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**Setting Up Public Support to SME Innovation: Policy, University, Managerial and Research Implications**

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**Abstract**

**Objectives:** The investigation of the system interventions that could improve the contexts of the public programmes that aim at supporting innovation in micro, small, and medium enterprises (SMEs).

**Prior work:** The effects of this kind of programmes could be negative (Vega et al. 2007). Programmes can be affected by problematic context components, namely evaluation, power, resources, demand, alienation, and goals (Lipsky 1980). Importantly, these harmful contexts could be a tendency, more than mere exceptions (Vega et al. 2010).

**Approach:** We report here an important part of a research programme oriented to information systems (IS) diffusion in SMEs. We used a critical realist approach, which included more than 30 interviews to regional policy managers and programme and SME personnel, as well as the reading of a substantial quantity of secondary material, e.g. economic and IS policy documents, policy implementation manuals,

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policy evaluations, and programme assistance files. The empirical work embraces the United Kingdom (UK) and the European Union (EU). For this part of the study we used a sequence of identification of a problem, theoretically-based analysis, identification of underlying system failures, and the suggestion of activities and actors to improve the problem. Edquist (2002, 2008) calls to a similar approach ‘diagnostic analysis’ (DA), which is based on the systems of innovation approach (SIA) (e.g. Freeman 1987, Lundvall 1992, and Nelson 1993).

**Results:** The system activities are numerous. For example, the enhancement of the evaluation design, independent evaluation, SME political empowerment, market competition simulation for programmes, specialisation in industry and functional areas, consultancy accreditation, awareness campaigns, simplification of contractual procedures with the funding bodies, comprehensive mix of services, redefinition of targets, human resource strategies, and programme marketing.

**Implications:** The responsibility of improving programme contexts largely relies on the multifaceted interactions of actors that operate outside programme organisations, for instance EU and national funding bodies, private evaluators, SME associations, EU Directorates-General (DG) and government departments in charge of SME policies, Government Offices for the English Regions, Regional Development Agencies, public-private partnerships, and Sub-Regional Economic Partnerships. Thus, programmes depend to a great extent on techno-political and negotiated decisions taken in the system. Also, universities have two prominent roles, specifically as researchers of SME innovation and participants in the SME policy process. For this reason, SME associations and universities must strengthen their ‘joint’ participation in the design, administration, implementation, and evaluation of policies in order to counteract the political and group interests. Finally, the results of this study open a practice-oriented, multidisciplinary, and methodologically pluralist research agenda, which is characterised by the system activities recommended to improve programme contexts and by other determinants of SME innovation.

**Introduction**

SMEs are lagging behind their corporate counterparts in the race for the adoption of innovations, for instance in the IS field (e.g. UNCTAD 2009 and EC 2010). Governments have been trying to address this problem with a series of initiatives (e.g. EC 2005 and ECLAC 2008). One example is the increasing funding of the conventional support delivered by universities and other programme organisations in the UK (Lambert 2003 and Sainsbury 2007). We call conventional support to the one-to-one assistance to SMEs in order to approach specific situations, e.g. the adoption of an IS. The services are aimed at applying the results of academic research to real situations. This can be done, for example, via business advise, consultancy, market research, project management, internet design, and database development.

The impact of this kind of public programmes has been questioned (Vega et al. 2007). In general, there has been diverse critics to the support given by some governments to SMEs (e.g. Oztel and Martin 1998, Dannreuther 1999, Kim and Nugent 1999, Martin and Matlay 2001, Mole 2002a, Nugent and Yhee 2002, and Johnson 2005). According to Lipsky (1980), public services can be surrounded by contexts that are harmful. These negative contexts are composed of evaluation mechanisms, power relationships, access to resources, levels of demand, worker alienation, and competing goals. The inherent risk is that these contexts can negatively affect the behaviour of programme workers. Vega et al. (2010) found that in the ambit of SME innovation these harmful contexts can be a trend, and not exceptions to the rule. With this background is that we focus this study on the activities and actors that could help to improve the contexts of the programmes that support SME innovation processes.

