PUBLIC PROGRAMME CONTEXTS AND THEIR INFLUENCE ON ENTERPRISE INNOVATION: THE CASE OF UNIVERSITY OUTREACH ACTIVITIES

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Abstract

Introduction

The assistance to enterprise innovation is a priority in the agenda of many governments. However, some studies have questioned this type of government support (e.g. Martin and Matlay 2001 and Mole 2002). One typical way to materialise this assistance is via public-funded programmes implemented by universities (specialised units), which should interact with other programmes and private providers in order to fulfil all the needs of enterprises. This research found serious problems in 6 public programme interventions that assisted small and medium enterprises (SMEs) in their e-business innovation activities, which is drastically different than the results of the formal auditing and evaluations carried out by the policy administrators (the Regional Development Agency and a University Association). The aim of the research is to illustrate the e-business innovation processes of the SMEs and the public assistance that they received, as well as to explain the influence of the programme contexts on the outreach activities of universities in terms of worker goals and organisational performance.

State of the Art about the Topic

Two core concepts used in this work are the innovation process (a series of stages that enterprises pass through in order to innovate: agenda-setting, matching, redefining, restructuring, clarifying, routinizing and infusion) and the assistance process (a series of stages that public programmes pass through in order to assist enterprise innovation: selection, design, delivery, connection and follow-up). The innovation process is part of the diffusion of innovations (DOI) theory of Rogers (2003) and the assistance process is our invention. We also used the street-level bureaucracy (SLB) theory of Lipsky (1980) to help to understand the programme contexts in which public services are implemented. In the most part, the research based on the DOI has focused on determining covariance and correlations amongst variables, and not on understanding the time order of events and the rational of human behaviour in innovation processes (e.g. Fichman 2004 and Jeyaraj et al. 2006). With regard to the SLB, Johnson (2005) pointed out that the SLB has not been used explicitly in the study of SME policies. To my knowledge, it is the first time that the DOI and the SLB are combined to study the interactive phenomena of enterprise innovation and public assistance.

Research Focus and Methodology

We developed 6 case studies in order to illustrate the e-business innovation processes of the SMEs, the public assistance that they received by the University as well as the context that influenced the decisions and actions of programme workers. After that, we used an inductive approach with the data of all the cases, in order to formulate more concrete models that explain SME innovation processes, SME needs, programme contexts, programme worker goals, programme organisation performance and other relevant issues.

Findings

After the analysis, we defined a classification of 5 types of innovation contexts (simple, low-complexity, medium-complexity, complex and high-complexity), which explains the extent that innovation processes are under the control of SMEs as well as the external support that could be required. In addition, we designed a classification of 4 types of programme contexts (chaotic, misleading, optimum and unsustainable), which explains the choice of goals of programme workers (programme, social or SME goals) during the assistance processes as well as the potential performance of programmes in terms of the quality of their services and outputs. After this, we use both, the innovation context and programme context classifications to illustrate in detail the potential behaviour of programme workers at each stage of the assistance processes.

Contributions and Implications

This research gives relevant theoretical contributions to the triple helix innovation model. We developed the assistance process concept, the classification of innovation contexts, the classification of programme contexts as well as the model to explain programme worker behaviour in the assistance processes. In addition, we demonstrated why the most negative and undesired type of programme context, i.e. chaotic, is probably the most common context in which programme workers operate. Finally, we reflect on the limited capabilities that programme organisation managers and universities have in order to correct and develop contexts that improve and direct programme activities towards social goals. This responsibility relies more on policy-makers at different levels of government (i.e. European Union Directorates-General, central government Departments and regional partnerships). We recommend a more systemic and institutional analytical approach to understand and intervene programme contexts.

Keywords: triple helix, public programme contexts, university outreach activities, e-business innovation, SMEs.

INTRODUCTION

Enterprise support has become a relevant component in many national policy frameworks to create sustainable competitive advantages (e.g. Green et al. 2008). However, there have been diverse critics to the support given to SMEs (e.g. Oztel and Martin 1998, Dannreuther 1999, Kim and Nugent 1999, Martin and Matlay 2001, Mole 2002, Johnson 2005). In addition, it is important to point out that in the policy structures of enterprise innovation, universities and SMEs have been taking relevant roles (e.g. Lambert 2003, Sainsbury 2007).

