

The relationship between innovation and organizational resilience in the context of SMEs

Larbi YACOUBI

Ph.D. student, Ibn Zohr University
National School of Applied Sciences, Agadir, Morocco
Email: l.yacoubi@uiz.ac.ma

Amina TOURABI

Professor, Ibn Zohr University
National School of Applied Sciences, Agadir, Morocco
Email: a.tourabi@uiz.ac.ma

Abstract: Organizations are currently operating in an increasingly turbulent environment. In response, a number of studies have highlighted the importance of developing resilience within companies. Given their role in the economy of many countries (particularly Morocco) and their vulnerability and sensitivity to environmental hazards, SMEs are particularly concerned. Moreover, research has shown that SMEs suffer most in times of crisis and are the least prepared of all organizations. Previous research has identified several determinants that explain organizational resilience, including innovation. Hence the following question: "To what extent does innovation contribute to the organizational resilience of SMEs to crises? To this end, a qualitative study was carried out among various SMEs in order to answer the question. The choice of a qualitative approach was justified by the desire to explore in depth the relationship between the two concepts.

Keywords: SMEs, organizational resilience, innovation.

Introduction

Recently, there has been a remarkable surge of interest in the concept of organizational resilience. This increased attention can be attributed to the prevailing circumstances, which are characterized by a constantly changing and unpredictable environment, leading to frequent crises. As a result, managers are increasingly driven to seek innovative solutions that will enable their organizations to effectively navigate and withstand these challenges.

The concept has gained considerable importance to the extent that it is considered crucial for organizations, on par with performance and efficiency (Altintas & Broyer, 2009). Some research has conceptualized it as a desirable capability (Somers, 2009; Edgeman, 2015; Jaaron et al., 2014), while others consider it as a process (Hamel & Valikangas, 2003; Van Essen et al., 2015; Ortiz-de-Mandojana & Bansal, 2016). From our perspective, we view it as a capacity that manifests itself depending on the period that an organization goes through in the face of a crisis.

The term 'crisis' is generally used to encompass all types of 'distress' events (Hewitt, 1983, cited by Boin, 2005, p:161). The term has come to refer to situations characterized by unpredictability and difficulty of management, resulting in uncertainty (Rosenthal et al., 2001). When a crisis situation occurs, it is perceived as a period of disruption or discontinuity from the norm that seriously threatens the viability of the organization (Boin, 2005; Altintas & Royer, 2009).

In the context of small and medium-sized enterprises (SMEs), resilience in the face of crises takes on even greater significance, given their prominent role in the economies of many countries and their vulnerability and sensitivity to environmental uncertainties. Indeed, research has shown that SMEs suffer the most in times of crisis and are the least prepared of all types of organizations.

Previous studies have identified several determinants that explain organizational resilience, including innovation. The latter has been identified as a factor in the performance and competitiveness of firms.

However, studies linking innovation and resilience in the context of SMEs are still lacking. These studies focus on understanding the responses of SMEs to specific types of crises. For example, the work of Epler and Leach (2021), Stephens et al. (2021), Manolova et al. (2020), and Krishnan et al. (2022) focuses on the COVID-19 crisis. Other studies have focused on more specific crises, such as floods and riots, for example, Doern (2016) and Runyan (2006).

Our current research differs from these perspectives, as it aims to explore the relationship between innovation and resilience in relation to different types of crises. Therefore, the research question of our study is: **To what extent does innovation contribute to the organizational resilience of SMEs facing crises?**

Our article, therefore, has a threefold objective: firstly, to explore organizational resilience in the context of SMEs, an area that has been relatively underexplored (Battisti & Deakins, 2017; Conz et al., 2017) but identified as an interesting research area (Annarelli & Nonino, 2016). Second, we aim to establish a link between these two important concepts and, finally, to shed light on how innovation can contribute to the organizational resilience of SMEs in times of crisis.

We will begin with an overarching explanation of organizational resilience and then focus on its application in the context of small and medium-sized enterprises (SMEs). We will also explore the concept of innovation. Finally, we will outline the methodology of the qualitative study, present the findings and engage in a comprehensive discussion of the results.

