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# Disruptive innovation in a dynamic environment: a winning strategy? An illustration through the analysis of the yoghurt industry in Algeria

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## Abstract

Disruptive strategies have only been studied in stable environments. To overcome this limitation, this article aims to show through an in-depth study of the main actors in the yoghurt industry in Algeria that these strategies are possible in a dynamic environment. This research was carried out on the basis of an exploratory qualitative study. We have focused our efforts on two types of players, including new entrants and incumbent businesses.

Our results show that the strong factors of the competitive dynamics pushed companies and industries to undertake disruptive innovation, which strategy became an indispensable element to survive and succeed for all the actors in the industry. Overall, our study indicates that the link between the competitive dynamics and disruptive innovation is not only in need of, but is deserving of, more consideration.

**Keywords:** Disruptive innovative, Survive, Strong factors, Dynamic environment, Yoghurt industry in Algeria

## Introduction

The current economic world bears witness to a great number of brutal and unpredictable disruptions, which disturb and transgress the rules of the competitive game in which firms and industries operate (Hanson & Tang, 2020; Liu, 2020).

The literature in turn has highlighted a considerable interest in disruptive innovations, which gives rise to the appearance of several approaches in strategy with the aim of better understanding the implications of this kind of innovation on firms and industries (Christensen, McDonald, Altman, & Palmer, 2018; Alsharif, 2019; Brennan et al., 2019).

On the other hand, several researchers as Chen and Miller (2015), Kiduff (2019), Chen, Chen, Chen, and Chen (2019), have also devoted special attention to the flow of dynamic competition, all testifying that this flow constitutes an irreproachable basis for the formulation of strategy to ensure the survival and the continuity of the organization for this new competitive landscape.



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These two areas of interest crucially intersect because many disruptive innovations are developed and commercialized in competitive contexts because a majority of industries are acutely characterized by a strong competitive dynamics (Moschko, Blazevic, & Piller, 2020; Withers, Ireland, Miller, Harrison, & Boss, 2018). Unfortunately, our knowledge of how disruptive innovations around competitive dynamics emerge and how they disrupt new entrants and incumbent firms is still starkly limited (Palmié, Wincent, Parida, & Caglar, 2020; Uzunca, 2018).

Overall, only a few studies thus far have examined disruptive innovation in different environments. These studies have predominantly analyzed how existing firms and new entrants are affected by disruptive innovations (Hanson & Tang, 2020; Liu, 2020; Moschko et al., 2020; Alsharif, 2019). In contrast, the emergence of disruptive innovations around the competitive dynamics and the impact of these disruptive innovations on incumbent organizations and new entrants have received less attention. Moschko et al. (2020) theorized the mechanisms of distributive innovation management projects in established, industrial companies. Chen et al. (2019) analyzed how the focal firm disrupts the rhythm of a given rival's strategic action repertoire, but concludes that not undertaking disruptive innovation could be a competitive advantage in different contexts under investigation (in duopoly industries). Several scholars have, therefore, called for further research to overcome the limitations in our knowledge thus identified (Moschko et al., 2020; Withers et al., 2018).

Our paper responds to these repeated calls and sets forth our knowledge on the emergence and impact of disruptive innovations around competitive dynamics. To this end, we first develop the concept of competitive dynamics-disruptive innovation by integrating recent insights on competitive dynamics with the literature on disruptive innovation, so that we can focus more specifically on its sources and development. We then study the emergence of the disruptive innovation around the fresh dairy product sector and its impact on the main operators involved in the yoghurt market to explain how disruptive innovation around a competitive dynamics emerges and affects established firms and new entrants. Finally, we discuss our findings in relation to the existing literature and conclude by proposing an agenda for future research on disruptive innovation and the competitive dynamics.

By advancing knowledge on the emergence of disruptive innovation around competitive dynamics and their impact on industries, our study makes an important contribution to the literature. Our carefully selected case studies of the yoghurt industry have considerable merit in helping researchers and managers understand the concept and the sources of disruptive innovation.

## **Theoretical background**

### **Competitive dynamics**

In the foundational work on competitive dynamics (e.g., Chen & Miller, 2015; MacMillan, McCaffrey, & Wijk, 1985; Smith, Ferrier, & Ndofo, 2001; Smith, Grimm, Gannon, & Chen, 1991) the "competitive dynamics" was used to designate the interactions of firms. We consider that competition is a continuous series of competitive movements of firms, which respond to each other. The dynamic aspect of the phenomenon is considered: we analyze all the actions/reactions during a given period in order to

understand how a competitive advantage develops, is defended, or lost in the market. According to this line of thought, the conceptualization of strategy is a repertoire of competitive actions. The supporters of this framework have mobilized several theories, including game theory and that of resources, in order to provide firms with a reliable framework for analyzing competitive interaction (Chen et al., 2019; MacMillan et al., 1985).

Most of the time, however, the term “competitive dynamics” is used in a broader sense, viz., to designate any competitive behavior firms, which will determine the degree of competitive rivalry in a sector (Purnomo, 2019; Chen et al., 2019). Following this prevalent practice, we decided to adopt a wider perspective for two reasons: First, a broader view dominates not only the academic and managerial discussions in general but also the emerging literature at the intersection of competitive dynamics and disruptive innovation in particular (e.g., Avram, 2019; D’Aveni, 1994). Second, relatively inclusive perspectives are commonly applied in the initial exploration of a new field in the social sciences. Subsequent research can then endeavor to refine them.

The literature has also selected three possible levels of competitive dynamics in a sector: weak competition, moderate competition, intense competition (again, see D’Aveni, 1994; Hammoud & Abdallah, 2019, for an overview); each level has its strategic actions to follow.

