Innovating and transforming during COVID-19: insights from Italian firms

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During the COVID-19 pandemic, a huge number of firms had to stop their activities due to the lockdown situation that has been decided in most countries. However, to contribute to the many emergencies caused by the pandemic through purpose-led actions, many of those firms have reacted with innovative projects and changes in their manufacturing activities. In this paper, we address why and how these efforts have been implemented and how the situation of these firms evolved after the peak of the health crisis. Drawing on the literature about the purpose and R&D/innovation management concerning health emergency, we develop a conceptual framework to understand how different types of purpose-led actions (i.e., short term and/or long term) and different R&D management strategies (i.e., exploitation or exploration of R&D, innovation, and manufacturing competencies) can characterize firms’ rapid response for the benefit of the community in the fight against COVID-19, for example through the provision of medical equipment or other products and services. We validate the framework using the cases of 21 Italian firms which have taken very fast actions during the peak of the COVID-19 emergency.

1. Introduction

During health emergencies actions are taken by a wide range of different actors (Anderson et al., 2004): expected actors, such as governments, as well as less expected actors, such as organizations whose institutional mission is not that of acting for the benefit of society in the case of a health crisis. Among these actors, it is particularly interesting to analyze how firms, that is, profit organizations, operate and to know more about their motivations.

The innovation literature suggests that different types of shocks, such as health emergencies, have the effect of stimulating firms to innovate. Within this type of innovation, we have the cases of firms that orient their innovative efforts toward the provision of products and services for the benefit of the society, going beyond profit objectives during a health emergency (Shepherd and Williams, 2014; Williams and Shepherd, 2016).

COVID-19 is an unprecedented health emergency that has caused, in the first half of 2020, a huge number of casualties, economic losses, and disruption of daily activities all over the world. To deal with COVID-19, beyond the ‘institutional’ response, several other spontaneous initiatives have been taken (Baldwin and Di Mauro, 2020; Tognini, 2020). More specifically, many firms have rapidly converted part of their manufacturing activities to provide medical protective products in the worst moments of the COVID-19 emergency (Chesbrough, 2020; Clark, 2020). Italy, for example, has been very severely affected by COVID-19 during Spring 2020 and several high-tech and
non-high-tech firms, operating in different sectors (i.e., automotive, fashion, chemicals), have rapidly increased or transformed their production to meet the demand for personal protective equipment, ventilators, hand sanitizers or other components (Banks, 2020; Tognini, 2020).

Despite some scholars have focused on firms’ reaction to health emergencies and found that innovations can reshape firms’ business models (Martí, 2018), not much has been written about the purpose-led, non-profit objectives that may drive firms’ innovation efforts to support communities in the fight against a global emergency (Fontán et al., 2019; Rey and Bastons, 2019; Rey et al., 2019). This is why we tried to answer the following research questions: (1) what kind of purposes have been driving firms’ actions to support communities in the fight against COVID-19? (2) Do different patterns exist in the way firms implemented their purpose-led actions through their R&D and innovation projects during COVID-19?

To address these research questions, we reviewed the literature about both purpose-driven firms (Fontán et al., 2019; Rey and Bastons, 2019; Rey et al., 2019) and R&D management (Durand, 1988; Peeters and Martin, 2017) concerning health emergencies. Based on this literature we argue that two dimensions can be used to characterize firms’ actions. First, firms can choose to launch purpose-led actions in the short term or to continue them in the medium-long term (after the peak of the health emergency). Second, their actions can be implemented through (mainly) exploitation of existing R&D and manufacturing competencies or (mainly) exploration and development of new and ad hoc ones, which therefore require new specific projects and initiatives. We then elaborated a matrix that combines these two dimensions and applied it to 21 Italian firms that reacted to the COVID-19 emergency offering products and services related to the health domain, which were not part of their normal offering. Drawing on the findings of our case studies, we presented some implications for both academics and managers.

The paper is structured as follows. In Section 2, we briefly introduce the COVID-19 emergency and review the existing literature on purpose-driven corporations and R&D management about health emergencies to propose a matrix that describes why and how firms transformed part of their activities in the fight against COVID-19. In Section 3, we validate the matrix through information collected. Finally, in Section 4, we present our main empirical findings and we discuss, in Section 5, the implications and limitations of our study.

