

OUTPUT FACT SHEET

Pilot actions (including investment, if applicable)

Version 3

Project index number and acronym	CE1492 4STEPS
Output number and title	Output 3.1 Pilot Actions on improvement of business activities
Investment number and title (if applicable)	Not applicable
Responsible partner (PP name and number)	PP6- Pannon Business Network Association (PBN)
Project website	https://www.interreg-central.eu/Content.Node/4STEPS.html
Delivery date	03/2022

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature, demonstration character and transnational added value

The concept of resilience has been becoming more and more attractive for researchers especially nowadays, since we are currently facing a global crisis and it is crucial to understand how to react properly, to avoid bankruptcy, or even to enhance performance. Companies that already survived turbulent periods might survive the following ones, but it cannot be stated for sure. It is even possible that resilient companies cannot contribute to the macroeconomic progress of nations, only in the short-run, resilient attribute can prevent bigger collapses on regional and national level and prevent larger economic crises that could drag other sectors with them via the subtle and complicated economic connections.

In order to have an objective and tangible result on which aspect resilient companies could contribute or utilized by economic experts from the relevant factors, was one of the main focuses of the pilot work for which the procurement of a database containing financial balance sheets and income statements were used.

Our main aim in the pilot action was to analyse- with using advanced data analytics methods- national companies how they reacted to crises based on a national database. In the first part of our pilot action- namely D.T.3.7.1- a quantitative analysis was carried out and based on that finally four groups (segments) have been classified how companies were exposed to economic shocks. -level of their resilience-. These groups are identified as, fragile, robust, resilient and antifragile. In the second phase of the pilot activity (D.T3.7.2), based on the conclusions of the quantitative research as well as data from public balance sheets and profit and loss accounts, we filtered out businesses that showed signs of resilience following a business downturn in a given year. In this upcoming phase, we built on interviews, surveys and publicly available data (from company websites, media) to take one step ahead of understanding factors of resilience.

NUTS region(s) concerned by the pilot action (relevant NUTS level)

The procured database contained financial balance sheets and income statements on little bit more than 26 000 Hungarian companies, involving all NUTS2 regions of Hungary.

Investment costs (EUR), if applicable

Not relevant in this case.

Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

It turned out that crises can be completely unique and company specific. The results of the quantitative and qualitative analysis reflect that one company can belong to different segments (fragile, robust, resilient, antifragile) depending on the examined year, so the resilient characteristics, factors should be enhanced in the companies and these characteristics might be also transferred to other companies in order to decrease or even avoid the crisis in their lifetime. We could identify some common characteristics/behaviour of the robust/resilient/antifragile companies and firms who have not experienced crises. These features should be also highlighted in order to make a company as resilient as possible.

We also found that reactive resilience as a temporal characteristic of individual companies has no positive influence on long-term performance and survival rate and therefore shall be considered as a short-term positive attribute that helps alleviating larger macroeconomic crises or at least suppresses and prolongs the magnitude of such turbulences by keeping unemployment rate at a lower level etc.

Since resilience of companies and being resilient are currently playing an important role in the most recent European strategies and initiatives, our advanced work carried out in the 4STEPS project can be considered a base which might be further exploited in the upcoming years.

Sustainability of the pilot action results and transferability to other territories and stakeholders

The main resilient characteristics, factors- found in our analysis- should be enhanced in the companies and these characteristics might be also transferred to other companies in order to decrease or even avoid the crisis in their lifetime which would contribute to the competitiveness of the firms.

In a future work other aspects of resilience beside reactive-resilience should be elaborated and models shall be worked out in order to numerically characterize companies and collect best-practices for preparing and avoiding negative impacts during operation. Further hypothesis tests could be figured out and performed and geographic data could be incorporated to the investigation. As a more advanced outlook from the present study, bankruptcy prediction models could be used to have a deeper understanding on economic resilience and form other (most probably still just a subset of) resilient groups and their features.

It is advised for the further steps of analysis and research into resilience to work on the enhancement of the quantitative selection procedure as well as to elaborate a detailed methodology, interview panel and questionnaire for qualitative analysis of various resilient form behaviours.