Specifically, we build on Hughes-Morgan, Kolev, and Mcnamara (2018b); D’Aveni (1994); and Christensen et al. (2018) and chose disruptive innovative action to cope with intense dynamic competition (hypercompetition). This action has the effect of introducing a new variable into the competitive game by implementing new combinations from the resources available to the firm (Christensen et al., 2018). This action creates instability by disrupting the rules of competitive games in the market.

### **Disruptive innovation**

The phenomenon of “disruption” is not new; the names given to this phenomenon by researchers in the managerial literature vary according to the authors, even though they often use the same examples. The terms “competitive aggressiveness (Aroyeun, Adefulu, & Asikhia, 2018; Linyiru & Ketyenya, 2017; Hughes-Morgan, Kolev, & Macnamara, 2018a), disruptive strategy (Christensen et al., 2018; Dinesh & Sushil, 2019; Dumoulin & Giacomel, 2020; Alsharif, 2019), radical innovation (Flor, Cooper, & Oltra, 2018; Stringer, 2000), strategic innovation (Markides, 1997; Schlegelmilch, Diamantopoulos, & Kreuz, 2003; Varadarajan, 2018), breakout strategy (Jamak, Ali, & Ghazali, 2014; Ulf & Lönnbark, 2013), or even value innovation (Leavy, 2018; Russo-Spena, Mele, & Marzullo, 2019) etc.” are the most common and are often used as synonyms.

In the context of our work, we retain “the disruptive strategy” for two reasons: first, this strategy is recent and relatively little treated by the literature and suffers from several shortcomings because of the efforts initiated but which remain insufficient (Christensen et al., 2018; Schiavi & Behr, 2018; Lehmann-Ortega, Musikas, & Schoettl, 2017; Palmié et al., 2020). Then, this strategy is easy to implement whether it is for a new entrant or for a company already installed, and if we compare it with the disruption strategy, we find that this strategy is reserved for extreme or rare situations: interruption, the abrupt cessation (of what was going on), the disturbance corresponds for its part to

an upheaval, at a lower level of radicalism (Yunus, Moingeon, & Lehmann-Ortega, 2010; Lehmann-Ortega and Schoettl, 2005).

Several recent efforts provided by business scholars and managers have agreed that the central idea of disruptive strategies is to introduce into a sector a new economic model, born from the radical modification of the value proposition for the client and/or of the value architecture (Schiavi & Behr, 2018; Yunus et al., 2010; Lehmann-Ortega et al., 2017, Lehmann-Ortega and Schoettl, 2005), which allows this to create “a virgin space”. Kim and Mauborgne (2015) use the metaphor of “blue oceans”; this consists of developing the activity within a unexploited market space, space in which demand is to be created, by adopting a “reconstructionist” vision, that is to say to move away from the cost-value alternative, to focus on non-customers and to remodel the rules of the competitive game.

According to these efforts, two axis of the definition are particularly common. The first axis highlights the radical changes in customer value, i.e., that the company must focus its strategic posture on the customer and no longer just on its resources and skills. The customer’s need must determine the value chain and the skills and not the other way around (Schiavi & Behr, 2018). The issue is therefore not that of conquering market shares (which assumes that the market would have a given size to be shared between competitors, fixed and definitive borders), but on the contrary lies in the desire to increase the market by widening the scope of the offer, based on the principle that the needs to be satisfied are unlimited (Yunus et al., 2010).

The second axis emphasizes modification of the value chain; this axis, less explored in work on disruptive innovation, requires in-depth knowledge of how the business operates. The principle is to rethink the value chain in the broad sense, including partners. This approach can result either in carrying out a step in the value chain differently (radically modifying its mode of production or distribution) or in reorganizing these steps, or even by removing or adding some (Lehmann-Ortega et al., 2017). We could cite the example of companies that have radically changed their mode of distribution by turning to digital.

These two axes advance a clear conceptualization of a disruptive innovation and contribute to the broadening of the description of the process of implementing a disruption strategy, which will ultimately lead to the formulation of a model generating the strategic disruption (Schiavi & Behr, 2018).

Across axes, scholars widely agree that disruptive innovation is characterized to allow to deliberately change and destabilize the sector’s rules of the game, in order to redefine the competitive framework to the advantage of the disruptor (Schiavi & Behr, 2018; Yunus et al., 2010).

### **Competitive dynamics and disruptive innovation**

Prior research has illuminated several mechanisms that can explain why disruptive innovations frequently pose difficulties for incumbents; some authors, like Andrevski and Ferrier (2019) and Porter (1980), consider that aggressive behavior essentially results in the lasting deterioration of margins in a sector; according to these authors, “wars” are denounced as the result of a miscalculation on the part of disruptive firms.

They postulate, in particular, the argument that incumbents have an interest in maintaining stability within their sector in order to avoid any risk associated with the

emergence of a threat or too strong rivalry; Porter's (1980) analysis demonstrates, in this regard, the risks associated with a high intensity of competitive forces.

The literature has also examined the reasons that encourage companies to take the initiative of disruptive innovative (see Christensen et al., 2018; Kim & Mauborgne, 2015; Leavy, 2018; Lehmann-Ortega et al., 2017): First, this consideration of the initiation of disruptive innovative actions between firms is essential in a context of hypercompetition because the speed of the innovation which results from it in these contexts causes firms to constantly question the competitive advantages acquired. However, to be efficient in these contexts, companies must be able to trigger disruptive actions (Hughes-Morgan et al., 2018a, b). The innovative firm would be better motivated and more willing to mitigate the risk of being relegated to a disadvantage position by a dissimilar rival. The creation of such a disruptive dynamic has been addressed among others by authors including in particular Nadkarni, Pan, and Chen (2019); Le and Lei (2018); and Pancaningrum, Sukoco, and Ratmawati (2019).

