Influential Article Review - Digital Entrepreneurship Ecosystem: The Modern Organization

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This paper examines entrepreneurship. We present insights from a highly influential paper. Here are the highlights from this paper: 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. For our overseas readers, we then present the insights from this paper in Spanish, French, Portuguese, and German.

Keywords: Digital entrepreneurship ecosystem, New forms of organizing, Case study

SUMMARY

- This paper responds to the call for research on digital entrepreneurship and entrepreneurship ecosystems . Using the case study of ZGC, we unveil a set of activities that influence the organization of DEEs .
- The solutions of these four organizing problems cannot be separated . 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.

- 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 . 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 , such as subtask division through co-specialization and task allocation through self-selection.
- 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 . 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 . Culture is a critical element in a DEE . 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.

HIGHLY INFLUENTIAL ARTICLE

We used the following article as a basis of our evaluation:

Li, W., Du, W., & Yin, J. (2017). Digital entrepreneurship ecosystem as a new form of organizing: The case of Zhongguancun. Frontiers of Business Research in China, 11(1), 1–21.

This is the link to the publisher's website:
https://fbr.springeropen.com/articles/10.1186/s11782-017-0004-8

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; Roth et al. 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.

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.

APPENDIX

FIGURE 1
DEE IS A COLLECTIVIST INFRASTRUCTURE POPULATED BY DIGITAL SPECIES

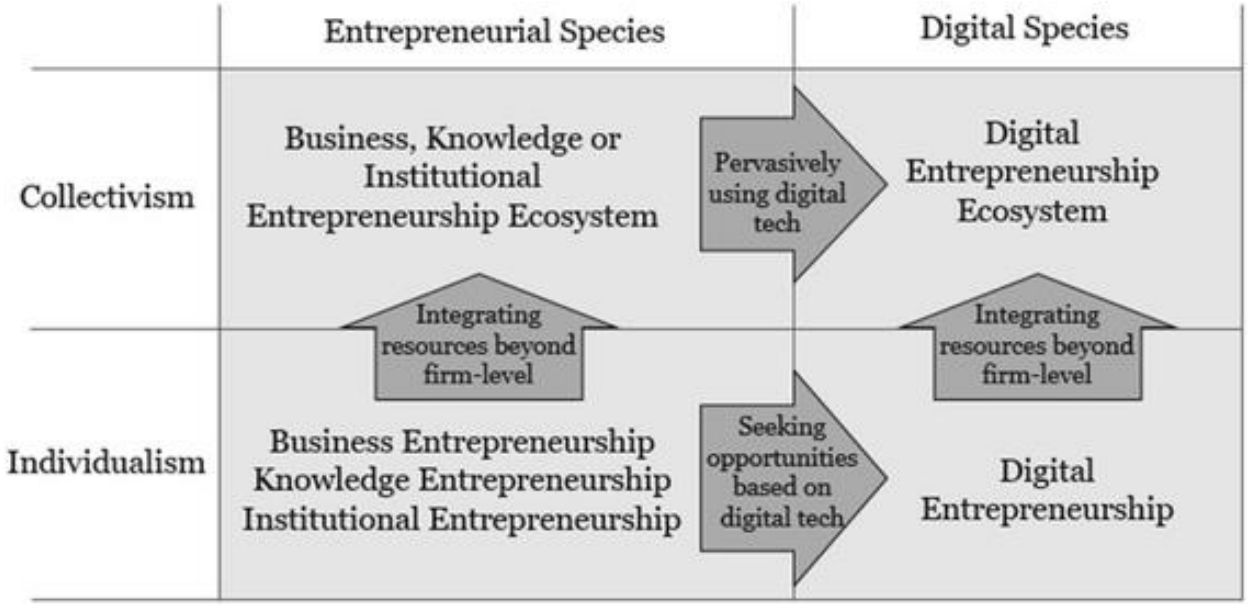

FIGURE 2
DIGITAL ENTREPRENEURSHIP ECOSYSTEM AS A NEW FORM OF ORGANIZING

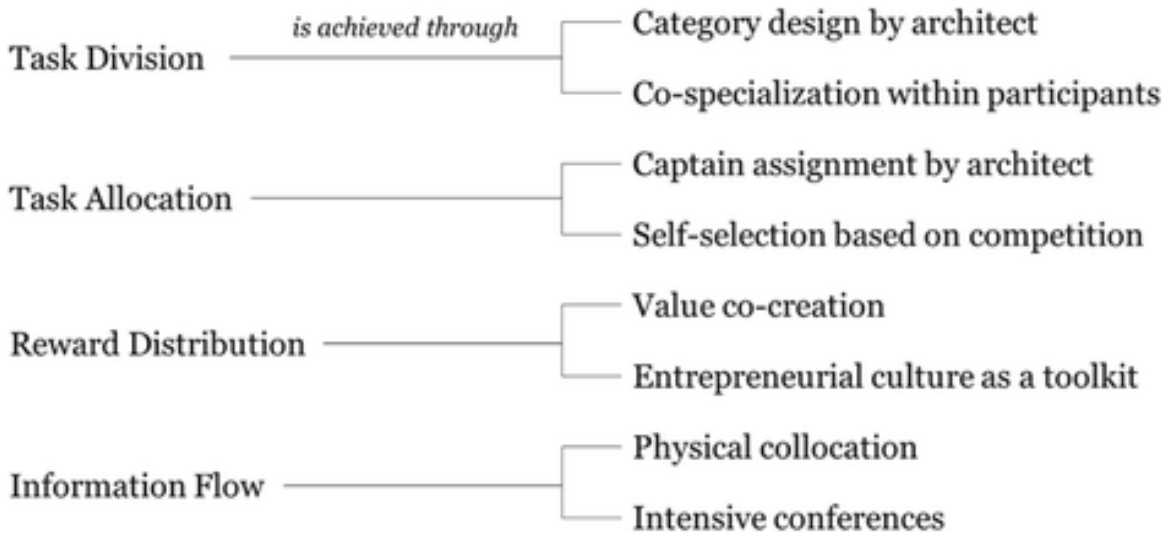

TABLE 1
SUMMARY OF FORMS OF ORGANIZING

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).

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.

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*	*"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."*

		the diversity of resources; Policy support; Government guidance.	
	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."*
	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."*

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*	*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.*

		conferences; Influence of conferences.	*"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."*

TABLE 5
ARCHIVAL DATA

Category	**Examples**
Government/Official information	• ZGC Innovation Way Official Website. Introduction: http://www.z-innoway.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
