Front. Bus. Res. China 2017, 11(1): 69–100
DOI 10.1186/s11782-017-0004-8

RESEARCH ARTICLE

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Digital Entrepreneurship Ecosystem as a New Form of Organizing: The Case of Zhongguancun

Abstract Digital innovation is becoming increasingly important in today's economy. Many digital innovations are developed not within organizations, but in innovation-driven entrepreneurial ecosystems, where various entrepreneurship related stakeholders collaborate and cooperate. Despite its significance, studies on digital entrepreneurship ecosystems (DEEs) are limited and the concept is largely undertheorized. This study intends to fill that gap by studying how a DEE organizes. This organizing issue is challenging, because stakeholders of a DEE are self-organizing and are not governed by any formal authority. To answer that question, we adopt forms of organizing as a theoretical lens, which provides structure to examine organizing issues. Through an in-depth case study of Zhongguancun, the Silicon Valley of China, we unveil eight processes around the themes of division of labor and integration of efforts. We further show that the forms of organizing feature a balance of centralized design and de-centralized emergence. This balanced view extends the forms of organizing literature, which takes an either/or perspective. Ecosystem architects and policy makers who intend to build entrepreneurship ecosystems to promote local economies can derive practical implications from our findings.

Keywords digital entrepreneurship ecosystem, new forms of organizing, case study

Received April 14, 2015

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1 Introduction

Digital innovation often takes place outside the boundary of firms through collective collaboration, which overcomes the resource limitations of a single firm (Adner and Kapoor, 2010). Thus, we need to treat digital innovations at the ecosystem level, which could provide a platform to aggregate various resources and facilitate such collaboration (Lindgren et al., 2008). In practice, digital entrepreneurship ecosystems (DEE) have already been shown to accelerate start-ups based on digital innovations. A well-known example is Silicon Valley. Many regions, such as London, Berlin, Paris, Tel Aviv in Israel, and Singapore, have also started to build DEEs to revive local economies (Herrmann et al., 2015; McKinsey Global Institute, 2015; Yip, 2015).

Digital entrepreneurship ecosystems (DEE) play an important role as accelerators for creating digital start-ups. However, extant studies on digital innovation mainly focus on organization-level analysis (Bharadwaj et al., 2013; Sambamurthy et al., 2003; Yoo et al., 2010), whereas studies at the ecosystem level are limited. This hampers our understanding of DEEs (Shen et al., 2015). Meanwhile, the concept of entrepreneurial ecosystems remains underdeveloped. The term ecosystem is widely used to explain the birth-boom of entrepreneurship, but as a theoretical concept, entrepreneurial ecosystem is underdeveloped (Spigel, 2015). Due to this gap, the Strategic Entrepreneurship Journal (SEJ), launched a call for papers on entrepreneurial ecosystems in 2015 (Autio et al., 2015).

Traditional thinking about organizations is that organizations maintain a boundary, within which the transaction cost is lower than in the open market. But what really lowers the transaction cost is if that organization has clear information about the division of labor and the integration of efforts, the two fundamental elements of organization (Puranam et al., 2014). Compared with the open market, an ecosystem seems to be more efficient. Some scholars treat ecosystems as organizations (Gulati et al., 2012). Unlike a traditional organization, however, an ecosystem lacks the formal authority that is needed for coordination. Therefore, how an ecosystem achieves a division of labor and integration of effort is an interesting question. We refer to the division of labor and integration of efforts as organizing forms (Puranam et al., 2014). We posit that a healthy and productive digital entrepreneurship ecosystem possesses a relatively stable organizing form whereby its stakeholders can effectively achieve a division of labor and integration of effort, without a hub or a central authority,

while an ill-organized digital entrepreneurship ecosystem is bound to fail.

Contrary to traditional thinking about organizing, many DEEs can organize various actors without formal authority. Yet, the knowledge about "how does a DEE organize" is inadequate, posing a great knowledge gap for both scholars and practitioners. Different from traditional organizations, actors in a DEE do not share the same goal and are free to make decisions based on their own interests, which may lead to conflicts rather than collaborations. For example, actors may prefer to drain the value within an ecosystem to maximize their own benefits, rather than share it with other actors. Therefore, the details of the organizing processes that facilitate inter-organizational coordination and collaboration are worth exploring (Gulati et al., 2012).

Thus, our study aims to analyze a digital entrepreneurship ecosystem to answer the question of "how does a digital entrepreneurship ecosystem organize to support digital innovations?" To answer this question, we adopt the forms of organizing, as synthesized by Puranam et al. (2014) based on prior literature related to the forms of organizing, as a theoretical lens. Despite the different forms of organizing, they all address four universal problems: task division, task allocation, reward distribution and information flow. These four organizing problems are synthesized from the prior literature and they commonly exist in many forms of organizing, such as innovation networks, innovation clusters, ecosystems and self-organizing groups.

Since DEEs are different from traditional forms of organizing as they lack traditional organizing elements such as formal authority, the solutions to these four problems may be different and worthwhile exploring (Puranam et al., 2014). Thus, the organizing process of a DEE is relatively novel and we can treat a DEE as a "new" form of organizing. This theoretical lens enables us to analyze a DEE as an organization rather than a pure combination of actors. These universal problems of organizing provide us with an operational framework to analyze the organizing activities in DEEs.

We conducted a case study on Zhongguancun (ZGC), a successful DEE known as the Silicon Valley of China. Analyzing data collected from 51 interviewees with high heterogeneity, we find 8 activities that contribute to the organizing form of this DEE. Our paper has three important contributions. First, we contribute to the digital innovation literature by extending the research from the individual or organizational level to an ecosystem level (Shen et al., 2015).

This ecosystem level analysis is important, because a digital entrepreneurship ecosystem is conducive to digital innovation exploitation by aggregating various resources and facilitating inter-firm collaboration. Second, our paper makes contributions to the organizing form literature (Gulati et al., 2012; Puranam et al., 2014). The existing four-dimension theoretical framework takes an either/or perspective when it comes to choose between emergent or top-down organizing. Our findings based on this digital entrepreneurship ecosystem demonstrate that these two approaches are not contradictory and can coexist.

2 Literature Review

2.1 Digital Innovation and Digital Entrepreneurship Ecosystem (DEE)

According to Per Yoo et al. (2010), digital innovation can be defined as the implementation of new combinations of digital and non-digital resources to produce novel products and processes. Because of the limited resources and knowledge available within individual firms, many firms seek to leverage external resources to generate digital innovations (Selander et al., 2010). Meanwhile, the collaboration networks of inter-firms (Schilling and Phelps, 2007) and the boundary-spanning practices (Lindgren et al., 2008) have significant effects on innovation. Thus, digital innovation typically involves multiple actors and interactions. In other words, ecosystems which contain various resources and information are important for digital innovation.

