

Pandemic related challenges for ecoinnovative companies, and identification of good support practices

Región de Murcia

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Executive summary

The aim of the analysis is to identify good support practices for eco-innovative companies from the Region of Murcia during the COVID-19 pandemic. In this region, SMEs account for the vast majority of companies. The industrial activity is mainly based on the agri-food sector and others linked to its value chain, including water cycle, environment or logistics.

The regional analysis was performed by conducting 12 interviews targeting actors within the regional support system and eco-innovative companies. The choice was purposive, including relevant players and companies related to the main regional industry sectors.

The COVID-19 crisis's impact on the Murcian economy was severe. More than half of SMEs faced losses in revenues in 2020. There were also significant losses and difficulties in terms of profitability, productivity, cash flow, supply chain, decline in investment, rise of debt, etc. As for the eco-innovative SMEs sector, sustainability was not taken as a priority during the pandemic, since the crisis revealed a shift in demand towards essential products.

At a national level, the Spanish government introduced a wide array of measures to mitigate the economic impact of COVID-19 on businesses, with a strong focus on initiatives to sustain short-term liquidity. At a regional level, the key financial support practices were managed by the INFO (Regional Development Agency of the Region of Murcia), ranging from direct lending to grants and direct lump sum subsidies. These practices were aimed generally at SMEs, with no focus identified on eco-innovation. Such practices included programs for productive and technological investments and financial instruments consisting of interest rate subsidies or provision of loan guarantees. There were also support practices not necessarily related to COVID-19, but aimed to help SMEs to enhance innovation and competitiveness and speed up digitalization and industry 4.0 technology adoption. Such practices included initiatives like the "ITC check" or the "innovation check", and a number of initiatives ranging from lending to lump sum subsidies aimed for innovative and/or technology-based companies and investments in digital transformation (industry 4.0).

In addition, there are other actors of the support system that have been helping the ecoinnovative companies, like the Regional Service for Employment and Training (SEF), the Network of Technology Centres, or the local ecosystem of incubators, accelerators, and other entrepreneur and intrapreneur support organizations.

Lessons learned and conclusions for support practices improvement include:

- Support practices were essential in the management of the pandemic for SMEs (whether they are eco-innovative or not).
- Eco-innovative SMEs were more resilient than the rest of the SMEs. Adopting ecoinnovation strengthens the competitiveness of the small and medium companies.
- The use of non-competitive criteria (on a first-come, first-served basis) for accessing subsidies is perceived as unfair.
- Support practices were focused on SMEs, with no specialization on eco-innovation.

- Non-economical support practices are also important, like training programs, dissemination actions, or initiatives that foster collaboration with technological centres or universities, among others.
- Support practices aimed to enhance innovation, speed up digitalization and industry 4.0 adoption accelerate eco-innovation, so that technology adoption must be fostered.
- Although the trend indicates a growing eco-innovative conscious region, there is still a general lack of awareness within the Region of Murcia concerning all of the benefits of implementing eco-innovation practices.

The pandemic also brought some opportunities, like a growing need to shift into a circular economy model, or an increasing amount of funds available for ecoinnovative projects.

A good practice identified: "RIS3MUR COVID-19 for business reactivation Program"

The "RIS3MUR COVID-19 for business reactivation Program" was developed by INFO (Regional Development Agency of the Region of Murcia) in order to address one of the main problems that SMEs were facing during the COVID-19 pandemic: an intense decline in investment. Thus, SMEs needed to be supported to accelerate innovation and technological integration, adopting innovative industry 4.0 solutions, digitization, sensorization, etc. Besides, this measure needed to be based on a substantial economic support.

Focused on business reactivation through innovation, this non-refundable subsidy reached a maximum intensity of **80%** on eligible costs for medium-sized companies, and a maximum amount per beneficiary of **250,000 euros**. This line was endowed with 6 million euros.

This program was targeted at regional SMEs of any of the strategic sectors included in RIS3MUR strategy. Specifically: agri-food, agriculture, water cycle, environment, logistics and transport, tourism, health and habitat, energy or maritime.



