

# **Public-Private Partnerships and the Promotion of Collective Entrepreneurship**

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# Public-Private Partnerships and the Promotion of Collective Entrepreneurship

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SILVA M.R. and RODRIGUES H. (2005) Public-private partnerships and the promotion of collective entrepreneurship, 1<sup>st</sup> draft. Public-private partnerships (PPP) are a recent instrument for social and economic development policies. Within the framework of competitiveness policy, PPP are an adequate instrument to promote collective entrepreneurship. Through this instrument, some market failures can be overcome and a better provision of strategic services can be afforded to firms. Also, PPP can be able to promote co-ordination between public and private partners and lead to specific innovative networks. PPP correspond to a more decentralised policy and they are supposed to increase focus and effectiveness and to involve agencies that are closer to firms and that have a more narrow range of objectives. In this contribution, we analyse the pattern of the so-called partnerships projects, approved between 2000 and the 30th June of 2003 in the framework of the Portuguese Operational Program for the Economy. By using HOMALS and K-means cluster analysis, we were able to characterise PPP and to identify typical clusters for the PPP projects. On one hand, the results show that policy decentralization brought by partnerships has promoted or reinforced a more specialized institutional framework (mainly national, sectoral or regional entrepreneurial associations). But, on the other hand, PPP had a small impact in the promotion of specific networks and/or in innovation. Collective entrepreneurship induced by PPP instrument has presented a clear bias toward the provision of services that have a public or semi-public nature, by the fact that firms that can use these services are in a large number (all the firms of a sub sector or even larger universes). But technological projects and/or projects addressed to specific networks of firms were very few. In particular, the impact of PPP on structural change seems to have been short.

Public-private partnerships	Competitiveness policy	Entrepreneurship
Collective entrepreneurship		

JEL classifications: M13, H50, O20, C14

## INTRODUCTION

In this contribution, we analyse the pattern of private-public partnerships (PPP) projects that have been approved between 2000 and mid-2003 in the POE<sup>1</sup> framework. In particular, we will assess the impact of PPP in the promotion of collective entrepreneurship, through the evaluation of the competitiveness dimensions targeted by these projects and through some other aspects of the decentralisation that this new instrument has generated in competitiveness policy.

Although partnership approaches are a relatively recent phenomenon, they have received widespread attention and support from economic and political agents, including policy makers at national, regional and local levels. In fact, the term “public-private partnership” covers a wide range of concepts and practices. In our contribution, we will focus on partnerships in a competitiveness policy framework.

In a first section, we discuss briefly the concept of collective entrepreneurship. As entrepreneurship, collective entrepreneurship can be seen as the carry on of gap filling and input completing activities. These activities are relevant because markets are not well organized and some inputs are difficult to trade. But collective entrepreneurship also integrates the idea of strategic co-ordination between firms and/or institutions.

In a second section, we focus our attention in public-private partnerships as a specific instrument for policy and for collective entrepreneurship promotion. In particular, we make a first assessment on the distinctive principles that differentiate PPP from more traditional instruments such as direct funding of public agencies or direct subventions to firms. We follow the perspective that these principles, mainly decentralization of policy, strategic co-ordination and sustainability, may contribute to a greater effectiveness of policy, because a more decentralised policy is supposed not only to increase focus and accountability, but also to involve and consolidate agencies with specialized skills and a more narrow range of objectives. But, we will also refer that some inefficiencies and some lack of equity may arise from the use of PPP instrument.

Finally, in the main section of this contribution, we will analyse the above-mentioned questions considering the case of the 94 PPP projects approved and financed by the POE between 2000 and mid-2003. As the majority of the variables used are nominal, and in order to better define different patterns of partnerships we will use multivariate data analysis techniques in order to establish associations between several categories and, also, to identify clusters of projects. Our general aim will be to evaluate the impact of PPP in the promotion

of collective entrepreneurship. Within this purpose, we will discuss in particular the role of PPP in the reinforcement of the institutional framework, the nature of outputs generated by PPP and their contribution to innovation and structural change.

### **COLLECTIVE ENTREPRENEURSHIP**

Although neglected in conventional (i.e. neoclassical) microeconomic foundations, entrepreneurship plays a major role in economic growth and development. We owe to SCHUMPETER the seminal conception that places the entrepreneur in the centre of the economic dynamics. In his *Theorie der wirtschaftlichen Entwicklung*, first published in 1912 and later reviewed and translated to English as *The Theory of Economic Development* (SCHUMPETER, 1934), innovation is seen as the origin of structural change and growth and the entrepreneur is the agent that implements innovation. In Schumpeter's conception, economic agents do never have perfect information. Their knowledge is always bounded and, in a certain extent, tacit. So, in their day-by-day activities, they act inside a certain set of rules, which they know by experience. That's why innovation implies a much greater effort than daily routines. In order to innovate, entrepreneurs must be able to reflect and reevaluate the prevalent rules and conditions, and also they must overpass gaps in knowledge.

Harvey LEIBENSTEIN (1966, 1968) was one of the first to make a relevant extension and up-date of Schumpeterian ideas concerning the entrepreneur's function, helping us to understand the nature and critical role of entrepreneurship and why entrepreneurship is a significant variable in the development process. Distinguishing routine entrepreneurship from Schumpeterian or "new type" or "N-entrepreneurship", LEIBENSTEIN defines the later as "the activities necessary to create or carry on an enterprise where not all the markets are well established or clearly defined and/or in which the relevant parts of the production function are not completely known" (LEIBENSTEIN, 1968, pp. 73). In particular, the author sees entrepreneurs as the individual or the group of individuals that has the capability of being "gap-filler" and "input-completer". "Gap-filling" activities are those that are addressed to overcome gaps or hiatus in markets, and this gaps may occur just because markets of tradable inputs are not well organized but also they can arise due to the nature of specific inputs (think, for instance, in knowledge). "Input-completing" activities consist in gathering all the necessary inputs, even those that by their nature are not tradable (for instance, leadership or motivation).

The above mentioned conception of “N-entrepreneurship” is not only clear but also general enough to be applied to the dynamic analysis of a large set of economies: national or regional economies as well as high income or low income economies. For instance, the “N-entrepreneurship” concept allow us to understand why in low income economies – that present a large set of market imperfections – entrepreneurship is the critical resource. But, at the same time, LEIBENSTEIN conception is quite convergent with a large set of more recent contributions concerning development and competitiveness that focus on what we will call collective entrepreneurship.