Innovation and entrepreneurship are often intertwined since many digital entrepreneurial ventures are based on digital innovation (Bessant and Tidd, 2007). Digital entrepreneurship is one stream of entrepreneurship. The unique characteristic of digital entrepreneurship, per Davidson et al. (2010), is that digital entrepreneurship consists of three interconnected types of entrepreneurship: business entrepreneurship, knowledge entrepreneurship and institutional entrepreneurship. Digital entrepreneurship is a multi-faceted phenomenon that contains all three types.

Business entrepreneurship is the type of entrepreneurship whereby new ventures are created. This is the most popular type of entrepreneurship in the literature. Knowledge entrepreneurship involves the pursuit of opportunities based on information and knowledge to create a domain-related knowledge base

and pursue new ventures related to this knowledge base. Consultants, journalists and academics are examples of knowledge entrepreneurs. Institutional entrepreneurship can be defined as the activities of actors who have interest arrangements and who leverage resources to create new institutions or transform existing ones. For example, the rise of E-commerce platforms, such as Amazon and Alibaba, has created a new form of retail market, which is an institutional entrepreneurship.

These three types of entrepreneurship are not exclusive. Instead, they are reinforcing. Davidson et al. (2010) posit that a successful digital entrepreneurship should combine business, knowledge and institutional opportunities. For example, Alibaba Inc, an E-commerce company, is first a business enterprise, but at the same time, this enterprise contains important knowledge and institutional implications.

A digital entrepreneurship ecosystem is an ecosystem where digital entrepreneurship emerges and develops. Because an ecosystem can facilitate the integration of resources and supportive elements beyond the firm-level, a digital entrepreneurship ecosystem is important for the success of digital entrepreneurship (Spigel, 2015). If we treat digital entrepreneurship as characterized by individualism, we can then see a DEE, in which various resources and elements can be integrated to facilitate the process of digital entrepreneurship, as a kind of collectivism. Another related concept is "digital ecosystem," or "digital business ecosystem." According to Per Corallo et al. (2007), a digital ecosystem is defined as the ICT enabling infrastructure that supports the cooperation, the knowledge sharing and the building of a business ecosystem. A digital business ecosystem is based on digital business, while a digital entrepreneurship ecosystem is based on digital entrepreneurship.

Corallo et al. (2007), expanding on the metaphor of natural ecosystems, separate the concepts of digital ecosystem and business ecosystem by its core species. A digital ecosystem is populated by digital species, while a business ecosystem is populated by business species. Similarly, a DEE is populated by digital species while an entrepreneurship ecosystem is populated by entrepreneurship species. This can be confirmed by the definition of digital entrepreneurship and other types of entrepreneurship. Digital entrepreneurship pursues opportunities based on the use of digital technologies, while others pursue opportunities based on business, knowledge or institutions (Davidson et

al., 2010).

In summary, we can draw a picture to show the differences between entrepreneurship, entrepreneurship ecosystems, digital entrepreneurship and digital entrepreneurship ecosystems (Figure 1). At the individual level, traditional entrepreneurs pursue opportunities based on business, knowledge or institutions, while digital entrepreneurs pursue digitally-enabled opportunities based on business, knowledge or institutions. After integrating resources beyond the firm-level, an ecosystem is formed at the collective level. At this level, the main difference between an entrepreneurship ecosystem and a digital entrepreneurship ecosystem is that a DEE is populated by digital species while an entrepreneurship ecosystem is populated by entrepreneurial species.

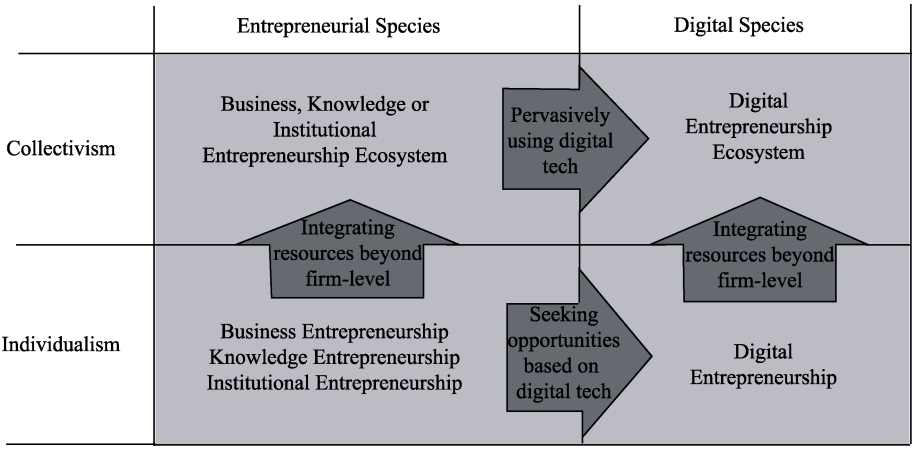

Figure 1 DEE is a Collectivist Infrastructure Populated by Digital Species

However, studies on digital entrepreneurship at the ecosystem level are limited. Most studies focus on the individual and organizational level, in which entrepreneurial processes and context are the main research points (Shane and Venkataraman, 2000; Zahra et al., 2014; Biao and Dong, 2014; Yi et al., 2008). A macro scope is needed to understand the strategy of digital entrepreneurship (Spigel, 2015). Moreover, the academic research on entrepreneurship in China should be paid more attention to contribute knowledge and practical implications on Chinese entrepreneurship (Zhang et al., 2012). Therefore, we focus our research on a macro scope of entrepreneurship in Chinese context, that is the digital entrepreneurship ecosystem in ZGC.

To address the gap in the theorization of ecosystems, a tool or framework is needed to analyze the ecosystem (Autio et al., 2015; Spigel, 2015). Because agents within an ecosystem are legally independent entities, it is natural to consider an ecosystem as a multi-organizational problem, as most studies have done. Nonetheless, the concept of a "meta-organization," in which firms or individuals are not bound by formal authority based on employment relationships (Gulati et al., 2012), enables us to use this framework organization theory to analyze the ecosystem concept. To unveil the black box of a DEE's organizing process, we adopt the framework of forms of organizing. This will be discussed in detail in the next section.

2.2 Forms of Organizing

After reviewing studies which cover a range of topics from innovation networks, to organizational design, to ecosystems and self-organization, Puranam et al. (2014) have noted that organizations, irrespective of their form, address two fundamental problems of organizing: the division of labor and the integration of effort. Puranam et al. (2014) further divide the problem of "division of labor" into task division and task allocation, and the problem of "integration of effort" into reward provision and information flow (summarized in Table 1).

Task division refers to *the problem of mapping the goals of the organization into tasks and subtasks*. It describes the problem of breaking down the system goal into contributory subtasks in organizations. In other words, it decides what jobs the system has. For task division, Puranam et al. (2014) argue that the following three principles should be relevant: excluding members that do not fit the system goal, no essential tasks remaining incomplete, and little redundancy among subtasks. These principles can be achieved by the initial design (MacCormack et al., 2006), the participation and contributing by members (Puranam et al., 2014), co-specialization of members (Thomas and Autio, 2012) and the transparency of task division (Baldwin and Clark, 2006).