News/Reporting	• China Daily (2014, 13, June). Beijing Zhongguancun opens innovation street. Retrieved 15 Jan, 2016 from http://www.chinadaily.com.cn/beijing/2014-06/13/content_17584416.htm • Xinhua Net (2015, 20, Mar). Beijing's Zhongguancun Innovation Street services for startups. Retrieved 15 Jan, 2016 from http://news.xinhuanet.com/english/photo/2015-03/20/c_134082125.htm • People.cn (2015, 7 May). Premier of China Mr. Li is present at ZGC Innovation Way: Some details you don't know. Retrieved 15 Jan, 2016 from http://politics.people.com.cn/n/2015/0507/c1024-26965741.html • People.cn (2015, 30 July). The number of startups incubated in ZGC is nearly 600. Retrieved 15 Jan, 2016 from http://it.people.com.cn/n/2015/0730/c1009-27383824.html
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://www.iqiyi.com/v_19rrkydafo.html • 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

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TABLE 6
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;
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	

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TRANSLATED VERSION: SPANISH

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSION TRADUCIDA: ESPAÑOL

A continuación se muestra una traducción aproximada de las ideas presentadas anteriormente. Esto se hizo para dar una comprensión general de las ideas presentadas en el documento. Por favor, disculpe cualquier error gramatical y no responsabilite a los autores originales de estos errores.

INTRODUCCIÓN

La innovación digital a menudo se lleva a cabo fuera de los límites de las empresas a través de la colaboración colectiva, que supera las limitaciones de recursos de una sola empresa (Adner y Kapoor, 2010). Por lo tanto, necesitamos tratar las innovaciones digitales a nivel de ecosistema, que podrían proporcionar una plataforma para agregar diversos recursos y facilitar dicha colaboración (Lindgren et al., 2008). En la práctica, ya se ha demostrado que los ecosistemas de emprendimiento digital (DEE) aceleran las start-ups basadas en innovaciones digitales. Un ejemplo bien conocido es Silicon Valley. Muchas regiones, como Londres, Berlín, París, Tel Aviv en Israel y Singapur, también han comenzado a construir DEE para reactivar las economías locales (Herrmann et al., 2015; 2015; Yip, 2015).

Los ecosistemas de emprendimiento digital (DEE) desempeñan un papel importante como aceleradores para la creación de start-ups digitales. Sin embargo, los estudios existentes sobre innovación digital se centran principalmente en el análisis a nivel de organización (Bharadwaj et al., 2013; Sambamurthy et al., 2003; Yoo et al., 2010), mientras que los estudios a nivel de ecosistema son limitados. Esto dificulta nuestra comprensión de los dees (Shen et al. 2015). Mientras tanto, el concepto de ecosistemas empresariales sigue estando subdesarrollado. El término ecosistema se utiliza ampliamente para explicar el auge del nacimiento del emprendimiento, pero como concepto teórico, el ecosistema empresarial está subdesarrollado (Spigel, 2015). Debido a esta brecha, el Strategic Entrepreneurship Journal (SEJ), lanzó una convocatoria de ponencias sobre ecosistemas empresariales en 2015 (Autio et al., 2015).