Although with quite different perspectives, we can find main references for the role of collective entrepreneurship in competitiveness in pioneers like PORTER (1990, 1998) or BECATTINI (1979), the first one with his “clusters” analysis and the second one proposing the “industrial district” as a major category for understanding competitiveness. Collective entrepreneurship perspectives see entrepreneurial and institutional resources as a main factor of competitiveness and, at the same time, they consider the relevance of network relationships between firms and / or other related institutions. In general terms, networks and clusters are a source of positive externalities for firms, because they favour not only firms specialisation but also the access to specialized services or inputs and the reduction of uncertainty and transaction costs.

So, the role of collective entrepreneurship is linked to the provision and to the production of certain inputs for which a market solution is not an adequate one. A first argument relies on the public or semi-public nature of these inputs. Knowledge creation or international marketing activities have often the characteristics of a local or specific public good. On the one hand, individual firms that aim to improve quality of products or to develop market research activities will often experience difficulties to avoid other firms to benefit from these activities. On the other, these activities will interest not all the firms but a specific set of firms (a sectoral or a local group). So, collective entrepreneurship rather than individual efforts or a generic public intervention will be an adequate issue.

A second argument is linked to the idea that some inputs are difficult to trade. If knowledge were a typical private and tradable input, for instance, firms would simply buy it on the market. On the contrary, if it were a typical public good, with an automatic diffusion, then conventional public intervention would be the main instrument to allow firms to have access to it. But, as we know, a major part of knowledge – technical or even commercial - has a tacit nature and its creation results from a cumulative process that cannot be

dissociated from experience. That's why clusters and networks are pointed as favouring the creation and diffusion of knowledge.

So, collective entrepreneurship can be seen as the carrying on of gap filling and input completing activities, being these activities central to entrepreneurship definition. The collective nature is connected to the fact that these actions concern sets or clusters of firms with similar productive interests and also public and semi-public agents like specialised agencies, local governments or entrepreneurial associations. But this collective nature can also incorporate the idea of strategic co-ordination between several actors. Once we recognize the relevance of collective entrepreneurship, a new field for policy – different from conventional public intervention – must be considered. Partnerships between public and private actors are generally seen as an adequate instrument of a more decentralized policy linked to the overcome of market failures and to strategic co-ordination between firms and other institutions (see, for instance, STIGLITZ and WALLSTEN, 2002).

### **PUBLIC-PRIVATE PARTNERSHIPS**

Public-private partnerships (PPP) are not new but, recently, they have received special attention and support from economic and political agents, including policy makers at national, regional and local levels (LINDER and ROSENAU, 2000). The 1990s have seen the establishment of PPP as a key and standardized tool of public policy. This quick diffusion of PPP instrument was supported by the idea that partnerships are a cost-efficient and effective mechanism for the implementation of public policy across a range of policy agendas. PPP have also been articulated as bringing significant benefits in their own right, particularity in terms of developing socially inclusive communities (OSBORNE, 2000).

OCDE (2001) also stresses an increase of the number of European experiences in this domain: networks of partnerships flourish in most parts of Europe, under the impetus of the European Union, whose funding programmes have both favoured projects agreed in partnerships and stimulated partnerships experimentation since the late-1990s. Experiences reported in OCDE (2001) cover partnerships aimed at improving social inclusion at regional or local level but also, and increasingly, PPP that are assigned to a broader role in “integrated” development. In Italy, for instance, partnerships are central to the participatory planning exercises carried out by different levels of government to design and implement more integrated and effective development policies.

The case studied by us in next section concerns PPP in a competitiveness policy framework. In this case, PPP are mainly an instrument to implement what we have called collective entrepreneurship. This means that PPP main purpose is to assure or reinforce the provision of relevant productive services to firms when simple market mechanisms do not afford an adequate provision of them. So, the main argument in favour of PPP is, as pointed out by STIGLITZ and WALLSTEN (2002) in their analysis concerning public-private technology partnerships, the existence of market failures linked to the existence of externalities. This means that collective entrepreneurship suffers from market failures, what opens up the possibility that public intervention can help to mitigate this problem. In the Portuguese context, this possibility and necessity is particularly reinforced by the high weight of small and medium enterprises present in the economy. But, PPP are not the only instrument to solve market failures and co-ordination malfunctions. Direct funding of public agencies or direct subventions to individual firms are traditional alternatives to PPP. Since all types of interventions have their own strengths and weaknesses, economic effectiveness requires that different problems should be addressed by actors and instruments which have a comparative advantage in solving them in a particular social context (HÄMÄLÄINEN, 2001).

In comparison with more traditional instruments of policy like direct funding of public agencies and direct subventions to firms public, PPP rely on some distinct and eventually more advantageous principles: (i) contractual funding, (ii) strategic coordination between several agents, (iii) subsidiarity and decentralisation and (iv) institutional sustainability. We will discuss these principles briefly and the way they may contribute to a greater effectiveness of policy.

PPP are an instrument based on a contractual relationship established between public and private or semi-private actors in order to carry on a specific project. This means that public funding is no more based on an annual budget basis but, on the contrary, the funding is linked to a specific intervention and to a set of specific objectives. This contractual dimension confers to PPP an innovative character in public management and can improve efficiency in the use of public resources. They can also produce advantages in resource availability, because they are important mechanisms to achieve complementary, avoid wasteful duplication of effort and pooling resources so that larger projects (or more aspects of a project) can be tackled than is possible for an individual agency (MCQUAID, 2000).

In parallel, PPP correspond, by definition, to a collaborative effort between public agencies and several private agents, these last including private collective institutions such as entrepreneurial associations. So, we can look to PPP as an instrument particularly

adequate to solve co-ordination failures. Co-ordination malfunctions (see HOFF and STIGLITZ, 2001) mean that private investment decisions are interdependent. Co-ordination within a sector, generated by convergent actions of a set of institutions, may accelerate the growth of the sector and generate an earlier move towards lower long run costs, because co-ordination will allow the use of more specialised equipments and skills.

In recent literature about partnerships, decentralisation is often seen as a major positive aspect induced by PPP, because a more decentralised policy is supposed to increase focus and accountability and to involve agencies with a more narrow range of objectives (MCQUAID, 2000). In comparison with more conventional instruments, PPP will correspond to more targeted interventions. Decentralisation will favour interventions designed for specific sectors and / or regions conducted by institutions that are closer to the final recipients, i.e, firms. So, decentralisation will favour specialisation and proximity and this will act for more effectiveness and efficiency. This is why CARROLL and STEANE (2000) point out that the growth of PPP occurs mainly at the local and regional levels, although PPP are often initiated and funded by national governments.