Task allocation refers to *the problems of mapping the tasks obtained through task division to individual agents* (Puranam et al., 2014, p. 165). It describes the problem of allocating a job to the right agent. The commonly used mechanisms for task allocation are assignment (Hackman and Oldham, 1976) and self-selection based on capability, resources and preference (Puranam et al.,

2014). The process of self-selection can be considered to be decision-making, which can be influenced by both internal and external factors. Competition is an external factor for an organization, but it is also a critical factor for a successful ecosystem (Moore, 1993; Peltoniemi and Vuori, 2004). Therefore, self-selection based on competition is also a major mechanism of task allocation.

Table 1 Summary of Organizing Forms

Fundamental problems	Description	Example of solutions
Task Division	The problem of mapping the goals of the organization into tasks and subtasks.	√ Initial structure designed by founder (MacCormack et al., 2006); √ Participation and contribution by other members (Puranam et al., 2014); √ Transparency of task division (Baldwin and Clark, 2006).
Task Allocation	The problem of mapping the tasks obtained through task division to individual agents.	√ Assignment (Hackman and Oldham, 1976); √ Self-selection based on internal factors (Puranam et al., 2014); √ Self-selection based on external factors such as competition (Moore, 1993).
Reward Distribution	The problem of mapping a set of rewards to the agents in the organization and motivating the agents to cooperate.	√ Compensation (Prendergast, 1999); √ Intrinsic motivation (Hackman and Oldham, 1976); √ Social norms (Shah, 2006); √ Value creation (Thomas and Autio, 2012); √ Culture as a tool kit (Spigel, 2015).
Information Flow	The problem of ensuring that an organization's agents have the information needed to execute their tasks and coordinate actions with others.	√ Physical collocation (Puranam et al., 2014); √ Virtual tools (Puranam et al., 2014); √ Conference (Garud, 2008).

The distribution of rewards refers to *the problem of mapping a set of rewards to the agents in the organization—to motivate the agents to cooperate by taking costly actions toward executing the tasks they have been allocated* (Puranam et al., 2014). It mainly solves the problem of motivating agents to enter into and expend effort to achieve allocated tasks. Under the employment contract, compensation is the main mechanism of reward distribution (Prendergast, 1999). As to motivation, intrinsic motivation is also important for motivating employees to put effort into executing tasks (Hackman and Oldham, 1976), especially in the new forms of organizations where an employment contract is absent. The value

logic of an ecosystem is that it provides agents in the ecosystem with opportunities to capture and co-create value (Thomas and Autio, 2012). This value creation attracts agents to join the ecosystem and ensures the fair distribution of rewards. Reward distribution can also be enhanced by social norms (Shah, 2006) and culture (Spigel, 2015; Swidler, 1986).

The information flow refers to *the problem with ensuring that an organization's agents have the information needed to execute their tasks and coordinate actions with others* (Puranam et al., 2014). It constructs the linkages among agents to integrate their efforts. Physical collocation and virtual tools are the common solutions to achieving information flow (Puranam et al., 2014). In many communities, a conference plays a significant role as a prime venue for information exchange and interaction (Garud, 2008).

3 Methodology

The case research approach is adopted for the following reasons. First, because research approaches should follow the research questions (Walsham, 1995) and our main research question is a "how" question, a case study method is more appropriate (Eisenhardt, 1989). Second, as our study aims to explore our theoretical framework by rethinking an ecosystem as an organization, a case study is more appropriate for theory building (Siggelkow, 2007). Third, because a case study is suited for exploring complex phenomena (Yin, 1985) and how a large entrepreneurship ecosystem organizes itself is intricately embedded in the social context of the ecosystem, an in-depth case study is more suitable to understand this phenomenon.

We chose ZGC as our case target for the following reasons. First, ZGC is a typical DEE that is populated by digital species and integrates various resources beyond the firm-level. Heterogeneous members gather in ZGC to facilitate the development of digital entrepreneurship. Most activities in ZGC are related to entrepreneurship in the digital technology field and thus, ZGC is populated by digital species. Second, ZGC is a successful DEE in China and is a benchmark for entrepreneurship ecosystems. Many other provinces in China try to imitate its pattern to develop their local entrepreneurship ecosystems. Third, ZGC emerged in China where government has a strong influence in the economy, and plays an important role in the development of ZGC. The involvement of the government

in the development of this entrepreneurial ecosystem is the key differentiating factor between Zhongguancun and DEEs in other regions of the world, such as the United States and Europe. Thus, the role of government, the architect of the DEE in Zhongguancun, is particularly interesting. Meanwhile, inspired by the success of Silicon Valley, many governments have started to follow suit and build their own DEEs. The case study of ZGC where government plays an important role may have valuable practical implications.

3.1 The Case Setting

The area occupied by the ZGC digital entrepreneurship ecosystem used to be a cluster of electronics markets and book stores. After 2010, the rise of E-commerce in China affected the business of the ZGC stores. Most were closed or transformed into other businesses. On Oct 2013, the Beijing municipal government announced a policy that a high-technology entrepreneurship cluster was to be built in ZGC. Under this policy, the Haidian District government (where ZGC is located) started to transform ZGC into an ecosystem of high-technology entrepreneurship. With the principal of "guided by government, operated by market", many entrepreneurs and entrepreneurial service providers were involved. On June 2014, the ZGC entrepreneurship ecosystem was formally established and called "ZGC InnoWay (abbreviation of Innovation Way)".

ZGC InnoWay is a 200-meter long road, located in the core of Haidian District with convenient transportation. Many elite universities are located near ZGC InnoWay, including Tsinghua University, Peking University and Renmin University. One of China's most important research institutions and think tanks—the Chinese Academy of Sciences is also located on the corner of the street. Almost every service that an entrepreneur needs to set up a business, such as financial services, government services, entrepreneurial training, human resource services, legal services etc. can also be found on this street.

In October 2015, to expand the available resources and integrate local services, an advanced ZGC entrepreneurship ecosystem was established with the help of the government. It is a 7.2-kilometer long street with intensive resources including higher education institutions, venture capital and enterprises. On the 200-meter InnoWay, on average every day, 2.2 events are held, 1.5 start-ups are financed, and average financing of about 7 million Yuan is provided. This is an

outstanding performance for an entrepreneurship cluster and therefore, we posit that ZGC is a successful digital entrepreneurship ecosystem.

3.2 Data Collection

This study follows the interpretive case study methodology (Klein and Myers, 1999). Our analysis unit is the digital entrepreneurship ecosystem. There are three main phases in the research process for this study.