El pensamiento tradicional sobre las organizaciones es que las organizaciones mantienen un límite, dentro del cual el costo de transacción es menor que en el mercado abierto. Pero lo que realmente reduce el costo de transacción es si esa organización tiene información clara sobre la división del trabajo y la integración de esfuerzos, los dos elementos fundamentales de la organización (Puranam et al., 2014). En comparación con el mercado abierto, un ecosistema parece ser más eficiente. Algunos estudiosos tratan los ecosistemas como organizaciones (Gulati et al., 2012). Sin embargo, a diferencia de una organización tradicional, un ecosistema carece de la autoridad formal necesaria para la coordinación. Por lo tanto, cómo un ecosistema logra una división del trabajo y la integración del esfuerzo es una pregunta interesante. Nos referimos a la división del trabajo y la integración de los esfuerzos como formas organizadoras (Puranam et al., 2014). Postulamos que un ecosistema de emprendimiento digital saludable y productivo posee una forma de organización relativamente estable mediante la cual sus partes interesadas pueden lograr efectivamente una división del trabajo y la integración del esfuerzo, sin un centro o una autoridad central, mientras que un ecosistema de emprendimiento digital mal organizado está destinado a fracasar.

Contrariamente al pensamiento tradicional sobre la organización, muchos DEE pueden organizar a varios actores sin autoridad formal. Sin embargo, el conocimiento sobre "cómo se organiza un DEE" es inadecuado, lo que representa una gran brecha de conocimiento tanto para los eruditos como para los profesionales. A diferencia de las organizaciones tradicionales, los actores de un DEE no comparten el mismo objetivo y son libres de tomar decisiones basadas en sus propios intereses, lo que puede conducir a conflictos en lugar de colaboraciones. Por ejemplo, los actores pueden preferir drenar el valor dentro de un ecosistema para maximizar sus propios beneficios, en lugar de compartirlo con otros actores. Por lo tanto, vale la pena explorar los detalles de los procesos de organización que facilitan la coordinación y colaboración interorganizacional (Gulati et al., 2012).

Así, nuestro estudio tiene como objetivo analizar un ecosistema de emprendimiento digital para responder a la pregunta de "¿cómo se organiza un ecosistema de emprendimiento digital para apoyar las innovaciones digitales?" Para responder a esta pregunta, adoptamos las formas de organización, tal como sintetizadas por Puranam et al. (2014) basadas en literatura previa relacionada con las formas de organización, como lente teórica. A pesar de las diferentes formas de organización, todos abordan cuatro problemas universales: división de tareas, asignación de tareas, distribución de recompensas y flujo de información. Estos cuatro problemas de organización se sintetizan a partir de la literatura anterior y comúnmente existen en muchas formas de organización, como redes de innovación, clústeres de innovación, ecosistemas y grupos autoorganizadores.

Dado que los DEE son diferentes de las formas tradicionales de organización, ya que carecen de elementos organizativos tradicionales como la autoridad formal, las soluciones a estos cuatro problemas pueden ser diferentes y merecen la pena explorar (Puranam et al., 2014). Por lo tanto, el proceso de organización de un DEE es relativamente novedoso y podemos tratar un DEE como una "nueva" forma de organización. Esta lente teórica nos permite analizar un DEE como una organización en lugar de una combinación pura de actores. Estos problemas universales de organización nos proporcionan un marco operativo para analizar las actividades organizadoras en los dees.

Realizamos un estudio de caso sobre Zhongguancun (ZGC), un DEE exitoso conocido como Silicon Valley de China. Analizando los datos recogidos de 51 entrevistados con alta heterogeneidad, encontramos 8 actividades que contribuyen a la forma organizadora de este DEE. Nuestro documento tiene tres contribuciones importantes. En primer lugar, contribuimos a la literatura de innovación digital extendiendo la investigación desde el nivel individual u organizativo a un nivel de ecosistema (Shen et al. 2015). Este análisis a nivel de ecosistema es importante, porque un ecosistema de emprendimiento digital es propicio para la explotación de la innovación digital mediante la agregación de diversos recursos y la facilitación de la colaboración entre empresas. En segundo lugar, nuestro documento hace contribuciones a la literatura de la forma organizadora (Gulati et al., 2012; Puranam et al., 2014). El marco teórico de cuatro dimensiones existente toma una perspectiva a la hora de elegir entre la organización emergente o de arriba hacia abajo. Nuestros hallazgos basados en este ecosistema de emprendimiento digital demuestran que estos dos enfoques no son contradictorios y pueden coexistir.

CONCLUSIÓN

La colaboración colectiva tiene efectos positivos en la innovación digital debido a la combinación de recursos heterogéneos. Esto pone de relieve la importancia de los ecosistemas de emprendimiento digital (DEE) para la innovación digital, ya que los DEE contienen recursos diversificados y proporcionan una plataforma para las prácticas de expansión de límites. Sin embargo, la comprensión de los DEE sigue siendo limitada (Spigel, 2015). A partir de nuestras observaciones, argumentamos que un DEE no es sólo una combinación de recursos (Spigel, 2015), sino también una nueva forma de organización (Gulati et al., 2012; Puranam et al., 2014). Para alcanzar el objetivo a nivel de sistema, un DEE tiene que organizar los recursos de manera eficiente y eficaz.

A través de este caso práctico, revelamos 8 actividades que componen la forma organizadora de un DEE. Estas actividades nos dan una idea sobre el equilibrio del diseño centralizado y la emergencia descentralizada, lo que amplía los estudios existentes sobre formas de organización que principalmente tienen una perspectiva o una perspectiva. Nuestros hallazgos profundizan nuestra comprensión de los DEE y proporcionan directrices prácticas para el desarrollo de los DEE.