Finally, partnerships can also be seen as a process of building institutions and, consequently, a factor that increases the sustainability of policy actions. Partnerships can favour the creation and consolidation of institutional and firms networks and a cumulative experience of these institutions in conducting policy actions. The result of this learning-by-doing process must be considered an important specific asset that will be useful, not only in present, but also in future. We can apply to partnerships the concept of collective learning and the positive effects of this learning process in the institutions capability to coordinate different skills and to integrate different technological trajectories (PRAHALAD and HAMEL, 1990; FOSS and KNUDSEN, 1996).

Despite the above-analysed aspects, policy instruments based on partnerships can also present some problems in terms of efficacy, efficiency and equity. First of all, policy decentralisation induced by PPP can act in favour of the ones more prepared to have access to this instrument. This means, for instance, that regions or sectors with a stronger institutional framework will be more able than others to propose partnerships projects. So partnerships will not favour equity and, in this case, we can have a trade-off between equity and efficiency.

By analogous reasons, a trade-off between decentralisation and dynamic efficiency may occur. Because the present institutional framework will influence the access to PPP,

traditional but well-established sectors can obtain a large share of funding and, so, PPP will not favour structural change.

Another main problem is directly linked to the relation between institutional specialisation and effectiveness (efficacy and efficiency). In reality, an apparent paradox can exist in partnerships when the multifunctional nature of policies needed to deal with complex issues conflicts with the single-functional nature of the organizations. This potential conflict concerns "...the fragmentation of publicly funded agencies and the multifaceted nature of issues that government must deal with" (MCQUAID, 2000).

Finally, efficiency and efficacy linked to PPP internal organization is still in an initial state of evaluation. More frequent problems can emerge from unclear goals, resource costs, unequal power, cliques usurping power, impacts upon other "mainstream" services or differences in philosophy between partners (MCQUAID, 2000; LICHFIELD, 1998; ROSENAU, 2000). In sum, the relation between resources gathered in a PPP and the output that will arrive to final recipients (firms) should be considered but this is not always easy to do. Therefore, it is difficult to assess the efficiency and efficacy of partnerships, and to draw proper comparison with other governance instruments such as government services operating programmes within conventional public management framework.

## **PARTNERSHIPS IN THE PORTUGUESE COMPETITIVENESS POLICY**

The Portuguese experience concerning the use of PPP in the field of competitiveness policy is quite recent and rich. This new instrument of policy has been tested, for the first time, in the PEDIP II<sup>2</sup> framework between 1994 and 1999 and explicitly adopted and standardised in POE between 2000 and 2003.

The design of POE has considered, in addition to conventional instruments, a new instrument called "Partnerships and Public Initiatives" (PIP). As the name indicates, PIP can contemplate two main types of projects distinguished primarily by the protagonist of its execution: (i) partnership projects that are proposed by one or several private non-profit institutions but are compulsorily developed in cooperation with one or more public agencies under the umbrella of the Ministry of Economy and (ii) public initiatives projects that are proposed and executed by public agencies with or without other institutions.

Looking to the original version of POE, we find PIP in seven out of the twelve measures that composed this programme, which attest the importance that was given to this instrument. The initial budget affected to PIP for the period 2000-2006 ascended to 341,4

million Euros, representing 11,2% of the total POE budget. In the last version of the POE, this budget was reduced to 271,3 million Euros, representing 6,6% of the total POE budget.

### **Universe of Projects and Available Data**

Our aim is to analyse the pattern of partnerships that have been approved between 2000 and the 30th June of 2003 within the POE framework. The data was provided to us by Portuguese authorities<sup>3</sup>, in the context of the POE middle-term evaluation, and concerns 98 projects of that kind. These projects represent a total investment of 245,4 millions euros and a public subvention of 181,3 million euros. For our present evaluation purposes, the 98 projects have been consolidated in 94 because some of them were individualised only for administrative purpose as they referred either to different components of a same action conducted by the same promoter or to consecutive editions of the same action.

Original variables available in the database concern aspects such as the nature of promoters, the number of partners, the nature of the project in terms of its competitiveness dimension (i.e., entrepreneurship, technology, internationalisation, etc.), the investment and subvention amounts, the sector incidence, the spatial incidence (national, regional, local) and some others. It also contains some qualitative information (such as the name and description of the project and the name of the promoter and partners) that helped to codify variables on several categories. The table presented in Appendix A provides the summary of the variables available that were taken into account, their nature and the way they were codified.

### **Defining Clusters of Projects: Statistical Data Analysis Methodology**

In order to better identify different patterns of partnerships our approach is based on the identification of clusters of projects. For this purpose, we used four variables: the strategic dimension of projects, the type of promoters, the sectoral incidence (including the possibility of multisectoral projects) and the regional incidence (including the possibility of non-regionalized projects). Table 1 presents the distribution of projects by categories of the set of variables under analysis.

Considering the strategic dimension, PPP are mainly directed to the internationalisation and FDI and to entrepreneurship promotion. Technology (R&D/Inov)

was targeted by only 12 of the 94 projects and projects in other fields are nearly absent. In fact, OTHERS correspond to multidimensional projects.

According to POE, partnerships must be promoted by a non-profit private institution (the promoter) and must include, at least, one public partner. In relation to the promoter type, it is evident the preponderance of sectorial entrepreneurial associations, followed by regional and national entrepreneurial associations. Projects promoted by other kind of agencies (technological agencies, universities, etc.) or by formal networks of firms (NCF) are less or almost no represented.

**TABLE 1: DISTRIBUTION FREQUENCY OF OBJECTS BY SET OF VARIABLES**

Variables	Marginal Frequency	
	Number	Percentage
<i>Strategic Dimension</i>		
1-ENV&ECO	4	4,3
2-HR	2	2,1
3-R&D/INOV	12	12,8
4-FDI&INT	37	39,4
5-ENTREP	27	28,7
6-OTHERS	12	12,8
<i>Type of Promoter</i>		
1-EA-NAT	13	13,8
2-TA&U	11	11,7
3-PA&CA	5	5,3
4-OTHERPART	15	16,0
5-NCF	1	1,1
6-EA-SECT	32	34,0
7-EA-REG	17	18,1
<i>Sector of Incidence</i>		
1-COM	4	4,3
2-CONST	2	2,1
3-ENERG	2	2,1
4-MANUF	56	59,6
5-MULTS	26	27,7
6-SERV	1	1,1
7-TOUR	3	3,2
<i>Regional Incidence</i>		
1-REG	61	64,9
2-NREG	33	35,1

By sector of incidence, we see that the majority of projects was directed to the manufacturing activity or are multisectoral. Note that POE has a potential incidence in almost all non infrastructure economic sectors, excluding agriculture and fisheries, financial activities and some segments of transports. But the access to partnerships instrument by

target sectors of the programme other than manufacturing is very weak. This can be partially explained by the fact that, in official precedent programmes (PEDIP I and PEDIP II), manufacturing was the only eligible sector and these past experiences had conferred an higher level of organization and an extended capability to take advantage of public programmes to industrial associations (universal, sectoral or regional).

