

The effects of business accelerators in new ventures' dynamic capabilities

Celia Polo García-Ochoa

PhD candidate in Business Administration and Economics. University of Rey Juan Carlos. Spain. ORCID: [0000-0002-7251-5391](https://orcid.org/0000-0002-7251-5391).

Carmen De-Pablos-Heredero

Professor of Information Systems and Business Organization. University of Rey Juan Carlos. Spain. ORCID: [0000-0003-0457-3730](https://orcid.org/0000-0003-0457-3730).

Francisco Blanco Jiménez

Professor of Economics. University of Rey Juan Carlos. Spain. ORCID: [0000-0002-6908-3946](https://orcid.org/0000-0002-6908-3946).

celiapolog@gmail.com, carmen.depablos@urjc.es, francisco.blanco@urjc.es

Received: May 23, 2020

Accepted: January 4, 2021

Published: April 26, 2021

Abstract

Business accelerators provide entrepreneurs with a combination of capital and specific support resources to help them grow rapidly and scale their business idea. Despite their rapid emergence as key role players in the entrepreneurial ecosystem, research is still scant about their impact in new ventures development. This paper examines the effects of business accelerators based on the achievement of positive results from the dynamic capabilities perspective. Specifically, a qualitative and descriptive approach of Y Combinator's business accelerator methodology has been applied. The analysis shows how Y Combinator contributes to the generation of dynamic capabilities in companies through the implementation of specific actions and resources embedded in its business acceleration program. Findings reveal that business accelerator stimulates dynamic capabilities of portfolio firms. It can help them to gain competitive advantage and superior performance in the market compared to companies that do not participate in an acceleration program.

Key words

Dynamic capabilities; business accelerator; startups; new venture creation; business incubation

How to cite this article

Polo García Ochoa, C., De-Pablos-Heredero, C., & Blanco Jiménez, F. (2021). The effects of business accelerators in new ventures' dynamic capabilities. *Harvard Deusto Business Research*, X(1), 127-145. <https://doi.org/10.48132/hdbr.339>

1. Introduction

Young innovative firms are essential to any economy as they are key drivers of economic development, job creation, innovation and productivity growth (Block, Colombo, Cumming, & Vismara, 2018; Isenberg, 2010). They are core to the process of creative destruction; they exert competitive pressure on current businesses by renovating markets and driving improvements in productivity and prosperity (Clarysse, Wright, & Hove, 2015).

Despite these positive effects, they face several constraints (Battistella, De Toni, & Pessot, 2017) such as limited routines, resources and legitimacy (Alexander, Johan, & Jeremy, 2007) which limit their growth and threaten their survival (Liao, Kickul, & Ma, 2009). The development of dynamic capabilities is key for overcoming such limitations (Baker & Nelson, 2005; Paradkar, Knight, & Hansen, 2015). This is especially true for startups as they face dynamic business environments (Liao et al., 2009). Zahra et al. (2006) suggest that new firms should use dynamic capabilities to maximize their goals. Macpherson et al. (2004) distinguish dynamic capabilities as a crucial antecedent to innovation and growth in a new, small and rapidly growing technology-based firm. Therefore, the dynamic capabilities (Teece et al., 1997) offer a valuable perspective by which to analyze a new firm formation process (Newbert, 2005).

There are a small number of studies that have examined the dynamic capabilities in emerging ventures (Alexander et al., 2007; Baker & Nelson, 2005; Corner & Wu, 2012; Jones, Macpherso & Jayawarna, 2014; Paradkar et al., 2015; Salunke, Weerawardena, & Mccoll-kennedy, 2011). This is in line with recent calls for more research on the dynamic capabilities in new ventures and in the processes whereby these important capabilities are generated (Newbert, 2005; Zahra et al., 2006).

In this paper, the term startups interchangeably with new ventures is used and these are defined as "organizations established in an uncertain and volatile environment with the intent to bring a new opportunity to the marketplace" (Hoffman & Radojevich-kelley, 2012:54).

The development of dynamic capabilities implies accessing the necessary knowledge and information to achieve the entrepreneur's goals (Jones, Macpherson, & Jayawarna, 2013). Also, most young firms are particularly dependent on external resources because of their relatively limited organizational and technological resources. These firms present a lopsided knowledge base, few capabilities and a limited capacity to develop them (Debrulle, 2012). This means that new firms will need to search both outside and inside the firm's boundaries for knowledge,

resources and capabilities, which they must acquire, appropriate and integrate into the venture (Jones et al., 2013).

In this regard, both business incubators and accelerators have been acknowledged by policymakers, private investors, corporations, as well academics, as effective ways to support the creation of new firms and deal with their needs in their early stages (Pauwels, Clarysse, Wright, & Van Hove, 2016; Yang, Kher, & Lyons, 2018). In spite of the relatively long tradition of business incubators around the world, they have been criticized over the years for the little or no effect of incubation on the success of firms (Scillitoe & Chakrabarti, 2010), for their lack of clear selection criteria and exit policies and their reliance on public funding in order to be sustainable (Bruneel, Ratinho, Clarysse, & Groen, 2012b). On the other hand, given the extensive research on incubators (Bergek & Norman, 2008; Dilts & Hackett, 2004), there is limited literature on accelerators (Pauwels et al., 2016)

Recent empirical studies have reported evidence on the positive effect of accelerators on venture development (Battistella et al., 2017; Fedher & Hochberg, 2014; Smith, Hannigan, & Gasiorowski, 2017), but there is a big variance between what particular practices or structures facilitate these effects and no consensus has been reached regarding this matter (Hallen, Cohen, & Bingham, 2016). In fact, as Smith and Hannigan (2015:2) affirm: “scholars understand relatively little about how accelerators might shape the trajectories of new startups”.

We define business accelerators as coordination mechanisms which provide startups distinct services guided by a specific methodology that can help them generate dynamic capabilities and gain competitive advantages and a superior market performance compared to companies that do not participate in an accelerator program.

Thus, our research aims to further investigate the lack of understanding in the process of generating dynamic capabilities within new ventures and in the effects of business accelerators in startups by addressing the following research question: To what extent do business accelerator programs influence the development of dynamic capabilities of the startups they impulse?