The paper starts with a construction of a theoretical framework to perform the research. We use theories from the public administration and innovation areas. After the theoretical work, we explain and extend the method of DA as a way to organise the research. With the guidance of the theoretical framework and the extended DA, we define the problem, its theoretical base, the underlying system failures, as well as the activities and actors to improve contexts. Finally, in the conclusions we explain a series of relevant policy, university, managerial, and research implications.

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Theoretical Framework

To begin, we explain two well-established and contrasting policy implementation theories, namely the street-level bureaucracy (SLB) and new managerialism (NMG), with the aim of discussing the nature and context of public services. Then, we confront the most used frameworks to understand innovation and develop innovation policies, namely the SIA and neoclassical economics (NEC), with the aim of defining the criteria to determine activities and actors to improve programme contexts.

Policy Implementation

The SLB (Lipsky 1980) explains the nature of the job, context, and behaviour of the workers who interact with the beneficiaries of public services, for instance police officers, judges, and programme consultants. One characteristic in the job of bureaucrats is the significant ‘discretion’ that they use. Discretion may make public workers alter, ignore, extend, or interpret policies, which would imply a change in their role from policy-implementers to policy-makers (e.g. Lindblom and Woodhouse 1993, Ellis et al. 1999, and Maynard-Moody and Musheno 2003). Discretion can be enrooted in the political decisions taken at the highest levels of government. One reason for discretion could be that policy-makers tend to set high targets and provide restricted resources for public services. This makes policy-makers focus the design of the evaluation on numerical indicators related to these political imperatives, and not on the content and quality of the services (e.g. Lipsky 1980). Policy-makers could also design extensive and ambiguous policies as a strategy to distance themselves from the consequences of the complicated decisions to balance demand, needs, and resources, which creates room for discretion (e.g. Ellis et al. 1999). Finally, the auditors could have conflict of interests given their connection with the policy-making team or with the programme organisations, which could make them ignore the evidence of discretion (e.g. Storey 2006).

On the other hand, we have the view of the advocates of a shift in the distribution of power in favour of policy-makers and managers over bureaucrats. They are the NMG proponents (e.g. Howe 1991, Jones 1999, and Langan 2000). According to the NMG, this shift has occurred as a consequence of the centralisation of strategic political direction and the introduction of competition in the delivery of public services. This challenging structure had generated an important cultural change in terms of management responsibilities and supervision. The NMG defenders argue that due to this market-oriented scheme the fundamental drivers of the public service activity are the managerial commands, the public policies and procedures, the determination of evaluative indicators, the allocation of resources, as well as the statutes and legislation that create both agencies and clients. Therefore, the practice at street-level is aligned with a context of managerial, political, and legal authority.

In a multiple case study research, Vega (2010) found excessive discretion and confirmed the causes, explained above, for this to happen. Programme workers radically changed the programmes’ scope of action that were contractually agreed with the policy administrators, which did not contribute with either the quality of the services or the adoption processes of the SMEs. For this reason, it is important to understand in detail the work context and potentially competing priorities of programme workers, as well as the constraints in controlling their job with conventional mechanisms.

The SLB of Lipsky (1980) states that the contexts of public services tend to be problematic, which affect bureaucrats in the execution of their work. There are six public service components. The first is ‘evaluation’, which is the method and data sources to assess each public intervention. Secondly, the balance of ‘power’ between public workers and clients. The third is the availability of ‘resources’ in terms of time, knowledge, information, and budget. The fourth is the level of ‘demand’ for public services in terms of number of clients, types of services, and time per intervention. Fifthly, the probable ‘alienation’ in the public workers, which could be caused by the offering of incomplete public services and the disconnection with the rest of the clients’ processes. Sixth and final, the existence of competing ‘goals’ that could favour social, client, or bureaucracy objectives. Vega et al. (2010) concluded that there is a prevalence of negative contexts in most of the SME innovation policy in the UK and the EU systems. There exist widespread and enduring conditions such as poor evaluation mechanisms, SME dependency on external support, political determination of level of resources, as well as lack of awareness in SMEs on innovations and innovation services.

