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# How could SMEs take advantage of the Covid-19 crisis to improve their resilience during energy transition?

Elodie Pillon(1), M'hammed Sahnoun(1)

(1) LINEACT CESI, France, {epillon,msahnoun}@cesi.fr

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#### Introduction

Energy plays a major role in the economic development of any economy. It is no longer necessary to demonstrate that an energy crisis affects directly and indirectly all areas of the economic system (Jancovici, 2012) but also the environmental and societal sphere. Renewable energy is becoming one of the key factors for a sustainable society (Buinocore et al., 2019). However, compared to fossil energy that is abundant and cheap, renewable energy is still far from being used universally and remains scarce and expensive (Furfari, 2022). It is why in 2019, fossil fuels still accounted for 84% of the world's primary energy consumption in the world (Buinocore et al., 2019), despite political and regulatory pressure for energy transition. In addition, most of the renewable energy is located in developed countries (Spillias et al., 2020). Furthermore, the renewable energy industry faces a lack of investments (Reyers et al., 2020) and a low level of R&D in this sector (Sonter et al., 2020). In this regard, the development of sustainable energy will be governed mainly by the appropriate use of traditional energy. However, it seems unlikely that this energy transition will take place without a shock that will not only affect the economy but also organizations. Actually, SMEs are the most vulnerable organizations in any economy and have to face several challenges during and after chocks, notably because of an unexpected variation on the consumer behavior, disruption of the supply chain or government-imposed regulations (Thukral, 2021). Moreover, as highlights the Covid-19 pandemic, resilience strategies require several actions such as coordination, good relationships (among all stakeholders), comprehensive network, recognition of risks and opportunities or timely and scalable intervention. Based on the lessons learned from the Covid-19 pandemic, the last example of the new worldwide crisis that may occur in the future, and on the modeling of the behavior of the economic, environmental and societal situation, this paper aims to define the actions to be prioritized to foster the resilience of SMEs face to energy and ecological transitions.

#### Theoretical framework

Organization resilience could be defined as the ability of an organization to function during turbulence by adapting quickly and effectively to the situation (Portuguez Castro & Gómez Zermeño, 2020) and then recovering (Annarelli & Nonino, 2016) through the creation of new opportunities. Through a literature review, we identified 10 determinants for resilience in SMEs : high degree of tolerance, adapt to change quickly, take advantage of a situation, learn from mistakes, rapid geographic relocation, rapid diversification, innovation capacity, government responses, technology innovation and consumers and employees confidence.

We also identified the characteristics of Covid-19 pandemic crisis and their similarities and differences with the energetic situation. This pandemic is a global phenomenon with impacts on public health and on the economy. Because of the unexpected emergence of this crisis, it affected the entire organization and whole sectors suddenly. Moreover, the shock is exogenous to the system of

value creation. For the energy crisis, it is also a global phenomenon with impacts on the economy but is a gradual threat. In fact, Covid-19 disrupts the energy world by lowering energy consumption worldwide, but after that, the worldwide energy consumption has increased. For example, the demand for gas in China has strongly increased, the war in Ukraine and the economic sanctions against Russia affect the deal, the price of energy is continuously increased, ... These are just a few examples of the warning signs of future crises that are symptoms of an unprepared energy and ecological transition. Like the Covid-19 crisis, these future crises will affect many SMEs and generate various negative effects such as reduced international trade, disruptions in the supply chain, lower productivity, contraction of economic activity, less investment, closure of companies, loss of jobs, changes in demand and lack of visibility on the future. However, some positive aspects have been observed through the Covid-19 crisis, such as the discovery of new ways of working, the diversification of revenue sources, the use of new distribution channels or the diversification of suppliers. The energy transition will use some solutions developed to make SMEs resilient during the Covid crisis, but should also require new ways of working and dealing with problems.

Then we identified five main elements affected by the energy transition crisis: type of energy (fossil or renewable), environmental situation, societal situation (quality of life), economic growth and technology innovation. The market defines the link between the demand for energy and its availability. On another hand, regarding the type of energy, this relation can change. If we are dealing with fossil energy, the quantity of available energy is limited and will decrease in the future. If we are dealing with renewable energy, the quantity is not limited, but the available technology to extract it is limiting the used quantity. Also, the economic situation is directly linked to the quantity of energy available and used (Jancovici, 2012). The most important economies in the world are those consuming the most important part of energy. Concerning the environmental situation. The environmental situation is affecting the level of energy consumption and the societal situation. Where a good environment situation is supposed to consume less energy, and a bad one requires to ensure at least the same quality of life and societal situation that will need by itself more energy consumption.

### Methodology and findings

Based on our five main elements previously identified, we propose a model able to predict the behavior and crash occurrence of the economic, environmental and societal situation and allows defining the suitable actions to put in place for resilient policies. Even the Covid pushed SMEs to adopt several resilient practices that can be used to face other crisis, we highlighted the differences between the Covid Crisis and the future ones, and identify the practice that can be kept the ones that will net be efficient.

Initial observations from the proposed model show that most of the practices adopted after the Covid crisis were temporary, due to the nature of the pandemic. Moreover, during the difficult period of Covid, energy consumption was reduced worldwide. From the literature, we can conclude that for the next crisis, on the contrary, energy consumption will increase and the effect of this crisis will be permanent.

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