Second, among the reasons that encourage companies to take the initiative of disruptive action is to benefit from "first-mover-advantages" (Flor & Moritzen, 2020) such as the introduction of a new product, the penetration of a new market, and the creation of a new segment, which leads to the acquisition of rivals' market shares or else to reduce their anticipated revenues, and consequently disruptive firms become the benchmark in the market (Dumoulin & Giacomel, 2020; Zach, Nicolau, & Abhina, 2020).

These response strategies highlighted by previous research suggest that incumbents must follow a disruptive strategy when faced with a dynamic hypercompetitive environment where competition is self-destructive; in these contexts, firms which do not voluntarily attempt to destabilize their rivals should themselves be invaded by aggressive actions (Avram, 2019; Hammoud & Abdallah, 2019; Longin, 2016; Zach et al., 2020). According to these authors, it is recommended that companies be the first to take roundabout paths and not hesitate to distort the rules of the game, by leading their organization towards virgin territories, putting up to date with new technologies, products, and markets. For these authors, it is no longer a question of reducing competition, but rather of fueling it, which allows them to stay one step ahead of their opponents, by going from one competitive advantage to another, which delays the competitive actions of rivals (D'Aveni, Dagnino, & Smith, 2010).

Such differences across passivity and disturbance pinpoint the value of studying disruptive innovations in the context of dynamic environment in addition to the traditional disruptive innovation research. The editorial of a recent special issue on disruptive innovation corroborates this assessment as it reflects on the state of the literature:

The establishment and diffusion of disruptive technologies in markets are mainly driven by incumbent (large) firms with a strong market power. However, small (entrant) firms can generate radical innovations but they have to cope with high economic resources needed for developing new technology (cf. Caner et al., 2016). This financial issue explains the strategic alliances and partnerships between some incumbent and entrant firms to develop disruptive technologies. These collaborations mark a new phase in business development of innovations. (Coccia, 2018: 13)

**Proposal** The intensity of competitive movement dynamics incites all competitors to adopt a disruptive innovation.

## Research methods

### Study context

Figure 1 presents the market share of the five companies.

Regarding the field of study, as our initial idea is to activate our research object in a context where competition is fierce, we chose the fresh dairy product sector (FDP) in Algeria and particularly the yoghurt industry because this sector is characterized by strong competitive dynamics, and it includes operators with different competitive positions: leaders, challengers, and followers (cf. Fig. 1).

These firms are either already established in the area or are new entrants, and thereby, this sector presents a context particularly rich in terms of lessons that may be drawn from the dynamics of strategic postures among the existing firms and the new actors. Regarding the selected industry players, we have decided to conduct our study on companies that dominate the yoghurt sector. Thus, five (5) case studies were identified to conduct our research, as Table 1 shows.

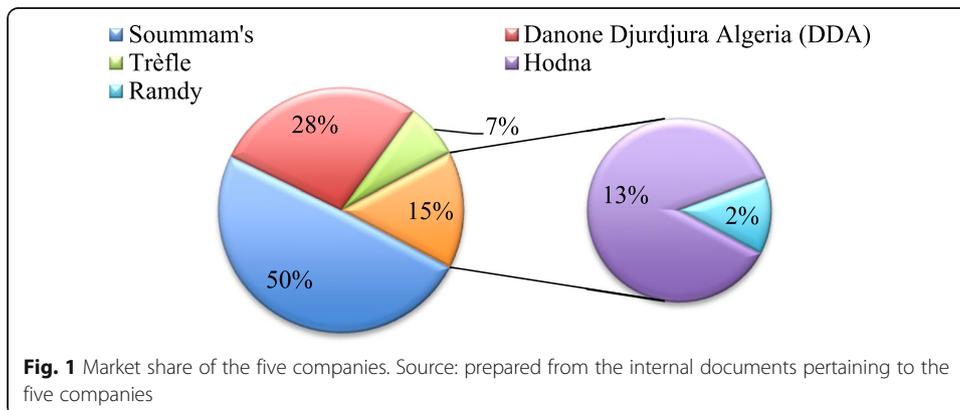
Table 1 presents the five main actors in the yoghurt sector in Algeria.

### Data and analysis

The choice of research method focused on exploratory study, structured around case studies. Several criteria associated with our research justify the interest in retaining this methodological option. First, the study on innovative disruption still lies in an early phase in the wider strategic discipline, which requires exploration work (Charreire & Durieux, 1999). Then, according to the work of Roy (2003), it is one of grasping a dynamic phenomenon that of understanding the dynamics of competitive movements, and the case study appears to be an appropriate search strategy.

Based on a qualitative interpretation of available data, we carried out 42 probing interviews, conducted face-to-face with the employees at the level of 5 case studies, including nine interviews in DDA, seven in Trèfle, seven in Ramdy, eleven in Soummam, and eight in Hodna. Our interviews took place between 8 September 2013 and 12 June 2016. They lasted on average an hour and a half. We met 36 personnel from the five companies, including ten employees of DDA, seven of Trèfle, six of Ramdy, seven of Soummam, and six of Hodna, occupying different managerial and executive positions.

We have several categories of respondents: the informants in the company who are only the directors of various functions (production process manager, health, safety, and environment manager; director of human resources; head of raw milk collection; director of research and development; sales analysis department manager, etc.). The nature of the questions of our research requires focusing exclusively on directors.



