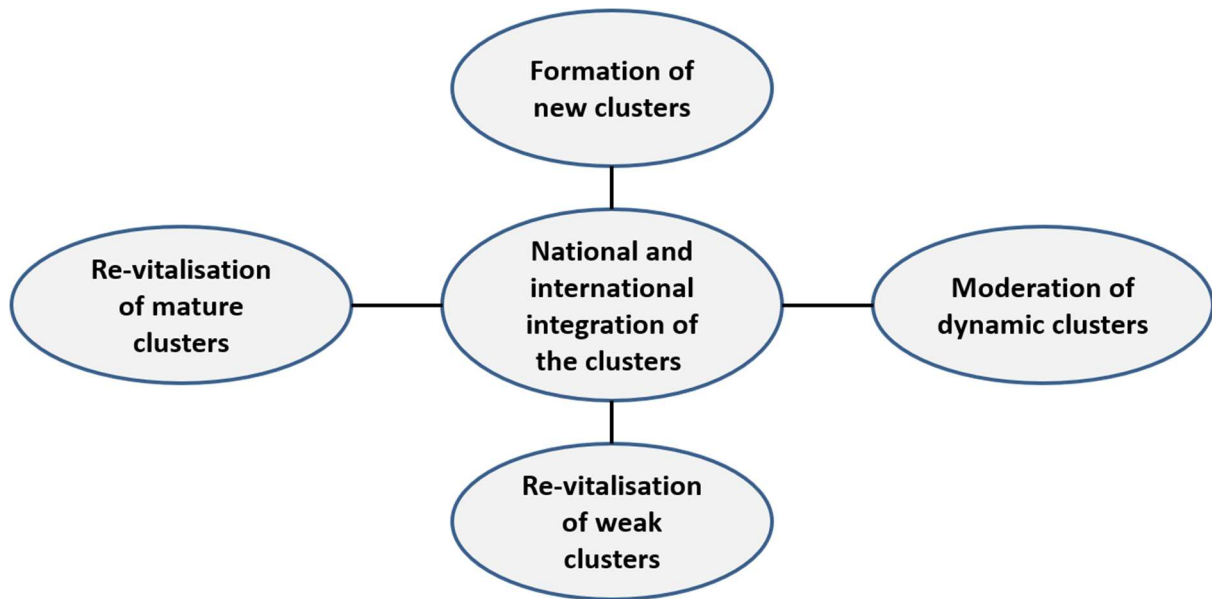


Figure 3: Strategies for a holistic development of the entrepreneurial community

The analysis so far outlines the relevance of entrepreneurship and cross-linked entrepreneurial communities for economic development. Creativity and entrepreneurship deploy information and knowledge in a specific cluster structure, linked to other regional communities. The following exploration describes aspects of coordination and cooperation in entrepreneurial communities.

INTERACTION AND COOPERATION IN ENTREPRENEURIAL COMMUNITIES

Entrepreneurial communities evolve in specific geographical, cultural and structural settings as a dynamic, self-regulating networks (Isenberg, 2014). Entrepreneurial role models strengthen the development of an entrepreneurial culture. Entrepreneurial actors align their economic strategies with the objectives of other actors in the entrepreneurial community as well as with social and ecological objectives (Kaplan *et al.*, 2018). According to Isenberg (2010) political leaders shape supporting conditions for ongoing entrepreneurial experiments. Geographical proximity and cultural affinity of the actors in local communities support the build-up of trust as foundation for sharing information and knowledge (Carlsson and Stankiewicz, 1991). Thus, a critical mass of actors, ideas, and resources can be accumulated in a dynamic process. As a result, entrepreneurial initiatives can be derived by individual exploitation of the common generated and shared knowledge.

For this reason, microeconomic aspects of development processes come to the fore: Entrepreneurial communities create and distribute information and knowledge, and entrepreneurial actors and organizations adopt and deploy insights from the knowledge network. Inside the entrepreneurial communities the actors can build strong trustful relationships over a long period. As a consequence, a strong entrepreneurial culture emerges inside the local community (Baldegger and Julien, 2011). Proactive entrepreneurial networks allow collective experiences and the diffusion of entrepreneurial initiatives. Entrepreneurial managers and product champions motivate high potentials to pursue career opportunities inside the entrepreneurial community and in collaboration with global networks. Therefore, the development of a global mindset (Steers *et al.*, 2016) at individual and organizational level is an imperative for deploying cultural differences (see Figure 4) to achieve high performance in global markets.