For this purpose, the practices and tools of Y Combinator, one of the most referenced accelerators (Hathaway, 2016) were explored through dynamic capabilities approach and their implications on the startups' trajectories were identified.

This paper is the first to analyze and link the literature on accelerators, startups and dynamic capabilities. By doing so, we aim to contribute to the existing literature by understanding the underlying role and effects of the business accelerators in the development of new firm's dynamic capabilities and how they particularly create value for them. Our findings can be useful to scholars, policy makers and accelerator founders by developing a guide to improve their decision process and allocate resources better.

2. What an accelerator is: definition and features

Recent years have experienced the emergence of accelerators (sometimes called seed or startup accelerators) as new entities within the entrepreneurial landscape (Cohen, 2013; Pandey, Lall, Pandey, & Ahlawat, 2017).

It appeared as a consequence of the limitations of previous generation incubation models, advances in technology and new business philosophy (Bruneel et al., 2012b; Dempwolf, Auer, & D'Ippolito, 2014; Fedher & Hochberg, 2014; Hochberg, 2016; Miller & Bound, 2011).

The world's first Accelerator, Y Combinator, was founded in 2005 in Cambridge Massachusetts by Paul Graham, a successful entrepreneur and Jessica Livingston, a marketer, but quickly it was established in Silicon Valley (Miller & Bound, 2011). The idea was to invest small amounts of money in a cohort of early-stage firms and to support them during a three-month intensive program with the hope of long-term investment gains (Y combinator, 2018). In 2006, just a year later, one of the first portfolio firms, Reddit, was acquired by Condé Nast for a reported USD10-20M. This fact seemed to prove the validity of the accelerator model (Heinemann, 2015). In 2007, David Cohen, an entrepreneur, and Brad Feld, a venture capitalist, and entrepreneur inspired by Y Combinator founded TechStars in Boulder, Colorado (Hallen, Bingham, & Cohen, 2017). Since then, these two accelerators have become widely and quickly imitated worldwide by corporations, universities, governments, and investors as a highly effective approach to business generation (Fowle & Tyne, 2017). In 2009 there were five accelerators (Christiansen, 2009). That number dramatically increased to more than two thousand all around the world at present: F6S manages a database of 1052 accelerators (F6S, 2018), and Crunchbase includes more than 2054 accelerator programs in 2018 (Crunchbase, 2018).

There is no agreement on the universal definition that describes accelerators (Fowle & Tyne, 2017), but the basic idea behind it has stayed untouched (Heinemann, 2015). Based on the first researches (Cohen, 2013; Cohen & Hochberg, 2014; Miller & Bound, 2011), Fowle and Tyne (2017) and Heinemann (2015) extended the concept and defined an accelerator as an entity with the following features:

Fixed duration program (usually between 3 and 12 months)

1. Typically, growth-based (payment via equity rather than fees).
2. Often provide seed funding.
3. Cohort-based entry and exit.
4. A structured program which includes mentorship, entrepreneurial training, and networking opportunities.
5. Highly selective.

Many, but not all the accelerators, provide seed funding or stipend (USD 26 thousand on average, ranging from 0 to USD 150 thousand). The retribution is a non-controlling amount of equity participation (typically 5-7%) (Hochberg, 2016). Therefore, the main accelerators revenue source of income is actually equity gains generated by startups performance, thus implying a growth-

driven perspective, aiming to build companies that scale rapidly or fail fast in order to minimize wasted resources and achieve a positive exit (Cohen & Hochberg, 2014).

Nevertheless, there are accelerators which are only partially interested in financial returns or lack of ownership of the startups (Weiblen & Chesbrough, 2015), but expect non-monetary accelerator's benefits or goals such as innovation, marketing, corporate social responsibility (CSR) or public objectives (Heinemann, 2015). As a result, the goal achievement of accelerators is to link the quality of the startups it selects (Yin & Luo, 2018). Thus, accelerators are highly selective in choosing their participants (Hoffman & Radojevich-Kelley, 2012)

So far, literature has shown that accelerator programs present time limits, usually from 3 to 12 months (Heinemann, 2015). This short time frame is partly linked to the decrease in time and costs it takes to launch ICT-related firms (Christiansen, 2009; Miller & Bound, 2011). The establishment of timelines and strict graduation dates create a high-pressure environment that will stimulate rapid progress and avoid codependency in relationships between startups and accelerators (Cohen, 2013; Miller & Bound, 2011). To foster a sense of urgency within startups is vital for new businesses creation as it speeds up the development cycles of new ventures and forces them to test and validate their ideas fast, leading to quicker growth or failure (Fowle & Tyne, 2017; Heinemann, 2015; Kohler, 2016). Moreover, the process of speed brings efficiency to the market and also maximizes the profit of the program by reducing the amount of support that the startup needs from the accelerator (Heinemann, 2015).

According to the literature, the cohort-based approach is a distinctive feature of accelerators (Heinemann, 2015). Startups enter and exit an accelerator together in batches or cohorts. This model enables firms to interact with their peers encouraging learning among them, while also competing for scarce resources such as attention and follow-on investment funding (Smith et al., 2017). The latter generates very strong relationships between peers (Cohen, 2013), and events tend to be more relevant and make a more significant impact (Heinemann, 2015).

All accelerators include an intense and immersive education and mentorship programs aimed to accelerate the life cycle of their startups' portfolio. In such programs, they compress years' worth of learning-by-doing into a few months (Hathaway, 2016). The learning experience is achieved by well-planned programs that include frequent contact with mentors, entrepreneurial training and networking opportunities (Pauwels et al., 2016). Mentors are experienced entrepreneurs, investors, or other relevant professionals who are carefully selected by accelerators in order to provide advice and feedback to the startups along the duration of the program (Hoffman & Radojevich-Kelley, 2012). Although there are differences in how this mentorship is structured across accelerators, mentorship is a cornerstone of any accelerator (Cohen, 2013). Good mentoring is what makes the difference between failure and success (Rhett, 2014). In addition, an accelerator program often includes entrepreneurial training which covers a variety of topics such as legal and tax, finance, marketing, management and pitch.

Besides to the networking opportunities with both peer ventures and mentors, most accelerators offer the possibility to their ventures to contact program graduates, venture capitalist, and angel

investors planning events and promoting constant interactions (Kohler, 2016). Moreover, regular monitoring of the cohort is conducted by program directors in individual private meetings or check-ins with other ventures in the same cohort.