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Finally, apart from the work of Vega (2010) and Vega et al. (2007, 2010), we have identified only one study that used SLB concepts to highlight the issue of discretion in a UK-wide programme oriented to SMEs (Mole 2002b). In fact, Johnson (2005 p. 11) stated that ‘it does not appear that the theory of bureaucracy has been utilised explicitly in the analysis of SME policies’.

Innovation Policy

The SIA (e.g. Freeman 1987, Lundvall 1992, and Nelson 1993) was developed on the basis of innovation research and institutional and evolutionary economics (e.g. Lundvall and Borras 2005). It is also related to general systems theory (e.g. Edquist 2005). The SIA is a conceptual framework, which includes ‘all important economic, social, political, organisational, institutional, and other factors that influence the development, diffusion, and use of innovations’ (Edquist 1997, p. 14). Under the SIA, innovation is defined as an open, interactive, and non-linear learning process (Lundvall 1992), which is determined by the capabilities (e.g. trust, power distribution, and cooperative relations) and accumulated knowledge in organisations, firm networks, and communities. Reciprocally, the capabilities and accumulated knowledge vary locally as a result of learning trajectories (Asheim and Isaken 2000). All this complexity creates uncertainty around innovation processes. The SIA uses the concept of ‘system failure’ (SF) to explain the malfunctioning of innovation processes, that is the missing or inappropriateness of activities, actors, institutions, or linkages (Edquist 2002, 2008).

Respecting the NEC approach to innovation, it states that social agents take rational and autonomous decisions among identified outcomes and their values, in order to maximize utility, and aided by complete information. There is the presumption of equilibrium, and that knowledge is created mainly via research and development by one agent and is easily distributed in a linear direction using market transactions. Under the NEC view, the malfunctioning of innovation processes responds to market failures which basically affect the optimum work of agents. The most common policy instruments are economic ones, specifically the protection of the creators of knowledge via intellectual property rights (e.g. Andersen 2006) and the fostering of competition via agglomeration (e.g. Porter 1998).

There has been many critics from the SIA side to the innovation stance of NEC. In principle, NEC overlooks that firms behave differently (e.g. Metcalfe and Georghiou 1998 and Lundvall and Borras 2005) and does not give relevance to the interaction among suppliers, users, competitors, and non-market agents for the development, diffusion, and use of tacit knowledge (e.g. Metcalfe and Georghiou 1998, Lundvall 2002, and Lundvall and Borras 2005). This simplified view about innovation processes explains why neoclassical economists have not developed policy instruments to facilitate the interaction among different agents (Edquist et al. 2000 and Lundvall and Borras 2005). In addition, the NEC approach does not take into account the specificities and dynamic characteristics of innovation contexts, hence its notions of optimality and equilibrium are not applicable (Edquist 2001, 2002). The simplistic view on optimality and equilibrium is the reason why neoclassical economists argue that optimal innovation contexts can be reverse-engineered and replicated in other geographical areas (Storper 2001).

Vega (2010) and Vega et al. (2010) confirmed the appropriateness of the SIA. They developed a classification of adoption processes based on the particularities of the SME adopters, their decision-takers, the IS to be adopted, and the micro-environment in which the SMEs operate. An additional consideration of the classification is the multiple dependency of adoption processes, which implies even further interaction among different agents. The aim of the classification is to explain the variability of adoption contexts, as well as the extent that focal adoption processes are under the control of focal adopters in order to understand their potential for success and the public or private support that could be required. However, to make a more comprehensive use of the SIA we need to study the effects of even more distant activities, actors, institutions, or linkages on the adoption of IS in SMEs, not only micro-environmental influences and dependent adoptions. We will address this concern studying a further aspect of the system, namely the improvement of the context of public programmes.