2. Linking purpose-led approaches to R&D management literature in relation to health emergencies response: a conceptual framework

Crises and extraordinary situations have attracted huge attention among researchers in different fields. For instance, Williams et al. (2017) developed an integrative framework that is focused on key themes of both crisis and resilience as responding to major disturbances. Battisti and Deakins (2017) discussed the importance of a firm’s proactive posture in an environment characterized by increased uncertainty. Finally, Beck and Plowman (2014) explained how organizational actions enabled self-organization and development of trust and identity, leading to a successful unplanned collaboration in unexpected circumstances.

As argued by some authors, the extraordinary situation created by COVID-19 is a unique research context (Bacq et al., 2020) that has determined a sudden rise in the demand for products directly needed for health services (FDA, 2020). Such needs have stimulated firms that have promptly taken action to provide goods and services dramatically needed at the peak of the crisis (Tognini, 2020). Some firms have increased the production of their ordinary needs to support the community. Some others have donated masks, ventilators, or other products for hospitals and also billions of euros for research and development. However, this is not certain enough to solve the emergency. There are firms that, instead, have converted part of their manufacturing laboratories to provide unusual goods and services in a very limited period of time (Chesbrough, 2020). In this paper, we believe that it is interesting to investigate this specific phenomenon. In doing so, we review what has been written about purpose and R&D/innovation management in relation to health emergencies to understand why and how firms’ innovation efforts have been implemented and describe the evolution of the situation after the peak of the health crisis.

2.1. Purpose-led approaches

In the last few decades, there has been an intensification of discussions about the limits of the current capitalist dynamics (Mazzucato, 2019; Porter and Kramer, 2011). Simultaneously, significant changes
have been observed in firms’ and entrepreneurs’ strategic approaches toward more inclusive and socially responsible behaviors (Henderson, 2020; Kim et al., 2018). Many firms have started to implement the concept of shared value creation (Porter and Kramer, 2011) and to orient their strategies and actions toward specific purposes, often linked to societal needs (Asselle and Piccaluga, 2019; Spitzeck, 2011). Moreover, some concrete changes are also taking place and some firms are adopting more conscious and humanistic approaches (Rey et al., 2019). For example, some firms are described as increasingly inspired by a specific purpose, which represents the why of action and efforts (Rey et al., 2019), the essence that underlines and supports the meaning of the mission, vision or final aspirations (Almandoz et al., 2018; Cardona and Rey, 2008; Rey and Bastons, 2019).

Purpose corporations generate profits but are oriented toward prosocial behaviors that aim to solve community problems connecting with other people and trying to be part of the solution when things get difficult (Craig and Snook, 2014), as in extraordinary situations. This takes outward focus to a whole new level, not only emphasizing the importance of serving customers or understanding their needs, but also asking how the company ‘makes a difference’ in the community (Kenny, 2014, 2016). During a crisis, it is, therefore, not surprising that some firms adopt behaviors geared toward achieving pro-social goals, working toward common causes which emphasizes social gain and go beyond a profit (Birkinshaw et al., 2014). Such firms give considerable attention to their global commitment to society, which includes wider goals, such as ‘improving lives’ or ‘reducing harm’ (Fontán et al., 2019; Rey et al., 2019). Furthermore, purpose corporations engender trust that can support innovation and growth and position companies for long-term success (Hollensbe et al., 2014). However, to restore confidence in business, it is important to ensure that such topics as innovation, growth, and community well-being are also guaranteed in the short term. Therefore, we can assume that firms that took initiative during the COVID-19 responded, with different intensities, to the features of purpose corporations. More concretely, we can assume that those firms that in the worst moments of the COVID-19 emergency have rapidly increased or transformed part of their production to meet the demand for personal protective components have been doing so with generosity and not-for-profit objectives. These firms have taken various risks to produce new medical devices or personal protective equipment (PPE) – beyond their usual business – which were very useful during the health emergency. In this paper, we assume that these firms have been doing so with two different time orientations. On the one side, some firms have adopted prosocial behaviors in favor of the community, with the aim of acting ‘as soon as possible’. It was necessary to help the community and to do it fast. For this reason, some firms acted immediately where it was most needed in the shortest time. Examples of these actions are the production of masks with bedclothes or the assistance of the stitching of surgical masks from home. In this case, the goal was not to generate relapses in the long run, but only to help quickly.

On the other side, community support in the production of medical devices and PPE has also generated long-term purpose-led actions (i.e., firms’ initiatives that continued after the peak of COVID-19). In this case, firms were aware that they had to react quickly, but they have made efforts to implement long-term purpose-led actions by offering products and/or services that satisfy market needs. Examples of these actions are the inclusion of specific products in the commercial line – at a cost price – or the production of medical protection devices for employees. In some cases, they hired new employees and new firms were generated for the production of protective medical devices.