Finally, the accelerator 's experience often culminates in a public pitch event or "demo day" where founders pitch their business to investors and potential customers followed by formal and informal networking opportunities (Cohen, 2013; Pauwels et al., 2016).

Taking the literature above, an accelerator can be defined as a fixed-term, cohort-based, learning-oriented program aimed to assist new digital ventures early in their lifecycle by providing mentoring, education, networking opportunities and connections to potential investors in order to help them to grow fast and scale their business ideas (Hallen et al., 2017).

Accelerators are not primarily intended to provide inexpensive office space and in-house business support over a long period as other business incubation models (Bruneel, Ratinho, Clarysse, & Groen, 2012a). They focus on intangible resources from very early stages. This shift towards a focus on intangible knowledge business services highlights the importance of this kind of services to help startups (Chen, Lin, & Chang, 2009).

Table 1

Principal features of business accelerators

Assistance	3-12 months
Selection process	Highly competitive
Education	Well-structured program
Mentorship	Intense
Investment	Equity free/ No controlling participation
Venture location	On site

Source: Adapted from Bruneel et al., (2012), Cohen (2013) and Pauwels et al., (2016)

Primarily, an accelerator provides a way to cope with a mix of necessities that entrepreneurs find difficult to cover by themselves (Hochberg, 2016). Furthermore, an accelerator can be a mechanism by which, new ventures learn and test their business ideas. The latter is due to a combination of financial and knowledge resources, structured in a specific program that provides them the best chance for high growth and accelerating the speed for reaching key milestones.

3. How an accelerator works: The process of business acceleration

Early evidence demonstrates the positive effects of accelerators on the startups' outcomes they work with (Fedher & Hochberg, 2014; Hallen et al., 2017; Smith et al., 2017). However, when measuring these positive effects, they are not equally distributed among all programs, meaning that depending on the accelerator, the quality of the impact on the startups varies widely (Hathaway, 2016).

There is widespread agreement that Y Combinator is a referenced accelerator inspired by multiple other programs to copy its acceleration model (Smith & Hannigan, 2015b). In comparison to other accelerators, Y Combinator (YC), the pioneer of the accelerator's model, has been successful and is always ranked as a top accelerator (Gruber, 2011, 2012; Hochberg, Cohen & Feher, 2015, 2016, 2017).

Since its foundation in 2005, YC has sponsored over 1500 companies with a combined valuation above USD 85 billion including billion-dollar companies such as Dropbox, Airbnb, Stripe, Twitch, and Reddit (Y combinator, 2018). Due to these results, YC is considered one of the most established accelerators becoming a relatively senior model (Smith & Hannigan, 2015). All these reasons suggest that YC is an optimal benchmark for the identification of a successful acceleration process.

Due to the reduced number of available literature review on this specific topic, it was necessary to rely on secondary sources including online articles and online interviews with experts in order to understand processes held by YC. Once the batch is selected and invested (150K in exchange of 7% of equity) by YC, the acceleration program starts. YC provides start-ups with the necessary help to grow rapidly into the best shape possible in three months to raise money on a larger scale. YC's Partners work intensively with founders performing 1-1 meetings in order to solve problems and doubts (related to better shaping the product, raising money, the company itself). Also, founders have "Group Office Hours", they can meet partners and other founders and talk about the challenges or problems they are having as well as to report their progresses. YC hosts a dinner once a week and a talk with an eminent person from the startup world (startup founders, venture capitalists, journalists and executives from well-known technology companies) who ends up advising founders or investing in their companies. Moreover, YC facilitates different types of events or tools in order to promote the ability to learn with and/or from peers of the same batch and alumni. YC's startups have access to a large YC community which allows founders to benefit from the connections with YC stakeholders (deals with technology companies, contact with specific communities). Close to the end of each batch, YC hosts a Demo Day where startups present their products or services to investors and press. After Demo Day, founders have 1-1 meetings with investors who are interested in their companies. Unlike other accelerators, YC does not provide office, the cohorts work in their own locations, but they are required to attend in person all the events or meetings taking place during the program.

Following recent papers which link the dynamic capabilities of sensing the market, absorption, integration, and innovation to business superior performance (Bastanchury-López, M. T., De-Pablos-Heredero, C., García-Martínez, A. R., & Martín-Romo-Romero, S, 2019; De-Pablos-

Hereadero, Fernandez-Valero & Blanco-Callejo, 2017; De-Pablos-Hereadero & Blanco-Callejo, 2019), we propose that the YC mix of resources and services embedded in specific routines present above results in the generation of these dynamic capabilities in their startups portfolio.

In this study, the capability of sensing the market refers to the firm's ability to identify and assess opportunities (Teece, 2012). Absorption capacity is showed as the ability of a firm to acquire new knowledge, transform it into firm-embedded knowledge and use it for organizational advantage (Lane & Lubatkin, 1998; Lumpkin & Katz, 2007; Zahra & George, 2002). Integration capability is related to the firm's ability to recombining both existing resources and those obtained to revamp routines and practices (Pavlou & El Sawy, 2011) and finally innovation capability refers to the firm's ability "to develop new products and/or markets, through aligning innovative strategic orientation with innovative behaviors and processes" (Wang & Ahmed, 2007:16).

4. The value of an accelerator regarding dynamic capabilities generation

After the literature review about business incubators (i.e Cohen, 2013; Kohler, 2016; Pauwels et al., 2016) and dynamic capabilities (i.e Pavlou & El Sawy, 2011; Teece, 2007; Zahra & George, 2002) together with the information obtained from the in-depth analysis of the available data about YC (i.e Barrehag et al., 2012; Stross, 2012; Y combinator, 2018), we identify certain practices deployed by YC as startups' dynamic capabilities drivers.

The following subset of capabilities are generated during YC program, allowing YC startups to create new products and processes and to respond to changing market circumstances.