This research focuses on public programmes that support SME innovation initiatives. The programme organisations that delivered the services are special units within a university. The research of this type of public assistance is very significant given the poor results that we found in both the public interventions and the outcomes of the SME initiatives, as well as the contrast of these results with the success reported in the formal evaluations done by the funding bodies. Therefore, we centre the research on the detailed understanding of programme contexts and the way these contexts influence the implementation of public services.

The paper starts with the presentation of the initial theoretical framework, which is composed of the DOI (Rogers 2003) and the SLB (Lipsky 1980). Then, we explain the methodology to carry out a collective work with six cases. As an example, we present the data of one programme organisation, one of its programmes, and the assistance of this programme to one innovation initiative in an SME. We use the data and results of the six cases to do the collective analysis. Then, we develop classifications of innovation process contexts and programme contexts. We use these classifications to illustrate in detail the potential behaviour of programme workers during the assistance processes. Finally, we comment on the most common programme contexts and the approach to improve them.

THEORETICAL FRAMEWORK

We use as an initial framework a model adapted by Vega et al. (2007, 2008), which is illustrated in figure 1. The model is an integration of the DOI (Rogers 2003) and the SLB (Lipsky 1980) applied to information systems (IS) in SMEs and public programmes for enterprise innovation, respectively.
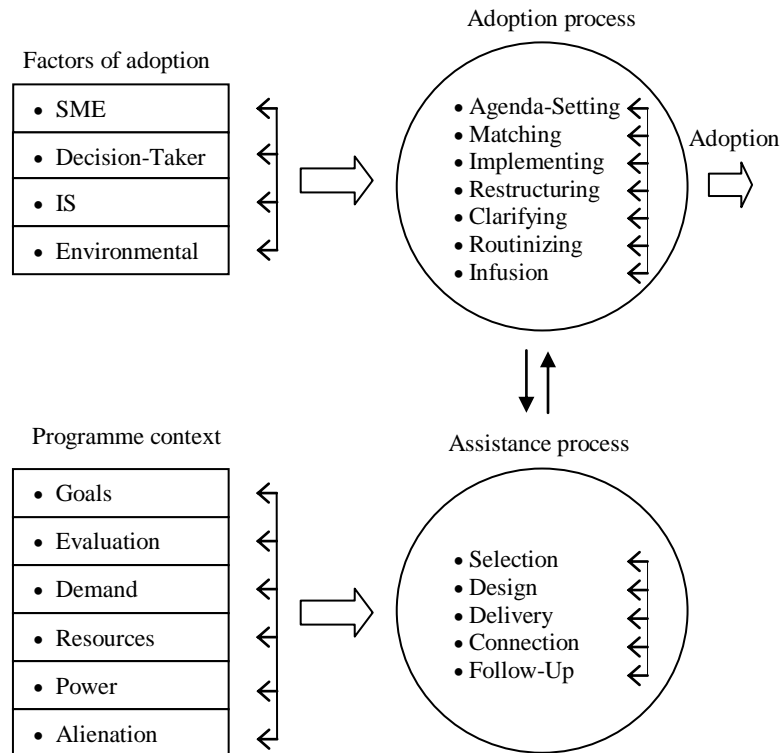
Figure 1. Model for IS in SMEs and programmes for enterprise innovation

THE DOI

The DOI theory defines an *adoption process* as a sequence of interdependent and non-linear stages through which adopters pass in adopting innovations. In turn, the adoption stages are affected by interdependent *factors of adoption*, which regulate the rates of diffusion. The factors of adoption create *barriers* and *enablers*.

Table 1 explains each stage of the adoption process in terms of the adaptation of the IS implementation process of Cooper and Zmud (1990).

Adoption Process Stages	IS Implementation Process
Agenda-Setting	Scanning of organisational situation and types of IS applications
Matching	Decision to invest resources for the implementation and use of the application
Implementing	The application is developed, installed, and maintained
Restructuring	The organisational structures, processes, relationships, and boundaries are modified, and personnel are trained
Clarifying	The personnel of the organisation are induced to use the application
Routinizing	The use of the application is encouraged as a normal activity
Infusion	Extent of use of the application, i.e. types of transactions and quantity of transactions per type

Table 1. Stages of the adoption process for IS innovations

The factors of adoption were reclassified into four groups, namely SME, decision-taker, IS, and environmental (see table 2). Most of the research done so far is aligned with this classification (e.g. Thong 1999, Jeyaraj et al. 2006).