**Fig. 1** Market share of the five companies. Source: prepared from the internal documents pertaining to the five companies

**Table 1** The five main actors in the yoghurt industry in Algeria

	Companies	Market position
Existing actors	Soummam's	Leader since 2006 in the segment of yoghurt cups with more than 35 products.
	Danone Djurdjura Algeria (DDA)	A multinational company, a subsidiary of French group Danone in Algeria, it is the main challenger of Soummam.
	Trèfle	One of the original pioneering companies is currently follower in the market.
New actors	Hodna	One of the two largest operators after DDA/It took in particular a strong position in the Algerian market.
	Ramdy	The youngest in the market, with future growth prospects

Source: prepared from the internal documents of the five companies

We have also conducted interviews with external partners of the companies (suppliers, etc.), as well as clients, who can be divided into several groups: distributors, wholesalers, and retailers. The same person might be interviewed many times with different questions; these questions are determined in the development of our interviews.

Interviews were recorded and fully transcribed. The data collected were analyzed manually without any software and have given rise to identification codes, themes, and categories. The focus in the initial step is placed on open coding the interview to discern common terms or labels the respondents provided in relation to the dynamic context and disruptive innovation. In the next step, we began to identify links within the categories in order to bring out the divergence and convergence between the five case studies in terms of the new innovation applicable in different services. The final step involved generating general illustrative conclusions that connect data and codes at a higher level of abstraction.

These interviews enabled us to collect information as well as qualitative and quantitative data. Data analysis focuses mainly on the period 1996–2016. The choice for the interviewees was essentially to concentrate on the key people in the company, and most of the interviews were realized with all the heads of the companies studied.

## Findings

This section has two sub-sections. In the first, we discuss the key disruptive innovation applications that have driven change in the FDP sector. In the second sub-section, we present the intersection of the FDP disruptive innovation with the competitive dynamics roadmap based on a longitudinal perspective.

### Emergence of yoghurt innovation (three waves of innovation changes)

#### *Wave 1: value radical change*

**Soummam** Processing of our data shows that the current market leader is very aggressive, as it was it which initiated several radical actions in the sector. It created the disruptive event (Withers et al., 2018), choosing the axis of consequential change in the

value (it was the first to introduce the “ginger,” “mandarin,” “coconut,” and “cookies varieties”). Even in terms of container design, it was the first at the national level to make “black cups,” in order to attract the curiosity of consumers. Thanks to this strategic policy initiative, Soummam created instability (Pancaningrum et al., 2019) and, therefore, has seized a very wide range of products exclusively to it. It benefited as well from “first mover advantage” (Flor & Moritzen, 2020) and became the reference in the yoghurt market in a cup.

Insofar as the strategic choices of the market leader affect all actors, all the companies in the FDP industry were obliged to follow the rhythm of aggression and rivalry. The chief executive officer of Ramdy testifies in these terms: “we are in front of a giant, we have to follow the rhythm of Soummam and evolve”.

**DDA** Indeed, our empirical research shows that DDA, Hodna, and Ramdy have all taken aggressive postures through innovative disruption. First, compared to DDA, according to our analysis, it took a new strategic track, by creating the Bifidus segment, taking the initiative to launch the “Activia” line for the first time in Algeria. Following this radical change in the product value, DDA as a challenger has maneuvered to dominance, prevailing in the sector by imposing its own rules. From 2004 to date, it has become a leader in this segment (Avram, 2019), with 95% market share. The product is ranked first in sales, with more than 3 billion dinars (cf. Fig. 2).

Figure 2 presents the main sales by product of DDA in 2016.

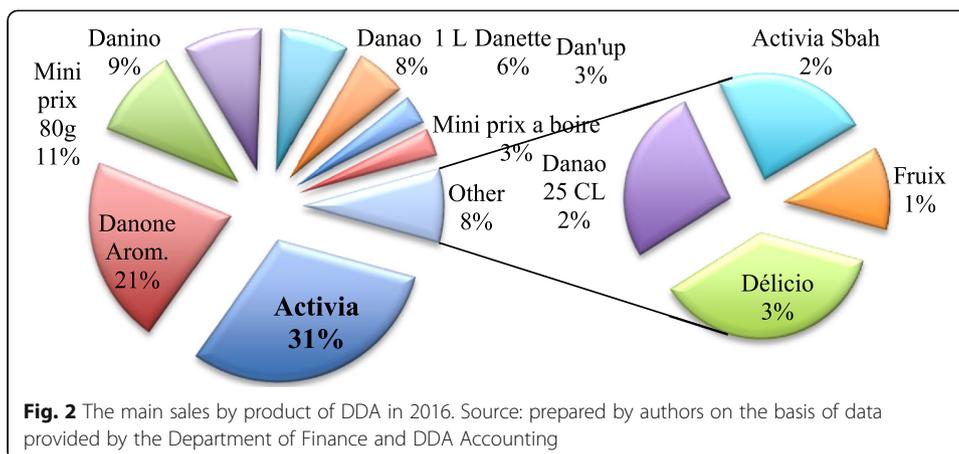
**Hodna** Secondly, Hodna Milk has succeeded in standing out from other competitors by choosing the yoghurt drink sector as a new space, taking the initiative to introduce a new variable in the competitive game by introducing the 100% raw milk yoghurt drink to the market, when rivals made this with milk powder.<sup>1</sup> Although the company is new in the market, this aggressive action is completely original in terms of its value proposition and enabled it to compete with major rivals such as Soummam and Trèfle that are more established in this segment. Following this disruptive innovation, Hodna benefited from its preemption of the market associated with the new value proposition to customers (Withers et al., 2018), having at present 80% of the market share at the national level. The production manager of Hodna Milk affirms that: “we are the national leader, because we had a product based on cow’s milk.”