TRANSLATED VERSION: FRENCH

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSION TRADUITE: FRANÇAIS

Voici une traduction approximative des idées présentées ci-dessus. Cela a été fait pour donner une compréhension générale des idées présentées dans le document. Veuillez excuser toutes les erreurs grammaticales et ne pas tenir les auteurs originaux responsables de ces erreurs.

INTRODUCTION

L'innovation numérique se fait souvent en dehors des frontières des entreprises grâce à la collaboration collective, qui surmonte les limites de ressources d'une seule entreprise (Adner et Kapoor, 2010). Nous devons donc traiter les innovations numériques au niveau de l'écosystème, ce qui pourrait fournir une plate-forme permettant d'agréger diverses ressources et de faciliter une telle collaboration (Lindgren et coll., 2008). Dans la pratique, il a déjà été démontré que les écosystèmes de l'entrepreneuriat numérique (DEE) accélèrent les start-up s'appuyant sur les innovations numériques. Un exemple bien connu est la Silicon Valley. De nombreuses régions, comme Londres, Berlin, Paris, Tel Aviv en Israël et Singapour, ont également commencé à construire des DEE pour relancer les économies locales (Herrmann et coll., 2015; Roth et coll. 2015; Yip, 2015).

Les écosystèmes de l'entrepreneuriat numérique (DEE) jouent un rôle important en tant qu'accélérateurs de création de start-up numériques. Toutefois, les études existantes sur l'innovation numérique se concentrent principalement sur l'analyse au niveau de l'organisation (Bharadwaj et coll., 2013; Sambamurthy et coll., 2003; Yoo et coll., 2010), alors que les études au niveau des écosystèmes sont limitées. Cela nuit à notre compréhension des DEE (Shen et coll., 2015). Pendant ce temps, le concept d'écosystèmes entrepreneuriaux reste sous-développé. Le terme écosystème est largement utilisé pour expliquer le boom de naissance de l'entrepreneuriat, mais en tant que concept théorique, l'écosystème entrepreneurial est sous-développé (Spigel, 2015). En raison de cet écart, le Strategic Entrepreneurship Journal (SEJ) a lancé un appel à communications sur les écosystèmes entrepreneuriaux en 2015 (Autio et coll., 2015).

La pensée traditionnelle au sujet des organisations est que les organisations maintiennent une limite, à l'intérieur de laquelle le coût de transaction est inférieur à celui du marché libre. Mais ce qui réduit vraiment le coût de transaction, c'est si cette organisation dispose d'informations claires sur la division du travail et l'intégration des efforts, les deux éléments fondamentaux de l'organisation (Puranam et coll., 2014). Par rapport à l'open market, un écosystème semble plus efficace. Certains chercheurs traitent les écosystèmes comme des organisations (Gulati et coll., 2012). Toutefois, contrairement à une organisation traditionnelle, un écosystème n'a pas l'autorité officielle nécessaire à la coordination. Par conséquent, la façon dont un écosystème parvient à une division du travail et l'intégration de l'effort est une question intéressante. Nous appelons la division du travail et de l'intégration des efforts sous forme d'organisation (Puranam et coll., 2014). Nous postulons qu'un écosystème d'entrepreneuriat numérique sain et productif possède une forme d'organisation relativement stable par laquelle ses parties prenantes peuvent effectivement parvenir à une division du travail et à l'intégration de l'effort, sans plaque tournante ni autorité centrale, alors qu'un écosystème d'entrepreneuriat numérique mal organisé est voué à l'échec.

Contrairement à la pensée traditionnelle sur l'organisation, de nombreuses DEE peuvent organiser divers acteurs sans autorité formelle. Pourtant, les connaissances sur « comment un DEE organiser » est insuffisante, ce qui pose un grand écart de connaissances pour les chercheurs et les praticiens. Différents des organisations traditionnelles, les acteurs d'un DEE ne partagent pas le même objectif et sont libres de prendre des décisions en fonction de leurs propres intérêts, ce qui peut conduire à des conflits plutôt qu'à des collaborations. Par exemple, les acteurs préfèrent peut-être drainer la valeur au sein d'un écosystème pour maximiser leurs propres avantages, plutôt que de la partager avec d'autres acteurs. Par conséquent, les détails des processus d'organisation qui facilitent la coordination et la collaboration interindéterminationnelles méritent d'être explorés (Gulati et coll., 2012).

Ainsi, notre étude vise à analyser un écosystème d'entrepreneuriat numérique pour répondre à la question « comment un écosystème d'entrepreneuriat numérique s'organise-t-il pour soutenir les

innovations numériques ? » Pour répondre à cette question, nous adoptons les formes d'organisation, telles que synthétisées par Puranam et coll. (2014) basées sur des littératures antérieures liées aux formes d'organisation, comme objectif théorique. Malgré les différentes formes d'organisation, ils abordent tous quatre problèmes universels : la division des tâches, l'allocation des tâches, la distribution des récompenses et le flux d'informations. Ces quatre problèmes d'organisation sont synthétisés à partir de la littérature antérieure et ils existent généralement dans de nombreuses formes d'organisation, telles que les réseaux d'innovation, les grappes d'innovation, les écosystèmes et les groupes d'auto-organisation.