Factors of Adoption	Examples
SME	Centralisation, technical expertise, innovativeness following recognising of opportunities, and formal planning
Decision-Taker	IS knowledge, IS management focus, role in IS initiatives, and attitude towards change
IS	Business benefits, technical complexity, pace of change, and ease of use
Environmental	Customer power, industry characteristics, mutual trust, and competitor initiatives

Table 2. Factors of IS adoption in SMEs

THE SLB

The SLB theory explains the nature of the job, context, and behaviour of the workers who interact with the beneficiaries of public services. These workers are called street-level bureaucrats. They include, for example, judges, social workers, police officers, and programme consultants. One characteristic in the job of bureaucrats is the considerable level of *discretion* that they exercise. Discretion may make street-level workers ignore, modify, or interpret policies, which could imply a change in their role from policy-implementers to policy-makers (e.g. Ellis et al. 1999, Maynard-Moody and Musheno 2003).

According to the SLB, the *contexts of public services* (which include the components of evaluation, power, goals, resources, demand, and alienation) tend to be problematic, which affects bureaucrats in the execution of the assistance processes. Table 3 explains the components of public service contexts. The *assistance process* is a concept that we are adding, which helps to understand the effect of contexts on the labour of programme workers. We define the assistance process as the interdependent and non-linear stages involved in the interaction between programme workers and SMEs. Table 4 explains the stages of the adoption processes.

Programme Context Components	Explanation
Evaluation	The method and sources of data to assess each intervention
Power	The balance of power between programme workers and SMEs
Goals	Programme interventions could favour social, SME, or programme goals
Resources	Availability of time, knowledge, information, and budget
Demand	Number of clients, types of service, and time per assistance
Alienation	It can be caused because the services cover only a part of the SME barriers, a disconnection from the rest of the SME adoption process, or the low access to resources

Table 3. Programme context components

Assistance Process Stages	Explanation
Selection	Based on the match between SME barriers and programme offering
Design	Design of services, designation of consultants, and allocation of a timeframe
Delivery	The carrying out of services
Connection	Ensuring the coverage of the rest of the SME barriers by other providers
Follow-Up	Middle-term post-service assessment to see if the SME needs further support

Table 4. Assistance process stages

METHODOLOGY

We used a collective case study structure. Stake (1995 and 2005) calls collective case studies to the group of cases that help to inquire in detail about a phenomenon. A basic criterion to choose the cases is the potential to learn from a varied and balanced group of cases. Accordingly, the collective cases included 6 assistance processes to 6 adoption processes in different SMEs. Each assistance process belonged to 1 of the 4 programmes studied in this research, and each programme was part of 1 of the 2 programme organisations studied. The programme organisations and the SMEs are located in England. We use pseudonyms to name the organisations involved in the cases.

The method of analysis was the inductive approach recommended by Easterby-Smith et al. (2002). We applied the stages of familiarisation with the cases, reflection based on existing literature and common sense, conceptualisation of explanatory variables, linking the variables in a more holistic framework, writing the first draft, and the re-evaluation of the whole process.

PROGRAMME ORGANISATION MNGTASSIST

MNGTASSIST is a unit belonging to a business school of a university, which has been running public-funded programmes for SMEs since 1999. The range of time per assistance process was from 2 to 5 man-days, including administrative work and any sub-contracted third-party service provision. There were serious problems in getting clients to meet the numerical targets for most of the public programmes. In addition, it seems that the programme personnel used a simplistic method to select SMEs, basically assessing the level of contribution of the SMEs to the targets. An important consideration is that many SMEs see the programmes of the unit as their last option to succeed. The programme manager said that 'most SMEs contact the programmes in a state of desperation'.

There are also negative opinions about the efforts that MNGTASSIST made to connect the SMEs with other public or private suppliers, as well as to follow-up on their e-business initiatives. A consultant of the unit expressed the following regarding a service provided:

> "I can't tell you because I really don't know what aspects of the advice they took on board … It's like a basket of fruits, but it's up to the client to choose which fruits they want to eat ... We don't measure it."