1. Theoretical framework

1.1. Organizational resilience

The term 'resilience' has been used for a very long time. In fact, the word 'resilience' has a long and varied history (Alexander, 2013). The term is derived from the Latin word "resilire" (to bounce back), which is composed of "re" (back) and "salire" (to jump). Later, the term was introduced into the French language through the verb "résilier" (to withdraw, cancel) and into the English language in the form of the verb "to resile" (to return to the original position or to cease, abstain) (MSB, 2013).

The use of the term resilience has since spread to different fields and contexts. For example, it was mobilized in ecology to describe the recovery of ecological systems (Holling, 1973). Since then, the study of resilience has expanded to other domains, notably organizations (Home and Orr, 1998; Hamel and Valikangas, 2003; McDonald, 2008; etc.). As a result, several definitions and typologies have been developed, creating a diverse documentary base (Burnard et al., 2018).

Some reduce the concept to a single capacity: anticipation (to avoid the crisis), robustness (to absorb the crisis) or adaptation (the ability to recover after the crisis). Others consider the concept to encompass two capacities, while another group of researchers considers resilience to depend on all these capacities. This latter definition is adopted in this article. We consider organizational resilience to be: first, the capacity of the organization to anticipate and respond

to disturbances and unexpected events (anticipatory capacity); second, the capacity to cope with disturbances and unexpected events when they occur (robustness capacity); and finally, the recovery and restoration of the organization to its initial state or to a new, more desirable state (adaptive capacity). Organizational resilience is understood as both a capacity and a process.

1.2. Organizational resilience and SME's context

In the context of SMEs, it is widely recognized that they are more vulnerable and sensitive to environmental uncertainties (such as competition from larger companies, rising costs, declining demand, dependence on a few customers, supply chain disruptions, etc.). Research has shown that SMEs suffer the most during crises and are the least prepared of all types of organizations (Ingirige et al., 2008). This vulnerability is often linked to a lack of financial, technological, and human resources (Vossen, 1998). Despite their weaknesses, some SMEs develop appropriate organizational responses (Branicki et al., 2018). It can therefore be said that these SMEs are resilient.

The study of SME resilience has only attracted research interest in recent years. An analysis of these studies shows that there is no specific definition of SME resilience. Researchers have largely adapted definitions used in the context of large firms to define it. Therefore, for the purposes of this paper, we consider that SME resilience, like that of large firms, consists of three components: anticipation, robustness, and adaptation. Anticipation refers to the proactive nature of the business. Robustness is the ability to withstand adversity and prevent loss of function during a crisis. Adaptation occurs after the crisis, through the development of learning and innovation mechanisms.

Furthermore, research has identified three categories of determinants of SME resilience (Wishart, 2018). The first focuses on the individual level and the role of the entrepreneur and/or manager in strengthening resilience. The second category highlights environmental factors that promote resilience. The third and final category is based on the organizational level of SMEs and the organizational capabilities that contribute to resilience. This last category will be explored in more detail in the following discussion. We will focus in particular on the aspect of innovation.

1.3. Innovation

Innovation refers to an organization's propensity and receptivity to adopt new ideas (Menguc & Auh, 2006). It involves the willingness to let go of old habits and try new things. In the context of this article, we consider both the generation (development) and/or adoption (use) of

new ideas or behaviors that may have been practiced elsewhere. The generation of innovation results in the creation of a product, service, technology or practice that is at least new to an organization. Adoption (or importation) of innovation involves the implementation of a product, service, technology or practice that is new to the adopting organization (Daft, 1978; Damanpour & Wischnevsky, 2006; Klein & Sorra, 1996).

Research on innovation has led to several typologies. These include: the product-process typology (Damanpour & Aravind, 2006; Schilling, 2008; Utterback, 1994); the techno-administrative typology (Bantel & Jackson, 1989; Evan, 1966; Kimberly & Evanisko, 1981; Walker, 2008); and the latter distinguishes between product innovation ("in goods" and "in services") and process innovation ("technological" and "organizational") (Edquist, et al., 2001; Meeus & Edquist, 2006). Our study adopts the latter typology. This choice is justified by the innovation practices observed in SMEs.

Product innovations include new or improved products (or product variants) that are produced and sold. They include both new tangible goods and new intangible services (Meeus & Edquist, 2006).

