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**Conference Paper**

## Integrated subsidiarity of the BCC-CR: a sustainable model of local finance

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## **SUBSIDIARITY INTEGRATED BCC-CR: A MODEL OF SUSTAINABLE LOCAL FINANCE**

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### **ABSTRACT**

In more than 130 years, the cooperative banks and rural banks, have become a best practice, widespread in all the Italian regions so as to become, through ICCREA-Holding and Federcasse, a federal system included among the 130 European banks, referents ECB. A model that today has about 400 local banks and that, discounting the guiding principles, interprets the function as a development bank for the area, responding to the economic and social needs of individual communities. Objective of a BCC-CR is, in fact, promote development from the bottom, making the protagonists subjects of the local economy through a process that is defined of circular subsidiarity because element of synthesis between the vertical subsidiarity (integration of the different levels expressed by territory) and horizontal subsidiarity (integration of factors of the local development).

In order to analyze and deepen the best practice of the BCC -CR model is, therefore, interesting assess the sustainability of local finance through a relation of functionality that interconnects the level of performance expressed by some important national areas with the intensity of mission of the financial model. The research team has already developed a unique indicator of territorial performance, presented in the session ERSA, 2011 (Spain) and an indicator of intensity of the mission of the BCC -CR model presented in the Workshop RSAI 2012 (China) and in the annual conference PRSCO 2013 (Indonesia). This dimension of the subsidiarity has allowed the research team of assess the relative effectiveness of the model through the measurement of the level of integration between the horizontal subsidiarity and the vertical one by means the structuring of a function of two variables, that, represented by a spherical model in three-dimensional environment (the circular subsidiarity is expressed by level lines to shape of circumferences in two-dimensional level), expresses the intensity of the integration as a factor in the sustainability of local finance.

Territorial cohesion and consistency with the orientations set by the different levels of governance is, in fact, a factor of local development able express the potentialities of the territory, the level of competitiveness and the ability to give concrete answers to the current critical issues. The study shows that there is room for improvement among the descriptors that express the intensity of the mission model BCC-CR (horizontal subsidiarity) and those that express the performance of the territory (vertical subsidiarity): on these areas should focus the attention of policy makers and the company management to improve the synchronization between demand of investment and the supply of savings in the territory.

## **1. INTRODUCTION**

The integrated subsidiarity is a classic example of how a process of negotiated planning, can affect levels of economic performance expressed as a territory. This dimension of subsidiarity has allowed the research team to assess the relative effectiveness of the model by measuring the level of integration between the horizontal and vertical subsidiarity through the structuring of a function of two variables, represented by three-dimensional environment a spherical model (the subsidiarity circular level is expressed as two-dimensional contour in the shape of circles), expresses the intensity of integration as a factor in the sustainability of local finance. Territorial cohesion and consistency with the guidelines set by the different levels of governance is, in fact, a factor of local development can express the potential of the area, the level of competitiveness and the ability to give concrete answers to the critical current. The study shows that there is room for improvement among the descriptors that express the intensity of the mission model BCC-CR (horizontal subsidiarity) and those that express the performance of the territory (vertical subsidiarity): these areas should focus on the ' attention of policy makers and the company management to improve the synchronization between investment demand and supply of savings in the area.

## **2. METHODOLOGY**

- 1) Is it possible to identify a model of sustainable finance in function of local performance indicators?
- 2) What action should be taken to support the monitoring of major economic parameters in accordance with Basilea 3 protocols?
- 3) Is it possible to characterize the intensity of the finance subsidiary within a system of local development, capture and process reliable data on the processes of construction and development of the social balance sheets of BCC in a specific area Italian (North / Center / South)?

- 4) Is it possible to construct a synthetic indicator that assesses the ability of the Italian mutual banks to carry out its mission of participation and involvement of the territory in the management of local finance?

The analysis of individual cases has been carried out seeking to understand particular aspects related to the processes of cooperation for local development, the selection of key performance indicators in use today in the local academia and research, the substrate of local services (trade, finance, internationalization, etc ...) to support the cluster analysis. In particular the action of "benchmark" has made it possible to select cases, as well as their objective interest, with the intent to represent all the macro regions of Italy.

#### A) An indicator of vertical subsidiarity - ERSB Barcelona 2011

The seven selected national cases were chosen in collaboration with the FICEI (Italian Federation of Industrial Consortiums):

- Padua and Verona (northeast)
- Ancona, Massa Carrara and Rieti (center)
- Bari and Naples (south)

#### B) An indicator of horizontal subsidiarity - RSI Beijing Forum 2012

The sample of banks BCC-CR analyzed represents approximately 1/4 of the cooperative banks today are members of Federcasse and the intensity of the mission of the system of local co-operation has been developed by processing the data presented at the conference by COMIPA 2011 Venice building so specific dashboards descriptors than the three Italian macro-areas:

- BCC-CR in territory of Northern Italy
- BCC-CR in territory of Central Italy
- BCC-CR in territory of Southern Italy
- 

#### C) The circular subsidiarity

The methodology used to express the circular subsidiarity has been to synthesize in a single environment the two dimensions of subsidiarity through the use of a relation of simple functionality (function of the second degree) such as a circumference with origin in the axes and variable amplitude depending size of the indicators of subsidiarity vertical and horizontal above indicated.

#### D) The subsidiarity integrated

The ability of strategic repositioning of a territory is always given by the capacity of renewal that the territory is able to express; the integration of the two dimensions of subsidiarity was then carried out through a simulation method of the potential for technology transfer at the national level that was recorded by the company Omicron.Tau Ltd., actuator of the ministerial program RIDITT\_GENESI in collaboration with CNR, University of Rome Three, FICEI, Federlazio, Consortium for Industrial Development of Rieti and ZIPA consortium (Consortium for Industrial Development of Ancona). In order to exploit the potential of the strategic repositioning of the territory the project partners have developed a special memorandum of understanding with the system of mutual bank ( BCC-CR) that is committed to funding the most important projects. So the methodology used to represent with a mathematical model this integration process has been the introduction of a function of two variables, three-dimensional environment, that has allowed the research team to view a conical shape as an indicator of the sustainability of local finance.