World view	Interdependencies ▪ different truths ▪ organic world view versus Cause-effect-relation ▪ universal truth ▪ World as a machine
Self view (Self awareness)	Interrelated self concept ▪ collectivism ▪ high social orientation versus independent self concept ▪ individualism ▪ low social orientation
View of nature	Environment is uncontrollable ▪ harmony with environment ▪ external control versus managing the environment ▪ self-determined actors ▪ internal control
Managing time	long-term orientation versus short-term orientation synchronic versus consecutive future versus present versus past flexible time versus fixed time
Managing uncertainty	Low uncertainty avoidance versus high uncertainty avoidance Emotions dominate versus rationality dominate Rules as orientation versus strong commitment to rules
Managing relations	Focus on relations versus task orientation Low power distance versus high power distance Status driven versus performance driven Feminine versus masculine culture High gender equity versus low gender equity Low focus versus high focus to push something forward Low distance public relations versus high distance private relations Embedded in community versus strong autonomy
Managing communication	High context orientation versus low context orientation Indirect communication versus direct communication

Figure 4: The holistic culture map (consistent with Hofstede, 2001; Trompenaars and Hampden-Turner, 2012)

Entrepreneurial cultures can support entrepreneurial communities. Successful entrepreneurial initiatives can strengthen entrepreneurial cultures (Krueger *et al.*, 2013). A strong entrepreneurial orientation at the individual-level and a strong social legitimation for an entrepreneurial career can be mutually supportive and beneficial to economic development. Equally, appropriate general regulation fosters a proactive cultural orientation in regions and economies (Hayton and Cacciotti, 2013; Mack and Mayer, 2016). Social and cultural cohesion in the entrepreneurial community help to mobilize resources (e.g. crowdfunding) for entrepreneurial initiatives (Josefy *et al.*, 2017).

Thus, cultures with strong individualism should offer personal career perspectives for entrepreneurs and entrepreneurial managers to support development processes in entrepreneurial communities (Burton *et al.*, 2016). Many entrepreneurial actors alternate between the entrepreneurial and managerial functions. A strong cooperation culture and trust has a strong impact on the collaboration between start-up companies, established companies, universities, national and local politics, investors, and mentors (see Figure 5). Hence, multilateral close cooperation in entrepreneurial communities facilitates economic viability of the economy and region (Feld, 2012: 31-46). Synergies and networking in the process of building and employing infrastructure, resources, knowledge, consulting, etc. create productive entrepreneurial communities. Inside the cluster, public and private organizations exchange market information, entrepreneurial strategies, and operations to create positive externalities (Acs and Virgill, 2013).