PROGRAMME PP-MULTISERVE

The objective of PP-MultiServe was to support SMEs in different business subjects such as marketing, strategy, and web presence, using different methods including consultancy, coaching, mentoring, and training. PP-MultiServe was funded by the Regional Development Agency Fund (RDAF) and the Higher Education Innovation Fund (HEIF). These schemes require as targets a specific number of SMEs assisted, which is demonstrated via conformity letters for the services received. Importantly, if a single business initiative of a company is assisted for more than one programme, the contribution to the targets has to be apportioned proportionally to the number of programmes.

ASSISTANCE TO RECRUCONSTCO

SME and the IS Initiative

RecruConstCo is a regional recruitment agency specialising in the construction sector. In March of 2006 the company reduced its personnel from 6 full-time employees to the managing director and a part-time employee. The managing director said that he had a broad background in human resources but a limited knowledge of systems, technology, and project management. He explained the reasons to reduce its personnel as follows:

> "If an employee is good, he might start his own company [using the database of employers and candidates of RecruConstCo] … Why do I have to employ a person that is not as good? They just cover the costs."

However, the managing director could opt to grow the business in the future, but using a service development strategy. This means focusing on the same market but with an extended mix of services. For example, adding staff retention and development.

The company was using a non web-enabled database application of employers, candidates, and jobs, which is a package designed for recruitment agencies. Additionally, the company had an informative website. The IS initiative was to develop a portal-based internet application to give employers and candidates password-protected access to the company's recruitment services. The application would automate traditional recruitment functions such as employer profiles, job opportunities, candidate profiles, upload and download of curriculums vitae, etc.

Development of the Initiative

Once the managing director took the decision to adopt the system in the second quarter of 2005, he determined the functional requirements of the application and selected a project management company to be the advisor on the design of the system and represent RecruConstCo in the interaction with the other suppliers. The basic requirements were to modify the webpage to make it operational taking into account the new self-service functionality. Then, the company contracted two suppliers, one to develop the webpage and the other to integrate the webpage with the legacy recruitment package.

Unfortunately, the response time of the new system was very slow and the session manager software randomly collapsed. The managing director commented that the suppliers did not take any responsibility for the outcome of the project. The IS initiative was put on hold in January of 2006 given these problems, which were being resolved in the courts. In addition, the managing director was considering abandoning the adoption of the system given the new reduced organisational form.

Assistance Process

The initial design of the consultancy services was done as soon as PP-MultiServe contacted RecruConstCo in July of 2005. PP-MultiServe used a form in which the SMEs had to tick a functional area and give a very brief description of the need. One person of PP-MultiServe was assigned to the assistance process as the coordinator consultant. The consultancy for RecruConstCo was delivered during the last quarter of 2005 by personnel external to MNGTASSIST. With the exception of the delivery of the services, the coordinator consultant was supposed to accomplish most of the tasks of the assistance process, including confirmation of requirements, design of services, proposal, contact with external consultants, and administrative tasks.

The service offered by PP-MultiServe was a marketing consultancy for the IS initiative. The services were delivered by an external marketing consultant with broad knowledge in her field. The total time employed for the assistance process was 4 man-days, including the work of all the personnel involved.

The coordinator consultant responded as follows on the issues of further support and the problems of RecruConstCo with the implementation of its system:

> "We have the information [of the problem with the implementation of the system] since we started working with them … But we only came in to market the new web service which they hadn't developed."

As at the end of 2009, the client had not prepared the RDAF and HEIF conformity letters. The coordinator consultant did not know about the final deliverables of the services and which of them were actually used by RecruConstCo.

Deliverables of the Programme

According to the external marketing consultant, her work generated 4 deliverables, which were the suggestions on marketing mechanisms, and an outline of how to develop the informative part of the website. The managing director observed:

> "The [marketing suggestions] I got from the University was not very good, I did the stuff by myself."

> "She was trying to influence her own ideas [for the outline of the informative part of the website], that were not necessarily what we wanted."