4.1 Sensing the market capability

Not all the opportunities are viable (Song, Podoyntsyna, Van Der Bij, & Halman, 2008) so, being able to identify and select the right ones for new businesses is among the most important abilities of a successful entrepreneur (Ardichvili, Cardozo, & Ray, 2003). When an opportunity shows up, entrepreneurs are expected to figure out how to interpret new events and developments, which technologies to pursue, and which market segments to target (Teece, 2007). This situation causes the need for being continuously probing markets and listening to customers in order to understand latent demand, as well as the evolution of industries and markets, and the supplier and competitor responses (Leih, Linden, & Teece, 2014).

Acceleration programs include an initial phase (or discovery phase) in which teams are focused on refining their business opportunities to match what the startup has to offer and what the environment dictates (Kohler, 2016; Liao et al., 2009). Then, the teams are expected to work intensively with their ideas spending considerable time with potential customers with the purpose of validate the market acceptance for their products or services (Barrehag et al., 2012; Kohler, 2016). Thus, knowing and understanding customer needs is at the center of a successful business

(Ries, 2013) and the firm's attitude towards them becomes crucial (Landroque, Castro, & Cepeda-Carrión, 2011){Formatting Citation}.

Putting organizational mechanisms in place in order to gather new information, monitor customer needs, and competitor activity in order to shape new opportunities, strengthen the dynamic capability of sensing the market (Teece, 2007), which is what YC startups develop during the YC cycle.

YC encourages their startups to work intensively with their ideas to bring them to their potential customers as soon as possible (Barrehag et al., 2012) in order to solve the market uncertainty they face (Harms, Marinakis, & Walsh, 2015). YC advises its founders to "launch fast and iterate" (Fowle & Tyne, 2017) throughout "pivoting" (Barrehag et al., 2012). This iteration is a process for discovering the market, identifying their customers, and validating their business models (Trimi & Berbegal-Mirabent, 2012).

Startups evaluate the opportunities found by placing processes in order to obtain feedback from potential customers and initiate actions responding this feedback and then adjust quickly, discard or replace what it does not work (Ries, 2013). The aim is the continuous improvement of what is offered so that the new firms will eventually deliver what customers want. By using this approach, teams learn and acquire valuable knowledge regarding what doesn't work while using the acquired learnings to adjust the product or service accordingly.

It infers that YC helps its startups to develop their capability of sense by promoting the use of a systematic process, identifying and assessing their business opportunities, enabling them to produce the right products or services, target the right markets and address the consumer needs and leveraging the opportunity found.

4.2 Absorptive capability

Once entrepreneurs have identified a business opportunity, a new product or service must be developed, which requires to update existing capabilities through the acquisition of new knowledge and skills (Pavlou & El Sawy, 2011; Teece, 2007).

Accelerator concerns programme events focused on intense interaction, monitoring, and education (Pauwels et al., 2016). This intense mentorship and education program acts as a mechanism to improve the startups' absorption capability which is the ability of the firm to utilize new knowledge for organizational advantage (Lane & Lubatkin, 1998; Lumpkin & Katz, 2007; Zahra & George, 2002). This utilization involves a journey from the identification and acquisition of external knowledge through its assimilation, understanding to its application in a commercially viable way (Cohen & Levinthal, 1990).

Since its beginnings, YC hosts different kinds of events (figure 1) in which their accelerator management team or guest speakers talk about the common problems and issues, startups will

need to consider, such as their company growth, enabling them to access information which adds potential value (Christiansen, 2009).

Figure 1

Description of YC practices which foster YC ventures' absorptive capability

Practice	Description
Welcoming event	Group event for participants to create networks and meet each other
Prototype day	Showcase of project ideas between participants to identify possible synergies and practice pitch skills
Dinners	A weekly event where an eminent person of the startup world talks about his or her experience and teams report their progress.
Workshops	Conferences about a specific subject or other's experiences
Demoday	Pitch presentation for top startups investors/customers/press
Office hours	Individual intensive sessions with YC Partners to solve problems and doubts and asses of failures (with the purpose of improving the shape of the product, raising money, the company itself)
Group office hours	Weekly group sessions between peers and YC Partners to report their progress and challenges

Source: Adapted from Y combinator (2018).

YC startups also acquire knowledge through discussions with potential stakeholders thanks to experts databases they have access to, that allows them to be in contact with domain expertise and get targeted feedback (Freel, 2005; Y combinator, 2018).

In addition, YC offers mentoring services, provided by the accelerator management team. Sessions vary from individual introductions on an as-needed basis to a programmed weekly group meeting (Y combinator, 2018). These individual and group advising sessions provide startups with business assistance, guidance to solve problems and questions, analyze failures, learn from peers who have

overcome similar obstacles and enable accelerator management team to monitor their progress (Pauwels et al., 2016; Stross, 2012). These sessions help teams to absorb and apply the knowledge they gathered through the program as they allow them to adequately understand and process this knowledge for its future application (Chen et al., 2009; Lumpkin & Katz, 2007).

Thus, YC's education and mentorship programs help the generation of startups' absorptive capability as it enables them to expand their knowledge base, improving their ability to assimilate and utilize that information consequently enhancing their future development.

4.3 Integration capability

As an emerging business gradually becomes defined, continuous adaptation and market validation is needed (Roseno, Enkel, & Mezger, 2013). Thus, the new business creation process is not a straightforward process as it involves a great deal of iterations cycles (Juntunen, 2017). This iterations or reconfigurations rely on the firm's capability to integrate new resources and assets including knowledge with those internally generated to revamp routines and practices (Pavlou & El Sawy, 2011). YC implements routines to make things happen. At the end of each event, YC startups report their progress and challenges forcing them to show progress and evolve in each session (Stross, 2012) due to what they know as the "the power of shame avoidance". Thanks to these evaluation moments, teams are boosted to combine their new knowledge and their existing one in solutions to confront their obstacles quicker and solve uncertainties as they emerged. This continuous knowledge integration allows startups to advance in their business. Evaluation moments are repeated on a weekly basis until the end of the program where a final event "Demo day" takes place. In "Demo day" founders pitch their business to investors and potential customers followed by formal and informal networking opportunities (Cohen, 2013; Pauwels et al., 2016). This event aims to advance into pilot projects, partnerships, or acquisitions (Kohler, 2016). Thanks to YC routines of continuous evaluation and surveillance within a short period of time, the integration capability of YC startups' is enhanced.