Étant donné que les DEE sont différentes des formes traditionnelles d'organisation car elles n'ont pas d'éléments d'organisation traditionnels tels que l'autorité formelle, les solutions à ces quatre problèmes peuvent être différentes et intéressantes à explorer (Puranam et coll., 2014). Ainsi, le processus d'organisation d'un DEE est relativement nouveau et nous pouvons traiter un DEE comme une « nouvelle » forme d'organisation. Cet objectif théorique nous permet d'analyser un DEE en tant qu'organisation plutôt qu'une pure combinaison d'acteurs. Ces problèmes universels d'organisation nous fournissent un cadre opérationnel pour analyser les activités d'organisation dans les DEE.

Nous avons mené une étude de cas sur Zhongguancun (ZGC), un DEE réussi connu sous le nom de Silicon Valley de Chine. En analysant les données recueillies auprès de 51 personnes interrogées à forte hétérogénéité, nous trouvons 8 activités qui contribuent à la forme organisatrice de ce DEE. Notre document a trois contributions importantes. Premièrement, nous contribuons à la documentation sur l'innovation numérique en étendant la recherche du niveau individuel ou organisationnel à un niveau écosystémique (Shen et coll., 2015). Cette analyse au niveau des écosystèmes est importante, car un écosystème d'entrepreneuriat numérique est propice à l'exploitation de l'innovation numérique en agrégeant diverses ressources et en facilitant la collaboration interentrain. Deuxièmement, notre article fait des contributions à la documentation sur la forme organisatrice (Gulati et coll., 2012; Puranam et coll., 2014). Le cadre théorique existant en quatre dimensions prend une perspective ou une perspective lorsqu'il s'agit de choisir entre l'organisation émergente ou descendante. Nos résultats basés sur cet écosystème de l'entrepreneuriat numérique démontrent que ces deux approches ne sont pas contradictoires et peuvent coexister.

CONCLUSION

La collaboration collective a des effets positifs sur l'innovation numérique en raison de la combinaison de ressources hétérogènes. Cela souligne l'importance des écosystèmes d'entrepreneuriat numérique (DEE) pour l'innovation numérique parce que les DEE contiennent des ressources diversifiées et fournissent une plate-forme pour les pratiques qui couvrent les frontières. Toutefois, la compréhension des DEE est encore limitée (Spigel, 2015). D'après nos observations, nous soutenons qu'un DEE n'est pas seulement une combinaison de ressources (Spigel, 2015), mais aussi une nouvelle forme d'organisation (Gulati et coll., 2012; Puranam et coll., 2014). Afin d'atteindre l'objectif au niveau du système, un DEE doit organiser les ressources de manière efficace et efficiente.

Grâce à cette étude de cas, nous dévoilons 8 activités qui composent la forme organisatrice d'un DEE. Ces activités nous donnent un aperçu de l'équilibre entre la conception centralisée et l'émergence décentralisée, ce qui étend les études existantes sur les formes d'organisation qui prennent principalement une perspective ou une perspective. Nos résultats approfondissent notre compréhension des DEE et fournissent des lignes directrices pratiques pour le développement des DEE.

TRANSLATED VERSION: GERMAN

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

ÜBERSETZTE VERSION: DEUTSCH

Hier ist eine ungefähre Übersetzung der oben vorgestellten Ideen. Dies wurde getan, um ein allgemeines Verständnis der in dem Dokument vorgestellten Ideen zu vermitteln. Bitte entschuldigen Sie alle grammatikalischen Fehler und machen Sie die ursprünglichen Autoren nicht für diese Fehler verantwortlich.

EINLEITUNG

Digitale Innovation findet oft außerhalb der Unternehmensgrenzen durch kollektive Zusammenarbeit statt, die die Ressourcengrenzen eines einzelnen Unternehmens überwindet (Adner und Kapoor, 2010). Daher müssen wir digitale Innovationen auf Ökosystemebene behandeln, die eine Plattform bieten könnten, um verschiedene Ressourcen zu aggregieren und eine solche Zusammenarbeit zu erleichtern (Lindgren et al., 2008). In der Praxis haben sich bereits gezeigt, dass digitale Entrepreneurship-Ökosysteme (DEE) Start-ups auf der Grundlage digitaler Innovationen beschleunigen. Ein bekanntes Beispiel ist das Silicon Valley. Viele Regionen, wie London, Berlin, Paris, Tel Aviv in Israel und Singapur, haben ebenfalls damit begonnen, dees aufzubauen, um die lokale Wirtschaft wiederzubeleben (Herrmann et al., 2015; Roth et al. 2015; Yip, 2015).