2.2. R&D management strategies

Since the firm’s competitive environment has become more global, uncertain, and aggressive, firms need to constantly enhance their knowledge base in order to perform well (Dagnino et al., 2021). To tackle this need, firms usually take advantage of their competencies in familiar and consolidated technological knowledge (Kuo et al., 2019) to exploit their knowledge and offer new products or services (Peeters and Martin, 2017). However, sometimes existing competencies are not sufficient and firms start to explore new internal research projects, thereby developing new competencies (Noh et al., 2018). In the case of the response to COVID-19 needs, many firms decided to take action and to do it very quickly. Somehow, the situation which materialized was probably similar to the well-known ‘Houston we have a problem’ case. The solutions had to be found very quickly, exploiting existing competencies and infrastructures. It was also possible to explore new projects, and even collaborations with external partners, but all of this had to be extremely fast, almost real-time (Rerup, 2001). Therefore, we suppose that firms answering generously to COVID-19 needs have taken initiatives either (mainly) exploiting their existing R&D, innovation, and manufacturing competencies, or (mainly) exploring new ad hoc ones.
In the first case, firms may set up an emergency team on the basis of a need that has been already identified or to identify a need to contribute to. The plan, however, is to respond by relying only on their existing innovative competencies (Durand, 1988; Peeters and Martin, 2017). In this context, we propose that firms may exploit existing R&D, innovation, and manufacturing competencies for two alternative reasons. First, firms may decide to opt for this action because they realize they are already well equipped for the need they identified. Second, firms may think that their competencies represent a good knowledge basis from which to start to look for a need to answer. Thus, in this case, firms can enhance their competencies (Tushman and Anderson, 1986). We can imagine that everything probably took place very rapidly, with knowledge owners holding emergency meetings and prototypes being built very quickly, seeking to provide useful contributions right in the worst days of the crisis.

In the second case, firms probably somehow identified the possibility of offering useful products and services which were more distant from their traditional offering and/or from their current competencies (Cho et al., 2016). It was not something they could implement straight away. In fact, differently from the first case, exploring and developing new ad hoc R&D, innovation, and manufacturing competencies requires a fast but relevant effort from the firm’s side (Peeters and Martin, 2017), in some cases done with external partners (Chen et al., 2016). Broadly, some of the necessary ‘bricks’ were not available and had to be rapidly produced. By combining purpose-driven innovation (Fontán et al., 2019; Rey and Bastons, 2019; Rey et al., 2019) and R&D management literature (Durand, 1988; Peeters and Martin, 2017) in relation to the response health emergencies, we propose a matrix (see Figure 1) where we argue that two main purposes approaches – that is, short term and long-term purpose-led actions – may drive firms’ actions within an emergency such as COVID-19. Moreover, we argue that the actions implemented may lead firms to either (mainly) exploiting existing R&D, innovation, and manufacturing competencies, or (mainly) exploring new specific projects and initiatives. In the following section, we validate this matrix through a sample of representative qualitative case studies.

3. Research methodology

We validated the elements of our matrix and their relations by conducting an inductive, exploratory approach in our empirical analysis (Lee et al., 1999). On the basic principles of theoretical sampling (Eisenhardt, 1989), we searched for the units for research, based on characteristics or attributes that are important to the evaluation (Yin, 2018): firms that, in Italy, immediately reacted to the needs determined by COVID-19, offering products and services related to the health domain which were not part of their normal offering.

To identify firms responding to these criteria, we divided our search in two phases:

• Phase 1: we collected press releases in the Lexis-Nexis database, which comprises more than 15,000 news, legal, and business sources (Williams and Lee, 2009). In this phase we collected all the articles of Italian newspapers that

| Purpose-Led Actions | Short term actions | Long term actions |
|---------------------|--------------------|-------------------|
| **R&D Management strategies** | Exploitation of existing R&D, innovation and manufacturing competencies | Exploration of ad hoc R&D, innovation and manufacturing competencies |

Figure 1. 2x2 Matrix combining purpose and R&D management literatures.
were published in March 2020 (the first severe COVID-19 month in Italy) and which reported in the Italian language ‘manufacturing transformation’ and ‘Covid-19’ or ‘Coronavirus’ as keywords in their title. We used this time period because our research intent was to identify firms that immediately reacted to COVID-19. This research approach led us to collect 300 press releases and 71 firms.