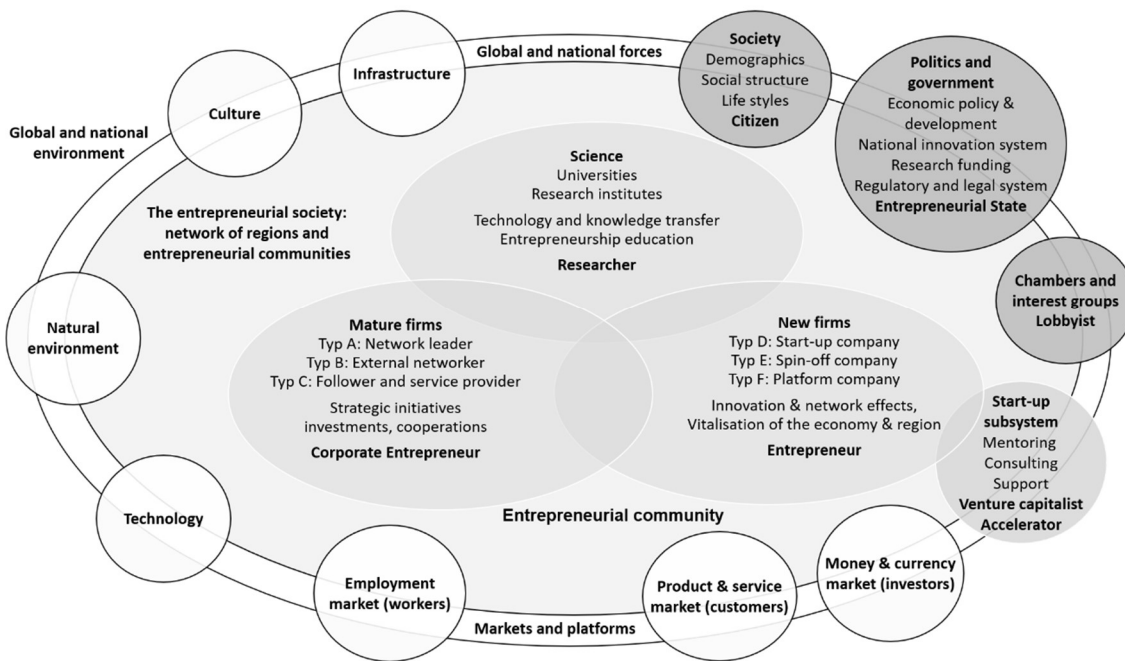


Figure 5: Collaboration in entrepreneurial communities: A framework for the entrepreneurial society

According to Kollmann (2014), entrepreneurial communities are often formed around start-up companies. Regional technology- and entrepreneurship-centres as well as local knowledge-based services offer consulting and support. Investors and advisory boards provide capital, contacts, and knowledge. Employment agencies, chamber of commerce, unions, and scientific institutions support integration efforts of Start-up companies and collaboration with established organisations. Start-up companies as well as established companies have positive impacts on the dynamic economic development. Consequently, the design of entrepreneurial communities should focus on both different perspectives and requirements (Grichnik *et al.*, 2010).

The founding of a new company out of an established company is an important driving force in entrepreneurial communities (Cusmano *et al.*, 2015). Though, networking and synergies between spin-off companies and established companies are based on local institutions, cultural relatedness, common values, and cooperative relations. Spin-off companies stay in the entrepreneurial community and get cost-efficient entry to specialised markets and services. So, informal knowledge transfer, common learning, and the local technology base can be used for entrepreneurial initiatives. Local relations facilitate a network-based organization of production (Foster, 2005). Start-up and spin-off companies stay in the entrepreneurial community to employ the agglomeration advantages and trustful relations. They occupy niches established companies cannot or won't take.

According to Feld (2012), entrepreneurial actors and organizations should design the entrepreneurial communities with a long-term perspective. Universities, public authorities, investors, and mentors can support this development process. The companies in the cluster adopt different roles (see Figure 6): organizations with a central role, organisations interacting with other cluster, and organisations as participant in the local network (Corsten *et al.*, 2016). Universities complement the entrepreneurial community with its students, professors, research institutions and laboratories, technology transfer activities, and entrepreneurship programs. Companies in the entrepreneurial community need expertise and social capabilities to work in network structures.

Thus, innovations can be realized at the interface of several organizations and in collaboration with customers, suppliers, research institutions, consultants, and merchants (Ritter *et al.*, 2014). The geographical proximity allows various agglomeration advantages, permanent exchange of information and knowledge with universities, and the fast recognising of local customer preferences (Beise-Zee, 2014). Successful entrepreneurial communities attract more companies and strengthen the network effects however unintended knowledge transfer, scarcity of resources, and an overload of local infrastructure may also follow (Corsten *et al.*, 2016).

According to Fritsch (2016), competitive effects of productive entrepreneurial initiatives may lead to dynamic economic development. The quality of new companies and responding activities of established companies may lead to enhanced productivity and growth of the entrepreneurial community. Therefore, failed start-up activities have direct learning effects for entrepreneurs as well as indirect effects to economic development via stimulating established companies. Following such a macroeconomic perspective, new companies and platform ecosystems (Alstynne *et al.*, 2016; McAfee and Brynjolfsson, 2017) can be seen as an instrument for revitalisation of established organizations and an encoder in the early stage of new industries.