ADOPTION PROCESS COMPLEXITY

Multiple Dependencies of Adoptions

We found a relevant characteristic in the cases, namely that *all the adoption processes needed one or more complementary adoptions in order to be successfully completed.* In all cases, the outcome of each complementary adoption process affected one or more stages of the focal adoption process, as barriers or enablers. Table 5 explains the dependencies for the case of RecruConstCo.

Focal Adopter	Complementary Innovations	Adopters of the Complementary Innovations	Impact on the Focal Adoption Process
RecruConstCo	• New way to organise the business: With the reduction in size of the company	Managing director	Agenda-setting and restructuring
	• New services: People management	Managing director	Agenda-setting and restructuring
	• New source of services: For the people management	Employers	Agenda-setting and restructuring
	• New source of candidates: With the portal	Employers	Restructuring
	• New source of employers: With the portal	Candidates	Infusion

Table 5. Focal adoption processes and multiple-adoption dependency

The delayed start of the restructuring effort to reorganise the business indirectly affected the agenda-setting stage of the focal adoption process of RecruConstCo. The managing director could re-start the focal adoption process if the company started to grow under the new reduced organisational form. In addition, the restructuring of the company in terms of new people management services, e.g. staff retention, would indirectly affect the agenda-setting of the focal adoption process too. As one might expect, in order to accomplish the agenda-setting stage the employers would have to adopt the new people management services. This would establish new relationships in the human resource marketplace and a restructuration of the external boundaries of RecruConstCo.

Additionally, the relationship between RecruConstCo and employers for the sourcing of candidates would be a kind of partnership, which would reconfigure the human resource marketplace and affect the restructuring stage of the focal adoption process. Finally, the sustainability of the adoption of the internet application by RecruConstCo would depend on the number of adoptions of this system by candidates, which would directly impact the infusion stage of the focal adoption.

Adoption Process Classification

We develop here a classification of focal adoption processes to represent *the extent that focal adoptions are under the control of focal adopters in order to understand their potential for success and the external support that could be required.* Table 6 shows the classification.

Category	Number of Complementary Adoption Processes	Level of External Support	Number of Supporting Organisations
Simple	Possibly zero	No support needed	No support needed
Low-Complexity	Possibly zero	Limited	Possibly one
Medium-Complexity	Possibly zero	Intermediate	Possibly one or two
Complex	Possibly some few	Important	Possibly two or more
High-Complexity	Possibly many	Too much	Too many

Table 6. Adoption process classification

For example, we consider that the adoption of the internet portal by RecruConstCo was a complex focal process. As mentioned, the company needed external support in project management and ICT to accomplish the adoption. In addition, there were at least five complementary adoptions. For instance, the new way to organise RecruConstCo was a difficult complementary adoption given the level of centralisation of RecruConstCo in the managing director and his lack of experience to design a direction for the growth strategy. So, RecruConstCo would have needed a comprehensive assistance in business strategy. Additionally, the other four complementary adoptions could have had their own barriers and enablers and, consequently, needed external support.

Although the increase in the number of complementary adoption processes complicates the adoption process of a focal innovation, more complementary adoptions does not necessarily mean more complexity in comparison with other focal adoptions. This is because the enablers of the complementary adoptions could be very relevant and easily overcome the barriers of adoption. *Alternatively, in extreme cases there could be high-complexity adoption processes without complementary adoptions.*