Introduction

Main Aim of the analysis

The aim of the analysis is to identify **good support practices for eco-innovative companies from the Region of Murcia during the covid-19 pandemic**. That includes activities and initiatives developed by support system actors such as universities, incubators, science parks, business development organizations or financial institutions together with their related networks and institutions. An eco-innovative company should be defined as a business that offers a product or service that causes a significant decrease in environmental impact, while remaining financially viable and not in conflict with social sustainability.

The Region of Murcia

With 1,5 million inhabitants and a surface area of 11,313 square kilometers (274 of coastline), the Region of Murcia is a territory located in the southeastern part of Spain. The Gross domestic product (GDP) was 29.94 billion euros in 2020, accounting for 2.6% of Spanish economic output. **GDP per capita was 19,838 euros, or 75% of the EU27 average in the same year**. The weight of R&D relative to GDP in the Region is 1%.

In the Region of Murcia, SMEs account for the vast majority of companies, value added and employment. The industrial activity, which represents 18,33% of the region's GDP, is mainly based on the agri-food sector. This industry accounts for 32.5% of employment and 28.3% of production in the region. The Region of Murcia holds a leading position in international sales of many fresh products, being one of the main producing regions of fruits, vegetables in Europe, and exporting up to 70% of its production to other EU countries. Furthermore, this sector is a driver of other innovative industries throughout the agrifood value chain, such as farming technology, water management, greenhouses or machinery.

In 2021 Murcian exports accounted for 12.152,41 millions €. Besides agri-food industry, other important business international-oriented activities carried out in the region within the secondary sector include **canned fruit and vegetables**, **meat industry**, **water and waste management**, **chemical and pharmaceutical**, **electricity**, **gas and mineral fuels**, **base metal industry and rubber and plastic industries**, among others, all of which supported by a strong logistics industry. Other dynamic industries include construction and tourism.

Priority sectors of the Smart Specialization Strategy

RIS3 strategy (2014-2020) within the Region of Murcia has been focused on the region's strengths, such as those linked to the **agri-food value chain**, **including key agriculture activities as well as water cycle**, **environment**, **logistics and transport**. Besides, the region is committed to develop a set of potential sectors as **tourism**, **health and habitat**, **energy or maritime**. In the same way, the strategy points out the importance of identifying and developing **key facilitating technologies that boost these sectors** (AI, Big Data, Cybersecurity, robotics, etc.). The new strategy RIS4 (2021-2027) consists of an upgrade towards Smart Specialization, focusing on digital transformation and sustainability.

Method

The regional analysis was performed by conducting **12 interviews targeting actors within the regional support system** and **eco-innovative companies**. On one hand, **7 actors of the regional support system** were selected considering a sample which included relevant players in the Region of Murcia (funding organizations, technological centres, networking organizations, independent experts, etc.). It should be noted that INFO, one of the interviewees, is the main regional actor in relation to SMEs growth and competitiveness promotion. On the other hand, **5 eco-innovative SMEs** were interviewed. The choice was purposive (all of them were related to the main regional industry sectors and priorities of the smart specialization strategy). Namely, food and biotechnology industries, key facilitating technologies, water management and innovative biofertilizers. Additionally, a Regional Stakeholder Meeting was held (see Appendix 1), the results of which are included in this final report.

Thus, a convenience sampling was adopted in the selection of the participants for the interviews. The interviews were qualitative and used the semi-structured interview guidelines previously provided by SUPER (see Appendices 2 and 3). The questions were translated into Spanish to encourage more engagement from the interviewees. 10 interviews were conducted through a video call platform and 2 conducted face to face. The same interview schedule for everyone was used and an effort was made to maintain the same environment in each interview that was conducted.

SME / Regional Support	Name of organization	Line of business / organization purpose
Eco-innovative SME	Agrosingularity	Plant-based products for the food and biotechnology industries.
Eco-innovative SME	HOP Ubiquitous (HOPU)	IoT equipment and Cloud services for air quality monitoring, focused on the Smart City sector
Eco-innovative SME	Automation Technical Advice	Automation and remote control in water management.
Eco-innovative SME	COBET	Physical, chemical, biological treatments and water evaporation.
Eco-innovative SME	Symborg	Development, manufacturing and commercialization of innovative biostimulants, biofertilizers and biocontrol solutions.
Support actor	INFO	Regional development agency of the Region of Murcia that aims at promoting the economy, increasing investment, removing obstacles and establishing an environment that favors competitiveness.
Support actor	Ingeniería energía y calidad ambiental	Environmental consulting supporting the implementation of sustainable systems and projects.
Support actor	CTNC (National technological centre for the food and canning industry)	Business research association that supports the agri-food sector to improve sustainable technologies to process food products.
Support actor	CITIES FORUM	Organization that aims at being a catalyst, working with cities and companies to solve their sustainable urban development challenges.
Support actor	Ecointeligencia	Online platform that disseminates information and trends on sustainable design, supporting the digital marketing of eco-innovative companies.
Support actor	CETENMA (Technological centre for energy and environment)	Business association that supports companies with technological research, development and innovation to become more competitive.