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Diagnostic Analysis

Edquist (2002, 2008) defines DA as the sequence to follow in order to design innovation policies. In general terms, DA embraces the identification of a ‘problem’, its associated ‘system failures’, and the determination of the corresponding ‘policies’. A problem should be recognised as a low performance intensity in an specific system, for example the low diffusion of an IS in the SMEs of a sector. It could be identified via the comparison of systems, for instance the comparison of the levels of adoption of an IS between SMEs of a sector, but from different regions. The problem must also be an enduring one, in the sense that the market forces could not resolve it by themselves. The following stage is the identification of underlying system failures, which are the causes behind the problem. However, previous to this point of the DA sequence is that we suggest the inclusion of an additional stage, namely the ‘theoretical base’. Our argument is that we cannot research everything in the system in order to identify system failures. For this reason, we need a theoretical base, if there is one, in order to focus the research on specific determinants. With regard to SME diffusion, a good theoretical base could be the classification of adoption processes developed by Vega (2010) and Vega et al. (2010).

For instance, we could determine that there are some initial barriers for the complex diffusion of an internet collaborative IS in SMEs, such as the lack of project management skills available for SMEs, the inexistence of data communication standards to connect different IS, and the lack of trust in the supply chain. They represent SME, IS, and micro-environmental characteristics, respectively. Moreover, these characteristics denote the existence of complementary adoption processes, e.g. the supply chain partners would have to adopt and connect their internet collaborative IS too. Just now is that we could get immersed in the system of innovation in order to identify system failures. For example, the lack of project management skills could be originated by many causes, e.g. lack of relevant consultants in the region, inability to find skilled project management people, or lack of money to employ them. Similarly, a system failure could be corrected applying several policy instruments. For instance, the lack of relevant consultants in the region could be solved subsidising project management support programmes in universities, redesigning academic courses, or creating consultancy accreditation schemes.

According to Edquist (2005), innovation processes are affected by a series of activities, which some will be more important than others, and they could reinforce or offset one another. He suggests to try to establish a hierarchy of causes, taking into account not only activities, but also the actors that perform them, the institutions that affect them, as well as the linkages among them. Edquist (2001, 2002, 2008) also pointed out that governments and agencies should intervene only if they have the ability to solve or mitigate system failures. The concept of hierarchies and the possible lack of ability to address problems make us think that there could be more to study than the determination of public interventions at one level. Actually, Edquist (2008) emphasises that an initial division of labour between public and private activities is a relevant departure point, but in many cases insufficient to improve innovation processes. We argue that given the possibility of further system failures that could affect the initial policies, the sequence of DA would have to be repeated one or more times. We will do it to analyse public programmes.

Problem, Theoretical Base, and System Failures

We consider the poor performance of the public programmes in question as the problem. The performance was evaluated in terms of the quality of the services and the outcome of the adoption processes in the SMEs (Vega et al. 2007, 2010), and not via comparison of intensities between different systems. The theoretical base is given by the public service components of Lipsky (1980), i.e. evaluation, power, resources, demand, alienation, and goals. The analysis of Vega et al. (2010) concluded that the context of the programmes was effectively harmful, and that this situation was widespread and enduring in most of the UK and EU systems.

The work of Vega et al. (2010) was also an effort to understand the system failures behind the contextual deficiencies in public programmes. In general, the explanation of the system failures confirms Lipsky’s arguments about contexts and supports the conclusion that these problematic contexts are a tendency. To begin, most of the evaluation methods used by the funding bodies are misdirected. The European Regional Development Fund (ERDF), the Regional Development Agency Fund (RDAF), and the Higher
Education Innovation Fund (HEIF) use numerical indicators that do not address either qualitative or content aspects, e.g. number of SMEs assisted or the increase in sales in the SMEs. The attribution of most of these indicators to the programme interventions is questionable. Additionally, there could be a conflict of interests created by the connection between the evaluators and the policy-making teams or the programme organisations. There also exist an inherent imbalance of power in favour of programmes over the SMEs, because SMEs tend to depend on external support to carry out their business initiatives. The low access to resources could be catalogued as a prevalent situation too. This happens essentially because there is a political imperative at the highest levels of government of providing little resources but setting too ambitious targets to public services (e.g. MacDonald 1990 and Lewis and Glennester 1996).