Baumol (2004) describes how entrepreneurial actors identify and pursue opportunities, and how the distribution of knowledge follows in the process. Small and new organizations realize entrepreneurial experiments and radical innovation. Big and established organizations realize incremental innovation, especially with high technological complexity. As a consequence, high-growth start-up companies and small entrepreneurial organizations are key drivers for economic development in the entrepreneurial community (Nieuwenhuizen, 2008).

Against this background, development processes in the thriving entrepreneurial economy can be navigated with a systemic perspective: Various central and decentral steering concepts as well as planned and emergent development strategies can be directed in an integrated combination of macroeconomic policy, cluster policy and activities, and micro level activities. Cooperation and networking in entrepreneurial communities bring positive effects for local organizations as well as for the thriving entrepreneurial economy. Cluster configuration, steering mechanisms, and moderating strategies for collaboration can be developed holistically in the specific local context.

The following theoretical research exploration presents two complementary theoretical constructs to describe entrepreneurial communities in a thriving entrepreneurial economy. Firstly, the living system of an entrepreneurial community defines the basic components (systems structure, see figure 6) of entrepreneurial communities from a living systems perspective also deduced from and related to previous research such Miller (1995). Secondly, based on the considered theoretical concepts of economic development and relevant aspects of entrepreneurship discussed and presented from appropriate literature reviews shown in the previous sections a descriptive model (word model) with components and relationships in the system of entrepreneurial communities is derived to design a qualitative model (systems model, see figure 7) via logical deduction (Bossel, 2004: 64-74), pattern recognition (Vester, 2002), and elements of design science (Oosthuizen and Pretorius, 2016). By recognition of patterns (e.g. Malik, 1989: 298-299; Ulrich and Probst, 1991: 66-77) and reduction of complexity, dynamic aspects (systems dynamic) and basic interrelations (e.g. Jackson, 2000: 138-155; Senge, 2003: 75-167; Bala *et al.*, 2017) of entrepreneurial communities in thriving entrepreneurial economies can be explored in the next section.

THE SYSTEM OF AN ENTREPRENEURIAL COMMUNITY: ELEMENTS AND QUALITATIVE MODEL

Entrepreneurial communities are built with a specific configuration of cultural, social, and material conditions (Spigel, 2017). Beneficial conditions are: entrepreneurial culture, entrepreneurial role models, qualified and motivated workers, capital and modern infrastructure, mentors and supporting organizations, appropriate public regulation and promotion, entrepreneurial universities and entrepreneurship education, and admission to local and global markets. The configuration of entrepreneurial communities as a living system (see Figure 6) considers exchange processes at the level of material-energy as well as at the level of information (Miller, 1995). Cooperation in entrepreneurial communities is based on common interests. Formalized relations can strengthen the cooperation. Integrated economic exchange processes can be well-grounded by common values and objectives (Miller, 1995: 765). In line with the living systems theory (Miller, 1995) various subsystems for vital entrepreneurial communities can be defined using in essence a systems thinking as well as to some extent a design science research approach: For the material-energy process and the information exchange process a regional boundary system (1) operates. A reproducing impulse system (2) initiates permanently cooperative exchange processes in the local entrepreneurial community. A decision system (3) for defining the network activities reflect on the information system (4) that gives information about time-related conditions of the entrepreneurial community and its environment. For the exchange with other regional and global communities a receiving system (5) and a distribution system (6) are responsible.