The first phase, starting in December 2014, consisted of preparation. In this phase, we collected and analyzed secondary data on ZGC and entrepreneurship development in China (for detailed information, refer to Appendix B). Then we conducted interviews. We had the good fortune to interview the deputy head of the Zhongguancun Administrative Committee (ZAC). ZAC is a government agency in charge of the development and construction of ZGC. Later, interviews were conducted with some of the main accelerators. After analyzing the data, we developed a big picture about ZGC in the context of China's digital entrepreneurship boom. This analysis also revealed some details about the development of and relationships in ZGC. Organizations and individuals were independent in legal terms, which means that there was no employment relationship between them. This finding is also confirmed in the next phase of the study.

The second phase involved extensive data collection. It started in April 2015. In this phase, we conducted extensive semi-structured interviews in ZGC. After excluding some low-quality interviews (such as irrelevant interviews, and interviews stopped early due to external circumstances), 51 unique interviews were conducted. Interviewees included digital entrepreneurs, government officers, accelerator staff, venture capital investors, and service providers (for more information, refer to Appendix A). Each interview lasted on average 50 minutes and was conducted by at least two researchers. These interviews yielded 472 pages of transcripts and notes. For a deeper understanding of ZGC, one of the researchers joined an accelerator as an intern for 4 months (from May to Aug. 2015).

3.3 Data Analysis

Data analysis started in Aug. 2015. The techniques of open coding, axial coding

and selective coding were used to systematically analyze the data (Corbin and Strauss, 1990). Open coding was used to identify major elements from the data, e.g., designing tasks, assigning tasks, task self-selection, competition among members, preferring knowledge sharing, culture as an incentive, social norms to avoid free-riding and so on. Axial coding consists of identifying relationships among elements from open coding. For example, for preferring knowledge sharing, culture as an incentive and social norms to avoid free-riding, these open codes reflect the cultural attributes of a DEE so we summarized them as "entrepreneurial culture as a toolkit." Selective coding was based on the core variable we had previously identified—how does a DEE organize? Through our theoretical lens, we clustered the above codes into 8 key categories. This phase was conducted together with axial coding, and also involved intensive literature review so that findings could be supported by prior studies. During back-and-forth comparison between the literature and data, we changed some descriptions of codes from open coding and selective coding in order to match the literature and our core variables.

To ensure the reliability and validity of the data collection and analysis, the following methods were applied simultaneously (Summarized in table 2). To achieve reliability in data collection, data were triangulated by interviewing various members of the ecosystem. Combining secondary data (such as news, websites, and government documents) and interview data also enhanced the reliability of the data and findings. In order to achieve validity, as least two researchers were involved during both data collection and analysis. We presented

Table 2 Methods to Ensure Reliability and Validity

Methods to Ensure Reliability	Methods to Ensure Validity
√ Conducted semi-constructed interview and adjusted questions based on interviewees' responses. √ Data was collected in multiple ways in order to ensure data can be triangulated. One information from an interviewee needed to be supported by another interviewee or archive data. √ We studied China's entrepreneurship environment and the development of ZGC beforehand, so that interview design and data could be contextualized.	√ At least two researchers involved in the process of interview: one asked questions while the other(s) took notes and complemented questions, then compared interpretations with each other. √ The coding process also involved multiple researchers. Codes and descriptions were changed or adjusted based on the common view of researchers. √ We presented our findings to other scholars and practitioners to get feedback and subsequently enhance the validity of findings.

our analyzing process and findings to other researchers to get feedback and subsequently enhance the validity of our findings.

4 Findings

After analyzing the data, we identified 8 main activities that contribute to the four main objectives of organizing. The category design by the architect and co-specialization by participants achieved task division. Agent that is assigned to certain tasks or categories can be considered project leaders, or board managers in an open community. In ZGC, we call them "captain." The captain assignment by the architect and self-selection based on competition achieved task allocation. The value co-creation and entrepreneurial culture as a toolkit achieved reward distribution. Physical collocation plus virtual tools supporting intensive conferences achieved information flow (Figure 2).

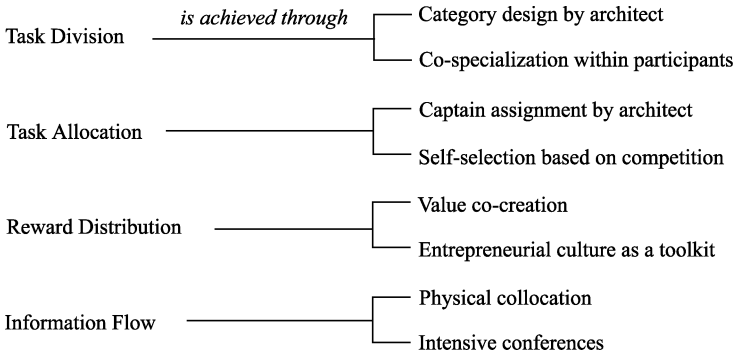

Figure 2 Digital Entrepreneurship Ecosystem as a New Form of Organizing

4.1 Task Division

In ZGC, task division is accomplished through (1) the category design by the architect and (2) co-specialization by participants.

Task division comprises both centralized and de-centralized activities. High centralization of task division means that the power of dividing the tasks is centralized to a small group people. Otherwise, it spreads to everyone. An open community is considered an organization with low levels of centralization. Somehow, the initial design process of an open community also influences task division, which is decided by a small group of people.

In the early stages of ZGC, tasks were designed by the architect. This is considered a highly centralized approach (Gulati et al., 2012). When designing the digital entrepreneurship ecosystem, a system-level goal is essential. Task division needs to support this goal. The government, as the architect of ZGC, after studying the experiences of Silicon Valley, imitated the structure of Silicon Valley. Thus, main categories of tasks were designed such as acceleration centers, venture capital, entrepreneurial mentors, education resources and physical infrastructure, including collocation places, telecommunication facilities, transportation infrastructure and security protection. As an officer who participated in the designing process of ZGC stated: "In the initial stage of this project, we designed the main structure of ZGC, in which some specific members are necessary, such as acceleration centers, venture capital, collocation places and so on."

This highly-centralized process of design decides what kinds of work ZGC as a DEE provides. The visibility of the system goal and category makes it possible to attract agents who have the ability to achieve the system goal (Baldwin and Clark, 2006). To some extent, irrelevant members are excluded through the visibility and definition of the categories of organizations present in ZGC. For example, agents who aim to work for digital entrepreneurs would be attracted by the visible goal, while others unrelated to digital entrepreneurship would be excluded, such as the book store owners and the electronics merchants.

Although the architect can design the main task categories in the early stages, the details of subtask division in ZGC still needed to be explored. "Although we have experience with entrepreneurial services in Silicon Valley, the detailed structure of the entrepreneurship system still needed to be explored. Meanwhile, because the context of ZGC is quite different from Silicon Valley, we cannot copy the format of Silicon Valley directly", an officer participating the design of ZGC stated. But with more and more participation and contributions, task division can be elaborated and developed by itself (Puranam et al., 2014). Therefore, after designing the main tasks categories, the architect imported heterogeneous agents into ZGC through reward distributions such as subsidies to enable the complementariness of task division (Thomas and Autio, 2012). Therefore, at the subtask level, tasks are divided by self-organizing agents.