Finally, in terms of regional incidence, we observe a large dominance of regionalized projects (i.e., projects that concern a specific region). This is a first indication that PPP favours – to a certain extent – regional embedness of policy actions.

In order to deep the analysis of PPP pattern is useful to consider associations between different categories of the above-mentioned variables. The data analysis for clusters identification proceeds in two steps. In the first one, HOMALS (*Homogeneity analysis by means of alternating least squares*)<sup>4</sup> is applied to identify and describe these associations. In the second step, cluster analysis is used to validate the HOMALS results and to define groups or clusters of PPP considering characteristics regarding the four variables previously defined.

**TABLE 2: DISCRIMINATING MEASURES**

Variables	Dimension (Percentage)	
	Dim 1	Dim 2
Strategic Dimension	0,332	0,537
Type of Project	0,533	0,672
Sector of Incidence	0,445	0,442
Regional Incidence	0,595	0,093
<i>Eigenvalues</i>	<i>0,476</i>	<i>0,436</i>

The choice of HOMALS as the statistical technique to analyse the pattern of PPP is justified by the fact that the main part of information about the projects approved in the context of PPP had qualitative/categorical nature. A fundamental characteristic of HOMALS is that it allows to present the results geometrically (as points within a low-dimensional space denominated perceptual map), which facilitates data interpretation. The relative position of the categories in the space translates the nature of relations among them. Therefore, categories with similar distributions will be represented as points that are close in the space and this means that they are associated and vice-versa. As a result, objects with similar profiles will be located close in the space and, thus, defining homogeneous groups (CARVALHO, 2001).

For our empirical analysis, we decide to restrict the application of HOMALS to only two dimensions of analysis. We advance two reasons to justify this choice. First, the eigenvalues that we obtain from this technique drop down very quickly when we pass from one to two and three dimensions. Second, low-dimensional representations are easier to visualise. So, the two-dimensional model seems to be the most parsimonious one.

Table 2 presents the discriminating measures for the two dimensions under analysis and the correspondent eigenvalues. As we can see, dimension 1 discriminates mainly the regional incidence and the type of promoter of PPP projects. Dimension 2 discriminates mainly the type of promoters, the strategic dimension and de sectoral incidence of PPP projects.<sup>5</sup>

**FIGURE 1: PERCEPTUAL MAP FOR CATEGORIES OF PPP VARIABLES**

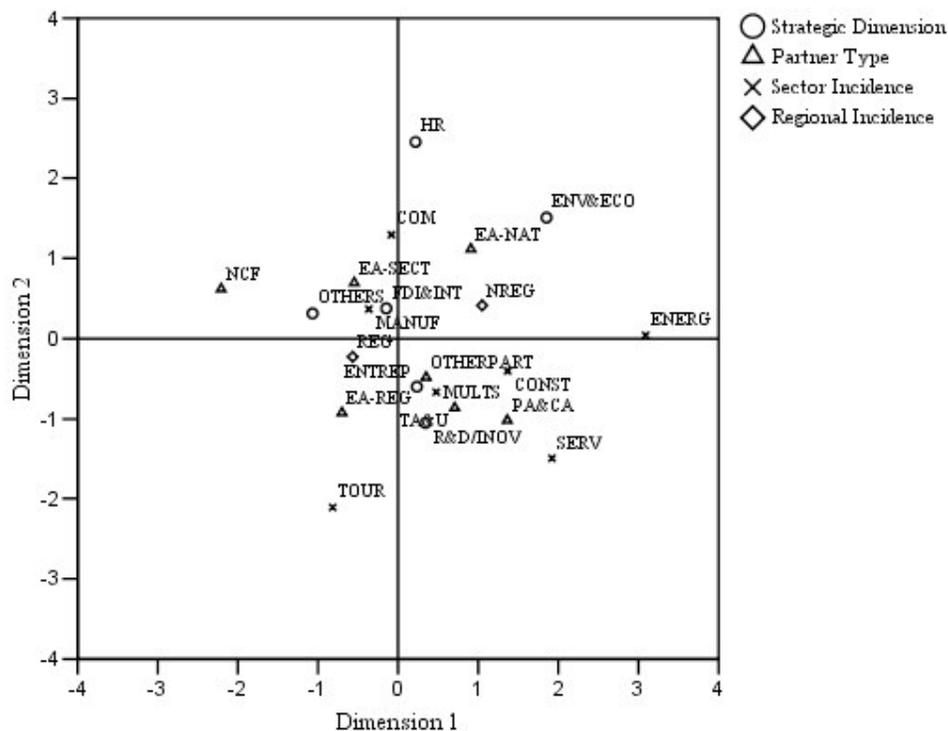


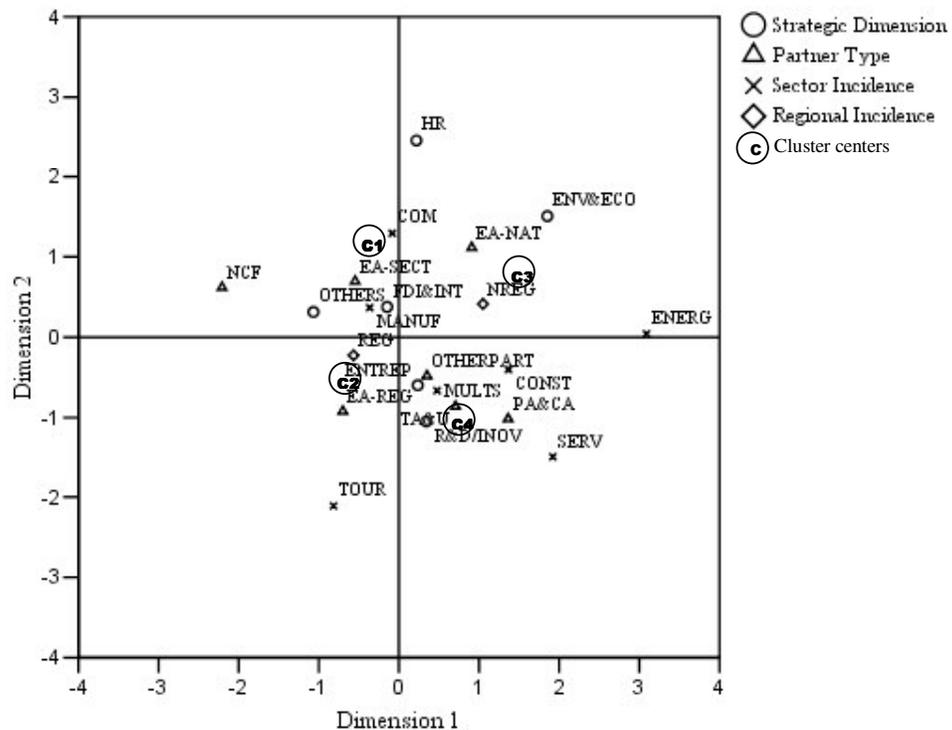
Figure 1 presents the perceptual map produced by HOMALS (via SPSS, version 12.0) applied to the 94 projects. If we cross de information expressed in this perceptual map with the distribution frequency of objects presented in Table 1, apparently, we see three large clouds of projects. The first incorporates projects mainly proposed by national entrepreneurial associations, the second is composed by projects mainly proposed by