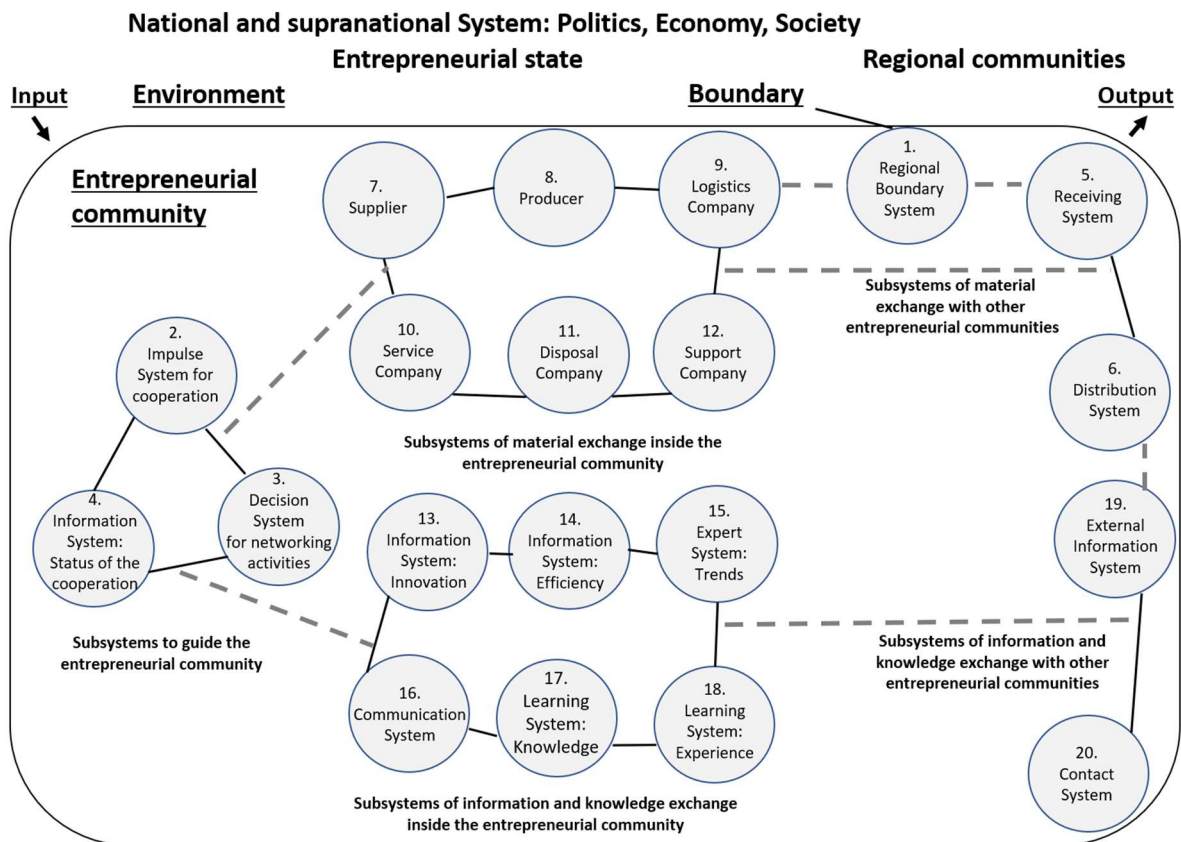


Figure 6: Entrepreneurial communities and living systems perspective (consistent with Miller, 1995)

Public policy, regional promoters of economic development, chambers of commerce and other federations as well as modern infrastructure and technology can support the cooperative exchange processes between (7) supplier, producer (8), logistics companies (9), service companies (10), waste management companies (11), and support companies (12). For the information process and knowledge transfer between the organizations of the entrepreneurial community, a regional information system for innovation (13), a regional information system for efficiency (14), and a regional expert system (15) for interpretation of trends, patterns of future developments, and common information and knowledge is at work. Furthermore, the entrepreneurial communities have an internal communication system (16), a learning system for common knowledge management (17) to collect information for entrepreneurial initiatives, and a learning system for experienced-based learning (18) to improve processes and outcomes. For information and knowledge exchange with other entrepreneurial communities an external information system (19) and contact management system (20) complete the local living system. The subsystems for material-energy exchange represent together with the subsystems for information and knowledge exchange the internal exchange processes. Companies within the entrepreneurial community generate agglomeration advantages via specialization and division of labour as well as via common information, knowledge, and learning processes for efficiency, adaptation, and innovation. The subsystems of the self-regulating navigation of the entrepreneurial community initiate, control, and coordinate cooperation and network activities. The external exchange processes are realized via the other complementary subsystems. Constitutional components of the external environment are the national and supranational system, the entrepreneurial state, and the other entrepreneurial communities in the economy.

The following qualitative systems model of an entrepreneurial community considers the basic systems dynamics (Bala *et al.*, 2017) and describes the material and information interaction and networking of entrepreneurial organizations inside a regional entrepreneurial community. The theoretical construct of the entrepreneurial community offers a conceptional connection between the micro and macro perspective in development issues: Entrepreneurial and market processes as well as economic policy and public moderating inside and between regional clusters facilitate viability of interconnected organizations, regions, and economies.