At this stage, heterogeneous agents with specialized resources and abilities cooperate and this cooperation overcomes the limited resources of individuals.

These subtasks are not designed by the architect. For instance, some agents found that some entrepreneurs had problems converting innovative ideas into a business, and thus they established a consulting company to address this issue. In this case, these agents have specific experience and the ability to solve this problem, but they lack innovative ideas, while entrepreneurs have innovative ideas but lack the ability to achieve them. Therefore, co-specialization by participants gives rise to subtasks which are not designed by the architect. These subtasks enhance the completeness of task division.

4.2 Task Allocation

The pattern of task allocation is close to that of task division because it has to solve the allocation problems based on task division (Puranam et al., 2014). In the early stage of ZGC, category design was the main method of task division. Correspondingly, methods of task allocation should suit the design process, as does the co-specialization process. In the case of ZGC, we found that task allocation is accomplished through (1) captain assignment by the architect and (2) self-selection based on competition, which corresponds to the methods of task division.

Assignment is a common method of task allocation in a highly-centralized process (Puranam et al., 2014). Under the assignment process, members are usually assigned to positions or subtasks that match their skills and profiles. In the early stage of development of ZGC, tasks were assigned to the members who owned adequate and appropriate resources to achieve the tasks.

Agents that are assigned to certain tasks or categories can be considered project leaders, or board managers in an open community. In ZGC, we call them “captains”. Because these captains have premium resources and social reputations, they can create their own authority and manage this category well to support the system-level goal. For instance, a big IT company in China is assigned to be the captain of the category of hardware-related entrepreneurship. This company leverages both internal and external resources to build an environment that facilitates hardware-related innovation and entrepreneurship activities. These innovations and entrepreneurship activities are also beneficial for this company because they are related to the industry of this company and

enhance the agility of the company through accessible innovation from outside. As we can see, these captains can manage their category well and benefit with the development of category (which solves the motivation problem). This highly-centralized process of assignment ensures the main tasks (or categories) be allocated to the right agent to achieve them.

Therefore, task allocation is achieved through *captain assignment by the architect.*

In the second phase, when captains have been confirmed, self-selection becomes the dominating approach toward task allocation. Self-selection is based on the task division of co-specialization, which is a process with low levels of centralization. Heterogeneous agents cooperate to achieve co-specialization based on their own inclinations, in which other highly-centralized allocation processes (such as assignment) are not involved. Meanwhile, for the self-organizing nature of ecosystem (Moore, 1993), the main approach of task allocation in ZGC as a DEE is self-selection (Gulati et al., 2012; Puranam et al., 2014). As one entrepreneur stated: “Most service providers in ZGC are open to everyone, and we can choose them based on our interests. To the contrary, these service providers also have the right to choose you based on their interests.”

However, when many resources flow into the DEE, redundant resources emerge since many agents have the same specialized capabilities. In these circumstances, competition among these redundant resources becomes inevitable. Only the fittest would survive under the mechanism of competition, which ensures the survival of premium resources and reduces the degree of redundancy. Competition also pushes the development of resources, such as improving service quality and cutting down costs. For example, many entrepreneurs have a demand for legal services. Some companies observed this demand and started to provide legal services specific to entrepreneurs. While choosing the service providers, entrepreneurs would compare them in terms of service quality and cost and then choose the best one. Likewise, service providers would improve service quality or cut down costs in order to survive in this market.

Therefore, task allocation is achieved through self-selection based on competition.

Table 3 Examples of Activities in Division of Labor

Organizing Issues	Activities to Address Those Issues	Example Codes of Activities	Corroborating Evidence
Task Division	Category design by architect	*Preparatory research;* *The design of ZGC;* *Learning from foreign countries;* *Experience of former projects;* *Emphasizing the diversity of resources;* *Policy support;* *Government guidance.*	*"In the initial stage of this project, we designed the main structure of ZGC, in which some specific members are necessary, such as acceleration centers, venture capital, collocation places and so on."* *"You may see more than 20 accelerators in this street and they all call themselves 'accelerator'. However, each of them has exclusive resources or a service point. For instance, A focuses on chips research and development, B prefers smart hardware, and C has massive media channels. This diversity was designed before we invited them."*
	Co-specialization	*Needs exploration in entrepreneurial process;* *Self-development of accelerators;* *Emergence of special clusters;* *Cooperation with third-party service providers.*	*"Due to resource limitations, most entrepreneurs don't have the ability or attention to solve legal problems, such as equity contract formulation, patent applications and so on. Therefore, I established this legal firm mainly to offer legal services to accelerators and entrepreneurs."* *"We (an accelerator) do not have a team to offer financial or legal services, but we can introduce third-party service providers to entrepreneurs who need these services."*
Task Allocation	Captain assignment by architect	*Involving key resources;* *Resource filter;* *Operating by state-owned company;* *Specialization of accelerators and service providers.*	*"In the early stages of ZGC, we (the architect) would filter the members that could work in ZGC, and assign them to lead certain fields of entrepreneurship."* *"Before involving these accelerators and other service providers, we have already researched them. If we think they are good, we will send an invitation to them to enter this street."*

(*To be continued*)

(*Continued*)

Organizing Issues	Activities to Address Those Issues	Example Codes of Activities	Corroborating Evidence
	Self-selection based on competition	*Cooperation in the same field;* *Entrepreneurial mentor;* *Self-Selection of service providers;* *Competition within accelerators;* *Competition among service providers and VCs;* *Conflict in recognition.*	*"During the process of entrepreneurship, many problems need to be solved. And we (service provider) catch this opportunity to help them solve these problems quickly and well."* *"As an entrepreneur, I actually want to join in the best entrepreneurial accelerator to develop my start-up company. However, the best means the hardest to enter. I have to compete with other brilliant start-ups."* *"A good entrepreneurial project or team makes it easier to get investment and enter a good accelerator, especially entrepreneurs from big companies such as Baidu, Tencent and Alibaba. What's more, many investors and accelerators compete to invest or service a famous entrepreneur, or what we call a 'star entrepreneur'. Because this famous one also makes these investors and accelerators more well-known."*

4.3 Reward Distribution

Reward distribution solves the problem of creating motivation to join in the system and to make efforts to achieve the tasks. In ZGC's case, the motivation problem is achieved through (1) value co-creation and (2) entrepreneurial culture as a toolkit.

In virtual communities, such as Wikipedia and Linux, where tangible rewards (such as compensation and subsidies) are limited and the effort members contribute is almost all based on their personal preferences and interests, intrinsic motivation is considered the key factor to incentivize members to join in and expend effort (Gulati et al., 2012; Spigel, 2015). Yet, tangible rewards still work in many physical communities (Puranam et al., 2014). Many tangible rewards attract agents to join ZGC, such as subsidies from the government, low rents and other policies. These tangible rewards may have positive effects on attracting members, but we found in our investigation, these tangible rewards are not the main reason why people are attracted to ZGC. As an entrepreneur who is an overseas returnee stated: "Subsidies in ZGC are not so attractive to entrepreneurs because many other places could provide the same, or even better rewards. Policies about entrepreneurship are much more complex than in some foreign countries."

