EcoRIS3
Policies & Measures to Support Local & Regional Innovation Ecosystems

Analysis of the impacts of Covid-19
CIM do AVE
North Region, Portugal

April 2022

Contents

1 Foreword

CIM do Ave is one of the 23 intermunicipal communities that were created in Portugal after the local government reform in 2013. Since 2018, CIMs competences have been redefined to include the promotion of investments and the development of local economy and entrepreneurship.

Ave province is located in the Northern region of Portugal and covers an area of 1.541 km², among 8 municipalities. With a population of 418.531 inhabitants (preliminary Censos 2021)[1], the region is as the most populous territory in the Portuguese Northern region, just after Oporto's Metropolitan Area.

Through the participation in ecoRIS3, CIM do AVE aims to improve the regional policy instrument NORTE2020 - 1.2.4 – Increase business investment in innovative activities (product, process, organizational methods and marketing), promoting the increase of the production capacity for trade and internationalization and changing the production profile of the economic structure.

As such, in 2019 an Action Plan was deployed for CIM do AVE, envisaging three main actions:

1. Creation of the Innovation and Internationalisation Council (Conselho de Inovação e Internacionalização do Ave - CII)
2. Promote innovation, research and knowledge transfer forums at Ave Region
3. Implementation of a communication strategy to promote a culture of innovation at regional level

The Actions were set to require the participation of different stakeholders as Local Councils, Regional Coordination and Development Commission of the Northern Region (CCDR-N), University of Minho, Citeve and the Business Community itself.

The Action Plan was initially intended to be fully operational in 2022, which has been largely subdued after the Covid-19 pandemic. As such, this document aims to provide an update on progresses and impacts on the Action Plan's initiatives and timeframes.

Table 1.Policy instrument addressed

THE ACTION PLAN AIMED TO IMPACT:	□ Investment for Growth and Jobs programme □ European Territorial Cooperation programme x Other regional development policy instrument
NAME OF THE POLICY INSTRUMENT AFFECTED:	Regional Operational Norte 2020
MANAGING AUTHORITY:	CCDR-N

[1] Censo 2021 (preliminary data) - https://www.ine.pt/scripts/db_censos_2021.html

PERIOD OF IMPLEMENTATION	Still to be implemented: 01/07/2022 till 30/06/2021

2 Impacts of the pandemic

2.1 Impacts of the pandemic on key sectors and stakeholders of the innovation ecosystem

The Northern Region of Portugal accounts for 23% of Portugal total surface area and approximately 35% of the national population. The regional economy encompasses both traditional sector industries (e.g. textile, clothing, footwear and metallurgy) and medium- and high-tech sectors.

According to the Regional Innovation Scoreboards, Norte Region is a Moderate + Innovator, and innovation performance has increased over time. Norte is still underperforming in terms of its internationalisation potential.

Covid-19 pandemic has severely hit this sub-region. As a matter of fact, Ave was the sub-region which have experienced the highest number of confirmed COVID-19 cases per 100,000 inhabitants in the country, as of 31 December 2020.

As such, if from 2010 to 2020, Ave was the Portuguese best performant sub-region on GDP per capita growth, 26%[2] increase against 16%[2] of national average, from March to December 2020, its turnover dropped by 7.2% - even though, the fifth least impacted Portuguese NUTS III (national average of 14.3%).[3]

According to a report from CCDR-N, the number of unemployed registered at job centres in the end of the second quarter of 2021 in the Ave region was less than 16,000 individuals[4]. Considering the preliminary data from the 2021 Censos, in which the resident population between 25 and 65 years old in the sub-region was over 233 thousand people[5], we are able to estimate an unemployment rate of around 7% - in line with the national trend of a return to pre-pandemic levels during 2022.

A previous survey from CIM do Ave to local companies shown that the pandemic has jeopardized their activities across supply chain, internal operations and go to market functions.