- **Phase 1**: we verified the information collected in Phase 1 by looking for what these firms reported on their websites. This enabled us to exclude 15 firms because of fake news and 26 firms because the manufacturing transformation was occurring in firms’ partners. As a net result, we selected 30 Italian firms that immediately reacted to the needs determined by COVID-19, offering products that were not part of their normal offering.

### 3.1. Data collection

The data collection process lasted from March to August 2020 and multiple sources were used to benefit from the synergistic effects of triangulation (Eisenhardt, 1989; Jick, 1979). First, we integrated the 300 press releases by collecting additional secondary data sources, including web interviews, speeches, and various other web sources. We started by categorizing some aspects that pertain to general characteristics of the firm such as the firm’s location, year of foundation, key financial data, number of employees, and sector. After, we categorized some aspects related to the manufacturing conversion such as initiative source, scope of conversion, timing of conversion, involved employees, and beneficiaries (Table 1). Last, following the literature on purpose-oriented organizations (Hollensbe et al., 2014; Mazzucato, 2019; Rey et al., 2019; Spitzeck, 2011) we classified firms as short-term finalized when they pursued community objectives in the short term (e.g., only for the duration of the COVID-19 emergency); conversely, we classified firms as long-term purpose-oriented when they have pursued long-term community goals (e.g., if they intend to continue with these activities even after the COVID-19 emergency). Moreover, we classified firms as ‘exploiting existing competencies’ when the company’s R&D was linked to existing company competencies (e.g., knowledge; laboratories or machinery), while as ‘exploring and developing ad hoc projects’ when the company’s R&D was linked to new project developments related exclusively to the COVID-19 emergency (e.g., new machinery or new spinoffs). Subsequently, we have written a summary for each case and used it to contact the firms.

Second, primary data were used to deepen our understanding of the manufacturing transformation that was implemented. In May 2020, we contacted the firms and shared interviews’ questions (Appendix) to identify suitable informants. In most of the cases, they were the founders, and in a few cases, they were CEOs, CMOs, or Head of Marketing. After, we conducted 43 semi-structured interviews by Skype or phone with 21 of the 30 firms. The interviews lasted from 30 to 40 minutes and were then transcribed. Finally, in August 2020, we contacted the firms to share and validate our interpretation of the findings.

### 3.2. Data analysis

Given the aim of this paper, we validated our matrix and their relations by conducting an inductive and confirmatory approach in our empirical analysis (Lee et al., 1999). Confirmatory approaches tend to confirm a researcher’s preconceived notions and they are well recognized in the literature (Ruddin, 2006; Yin, 2018). As regards data analysis, we used an approach similar to Casprini et al. (2014). In fact, we performed a within-case analysis, to gain a deeper understanding of the manufacturing transformation of each individual company, followed by a cross-case analysis, to gather similarities and differences among cases. Such an approach also led us to classify each company according to the specific dimensions of our research framework.

### 4. Discussion

Following Praest (1998), we discuss firms’ behaviors by analyzing the firms’ activities in different time periods: (1) the first dimension deals with strategic short-term behavioral patterns; and (2) the second dimension investigates how firms react COVID-19 over time.

Furthermore, business strategies can follow two directions. The first strategy aims to strengthen the existing competencies base and guide research and the creation of new opportunities. For example, Casio has acquired a lasting competitive advantage by developing and exploiting unique resources and competencies (Marino, 1996) to enhance their competences (Tushman and Anderson, 1986). The second strategy concerns exploring and developing new competencies and the creation of new opportunities. For instance, the successful development of new competencies leads Analog Devices to explore
Table 1. A snapshot of firms’ conversion