### **3. STRUCTURING INDICATORS OF VERTICAL AND HORIZONTAL SUBSIDIARITY**

There are multiple descriptors of the different aspects of the subsidiarity. These descriptors should be measured through basic indicators and then the basic indicators summarized. This evaluation process poses the problem of finding the unique indicator. The basic approach used is that of the *geometric average*, methodology most frequently followed to construct synthetic indicators on the basis of data. The method can be summarized in the following phases:

- Construction of basic indicators. The availability of statistical basis obviously affects both the detail of the categories to quantify infrastructure, is also the level of the land areas to be taken into account;
- Standardization of basic indicators. We proceed to the normalization of the basic indicators, an operation performed solely for the reporting of indicators expressed in % by relating the basic indicators of type of numerary to a predefined size classes;
- Standardization of normalized basic indicators. One of the most commonly used methods for this purpose is to relate, within the same category, the normalized indexes of each unit area to the maximum value of the series, thereby obtaining scales of the same amplitude (between 0 and 1, for the ' precisely, or between 0 and 100, as more commonly is done), and then the immediate comparability between the indicators considered;
- Aggregation of standardized indicators. The more usual procedure is to resort to some form of media, often identified in the arithmetic average for the aggregation of elementary

indicators within a main category and the geometric mean for the synthesis of the major categories. The use of take on two different averages, imply that there is some substitutability between the basic indicators in the same category and instead a lower substitutability between of main categories that together determine the overall summary index. The search result shows the validity of the methodology used by the indicator being the only minor deviations with respect to the perception that industry operators have analyzed the phenomenon.

### The single indicator of the territorial performance as element evaluation of VERTICAL SUBSIDIARITY - ERSA Barcelona 2011

A) STRATEGIC INDICATORS		Northeast	center	south
<i>business demography indicators</i>		0,4	0,8	1
<i>context indicators</i>		1	0,8	0,6
<i>perceived image indicators</i>		1	1	0,7
<i>environmental sustainability</i>		0,5	0,8	1
<i>infrastructure indicators</i>		1	0,75	0,5
B) INDICATOR BUDGES				
<i>Local services</i>				
<i>leadership</i>		1	1	0,8
<i>Local cooperation</i>		0,8	1	0,8
		1	0,8	0,8
C) FINACIAL INDICATORS				
<i>ROI, ROS e ROE per sector</i>				
<i>Average turnover per sector</i>		0,6	1	0,6
<i>Workwers average per sector</i>		1	0,6	0,8
<i>EBITDA per sector</i>		1	0,8	0,7
		1	0,5	0,8
		10,3	9,85	9,1
average	0,858333	0,820833	0,758333	FICEI model
G.average	0,81	0,75	0,75	result of research
I <sup>^</sup> range	0 - 0,25			
II <sup>^</sup> range	0,25 - 0,5			
III <sup>^</sup> range	0,5 - 0,75			
IV <sup>^</sup> range	0,75 - 1,00			
		northeast	center	south
B.D.		0,5	0,7	1
C.		1	0,9	0,8
I.P.T.		1	1	0,7
S.-S.		0,5	1	0,7
Infrastructure index		1	0,9	1
local services		1	1	0,8
Leadership		0,8	1	0,8
Local Cooperation		1	0,8	0,8
Roi, roe, ect....		1	0,5	0,3
Sales		0,4	0,2	1
workers		1	0,7	0,5
EBITDA		1	1	1

Source: ERSA Barcellona 2011

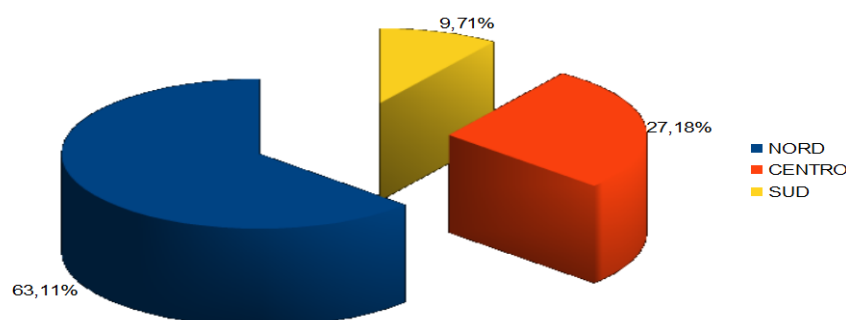
The results obtained by processing data generated by the matrix of spatial performance, complemented by the dashboard of indicators selected from research work presented at the annual conferences AISRE and sensitivity analysis carried out with operators FICEI shows the validity of the methodology used since the deviations Indicator only in areas subject to minor benchmark a demonstration of the attractiveness of land that the indicator can assume in the areas of national excellence.

## **The single indicator of the intensity of the mission of local finance as element evaluation of HORIZONTAL SUBSIDIARITY - RSAI Beijing Forum 2012**

The social report is a key feature of the BCC model in Italy, and expresses the attempt of the national cooperative system to synchronize the development needs of the territory with the financial constraints typical of the action. This model was analyzed through a deepening of the main descriptors, suitably normalized, standardized, validated by the University of Macerata on a sample of 101 accounts belonging to a universe of 414 national BCC ( descriptors has been development by prof. Katia Giusepponi and illustrated in congress of Labia Palace, Venice 10/06/2011\_ organized by COMIPA ) . In particular, we proceeded to organize a dashboard of performance of local finance through a focus on the following topics:

- 1) PARTICIPATORY PROCESS
- 2) LEADERSHIP AND IDENTITY PERCEIVED
- 3) EVALUATION AND CONTROL PROCESSES
- 4) PROCESS OF REPORTING
- 5) SHARING PROJECT

Although the selected sample of 101 accounts is not completely representative of the statistical universe expressed by the BCC-CR, as it is to be noted an underestimation of the relative abundance of co-operative banks that exist today in the territories of southern Italy, however, the values expressed from national indicator have been validated by a sensitivity analysis that confirmed a prevalence of cooperative culture mainly concentrated in the areas of central and northern Italian:



An analysis of the distinctive features of the BCC model and its main descriptors has permitted to create three dashboards performance able to make territorial claims on summary intensity of the participation of the various components in the local financial actions. The intensity of the component is expressed in % for Northern, Center and Southern of Italy:

## DASHBOARD FOR THE TERRITORY OF NORTHERN ITALY

contribution from external parties	36,02	display intermediate results	100,00
contribution of individuals inside	35,11	exposure milestones	37,38
link budgets previous	46,80	monitoring results / objectives	26,55
accounting principles declared	38,54	programming and control	14,07
methodological note	54,25	management groups for partners	100,00
		management areas of activity	19,83
<b>Average participatory processes</b>	<b>26,41</b>	<b>Average evaluation and control</b>	<b>49,64</b>
	0,900		0,496
exposure targets	78,95	directions for overcoming critical	15,42
future projections	78,76	directions for manitenimento skills	17,79
illustration structure	86,75	synthesis scheme objectives / results	10,30
illustration identity	100,00	affidavit of the social	5,56
		ratings reports on the presence	4,78
		approval of the document	7,12
<b>Average leadership</b>	<b>76,29</b>	<b>Average project sharing</b>	<b>10,16</b>
	0,861		0,571
economic and financial dimension	98,17	Total intensity of mission	272,97
environmental	77,62	Total intensity normalized	3,75
social dimension	100,00		
<b>Average reporting procedures</b>	<b>84,67</b>		
	0,919	<b>SINGLE INDICATOR NORD ITALIA</b>	<b>0,726</b>

Source: Processing database Comipa  
(Congress Labia Palace - Venice 2011)

## DASHBOARD FOR THE TERRITORY OF CENTRAL ITALY

contribution from external parties	11,25	display intermediate results	78,58
contribution of individuals inside	17,64	exposure milestones	19,17
link budgets previous	32,88	monitoring results / objectives	11,67
accounting principles declared	20,05	programming and control	8,33
methodological note	24,06	management groups for partners	74,58
		management areas of activity	13,93
<b>Average participatory processes</b>	<b>21,17</b>	<b>Average evaluation and control</b>	<b>34,38</b>
	0,516		0,351
exposure targets	55,46	directions for overcoming critical	10,83
future projections	55,33	directions for manitenimento skills	12,50
illustration structure	60,94	synthesis scheme objectives / results	5,83
illustration identity	72,97	affidavit of the social	2,50
	0,00	ratings reports on the presence	2,50
	0,00	approval of the document	5,00
<b>Average leadership</b>	<b>61,18</b>	<b>Average project sharing</b>	<b>6,53</b>
	0,672		0,419
economic and financial dimension	68,96	Total intensity of mission	191,15
environmental	54,53	Total intensity normalized	2,64
social dimension	80,19		
<b>Average reporting procedures</b>	<b>67,89</b>		
	0,679	<b>SINGLE INDICATOR CENTRO ITALIA</b>	<b>0,633</b>
			0,5103635

Source: Processing database Comipa  
(Congress Labia Palace - Venice 2011)



## DASHBOARD FOR THE TERRITORY OF SOUTHERN ITALY

contribution from external parties	8,82	display intermediate results	61,64
contribution of individuals inside	13,84	exposure milestones	15,03
link budgets previous	25,79	monitoring results / objectives	9,15
accounting principles declared	15,72	programming and control	6,53
methodological note	18,87	management groups for partners	58,49
	0,00	management areas of activity	10,92
<b>Average participatory processes</b>	<b>16,61</b>	<b>Average evaluation and control</b>	<b>26,96</b>
	0,405		0,275
exposure targets	43,50	directions for overcoming critical	8,50
future projections	43,40	directions for manitenimento skills	9,80
illustration structure	47,80	synthesis scheme objectives / results	4,58
illustration identity	57,23	affidavit of the social	1,96
	0,00	ratings reports on the presence	1,96
	0,00	approval of the document	3,92
<b>Average leadership</b>	<b>47,98</b>	<b>Average project sharing</b>	<b>5,12</b>
	0,527		0,328
economic and financial dimension	54,09	Total intensity of mission	149,92
environmental	42,77	Total intensity normalized	2,07
social dimension	62,89		
<b>Average reporting procedures</b>	<b>53,25</b>		
	0,532	<b>SINGLE INDICATOR SUD ITALIA</b>	<b>0,636</b>
			<b>0,40028511</b>

Source: Processing database Comipa  
(Congress Labia Palace - Venice 2011)

## DASHBOARD INTO ITALY

contribution from external parties	14,03	display intermediate results	98,00
contribution of individuals inside	22,00	exposure milestones	23,90
link budgets previous	41,00	monitoring results / objectives	14,55
accounting principles declared	25,00	programming and control	10,39
methodological note	30,00	management groups for partners	93,00
		management areas of activity	17,37
<b>Average participatory processes</b>	<b>26,41</b>	<b>Average evaluation and control</b>	<b>42,87</b>
	0,644		0,437
exposure targets	69,17	directions for overcoming critical	13,51
future projections	69,00	directions for manitenimento skills	15,59
illustration structure	76,00	synthesis scheme objectives / results	7,27
illustration identity	91,00	affidavit of the social	3,12
		ratings reports on the presence	3,12
		approval of the document	6,24
<b>Average leadership</b>	<b>76,29</b>	<b>Average project sharing</b>	<b>8,14</b>
	0,838		0,522
economic and financial dimension	86,00	Total intensity of mission	238,37
environmental	68,00	Total intensity normalized	3,29
social dimension	100,00		
<b>Average reporting procedures</b>	<b>84,67</b>		
	0,847	<b>SINGLE INDICATOR</b>	<b>0,636</b>