[2] PORDATA, as of April 2022, PIB per capital (base=2016) – pordata.xlsx

[3] Instituto Nacional de Estatística, Fevereiro de 2021, "COVID-19: como a pandemia afetou as economias regionais em 2020?" - 24COVID E-fatura_março-dez2020.pdf

[4] CCDR-N, 2º Trimestre 2021, "Relatório Trimestral Norte Conjuntura", "Quadro 11 - Número de desempregados registados nos centros de emprego, por NUTS III" - Norte Conjuntura 2º Trimestre de 2021.pdf

[5] Instituto Nacional de Estatística, Preliminary Censos 2021 data - https://www.ine.pt/scripts/db_censos_2021.html

Indeed, 81% of the respondents have experienced impacts on the exporting activity due to Covid-19, with 33% facing challenges on sourcing, due to inflation and scarcity[6].

Although official statistics are not yet available, some signs of resilience in the sub-region's economy can be noted. Actually, in truth, it is public knowledge that the region's businesses were quite effective in adapting to the circumstances imposed by the pandemic, essentially the textile cluster.

The flexibility and adaptive capacity of the textile sector was extremely important in the sub-region's robust response to Covid-19, economically. During 2020 and 2021, there were many cases of companies adapting their production lines to enable masks for social use production, which supported the maintenance of jobs and boosted exports to sustain the trade balance - short deterioration in the balance of exports and imports of goods between 2019 and 2021 in the sub-region -2%.[7] (pordata.xlsx). Pursuant to the referred survey, 57% of the respondents have diversified their portfolios and/ or added new products and/ or services, on the back of Covid-19[5].

Important to note that our local partner CITEVE, as of December 2020, had already issued the certification seal to 2,700 different models of social masks, developed by 1,500 companies across the country[8].

In a recent appointment regarding reindustrialisation at University of Minho, CITEVE has signalled much demand from the Portuguese textile and clothing industry that struggles with a lack of manpower, in a context where orders are more than the capacity to produce. The entity also said that in 2020, 700 million euros of masks and personal protective equipment were exported.[9]

National-wide, the government has launched different measures support economic activity under three main axes[10]:

- Fiscal Measures: Facilitating the payment of taxes such as VAT, individual and collective income tax, and credit moratoria
- Employment: Access to mechanisms for suspending the activity of companies with financial assistance for remunerations and support for hiring
- Companies: In addition to the above, financial support was provided to the sectors most affected by the pandemic, namely in the form of support for rent payments, treasury support and other lines of credit

Although the real impacts of these measures are not yet known, it is expected that they have been an important instrument of support for companies, in maintaining jobs and other.

Following the pandemic, the government approved the Recovery and Resilience Plan (PRR), with an implementation period until 2026 and a budget of almost 17.000M€, which will

[6] CIM do Ave, 2022, Internal Survey on Covid-19 impacts on companies exporting activities
[7] PORDATA, as of April 2022, Corporate balance of goods
[8] Jornal de Negócios, December 2020, "Máscaras "protegem" empregos e confeções no Vale do Ave"
[9] Correio do Minho, March 2022, "Sector têxtil sem mão de obra para responder às encomendas"
[10] Estamos ON, As of April 2022, "Apoios ao Emprego e Economia", https://covid19estamoson.gov.pt/apoios-ao-emprego-e-economia/

implement a set of reforms and investments aimed at restoring sustained economic growth, reinforcing the goal of convergence with Europe over the next decade.[11]

2.2 Impacts of the pandemic on original SWOT Analysis

As of 2017, CIM do Ave reported that the Norte region has seriously suffered the impact of globalisation on its traditional labour-intensive industries and it was undertaking a profound transformation of the economic structure, although it is far from being completed, through a socioeconomic adjustment process:

- On one side we assisted to the industrial recovery of its tissue, with the modernization of the traditional sectors and with a great industrial diversification
- on the other side, the unemployment with characteristics of structural unemployment was a great concern – which has recently been broadly stable at low levels

At that time, the SWOT Matrix of CIM do Ave was based on a very broad vision of the local innovation ecosystem, partly through the Regional Innovation Scoreboard 2017. In order to identify changes and/ or additions to that matrix, this report compares progresses on that scoreboard since 2017 to 2021.