| Firms          | Description                                                                 | Size (employees) | Location | Timing          | Employees involved | Products/Services for societal needs | Beneficiaries                                  |
|----------------|------------------------------------------------------------------------------|------------------|----------|-----------------|-------------------|---------------------------------------|-----------------------------------------------|
| Acquaflex      | Acquaflex is a chemical producer and service company that operates mainly on industrial and institutional water treatment, paper and cardboard production, hygiene, and sanitation of food production plants | 11–50            | Milan    | 1 week          | 25                | Gel sanitizers                       | Local institutions, Red Cross, prison         |
| Angelo Carrillo Spa | Founded in 1952, Angelo Carrillo Spa is a historic home textile company that operates in the Campania region | 50–250           | Naples   | 1 week          | Undeclared number | Masks                                | Emergency services, hospitals, municipalities |
| Baby2          | Baby 2 is a converter company located in Novara that works actively for famous fashion brands in the fields of underwear, swimwear, and sportswear (t-shirts, polo, sweatshirts, tracksuits) for men and women, since 1984 | 11-50             | Novara   | Less than 1 week | 12                | Masks                                | Red Cross, police, doctors, hospitals         |
| Be Boncar      | Be Boncar is a luxury packaging company for the fashion, clothing, leather goods, and footwear industries | 11–50            | Varese   | Less than 1 week | 13                | Masks                                | Hospitals, municipalities                      |
| Canepa Group   | Canepa Group is a world leader producer of textiles made in Italy. Founded in 1966, today the group has one subsidiary in the Puglia region | >250             | Como     | Less than 1 week | 24                | Masks                                | Retirement homes, municipalities              |
| Cifra          | Cifra is a manufacturing company better known as “warp knit center of excellence” that produces garments for private brands with an exclusive technology. It was founded in Northern Italy in the late ’70s | 50–250           | Monza    | 2 weeks         | 5                 | Masks                                | Municipalities, retirement homes, police at the guard of finance, civil protection |
| Dedem          | Dedem is a leading company in the production and installation of photo booths. Today it specializes in industrial 3D printing. It was founded in 1962 | >250             | Roma     | 1 week          | 40                | Masks, valves                        | Hospitals, doctors                           |
| Erbolario      | Erbolario is an artisan herbalist’s shop and produces natural cosmetic products. Founded in 1978, today it has 5,500 sales points in Italy and exports products to 42 countries worldwide | 50–250           | Lodi     | 2 week          | 35                | Gel sanitizers                       | Hospitals, Red Cross, White cross, doctors, retirement homes, prison, voluntary associations |

(Continues)
| Firms            | Description                                                                 | Size (employees) | Location | Timing          | Employees involved | Products/Services for societal needs          | Beneficiaries                                                                 |
|------------------|-----------------------------------------------------------------------------|------------------|----------|-----------------|-------------------|-----------------------------------------------|----------------------------------------------------------------------------|
| Idea Sposa       | Idea Sposa is a historic multibrand atelier in Italy. Founded in 1978, today it has 4 sales points in the Puglia region | 11–50            | Lecce    | Less than 1 week | Undeclared number | Masks                                         | Police, civil protection, hospitals, Red Cross, and municipalities          |
| Isinnova         | Isinnova is a research center that develops 3d printing and consulting services in Italy | 11–50            | Brescia  | 1 week          | 14                | Valves                                        | Hospitals, doctors, universities, research centers, firms                  |
| Kontessa         | Kontessa is an accessories company. Kontessa is a family business born in 1989 in the Tuscany region | 11–50            | Pisa     | 1 week          | 6                 | Masks                                         | Nursing homes, municipalities                                              |
| Licofarma        | Licofarma is a private high-tech company that in the last ten years developed research and development for the production of natural antioxidants free of chemical solvents | 11–50            | Lecce    | 2 weeks         | 9                 | Gel sanitizers, spray sanitizers              | Public institutions, pharmacies, reseller companies                          |
| Miroglio Group   | Miroglio Group is an Italian firm, founded in 1947, that is specialized in the manufacture and distribution for sale of ready-to-wear clothing and fabrics. Incorporated in Alba, Cuneo, Italy, the Group has 37 business operations in 22 countries | >250             | Cuneo    | 1 week          | 400               | Masks                                         | Civil protection, policy, regions, firms                                  |
| ModaImpresa      | ModaImpresa is a textile company which offers outsourcing services to fashion companies in the Molise region since 2015. | 11–50            | Isernia  | 1 week          | 35                | Masks, gowns, medical suits                   | Pharmacies, drugstores, supermarkets, municipalities, nursing home, firms, resellers |
| Passaro          | Passaro is a retail company of handmade wedding dresses. Founded in 1850 today it has several ateliers in the Campania region | 11–50            | Salerno  | Less than 1 week | 12                | Masks                                         | Civil protection, municipalities                                          |
| Pellemoda        | Pellemoda is a company specialized in the production of top-level leather clothing items. It is a family business founded in 1979. | >250             | Empoli   | 1 week          | 40                | Masks                                         | Hospitals, policy, municipality, voluntary associations, firms             |