Source: RSAI Beijing Forum 2012

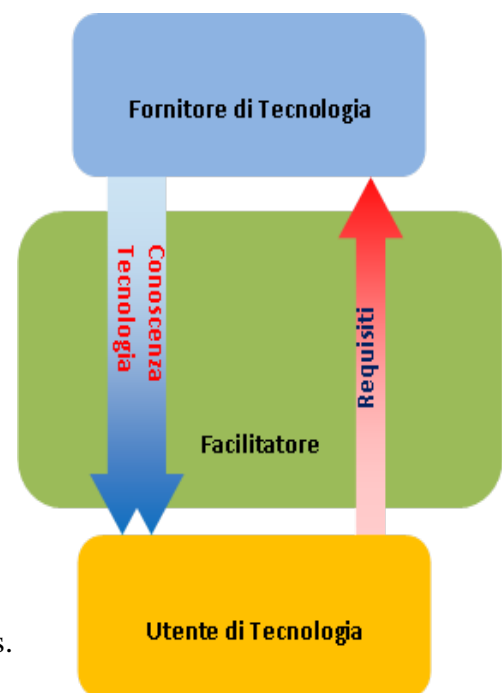
The sensitivity analysis was carried out with operators COMIPA. Processing so made of the Unique Indicator (0.636 is average of three territorial indicators ), has generated an intensity value of mission that expresses the world of cooperatives in the area of local finance, a value undoubtedly

improvable in areas that, after the normalization process and standardization, showed the lowest levels. However the areas that scored lowest levels of intensity are characterized by participatory system constraints and problems that can be solved only in the medium term. Despite this, the study demonstrates that there is a range to improvement among the descriptors of the individual categories inside dashboard and performance of these areas should attract the attention of policy makers and business management to improve the synchronization between investment demand and supply of savings within the territory.

#### **4. RESEARCH FOR MINISTERIAL PROGRAM RIDITT: INTEGRATED SUBSIDIARITY AND THE IMPACT OF TECHNOLOGICAL TRANSFER PROCEDURES ON LOCAL FINANCE BCC-CR**

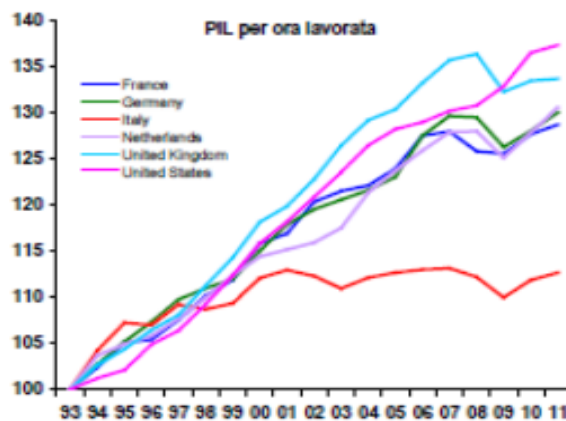
By the Decree of the Ministry of Economic Development of 22/12/2009, the Italian State has launched the Call RIDITT for the establishment of the ITALIAN NETWORK FOR INNOVATION AND TECHNOLOGY TRANSFER TO BUSINESSES. In the field of mechanical CNR, along with qualified partners operating in market research, in technology transfer and support to SMEs, is the winner. The actions foreseen in the project RIDITT\_GENESI aim to test the impact of best practices and new procedures for the transfer of innovation on the social fabric and local business can have on the economy of an area.

In particular, the mission of TTO (Transfer Technology Office) was analyzed compared to the capacity that the same will in supporting the strategic repositioning of SMEs on local markets national and international, simultaneously increasing the credit to the banking system in accordance with increasingly stringent parameters imposed by the Basel 3. This research work has, therefore, the objective of identifying models of sustainable finance to support the local economy through the structuring of an indicator that quantifies the potential and express the level of integration achieved between the various development actors.



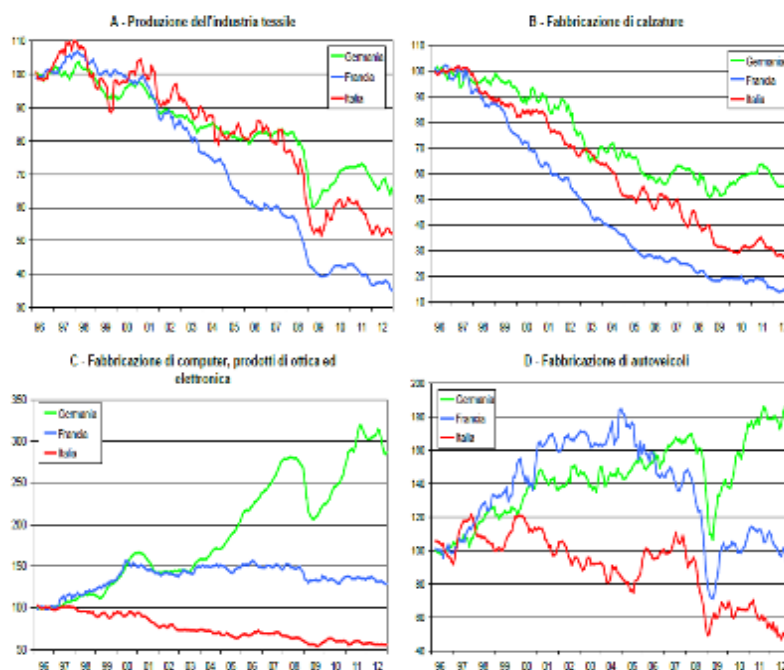
The Italian industrial system, between globalization and crisis, registers some production losses over the last four years. These losses relate to declining markets as textiles, footwear, electronics, automotive, etc.

The added value of the good produced depends less and less from one stage of the production and is an increasingly important integration with upstream and downstream phases (design, logistics, marketing, after sales service, etc.); many stages are in the service sector, not in the industry, and the local finance is one of most important. The difficulties of the Italian industry to cope with the new global competitive environment may be well analyzed by looking at two phenomena: the stagnant productivity and loss of competitiveness in international markets. For which the cost of labor is not the main factor for the delay competitive (net of taxation):



Source: based on Eurostat data

In addition, the share of public investment in R & D is in line with the European average, it lacks the private share: in Italy settles less than half of the European average. Although not present in the statistics because not structured, in any case not effective.