Table 2. Norte's Structural Data a 2017 and 2021 Regional Innovation Scoreboard's comparison[12]

	2017			2021		
	PT11	PT	EU28	PT11	PT	EU
Share of employment in:						
Agriculture & Mining (A-B)	9.2	8.6	5.1	5.1	5.1	4.6
Manufacturing (C)	25.1	16.7	15.5	25.7	17.2	16.4
Utilities & Construction (D-F)	9.1	8.2	8.5	8.1	7.5	8.2
Services (G-N)	52.5	59.8	63.2	57	63.6	62.9
Public administration (O-U)	4.2	6.8	7.1	4.2	6.5	7.1
Average employed persons per enterprise (firm size)	3.3	3.3	5.4	3.4	3.4	5.2
GDP per capita (PPS)	17,800	21,100	27,600	21,100	24,700	31,200
GDP per capita growth (PPS)	1.31	0.24	2.00	4.05	3.77	3.21
Population density	170	112	117	169	113	109
Urbanisation	80.3	74.5	74.1	81.9	76.5	75.3
Population size, 2016 (000s)	3,600	10,340	510,280	3,580	10,300	446,450

It is clear the convergence of GDP per capita towards country and European levels - the GDP per capital growth in the region excelled both Portugal's and Europe's. The table also highlights

[11] https://recuperarportugal.gov.pt/ as of April 12th, 2022

[12] Regional Innovation Scoreboards 2017 and 2021 - https://ec.europa.eu/docsroom/documents/45959

the above average % of employment of Manufacturing sector, comparing to Portugal and EU, due to the region's industrialization and efforts to maintain firms competitivity-

The table below evidences the normalised scores per specific indicator and relative results compared to Portugal and the EU. As previously referred, North is a Moderate Innovator, as evidenced by the Regional Innovation Index (RII) progress from 2011-2017 and 2014-2021, from 2.3 to 11.8.

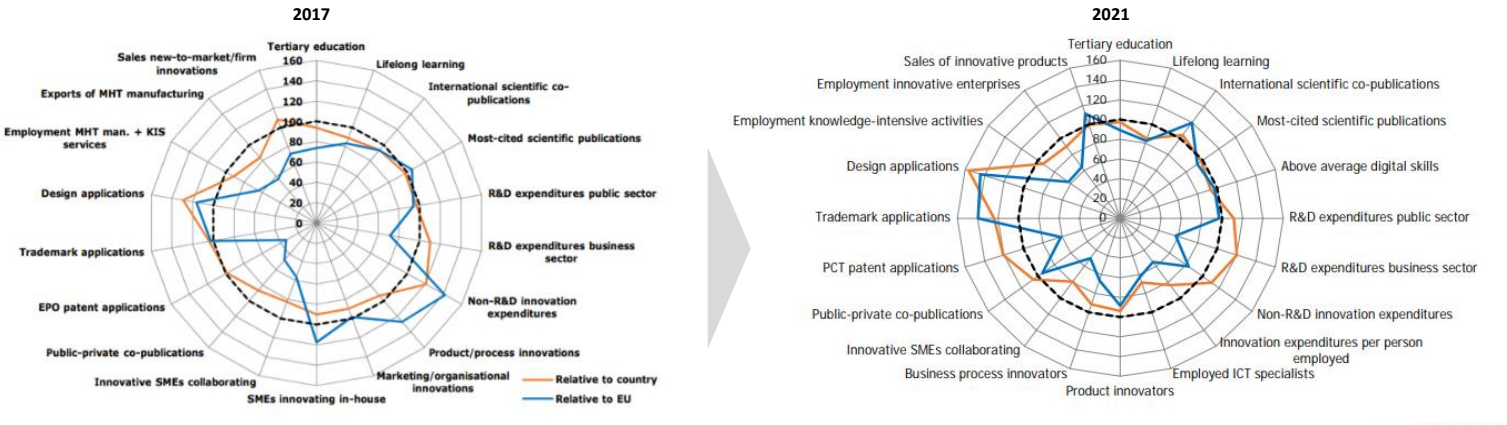
Anyhow, the achieved progresses were the following:

Table 3. Comparison from Regional Innovation Scoreboard 2017 and 2021[11]

	Data		Normalised Score		Relative to (2017)		Relative to (2021)	
	2017	2021	2017	2021	PT	EU	PT	EU
Tertiary education	30.3	36.8	0.406	0.512	94	74	97	89
Lifelong learning	8.2	8.9	0.392	0.331	89	83	85	82
International scientific co-publications	893	1.714	0.389	0.671	94	93	104	119
Most-cited scientific publications	8.7	9.3	0.574	0.509	98	105	98	94
Above average digital skills	--	30.4	--	0.512	--	--	93	97
R&D expenditures public sector	0.65	0.7	0.512	0.470	97	94	111	97
R&D expenditures business sector	0.71	0.83	0.326	0.298	110	71	120	57
Non-R&D innovation expenditures	±	±	0.426	0.357	±	±	±	±
Innovation expenditures per person employed	--	±	--	0.320	--	--	±	±
Employed ICT specialists	--	2.6	--	0.312	--	--	68	62
Product Innovators	--	±	--	0.543	--	--	±	±
Business process innovators	--	±	--	0.423	--	--	±	±
Product/process innovations	±	--	0.566	--	±	±	±	±
Marketing/ org. innovations	±	--	0.383	--	±	±	--	--
SMEs innovating in-house	±	--	0.536	--	±	±	--	--
Innovative SMEs collaborating	±	±	0.202	0.261	±	±	±	±
Public-private co-publications	26.8	174.2	0.141	0.469	87	47	106	95
EPO/PCT patent applications	0.54	1.29	0.130	0.380	99	33	121	61
Trademark applications	6.21	8.66	0.403	0.638	104	102	124	140
Design applications	1.52	8,32	0.607	0.829	129	116	157	145
Employment MHT manuf./KIS services	9.5	11.1	0.341	0.374	91	64	94	63
Employment innovative enterprises	--	±	--	0.385	--	--	±	±
Sales of innovative products	--	±	--	0.705	--	--	±	±
Air emissions by fine particulates	--	7.9	--	0.771	--	--	103	157
Exports of MHT manufacturing	31.3	--	0.357	--	84	56	--	--
Sales new-to-market/firm innovations	±	--	0.340	--	±	±	±	±
Average score	--	--	0.390	0.479	--	--	--	--
Country EIS-RIS correction factor	--	--	0.926	0.900	--	--	--	--
Regional Innovation Index 2017	--	--	0.361	0.432	--	--	--	--
Regional innovation index 2017/2021 (same year)	--	--	--	--	97.8	79.6	101.6	80.3
RII 2017/ 2021 (cf. to EU 2011/2014)	--	--	--	--	--	81.7	--	92.2
RII 2011/ 2014	--	--	0.351	0.377	--	--	±	±
RII 2011/ 2014 (same year)	--	--	--	--	92.9	79.4	98.2	80.5
RII - change 2011 to 2017 / 2014 to 2021	--	--	2.3	11.8	--	--	--	--

± Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.

For a more graphical performance analysis, the elements below compare relative strengths (e.g. Non-R&D innovation expenditures) and weaknesses (e.g. EPO patent applications) from the region against Portugal (orange line) and the EU (blue line) over the period:



Also in 2017, a set of challenges associated with Innovation Activities in the Region were identified. Hence, a progress report was then carried out, based on the data previously presented:

Table 4. Progress Report on North Portugal's innovation challenges from 2017

Challenge	2017[13]	Progress Report (2021)
Improving firms' innovation performance by strengthening their technological and managerial capabilities	Despite positive developments, innovation performance remains relatively weak. There are signs of insufficient in-house capabilities within firms	Innovation performance and results appear to be thrilling a successful path, as Sales of Innovative Products and Design and Trademark applications are above EU-average, even though the lack on product innovators and business process innovators, comparing to Portuguese and European averages. As the expenditures in Non-R&D innovation have comparatively decreased, these achievements suggest a further improvement in the quality of human resources and managerial capabilities. Increased collaboration among innovative SMEs might also be useful on improving firms' innovation performance.
Stimulating the emergence of new companies in knowledge-intensive activities	Even though in 2016 medium and high-tech exports reversed the previous downward trend, growth in knowledge-intensive service exports is still tepid. Efforts to stimulate entrepreneurship led to positive results, but difficulties in attracting	Growth in knowledge-intensive service is still tepid, on the back of low employment innovation enterprises and knowledge-intensive activities. Anyways, it is important to underline the consistency of investment in R&D activities compared to 2017, fostering potential results

[13] CIM DO AVE SWOT ANALYSIS

	knowledge-intensive FDI persist	in the innovation activity. Increased employment on Manufacturing evidence the increasingly industrial nature of the region's business landscape - valorization and innovation fostering measures shall be taken to increase knowledge-intensive activities on those, to foster additional knowledge-intensive FDI.
Ensuring stronger linkages between science and industry	Tackling this challenge requires sustained action from both ends. The challenge here is not just 'technology transfer', but rather the development of co-design and co-action initiatives involving players from both sides.	Public-private co-publications thrive in 2021 after a diffident performance in 2017. This might be a paradigm shift and as such a new opportunity to further foster innovation, suggesting an improvement on co-actions initiatives involving science and industry partners.
Defining jointly developed agendas on innovation policy	This challenge is closely related to the previous one. Measures taken to involve the business sector in R&I policy design risk remaining limited. Further efforts to stimulate real 'bottom-up' initiatives for the definition of R&I agendas are still needed.	Rise on public-private co-publications suggest a paradigm shift on this regard. Implementation of PRR might impact positively the development of agendas on innovation policy.
Fostering the recruitment of researchers by business firms	Portugal has one of the lowest shares of researchers employed by businesses in the EU. Promoting employment of high-skilled workers, especially PhD holders, would enable human capital to be put to productive use. This would in turn contribute to address some of the previous challenges.	R&D expenditures both in public and private sectors above national average but still short comparing to EU. In addition, the region still shorts on Employed ICT specialists and Employment knowledge intensive activities. Additional measures to foster the recruitment of researchers by business firms shall be taken.

Table 5.Update of SWOT Analysis of North Portugal Innovation System

Strengths *(original strengths that remain accurate)*	Weaknesses *(original weaknesses that remain accurate)*
- Young population: dynamism factor and relevant element in the dynamization of the territory; - Teaching and R & D infrastructures with a high reputation and ability to generate relevant dynamics in the territory; - Average level of education, secondary and higher education, above the national average;	- Excessive fragmentation and thematic dispersion of the regional entities of the Scientific and Technological System; - Problems of accessibility to important industrial and technological centers and mobility problems, particularly in low density municipalities; - Deficit of articulation of the science and technological reginal system,

- Strong industrial dynamics, job creation and export intensity; - Competitive capacity of traditional industries strengthened; - Proximity to logistics infrastructures: Port of Leixões, Francisco Sá Carneiro airport and future logistics platforms Maia-Trofa and Chaves-Verin; - Increased agricultural productivity: growth and strengthening of agricultural holdings, with relevance in the planning of the territory and in the determination of the populations; - Availability of endogenous energy resources, with special focus on hydropower, wind, solar radiation and biomass production; - Very relevant tourism potential in diverse domains, such as tourism in rural, nature, adventure, mountain, rails and hikers, religious, with space for consolidation and supply structure, taking advantage of the network and the work that is in the ground;	resulting in misalignment of advanced training and R & TD with the economy and insufficient business investment in innovation. - Business atomism and reduced networking. - Poor and distorted international visibility. - High energy dependence on the exterior, aggravated by an electrical production based in large part on fossil fuels, associated to the still low energy efficiency index - Still reduced levels of qualification in the working population and in the entrepreneurs and high drop out of school, compared to the European averages.
New Strengths derived from the pandemic *(if any)*	**New Weaknesses derived from the pandemic** *(if any)*
- Entrepreneurial and resilient ability of the business landscape - Production of internationally recognised knowledge and publications - Fostering synergies in public-private co-publications - Launch of new and innovative products and services, on the back of an increase number of EPO/PTC patent applications, design patents and trademark registrations	- Reduction in Non-R&D innovation expenditures - Lack of collaboration among Innovative SMEs