(Continues)
| Firms             | Description                                                                 | Size (employees) | Location | Timing | Employees involved | Products/Services for societal needs | Beneficiaries                                                                 |
|-------------------|------------------------------------------------------------------------------|------------------|----------|--------|--------------------|---------------------------------------|-------------------------------------------------------------------------------|
| Ramazzotti        | Ramazzotti is a historic company producing the Amaro Ramazzotti first brand of the amari category imported into Germany. The Amaro Ramazzotti was produced for the first time in Milan in 1815 | 50–250           | Asti     | 2 weeks | 24                 | Gel sanitizers                       | Voluntary associations, firefighters, municipalities, employees                |
| Roncato           | Roncato is a family firm that designs, manufactures, and markets a wide range of products intended for travel. Founded in 1956 today it sells its products in more than 100 countries worldwide on 5 continents | 50–250           | Padova   | 2 weeks | 20                 | Masks, gel sanitizers, spray sanitizers, front visors | Civil protection, resellers, firms                                             |
| Toscano Alta Sartoria | Toscan Alta Sartoria is an ancient tailoring company. It was born in 1957 in the Tuscan region. | 11–50            | Grosseto | 1 week  | 46 (14 were hired) | Masks                               | Hospitals, regions                                                            |
| WayCap            | WayCap is an international leader in the manufacturing of men, women, and kids fashion accessories. With over 3,000 models made per year, WayCap places itself in the market as the international leader in Made in Italy production, working in partnership with more than 80 world-class brands | >250             | Venezia  | 1 week  | 300                | Masks                               | Municipality, police, hospitals, voluntary associations, Onlus               |
| Zucchetti Group   | Zucchetti Group is one of the most important Italian companies in the IT sector. Zucchetti group produces software, hardware, and services for companies, banks, insurances, professionals, and trade associations. Founded in 1978, today it comprises 50 firms in Italy | >250             | Lodi     | 1 week  | Undeclared number  | Software                            | Hospitals, doctors, patients                                                  |
and developing new ad hoc ones (Tushman and Anderson, 1986).

Based on these premises, we identified four actions (reaction, involvement, intervention, and evolution) in Figure 2.

4.1. Reaction

In this case, firms were moved by the purpose of helping the local communities as soon as possible because they were aware of the difficulties they were facing. The five firms that are categorized in this quadrant of the matrix were equipped for the need identified and intervened immediately, for example by creating simple and effective masks to alleviate the panic that was proliferating in some areas where these types of medical protective devices were lacking: ‘My first thought was to calm the panic … so I did the simplest and fastest thing … produce some masks’ (Bc Boncar, an industrial packaging firm operating in Busto Arsizio, a few kilometers away from the epicenter of the pandemic).

Firms in this quadrant have the second element in common. They acted quickly, almost in real-time: ‘We acted immediately because in our hearts we wanted to do something’ (Idea Sposa, historical manufacturer of wedding dresses in Lecce). To be helpful for the local community, the manufacturing conversion plans for these firms took place very quickly, from two to five days. If the goal was to buffer in real-time, the only solution was to exploit internal competencies. The goal of these firms was to intervene with an immediate response, activating manufacturing projects based on the company’s internal competencies, abilities (and in some cases material): ‘We made a quick fix when the emergency required intervention … we recovered the TNT from our bags for wedding wear … and thanks to our seamstresses we made some masks that we distributed’ (Passaro, a historical wedding dress firm in Salerno, South of Italy). ‘We activated quickly… and we made an unrefined mask with our machinery’ (Canepa Group, a firm from Como that converted his laboratory of ties and scarves to serve the community of Como). Regardless of geographic location, these firms reacted immediately because it was inherent in their internal competencies.

4.2. Involvement

In this case, firms decided to implement ‘purpose-oriented’ actions that could continue even after the peak of the emergency. Although they all shared a similar ‘purpose’, the six firms in this quadrant adopted different types of involvement. On the one hand, SMEs have involved their existing customers through the production of gel sanitizers: ‘This started as a kind of service that we had to give to our customers. There was no desire to make economic speculation’ (Licofarma, an Italian firm specialized in the production of food supplements and functional cosmetics). Moreover, SMEs have done so by involving their employees in the development of new production lines at a very low price. This insight was evident, for instance, in the interview with Cifra, a firm located in Verano Brianza that uses Warp Knit Seamless technology to produce garments for major international brands: ‘The price of the masks is low, but it has allowed me to pay employees and not to ask for government funding’.