The table below describes each regional support actor/company briefly.

Support actor	Independent business advisor	Associate Professor of Economic History in the University of Murcia, collaborating in numerous research projects and publications.
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Main results

General economic impact of COVID-19 in the Region of Murcia

Evidence on the COVID-19 crisis impacts on the Murcian economy from business surveys indicates severe difficulties, particularly among SMEs. The "COVID-19 pandemic impact on SMEs in the Region of Murcia" report presents the outcome of 307 SMEs from the Region of Murcia, showing that more than half of SMEs faced losses in revenues in 2020 as a consequence of COVID-19. There were also significant losses and difficulties in terms of profitability, productivity, cash flow, supply chain, decline in investment, rise of debt, etc.

Although the regional economy was strongly affected by COVID-19, macroeconomic indicators show that the impact was less intense than the average impact within Spain. The regional GDP shrank -8.1% in 2020 (-10.3% in Spain) and the regional unemployment rate showed an increase of 10.9% (16.5% in Spain) during 2020.

General challenges (not only for eco-innovative SMEs)

- Sudden loss of demand and revenue for SMEs that caused liquidity shortages. Some sectors, such as tourism, were particularly affected, also contributing to reduced business and consumer confidence.
- Generally speaking, **SMEs had less resilience in dealing with the costs of the pandemic shock**. Costs for prevention and changes in work processes (such as the shift to teleworking), as well as cash flow needs, made the access to capital crucial for SMEs that suffered a severe liquidity shortage. As a consequence, there has also been **a reduction of investment**.
- **Difficulty in accessing certain raw materials and products** (such as electronic components) and rise in prices of raw materials and therefore their impact on final products. The Pandemic has disrupted supply chains, leading to shortages of parts and intermediate goods.
- **Development and implementation of anti-covid measures** (hygiene measures, restrictions, telecommuting, etc.).
- Cancellation (or shift to online alternatives) of fairs and business events, making more difficult promotion, networking, etc.
- SMEs quickly began to develop new digitalization processes to sell their products online, implemented new forms of digital marketing and updated with virtual platforms to maintain contact with customers and suppliers, as well as with their own internal teams of job.
- Difficulty in carrying out certain services (for example: audits).
- Difficulty in exporting raw materials and products.

Specific challenges (for eco-innovative SMEs)

- Lack of awareness concerning all of the benefits of implementing eco-innovation practices. The crisis has revealed a shift in demand towards essential products. Sustainability was not taken as a priority during the pandemic (neither for public administrations nor for companies). Public administrations and municipalities redirected all their efforts towards the Covid health and social crisis and the rest was stopped, so the priority that began to be given to sustainability years ago was suddenly lost. Therefore, many companies (public and private) that practice eco-innovation have not fully assimilated it into their core. Thus, increasing eco-innovative culture is a key for a successful change.
- Additional challenges related to particular sectors (e.g. for eco-innovative companies working in the waste management and treatment sector: waste contaminated by COVID19; changes in logistics due to the increase in the flow of certain types of waste and decrease in others, changes in seasonality of production...).