A potential low demand for the services can be explained by the fact that the programmes are oriented to support innovation processes and, by definition, both the innovations and their associated services are hard to diffuse. A relatively low demand can also be explained by the delayed start of most of the programmes that were approached. This problem was generated by the slow administrative procedures to edit and sign contracts between most of the funding bodies and the programme organisations. Alienation can be a constant risk as well. This can be a consequence of the provision of insufficient resources and the use of poor evaluation mechanisms. Programme workers could fell, with justified reasons, that their work will be incomplete and irrelevant for the SMEs (Lipsky 1980). In addition, they could feel, and effectively be, detached from the rest of the SMEs’ adoption processes (Lipsky 1980). Finally, the dominance of these negative contextual components negatively influences the choice of goals of programme workers, which would be bureaucracy, i.e. programme, goals.

Activities and Actors

Having understood the system failures affecting programme contexts, we carried out an explorative study to determine the potential activities and actors that could improve programme context conditions. As it is an exploration, we do not go to the detail of these policies in terms of the institutions that could affect them or the linkages with other activities in the system. However, as Edquist (2008 p. 8) emphasised, ‘[the determination of activities and actors] is a useful departure point for discussing the role of the government in stimulating innovation processes by means of innovation policies’. In the following text we present a group of policy recommendations that affect each of the programme context components. Actually, each recommendation could affect many context components, but we mention only the component that would be more directly affected. Note that the context component ‘goals’ is always a consequence of the other components, so it is indirectly addressed by all the recommendations. To accomplish this part of the research, we interviewed regional IS policy managers, interviewed the managers of different public programmes, read IS policy initiatives used in different countries and sectors, read various economic policy documents, read diverse academic studies on the topic, used some of the previous contributions of our research programme, etc.

Adoption and Assistance Process Evaluations

This activity is oriented to improve the context component ‘evaluation’. In order to improve the evaluation design, the method to gather information should be qualitative, the focus should be on the outcomes of the adoption processes of the SMEs as well as on the analysis of each programme action and inaction that could have affected the SME processes. It is relevant for the evaluators to carry out prior research on the programme, SMEs, and assistance files in order to overcome any bias or inaccurate information given by the SME personnel. The evaluation proposed here was used by Vega et al. (2007, 2010). This design could work for all the public activity oriented towards enterprise innovation. The actors in charge of defining the evaluation design are the funding bodies, e.g. the DG Regional Policy for the ERDF, the Her Majesty’s (HM) Treasury for the RDAF, and the Higher Education Funding Council for England for the HEIF.

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**Third-Party Evaluators**

This activity is oriented to improve the context component 'evaluation'. In order to avoid conflict of interests (Matlay and Addis 2003 and Storey 2006), evaluators, i.e. auditors, must not be connected to the policy-making teams or the programme organisations, or contracted by any of these parties. The evaluator organisation could be a non-departmental public body in order to remove any political interference. This organisation could be in charge of evaluating all the programmes oriented towards enterprise innovation. The organisation proposed here could have its own pool of evaluators or contract private specialist companies, e.g. see CPEE and TEP. The actors in charge of defining the national evaluator should be the funding agencies.

**SME Empowerment**

This activity is oriented to improve the context component 'power'. In order to have an influencing presence at all levels, SME representatives must improve their involvement and decision-making in the design, administration, implementation, and evaluation stages of the policy process (Storey 1994, Coen 1998, and Dannreuther 1999). After reading the literature, it seems that SMEs have been systematically excluded from the political scenario. For this reason, we believe that the SME associations themselves should be in charge of getting more protagonism in the policy arena.