PROGRAMME CONTEXT CLASSIFICATION

The objective of the classification is to understand the choice of goals of programme workers and the potential for success of programmes in terms of services and targets. After reviewing the effect of the programme context components in all the cases, we realised that there are two core determinants for the behaviour of programme workers. We call them *'evaluation result'* and *'goal moderator'*. Figure 2 shows how the two determinants are formed and how they affect the assistance processes.
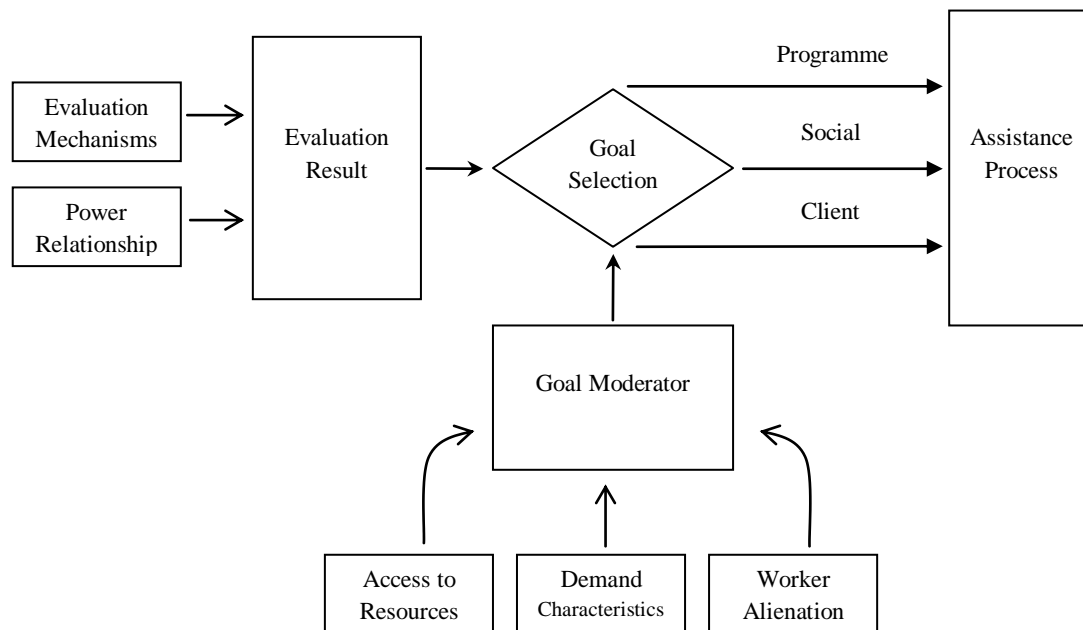
Figure 2. Programme context determinants and goal selection

The combination of evaluation mechanisms and power relationship between programme workers and clients can determine the evaluation result. Similarly, the combination of programme resources, demand characteristics, and worker alienation can determine the goal moderator. In addition, *the evaluation result can determine the focus of programme workers on client, social, or programme goals, and the goal moderator can determine the extent in which the non-focused goals are addressed.*

To simplify the analysis, we suggest that evaluation results can influence programme workers in a positive or a negative way. A positive influence occurs when the evaluation shows what actually happened in the adoption and assistance processes. A negative influence occurs when the evaluation does not show what happened. Similarly, goal moderators can influence programme workers in a positive or a negative way. A positive influence occurs when all the programme components that form the goal moderator do not present problems. A negative influence occurs when at least one of these components presents problems.

Table 7 illustrates how programme workers could be influenced in their goals based on the four combinations of positive and negative evaluation results and goal moderators.

Evaluation Result	Goal Moderator	Category	Client Goals	Social Goals	Programme Goals
Negative	Negative	Chaotic	If it coincides with programme goals - Very few times	If it coincides with programme goals - Very few times	Tendency
Negative	Positive	Misleading	If it coincides with programme goals - Sometimes	If it coincides with programme goals - Sometimes	Tendency
Positive	Positive	Optimum	If it coincides with social goals - Sometimes	Tendency	If it coincides with the social goals - Sometimes
Positive	Negative	Unsustainable	If it coincides with social goals - Very few times	Tendency	If it coincides with the social goals - Very few times

Table 7. Programme context categories and goal selection

In category Chaotic, negative evaluation results leave programme workers free to choose the quality of the interventions, and this choice would tend to be for programme goals taking into account the negative combined effect of resources, demand, and alienation, i.e. goal moderator. Programmes need to get outputs in spite of their problems. All the case studies in this research exhibit these characteristics. There were two cases that showed coincidences between programme and client goals. These adoption and assistance processes were relatively successful, which addresses the client goals. However, the services did not correspond to what the programmes were supposed to deliver, which represents programme goals. Similarly, in one of these cases all the programme services could have been sub-contracted by the SME itself. *Under category Chaotic, programmes could deliver inappropriate services in many respects, but give the appearance of being successful in terms of targets*.