| R&D Management strategies | Purpose-Led Actions | Short term actions | Long term actions |
|---------------------------|---------------------|--------------------|-------------------|
| Exploitation of existing R&D, innovation and manufacturing competencies | REACTION | Baby2, Bc Boncar, Canepa Group, Idea Sposa, Passaro | |
| Exploration of ad hoc R&D, innovation and manufacturing competencies | INVOLVEMENT | Angelo Carrillo, Cifra, Dedem, Kontessa, Licofarma, Ramazzotti |
| | INTERVENTION | Acqualix, Isinnova, Pellemoda, Waycap, Zucchetti Group |
| | EVOLUTION | Erbolario, Miroglio Group, Modalmpresa, Roncato, Toscano Alta Sartoria |
On the other hand, larger firms such as Ramazzotti or Dedem have implemented a more extensive goal-oriented conversion. These firms continue to support the community today on the basis of requests. As it emerged during an interview ‘on the basis of requests we donate our masks, fans, and face shields because the cost of production is very low for us’ (Dedem, a 3D printing firm in Rome). Their goal was also to protect employees and the local community: ‘Our employees needed a disinfectant gel and being alcohol producers we made it … then we donated it to the community of the Piedmont region’ (Ramazzotti, an historical and well-known Italian liquor brand).

This involvement, although not radical, has started in some cases from a good knowledge of internal competencies of the firm: ‘What we know how to do is work the fabrics. We therefore decided to face the emergency, converting part of our production to make masks’ (Angelo Carrillo, historical manufacturer of textiles in Naples, South of Italy). ‘My sister is a model maker and she made the model of the mask … Today we have a particular mask coordinated with our fashion collection and that we have certified’, Ceo of Kontessa, a clothing company in Tuscany; and in other cases from a good knowledge in the exploitation of existing machines: ‘We made the disinfectant gel using machines for cosmetic products … we adapted these machines to make the disinfectant gel’ (Licofarma).

4.3. Intervention

In this case, firms were moved by the purpose of helping the communities as soon as possible, but the four firms that are positioned in this quadrant could not do so only with their internal competencies. A fast but relevant effort in R&D and/or innovation and/or manufacturing was necessary from the firm’s side. In this case, the firms intervened, by conducting R&D projects to help the community with frontline operators: ‘The problem has been identified from the hospital in Lodí. We have developed a telemedicine solution from scratch that would allow remote patient management’ (Zucchetti Group, a firm that produces software, hardware and services solutions in Lodí); or by exploring and developing new competencies: ‘We had to develop a new formula and then we went to an external company for packaging’ (Acquaflex, a well-known herbal firm located in Lodí, the epicenter of the pandemic). In other cases, they have started new production lines: ‘We had already produced hand sanitizing gels in the past during the SARS crisis; we took that tested formula, worked on it in our laboratory and made it even more performing’ (Erbolario). Aware of the virtuous circle they would generate, the firms intervened as promoters of purpose-oriented actions, involving external companies not necessarily related to their ecosystem.

In all the identified cases, the firms in this quadrant will most likely not continue with this activity, since the objective has been to implement a very fast goal-oriented action. ‘We want to stay focused on our original core business’ (Acquaflex).

4.4. Evolution

In this case, firms decided to implement purpose-oriented actions that could continue even after the moment of greatest emergency and they have done it in three different ways. First, by leveraging on their existing competencies, they have started new production lines: ‘We had already produced hand sanitizing gels in the past during the SARS crisis; we took that tested formula, worked on it in our laboratory and made it even more performing’ (Erbolario). In other cases, firms have made specific investments to increase their production capacity: ‘We have created the structures that could support our activities … We have made an investment and we will open a factory that will produce personal protective medical devices’ (Miroglio, a...
well-known textile firm in Cuneo, near the epicenter of the pandemic).

In some cases, new employees have been hired to guarantee the prosecution of the projects. ‘14 employees were hired because we had an important request for the masks that we had started to make’ (Toscano Alta Sartoria, a well-known brand of handmade clothes in Tuscany). In other cases, the knowledge generated was transferred to new business projects, ‘Now we are evaluating the possibility of starting a spin-off for this activity and create a related company that deals only with the medical equipment’ (ModaImpresa, one of the first firms that converted its laboratory in Italy).

In all the cases, the goal was not to generate turnover, but these firms were driven by the purpose of solving problems and contributing to the needs of the community. ‘Our goal was to do something useful and keep our workers busy. The sale of the masks did not represent a business opportunity. We are covering some expenses, but it certainly does not compensate for the drop of turnover that we had. We did it for people, not for the turnover’ (Roncato, one of the largest Italian suitcase manufacturers).