The methodology of the already carried out activities as well as the planned steps might be applicable in other regions/countries as well.

If applicable, contribution to/ compliance with:

- relevant regulatory requirements
- sustainable development - environmental effects. In case of risk of negative effects, mitigation measures introduced
- horizontal principles such as equal opportunities and non-discrimination

When we purchased the national database (including approx. 26.000 Hungarian company data) the regulatory requirements of the purchase were respected, and the purchase was in line with the national and EU rules.

Since resilience and being resilient are currently playing an important role in the most recent European strategies and initiatives, our advanced work carried out in the 4STEPS project can be considered a base which might be further exploited in the upcoming years.

In case of this pilot action there is no risk that the pilot action has negative environmental effects.

Regarding the horizontal principles, in this pilot action the company data utilisation/data processing was relevant, which was respected according to the rules in the framework of the pilot activity. The names of the companies are confidential and have not been shared publicly.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links

If applicable, additional documentation, pictures or images to be provided as annex

- D.T.3.7.1 → Segment definition and characteristics of companies how they reacted to crisis (quantitative analysis)
- D.T.3.7.2 → Detailed analysis of companies how they reacted to crisis (qualitative analysis)
- D.T.3.7.3 → Pilot Action Report
- D.T.3.8.4 → Transnational report of innovative services