**Ramdy** Figure 3 presents the evolution profit over time of Ramdy firm in DA..

Third, Ramdy is the second new entrant to penetrate the yoghurt market. It chose to differentiate itself through an aggressive behavior vis-à-vis the competition, taking an unexploited competitive avenue through a radical value proposition via the production of a yoghurt cup based on milk (Christensen et al., 2018; Brennan et al., 2019), where other actors make the dairy specialty.<sup>2</sup> As a result of this strategic disruptive innovation, Ramdy upsets the established order by creating a new segment where it is the only company on the national level to make the fruit yoghurt and yoghurt mini-price. That enabled it to benefit from a regeneration activity and an extension of the

<sup>1</sup>Knowing that all the FDP in Algeria are prepared from milk powder.

<sup>2</sup>The substitution of part of the milk powder by starch, by which, the product loses its nutritional value in calcium.



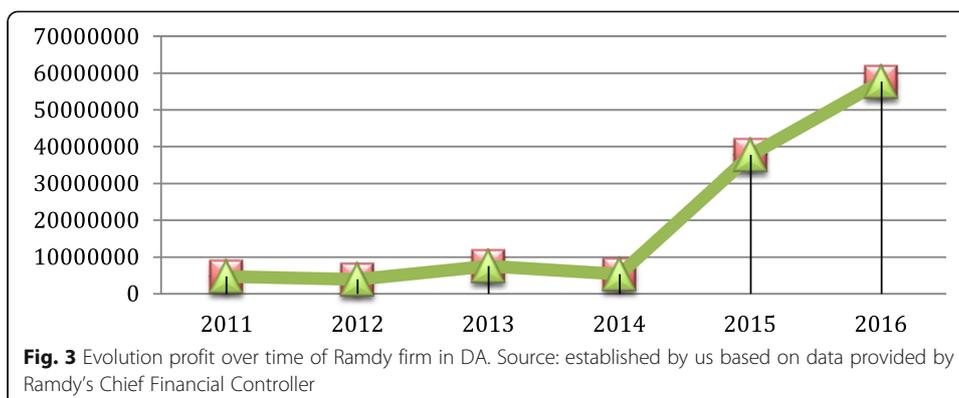
potential market of the yoghurt cup (Alsharif, 2019; Williamson and al., 2020), translating into a rise of overall profitability of the business, engendering to its advantage a 1219% growth by 2016 compared to 2011 (cf. Fig. 3) and as a result, became a national reference of natural yoghurt.

**Wave 2: radical redevelopment of the architecture of value**

**DDA** To this first series of aggressive actions is added another national initiative, this time concerning the commercial variable. DDA has disrupted the rules of the competitive game to its advantage thanks to the radical change in its value chain, choosing the link of marketing and distribution as a new competitive avenue. It managed to create an imbalance by rationalizing its commercial resources (Soummam uses triple of those of DDA). And, despite the fact that Soummam exceeds them by far in terms of product range (36 products, compared to DDA’s eight), it succeeded in creating symmetry in terms of presence in the main cities between its products and those of the market leader.

Table 2 explains this tactic, by showing empirical example of innovative disruption led by DDA via the marketing and distribution link in the value chain.

This disruptive innovation allowed DDA to become the leader in major cities with 80–90% of its brands. DDA’s head of sales analysis attests: “we have the best control of distribution on the market [...]. That’s why I can afford to say that we are the leader.”



**Table 2** Empirical example of innovative disruption led by DDA via the marketing and distribution link in the value chain

Data and objectives	Tactics	Results
Soummam has 110 to 120 flavors, DDA has 28 to 25 flavors  Rationally DDA will occupy one-sixth the shelf space than Soummam	Reverse the situation and create a balance despite the volume gap that exists between the two	 40% of shelf space for Soummam  40% of shelf space for DDA  20% of shelf space for competition
Increase sales volumes with fewer resources	The same volume sold in Algiers with:  Soummam  180 trucks  DDA  60 trucks	Dominate with mastery of the distribution system

Source: established by authors based on information provided by the DDA sales manager

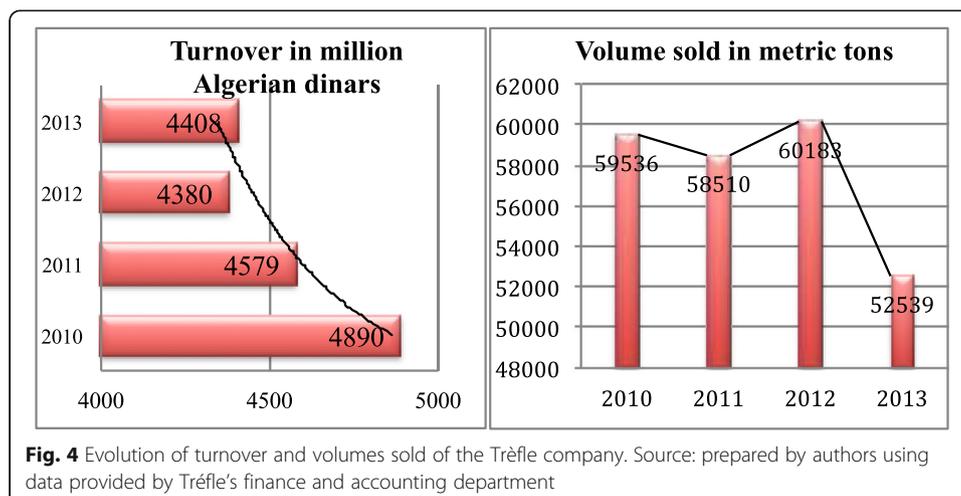
**Wave 3: passivity and absence of destruction**

**Trèfle** Finally, the case of Trèfle will enable us more accurately to study the impact of the lack of aggressiveness and innovative disruption. The case derives its specificity from the defensive behavior of Trèfle against competition. Indeed, although it is the oldest company in the sector, it did not take initiatives to innovate and disrupt the competitive game. This was a company that followed the market; it simply reacted to the actions of competitors, imitating what was already on the market, either in terms of customer value or its value architecture. The lack of aggression, and therefore of disruptive innovation, led to a complete decline for the company, as highlighted in the Fig. 4. The company was the subject of aggressive maneuvers, and as a result, it lost its leading position, overtaken by recent competitors in the sector. The unprecedented rivalry and lack of disturbance led to the disappearance of the operator in the beginning of June 2015; Trèfle has been absorbed by the competition, ceding all the yoghurt business to DDA (D’Aveni, 2001).