The tendency in category Misleading will be towards programme goals, given the freedom of action generated by negative evaluation results and the fact that programmes have to achieve the highest outputs possible in order to have the greatest chance of succeeding in the next public funding rounds. However, we believe that given the better response situation in terms of the goal moderator, there

would be more coincidences among goals in comparison to category Chaotic. *Under category Misleading, programmes could deliver some inappropriate services, but are generally successful in terms of targets*.

Category Optimum is the ideal situation in which evaluation results force programme workers to opt for social goals and programmes are well-prepared to respond to this challenge. Given the positive goal moderator, programmes will not have problems in achieving their goals. However, all SMEs will not be selected to receive services. It means that there will be some coincidences among goals, not always. *Under category Optimum, programmes would deliver excellent services and would be successful in terms of targets*.

Finally, category Unsustainable is an untenable situation for public programmes. Positive evaluation results force programmes to meet social goals. However the goal moderator constrains their work given the lack of resources, demand, or the existence of alienation. Programme workers would have very limited possibilities to select a great number of SMEs and provide proper services to them, which would negatively impact the targets. The possibility of coincidence in goals is very low given the exigent evaluation results. *Under category Unsustainable, programmes would give excellent services but would be very unsuccessful in terms of targets*.

BEHAVIOURS IN THE ASSISTANCE PROCESSES

Behaviours in Categories Chaotic and Misleading

Table 8 represents the probable behaviour of programme workers in the programme contexts Chaotic and Misleading. *In both cases, negative evaluation results would drive programme workers to behave improperly based on programme goals, or outputs*. For this reason, the selection stage could basically depend on the growth plans of the SMEs, which could not be linked to the public interventions. *The difference is that the design and delivery stages in programmes Misleading would be relatively more appropriate given the better circumstances underlying their goal moderator, i.e. resources, demand, and alienation.* For both types of context, programme workers would not connect SMEs with other programmes because they would try to avoid the apportioning of outputs. Also, there would not be meaningful follow-up activities because this activity would consume time to get more outputs with other SMEs.

Adoption Process / Assistance Process	Simple	Low-Complexity	Medium-Complexity	Complex	High-Complexity
Selection	Selected or not selected	Selected or not selected	Selected or not selected	Selected or not selected	Selected or not selected
Design	If selected: Any design (see case study)	If selected: Any design (see case study)	If selected: Any design (see case study)	If selected: Any design (see case study)	If selected: Any design (see case study)
	If not selected: No design	If not selected: No design	If not selected: No design	If not selected: No design	If not selected: No design
Delivery	If selected: Any delivery (see case study)	If selected: Any delivery (see case study)	If selected: Any delivery (see case study)	If selected: Any delivery (see case study)	If selected: Any delivery (see case study)
	If not selected: No delivery	If not selected: No delivery	If not selected: No delivery	If not selected: No delivery	If not selected: No delivery
Connection	All cases: No connection	All cases: No connection	All cases: No connection	All cases: No connection	All cases: No connection
Follow-Up	All cases: No follow-up	All cases: No follow-up	All cases: No follow-up	All cases: No follow-up	All cases: No follow-up

Table 8. Programme worker behaviours in categories Chaotic and Misleading

Behaviours in Categories Optimum and Unsustainable

Table 9 represents the probable behaviour of programme workers in the programme contexts Optimum and Unsustainable. *In both cases, positive evaluation results would force programme workers to behave properly based on social goals*. For this reason, the selection stage would depend on the match of SMEs and the needs of their adoption processes with what the programmes formally offer. However, *an important difference is that the quantity of SMEs that could be selected in programmes Optimum would be much greater given the better circumstances underlying their goal moderator.* The personnel of both types of programmes would tend to design and deliver proper interventions. Programme workers would connect SMEs with other programmes and follow-up SME initiatives because they would achieve outputs based on the overall success of the adoption processes. The nature of the connections would depend on the complexity of the adoption processes

and the extent to which programmes initially covered the barriers of adoption. The follow-up activities would depend on the complexity of the adoption processes too. More complexity requires more connections and follow-up activities.