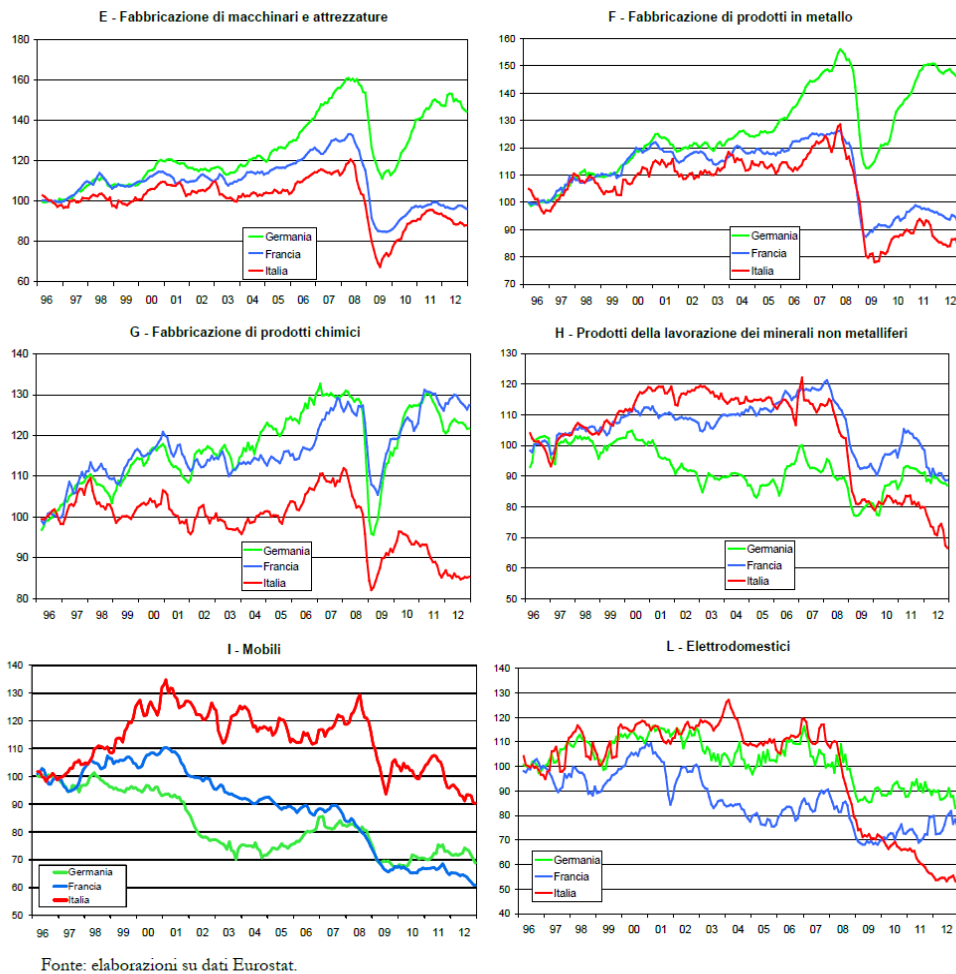


Source: based on Eurostat data

There is an obvious correlation between innovation and increased productivity.

How to act:

1. invest in more productive sectors;
2. enabling ICT technologies and qualification of personnel;
3. reduce manufacturing costs (energy, inefficiency of the PA, bureaucracy, taxation, ...);
4. policies aimed at research;
5. innovation and specialized finance for innovation territorially

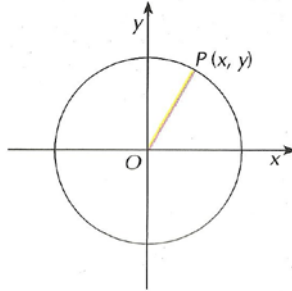


Source: based on Eurostat data

## CIRCULAR SUBSIDIARITY

The size of the circular subsidiarity expresses, therefore, the capacity that the Italian industrial system has to integrate the factors of horizontal subsidiarity with those of vertical subsidiarity. These factors were expressed by the research team through specific performance indicators and the relationship between them interconnects can be easily synthesized through a two-dimensional function of the type  $x^2 + y^2 = r^2$ . The equation represents a circumference with center at the

origin and radius equal to  $r = \sqrt{x^2 + y^2}$  for obvious application of the Pythagorean theorem. The radius of the circumference with center at the origin expresses, therefore, the point of convergence between indicators of vertical subsidiarity and those determining the amplitude of horizontal subsidiarity.



The values of  $x$  and  $y$  are ranging between 0 and 1, therefore, we are interested in only the first quadrant of the Cartesian plane.

The research team then proceeded to define the size of subsidiarity circular with respect to the three national reference area (north, center, south) by imposing the following parameters:

#### Northern Italy

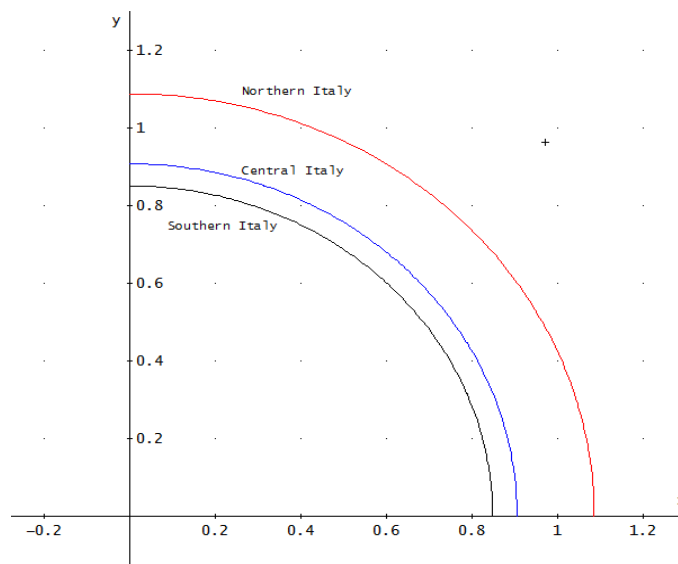
indicator of the intensity of the mission BCC-CR	$x = 0.726$
indicator of performance territorial	$y = 0.810$
dimension of circular subsidiarity	$r = 1.088$