Key support practices identified at a national level

At a national level, the **Spanish government introduced a wide array of measures to mitigate the economic impact of COVID-19 on businesses**, with a special emphasis on the tourism industry, SMEs and the self-employed, and a strong focus on initiatives to sustain short-term liquidity. Such policies took various shapes:

- **Employment-related measures**. More flexible mechanisms for temporary adjustments of activity were introduced, related to working time shortening or temporary lay-off (ERTE).
- Deferral of tax, social security payments and debt payments.
- **Provision of Ioan guarantees**, to enable commercial banks to expand lending to SMEs. The Spanish Government launched the Guarantee Line, managed by the ICO (Instituto de Crédito Oficial) with a maximum amount of 100,000 million euros, aimed to support Spanish companies and self-employed people.
- Direct lending to SMEs through public institutions.
- **Grants and subsidies** to bridge the drop in revenues. These programs were in many cases **direct lump sum subsidies**.
- Policies to help SMEs adopt **new working methods, increase digital technologies** and find new markets / sales channels.
- Policies to help companies that are engaged in international trade or that are in the process of internationalization, like extraordinary insurance cover facility and customs measures.
- Policies aimed to help SMEs to adopt new work processes and speed up digitalisation, including Industry 4.0 projects, programs to support SMEs to rethink their business models, etc.

 Measures to support innovation by SMEs. In some cases, these measures aimed to support start-ups and SMEs to help find solutions to the COVID-19 outbreak. In other cases, support was offered to strengthen SMEs innovation and competitiveness.

Key support practices identified at a regional level

At a regional level, the key financial support practices for SMEs were managed by the INFO (Regional development agency of the Region of Murcia), ranging from direct lending to grants and direct lump sum subsidies. In essence, there have been general support instruments for the vast majority of companies and industries. These practices were aimed generally to SMEs, with no focus identified on eco-innovation. Such practices included:

Practices COVID-19 related:

- Support Programs related to COVID-19 like "Productive and technological investments" or "RIS3MUR COVID-19 for business reactivation" (non-refundable grants of up to 250,000 euros). Focused on recovering business liquidity in terms of technological and productive investments, these programs prioritized productive modernization, so that companies had more liquidity to carry out strategic investments.
- Financial instruments consisting of interest rate subsidies and guarantee fee subsidies for SMEs.
- **Provision of loan guarantees**, to enable commercial banks to expand lending to SMEs.

Practices non COVID-19 related:

These support practices are not necessarily related to COVID-19, but are aimed to help SMEs to enhance innovation and competitiveness and speed up digitalization and industry 4.0 technology adoption. Such practices included:

- The "ITC check" program, consisting of a pool of ITC services (provided by ITC private agents) which are partially paid by the regional government. These services include ecommerce, cybersecurity, IoT, Business Intelligence and R+D management tools, among others.
- The "innovation check" program, consisting of a pool of innovation services (provided by innovation private agents) which are partially paid by the regional government. These services include open innovation or product design, among others. It should be noted that there is an innovation check specialized in sustainability services such as carbon and water footprint measurement.
- The "Europe check", a program that provides assistance to SMEs from private consultancy firms specialized in European R&D&I financing, in order to obtain funds for innovative projects.
- A number of initiatives ranging from lending to lump sum subsidies aimed for innovative and/or technology-based companies and investments in business digital transformation (industry 4.0).

In addition to the Regional development agency of the Region of Murcia, there are other actors of the support system that have been helping the eco-innovative companies, as shown in the following examples:

- The Regional Service for Employment and Training (SEF) has launched training programs like "Recualifica-T", targeting temporary lay-off (ERTE) workers. These courses are focused on skills for the digital and green economy.
- Although it has not been a direct consequence of the COVID-19 pandemic, it's worth mentioning here the role of the Network of Technology Centres in the Region of Murcia, as well of the private consultancy firms supporting sustainable and innovative projects. Technology Centres and those consultancy firms specialized in European and national R&D&I financing have continued to work on obtaining funds for innovative projects, like NEXT GENERATION funds or other European programs such as Horizon Europe or LIFE that have many calls for the development of eco-innovative products and services.
- Finally, it should be noted the presence of a strong local ecosystem of incubators, accelerators, and other entrepreneur and intrapreneur support organizations within the Region of Murcia. Although not specialized in green businesses, they have been fostering eco-entrepreneurship before, during and after the covid-19 pandemic. These organizations include, for example, universities, European Centres for Business and Innovation and Technology Centres.

As for the services already provided to eco-innovative companies, the support actors interviewed indicate that there have been no significant changes during the pandemic. However, it was mentioned that some adjustments needed to be carried out. Specifically, some face-to-face actions and events had to be implemented online. Besides, new innovation projects and lines of research emerged as a consequence of COVID-19 (for instance: Detection of the virus in wastewater entering treatment plants to track the prevalence of COVID-19).