Many agents come to ZGC mainly for the commercial opportunities, while policies and subsidies are also a key decision-making factor. Opportunities come from the process of this system in which value can be captured and created by participants (Thomas and Autio, 2012). Since the resources and capabilities of individuals are limited, many agents join in the ecosystem to seek partners to cooperate to capture and create value. Thus it is a process of value co-creation. For instance, some legal service providers capture the value of legal services in the entrepreneurship process, and they cooperate with other service providers such as accelerators and collocation places to create value through solving the legal problems of entrepreneurs. The value co-creation also occurs at the individual-level, which is attractive to digital entrepreneurs. Many entrepreneurs come to ZGC for information exchange and contestation of innovation ideas. During the process of exchanging and contestation, the ideas are further shaped.

Value co-creation is a reward for agents who participate in the ecosystem. This reward is distributed through the mechanism of pay-by-effort, which is like the

mechanism of an open market. Thus this distribution process is fair and the problem of free-riding which is one of the main concerns of an open community (Puranam et al., 2014) does not exist. At least in the ZGC case, no evidence of free-riding is found. As to the concern of ideas being stolen, few entrepreneurs worry about it, since they believe that they have the unique resources needed to achieve their ideas. As one entrepreneur explained: "I never worry about the issue of ideas being stolen, because I have unique resources to achieve my idea which others cannot copy. In contrast, I will be glad if my idea is copied by others. It means that my idea is valuable and worthy to be achieved."

The other factor that enhances reward distribution is a supportive culture. Culture provides a repertoire of shaping actions, just like a "tool kit" in which habits, skills and styles construct the action strategies (Swidler, 1986), and culture can also enhance other attributes of an ecosystem (Spigel, 2015). In the ZGC case, we find that culture supports and normalizes entrepreneurial activities, and ensures the fair distribution of rewards.

The supporting and normalization of entrepreneurial activities are a great motivation for entrepreneur participation. Because this culture supports risk taking and provides entrepreneurs and other agents with social support, it enhances their legitimacy in society. One entrepreneur who is not from Beijing, said: "In my hometown, people consider entrepreneurship a bad job. But the situation is totally different in ZGC, because it is the hometown of entrepreneurship."

Culture also ensures the fair distribution of rewards through the establishment of social norms (Shah, 2006). Social norms both encourage value co-creation and protect members from cheating or free-riding. As we discussed in the value co-creation part, there is a risk of cheating and free-riding, in which the mechanism of the commercial market may not be helpful. In this situation, social norms provide a way to constrain cheating and free-riding (Puranam et al., 2014). In ZGC, people consider themselves part of the internet generation, in which people take pride in sharing and cheating or free-riding is seriously dishonorable. This social norm protects them and encourages people to share their ideas and to achieve value co-creation and digital innovation.

4.4 Information Flow

Information flow is accomplished through (1) physical collocation plus virtual

supporting tools and (2) intensive conferences.

Information flow is common in physical collocation and grouping. It is also a basic way of coordination (Puranam et al., 2014). In ZGC, physical collocation and grouping are accomplished through geographical proximity. Members of ZGC are on the same street. This geographical proximity allows them to exchange information conveniently. For example, company A, which provides promotion services, and its neighbor, company B, which provides acceleration services, can coordinate effectively.

The traditional view holds that resource similarities lead to competition. However, in ZGC, resource similarities bring about cooperation. This kind of cooperation mainly occurs among small entrepreneurial teams, because many similar entrepreneurial teams work together in the same accelerator. For instance, in a software entrepreneurship accelerator, similar work talent or human capability can be shared among these entrepreneurial teams.

Virtual support infrastructure and tools include group chatting software, website platforms, mobile phone applications and so on. With the rapid development of mobile networks in China, it is very convenient to communicate through smart phones. In ZGC, an Instant Messaging application named WeChat is widely used. It supports group chatting so that information can flow broadly and quickly. Some service providers establish chatrooms on WeChat to connect entrepreneurs, service providers and investors. For example, one service provider in ZGC established a WeChat platform, on which entrepreneurs can upload their business plans and solicit expert feedback about the business plan and potential investment. The virtual support infrastructure and tools facilitate the flow of information, and enable coordination to occur beyond geographic limitations.

Besides common physical collocation and virtual supporting tools, the presence of conferences also plays a significant role in information flow. Conferences provide venues for the interaction of actors, exchanges of information and of different opinions (Garud, 2008). In ZGC, for various participants within the DEE and with the existence of heterogeneous fields, intensive conferences connect people and ensure the efforts from different participants can be integrated.

Per the official website of the ZGC DEE, since its establishment in June 2014, more than 2000 conferences have been held in ZGC. On the weekly ZGC notice board, there are, on average, 4 major conferences and several small gatherings a

Table 4 Examples of Activities in Integration of Effort

Organizing Issues	Activities to Address Those Issues	Example Codes of Activities	Corroborating Evidence
Reward Distribution	Value co-creation	Value creation; Rewards; Free basic services; Government support; Government allowances; Profit model.	"One of the biggest problems of entrepreneurship is how to find suitable investors, and also many investors have trouble finding good entrepreneurship projects. Therefore, our platform (service provider) connect entrepreneurs and investors to help them make a pair. Unlike other service providers which take cash as a reward, we mainly take the shares of the start-up company as our reward, which means we bind our interest with entrepreneurs and it's to our profit to help them find suitable investors."
	Entrepreneurial culture	Culture as an incentive; Preferring knowledge sharing; Social norms avoiding free-riding; Cultural identity; Diffusion of entrepreneurial culture; Influence of entrepreneurial culture.	"Staying here (ZGC DEE), entrepreneurs will not feel excluded or lonely like anywhere else, because here is the home of entrepreneurs." "In function, this street is nothing special, with coffee shops, book shops and work places. But it is unique for its culture. People around here are friendly and easy to talk to. I can learn something or get some interesting information just sitting in a coffee shop. That's why I love this street and come here frequently."
Information Flow	Physical collocation plus virtual supporting tools	Local communication; Online communication; Convergence of information; Information rewarding; Communication cross provinces.	"All entrepreneurial accelerators locate in this street, and we (the architect) established a group chat in Wechat (one well-known mobile chatting application in China) that contains every manager of an accelerator and related government officers." "I (a venture capitalist) have joined many parties or chambers of commerce, in which I can get much information through activities, other members and Wechat groups. The information is the main reason I joined."
	Intensive conferences	Holding conferences; Attending conferences; Benefits of conferences; Numbers of conferences; Influence of conferences.	In ZGC every place, such as coffee shops, book stores and accelerators, holds an event every day, and sometimes one place may hold above 3 events in one day. These events include road shows (an open show where entrepreneurs can promote their project), industrial communications, new product promotion and lectures from well-known people. "We (a start-up in the pension industry) held a conference here because we want to know how these technology start-ups solve elder care problems. Meanwhile, we are also seeking new technology, smart hardware and new models to accelerate the pension industry in China."

week, such as workshops, seminars and road shows. The intensive conferences create a wide information flow that enable deep coordination. For example, in elder-care technology seminars, much of the ground-breaking information in this field was shared, and the participants could better understand how they supported the development of this field.