#### Central Italy

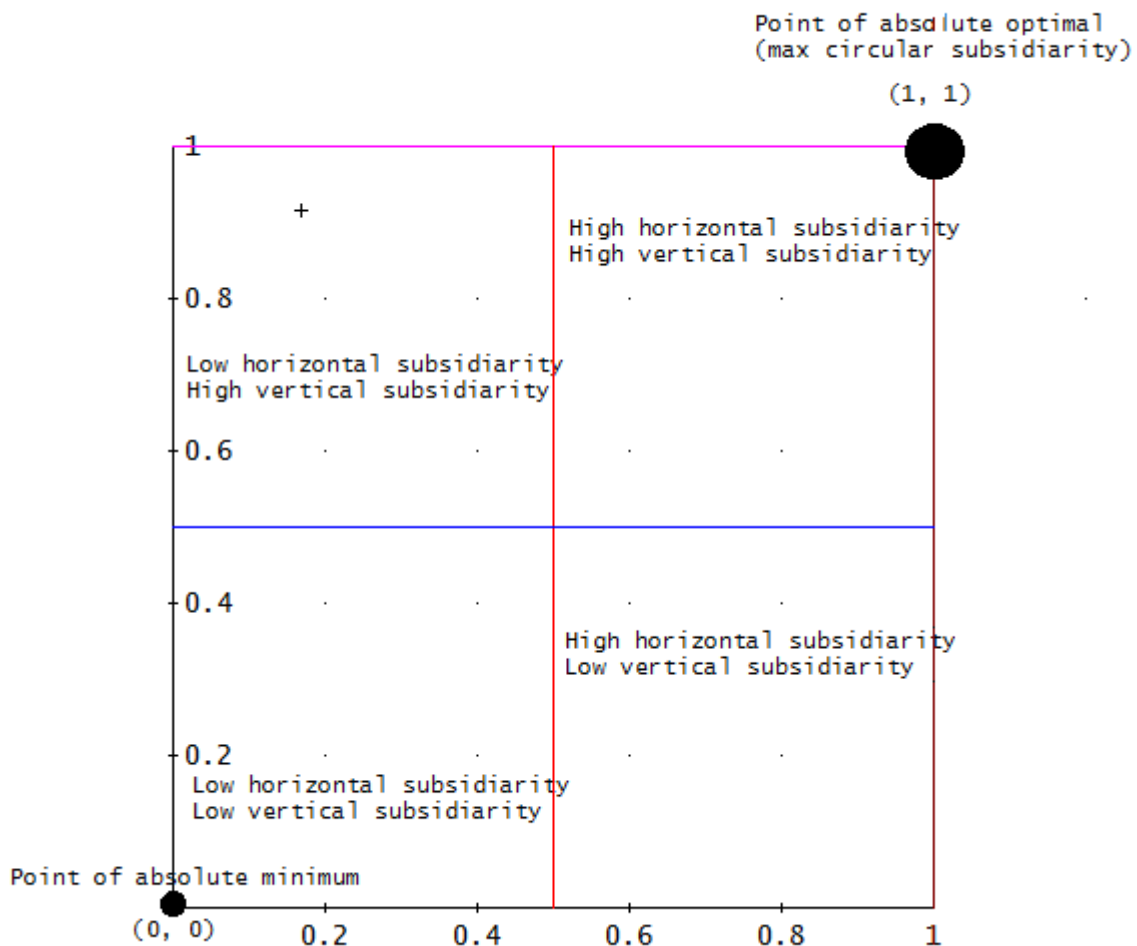
indicator of the intensity of the mission BCC-CR	$x = 0.510$
indicator of performance territorial	$y = 0.750$
dimension of circular subsidiarity	$r = 0.907$

#### Southern Italy

indicator of the intensity of the mission BCC-CR	$x = 0.400$
indicator of performance territorial	$y = 0.750$
dimension of circular subsidiarity	$r = 0.850$