Companies interviewed highlighted as a positive factor all of the improvements that public administration adopted to make **administrative procedures more efficient and effective**, **like the possibility of carrying out procedures electronically** (system already implemented before COVID-19), or the **extension of deadlines** for public administrative procedures given the difficulties caused by the pandemic.

On the other hand, the **access to subsidies** based on **non-competitive criteria** (most of the time funds were released based on a first-come, first-served basis) **was perceived as an unfair process by interviewed SMEs**.

Conclusions

Broadly speaking, interviews have made clear that strategic support practices, such as technology integration, financial intermediation and incentives, are essential in the management of the pandemic for SMEs (whether they are eco-innovative or not).

Identification of aspects for improvement in the support practices

- A simplification of the procedures is demanded. Companies mentioned the need of simplifying bureaucracy and fair criteria to select the projects that are receiving the funds. Non-competitive criteria subsidies (based on a first-come, first-served basis) are seen as an unfair process. Additional suggestions included ideas like creating a single Internet portal to unify all the subsidies.
- Regional support provided during COVID-19 was generally seen as relevant to address most of the important challenges identified. Financial intermediation and government incentives were significant. Key support practices ranged from direct lending to direct lump sum subsidies. However, these practices were aimed generally to SMEs, with no focus identified on eco-innovation. Besides, a "certificate" or an "eco-innovative label" was proposed, with the purpose of giving preference to an eco-innovative business in order to access different initiatives.
- It was also pointed out **the importance of non-economical support**: public certifications, dissemination actions, training for employees, initiatives that foster collaboration with technological centres and universities, etc.

How the lessons learnt can lead to policy changes/improvements and recommendations for further developing the support activities

- Non-competitive criteria subsidies (based on a first-come, first-served basis) should be revised.
- The access to capital that can finance eco-innovation is one of the greatest challenges for eco-innovative companies, so that support practices must be further enhanced and accelerated. The development of support practices specialized in eco-innovation is, therefore, one possibility to explore. Several alternatives were proposed, like specific programs for circular economy or retention of talent initiatives.
- As for **the importance of non-economical support practices**, the following priorities should be highlighted:
 - Training and retraining programmes should be encouraged in the context of a pandemic, enabling SMEs or lay-off workers to maintain access to skills during a crisis, as well as develop further skills for the digital and green economy. Training activities regarding circular economy or carbon footprint were suggested.
 - Main actors of the regional innovation ecosystem should be supported, since they play a vital role obtaining funds for eco-innovative projects

within Spain and Europe. Any support practice aimed at Technology Centres, universities, consultancy firms specialized in R&D&I financing, etc to facilitate their work with eco-innovative companies will be welcomed. Besides EU's key funding programmes like HORIZON Europe, alternative funding and financing opportunities more accessible for SMEs should be fostered (e.g., European Digital Innovation Hubs).

- The local ecosystem of incubators, accelerators, and other entrepreneur support organizations is essential for the creation of eco-innovative projects. Entrepreneurship programs should be adapted to whether a pandemic occurs or not. Besides, the design of entrepreneurship programs specialized in green businesses should be considered, due to the raising of green projects. Mention was also made of the need to encourage "eco-innovative intrapreneurship" within large regional companies, as well as the impulse of corporate venturing.
- All the studies consulted show that SMEs' sustainability and eco-innovation accelerates by applying innovation and technological integration. The more innovative companies are, the more likely they will be to adopt eco-innovation. Here, the implementation of Industry 4.0 solutions (IoT, Machine Learning, Big Data), digitization, sensorization, etc. becomes very important. The pandemic has made clear the benefits of adopting innovative industry 4.0 solutions, digitization, sensorization, etc. which may represent new business opportunities. In conclusion, the support practices aimed to enhance innovation and speed up digitalisation and industry 4.0 technology adoption must be fostered.
- During the pandemic, the Region of Murcia SMEs faced substantial financial and non-financial difficulties. However, the interviews carried out suggest that ecoinnovative SMEs were more resilient than the rest of the SMEs. The pandemic has made clear that adopting eco-innovation strengthens the competitiveness of SMEs. There is a huge opportunity for the industrial sector to speed up the implementation of new circular economy models. In conclusion, support practices aimed to enhance eco-innovation must be fostered.
- Although there is growing awareness of the importance of eco-innovation, we still have a long way to go before this is really assimilated. Interviews revealed a general lack of awareness concerning all of the benefits of implementing eco-innovation practices. Sustainability was not taken as a priority during the pandemic (neither for public administrations nor for companies). This would require a profound cultural change in the Region of Murcia regarding eco-innovation. Changing mindset and priorities within companies and public administrations is a difficult challenge. As a matter of fact, approximately just 1% of GDP is spent on R&D, far to the EU-27 2% and Spanish 1.3%. Thus, support practices aimed to spread the culture of innovation and eco-innovation must be intensified.
- Although the pandemic has meant several challenges, it has also brought some opportunities. Namely, the difficulty of accessing raw materials and some products makes more than ever clear the need for a transition to a circular economy that

