ANALYSIS OF KNOWLEDGE MANAGEMENT IN STARTUPS

FABIO LOTTI OLIVA

University of São Paulo, School of Economics, Administration and Accounting, Brazil
E-mail: fabiousp@usp.br

Abstract - In general, companies are impacted by the constant search for innovation in products to be offered to customers, as well as for innovation in production processes, for innovation in management practices and for innovation in business practices. In this context, knowledge management proves to be a suitable tool to promote agile management in face of new demands. Startups with their organizational agility seem to best reflect this dynamic ability to invent and reinvent themselves. The conceptual basis of the research focused on the triad: Agile Organization, Dynamic Capabilities and Knowledge Management. Based on the theoretical review, on the documentary research and on the result of interviews with experts, a quantitative research was carried out with startups of the leading coworking spaces of São Paulo city. With analyzes' results it was possible to present the main barriers, practices, methods and knowledge management tools in startups. It is expected that the research results presented in detail can illustrate concrete examples of practices, methods, and knowledge management tools for startups and for large established companies that seek for the notorious startups' organizational agility.

Keywords - Agile Organization, Dynamic Capabilities, Knowledge Management, Startups, CoworkingSpaces, Barriers, Practices, Methods and Knowledge Management Tools.

I. INTRODUCTION

Business environment has become increasingly more complex, volatile, uncertain and ambiguous. Innovation on the one hand is the remedy for the company to operate in this environment and on the other hand it can be the poison when competitors or other agents use such innovation without the company's consent. Large companies seek to create their innovation research centers, create partnerships with customers and other agents for innovation, and create partnerships with external knowledge generation centers to raise their innovative potential. Due to the innovation high costs, as well as the extended deadlines for solution development and the search for diversity in meeting the market new demands, companies have been currently looking for solutions in the shared and disruptive environment of startups (Bower and Christensen, 1995; Chesbrough, 2003; Oliva et al., 2011; Christensen, Raynor and McDonald, 2015; Yoon and Hughes, 2016; Spender et al., 2017). The agile organization combines a number of planning, organization, execution and control practices aiming at having always an action or reaction as quickly as possible to meet the business environment demands so as to achieve its strategic objectives that can likewise change with the environment dynamism. The agile organization is first and foremost, an organizational state of mind, that is, the formal and informal organizational culture working in favor of the agile management philosophy (Teece, Pisano and Shuen, A., 1997; Teece, 2007). In this sense, the organization that wants to be agile, should develop skills that lead it to obtaining the characteristics of an agile organization. Among these characteristics, it stands out the most important ones: constant and extensive reading of the business environment, planning and execution in continuous joint participation, agility in the resources composition, and control aiming at the changes. Thus, the concept of dynamic capabilities are organizational capabilities that enable the organization to respond quickly and continuously to demands for changes in the market (Weber and Tarba, 2014; Teece, Peteraf, and Leih, 2016). Considering this business context, it is understood that knowledge management is an organizational practice in line with the new concepts of agile organization and organizations with dynamic capabilities. Knowledge management is an organizational discipline that aims to acquire, transform, store, use and discard the important knowledge in the organization's value creation (Teece, 2007; Easterby-Smith and Prieto, 2008; Oliva, 2014; Cegarra-Navarro, Soto-Acosta and Wensley, 2016). Considering the above, the objective of the research is to identify the barriers, practices, methods and tools adopted in knowledge management by the startups.

II. METHODOLOGY

According to the research objective, to identify the barriers, practices, methods and tools adopted in knowledge management by the startups, it was chosen to develop the research in the following phases: (1) bibliographic research, (2) documentary research, (3) research with experts, (4) research with startups. The bibliographic research focused on the triad Agile Organization, Dynamic Capabilities and Knowledge Management. Regarding the Agile Organization, it was sought to identify the characteristics of agile organizations and their relationship with knowledge management. Likewise, the dynamic capabilities and their relationship with knowledge management were characterized. Finally, with regard to knowledge management, it was sought

to find in the literature the barriers and the practices of knowledge management in agile organizations.

Documentary research was based on relevant publications from the startups' environment. It was sought texts from the main organizations that encourage the creation and development of startups: coworking spaces, accelerators, journals, associations and government institutions. The objective was to carry out the research together with experts in order to identify the main barriers, practices, methods and tools of knowledge management to format the research instrument with startups. Interviews were conducted with 4 startup experts: startup founder, consultant and expert on exponential technologies, professor of courses aimed at startups and director of an accelerator. In possession of the developed questionnaire based on the literature and the experts' responses, it was carried out a field research with the startup companies of the main coworking spaces of São Paulo. It was sought to interview the founders, co-founders, CEOs, CTOs, directors or major startup managers. The application of the questionnaire was done with all the participants together and in person. This practice allows more effective data collection, since the interviewer can resolve the doubts more easily and his/her presence reduces the number of incomplete questionnaires, prevents the respondent from being of unwanted profile, thereby raising the information quality.