**Marketing Competition Simulation for Programmes**

This activity is oriented to improve the context component 'power'. In order to avoid the dependency of SMEs on a single programme organisation, a group of programme organisations should offer similar services in the same geographical area. Vega (2010) found evidence that in some cases this does not happen. The selection process of programmes should take into account not only the appropriateness of individual programmes but also the balance of the total regional support. The political actors responsible for proposing this general competitive environment should be the EU and national entities in charge of SME policies, i.e. the DG Enterprise and Industry and the Department for Business, Innovation, and Skills, respectively. However, the implementation of this rule must be in charge of the funding bodies and their regional delegates who perform the operative tasks, i.e. the policy administrators. Some examples of the regional delegates are the Government Offices for the English Regions for the DG Regional Policy, the Regional Development Agencies for the HM Treasury, as well as the Regional Teams for the Higher Education Funding Council for England.

**Sector and Functional Area Focused Services**

This activity is oriented to improve the context component 'resources'. In order to get experience and knowledge, programme organisations should continually deliver services to the same sectors and functional areas. The selection process of programmes should contemplate this requirement. Accordingly, Martin and Matlay (2001) expressed the need of a more discriminated approach in the UK government support to IS innovation in SMEs. The political actors responsible for proposing this general level of specialisation in the programme organisations should be the EU and national entities in charge of SME policies. However, the implementation of this requirement must be in charge of the funding bodies and their regional delegates.

**Professional Accreditation**

This activity is oriented to improve the context component 'resources'. In order to guarantee experience and knowledge, programme organisations could opt to work with accredited personnel (Morgan et al. 2006). To get accredited, a practitioner is assessed in terms of past performance and theory. Programme organisations can accredit their practices if they have a minimum number of accredited employees. Accreditations focus on continual professional development, for which it is necessary periodic re-accreditations. The actors that are in charge of awarding accreditations can be organisations created by industry such as the IBC (see IBC), or public-private partnerships such as TMB (see TMB). TMB was specifically created for the accreditation on IS for SMEs. The initiator, one of the founders, and main public

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partner of TMB was the E-commerce Ministry of the Department of Trade and Industry, now part of the Department for Business, Innovation, and Skills.

Awareness Campaigns

This activity is oriented to improve the context component ‘demand’. In order to increase the demand in SMEs for specific innovations and their associated programme services, the suite of innovation policies should include awareness campaigns (Papazafeiropoulou et al. 2002). The actors in charge of this inclusion are the partnerships that formulate the integrated economic frameworks. Some relevant examples of the integrated economic frameworks are the Regional and Sub-Regional Economic Strategies required by the UK government and the Single Programming Documents required by the EU. For instance, the Regional Development Agencies take the leadership role for the development of the Regional Economic Strategies. The Regional Development Agencies could have special units that are in charge of specific innovations, for example the Directorate of Enterprise of the Northwest Regional Development Agency has an Information and Communications Technology unit as coordinator for all the IS policies in the region. So, the labour of this kind of units is central for the development of particular and structured IS policy strategies.

Simplification of Contractual Procedures

This activity is oriented to improve the context component ‘demand’. In order to start programme operations on time and have better chances to reach targets, the procedures to edit and sign contracts between the funding bodies and the programme organisations must be shortened. Vega (2010) and Vega et al (2010) found evidence of delays of many months, even more than a year, in all the ERDF and RDAF funded programmes that were approached in the fieldwork. This administrative issue makes it worse the effect of the inherent low demand for services oriented to innovations. The actors in charge of doing this process reengineering are the funding bodies, specifically the DG Regional Policy and the HM Treasury. However, the actors that negotiate the contracts on behalf of the funding bodies are their regional delegates.

More Comprehensive Set of Services

This activity is oriented to improve the context component ‘alienation’. In order to make programme workers participate more in each SME adoption process, programmes should deliver services that cover most of the SME needs. For instance, strategic assessment, planning of the implementation, selection of providers, design and development of IS, as well as training in the use of the IS. Chapman et al. (2000) and Wolcott et al. (2008) proposed a similar end-to-end approach. The selection process of programmes should include this criterion. The political actors responsible for proposing this general range of services should be the EU and national entities in charge of SME policies. However, the implementation of this requirement must be in charge of the funding bodies and their regional delegates.