Process innovations refer to new ways of producing goods and services. They concern the way in which existing products are produced. Process innovations can be either technological or organizational. Technological process innovations change the way products are produced by introducing changes in technology (physical equipment, techniques, systems); organizational innovations refer to innovations in the structure, strategy, and administrative processes of an organization (Meeus & Edquist, 2006).

1.4. The relationship between Innovation and organizational resilience

This relationship is evident because resilience involves transformation. This transformation is expressed through renewal, regeneration, and reorganization (Folke, 2006). Bouaziz and Hachicha (2018) also share this view, arguing that organizational resilience involves renewal and dynamic transformation of the organization from the inside to the outside. This transformation enables better preparation for turbulent environments (Hamel and Valkingas, 2003). It requires both innovation and creativity (Maguire, Cartwright, 2008). Resilience allows an organization to renew itself through innovation, to change and reinvent itself by adapting responses to shocks and disturbances (Van Baardwijk and Reinmoeller, 2005). These researchers identified four main innovation strategies that foster resilience, classifying them according to how the firm's resources and capabilities (internal, external, new or existing) are

combined. Innovation can relate to processes, practices, resource organization, and new and innovative products.

In the context of SMEs, Demmer and colleagues (2011) identified several innovation-related factors that promote resilience, namely: knowledge sharing within the firm and with external entities (other firms in different sectors, universities, governmental and non-governmental organizations), which can be a source of new information, ideas and beneficial practices for the firm. Access to advanced technologies through mergers, acquisitions and strategic alliances. Strategic investment in advanced technologies.

Gunasekaran et al. (2011) also referred to the implementation of a management style that promotes innovation and the adoption of information and communication technologies (Internet, e-commerce, enterprise resource planning systems, etc.).

On the other hand, Pal et al. (2014) highlighted product innovation as a resilience factor, mentioning diversification into new product segments and new customer segments. Flint et al. (2011) also highlighted innovation in product/service offerings, sales processes and techniques, and distribution as factors promoting organizational resilience in SMEs.

2. The methodology

The methodology used to collect the data is purely qualitative. The main reason for choosing this approach is our desire to obtain rich and in-depth data. In addition, an exploratory research design is used, which increases the validity and reliability of the results (Creswell and Clark, 2007; Punch and Punch, 1998).

To achieve this, we focused on SMEs operating in Morocco, a context in which SMEs represent more than 95% of all private enterprises. Data collection was based on semi-structured face-to-face interviews with 15 owner-managers of Moroccan SMEs. In making this choice, we adhered to two well-established principles of qualitative research methodology, namely:

- Diversification: It relies on a thoughtful selection of companies to be interviewed in order to gain a broader and more diverse understanding of the topic under study. In this respect, we have diversified the sample by including SMEs from different economic sectors, of different sizes (small and medium), that have been in existence for more than ten years, that have experienced different crises, and that have gone through different stages of development.
- Saturation: This condition emphasizes the need to limit the study to a limited number of interviews that can provide data that meet the objectives. Saturation is reached when

the interviews fall into the trap of redundancy and do not provide new additional information to enrich the subject under study (Anadón and Savoie-Zajc, 2007). The application of the principle of semantic saturation (Romelaer, 2005) led us to limit the interviews to 15 entrepreneurs; beyond this number, we observed data repetition.

As in other crisis-related studies, the research sample was small (Doern, 2016), which allowed for more in-depth analysis (Hycner, 1985; King, 2004).

Table 1 shows the characteristics of the convenience sample studied. It shows the coding of the study participants based on: industry, age, level of education, date of establishment, type of crisis, year of the crisis, number of employees at the time of the crisis, and current number of employees.

Table 1

Code	Sme creation date	Industry	The nature of crisis	Year of the crisis	Number of employees at the time of the crisis	Current Number of employees
P1	2008	Assurances	Debt collection crisis.	2016	06	09
P2	2014	Education	Drop in sales	2020	09	09
P3	1995	Cleaning and hygiene	Increase in raw material prices	2012	30	50
P4	1995	Forwarding agent	Suspension of approval	2018	24	30
P5	1988	Professional training	Loss of major skills	1998	12	52
P6	2014	Call centre	Loss of a Major client	2015	30	70
P7	2009	Environmental hygiene	VAT tax review	2019	13	16
P8	2011	Building and public works	Debt collection crisis.	2015	05	10
P9	1997	Consulting and accounting	Loss of major skills	2019	10	16
P10	2013	Food industry	Loss of a large part of current assets.	2019	06	10
P11	2010	Manufacturing	Incendie	2017	45	60
P12	2007	Marketing and Communication	Drop in sales	2015	15	20
P13	2015	Entertainment for kids	Drop in sales	2019	16	21
P14	2012	Manufacturing	Debt collection crisis.	2018	36	62
P15	2014	Manufacturing	Incendie	2016	58	66

The study was strengthened by data triangulation. In effect, the information gathered from the owner-managers was cross-validated with other individuals within the SMEs. This approach followed one of the principles of internal validity in qualitative research (Hill and McGowan, 1999).