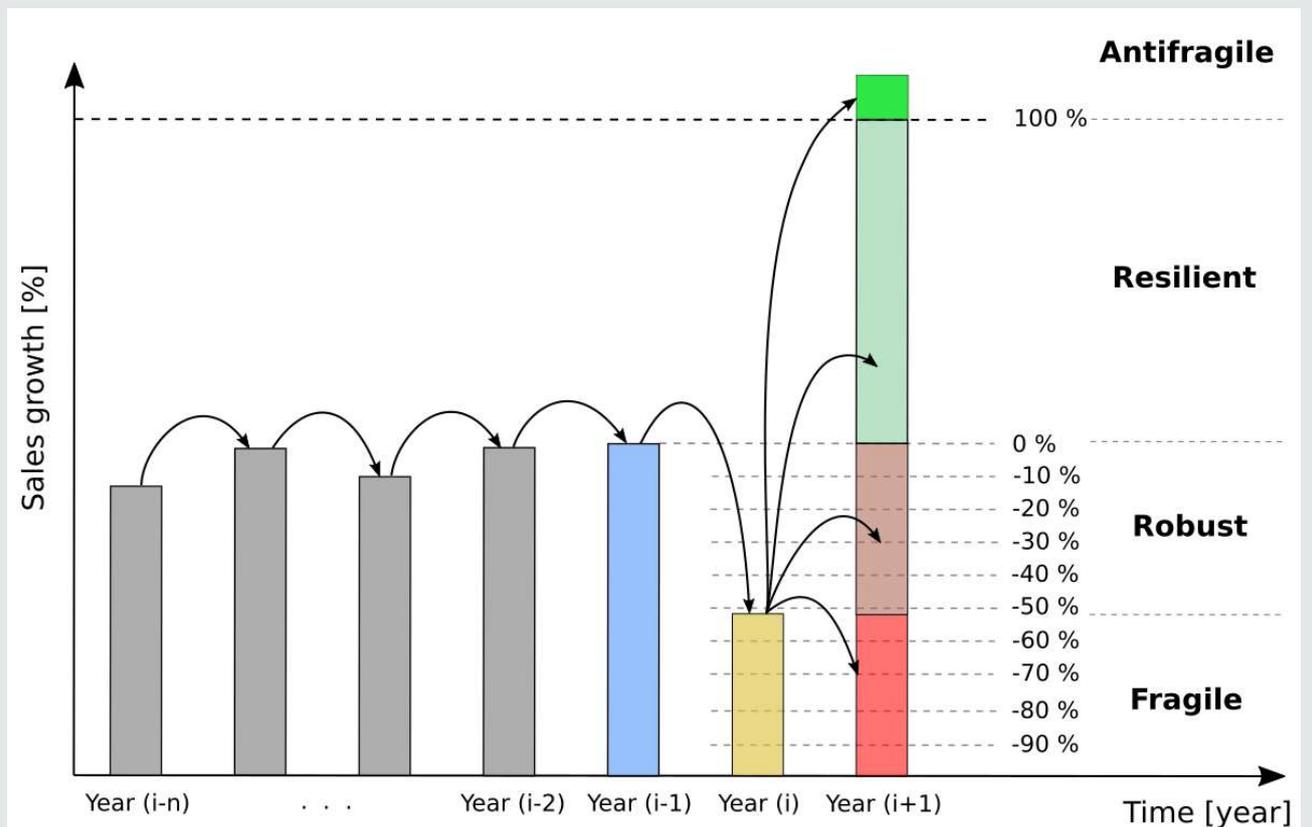


Figure from D.T3.7.1: Basic concept for the classification of companies that were exposed to economic shocks.

2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	class
189.0	198.0	188.0	145.0	382.0	687.0	845.0	533.0	579.0	630.0	506.0	506.0	607.0	534.0	475.0	492.0	684.0	Fragile
50.0	53.0	70.0	39.0	108.0	74.0	217.0	168.0	139.0	216.0	184.0	172.0	167.0	206.0	182.0	156.0	147.0	Robust
90.0	71.0	160.0	80.0	171.0	113.0	359.0	321.0	212.0	356.0	401.0	255.0	270.0	321.0	307.0	257.0	205.0	Resilient
5.0	2.0	5.0	6.0	9.0	16.0	19.0	35.0	15.0	24.0	29.0	21.0	17.0	27.0	28.0	21.0	9.0	Antifragile

Figure from D.T3.7.1: Number of companies ordered into resilience-related classes in each year at 10% shock level they were exposed to.

No. of resilient and antifragile companies

-10%	95	73	165	86	180	129	378	356	227	380	430	276	287	348	335	278	214
-20%	47	44	63	30	111	65	196	152	121	180	185	123	133	204	146	125	86
-30%	18	14	27	14	50	43	140	92	58	84	90	66	68	87	73	75	50
-40%	11	7	11	10	23	25	62	42	48	46	41	48	44	66	50	34	34
-50%	4	10	6	4	22	13	35	29	23	27	25	18	23	32	22	0	16
-60%	3	0	7	0	16	8	12	15	22	11	17	16	19	13	16	12	9
-70%	0	0	2	3	5	10	17	9	9	14	15	12	12	3	12	13	4
-80%	0	0	0	0	4	12	13	13	6	9	11	8	9	10	9	4	5
-90%	3	4	2	0	0	5	4	8	8	8	7	7	3	5	7	9	0
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020

Figure from D.T3.7.1: Number of resilient and antifragile companies at different resilience-levels in each year.