Figure 4 shows the evolution of turnover and volumes sold of the Trèfle company.

**FDP disruptive innovation evolution and competitive intensity factors**

The intensity competition concerns numerous companies and sectors in the world and specifically in Algeria (Arabeche, 2020). The development of dynamic competition through the emergence of thousands of start-ups in the FDP sector has brought significant changes to this industry. We find evidence that a dynamic competition, as it emerges, has a systematic and hard-hitting impact on all companies in the sector. Specifically, with the passage of Algeria to a market economy, the dairy sector has experienced increasing competitive intensity due to several factors, which are as follows:



- The emergence of a dynamic fabric of private companies that have invested heavily in milk production and dairy products. Indeed, the private sector counts 172 SME/ SMI spread over the country. These companies are oriented particularly to the manufacture of dairy products (80% compared to only 20% for drinking milk);
- The increase of the overall consumption of yoghurt in Algeria amounted to 13.7 kg per capita per year, up from less than 5 kg in 2001, which makes the Algerian market a buoyant market, and, thus, led in fact to the increased number of participants and, accordingly, was involved in amplifying the level of competitive intensity; and
- The arrival of multinational firms (the investment of French group Danone in Algeria in 2001 via an alliance with the local company “Djurdjura” in partnership with Yoplait via a franchise agreement). Local SMEs have benefited from several opportunities, namely the transfer of FMNs’ knowledge in terms of management and marketing, and benefited from their expertise in terms of quality process, and thus, achieved significant improvement in financial results. This has, in turn, led other private enterprises, especially family owned companies (Soummam, Hodna, Trèfle, etc.), to improve their competitive position by introducing further initiatives in communication and fine segmentation by product types through innovation.

The intersection of all these elements constitutes an important source of strong competitive tension in the sector prompting notable changes that facilitates the creation of more efficient disruptive innovations (Hammoud & Abdallah, 2019). A development of competitive intensity can also attract greater talent and generate more business ideas, leading to the growth of opportunities in a variety of the sectors including new products, radical processes, attractive services, and new subsectors. The commercial director of Ramdy evokes this reality: “The intensity of competition is very strong, it will be stronger in the time to come.”

The competitive dynamics created three stages of disruptive innovation. The first stage (1980–2002) is prominent industry maturity, which opens up a path for the introduction of different innovations (in our case, related to radical change of product/

market for the client) initially dominated by incumbents. Here, incumbent firms as “Trèfle” dominate and seek support from new ventures as “DDA” and “Soummam” to enhance their ability to exploit emerging innovations. One example is the introduction of new preparations with new ingredients in the entire fresh dairy product to offer new products. These actions have allowed the enrichment of products which has resulted in an enlargement of customer choice and has allowed incumbent firms to use existing complementary capabilities such as their salesforce and brand value. In this period, there are few new ventures, and financial support for the new ventures tends to be limited.

The second stage is the symbiosis stage; this period (2002–2015) is characterized by the arrival of several new ventures as “Hodna” and “Ramdy” facing incumbents “Trèfle,” “DDA,” and “Soummam”. This stage sees the introduction of more radical innovations such as a radical change in product/market or radical redevelopment of the process. These innovations are largely driven by adaptation and exploitation by the new ventures. The increasing volume of radical change has led to a new trend in consumption mode whereby traditional consumption patterns have been replaced, in which dairy products have become an essential element in the quotidian diet of the consumer. The FDP sector witnesses several revolutions (Chemma & Arabeche, 2018), firstly the sector regeneration that has resulted in the increase of overall profitability, reaching a percentage of 500% during the period 2012–2013. The second effect is in relation with the productivity; it appears that it has recorded in 2013 an increase of 10% compared with 2012. But on the other side of the coin, the industry landscape in this particular stage tends to be highly disrupted, uncertain, and extremely aggressive. Existing incumbent firms as “Soummam” attempt to keep their market share and to follow this trend of aggression to face the new ventures that begin to gain market share because they start to profit from innovations due to their ability to quickly respond to the changing business environment. There are also firms such as “Trèfle” which are unable to keep up with the trend of disruptive innovation of the new ventures and the rapid expansion of the industry.

The third stage (2015–until now) is industry resilience and the very prominent role of new entrants that take over and reshapes the industry, where incumbents face the risk of being replaced. During this stage, the industry is transformed with incumbent firms confronted with diminishing influence and new ventures exerting increasing influence. With the accelerating pace of radical innovation, there is a high degree of product quality and efficiency improvements in processes that saves time and money. Many previously unique and high-value-added products disappear, and new kinds of customer needs emerge. With increasing customer maturity and adaptation to new offers more practical to wear and consume, customers start to seek new kinds of products such as highly customized offerings as organic fresh dairy products or Bifidus yoghurt. There are two kinds of incumbents, the first ones are able to cope with the need to innovate and adapt their business models as “Soummam” and in turn create change; the second kind of company is unable to follow the pace of distributive innovation, and it becomes marginalized and surpassed, as the case of “Trèfle”. However, with intelligent distribution policy, many new ventures are able to grow and dominate. They begin to introduce completely new offerings that are very attractive, combining price and product innovation, such as the “Activia” and “mini-price” products of “Danone”.