Data analysis

All interviews were recorded with the consent of the participants. These recordings were transcribed by a third party within three weeks of the interviews. Field notes taken during the interviews were kept and compared with the transcriptions to ensure accuracy. Interviews ranged in length from 45 minutes to one hour and 30 minutes. The textual data were then imported into NVivo qualitative software for analysis and coding. However, the thematic analysis was not conducted from a blank slate, as it was informed by the authors' pre-existing knowledge of relevant existing literature on innovation and organizational resilience.

3. Findings

The purpose of this study was to understand the extent to which innovation promotes organizational resilience in SMEs facing crisis. Three main themes formed the basis of our interview guide: innovation and anticipatory capacity, innovation and robustness, and innovation and adaptability.

3.1. Innovation and Anticipatory Capacity

Some respondents claimed that anticipatory innovation had been beneficial in dealing with the consequences of the crisis they faced. This innovation mainly concerned product and/or service offerings: "*We used to innovate pedagogically every year and diversify our teaching offer, which increased our capacity to react quickly because we were already experienced.*" "*The innovation of the services offered allowed us to cope with the loss of a major client*". Innovation also focused on the target clients: "*Diversifying the client portfolio from the outset allowed me to spread the risk and no longer depend on lost clients.*" Innovation also included process aspects: "*From the outset, we created a structure that encouraged participative management.*" "*We worked in advance on the versatility of our staff.*"

These results seem logical and obvious to us. Indeed, diversification of products and/or services can play a key role in the resilience of an SME. When a company is heavily dependent on a single product or market, it becomes more vulnerable to economic fluctuations and changes in demand. Diversification helps to reduce this risk by broadening the range of products or

services offered, targeting new market segments, or exploring new opportunities. This can help offset potential losses in one area of the business with gains in others.

Diversifying the customer base is also important. Over-reliance on a small number of customers can expose a company to high risk if these customers are lost. By diversifying its customer base, a company can spread risks and mitigate the negative effects of a crisis that would affect a particular market segment. This can be achieved by identifying new customer segments, extending geographical reach, or broadening distribution channels.

3.2. Innovation and robustness capacity

During this phase, the main concern of SME decision-makers is to acquire the necessary resources to cope with the unforeseen situation. The measures taken are primarily aimed at controlling costs. In this respect, the respondents mentioned several measures: "*We have minimized costs while remaining efficient; for external logistics, we have optimized delivery truck routes by training drivers, using GPS tools and data processing centers*". "*We have outsourced some of the transport of goods to customers.*" "*In terms of procurement, we only buy what we use (or almost use) in order to reduce storage costs*". In some cases, these measures were accompanied by strict controls to ensure their implementation: "*I have minimized expenditure (by eliminating payment facilities) while maintaining strict control to ensure compliance with my instructions.*" "*We introduced strict internal controls. I became more present in the company to monitor the situation*". These innovations focus mainly on process aspects. Product innovation was mentioned by the owner-manager of a higher education institution, who stated: "*We changed the training programs to cope with the loss of an important competence and the arrival of a competitor who copied our old programs*".

Innovation is relevant in the face of crisis. It enables a rapid and effective response. As the primary concern of decision-makers is generally the availability of resources to face the consequences of the crisis, innovation emerges as a reliable solution. It facilitates the optimization of internal processes to free up resources and can also be a factor of flexibility to turn the situation in one's favor.

3.3. Innovation and adaptation capacity

Once the crisis is over, SMEs generally enter the adaptation phase, which is characterized by actions with a long-term logic. In this respect, we observe that the actions undertaken cover both products and processes.

Product innovation, in this respect, one of the managers states that they have completely changed their products. Another admits to practicing internal innovation by inventing and patenting a new product.