Descriptive model (Word model)

Economic development can be seen as a multidimensional phenomenon. Involved are numerous actors in local, national, and global politics, economy, and society. Conducive cultural, social, and structural conditions and future-oriented macroeconomic policy are important imperatives for development processes inside of regions and economies. A key driver of economic development is individual and collective entrepreneurship. For entrepreneurial initiatives generating and sharing of information and knowledge as well as the functioning of market structures are fundamental. Therefore, markets in vital entrepreneurial economies have a coordination and initiation function. Politics and the scientific community can foster information processes, strengthening the knowledge base for entrepreneurial initiatives, and trigger socially desirable developments in the economy. A symbiotic collaboration of established and new entrepreneurial organizations inside entrepreneurial communities strengthens the organizational viability, and brings dynamic impulses for the development of regions and economies.

Entrepreneurial Organizations have different material and strategic roles inside the entrepreneurial community. They are supplier, producer, service organizations, logistics organizations or support organizations. In a leadership role for the local network, entrepreneurial organizations initiate strategic cooperation, take decisions about network activities, make inventory about the effectiveness of the entrepreneurial community, and coordinate the exchange in information and experience. In the role of an external networker, entrepreneurial organizations drive exchange of material and information with other local communities. New organizations, supported by investors and mentors, vitalize regions and economies. Central actors in the entrepreneurial communities are start-up, spin-off, corporate, academic, and social entrepreneurs, and entrepreneurial teams. Entrepreneurs and entrepreneurial organizations identify and pursue entrepreneurial initiatives in established and new business in interaction with its business environment.

Entrepreneurial organizations realize synergy effects and agglomeration advantages inside entrepreneurial communities in initiating and realizing entrepreneurial activities. The strategic goal of entrepreneurial organizations is viability and development in symbiosis with other members of the entrepreneurial community. Entrepreneurial organizations and entrepreneurial communities are sources of power in the process of economic development: They generate impulses for adaptation activities, economic development, and entrepreneurial momentum in the economic system.

Inside and between entrepreneurial communities, economic policy moderates the development processes for a holistic and future-oriented development of the national system and to integrate the growth of the economy and the progress in the society. In summary words the entrepreneurial system operates as follows with system elements and relations between the elements:

Levels and elements of the system

Macro-perspective: Thriving entrepreneurial economy

1. Integrated subsystems of the thriving entrepreneurial economy: Politics, economy, society
2. Entrepreneurial state

Meso-perspective: Moderated cluster of the thriving entrepreneurial economy

3. Cluster policy: Public moderation of the entrepreneurial communities
4. Self-organized networking between entrepreneurial communities

Micro-perspective: Entrepreneurial community

5. Cluster moderation
6. Cluster navigation
7. Structure of the entrepreneurial community
8. Entrepreneurial momentum of the entrepreneurial community

Active relations in entrepreneurial communities

1. If politics, economy, and society represent a state-directed market economy, economic policy has to identify and support globally competitive industries which are able to satisfy customer expectations.
2. If politics, economy, and society represent an oligarchic dominated market economy, economic policy has to solve distribution conflicts and mobilize growth dynamics.

3. If politics, economy, and society represent a market economy which is dominated by big and powerful companies, economic policy has to restrict market power and the big companies have to strengthen entrepreneurial orientation throughout the organization.
4. If politics, economy, and society represent an innovative market economy, economic policy has to create an entrepreneurial climate and support various entrepreneurial initiatives as well as radical innovations.
5. If the entrepreneurial orientation of the state increases, entrepreneurial opportunities and agglomeration advantages in the entrepreneurial communities increase as well.
6. If entrepreneurial actors deploy opportunities and agglomeration advantages in entrepreneurial communities, development effects in organizations, regions, and the economy occur.
7. The development effects in local communities could be upwards directed (this may lead to overheating effects) or downwards directed (this may lead to stagnation or setback).
8. Overheating, stagnation and setback in regional communities as well as the development of new entrepreneurial communities require an active public policy to moderate the development.
9. Entrepreneurial communities organize exchange with other local and global communities in material and information processes.
10. Entrepreneurial communities organize exchange inside the local community in material and information processes.
11. Leading network companies initiate and direct cooperation inside the entrepreneurial communities.
12. Public institutions moderate cooperation inside the entrepreneurial communities.
13. Entrepreneurial communities develop an entrepreneurial momentum for adaptation and development processes.
14. Established entrepreneurial organizations, start-up organizations, and spin-off organizations use synergy effects and agglomeration advantages inside entrepreneurial communities in material and information processes.
15. Established entrepreneurial organizations realize entrepreneurial initiatives in established business via entrepreneurial actors and teams.
16. Established entrepreneurial organizations realize entrepreneurial initiatives in new business via entrepreneurial actors and teams.
17. Start-up organizations pursue new entrepreneurial initiatives.
18. Spin-off organizations pursue new entrepreneurial initiatives.