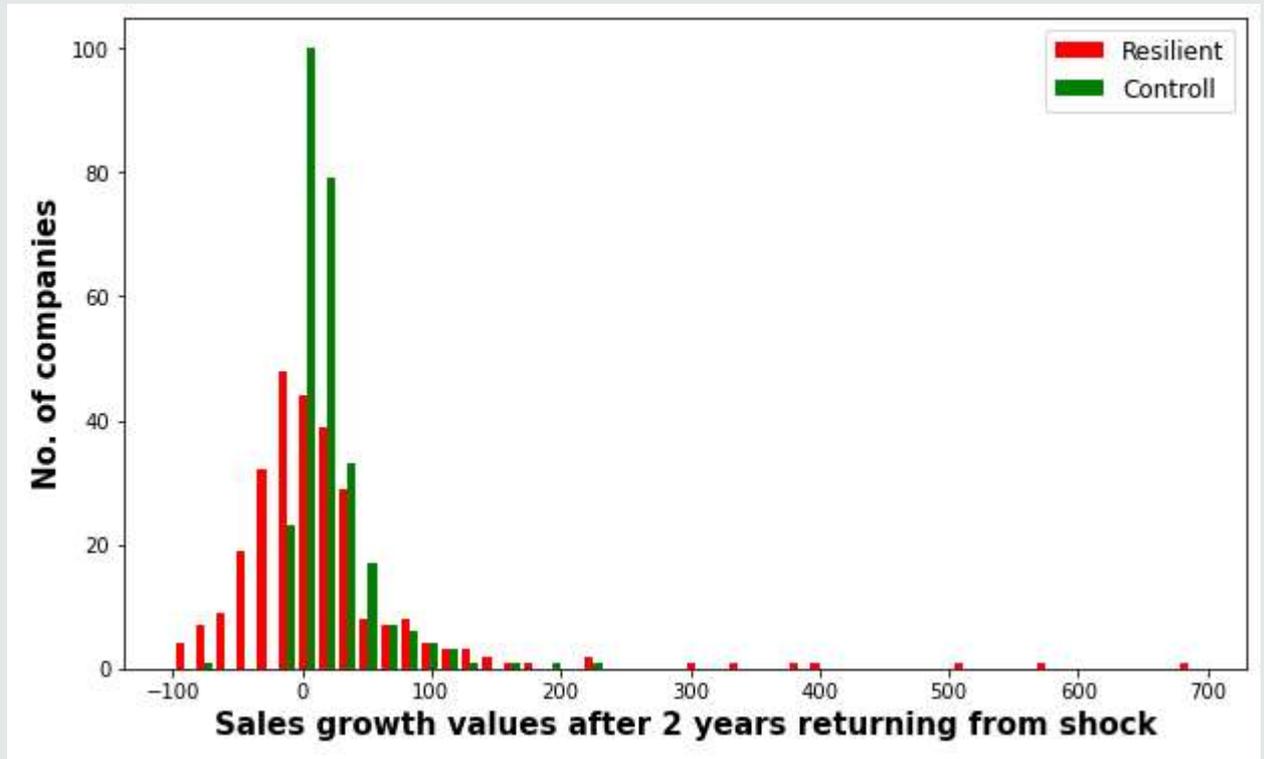


Figure from D.T3.7.1: Distribution of sales growth among resilient and control group companies 2 years after the economic disturbance.

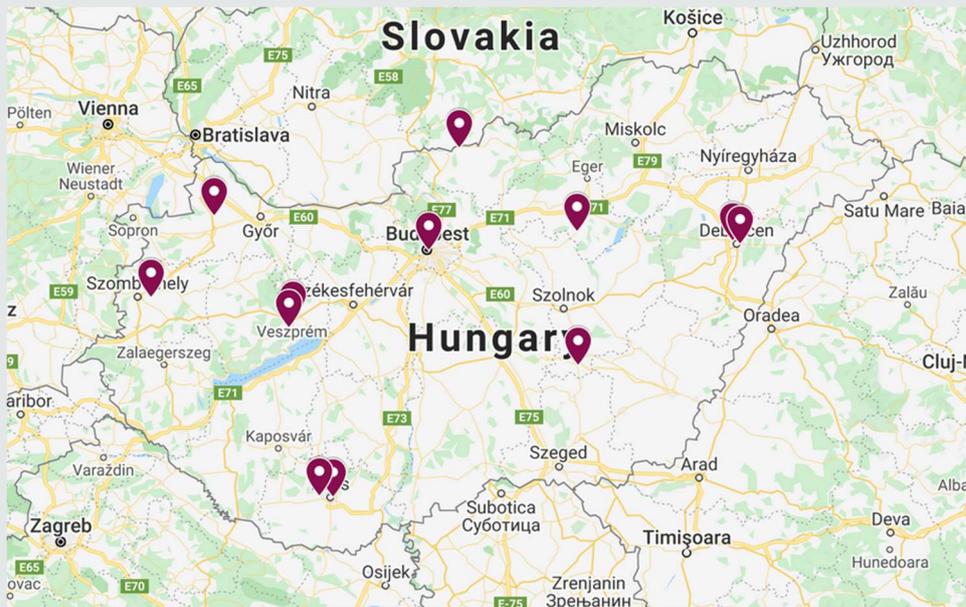


Figure from D.T3.7.2: Map of Hungary with the location of the headquarters of the companies presented in the case studies