5 Discussion

This paper responds to the call for research on digital entrepreneurship (Shen et al., 2015) and entrepreneurship ecosystems (Autio et al., 2015). Using the case study of ZGC, we unveil a set of activities that influence the organization of DEEs (findings are summarized in Figure 1).

The solutions of these four organizing problems (task division, task allocation, reward distribution and information flow) cannot be separated (Puranam et al., 2014). When the solution of one problem is decided, it can influence others and all the solutions must align. For example, self-selection—a common solution to task allocation in new forms—needs a lower degree of centralization in task division and tasks should be visible so that members can select themselves. Moreover, reward distribution and information must fit the pattern of self-selection. Each part of the problem has many different solutions, but not every solution suits the others. In this sense, when designing a digital entrepreneurship ecosystem, it is critical to understand what kinds of solutions are suitable. Our findings provide a set of solutions in the context of ZGC. It is not a general solution but it provides some implications and guidance to the designing and construction of digital entrepreneurship ecosystems.

The theoretical framework of forms of organizing provides an operational structure to analyze the digital entrepreneurship ecosystem. Our findings correspond to the four problems which are derived from the two universal problems of organizing, i.e. the division of labor and the integration of effort. However, these findings do not address the two universal problems directly. Hence we need to integrate these findings to correspond to the problems of division of labor and integration of effort. Our case analysis shows that the dynamic balance of centralization is important for the division of labor, and the supportive elements are critical to the integration of effort.

5.1 The Division of Labor

For ecosystems, low level of centralization is the key feature, because of their openness and self-organizing nature. However, centralization is not excluded from the ecosystem (Gulati et al., 2012). Some centralization is necessary for the establishment of the ecosystem. In the early stages in ZGC, task division was designed and task allocation was assigned, which is a highly centralized process. These highly centralized movements enhance the control of agents in the ecosystem. Through the category design, irrelevant members are excluded. Assignment ensures that tasks are allocated to agents with basic capabilities, and members without enough capabilities are excluded. Meanwhile, centralization ensures this ecosystem moves towards its goal, instead of evolving randomly. The categories are designed based on the system-level goal, which constrains the varieties of tasks that ZGC offers. The assignment ensures that members have the ability to manage the categories well and support the system-level goal.

However, the ecosystem is too complex to be designed. Thus, bottom-up contributions address the weakness of a highly centralized process and complete the division of labor (Puranam et al., 2014; Thomas and Autio, 2012), such as subtask division through co-specialization and task allocation through self-selection.

In the current stage in the development of ZGC, low levels of centralization dominate the division of labor. While members contribute to the attainment of the system-level goal, complementariness of task division and the efficiency of task allocation have become the main needs. Therefore, low centralization dominates at this stage. However, that does not imply the disappearance of centralization at this stage. When the ecosystem does not function properly, for example, when reward distribution becomes unfair, the architect intervenes (Spigel, 2015).

Therefore, the division of labor in the ZGC case is a dynamic balance of high-level centralization and low-level centralization: in the early stage, a highly centralized process dominates and in the next stage, a process with low levels of centralization dominates.

5.2 The Integration of Effort

As to the integration of effort, the connection among agents within a DEE is

important. Common methods used to advance integration in ZGC are value co-creation and physical and virtual collocation (Gulati et al., 2012; Puranam et al., 2014). Some connections are visible, while others are invisible and hard to capture. These invisible connections are similar to the routine details or hidden rules in an organization which are based on formal authority and hierarchy. In DEEs, they are more detailed and complex. We argue that enabling elements such as a supportive culture and intensive use of conferences enhance these connections and therefore, achieve integration of effort.

Culture influences the actions of people (Swidler, 1986). Culture is a critical element in a DEE (Spigel, 2015). The effect of an entrepreneurial culture shapes the actions of people within a DEE, and people sharing the same culture are connected to enforce the integration of effort. Agents in the DEE may not share the system-level goal, but they share the same culture, which is critical to shape the connection among these agents. Meanwhile, intensive conferences link numerous individuals and activities and have positive effects on the emergence of innovations in certain fields (Garud, 2008). Value co-creation and physical plus virtual collocation construct the main connection among agents, while a supportive culture and intensive conferences achieve connection so that the integration of effort is accomplished. Therefore, the supportive elements of culture and conferences are necessary for the integration of effort.

6 Contributions and Implications

This paper has several theoretical contributions. First, our study contributes to the digital innovation literature by extending the scope of research on digital innovation to the ecosystem level. Most studies on digital innovation focus on the individual, organizational and industrial levels (Bharadwaj et al., 2013; Sambamurthy et al., 2003; Yoo et al., 2010). Little is known about the ecosystem for digital innovations. Our study fills this research gap by studying DEEs from the perspective of forms of organizing, which provides our analytical framework.

Second, our paper complements the study of organizational design by examining new forms of organizing a DEE. In organizational design studies, the collaboration among legally autonomous actors challenges traditional thinking about organizational design, because these actors collaborate effectively without traditional organizing elements such as formal authority and incentives (Gulati et

al., 2012). To overcome these challenges, this kind of collaboration is considered to be a new form of organizing (Gulati et al., 2012; Puranam et al., 2014). One research question that is worth exploring is how the designers of these new organizing forms divide labor and integrate efforts (Gulati et al., 2012). Our study answers that question. Moreover, the existing four-dimension theoretical framework takes an either/or perspective in choosing between emergent and top-down organizing. Our findings on digital entrepreneurship ecosystems demonstrate that these two approaches are not contradictory and can coexist.

Third, our paper also contributes to the entrepreneurship literature by unveiling the organizing process of an entrepreneurial ecosystem. Digital entrepreneurship ecosystems are not only ecosystems that generate digital innovations, but also ecosystems that support entrepreneurship based on digital innovations. Because of the lack of research on entrepreneurial ecosystems, the Strategic Entrepreneurship Journal (SEJ, a top journal in the field of entrepreneurship) called for papers on entrepreneurial ecosystems (Autio et al., 2015). Therefore, our paper responds to this research call by analyzing digital entrepreneurship ecosystems.

Our findings also have practical implications. As the establishment of DEEs is attracting more and more attention from practitioners, this paper may provide useful guidelines to architects and policy makers who intend to establish DEEs to support economic development. The theoretical framework of forms of organizing (task division, task allocation, reward distribution and information flow) provides a powerful instrument to both researchers and practitioners to better understand the forms of DEE organizing. As for members of a DEE, our findings enable them to better understand the organizing principles of a DEE for better involvement in a DEE.