The total system (see Figure 7) with the political, economic, and social subsystem defines the framework for the economic cycle and the economic development. Basic decision systems of the society (e.g. elections, negotiations, price mechanism) coordinate economy, state, citizens, and interest groups.

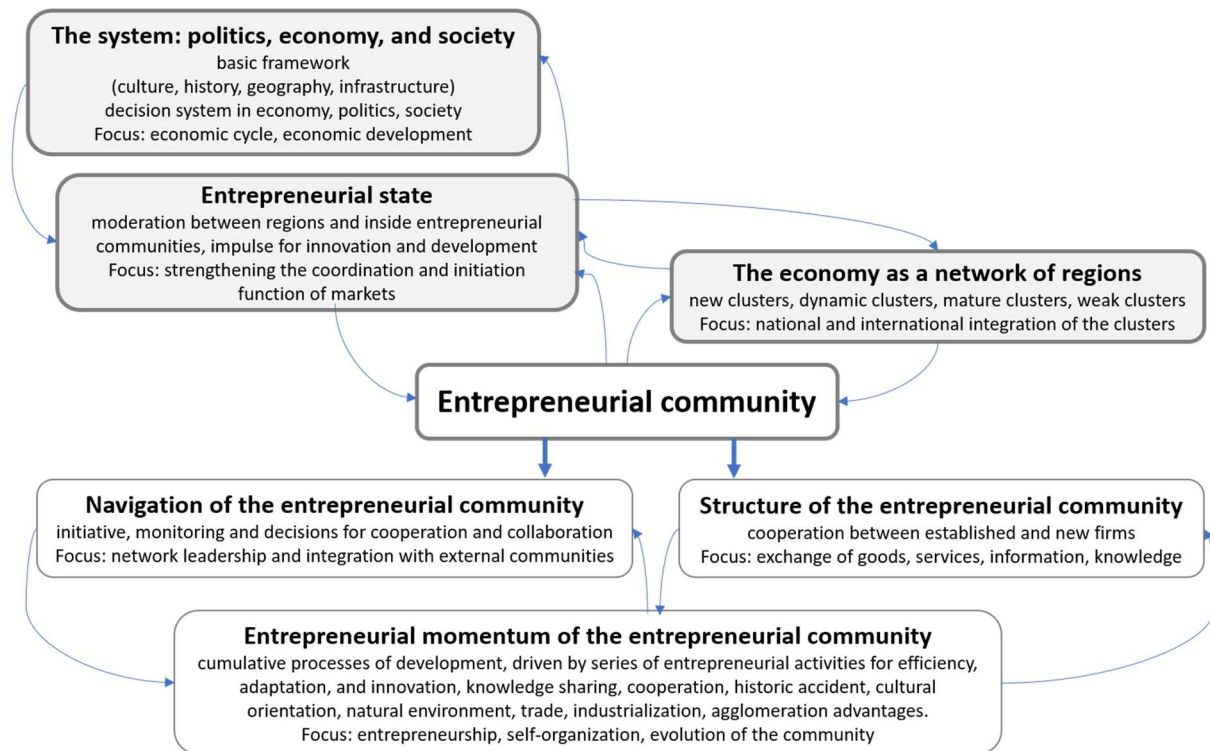


Figure 7: Entrepreneurial community and thriving entrepreneurial economy: A qualitative model

History, geography, culture, and infrastructure are important factors in the development process of nations. An entrepreneurial state takes risk to allow future-oriented development processes. The entrepreneurial state moderates between local communities to support a holistic development of the thriving entrepreneurial economy and moderates local communities to avoid overheating or to stimulate dynamic development processes. Although, the entrepreneurial state promotes the coordination and initiation function of markets. Entrepreneurial communities create and deploy agglomeration advantages and synergy effects inside the local community, link the local network to other regional cluster, and use the entrepreneurial momentum of entrepreneurial communities.