Assistance Process \ Adoption Process	Simple	Low-Complexity	Medium-Complexity	Complex	High-Complexity
Selection	Not selected	Selected or not selected	Selected or not selected	Selected or not selected	Not selected
Design	No action needed	If selected: Proper design. If not selected: No design	If selected: Proper design. If not selected: No design	If selected: Proper design. If not selected: No design	No action needed
Delivery	No action needed	If selected: Proper delivery. If not selected: No delivery	If selected: Proper delivery. If not selected: No delivery	If selected: Proper delivery. If not selected: No delivery	No action needed
Connection	No action needed	If selected: No connection. If not selected: One connection	If selected: No connection or one connection. If not selected: Two connections	If selected: One or more connections. If not selected: Two or more connections	No action needed
Follow-Up	No action needed	All cases: No follow-up	All cases: Limited follow-up	All cases: Important follow-up	No action needed

Table 9. Programme worker behaviours in categories Optimum and Unsustainable

A WORRYING SITUATION

It seems that *category Chaotic is probably the most common programme category*. For this reason, *the behaviour of the personnel of these programmes could denote a large scale misuse of public funds.*

The European Union funds, RDAF, and HEIF represent the majority of the public funds used to support SME innovation processes. These three financial schemes have similar evaluation mechanisms. The difference is that the European funds additionally require the numerical indicators of the increase and safeguarding of sales and jobs in the companies assisted. The method to gather this information is a form filled out by the SME personnel. Clearly, this method does not investigate the connection with the public assistance.

In addition, a power imbalance can be present in many cases as well because SMEs do not have many resources and tend to depend on external support to design and develop their various business initiatives.

The lack of sufficient public resources could be a common situation too, given the policy-making imperative of providing little resources but setting stretching targets for programmes. The need for resources is very clear in IS adoption given the diversity of elements involved, such as business strategy, project management, systems design and development, marketing, as well as the complexity added by complementary adoptions.

In general, there would be problems with the demand for programme services. A compelling reason could be that the services are related to innovations. The perceived newness of an innovation and the complicated activities of the focal and complementary adoption processes could determine the low reaction of the adopters. Another reason for a low demand is the possible misunderstanding on the part of programme workers as to how to identify and measure demand. Formally, the demand for a programme is composed of the SMEs that want to adopt IS systems with their characteristics and needs matched to what the programme formally offers. However, the programme personnel interpreted demand as the SMEs that 'were available to contribute to the targets', independently of the connection between public interventions and SME development.

Finally, alienation can be a constant risk mainly as consequence of the political tendency of providing insufficient public resources and the continued use of poor evaluation mechanisms. Insufficient resources can mean limiting the assistance time given to each company, which would restrict the barriers of adoption that can be addressed. In addition, it is difficult to envisage programme workers staying connected with the following stages of the adoption processes given that this is not measured in the formal evaluations and that any interaction with other programmes would imply the apportioning of outputs between them.

CONCLUSIONS

We constructed a categorisation of 5 types of innovation process contexts, namely simple, low-complexity, medium-complexity, complex, and high-complexity. The classification explains the extent that innovation processes are under the control of SMEs and the external assistance that could be needed. Additionally, we developed a grouping of 4 types of public programme contexts, namely chaotic, misleading, optimum, and unsustainable. This classification explains the choice of goals of programme workers, i.e. programme, social, or SME goals, in the assistance processes and the probable performance of programmes in terms of the quality of services and outputs. Then, we used the innovation process context and programme context classifications to exemplify the likely behaviour of programme workers at each stage of the assistance processes. Finally, we explained why the most inconvenient type of programme context 'chaotic' is possibly the most common context.

We appreciate that the deficient results of the innovation processes and public services are not entirely the responsibility of the programme organisations or their managers. The programme context components strongly affect the programmes' performance, but the components are mostly defined outside the ambit of the programme organisations. As explained, the poor evaluation mechanisms are designed by the funding bodies, the tendency of power of programmes over SMEs is given by the fact of who has resources and who needs them, the insufficient programme resources are generally determined by policy makers, the low demand for programme services tend to be inherent in enterprise innovation, and alienation can be a consequence of poor evaluation mechanisms and insufficient resources.

To conclude, we recommend a more systemic approach (e.g. Freeman 1987, Lundvall 1992, Nelson 1993, Edquist 2005) in order to understand in detail and alter programme contexts. We believe that the root of the system failures affecting programmes can be located at any part of the political environment, and their correction is crucial for the diffusion of innovations in SMEs (Vega et al. 2007, 2008).

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