Digitale Entrepreneurship-Ökosysteme (DEE) spielen als Beschleuniger eine wichtige Rolle bei der Schaffung digitaler Start-ups. Die bestehenden Studien über digitale Innovation konzentrieren sich jedoch hauptsächlich auf die Analyse auf Organisationsebene (Bharadwaj et al., 2013; Sambamurthy et al., 2003; Yoo et al., 2010), während Die Studien auf Ökosystemebene begrenzt sind. Dies behindert unser Verständnis von dees (Shen et al. 2015). Unterdessen ist das Konzept der unternehmerischen Ökosysteme nach wie vor unterentwickelt. Der Begriff Ökosystem ist weit verbreitet, um den Geburtsboom des Unternehmertums zu erklären, aber als theoretisches Konzept ist das unternehmerische Ökosystem unterentwickelt (Spigel, 2015). Aufgrund dieser Lücke hat das Strategic Entrepreneurship Journal (SEJ) 2015 einen Aufruf zu Vorträgen über unternehmerische Ökosysteme veröffentlicht (Autio et al., 2015).

Herkömmliches Denken über Organisationen ist, dass Organisationen eine Grenze beibehalten, innerhalb derer die Transaktionskosten niedriger sind als auf dem freien Markt. Aber was wirklich senkt die Transaktionskosten ist, wenn diese Organisation klare Informationen über die Arbeitsteilung und die Integration der Bemühungen, die beiden grundlegenden Elemente der Organisation (Puranam et al., 2014). Im Vergleich zum offenen Markt scheint ein Ökosystem effizienter zu sein. Einige Wissenschaftler behandeln Ökosysteme als Organisationen (Gulati et al., 2012). Im Gegensatz zu einer traditionellen Organisation fehlt einem Ökosystem jedoch die formale Autorität, die für die Koordinierung erforderlich ist. Daher ist es eine interessante Frage, wie ein Ökosystem eine Arbeitsteilung und die Integration von Anstrengungen erreicht. Wir bezeichnen die Arbeitsteilung und die Integration von Bemühungen als Organisationsformen (Puranam et al., 2014). Wir gehen davon aus, dass ein gesundes und produktives Ökosystem des digitalen Unternehmertums über eine relativ stabile Organisationsform verfügt, in der seine Stakeholder effektiv eine Arbeitsteilung und Integration von Anstrengungen ohne Drehscheibe oder zentrale Behörde erreichen können, während ein schlecht organisiertes Ökosystem des digitalen Unternehmertums zwangsläufig scheitern wird.

Im Gegensatz zu den traditionellen Vorstellungen über die Organisation, können viele dees verschiedene Akteure ohne formale Autorität organisieren. Doch das Wissen darüber, "wie organisiert sich eine DEE" ist unzureichend, was sowohl für Gelehrte als auch für Praktiker eine große Wissenslücke darstellt. Anders als bei traditionellen Organisationen verfolgen Akteure in einer DEE nicht dasselbe Ziel und können Entscheidungen auf der Grundlage ihrer eigenen Interessen treffen, was zu Konflikten und nicht zu Kooperationen führen kann. Beispielsweise können Akteure es vorziehen, den Wert innerhalb eines Ökosystems zu entleeren, um ihre eigenen Vorteile zu maximieren, anstatt ihn mit anderen Akteuren zu teilen. Daher sind die Details der Organisationsprozesse, die die organisationsübergreifende Koordination und Zusammenarbeit erleichtern, eine Erkundung wert (Gulati et al., 2012).

Unsere Studie zielt daher darauf ab, ein digitales Entrepreneurship-Ökosystem zu analysieren, um die Frage zu beantworten: "Wie organisiert sich ein digitales Entrepreneurship-Ökosystem, um digitale Innovationen zu unterstützen?" Um diese Frage zu beantworten, übernehmen wir die Formen der

Organisation, wie sie von Puranam et al. (2014) synthetisiert wurden, basierend auf früherer Literatur, die sich auf die Formen der Organisation bezieht, als theoretische Linse. Trotz der unterschiedlichen Organisationsformen befassen sie sich alle mit vier universellen Problemen: Aufgabenteilung, Aufgabenverteilung, Prämienverteilung und Informationsfluss. Diese vier Organisationsprobleme werden aus der vorherigen Literatur synthetisiert und existieren häufig in vielen Formen der Organisation, wie Innovationsnetzwerke, Innovationscluster, Ökosysteme und selbstorganisierende Gruppen.

Da sich dees von traditionellen Organisationsformen unterscheiden, da es ihnen an traditionellen Organisationselementen wie formaler Autorität mangelt, können die Lösungen für diese vier Probleme unterschiedlich und lohnend erforscht sein (Puranam et al., 2014). So ist der Organisationsprozess eines DEE relativ neu und wir können eine DEE als eine "neue" Form der Organisation behandeln. Diese theoretische Linse ermöglicht es uns, eine DEE als Organisation zu analysieren und nicht als reine Kombination von Akteuren. Diese universellen Probleme der Organisation bieten uns einen operativen Rahmen, um die Organisationsaktivitäten in dees zu analysieren.