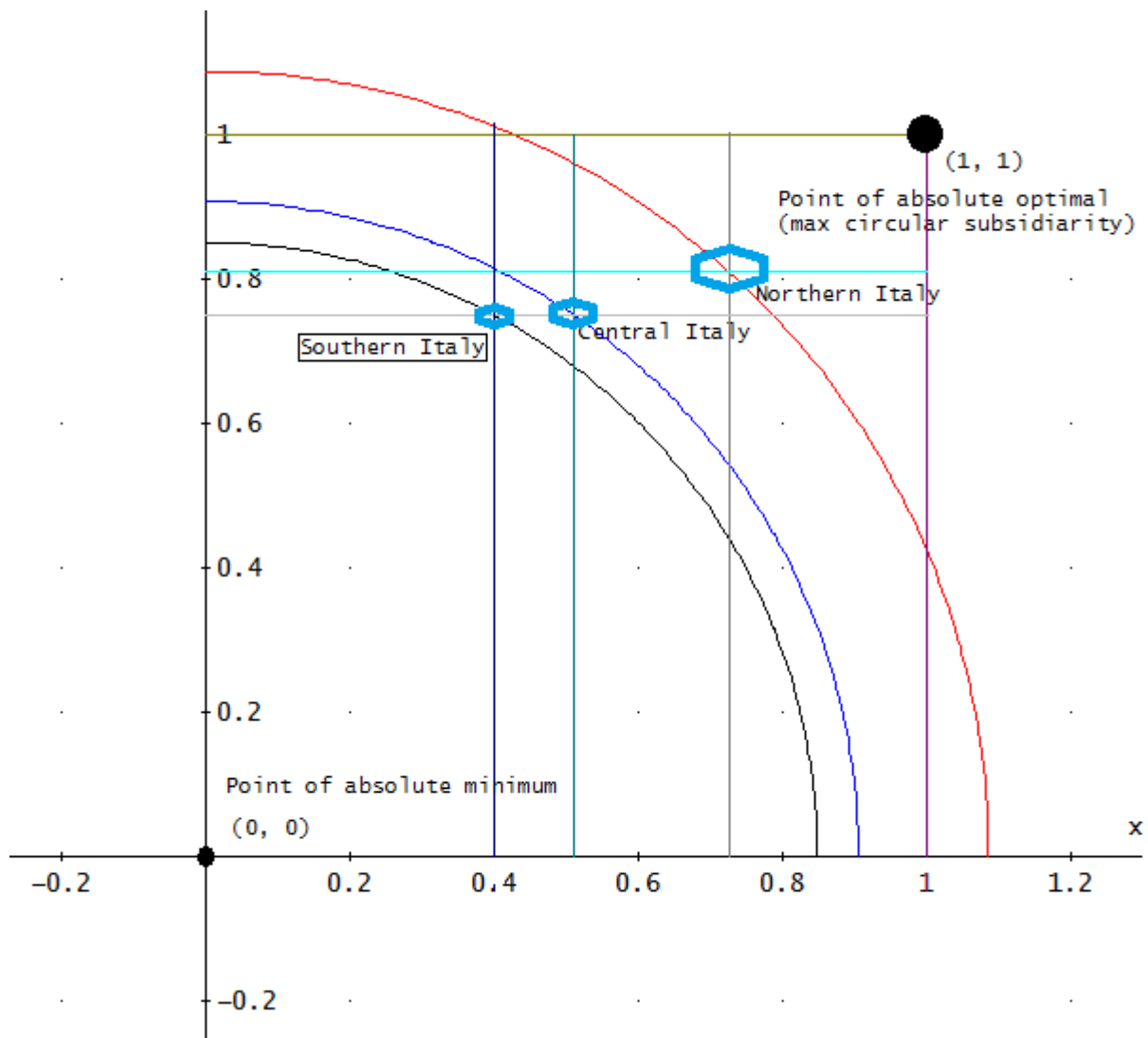


The graph can be used to understand the positioning of the cluster than the other clusters, and compared to the limit situations, where the subsidiarity is maximum or absent. Simply divide the section of the plan that we are interested, in four quadrants. The first lower left is that in which both the subsidiarity are low or absent. In this case we must act quickly because delays are significant. The dial on the top left shows a horizontal subsidiarity low but a high vertical subsidiarity. It is necessary in this case, a greater involvement of the BCC-CR movement in the process of financing of the territory and a greater adherence to the choices of system. The right lower quadrant indicates a high horizontal subsidiarity but a vertical subsidiarity low, investments in infrastructure and projects of cooperation between actors located in different sectors of the local economy. The dial on the top right is the one in which both subsidiarity are high. In this case, actions are needed to improve further in the direction of the point of maximum subsidiarity.



The circumference with center at the origin is the locus of points in the plane that have the same distance from the origin (center of the circumference). The origin of the axes represents the situation of the absence of both the subsidiarity because at that point both the horizontal subsidiarity than vertical subsidiarity have zero value (absence of subsidiarity).

The distance of the points from the origin of the axes (radius of the circumference) can be assumed as one first measure of subsidiarity circular able to consider simultaneously the two type of subsidiarity.



This measure, however, must be improved since it is necessary that also takes account of the distance of the point where the cluster, object of study, is positioned and the point of absolute optimal (max circular subsidiarity). In fact, the points of the circumference, although all have the same distance from the origin and, therefore, the same measure of subsidiarity circular, have different distances from point of absolute optimal which is the point where the two subsidiarity that make up the circular subsidiarity, have value 1 (max subsidiarity). Such distance is the best route to improve the circular subsidiarity. The various players in the cluster should focus their attention on this path in order to improve their overall performance.

The distance of the maximum point from the origin is equal to  $\sqrt{2}$  and is located on the bisector of the first and third quadrant of the Cartesian reference system. Therefore, its size varies from 0 to  $\sqrt{2}$ .

This observation has led us to introduce a multiplier that takes into account the distance from the maximum point ie that the points more distant from the optimal point have a value less than the other.

The multiplier proposed is the following:

$$m(x, y) = \frac{\sqrt{2} - \sqrt{x^2 + y^2}}{\sqrt{(1-y)^2 + (1-x)^2}}$$

In which the numerator is the minimum distance of the circumference from the point of absolute maximum and the denominator is the distance of the point where the cluster is located from the point of absolute maximum. When the two distances have the same value, the multiplier assumes a value of 1, while in all other cases, is less than 1 because the denominator is greater than the numerator:

$$0 \leq m(x, y) \leq 1$$

The measurements made with the multiplier leads to the following values of circular subsidiarity:

<b>Territorial Areas</b>	<b>x</b>	<b>y</b>	<b>s</b>
<b>Northern Italy</b>	0,726	0,810	1,065
<b>Central Italy</b>	0,510	0,750	0,836
<b>Southern Italy</b>	0,400	0,750	0,738
<b>Max value</b>	1	1	1,414

We report the formulas used and appropriately valorised:

$$s = \frac{\sqrt{(0.726^2 + 0.81^2)} \cdot (\sqrt{2} - \sqrt{(0.726^2 + 0.81^2)})}{\sqrt{((1 - 0.81)^2 + (1 - 0.726)^2)}}$$

$$s = \frac{\sqrt{(0.51^2 + 0.75^2)} \cdot (\sqrt{2} - \sqrt{(0.51^2 + 0.75^2)})}{\sqrt{((1 - 0.75)^2 + (1 - 0.51)^2)}}$$

$$s = \frac{\sqrt{(0.4^2 + 0.75^2)} \cdot (\sqrt{2} - \sqrt{(0.4^2 + 0.75^2)})}{\sqrt{((1 - 0.75)^2 + (1 - 0.4)^2)}}$$

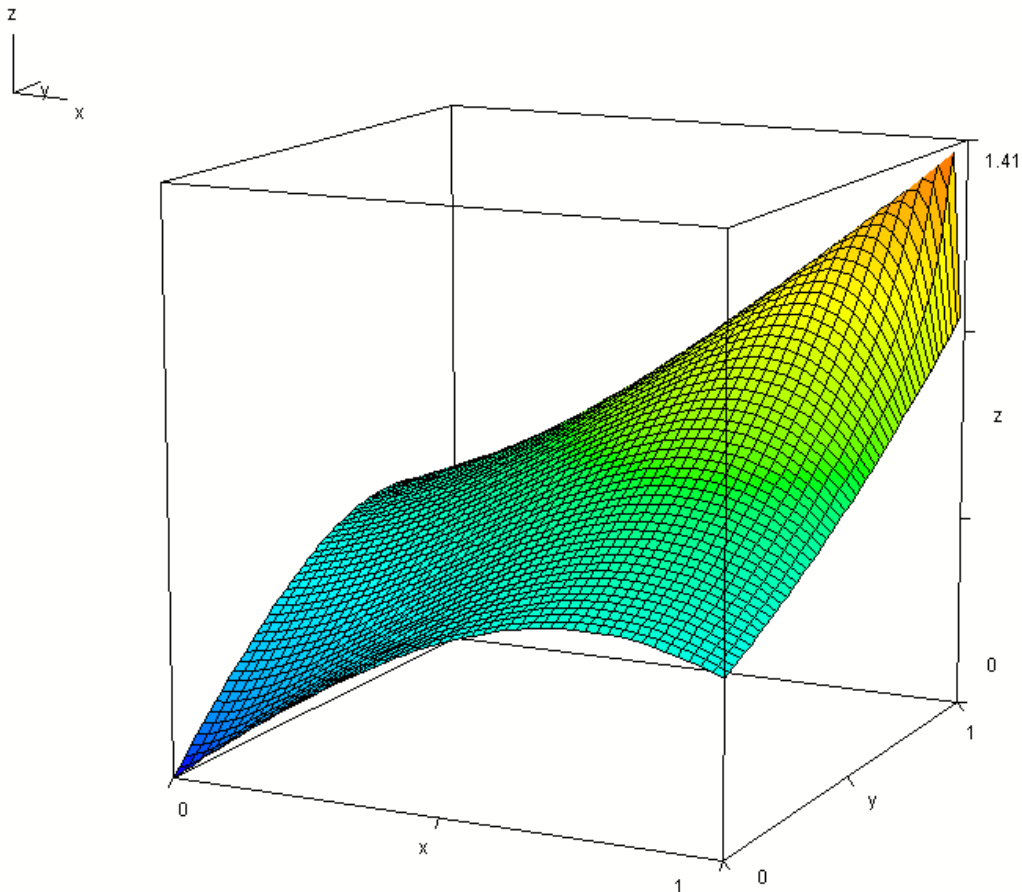
The values can be standardized with respect to the maximum value of the circular subsidiarity. This allows an easier comparison:



Territorial Areas	$x$	$y$	$s$
Northern Italy	0,726	0,810	0,753
Central Italy	0,510	0,750	0,591
Southern Italy	0,400	0,750	0,522
Max value	1	1	1

It can also represent the circular subsidiarity in the three dimensions of using the proposed mathematical model.

$$S_{\text{circular subsidiarity}}(x, y) = \sqrt{x^2 + y^2} \cdot \frac{\sqrt{2} - \sqrt{x^2 + y^2}}{\sqrt{(1-y)^2 + (1-x)^2}}$$



The three-dimensional graph was limited to the values that each variable can take on in the proposal form, ie:

$$0 \leq x \leq 1 \text{ (horizontal subsidiarity)}$$

$$0 \leq y \leq 1 \text{ (vertical subsidiarity)}$$

$$0 \leq z \leq 1.4142 \text{ (circular subsidiarity)}$$

From the graph it can be deduced that the value of the subsidiarity of our model grows keeping in mind both the radius of the circumference (to the increase of the distance from the origin the

dependent variable  $s$  increases) that the proximity to the point of maximum which has the following Cartesian coordinates in the space three-dimensional  $S_{circular}(1; 1; 1.4142)$ .

## INTEGRAL SUBSIDIARITY

The size of the sustainability of local finance BCC-CR was found by introducing a further dimension related to the ability to innovate that the territory is able to express. Innovation and technology transfer are, in fact, able to increase the capacity of the strategic repositioning of firms and simultaneously improving the credit quality and financial performance guarantee of surplus risk that the banking system acquires, supporting new business initiatives. The innovative potential of an area is expressed by specific indicators presented during the sessions Ersu Barcelona 2011 and included in the dashboard presented here:

INDICATOR BUDGES	LOCAL SERVICES				LEADERSHIP				COOPERATION			
	APSTI	EBN	Regional finacial	index S standard	LI	BAI	index L standard	KMT	APQ	index C standard		
Northeast Italy				3 1,0			1,270086 0,8			2 1,0		
Padua	1	1	1	3	81,25	5	1,239189	1	1	2		
Verona	1	1	1	3	72,5	4,4	1,300983	1	1	2		
Center Italy				3 1,0			1,521611 1,0			1,6 0,8		
Massa-Carrara	1	1	1	3	92,5	4,2	1,452381	0,7	0,9	1,6		
Ancona	1	1	1	3	91,25	3,5	1,6361	0,8	0,8	1,6		
Rieti	1	1	1	3	88,75	3,6	1,590841	0,9	0,7	1,6		
South Italy				2,5 0,8			1,178893 0,8			1,5 0,8		
Naples	1	1	0	2	75	8	0,905405	0,6	1	1,6		
Bari	1	1	1	3	92,5	4,2	1,452381	0,7	0,7	1,4		

Source: FICEI 2010

Average indicator budgets for transfer technology:

North Italy = 0.933

Center Italy = 0.933

South Italy = 0.800

To take account of this dimension we started from the standardized value of subsidiarity circular adding to the indicator for technology transfer given above, that characterizes the area of reference. The value thus obtained was then normalized by considering the maximum value of the combination of the two basic indicators that is 2. The result is shown in the following table:

Territorial Areas	$S_{circular}$	$f_{technology\ transfer}$	$S_{integrated}$	$S_{integrated\ and\ normalized}$
Northern Italy	0,753	0,933	1,686	0,843
Central Italy	0,591	0,933	1,524	0,762
Southern Italy	0,522	0,800	1,322	0,661
Max value	1	1	2	1

Technology transfer, which may be different in single clusters, can accelerate the path to allow to cluster to get to the point of maximum subsidiarity. In other words its introduction or its extension adds a plus, ease the path to the realization of that network of the operators coordinated, efficient, economic and competitive that allows you to develop the local economy.

## **5. CONCLUSION**

The size of the circular subsidiarity expressed through the two indicators (x, y) can be represented as a point on the circumference that satisfies the constraint imposed by the length of its radius. It must, however, introduce a additional measurement to consider the gap of the territory in order to improve this situation and move toward greater subsidiarity. The introduction of a corrector, able to appreciate this aspect of subsidiarity , makes the measuring more precise and adherent to the real value of the territory and to its future probability of growth. Also interesting is the use of the graphical representation of the proposed model to understand the positioning of the study areas, with each other and with respect to other areas where we have the data needed to conduct proper evaluations.

The size of the integrated subsidiarity is instead more complex to interpret the third dimension, being a factor in the coagulation of the tissue and of stimulus of entrepreneurial vitality of local businesses. On this dimension, the research team sets out to analyze and develop future work, considering that there are various descriptors (and the method of evaluation) that can allow you to measure the effects of the technologic transfer in a more appropriate way.

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