sectoral entrepreneurial associations and the third include projects mainly proposed by regional entrepreneurial associations.

Obviously, there are some categories distant from these three clouds of projects (e.g: PPP promoted by public agencies or central administration, PPP promoted by technological agencies or universities) that eventually suggest the existence of others clouds of projects. So, in order to confirm or extend the true pattern off PPP and to explore deeply the characteristics of this pattern, we decided to use cluster analysis as suggested by the relevant literature (CARVALHO, 1998).

Since the purpose is to validate the HOMALS solution regarding the existence of a few groups and to characterise them, we proceed using k-means cluster optimisation method (MCQUEEN, 1967). Specifically, we produce the grouping of PPP in two steps. First, we use the hierarchical grouping method of WARD, 1963. And, in fact, the analysis of the evolution of linkage distance through the 94 steps of the algorithm suggests the existence of not two, but four groups or clusters of PPP projects. Second, we use the non-hierarchical grouping k-means method to define the structure of the four clusters suggested.

**FIGURE 2: PERCEPTUAL MAP FOR CATEGORIES OF PIP VARIABLES CLUSTERS OF PIP**



The application of cluster analysis generate a new categorical variable that indicate the final cluster membership of each object and quantify the qualitative information provided by the HOMALS geometrical displays that give us a better understanding of the data structure. Figure 2 exhibits the perceptual map provided by HOMALS and the position of the four identified clusters illustrated by the centroids C1, C2, C3 e C4. Table 3 presents the frequency distribution of the four original variables in the four clusters solution and confirms that this cluster solution is helpful to characterise the principal aspects of collective entrepreneurship promoted by the use of PPP.

### **Characteristics of the Identified Clusters**

Cluster C1 is the largest cluster and is composed by projects proposed mainly by sectorial entrepreneurial associations, the main promoter in the PPP total. These projects are largely centred in internationalisation and foreign direct investment, they are directed almost all to manufacturing and they are mainly regionalized.

By opposition, cluster C3 includes projects mainly proposed by national entrepreneurial associations. In this case, internationalisation and foreign direct investment is also the main field of intervention and manufacturing remains the main sector but the projects present a non-regionalized nature.

Clusters C2 and C4 correspond to a more heterogeneous pattern. They present a quite similar composition in terms of strategic dimension: in both cases, entrepreneurship is the main field and partnerships addressed to R&D activities and to innovation are the second more frequent category. Also in both of these two clusters, multisectoral projects prevail. Cluster C2 also contains projects addressed to manufacturing and tourism while Cluster C4, besides multisectoral projects, is the only cluster with projects in construction, commerce and services.

The main differentiation between Clusters C2 and C4 is based on the nature of promoters and the regional incidence. In Cluster C2, entrepreneurial associations with a regional or local nature are the most frequent case and projects are all regionalized. In opposition, projects of Cluster C4 are almost all non-regionalized and the promoters are more heterogeneous and, in general, they are not entrepreneurial associations.

Considering all the 94 projects, PPP in manufacturing represent 60% of the global number of projects and they correspond to the sectoral category that is more regionalized (with the exception of tourism where all the 3 projects are regionalized). Besides

manufacturing, multisectoral projects are the second relevant category and follow an equitable distribution between regionalized and non-regionalized projects. The other economic sectors are much less represented, showing a weak access to PPP instrument.

**TABLE 3: FREQUENCY DISTRIBUTION OF ORIGINAL VARIABLES IN A CLUSTER SOLUTION**

Variables	Cluster C1	Cluster C2	Cluster C3	Cluster C4
<i>Strategic Dimension</i>				
1-ENV&ECO	0,0	0,0	18,8	7,1
2-HR	0,0	0,0	12,5	0,0
3-R&D/INOV	5,1	24,0	0,0	28,6
4-FDI&INT	53,8	16,0	62,5	14,3
5-ENTREP	15,4	52,0	6,3	50,0
6-OTHERS	25,6	8,0	0,0	0,0
<i>Type of Promoter</i>				
1-EA-NAT	0,0	0,0	75,0	7,1
2-TA&U	0,0	36,0	0,0	14,3
3-PA&CA	0,0	4,0	0,0	28,6
4-OTHERPART	15,4	12,0	0,0	42,9
5-NCF	2,6	0,0	0,0	0,0
6-EA-SECT	69,2	0,0	25,0	7,1
7-EA-REG	12,8	48,0	0,0	0,0
<i>Sector of Incidence</i>				
1-COM	5,1	0,0	12,5	0,0
2-CONST	0,0	0,0	0,0	14,3
3-ENERG	0,0	0,0	0,0	14,3
4-MANUF	92,3	36,0	62,5	7,1
5-MULTS	2,6	52,0	25,0	57,1
6-SERV	0,0	0,0	0,0	7,1
7-TOUR	0,0	12,0	0,0	0,0
<i>Regional Incidence</i>				
1-REG	87,2	100,0	6,3	7,1
2-NREG	12,8	0,0	93,8	92,9
<i>Number of Projects</i>				
	39	25	16	14
<i>% of Total</i>				
	41,5	26,6	17,0	14,9

PPP are mainly regionalized (i.e., projects that concern a specific region). Regional decentralisation in partnerships would appear even greater if we consider the characteristics of the non-regionalized projects that concerns manufacturing: a part of them have a sub sectoral incidence and are promoted by national sectoral associations, but they concern industries that are largely regional or local clusters.