4.4 Innovation capability

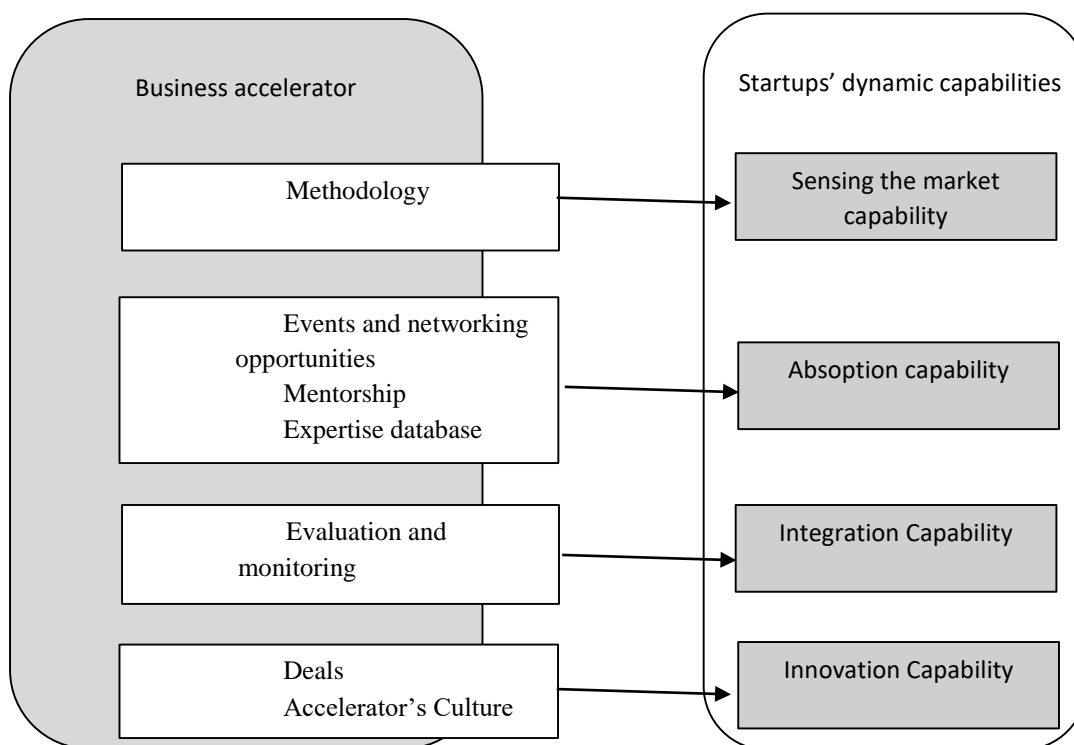
A firm's ability to innovate is a critical factor for its survival and success (Akman & Yilmaz, 2008; Monferrer, Blesa & Ripollés, 2013; Wang & Ahmed, 2004). Innovation capability perspective focuses on the outcomes of organizations (e.g., products, services, markets, business models) (Saunila & Ukko, 2014). However, the innovation capability of a company can be understood from a more global perspective taking into account all its dimensions (Wang & Ahmed, 2004). In this sense, the innovation capability of a firm is its ability "to develop new products and markets, through aligning innovative strategic orientation with innovative behaviors and processes" (Wang & Ahmed, 2007:16).

Based on the above definition, innovation capability described above is a multi-faceted construct (Saunila & Ukko, 2014) to technological and human aspects (Prajogo & Ahmed, 2006). The innovation capability of YC startups develops thanks to YC processes and resources that firms experience and acquire throughout their lifecycle.

YC has deals with many companies at the forefront of technology which supports YC startups' during their development process through different means such as free services or special access (Y combinator, 2018). These deals facilitate the technological requirements and obstacles constraints of YC startups' when creating new products or processes.

Figure 2

Proposed model of dynamic capabilities generation through YC business accelerator program



Source: Own elaboration

The culture of YC also plays a vital role in developing firms' innovation capacity. It is because YC culture has several principles that promote empowerment of YC startups' founders which an essential input to foster innovative behaviors (Prajogo & Ahmed, 2006) and thus innovation capacity (Wang & Ahmed, 2007). YC startups' work independently and come to YC headquarters usually once a week for meetings in which they receive advice but not command (Miller & Bound,

2011). The flexible structure of the program, with no office space and no close supervision routines, allows founders to possess a certain level of autonomy not to feel diverted of their focus (Kohler, 2016; Stross, 2012) promoting the generation of their innovation capability.

Figure 2 presents the proposed model of relation which have been found between Y Combinator 's services and startups' dynamic capabilities. As figure 2 shows, the different types of routines and services deployed by Y Combinator that we have described along the section promote the development of startups' dynamic capabilities. The Y Combinator methodology which includes a systematic process of identifying and assessing startups' business opportunities enables their startups to leverage their sensing the market capability. YC education and mentorship programs help the generation of startups' absorptive capability. Thanks to the continuous evaluation and surveillance, startups enhance their integration capability. Finally, the YC's culture in which startups are surrounded and the different deals YC have with relevant stakeholders promote the generation of innovation capability.

5. Conclusion and Discussion

This paper opens new paths toward understanding the role of business accelerators and the value of the processes embedded in them. In fact, this work highlights how startups can benefit from participating in business accelerators programs from the dynamic capabilities' perspective. This article contributes to existing theory on business accelerators, but also to new ventures dynamic capabilities theory by showing how a combination of resources and services embedded in business acceleration routines drives the generation of different dynamic capabilities in their portfolio companies. Our analysis suggest that accelerators may help their startups to generate dynamic capabilities and thus, achieve superior performance compared to non-accelerated ventures. Besides, it emphasizes the positive effects of mentorship and networking widely shared in academic literature (e.g. Hallen, Cohen, & Bingham, 2016; Wright & Drori, 2018), we found other business accelerators services such as methodology, surveillance, evaluations, perks, and the inner business accelerator culture seems to be critical elements that impact on startups development. Although the paper needs to be empirically tested, we are able to gain some clarity on the effectiveness of business acceleration mechanisms by leveraging the secondary data combined with dynamic capabilities theory and, it also provides interesting avenues for further research.