III. ANALYSIS OF RESULTS

The analysis of the data obtained through the research with the startups, based on the information obtained by the documentary research, research with experts, with startups and supported by the conceptual basis proposed in the bibliographic research. In the subitems below it is presented the barriers to organizational knowledge management, the main practices adopted in the organizational knowledge management, the main methods and tools applied in the organizational knowledge management.

3.1. Barriers to Knowledge Management

Based on the information obtained through the interviews with the startups, it was identified the main barriers in knowledge management. In this interview, it was asked about the importance of barriers stemming from the organization, from the people and from the business environment for each stage of the knowledge management process: defining, acquiring, disseminating, storing, applying and assessing the knowledge in their startups. Based on the 102 valid questionnaires, the five main barriers found are presented, starting from the most important barriers in startups knowledge management:

1. Lack of resources for the startup to assess the knowledge use;
2. Lack of resources of the startup for the knowledge acquisition;
3. Pressure for results in a short period of time hinders the knowledge dissemination in someone's startup;
4. Resistance to documentation hinders the knowledge storage in someone's startup;
5. Commitment only with the current time - here and now - prevents the assessment of the knowledge use in someone's startup.

3.2. Practices Adopted in Knowledge Management

Based on the information obtained in the interviews with the startups it was identified the main practices in knowledge management. This interview asked about the importance of practices for each stage of the knowledge management process: defining, acquiring, disseminating, storing, applying and assessing the knowledge in someone's startup. Based on the 102 valid questionnaires, the five main practices found in knowledge management in startups ordered from the practice of utmost importance:

1. Internal Meetings: team meetings, brainstorming sessions, backlog with teams;
2. Internal Meetings: team meetings, in-house seminars, weekly talk;
3. Assessments of Market or Experts: prototyping and pitches;
4. Validation with Clients "listen to consumers";
5. Consultation with Mentors.

3.3. Methods and Tools Adopted in Knowledge Management

Based on information obtained in interviews with the startups, it was identified the main methods and tools for knowledge management. In this interview it was asked about the importance of methods and tools for each step of the knowledge management process: defining, acquiring, disseminating, storing, applying and assessing the knowledge in their startup. Based on the 102 valid questionnaires, the five main methods and tools found ordered from the practice of utmost importance in knowledge management at startups:

1. Tools for Project Management and Storage: trello, asana, g-drive, dropbox, evernote, jira, slite.com, microsoft office;
2. Search Sites and Content Sites: google, gartner, blogs from the area, social media, tech-crounch, slack groups;
3. Tools for Project Management and Storage: slack, asana, dropbox, trello, clickup;
4. Experimentation and Prototyping;
5. Development Methods: design thinking, Lean Kanbam, 5W2H, Job to be done, reverse engineering, 5 “whys”.

CONCLUSIONS

The present study aimed to present the barriers, practices, methods and tools of knowledge

management used by startups to develop this transformation role. Startups that are characterized by the innovation conception, by the proposition of a transforming solution of a problem, and by the scalability that is configured in the broad offer for society, are agile organizations that generate knowledge and are dependent on knowledge to play their role of transformation. In general, the literature on knowledge management focuses on the knowledge production that is invariably focused on average and large organizations, due to the natural realization that they are more likely to support a structured process for knowledge management. However, with the gradual participation of individual entrepreneurship or small businesses, such as the current startups, in the process of open innovation to meet the society demands for changes in a complex, volatile, uncertain and ambiguous business environment, it is observed a more consistent and integrated academic production about agile organizations, dynamic capabilities, and knowledge management for entrepreneurial organizations. Specifically, this research contributes to the presentation of the main barriers, practices, methods and tools of startups in conducting the knowledge management for efficiency and the effectiveness of their administrative processes. Considering the limitations of any research, in particular, this research was limited to reading the reality of the startups in São Paulo city only. Even though São Paulo is economically the largest city in Brazil, which strengthens the relevance of the study, it is necessary to emphasize the prudence in understanding the results in a particular way to a reality equivalent to large economic centers. Intellectual claim for future studies is to expand the population studied over periods of time for comparison and assessment of the barriers, practices, methods and knowledge management tools in agile organizations.

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