Within the entrepreneurial communities established and new organizations use symbiotic relations. Entrepreneurship is the driving force for personal, organizational, local, national, and global development. Impulse for development processes are coming from a holistic combination of the entrepreneurial dynamic of the “invisible hand” (that is the market mechanism) and the moderating effort of the “public hand” (that is the economic policy of the entrepreneurial state).

CONCLUSION AND FUTURE RESEARCH

The article explores the role of entrepreneurial communities for a dynamic economic development using a literature review and systems thinking research approach complemented by design science. It argues that development issues should be analyzed from a systemic perspective. Thus, appropriate political, economic, and social conditions and proper macroeconomic policy should be shaped in an integrative way. At the micro level entrepreneurial agents all over the economy serve as an engine for a dynamic economic development. Entrepreneurial communities offer the organizations in the local community significant agglomeration advantages.

A systemic view on the intertwined micro level (individual activities in the economic system leads to economic development), with the macro level (politics for economic development and appropriate policy frameworks), and the cluster level (cooperation in and between regions) offers a holistic perspective on the development process. At the micro level existing vital entrepreneurial learning organizations (Platzek *et al.*, 2014), start-up and spin-off organizations pursue business opportunities separate, together in symbiotic partnership or within the network structures. At the macro level economies shape national innovation systems as well as future-oriented economic policy.

Reflecting the dynamics in and between the several cluster of an economy, economic policy can moderate upwards and downwards directed development processes in the local systems (Myrdal, 1974). In doing so, according to Krugman (1996) the economic policy should not focus on single industries because the public managers cannot have the necessary specific knowledge. Stabilizing negative feedback effects operate inside the national economic system. Successful organizations and industries attract workforce from other, less successful organizations and industries. Therefore, at the organizational level and inside a local cluster, amplifying effects from entrepreneurial initiatives can occur and stimulate growth processes and structural change.

The holistic moderation inside entrepreneurial communities, and a development-oriented integration of the several local communities of a national economy facilitate sustainable development processes at the local and national level. For prosperity and profitability of the organizations inside an entrepreneurial community individual and collective creating and deploying of knowledge and technology transfer are important lever for ongoing entrepreneurial initiatives.

For a sustainable and vital development of the entrepreneurial community, trust, fairness, and balanced partnership are important success factors. Start-up companies as industry or university spin-offs can stimulate established companies and thereby the development of entrepreneurial communities (Burg *et al.*, 2008). A founder-subsystem at universities (O'Shea *et al.*, 2004) can foster the entrepreneurial spirit and the development of fresh business ideas. Universities can realize entrepreneurship education (Platzek and Pretorius, 2015). Further, they can support entrepreneurial initiatives on campus. University researchers can use specific resources in commercialization processes. Consequently, entrepreneurial universities can have a deep impact in entrepreneurial communities through cooperation with industry and building an entrepreneurial culture on campus.

Implications of the offered examination are, that a balanced combination of (1) appropriate macroeconomic policies, (2) entrepreneurial initiatives at the micro level, and (3) moderating processes in and between regional entrepreneurial communities can foster the dynamic economic development of the thriving entrepreneurial economy. Thus, the presented theoretical concept of an entrepreneurial community in a vital entrepreneurial economy offer a holistic understanding on the role of entrepreneurship for economic development in regions and economies. In this research and theoretical analysis, the high potential of decentralized entrepreneurial initiatives as a starting point and lever for a dynamic economic development in developed, emerging, and developing countries is presented. Further research studies based on the qualitative systems model of the entrepreneurial community in a thriving entrepreneurial economy can focus on more detailed modelling of the system dynamics and the integration of specific contexts of national innovation systems such as for example the entrepreneurship dynamics work of Pretorius and Davidavičienė (2018).

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