Additionally, we find a clear and strong association between regional incidence and the type of promoters (the chi-square value [ $\chi^2_{(6)} = 29,022$ ] is significant [p-value = 0,000; Phi = 0,556]<sup>6</sup>: projects promoted by national entrepreneurial associations are almost non-

regionalized and projects promoted by sectoral or regional entrepreneurial associations correspond to regionalized projects.

**TABLE 4: NUMBER OF PROJECTS BY SECTOR AND REGIONAL DECENTRALISATION**

	Commerce	Construction	Energy	Manuf	Multisector	Services	Tourism	PPP
Regionalized	2	0	0	42	14	0	3	61
Non-regionalized	2	2	2	14	12	1	0	33
PPP	4	2	2	56	26	1	3	94

So, concerning the collective entrepreneurship perspective, PPP seem to have operated in the sense of a more decentralized policy, with a major involvement of entrepreneurial associations (namely of a sectoral and regional nature) and, with less relevance, other non-profit agencies. These collective actions present often some kind of regional or local embedness. Yet, this dynamic has concerned mainly manufacturing activities.

#### **Competitiveness Dimensions and the Nature of PPP Outputs**

The distribution of partnerships by competitiveness dimension can be seen in Table 5. Considering all the set of 94 projects, we observe that internationalisation (INT) clearly represents the main dimension of interventions with 39% of all projects. This pattern results from the fact that POE totally centralised the promotion of internationalisation in instruments such as partnerships and public initiatives, and single firms don't have access to measures related to internationalisation. Concerning internationalisation, typical projects were international fairs and actions of external promotion of specific sectors. Only a few projects present other objectives like the promotion of investment abroad (5 projects), entrepreneurial missions (2) or the establishment of business networks (1). So, typical collective actions aiming to support internationalisation had to do with the provision of services that are addressed to extended universes of firms, i.e., all firms of a specific sector or sub-sector or even all firms in general.

Entrepreneurship has been the second main field or dimension. Within entrepreneurship, a majority of projects were directed to Observation (OBS), aiming to produce useful information for firms. This area is a traditional field of action for entrepreneurial associations and, once more, this kind of services present a public or semi-public nature. However, we found in entrepreneurship category some projects with more

specific targets. We have counted at least 8 projects that were designed to support infant or new firms. This support was, in 2 projects, directed to the creation of technology intensive firms and, in 1 case, to the promotion of networks of firms.

**TABLE 5: NUMBER OF PROJECTS BY CLUSTER AND POE DIMENSION**

	Cluster C1	Cluster C2	Cluster C3	Cluster C4	PPP
<b>1-ENV&amp;ECO</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>4</b>
ENV	0	0	3	0	3
ENERE	0	0	0	1	1
<b>2-HR</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>
GPRAT	0	0	1	0	1
HUMR	0	0	1	0	1
<b>3-R&amp;D/INOV</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>4</b>	<b>12</b>
ECOM	1	0	0	0	1
INOV	1	0	0	1	2
EXCP	0	4	0	1	5
INDP	0	1	0	0	1
ISYST	0	0	0	1	1
IT	0	1	0	1	2
<b>4-FDI&amp;INT</b>	<b>21</b>	<b>4</b>	<b>10</b>	<b>2</b>	<b>37</b>
INT	21	4	10	2	37
<b>5-ENTREP</b>	<b>6</b>	<b>13</b>	<b>1</b>	<b>7</b>	<b>27</b>
COOP	0	1	0	0	1
ENTREP	0	9	0	2	11
OBS	6	3	1	5	15
<b>6-OTHERS</b>	<b>10</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>12</b>
RCS	0	1	0	0	1
MULTA	10	1	0	0	11
<b>Total</b>	<b>39</b>	<b>25</b>	<b>16</b>	<b>14</b>	<b>94</b>

The third more representative field, although with only 12 projects, is technology (R&D/INOV). However, these projects were addressed to a large spectrum of actions like support to products of excellence (EXCP), information technologies (IT), information systems (ISYST) or E-commerce (ECOM), and also to the support of mechanisms for protect and explore industrial proprietary wrights. So, in fact, we have a single or a very small number of projects in each one of these specific fields.

Other fields like environment and eco-efficiency or human resources have a marginal presence. The category OTHERS corresponds in fact – with a single exception – to projects that present an integrated or multidimensional nature (MULTA) and they all concern global actions addressed to reconversion and/or competitiveness of entire sectors or sub-sectors.

There is a robust association between the strategic dimension and clusters confirmed by chi-square tests (the chi-square value [ $\chi^2_{(15)} = 61.131$ ] is significant [p-value = 0,000; Phi

= 0,806). Projects in the main cluster (Cluster C1) reflect a conventional spectrum of activities that are conducted by sectoral or sub-sectoral entrepreneurial associations. Projects concern general actions of external commercial promotion, sectoral studies and observation and general actions concerning sector's restructuring or competitiveness issues. Projects of Cluster C3 are also focused on actions of internationalisation with the same characteristics of those of Cluster C1; in C3 we also find a few projects concerning environment and human resources (these last are focused on the support of continuous education structures).

In opposition, C2 and C4 projects are more focused on entrepreneurship promotion but they are also more represented in technological activities. We should remember that C2 and C4 are the only where technological agencies appear as promoters. Technological partnerships – by opposition with those addressed to internationalisation – are often more targeted and involve as final recipients smaller groups of firms. For instance, two of these technological partnerships concerned automobile industry and naval industry (sub-sectors that are composed by a few number of firms) and another was conceived to exploit the application of new ICT in building.

### **PPP Decentralized Pattern and Structural Change Objectives**

Collective entrepreneurship – as entrepreneurship in general – should present a strong nexus with innovation. In the long run, innovation must not only lead to a continuous improvement of efficiency within sectors but also to produce the structural change of the economy. However, one aspect that can reduce effectiveness of more decentralised policies is linked to the lack of strategic interventions directed to structural change, as decentralised policies can favour the current more representative sectors in the access to public support.

To analyse this question we have proceeded to a more detailed classification of projects concerning manufacturing: 16 out of these 56 projects have a general incidence in manufacturing and were grouped in a category called MANUF4 but the other 40 projects correspond to specific interventions in a large spectrum of sub sectors. Grouping these sub sectors in 3 sets, we count 27, 9 and 4 projects respectively in MANUF1, MANUF2 and MANUF3. MANUF1 includes low-tech traditional sectors (namely food products and beverages, footwear, textiles and wearing apparel, furniture) corresponding largely to what Pavitt (1984) classifies as supplier dominated sectors. In MANUF2 we have grouped projects in sectors like motor vehicles and other transport equipment, machinery and

equipment, metal products and specific metal products like moulds. Finally, the 4 projects grouped in MANUF3 concern industries based on natural resources (namely, construction materials, glass products and manufacture of wood and cork products).