reduces the dependence on third parties for strategic resources. Furthermore, environmental concern has increased after the pandemic. **Public administrations** started to devote a large amount of funds for eco-innovative projects, meaning also new business opportunities.

Appendices

Appendix 1: Regional Stakeholder Meeting

The Regional Stakeholder Meeting took place on Wednesday 7th of September 2022. The table below describes each participant briefly.

SME / Regional Support	Line of business / organization purpose
Eco-innovative SME	Automation and remote control in water management.
Eco-innovative SME	Physical, chemical, biological treatments and water evaporation.
Support actor	Regional development agency of the Region of Murcia that aims at promoting the economy, increasing investment, removing obstacles and establishing an environment that favors competitiveness.
Support actor	Environmental consulting supporting the implementation of sustainable systems and projects.
Support actor	Business research association that supports the agri-food sector to improve sustainable technologies to process food products.
Support actor	Organization that aims at being a catalyst, working with cities and companies to solve their sustainable urban development challenges.
Support actor	Business association that supports companies with technological research, development and innovation to become more competitive.
Support actor	Business association that supports companies with ITC research.
Support actor	Associate Professor of Economic History in the University of Murcia, collaborating in numerous research projects and publications.

Appendix 2: questionnaire for semi-structured interviews with 5-10 support system actors

Questions

- What kinds of eco-innovative companies do you meet in your activities? (e.g., renewable energy companies, organic food companies, waste management companies, etc.)
- What size of companies do you meet in your activities? (e.g., Medium [<250 staff], small [<50 staff], micro-sized [<10 staff]).
- What challenges have eco-innovative companies experienced because of the covid-19 pandemic? (If possible be specific with the type and size of company e.g., renewable energy companies, organic food companies, SMEs, start-ups)
- What opportunities have eco-innovative companies experienced because of the covid-19 pandemic?
- Does your organization have support instruments relevant for addressing the challenges experienced by eco-innovative companies due to the covid-19 pandemic?
- Has your organization developed or applied new support instruments based on the challenges posed by the pandemic to eco-innovative companies (e.g., tools, approaches, funding schemes, networks, policies, digitalization of support activities etc.)?

• Have other organizations in the support system developed or applied new instruments because of the pandemic (e.g., tools, approaches, funding schemes, networks, policies, digitalization of support activities etc.)?

Appendix 3: questionnaire for semi-structured interviews with 5-10 eco-innovative companies

Questions

- What impact has the pandemic had on your raw material supply (if applicable)?
- What impact has the pandemic had on your human resources?
- What impact has the pandemic had on your production?
- What impact has the pandemic had on your investments (If possible be specific with both your company making investment and others investing in your company)?
- What impact has the pandemic had on your products and services?
- What impact has the pandemic had on your markets?
- What impact has the pandemic had on your exports (if applicable)?
- How has the pandemic affected your specific branch (Specify the branch e.g., agriculture, energy, textile, manufacturing, construction, etc.)?
- Have you received any support to assist you address the pandemic related challenges on your business (If yes, please describe the support)?
- From which actors have you received support to address the pandemic related challenges on your business (think about all kinds of actors both formal and informal actors including family and friends)?
- Which support do you wish to receive because of the pandemic related challenges on your business?
- How satisfied are you with the pandemic related support you receive(d)?
- Do you have any suggestions to support actors how to better support eco-innovative companies because of the pandemic?
- Anything else you would like to add?

Appendix 4: references

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