Wir führten eine Fallstudie über Zhongguancun (ZGC), eine erfolgreiche DEE bekannt als das Silicon Valley von China. Bei der Analyse von Daten, die von 51 Befragten mit hoher Heterogenität gesammelt wurden, finden wir 8 Aktivitäten, die zur Organisationsform dieses DEE beitragen. Unsere Zeitung enthält drei wichtige Beiträge. Erstens tragen wir zur digitalen Innovationsliteratur bei, indem wir die Forschung von der individuellen oder organisatorischen Ebene auf eine Ökosystemebene ausdehnen (Shen et al. 2015). Diese Analyse auf Ökosystemebene ist wichtig, da ein Ökosystem für digitales Unternehmertum der Nutzung digitaler Innovationen förderlich ist, indem es verschiedene Ressourcen aggregiert und die zusammenarbeitende Zusammenarbeit zwischen Unternehmen erleichtert. Zweitens leistet unsere Zeitung Beiträge zur Organisationsform Literatur (Gulati et al., 2012; Puranam et al., 2014). Das bestehende vierdimensionige theoretische Framework nimmt eine Entweder-oder-Perspektive ein, wenn es darum geht, zwischen emergentoder oder top-down-Organisation zu wählen. Unsere Erkenntnisse, die auf diesem digitalen Ökosystem für Unternehmerische basieren, zeigen, dass diese beiden Ansätze nicht widersprüchlich sind und nebeneinander existieren können.

SCHLUSSFOLGERUNG

Die kollektive Zusammenarbeit wirkt sich durch die Kombination heterogener Ressourcen positiv auf die digitale Innovation aus. Dies unterstreicht die Bedeutung digitaler Entrepreneurship-Ökosysteme (dees) für digitale Innovationen, da dees diversifizierte Ressourcen enthält und eine Plattform für grenzüberschreitende Praktiken bietet. Das Verständnis von dees ist jedoch nach wie vor begrenzt (Spigel, 2015). Aus unseren Beobachtungen argumentieren wir, dass ein DEE nicht nur eine Kombination von Ressourcen ist (Spigel, 2015), sondern auch eine neue Form der Organisation (Gulati et al., 2012; Puranam et al., 2014). Um das Ziel auf Systemebene zu erreichen, muss ein DEE Ressourcen effizient und effektiv organisieren.

In dieser Fallstudie enthüllen wir 8 Aktivitäten, die die Organisationsform eines DEE bilden. Diese Aktivitäten geben uns einen Einblick in das Gleichgewicht von zentralisiertem Design und de-zentralisierter Entstehung, die die bestehenden Studien über Organisationsformen erweitert, die hauptsächlich eine Entweder-oder-Perspektive einnehmen. Unsere Ergebnisse vertiefen unser Verständnis von dees und liefern praktische Leitlinien für die Entwicklung von dees.

TRANSLATED VERSION: PORTUGUESE

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSÃO TRADUZIDA: PORTUGUÊS

Aqui está uma tradução aproximada das ideias acima apresentadas. Isto foi feito para dar uma compreensão geral das ideias apresentadas no documento. Por favor, desculpe todos os erros gramaticais e não responsacule os autores originais responsáveis por estes erros.

INTRODUÇÃO

A inovação digital muitas vezes ocorre fora do limite das empresas por meio da colaboração coletiva, o que supera as limitações de recursos de uma única empresa (Adner e Kapoor, 2010). Assim, precisamos tratar as inovações digitais no nível do ecossistema, o que poderia fornecer uma plataforma para agregar vários recursos e facilitar essa colaboração (Lindgren et al., 2008). Na prática, os ecossistemas de empreendedorismo digital (DEE) já se mostraram para acelerar as startups baseadas em inovações digitais. Um exemplo bem conhecido é o Vale do Silício. Muitas regiões, como Londres, Berlim, Paris, Tel Aviv em Israel e Cingapura, também começaram a construir dees para reviver economias locais (Herrmann et al., 2015; Roth et al. 2015; Yip, 2015).

Os ecossistemas de empreendedorismo digital (DEE) desempenham um papel importante como aceleradores para a criação de start-ups digitais. No entanto, estudos já recentes sobre inovação digital focam principalmente na análise em nível de organização (Bharadwaj et al., 2013; Sambamurthy et al., 2003; Yoo et al., 2010), enquanto os estudos no nível do ecossistema são limitados. Isso dificulta nossa compreensão das dees (Shen et al. 2015). Enquanto isso, o conceito de ecossistemas empreendedores permanece subdesenvolvido. O termo ecossistema é amplamente utilizado para explicar o boom de nascimento do empreendedorismo, mas como conceito teórico, o ecossistema empreendedor é subdesenvolvido (Spigel, 2015). Devido a essa lacuna, a Revista Estratégica de Empreendedorismo (SEJ), lançou um edital sobre os ecossistemas empreendedores em 2015 (Autio et al., 2015).