6. References

- Akman, G., & Yilmaz, C. (2008). Innovative Capability, Innovation Strategy and Market Orientation: an Empirical Analysis in Turkish Software Industry. *International Journal of Innovation Management*, 12(01), 69-111. <https://doi.org/10.1142/S1363919608001923>
- Alexander, M., Johan, W., & Jeremy, C. S. (2007). The New Venture Innovation Process: Examining the Role of Absorptive Capacity. *Entrepreneurial Strategic Processes (Advances in*

- Entrepreneurship, Firm Emergence and Growth*), 10, 159–185.
- Ardichvili, A., Cardozo, R., & Ray, S. (2003). A theory of entrepreneurial opportunity identification and development. *Journal of Business Venturing*, 18, 105–123.
<https://doi.org/10.1007/s00128-017-2113-7>
- Baker, T., & Nelson, R. E. (2005). Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage. *Administrative Science Quarterly*, 50(3), 329–366.
<https://doi.org/10.2189/asqu.2005.50.3.329>
- Barrehag, L., Fornell, A., Larsson, G., Mårdström, V., Westergård, V., & Wrackefeldt, S. (2012). *Accelerating Success : A Study of Seed Accelerators and Their Defining Characteristics*. Bachelor Thesis in Industrial Engineering and Management. Chalmers University of Technology. Retrieved from:
<https://odr.chalmers.se/bitstream/20.500.12380/161790/1/161790.pdf>
- Bastanchury-Lopez, M. T., De Pablos Heredero, C., García-Martínez, R., & Martín-Romo Romero, S. (2019). Review of the measurement of dynamic capacities : a proposal of indicators for the sheep industry . *Ciencia & Tecnología Agropecuaria*, 20(2), 1–15.
- Battistella, C., De Toni, A. F., & Pessot, E. (2017). Open accelerators for start-ups success: a case study. *European Journal of Innovation Management*, (20)1, 80-111.
<https://doi.org/10.1108/EJIM-10-2015-0113>
- Besanko, D., Dranove, D., & Shanley, M. (1996). *The Economics of Strategy*. New York: John Wiley & Sons Inc.
- Blanco Callejo, M., & De Pablos Heredero, C. (2019). Co-innovation at Mercadona: a radically different and unique innovation model in the retail sector. *Journal of Business & Retail Management Research*, 13(4), 326–341. <https://doi.org/10.24052/jbrmr/v13is04/art-30>
- Bergek, A., & Norrman, C. (2008). Incubator best practise : A framework. *Technovation*, 28(28), 20–28. <https://doi.org/10.1016/j.technovation.2007.07.008>
- Besanko, D., Dranove, D. , & Shanley, M. (1996). *The Economics of Strategy*. New York: John Wiley & Sons Inc.
- Block, J. H., Colombo, M. G., Cumming, D. J., & Vismara, S. (2018). New players in entrepreneurial finance and why they are there. *Small Business Economics*, 50(2), 239–250.
<https://doi.org/10.1007/s11187-016-9826-6>
- Bruneel, J., Ratinho, T., Clarysse, B., & Groen, A. (2012). The evolution of Business incubators: Comparing demand and supply of business incubation services across different incubator generations. *Technovation*, 32(2), 110–121.
<https://doi.org/10.1016/j.technovation.2011.11.003>
- Chen, Y. S., Lin, M. J. J., & Chang, C. H. (2009). The positive effects of relationship learning and absorptive capacity on innovation performance and competitive advantage in industrial markets. *Industrial Marketing Management*, 38(2), 152–158.
<https://doi.org/10.1016/j.indmarman.2008.12.003>
- Christiansen, J. D. (2009). *Copying Y Combinator, A Framework for developing Seed Accelerator Programmes*. University of Cambridge.
- Clarysse, B., Wright, M., & Hove, J. Van. (2015). *A look inside Building Businesses*. Retrieved from:
[https://media.nesta.org.uk/documents/a look inside accelerators.pdf](https://media.nesta.org.uk/documents/a_look_inside_accelerators.pdf)

- Cohen, S. L. (2013). What Do Accelerators Do? Insights from Incubators and Angels. *Innovations: Technology, Governance, Globalization*, 8(3-4), 19-25.
https://doi.org/10.1162/INOV_a_00184
- Cohen, S., & Hochberg, Y. V. (2014). Accelerating Startups: The Seed Accelerator Phenomenon. *SSRN Electronic Journal*, 1-16. <https://doi.org/10.2139/ssrn.2418000>
- Cohen, S. L. (2013). How To Accelerate Learning: Entrepreneurial Ventures Participating in Accelerator Programs. *Doctoral Dissertation*, 1-140. <https://doi.org/10.1007/s13398-014-0173-7.2>
- Cohen, W. M., & Levinthal, D. a. (1990). Absorptive Capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152.
<https://doi.org/10.2307/2393553>
- Corner, P. D., & Wu, S. (2012). Dynamic capability emergence in the venture creation process. *International Small Business Journal*, 30(2), 138-160.
<https://doi.org/10.1177/0266242611431092>
- De Pablos Heredero, C., Fernández Valero, G. & Blanco Callejo, M. (2017). Supplier Qualification Sub-Process from a Sustained Perspective: Generation of Dynamic Capabilities. *Sustainability* 9(1), 730-745.
- Debrulle, J. (2012). *Start-up absorptive capacity: Does the owner's human and social capital matter? Working Papers of VIVES - Research Centre for Regional Economics* 30.
- Dilts, D. M., & Hackett, S. M. (2004). A Systematic Review of Business Incubation Research. *The Journal of Technology Transfer*, 29, 55-82.
<https://doi.org/doi:10.1023/B:JOTT.0000011181.11952.0f>
- Drori, I., & Wright, M. (2018). *Accelerators: Successful Venture Creation and Growth*. Edgar Elgar Publishers.
- Fedher, D., & Hochberg, Y. V. (2014). Accelerators and the Regional Supply of Venture Capital Investment. *Social Science Research Network*, 1-40.
<https://doi.org/http://dx.doi.org/10.2139/ssrn.2518668>
- Fowle, M., & Tyne, N. (2017). Critical Success Factors for Business Accelerators : A Theoretical Context. *Conference: British Academy of Management 2017*.
- Freel, M. (2005). Patterns of innovation and skills in small firms. *Technovation*, 25(2), 123-134.
[https://doi.org/10.1016/S0166-4972\(03\)00082-8](https://doi.org/10.1016/S0166-4972(03)00082-8)
- Gruber, F. (2011). Top 15 U.S. Startup Accelerators & Incubators Ranked; TechStars, Y Combinator Top Rankings. *Tech.co*. 2 May. Retrieved from: <https://tech.co/news/top-15-us-startup-accelerators-ranked-2011-05>
- Gruber, F. (2012). Top 15 US Startup Accelerators Ranked; Y Combinator and TechStars on Top. *Tech.co*. 22 august. Retrieved from: <https://tech.co/news/top-startup-accelerators-ranked-2012-08>
- Hallen, B. L., Cohen, S., & Bingham, C. (2016). Do Accelerators Accelerate? If So, How? The Impact of Intensive Learning from Others on New Venture Development. *SSRN Electronic Journal*.
<https://doi.org/10.2139/ssrn.2719810>
- Haltiwanger, J., Jarmin, R. S., & Kulick, R. B. (2016). High Growth Young Firms: Contribution to Job, Output and Productivity Growth. *SSRN Electronic Journal*.