Table 6 shows, as expected, that Cluster C1 projects are by far the more oriented to specific manufacturing activities, as these projects are promoted mainly by sectoral entrepreneurial associations. However, manufacturing projects of C1 are largely focused on traditional sectors and these 21 projects in “low-tech” sub sectors in C1 are the major contribution for a general pattern marked by the predominance of this kind of sub sectors.

**TABLE 6: NUMBER OF PROJECTS IN MANUFACTURING BY SUB SECTOR AND CLUSTER**

	Cluster C1	Cluster C2	Cluster C3	Cluster C4	PPP
MANUF1	21	2	3	1	27
MANUF2	6	3	0	0	9
MANUF3	3	0	1	0	4
MANUF4	6	4	6	0	16
MANUF	36	9	10	1	56

Projects of C3 that are addressed to manufacturing concern mainly manufacturing sector as a whole and this can be linked to the non-regionalized and non-sectoral nature of the promoters. Cluster C4 is marginal, concerning manufacturing.

C2 is less represented in manufacturing but presents a more composite distribution of projects by manufacturing sub sectors. Although the small number of projects, the relative weight of more technology intensive sub sectors is higher. This can be linked to the nature of promoters that include regional associations but also technological agencies.

In fact, data in Table 7 seems to confirm a close association (concerning partnerships projects in manufacturing) between sub-sectoral distribution and the nature of promoters (the chi-square value [ $\chi^2_{(18)} = 44,474$ ] is significant [p-value = 0,000; Phi = 0,891]).

**TABLE 7: NUMBER OF PROJECTS IN MANUFACTURING BY SUB SECTOR AND PROMOTER**

	MANUF1	MANUF2	MANUF3	MANUF4	MANUF
1-EA-NAT	2	0	0	6	8
2-TA&U	0	3	0	3	6
3-PA&CA	1	0	0	0	1
4-OTHERPART	6	0	0	1	7
5-NCF	0	0	1	0	1
6-EA-SECT	16	5	3	2	26
7-EA-REG	2	1	0	4	7
PPP	27	9	4	16	56

While national and even regional entrepreneurial associations tend to promote actions concerning manufacturing as a whole, sectoral entrepreneurial associations address their interventions to specific sub sectors. Since specific sub sectoral projects in manufacturing are mainly designed and promoted by sectoral entrepreneurial associations, their targets tend to follow the same pattern of the present industrial structure.

Outside of this pattern, one can note that projects promoted by technological agencies and/or universities (P-TA&U) are oriented to manufacturing as a whole but also to more technology intensive sectors. However, this last kind of promoter has a marginal presence in partnerships projects.

This is a major conclusion because it suggests a kind of trade-off between policy decentralisation and structural change goals. Although this trade-off could be counterbalanced by central coordination and selectivity criteria, our analysis shows that this has not been the case.

### **Decentralisation, Regional Embedness and Regional Access**

One last specific aspect worth of mention is linked to the relation between decentralisation and regional access or regional equity. As we noticed before, 61 of the 94 partnerships projects have an infra-national incidence. These regionalized projects could have, *a priori*, a regional or a local incidence.

Portugal is divided in 7 regions (NUT 2 level) and in 30 sub-regions (NUT 3 level). Note that all the 61 projects that have a specific regional incidence are all regionalized at NUT 3 level. This means that the pattern of regional incidence of PPP reflects either the relevance of national interventions (33 non-regionalized projects) or the relevance of a local focus.

Table 8 shows an extremely unequal access of local economies to partnerships instrument. In fact, 15 of the 30 NUT 3 don't have any project with a specific incidence in their economies. The other 15 NUT 3 correspond, with a very few exceptions, to the more industrialized areas of Portugal, following the littoral coast that goes from Braga (Cávado) to Setúbal (Península de Setúbal).

But even inside this last group, access to partnerships is largely concentrated in a few areas. The two main and more developed areas of Great Oporto and Great Lisbon represent 55% of total investment linked to regionalized partnerships. Other 3 local economies (Pinhal Litoral, Entre Douro e Vouga and Cávado) also show a very good access to

partnerships instrument, especially if we compare their share in investment with their demographic or economic weight.

**TABLE 8: DISTRIBUTION OF THE 61 REGIONALIZED PPP PROJECTS BY NUT 3 (%)**

	Grande Porto	Pinhal Litoral	Grande Lisboa	Entre Douro e Vouga	Cávado	Baixo Mondego	Dão Lafões	RA Madeira	Baixo Vouga	Cova da Beira	Ave	Península de Setúbal	Tâmega	Oeste	Algarve	Others 15 NUT
Investment	43,7	14,7	10,1	8,3	6,8	3,6	2,9	2,9	2,6	2,4	1,5	0,2	0,1	0,1	0,0	0,0
Number of Projects	39,3	3,3	14,8	3,3	9,8	4,9	1,6	2,3	6,6	3,3	3,3	1,6	1,6	1,6	1,6	0,0

In Pinhal Litoral (Centre Region) this is due to a few number of projects promoted by local entrepreneurial institutions and linked to strong local industrial clusters in Marinha Grande, concerning glass products and cristalliry, and moulds. The access of Entre Douro e Vouga (an area that confines with south limit of Great Oporto) is explained by two big projects concerning respectively cork industry and car components, these activities corresponding to local clusters. Note that in Entre Douro e Vouga is also located the main Portuguese cluster in footwear and leather products and that the access to PPP of this last sector has been also quite high, although PPP projects in footwear – promoted by national sectoral association – were classified as non-regionalized projects. Finally, the good access of Cávado is due to projects promoted by AIM (Minho Industrial Association), based in Braga, which is a sub regional dynamic entrepreneurial association.

Obviously, on one hand policy decentralisation in terms of regional dimension favours regional embedness of policy actions and reinforces collective entrepreneurship based on proximity. But on the other hand, this leads to a competitive behaviour between regional institutions and favours the most developed and industrialized areas.

## CONCLUSIONS

Public-private partnerships are a relatively recent instrument for social and economic development policies. The quick diffusion of this instrument, namely in OCDE and EU countries, is being supported by the idea that PPP can increase effectiveness of economic policy.