7 Limitation and Future Research

This paper has several limitations. First, although we try to make our findings as inclusive as possible, we must acknowledge that it is hard to completely identify all the possible activities which compose the new forms of organizing within a DEE. It is hard to identify all of the large number of agents and activities within a DEE. Thus we try to capture the core activities that mainly impact the organizing

process. Moreover, our single-case study on ZGC also causes limitation considering that different DEEs have different contexts. Therefore, future studies can focus on multiple cases in different contexts and apply the framework of forms of organizing to analyze other DEEs.

Second, the environment of ZGC as a DEE is relatively special because China's government and state-owned enterprises play an important role in its design and development. However, in other regions, such as Silicon Valley and India, the involvement of government in DEE creation and expansion is less than that in the Chinese context (Saxenian, 2004). This difference may produce different organizing forms, and some new organizing forms may be identified in different contexts. Because a DEE best practice does not currently exist, different designers have their own methods to explore the forms of organizing. Future studies can focus on DEEs in other regions which are quite different from China, and focus on the comparison of DEEs in different environments.

8 Conclusion

Collective collaboration has positive effects on digital innovation due to the combination of heterogeneous resources. This highlights the importance of digital entrepreneurship ecosystems (DEEs) for digital innovation because DEEs contains diversified resources and provide a platform for boundary-spanning practices. However, the understanding of DEEs is still limited (Spigel, 2015). From our observations, we argue that a DEE is not only a combination of resources (Spigel, 2015), but also a new form of organizing (Gulati et al., 2012; Puranam et al., 2014). In order to achieve the system-level goal, a DEE has to organize resources efficiently and effectively.

Through this case study, we unveil 8 activities which compose the organizing form of a DEE. These activities give us some insight about the balance of centralized design and de-centralized emergence, which extends the existing studies on forms of organization that mainly take an either/or perspective. Our findings deepen our understanding of DEEs and provide practical guidelines for the development of DEEs.

Acknowledgements This research is supported by the National Natural Science Foundation of China (71402187), and Fundamental Research Funds for the Central Universities and the Research Funds of Renmin University of China (15XNF023). For helpful comments, we thank

two anonymous referees, English editor in FBR, Meng Zhao, Xiaoyu Ji, Shan Wang, Ruidong Zhang and the 2016 *Frontiers of Business Research in China International Symposium*.

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Appendices

Appendix A List of Interviewees

Categories (Number of Interviewees)	Examples
Entrepreneurs (*N*=16)	● Mr. Yang, founder of an entrepreneurial Internet education company, former employee of Midea (a large appliance company in China); ● Mr. Zhou, a college student preparing to set up their own company; ● Mr. Chen, founder of an Internet medical care entrepreneurial company, owns a successfully IT company which is still running; ● Mr. Xu, founder of an entrepreneurial Internet catering company, a former employee of Baidu (one of China's largest IT companies);
Government/State-owned Enterprises (*N*=8)	● One high-level officer and one operating officer with the Senior Services Informatics Development Committee (SSIDC), a facility of the China Association of Social Welfare. It was founded to improve innovation and development in senior care information; ● 2 mid-level officers with Haizhi Kechuang (HZKC), an institutional state holding company that designed the ZGC innovation street and maintains it; ● 3 mid-level officers with Zhongguancun Administrative Committee (ZAC), a government agency that guides the development and construction of ZGC; ● One mid-level with Beijing Municipal S&T Finance Promotion Association, a government agency promoting technology investment and providing financial advice;

(*To be continued*)

(*Continued*)

Categories (Number of Interviewees)	Examples
Accelerator Centers (*N*=10)	● Founder, co-founders and main officials with Asia America Multi-Technology Association (AAMA), an association focusing on accelerating technical startups. AAMA established its angel fund in 2012 and set up an accelerator and coffee shop in 2014 in ZGC; ● Operating manager with Legend Star, providing entrepreneurial services such as mentorships, acceleration and angel investment; ● Operating officer and coffee shop manager with 3W coffee shop, a company that services internet entrepreneurship and has its own coffee shop, accelerator, training program and angel fund.
Third-Party Service Providers (*N*=7)	● Financial advisor with Angel Service, a web platform connecting entrepreneurs and investors. It also provides training to help entrepreneurs perform better when meeting with investors; ● Founder with Law Service, a company providing legal services to startups, such as company registration, contract drafting, patent application and so on; ● Financial advisor with E-Capital, providing financial advice services for companies.
Investors (*N*=10)	● Mr. Xie, co-founder with YCT, a venture capital investment company that focuses on catering, cultural and technical industries; ● Mr. Guo, an angel investor who successfully set up XN Media; ● Mr. Zhang, Investment manager with Zhejiang PD Investment Company, a company located in Zhejiang Province.
Total Number of Interviewees *N*=51	

Appendix B Archival Data

Categories	Examples
Government/ Official Information	● ZGC Innovation Way Official Website. Introduction：http://www.z-.com/index.php?app=web&m=Article&a=detail&id=16 ● Beijing Government Official Website (2015, 12 Oct). "Advanced Innovation Way" expending 7.2 kilometers. Retrieved 15 Jan, 2016 from http://www.beijing.gov.cn/tzbj/tzxx/kfqdt/t1405612.htm ● Ministry of Science and Technology of the People's Republic of China (2014, 18 June). The opening of ZGC Innovation Way. Retrieved 15 Jan, 2016 from http://www.most.gov.cn/kjbgz/201406/t20140617_113821.htm ● Zhongguancun Science Park: introduction to the "Golden Seeds Project". Retrieved 15 Jan, 2016 from http://www.zgc.gov.cn/kjzzcx1/jzzgc/76822.htm
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(*To be continued*)

(*Continued*)

Categories	Examples
Videos	● CCTV.com (2015, 24 May). Dialogue: the sequel to ZGC Innovation Way. Retrieved 15 Jan, 2016 from http://jingji.cntv.cn/2015/05/24/VIDE1432481428440900.shtml ● Guangming TV (2015, 19 Oct). The disappearance of ZGC! Upgrading from electronics market to innovation and entrepreneurship street. Retrieved 15 Jan, 2016 from http://v.gmw.cn/2015-10/19/content_17376721.htm ● CCTV.com (2015, 7 May). Premier of China Mr. Li is present at the Chinese Academy of Sciences and ZGC Innovation Way. Retrieved 15 Jan, 2016 from http://news.cntv.cn/2015/05/07/VIDE1430997481826462.shtml ● Reporter Association of China (2015, 10 June). Opening of ZGC Innovation Way, and birth of the first entrepreneurship ecosystem in China. Retrieved 15 Jan, 2016 from http://news.xinhuanet.com/zgjx/2015-06/10/c_134314277.htm