- <https://doi.org/10.2139/ssrn.2866566>
- Harms, R., Marinakis, Y., & Walsh, S. T. (2015). Lean startup for materials ventures and other science-based ventures: under what conditions is it useful? *Translational Materials Research*, 2(3), 035001. <https://doi.org/10.1088/2053-1613/2/3/035001>
- Hathaway, I. (2016). Accelerating growth: Startup accelerator programs in the United States. *Brookings*, 17 February, 1–12. Retrieved from: <https://static1.squarespace.com/static/568398f1a2bab87f93f6958b/t/56c46628c6fc08abb15044ea/1455711786853/Accelerating+growth+Startup+accelerator+programs+in+the+United+States+Brookings+Institution.pdf>
- Heinemann, F. (2015). *Corporate Accelerators : A Study on Prevalence, Sponsorship, and Strategy*. Thesis: S. M. in Engineering and Management. Massachusetts Institute of Technology.
- Hochberg, Y. V. (2016). Accelerating Entrepreneurs and Ecosystems: The Seed Accelerator Model. In *Innovation Policy and the Economy*, 16, 25–51. <https://doi.org/10.1086/684985>
- Hoffman, D. L., & Radojevich-kelley, N. (2012). Analysis of Accelerator Companies : An Exploratory Case Study of Their Programs , Processes , and Early Results. *Small Business Institute Journal*, 8(2), 54–70.
- Isenberg, D. J. (2010). The big idea: How to start an entrepreneurial revolution. *Harvard Business Review*, 88(6). <https://doi.org/10.1353/abr.2012.0147>
- Scillitoe, J. L., & Chakrabarti, A. (2010) The role of incubator interactions in assisting new ventures. *Technovation*, 30(3), 155-167. <https://doi.org/10.1016/j.technovation.2009.12.002>
- Jones, O., Macpherson, A., & Jayawarna, D. (2011). Learning to Grow: Dynamic Capabilities in New Technology-based Firms. *British Academy of Management (BAM) Conference*.
- Jones, O., Macpherson, A., & Jayawarna, D. (2013). *Resourcing the Start-Up Business: Creating Dynamic Entrepreneurial Learning Capabilities*. Abingdon: Routledge.
- Juntunen, M. (2017). *Business Model Change As a Dynamic Capability*. Retrieved from <http://jultika.oulu.fi/files/isbn9789526216621.pdf>
- Kohler, T. (2016). Corporate accelerators: Building bridges between corporations and startups. *Business Horizons*, 59(3), 347–357. <https://doi.org/10.1016/j.bushor.2016.01.008>
- Landroquez, S. M., Castro, C. B., & Cepeda-Carrión, G. (2011). Creating dynamic capabilities to increase customer value. *Management Decision*, 49(7), 1141–1159. <https://doi.org/10.1108/00251741111151181>
- Lane, P. J., & Lubatkin, M. (1998). Relative absorptive capacity and interorganizational learning. *Strategic Management Journal*, 19(5), 461–477.
- Leih, S., Linden, G., & Teece, D. J. (2014). Business Model Innovation and Organizational Design: a Dynamic Capabilities Perspective. *Business Model Innovation*, 1–22. <https://doi.org/10.1093/acprof>
- Liao, J., Kickul, J. R., & Ma, H. (2009). Innovation: An Empirical Examination of Internet Firms. *Journal of Small Business Management*, 47(3), 263–286.
- Lumpkin, G. T., & Jerome A. Katz. (2007). *Entrepreneurial Strategic Process*. Elsevier, 10. <https://doi.org/10.1017/CBO9781107415324.004>
- Macpherson, A., & Jones, O. (2004). Evolution or revolution Dynamic capabilities in a knowledge-dependent firm., (1996), 161–177.