Modification and Reduction of Numerical Targets

This activity is oriented to improve the context component ‘alienation’. In order to make programme workers participate more in each SME adoption process, the targets must be more qualitative and any numerical indicator must be reasonably ambitious. As explained, qualitative targets would be more connected to the success of the entire SME adoption processes as well as to the actions and inactions of the programme workers. Apart from that, a reduction of the magnitude of the numerical targets would automatically increase the time and other resources that could be assigned to individual interventions. This is a matter of understanding productivity in public service provision (Hamilton 1972). The political actors responsible for proposing these general evaluative modifications should be the EU and national entities in charge of SME policies as well as the funding bodies.

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Conclusions

Apart from the extension of the DA approach to determine innovation policies, this study presents a series of relevant contributions. To start, the responsibility for the improvement of programme contexts relies on numerous actors, who are located outside programme organisations. For example, EU and national funding bodies, private evaluators, SME associations, EU DGs and government departments in charge of SME policies, Government Offices for the English Regions, Regional Development Agencies, public-private partnerships, and Sub-Regional Economic Partnerships. Programme organisations could develop some activities to try to improve their operative levels, i.e. resources, demand, and alienation conditions. For example, strategies of personnel selection and development, programme marketing, as well as performance appraisal and reward management. However, even in these situations programmes still depend on the system.

In fact, if the system allocates low levels of funds to the programmes, programme organisations will not be able to implement any meaningful initiative to improve context conditions, e.g. personnel selection and development strategies to improve human resources. A similar effect has the stretching numerical targets set for the programmes. As higher the targets, the lower the level of resources that will be allocated to each assistance. The combined effect of little funds and high targets is even more problematic. Another case of the dependency on the system are the marketing strategies that could be developed by programme organisations in order to increase the demand. These initiatives will do little if the system does not work properly in terms of the awareness of innovations. As a final example, even fine-grained programme strategies of performance appraisal and reward management to control alienation will be impracticable if the system continues misdirecting the evaluative indicators.

To complicate things, all of our recommendations depend on political decisions. The clearest examples are the modification of the evaluation design, the creation of an independent evaluator organisation, the empowerment of SMEs, the market competition simulation for programmes, and the modification and reduction of numerical targets. In addition to the many public organisations at different levels of government, there are numerous interest groups, such as universities, programme organisations, SME associations, private evaluators, professional bodies, as well as private service and product suppliers, which could have different objectives over time. In general, the interests of this complex network of actors and their relative power make the work of reforming the provision of public services an especially difficult task. For this reason, I suggest using the ‘political economy’ framework to research the systems of innovation for the public support to SMEs, above all at the highest levels of government.

Under this complexity is that we see one of our recommendations to improve programme contexts as critical, namely ‘SME empowerment’. The active participation of SME associations throughout the policy process could counterbalance the political and group interests with the technical view of the beneficiaries of public services. To make this effective, we consider that ‘universities’ have the relevant role of disseminating to the SME associations the results of the research on the outcomes of SME innovation, the value of public programmes, and on the contextual components that impact both programmes and innovation processes. This responsibility is even more compelling taking into account that universities are in charge of part of the design, administration, implementation, and evaluation of public services. Therefore, the linkage between SME associations and universities becomes a pivotal activity in the system of innovation in order to get structural changes in the delivery of the public programmes in question.

Finally, the SIA and the DA used in this study open a multidisciplinary and methodologically pluralist research agenda on SME innovation. Our recommendations to improve programme contexts are examples and therefore there should be more activities that could improve these contexts. All the possible recommendations should be affected by their own set of institutions and should be linked to other activities in the system. So, the cycle of DA could be required in multiple instances for each recommendation. In addition, the diffusion of IS in SMEs is directly affected by more than just public programmes. There are other determinants such as the diffusion of complementary innovations, the development of IS in application service provider technology, the setup of fiscal, legal, and regulatory frameworks to trade online, the development of leadership and innovativeness in SMEs, power in the supply chain, and trust among business partners. The research of all the determinants that directly affect SME innovation, not

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only public programmes, should be extended under the conceptual base of the SIA and the DA in order to
give a deeper and relevant value to practice.

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