Service innovation, from this perspective, one of the interviewees states: "*We expanded to Casablanca and Tanger while innovating and developing new services (offering training to companies to differentiate ourselves from competitors)*". Another explains that they tried to seize an opportunity offered by the crisis: "*We innovated in terms of our offer by creating a training company to help companies deal with crises.*"

Process innovation, takes different forms, such as implementing significant changes in the way the company works. Some respondents mention different measures: "*We computerized the process to have a dashboard that provides reliable information about the company and visibility.*" "*I have diversified suppliers to reduce the quantity purchased from each one and thus obtain payment facilities*". "*I invested in integrated management software to ensure the dissemination of information and to democratize it within the company, avoiding a monopoly of information by one person.*"

Integrating changes in the company's structure: This innovation is illustrated by the changes explained by the sample: "*I added an accounting and financial service to my structure.*" "*I had to review the work structure in order to divide the responsibilities among 4 managers*".

Broadening the client portfolio by targeting other segments: Some respondents report having achieved this expansion immediately after the crisis: "*We then looked for other segments and diversified the clientele towards end users (professionals)*". "*I have diversified my client portfolio towards private clients*".

Optimizing (cleaning up) the client portfolio: Other SMEs took advantage of the crisis to get rid of unwanted customers: "*We did a major clean-up by removing bad clients from our portfolio.*" "*I aimed to improve service and increase prices to select my clientele, eliminating clients with low purchasing power (opportunity)*".

In summary, the actions taken during this phase are part of a post-crisis learning framework. Through these actions, decision-makers aim to avoid the mistakes that led them into the crisis they experienced and to better prepare for future disruptions.

4. Discussing the results

This study examined the impact of innovation on improving the resilience of SMEs in the face of crisis. The findings are consistent with those of other studies, including Epler and Leach (2021), Stephens et al. (2021), Manolova et al. (2020), and Krishnan et al. (2022). All these studies confirm the importance of innovation in coping with the effects of a crisis.

The responses of SMEs to disruptions in terms of innovative actions revolve around two types of actions. First, there are short-term actions, or "bricolage" (Baker and Nelson, 2005), aimed at mobilizing the necessary resources and trying to extract all the potential value to overcome the difficulties of the situation imposed by the crisis. Bricolage is thus driven by a short-term vision imposed by the urgency of the situation. The main purpose of these actions is to increase resilience.

Branicki et al. (2018) have highlighted the crucial role of bricolage in strengthening the ability of SMEs to respond to the dynamic, uncertain, and evolving nature of environmental disruptions. In a more specific context, Martinelli et al. (2018) have highlighted the ability of retailers to use existing resources in new situations to propose creative solutions after a natural disaster. For example, they managed to change their commercial locations (unsuitable for regular use) in order to continue their sales activities. Retailers were also forced to change their clientele, offerings, and supplier portfolios to adapt to the new needs that emerged after the disaster. Similarly, Doern (2016) found that in the face of a crisis, owner-managers were forced to react quickly, improvise, and minimize losses while trying to prevent undesirable consequences of the crisis. The owner-managers, therefore, took a number of measures, such as increasing advertising, offering discounts to customers, etc.

Overall, the results suggest that innovation plays a crucial role in helping SMEs not only to survive but also to thrive in the aftermath of a crisis. These findings contribute to the growing body of literature on the importance of innovation as a strategic tool for building resilience in the face of adversity.

For their part, long-term innovation actions are generally embedded in a vision of change, transformation, and long-term growth, reflecting learning and anticipation.

Despite their negative effects, periods of crisis can be sources of opportunity. This encourages decision-makers to embark on the path of innovation in order to seize these opportunities. For example, some SMEs innovated at the product level to take advantage of the opportunities created by the Covid-19 pandemic. Manolova et al. (2020) cite the example of a company that completely changed its business model from the production of winter ski equipment (hats,

headbands, and neck warmers) to the production of protective headgear. Schepers et al. (2021) emphasized innovation at the process level of the company through automation and digitalization to make it more efficient and resilient to the conditions imposed by the pandemic. The study by Steiner and Cleary (2014) also shows that in the face of disruption, SMEs can resort to diversification. This can be done in two ways: by expanding the product range through internal growth (by creating new products and services related to the old ones or by adding entirely new products or services) or through external growth, such as mergers or acquisitions of other companies. Diversification aims to broaden the customer base and spread risk.