- Miller, P., & Bound, K. (2011). *The Startup Factories*. Nesta. Retrieved from: https://media.nesta.org.uk/documents/the_startup_factories_0.pdf
- Monferrer Tirado, D., Blesa Perez, A., & Ripollés Meliá, M. (2013). Orientación Al Mercado De La Red Y Capacidades Dinámicas De Absorción E Innovación Como Determinantes Del Resultado Internacional De Las Nuevas Empresas Internacionales. *Revista Española de Investigación de Marketing ESIC*, 17(2), 29-52. [https://doi.org/10.1016/S1138-1442\(14\)60023-1](https://doi.org/10.1016/S1138-1442(14)60023-1)
- Newbert, S. L. (2005). New firm formation: A dynamic capability perspective. *Journal of Small Business Management*, 43(1), 55–77. <https://doi.org/10.1111/j.1540-627X.2004.00125.x>
- Pandey, S., Lall, S., Pandey, S. K., & Ahlawat, S. (2017). The Appeal of Social Accelerators: What do Social Entrepreneurs Value? *Journal of Social Entrepreneurship*, 8(1), 88–109. <https://doi.org/10.1080/19420676.2017.1299035>
- Paradkar, A., Knight, J., & Hansen, P. (2015). Innovation in start-ups: Ideas filling the void or ideas devoid of resources and capabilities? *Technovation*, 41, 1–10. <https://doi.org/10.1016/j.technovation.2015.03.004>
- Pauwels, C., Clarysse, B., Wright, M., & Van Hove, J. (2016). Understanding a new generation incubation model: The accelerator. *Technovation*, 50–51, 13-24. <https://doi.org/10.1016/j.technovation.2015.09.003>
- Pavlou, P. A., & El Sawy, O. A. (2011). Understanding the Elusive ' Black Box ' of Dynamic Capabilities. *Decision Sciences Journal*, 42(1), 239–273. <https://doi.org/10.1111/j.1540-5915.2010.00287.x>
- Prajogo, D. I., & Ahmed, P. K. (2006). Relationships between innovation stimulus, innovation capacity, and innovation performance. *R and D Management*, 36(5), 499–515. <https://doi.org/10.1111/j.1467-9310.2006.00450.x>
- Rhett, M. (2014). Mentors are the secret weapons of succesful startups. *TechCrunch*. 22 March. Retrieved from: https://techcrunch.com/2015/03/22/mentors-are-the-secret-weapons-of-successful-startups/?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAALoLcDNQa8y_KUoP2MZt66VjF-A4yCf1Xx9vwEWqTohvE9Ar5rxLoEMBg7sYCcqMnrKZfrCelkF4z8B5s-ItrevxEJ9pn2b1aq_jY5u3HUALWeKmTs9afsMp3dg_T5BhXKyholHwc7wzoUdPGp9DKwqy2m4ILEGD5L2cilC0nj
- Ries, E. (2013). *El método Lean Startup: Cómo crear empresas de éxito utilizando la innovación continua*. Deusto.
- Roseno, A., Enkel, E., & Mezger, F. (2013). Distinctive dynamic capabilities for new business creation: sensing, seizing, scaling and separating. *International Journal of Technology Marketing*, 8(2), 197–234. <https://doi.org/10.1504/IJTMKT.2013.054072>
- Salunke, S., Weerawardena, J., & Mccoll-kennedy, J. R. (2011). Towards a model of dynamic capabilities in innovation-based competitive strategy : Insights from project-oriented service firms. *Industrial Maketing Management*, 40, 1251–1253. <https://doi.org/10.1016/j.indmarman.2011.10.009>
- Saunila, M., & Ukko, J. (2014). Intangible aspects of innovation capability in SMEs: Impacts of size and industry. *Journal of Engineering and Technology Management - JET-M*, 33, 32–46.

<https://doi.org/10.1016/j.jengtecman.2014.02.002>

- Smith, S. W., & Hannigan, T. J. (2015). Swinging for the Fences: How Do Top Accelerators Impact the Trajectories of New Ventures? *DRUID Conference*, 29.
- Smith, S. W., Hannigan, T. J., & Gasiorowski, L. (2017). Peering Inside: What Is the Impact of Cohorts, Peers, and Founding Teams on Entrepreneurial Outcomes? *Academy of Management Proceeding*, 1–35.
- Song, M., Podoyntsyna, K., Van Der Bij, H., & Halman, J. I. M. (2008). Success factors in new ventures: A meta-analysis. *Journal of Product Innovation Management*, 7–27. <https://doi.org/10.1111/j.1540-5885.2007.00280.x>
- Stross, R. (2012). *The launch pad: Inside Y Combinator*. Portfolio/Penguin.
- Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*, 51(2), 315–334. <https://doi.org/10.1002/smj>
- Teece, D. J. (2012). Dynamic Capabilities: Routines versus Entrepreneurial Action. *Journal of Management Studies*, 49(8), 1395–1401. <https://doi.org/10.1111/j.1467-6486.2012.01080.x>
- Teece, D., Peteraf, M., & Leih, S. (2016). Dynamic capabilities and organizational agility: Risk, uncertainty, and strategy in the innovation economy. *California Management Review*, 58(4), 13–35. <https://doi.org/10.1525/cmr.2016.58.4.13>
- Teece, D., & Pisano, G. (2004). The Dynamic Capabilities of Firms. *Handbook on Knowledge Management*, 3, 195–213. <https://doi.org/10.1093/icc/3.3.537-a>
- Teece, D., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509–533. [https://doi.org/10.1002/\(SICI\)1097-0266\(199708\)18:7<509::AID-SMJ882>3.0.CO;2-Z](https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z)
- Trimi, S., & Berbegal-Mirabent, J. (2012). Business model innovation in entrepreneurship. *International Entrepreneurship and Management Journal*, 8(4), 449–465. <https://doi.org/10.1007/s11365-012-0234-3>
- Wang, C. L., & Ahmed, P. K. (2004). The Development and Validation of the Organisational Innovativeness Construct Using Confirmatory Factor Analysis. *European Journal of Innovation Management*, 7(4). <https://doi.org/10.1108/14601060410565056>
- Wang, C. L., & Ahmed, P. K. (2007). Dynamic Capabilities : A Review and Research Agenda. *The International Journal of Management Reviews*, 9, 31–51. <https://doi.org/10.1111/j.1468-2370.2007.00201.x>
- Weiblen, T., & Chesbrough, H. W. (2015). Engaging with Startups to Enhance Corporate Innovation. *California Management Review*, 57(2), 66–90. <https://doi.org/10.1525/cmr.2015.57.2.66>
- Yang, S., & Kher, R. (2018). Where do Accelerators fit in the venture creation pipeline? Different Values Brought by different types of accelerators. *Entrepreneurship Review Journal*, (6), 1–27.
- Yin, B., & Luo, J. (2018). How Do Accelerators Select Startups? Shifting Decision Criteria Across Stages. *IEEE Transactions on Engineering Management*, 65(4), 574 – 589. <https://doi.org/10.1109/TEM.2018.2791501>
- Zahra, S. A., & George, G. (2002). Absorptive Capacity: A review, reconceptualization, and extension. *Academy of Management Review*, 27(2), 185-203. <https://doi.org/10.2307/4134351>

Zahra, A. S., Sapienza, J. H., & Davidsson, P. (2006). Entrepreneurship and Dynamic Capabilities: A Review, Model and Research Agenda. *Journal of Management Studies*, 43(4), 917–955. <https://doi.org/10.1111/j.1467-6486.2006.00616.x>