5. Conclusion and future research

Our study offers contributions to the academic literature as well as some managerial implications. First, abundant literature provides insights about firms’ reaction to global emergencies and suggests that firms can reshape their business models and launch product and service innovations (Martí, 2018); however, only a few studies examine purpose-led, non-profit objectives driving firms’ innovation efforts to provide societal benefits in the fight against a global emergency (Chesbrough, 2020; Fontán et al., 2019; Rey and Bastons, 2019; Rey et al., 2019). Therefore, this study advances existing research by proposing that two main types of purpose-led actions – that is, short term and long term – may drive firms to convert part of their activities to provide societal benefits in the fight against crises such as COVID-19. The firms interviewed highlighted ‘the human element’ as the main feature of purpose-oriented companies (Hollensbe et al., 2014; Rey et al., 2019). Purpose-oriented companies intend to ‘make a difference’ for all their stakeholders (Fontán et al., 2019; Kenny, 2016). Specifically, this means finding a way to express the organization’s impact on the community (Asselle and Piccaluga, 2019; Henderson, 2020; Rey et al., 2019; Spitzceck, 2011). Second, the paper addresses how purpose-led actions are in some cases immediately translated into concrete R&D and manufacturing projects offering products and services needed during a crisis. The R&D management literature has shown that firms willing to offer a new product or a service may use their competencies, initiate a new internal research project, acquire knowledge from external sources or even combine the previous options (Peeters and Martin, 2017), but no one has analyzed their behavior by observing the speed of change in case they wish to respond to society’s needs during an emergency. In the case of the response to COVID-19 needs, the main characteristic was to respond very quickly. There was no time to start new projects or collaborations with external partners (Sims et al., 2019), unless they were extremely fast, almost real-time. Therefore, this paper contributes to this literature by suggesting that firms answering generously to solve problems and contributing to society’s needs related to COVID-19 have either exploited their (mainly) existing R&D, innovation, and manufacturing competencies, or (mainly) explored and developed new ad hoc ones (Tushman and Anderson, 1986). In doing so, our interviews highlighted a view of the firm different from the more traditional one. In fact, during this crisis, firms joined together toward a non-profit ‘purpose’, trying to be part of the solution once things had become difficult (Craig and Snook, 2014). This result is one of the first empirical evidence in the purpose corporation literature.

Third, this paper offers some nuances about how short-term actions are related to medium-long term R&D, innovation, and manufacturing strategies. The analysis emerging from the discussion of these COVID-19-innovation cases shows that in relation to a medium-long term purpose strategy, firms have adopted two types of behavior. On the one hand, firms have tried to transfer company-created competencies. This evidence is in line with the literature which shows how companies generate new businesses to support the community during times of crisis (Williams and Shepherd, 2016). On the other hand, companies have been directly involved in supporting the activities of employees or local communities.

This study also has interesting implications and insights for practice. First, the results of this study suggest that two purpose-led actions – that is, short term and long term – may drive firms to convert part of their manufacturing laboratories to provide societal benefits in the fight against COVID-19. Second, we found that these purposes may be reflected in different R&D and innovation projects – that is, firms convert part of their manufacturing laboratories by exploiting existing R&D and innovation
competencies or exploring and developing ad hoc new ones. Third, the findings of this study propose best practices for firms that are likely to transform their manufacturing transformation in response to COVID-19.

Nevertheless, several limitations have to be acknowledged. First, purpose-driven innovation research is perhaps in its infancy because of its novelty in academic research. However, our utilization of the purpose concept is in line with the works of several other researchers (Fontán et al., 2019; Rey and Bastons, 2019; Rey et al., 2019). Second, we recognize that our empirical study is only centered on Italian firms that reacted to COVID-19. Albeit Italy is a representative empirical setting to study (Banks, 2020; Clark, 2020; Tognini, 2020), it might be useful to validate our matrix in different empirical settings (e.g., China). Third, the generalizability of our findings can be enriched by conducting an in-depth analysis of some of the cases we analyzed. Last, future studies might unveil what other benefits can stem from firms’ response to COVID-19.

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APPENDIX

List of questions used in the interviews

Interviews questions

When and how was the idea developed in the firm? Did the idea come within the company or from external sources?

Have you made the new product purely for the short term or have you evaluated the possibility of providing it in the long term?

Have you made the new product using skills and machinery that “more or less” you already had in the firm or have you made a significant effort to develop the product? Was it an R&D or manufacturing effort? Did you activate partnerships to develop the product or not?

What was the effect of working in a very short time, in a difficult moment?

Have you implemented routines that were already working in the company or have you developed new approaches to do so?

What was the atmosphere in the firm?

Apart from the possible commercial or image consequences, what did this experience bring to the firm?