The importance of innovation is also highlighted by Bourletidis & Triantafyllopoulos (2014). In this regard, the authors mention several measures taken by SMEs to cope with the crisis context characterized by falling demand, including product innovation by adding features that increase value while reducing costs and prices, market innovation by targeting new customers with different needs (with environmental concerns), innovation in promotions and creating new ways of cooperating with suppliers to reduce costs. The study by Cioppi et al. (2014) also reports that successful SMEs in the face of the crisis are based on innovation, including product and/or service innovation, market innovation by exploring new foreign targets, marketing innovation (by increasing spending in this area, establishing a marketing culture at all levels of the organization, and mobilizing web marketing) and, finally, innovation in the management of production and supply relationships (innovations include reorganization programs, outsourcing marginal activities, strengthening links with strategic suppliers, and optimizing logistics flow through the use of IT tools that improve the company's responsiveness).

Furthermore, despite the strong presence of innovation to cope with crises, it is pertinent to note the absence of innovation at the level of the business model, which has been identified in the literature as a factor of growth and competitiveness. There may be several reasons for this absence.

It is possible that the interviewees were more focused on the stability and recovery of their activities. As a result, they were less inclined to question their business model and make radical changes. Business model innovation requires significant investment in terms of time, resources, and expertise. It can also be perceived by interviewees as a complex and risky task. Business model innovation may also be hampered by the conservative nature of interviewees, which implies an increased resistance to the radical changes that this type of innovation entails.

In conclusion, the analysis of the behavior of SMEs in the face of shocks and crises shows that there is no one-size-fits-all approach, as stated by Ratten (2020) (cited by Stephens et al., 2021).

There is no "one best way" for companies. Appropriate responses will vary depending on a number of factors, such as sector, size and capabilities of firms, local context, and the nature of the crisis (Miklian and Hoelscher, 2022). Smallbone et al. (2012) add that actions that were effective in one year may not be effective in another.

Conclusion

While both innovation and organizational resilience are considered critical to the survival and success of organizations in turbulent environments (Sutcliffe & Vogus 2003; Mitchell & Coles 2004; Lengnick-Hall & Beck 2005), research illustrating the links between the two concepts in the context of SMEs remains inadequate. This study contributes to the body of research that has attempted to highlight the relationship between the two concepts through an exploratory qualitative study. Examples of such research include the work of Buliga et al. (2015), which focused on the relationship between business model innovation and organizational resilience, and Golgeci Serhiy and Ponomarov (2013), which investigated the link between innovation capability and supply chain resilience.

Our findings provide several contributions. First, to research organizational resilience, the article provides an understanding of organizational resilience in the context of SMEs as having three central components: anticipation, robustness, and adaptation. This is in line with research that sees organizational resilience as the sum of three capabilities (Chrisman et al., 2011; van Essen et al., 2015; Ortiz-de-Mandojana and Bansal, 2016), and with the dominant research on organizational resilience that sees the concept as a desirable organizational characteristic. The research also responds to Conz et al.'s (2019) call for further research to better understand the phenomenon of resilience in SMEs. Second, this is one of the first studies to investigate SMEs' responses to different types of crises in terms of innovation. Previous studies have focused on SMEs' responses to a specific type of crisis (the 2008 financial crisis and the Covid-19 crisis).

In addition to theoretical contributions, our study has important managerial implications. On the one hand, given that resilience has been identified as consisting of three capacities, decision-makers could assess the degree of resilience of SMEs by identifying their capacities for anticipation, robustness, and adaptation. On the other hand, this research also raises awareness among SME decision-makers and public authorities of the need to allocate time, resources, and a supportive environment to foster innovation (regardless of its type) within these organizations, as it plays a key role in enhancing resilience.

This study has several limitations, which also suggest fruitful avenues for future research. First, the empirical analysis is based on a relatively small data set. Future research could extend this study by assessing whether the conclusions hold in studies with larger sample sizes and variations in context (industry, country). Another major limitation of this study is that the data collection took place after a considerable period of time since the crises occurred. This may have led to the loss of potentially valuable information. Future studies should therefore take care to collect data shortly after the onset of crises.

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