Opportunities *(original opportunities that remain accurate)*	Threats *(original threats that remain accurate)*
- Movements of concentration and rationalization in the Regional Scientific and Technological System; - Trend in the composition of R & D funding sources, with greater participation of companies, promoting the creation of a technological market; - Available funds and financial incentives for disadvantaged rural areas to develop a technology cluster and support innovation and internationalization; - Implementation of an intelligent specialization strategy that promotes resource concentration and exploits cross-sectoral synergies in innovation and the building of competitive advantages; - Internationalization of regional innovation system by increasing participation and presence in European networks and projects and by taking advantage of funding opportunities under Horizon 2020; - Still little explored potential of internationalization of SMEs. - Existence of leading companies with global scale acting as innovator drivers within the value chain of the local SMEs	- Prolonging international and national instability and macroeconomic as well as recession, on the back of the conflict in Eastern Europe - Combination of aging, brain drain and rural flight - Low productivity rate in traditional sectors - Increasing difficulty in establishing qualified human resources in the Region, especially among young people with higher education - Transfer of decision centers outside the Region, particularly by large companies or economic groups (public or private).
New Opportunities derived from the pandemic *(if any)*	**New Threats derived from the pandemic** *(original threats that remain accurate)*
- Implementation of national-wide Recovery and Resilience Plan (PRR) - Decent level of individuals with above average digital skills	- Rising costs of energy and raw materials and scarcity - Labour-intensive job workman shortages

3 Impact and deviation on your Action Plan

At the date of preparation of the submitted Action Plan, CIM do Ave defined as important the implementation of three main activities:

- Action 1: Creation of the Innovation and Internationalisation Council (Conselho de Inovação e Internacionalização do Ave - CII)
- Action 2: Promote innovation, research and knowledge transfer forums at Ave Region
- Action 3: Implementation of a communication strategy to promote a culture of innovation at regional level.

These initiatives required the collaboration of a set of relevant stakeholders for the local innovation system, such as the University of Minho, CITEVE, the Portuguese National Innovation Agency, Municipalities and Local Development Units.

However, as is common knowledge, the Covid-19 pandemic brought a number of severe impacts on the economy, people and institutions. In Portugal, the municipalities that make up the CIM do Ave were those with the highest number of cases per 100,000 inhabitants. Having said that, the stakeholders' activity during 2020 and 2022 was also strongly impacted, both by internal constraints and by the increasing and required focus on supporting the economy and citizens in general. Therefore, the referred actions will be implemented in the period from 2022 to 2024.

Table 6.Impacts and deivations on Action Plan - Main comparative data

DATA	Planned (from Action Plan)	Implemented/Executed/Reached
Actions/Activities	Action 1 Action 2 Action 3	n/a
Financial execution (€)	40.000	40.000
Duration	2 years	2 years
Nr. of beneficiaries	Tbd	Tbd

4 Conclusions

In summary, although the region in scope was the most buffeted in number of covid-19 positive cases per 100,000 inhabitants, its economic development and entrepreneurial culture proved resilient - companies and institutions redoubled their efforts to adapt their offer and impact in different spheres of activity.

The Norte de Portugal region continued the innovation path, and positive results were achieved. It is clear the convergence of GDP per capita towards country and European levels - the GDP per capital growth in the region excelled both Portugal's and Europe's.

Regarding the Regional Innovation Scoreboard, the results obtained in terms of international scientific co-publications and R&D expenses should also be highlighted, demonstrating the efforts of the public and private sectors to foster innovation.

Given the severe impacts of the pandemic, not only at economic level but also in the daily life of companies and institutions, the actions defined in the action plan will be carried over to the period 2022 to 2024. No changes will be made to the duration of their implementation or the budget at the time indicated.