### **Discussion, contributions, and limitations**

Considerable attention has been devoted by the literature to the radical innovation through which disruptive innovations replace current innovations and product ranges (Schiavi & Behr, 2018; Ramdani, Binsaif, & Boukarmi, 2019). The studies in this field have searched for how disruptive firms impact existing incumbents via disruptive actions, whether in products, business models or processes, or exploring and applying a radical strategy in the market (for a review see Christensen et al., 2018; Liu, 2020). Despite the fact that this research has contributed to enrich the knowledge of the implications of individual disruptive companies on firms and their industries of entry, it has not addressed the underlying impacts and strengths of the full range of factors of the competitive context which characterize a majority of sectors (Hammoud & Abdallah, 2019; Longin, 2016).

This omission is the focus of this research paper. Such a view provides a larger picture of systemic impact. Previous research has neglected the link between disruptive innovation and competitive dynamics and the broader effect of competitive intensity that pushed companies to pursue disruptive innovation in industry or product domains. An understanding of the underlying dynamic context where disruptive innovation occurs could help the research community to interpret and analyze the competition conditions that promote a different value proposition for incumbent companies and new entrants (Christensen et al., 2018).

In this context, we maintain that existing researches have overemphasized the impact of disruptive innovation companies compared to the impact of disruptive innovation in a dynamic context. This omission has been treated by our study by exploring the link between disruptive innovation and competitive dynamics. We maintain that a comprehension of this link is important for the research of disruptive innovation. We define the link and outline how it occurs through an empirical study of the global fresh dairy product sector that has transformed and outcompeted an entire sector of incumbents and new entrants.

Ultimately, the aim of this paper is to discuss how the link of dynamic competition and disruptive innovation contribute to the study of disruptive innovation and the growing stream of dynamic competition research.

This paper's analysis of the fresh dairy product disruption supports the growing number of scholars who argue that disruptive innovations today are widely developed and commercialized in a dynamic environment rather than "stable" contexts (Pancaningrum et al., 2019; Moschko et al., 2020; Withers et al., 2018). As the importance of dynamic competition for disruptive innovation multiplies, the knowledge gaps that persist become increasingly detrimental and inhibiting. To fill the research gap, it is necessary to multiply academic endeavors to augment the very limited amount of research thus far conducted on the intersection of disruptive innovation and competitive dynamics (Chen & Miller, 2015; Palmié et al., 2020; Uzunca, 2018).

For this reason, we focused specifically on strategic behavior in the FDP sector in Algeria. Indeed, this competitive context involves a multiplicity of companies, whether national or multinational, which led to the growth in competitiveness, and the appearance of disruptive innovation, of the rules of the competitive game. The longitudinal study conducted in this sector between 1996 and 2016 offers two principal contributions:

- First, increased competition leads companies to redefine the status quo, and this strategic choice is imposed on all businesses. From this perspective, disruptive innovation, which is part of this vision, is a source of competitive advantage. A posteriori, first, the performance of the four aggressive operators, namely, Soummam, DDA, Hodna, and Ramdy, during the study timeframe, is explained by the adoption of this behavior, which allowed these players to be leaders in the segment where the disturbance occurred. Furthermore, the diminishment of the passive actor, namely Trèfle, which preferred inertia, had the effect of absorption by competition and the disappearance from the industry despite its pioneering position in the national production of yoghurt;
- Second, the starting point of our research was better to understand the strategic disturbance, defined as a new initiative that rests here on two main sources: radical change in the value and/or value architecture, which is used to build a new business model through the creation of a new strategic space. This strategy is, indeed, of great interest, both for existing actors as the case of Soummam and DDA and for new actors like Ramdy and Hodna if we consider the gains earned for the two types of actors.

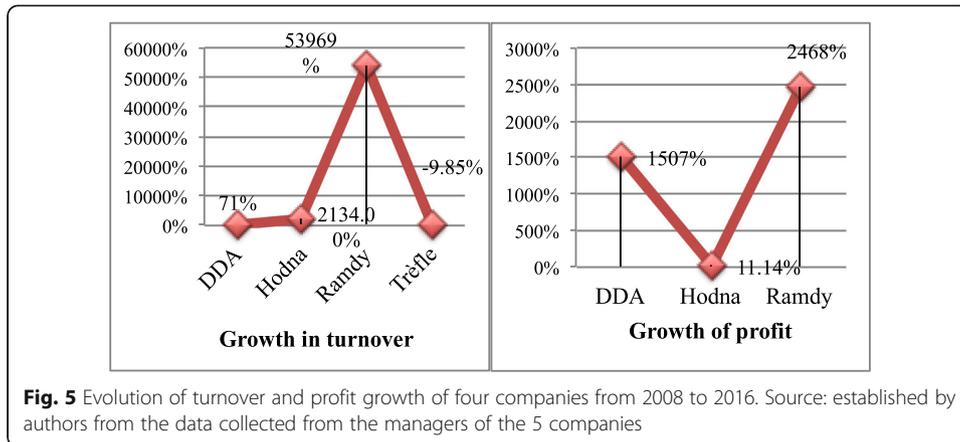
Aggression and strategic innovation have permitted Soummam to be a leader and to benefit from extended growth, realizing an annual rate of increase of over 15%. It has enjoyed a significant performance gap over its competitors, despite the presence of multinational firms in the sector. Thus, this behavior has allowed the remaining operators (DDA, Hodna, and Ramdy) to benefit from considerable growth, whereas the inertia and adoption of defensive attitudes have led, by contrast, to a deterioration of growth for the passive firm (Trèfle). This confirms the performance of innovative disruption (see Fig. 5).

Figure 5 shows the evolution of turnover and profit growth of four companies from 2008 to 2016.