In particular, if we consider the use of PPP in the competitiveness policy framework, partnerships can be seen as an adequate way to reinforce collective entrepreneurship. This

means that PPP are addressed to surpass market failures and, in particular, co-ordination failures. In doing so, partnerships will have a great impact on firms competitiveness, because they will act in favour of an adequate provision of advanced services and of collaborative efforts between public agencies and several private agents.

However, the evaluation of PPP benefits and malfunctions is still in its beginnings. That's why our contribution was dedicated to evaluate the pattern of the partnerships that have been approved between 2000 and mid-2003 in the Portuguese POE framework. In particular, our research intended to analyse the extent and the ways by which PPP reinforce collective entrepreneurship but also to identify some short failures.

By using HOMALS and K-means cluster analysis, we were able to characterise the pattern and to identify 4 clusters for the 94 PPP projects. Cluster C1 is not only the larger but also presents a very typical pattern: the projects are mainly promoted by sectoral entrepreneurial associations, are often addressed to manufacturing traditional sub sectors and correspond to general actions (internationalisation, information, competitiveness as a all) that have as target large universe of firms. Projects in Cluster C3 differ by the fact that they are promoted mainly by national entrepreneurial associations and are often addressed to manufacturing as a all but presents the same characteristics of C1 in what concerns the nature of outputs and the competitiveness dimensions.

Clusters C2 and C4 correspond to a more heterogeneous pattern, because they present a more composite set of promoters. In both of these clusters we have found projects conducted by technological agencies and, in fact, these two clusters concentrate projects addressed to R&D and Innovation, along with projects concerning entrepreneurship.

Concerning the collective entrepreneurship perspective, PPP seem to have operated in the sense of a more decentralized policy, with a major involvement of entrepreneurial associations (namely of a sectoral and regional nature) and, with less relevance, of other non-profit agencies. These collective actions present often some kind of regional or local embedness. Yet, this dynamic has concerned mainly manufacturing activities.

The results have shown clearly that collective entrepreneurship induced by PPP instrument has presented a clear bias toward the provision of services that have a public or semi-public nature, by the fact that firms that can use – without being excluded - these services are in a large number (all the firms of a sub sector or even larger universes). On the other hand, technological projects and/or projects addressed to specific networks of firms are very few. This means that policy decentralization brought by partnerships has promoted or reinforce a more specialized institutional framework (mainly national, sectoral or

regional entrepreneurial associations). But, at the same time, PPP had a small impact in the promotion of specific networks and/or in innovation.

In fact, concerning dynamic efficiency and structural change objectives, we have detected a pattern in which decentralization and institutional specialization have originated a bias towards the current more representative sectors (particularly within manufacturing) and to single dimensional projects. So, we have observed a kind of trade-off between policy decentralization and structural change goals, because these last objectives should be supported by projects addressed to emergent industries and with a multidimensional nature.

One last specific aspect that we analyzed is linked to the relation between decentralization and comparative regional access or regional equity. Data on this question shows an extremely unequal access of local economies to the PPP instrument. In fact, PPP projects are largely concentrated in the main and more developed areas of the country.

These findings suggest that future extension of policy decentralization and collective entrepreneurship promotion induced by partnerships should be accompanied by some policy redesign and by a more effective central coordination. In particular, policy should consider measures addressed to specific networks with a more direct participation of firms. Also, selectivity criteria should be more linked to innovation and to structural change goals.

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### APPENDIX A ORIGINAL VARIABLES AND CODIFIED VARIABLES

Original Variables		Codified Variables		
Variable	Nature	Variable	Categories	Nature
Strategic dimension	Nominal	STRATEGICDIM	1-ENV&ECO 2-HR 3-R&D/INOV 4-FDI&INT 5-ENTREP 6-OTHERS	Nominal
Type of Promotor	Nominal	PROMT Promotor Type	1- EA-NAT (National Entrepreneurial Association) 2- TA&U (Technological Agency or University) 3- PA&CA (Public Agency or Central Administration) 4- OTERPART (Other Promoters) 5- NCF (Network of Complementary Firms) 6- EA-SECT (Sectoral Entrepreneurial Association) 7- EA-REG (REgional Entrepreneurial Association)	Nominal
Sector of Incidence	Nominal	SINC Sector of Incidence	1- COM (Commerce) 2- CONST (Construction) 3- ENERG (Energy) 4- MANUF (Manufacturing) 5- MULTS (Multisectorial) 6- SERV (Services) 7- TOUR (Tourisme)	Nominal
Regional Incidence (NUT II level)	Nominal	RINC Regional Incidence	1- REG (Regionalized Project) 2- NREG (Non Regionalized Project)	Nominal
POE Dimension	Nominal	DIMPOE POE Dimension	1.1- AMB (Ambient) 1.2- ENERE (Energetic Efficiency) 2.1- GPRAT (Good Practices) 2.2- HUMR (Human Resources) 3.1- ECOM (Electronic Commerce) 3.2- INOV (Innovation) 3.3- EXCP(Supply of Excellence Products) 3.4- INDP (Industrial Property) 3.5- ISYST (Information Systems) 3.6- IT (Information Technnologies) 4.1- INT (Internationalisation) 5.1- COOP (Co-operation) 5.2- ENT REP(Entrepreneurship) 5.3- OBS (Observation) 6.1- RCS (Regional Competitiveness Systems) 6.2- MULTA (Multiareas)	Nominal

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## END NOTES

<sup>1</sup> POE is the Portuguese Operational Programme for the Economy, included in the Third Community Framework Support, 2000-2006, funded by European Structural Funds.

<sup>2</sup> PEDIP II: Strategic Program for the Modernisation and Improvement of Portuguese Industry.

<sup>3</sup> Data from the so-called “Base de Dados de Propostas de Ideias” (GPF/POE) and from the main information system of the programme, SiPOE/PRIME.

<sup>4</sup> HOMALS may be described as a relatively free-method. It is basically an exploratory and descriptive technique, developed by American researchers of the University of Leiden in the early years of the 1990s, which uncovers and describes the associations between the categories of a set of nominal variables or variables treated as such (GEER, 1993).

<sup>5</sup> Given that each eigenvalue is the arithmetic mean of the discriminating measure in each dimension, generally, it is purposed that it should be given a greater relevance to the variables with discriminating measure in each dimension at least equal to the respective eigenvalue (CARVALHO, 1998).

<sup>6</sup> Additionally to HOMALS methodology and in order to highlight specific relationships between two variables, defined on a crosstable, we use the Pearson Chi-Square test, the chi-square value and p-value being indicated in the text. When the null hypothesis  $H_0$  of no association is rejected, we also present in the text the Phi statistic ( $\Phi = \sqrt{\chi^2/N}$ ), which measures the strength of the association.

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