O pensamento tradicional sobre as organizações é que as organizações mantêm um limite, dentro do qual o custo da transação é menor do que no mercado aberto. Mas o que realmente reduz o custo da transação é que se essa organização tem informações claras sobre a divisão do trabalho e a integração dos esforços, os dois elementos fundamentais da organização (Puranam et al., 2014). Em comparação com o mercado aberto, um ecossistema parece ser mais eficiente. Alguns estudiosos tratam os ecossistemas como organizações (Gulati et al., 2012). Ao contrário de uma organização tradicional, no entanto, um ecossistema não tem a autoridade formal necessária para a coordenação. Portanto, como um ecossistema alcança uma divisão do trabalho e integração do esforço é uma questão interessante. Referimo-nos à divisão do trabalho e integração dos esforços como formas organizadoras (Puranam et al., 2014). Afirmamos que um ecossistema de empreendedorismo digital saudável e produtivo possui uma forma de organização relativamente estável pela qual seus stakeholders podem efetivamente alcançar uma divisão de trabalho e integração de esforços, sem um hub ou uma autoridade central, enquanto um ecossistema de empreendedorismo digital mal organizado está fadado a falhar.

Ao contrário do pensamento tradicional sobre a organização, muitos dees podem organizar vários atores sem autoridade formal. No entanto, o conhecimento sobre "como um DEE se organiza" é inadequado, representando uma grande lacuna de conhecimento tanto para estudiosos quanto para os praticantes. Diferente das organizações tradicionais, os atores do DEE não compartilham o mesmo objetivo e são livres para tomar decisões baseadas em seus próprios interesses, o que pode levar a conflitos em vez de colaborações. Por exemplo, os atores podem preferir drenar o valor dentro de um ecossistema para maximizar seus próprios benefícios, em vez de compartilhá-lo com outros atores. Portanto, vale a pena explorar os detalhes dos processos de organização que facilitam a coordenação interorganizacional e a colaboração (Gulati et al., 2012).

Assim, nosso estudo tem como objetivo analisar um ecossistema de empreendedorismo digital para responder à questão de "como um ecossistema de empreendedorismo digital se organiza para apoiar inovações digitais?" Para responder a essa pergunta, adotamos as formas de organização, sintetizadas por Puranam et al. (2014) a partir da literatura prévia relacionada às formas de organização, como lente teórica. Apesar das diferentes formas de organização, todos eles abordam quatro problemas universais: divisão de tarefas, alocação de tarefas, distribuição de recompensas e fluxo de informações. Esses quatro problemas

de organização são sintetizados a partir da literatura anterior e comumente existem em muitas formas de organização, como redes de inovação, clusters de inovação, ecossistemas e grupos auto-organizados.

Uma vez que as dees são diferentes das formas tradicionais de organização, pois não possuem elementos organizadores tradicionais, como a autoridade formal, as soluções para esses quatro problemas podem ser diferentes e valiosas explorações (Puranam et al., 2014). Assim, o processo de organização de um DEE é relativamente novo e podemos tratar um DEE como uma "nova" forma de organização. Essa lente teórica nos permite analisar um DEE como uma organização em vez de uma combinação pura de atores. Esses problemas universais de organização nos proporcionam uma estrutura operacional para analisar as atividades de organização em dees.

Realizamos um estudo de caso sobre Zhongguancun (ZGC), um DEE bem sucedido conhecido como o Vale do Silício da China. Analisando dados coletados de 51 entrevistados com alta heterogeneidade, encontramos 8 atividades que contribuem para a forma organizadora deste DEE. Nosso trabalho tem três contribuições importantes. Em primeiro lugar, contribuímos para a literatura de inovação digital, estendendo a pesquisa do nível individual ou organizacional para um nível ecossistêmico (Shen et al. 2015). Essa análise de nível de ecossistema é importante, pois um ecossistema de empreendedorismo digital é propício à exploração da inovação digital, agregando diversos recursos e facilitando a colaboração entre empresas. Em segundo lugar, nosso artigo contribui para a literatura de forma organizadora (Gulati et al., 2012; Puranam et al., 2014). A estrutura teórica de quatro dimensões existente requer uma ou perspectiva quando se trata de escolher entre organização emergente ou de cima para baixo. Nossos achados baseados nesse ecossistema de empreendedorismo digital demonstram que essas duas abordagens não são contraditórias e podem coexistir.

CONCLUSÃO

A colaboração coletiva tem efeitos positivos na inovação digital devido à combinação de recursos heterogêneos. Isso destaca a importância dos ecossistemas de empreendedorismo digital (dees) para a inovação digital, pois as dees contêm recursos diversificados e fornecem uma plataforma para práticas de abrangência de limites. No entanto, o entendimento das dees ainda é limitado (Spigel, 2015). A partir de nossas observações, argumentamos que um DEE não é apenas uma combinação de recursos (Spigel, 2015), mas também uma nova forma de organização (Gulati et al., 2012; Puranam et al., 2014). Para alcançar a meta de nível de sistema, um DEE tem que organizar recursos de forma eficiente e eficaz.

Através deste estudo de caso, revelamos 8 atividades que compõem a forma organizadora de um DEE. Essas atividades nos dão algumas informações sobre o equilíbrio do design centralizado e do surgimento descentralizado, que amplia os estudos existentes sobre formas de organização que tomam principalmente uma ou outra perspectiva. Nossas descobertas aprofundam nossa compreensão dos dees e fornecem diretrizes práticas para o desenvolvimento de dees.