The object of the reflexion being undertaken is disruptive innovation and particularly by demonstrating its performance as a vital strategic choice in a highly competitive dynamics context. With this in mind and observing retrospectively competitive behavior carried by the operators in the sector and their implications during the period under review, **it should be noted that** disruptive innovation has become a vital strategic option for existing actors and for new entrants. Our results reinforce therefore the idea that actors have an interest to take part actively in the transgression of the rules of the competitive game and the referents associated with them (Chen et al., 2019). The quest of inertia, prescribed by Porter (1980), lies here somewhat challenged by the behavior of operators over the study period.

This observation leads us to advance in the sense of Hammoud and Abdallah (2019), D'Aveni (1994), Avram (2019) that, whether it is a company already established in the market or new entrant, in a universe where the dynamics of competition is strong and uncertainty intense, a behavior of competitive action initiation and attitudes disruptive of the status quo are successful strategic approaches for all actors, as this is the only way that guarantees the survival and growth it has sought or is still seeking.

Table 3 presents a synthesis of foundation of the innovative disruption and implication at the level of 5 case studies.



**Table 3** Synthesis of the innovative disruption and implication at the level of five case studies

Companies	Foundation of innovative disruption		Implications
	Create a new strategic space		
	Build a new business model		
	Radical modification of value	Radical modification of value architecture	
Soummam	Launch of several innovative products, that meet customer expectations	/	Leader in the yoghurt cup industry
DDA	Creation of bifidus industry in Algeria through the launch of Activia	/	Leader in the Bifidus sector
	/	Disruption in terms of trade policy and distribution	Leader in terms of distribution
Hodna	Offer drinking 100% cow's milk yoghurt drinks	/	Leader in the yoghurt drinks industry
Ramdy	Offer cup yoghurt 100% milk	/	Considerable growth since 2009 either in terms of profit or return
Trèfle	Lack of disturbance		Disappearance and absorption by competition (DDA)

Source: established by authors from the data collected from the managers of the five companies

The theoretical value of this study lies in its originality, in the fact that this research unites two themes, which have never been considered jointly before, namely: competitive dynamics and disruptive innovation. (The theoretical implications)

Furthermore, this research includes the sources and implications of disruptive innovation, at level of the disruptive firm whether for the new entrants as the case of Ramdy and Hodna or for incumbent firms as the case of Soummam, Danone, and Trèfle. These contributions contribute clearly to enrich the theoretical repertoire. (The theoretical implications)

For the managerial contribution, this research answers to the lack of a reference on which the managers can rely on, to the extent that the traditional models are still static and aggregated. Thanks to the in-depth work in the theoretical and practical parts, the strategic perturbation was explained in a clear and complete manner and applied in the five case studies. These contributions can be considered as “useful recipes” for the firms (managers) who want to adopt this strategy, whatever their position, leader, challenger, or followers, in order to use them as tools in confronting competitive intensity. (The practical implications)

There is little research that has tried to analyze the competitive context in the FDP sector and specifically that of the yoghurt industry in Algeria, as most works that we have encountered are focused on the dairy industry without addressing the dairy derivative sector (Boukella, 1996; Bourbouze, 2001; Cherfaoui, 2003; Kaci & Sassi, 2007; Sraïri, Benyoucef, & Kraiem, 2013); in addition, these studies focused on the economic situation without mentioning competition or the present actors. In fact our research highlights the competitive dynamics that reigns in the yoghurt sector with detailed analysis of strategic actions taken by the firms. For these reasons, this work constitutes “guidelines” for researchers and managers for the comprehension, on the one hand, of the competitive context and, on the other, of the competitive behavior of actors, and this in order to ensure first the proper choice of a suitable strategy and then to implement it efficiently. (The practical implications)

Finally, we hope that this work opens the way to other researchers in order to further study the intersection of competitive dynamics and innovative disruption.

As in any research endeavor of this nature, certain limitations should be noted. First, as our study is in an exploratory stage, competitive dynamics and innovative disruption bear significant theoretical implications and great potential of contributing to the literature. Future research is encouraged to conduct in-depth investigations of the dynamic and historical dimensions of innovative disruption. Second, as this study is situated in the unique sector, “FDP,” it has significant implications to similar cases where government has “a visible hand” in creating favorable conditions for the protection of local firms (e.g., the heavy government involvement in the supply of milk powder at 50% for the protection of local markets). Furthermore, we believe that findings from the yoghurt industry case will have generalizability in settings where a government does not take any intervention in the market. However, differences in the terms of the competitive dynamics between organizations in emerging economies and developed economies should certainly be noticed. We encourage future research to test the generalizability of the findings in other research contexts, particularly those where there is free competition, whether in developed economies or emerging economies. Finally, since this study is solely based on data from one industry, we did not have a large enough sample to

statistically test the proposition. Future empirical research might collect data on multiple industries as quantitative evidence.

### Concluding remarks

At a time that is simultaneously characterized by the emergence of competitive context and by a growing number of disruptions, little attention has been paid in the literature to the impact of competitive dynamics in the emergence and development of disruptive innovations. To overcome the consequent limitation in our knowledge, this current study has developed the link of disruptive innovation in a competitive context and has illustrated this intersection using the example of the disruption in the competitive fresh dairy product sector. We further indicate some avenues for future research on disruptive innovations and competitive dynamics. Generally, preliminary conclusions have been presented for our research but encouraging support for the idea that disruptive innovation in competitive contexts merit more consideration. We wish that our insights inspire researchers to undertake further theoretical and empirical work at the intersection of disruptive innovation and the competitive dynamics.

### Abbreviations

FDP: Fresh dairy product sector; DDA: Danone Djurdjura Algeria

### Author's contributions

The author read and approved the final manuscript.

### Author's information

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### Availability of data and materials

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### Competing interests

The author declares no competing interests.

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