

THE E-PROCUREMENT EXPERIENCE IN ITALIAN UNIVERSITIES

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ABSTRACT. This study focuses on the main problems of the design and implementation of e-procurement in Italian Universities. We look at the main features of e-procurement in a university environment, through an analysis of various documents and reports, together with interviews with some of the key actors involved. The most important aspects of its adoption and the consequences for process management and organization itself are highlighted. The results of those phases of the project that have already been implemented (the “pilot projects”) are discussed. We conclude by drawing up an overall assessment of the actual status of the project.

INTRODUCTION

E-procurement (also known as “E-proc”) has been receiving increasing attention as a result of the significant advantages it offers in terms of cost saving in purchasing and of the greater efficiency of the purchasing process and of organization as a whole. In 2000, the Italian Government launched a plan for reengineering the procurement process within the Public Sector. Initially this project was designed for Central Administration, though it was clearly going to be extended to other public structures such as the Public Health Service, Local Administration, schools and so on.

A fully state-owned company, Consip SpA, was entrusted with the design and implementation of the project, and was to explore and introduce the latest e-procurement technologies. The case of e-

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procurement in Universities turned out to be one of the most interesting of a number of such experiences, mainly due to its complexity rather than its size [1,640 millions Euro out of a total amount of 96,660 for the Public Sector (Consip Annual Report, 2002)]. In general, a University has an extensive, complex purchasing structure. Moreover, a sizeable percentage of the goods/services bought tend to be highly specialized, thus making Universities an interesting “laboratory” for the testing of new procurement techniques.

Furthermore, the academic world showed a major commitment to the project, looking for solutions that could provide additional resources to supplant the constant reduction in its public financing. Finally, its superior potential in terms of learning and of the selection and retention of knowledge and best practices was widely acknowledged.

This case study analyses the main aspects and problems that emerge from the concept and implementation of e-procurement in universities. It aims to identify those factors and conditions which seem necessary for success. The project started in May 2001, and due to its ongoing status we cannot yet draw any final conclusions. However, in our opinion some interesting results are already evident.

The study is split into two different sections. The first one focuses on the planning and implementation of the project. We have analyzed many different documents, such as official reports, presentations and plans for future actions, as well as e-mail exchanges, and we have interviewed those consultants and members of the University who were involved in the project. One of the first results is that choices tended to be made in order to take advantage of the various benefits provided by e-proc solutions. The initial objective was to obtain cheaper prices from suppliers. However, the aggregation of joint demand, improved data collection for the development of control and benchmarking systems, a more efficient system of communication and greater integration between purchasing centres also became relevant goals, together with the generation and exchange of knowledge. In the second section of the study, we shall be describing those parts of the project that have actually been implemented so far. Our aim is to investigate the results obtained and their main implications. In order to provide a further check on the progress of the project and to identify any potential weak points, we interviewed several people working at the purchasing centres.

LITERATURE REVIEW

E-procurement technology has been defined as “any technology designed to facilitate the acquisition of goods by a commercial or government organization over the Internet” (Davila, Gupta & Palmer, 2003, p.11). Generally it tends to be identified with the adoption of Internet-based systems for the purchasing process, but strictly speaking it should be seen as “a leap in the development of extended enterprise” (Neef, 2001, p. 38). E-procurement has been mainly studied in the business sector, but studies within the government sector have also been carried out (Mitchell, 2000; Neef, 2001; Panayiotou, Gayialis & Tatsiopoulos, 2004).

In their seminal work, Malone, Yates and Benjamin (1987) analyse three remarkable effects of IT on purchasing, concerning (a) the reduction of costs of communication, (b) the higher market transparency, which consequently leads to a cheaper sourcing process, and (c) the easier and faster information exchange, that can provide better coordination and collaboration mechanisms. Bartezzaghi and Ronchi (2004) note that currently these three issues can be identified with “e-procurement”, “e-sourcing” and “e-collaboration”.

The wide variety of solutions and the different approaches of the adopters suggest that e-proc is still in its infancy, i.e. at the first stage of the technological S-curve (Davila et al., 2003). However, classifications of the available solutions have already been proposed. A classification based on ownership has been provided by Agheshin (2001), while Deloitte Consulting distinguishes e-proc solutions on the basis of the content and features they offer (Solomon, 2000). Moreover, Skjøtt-Larsen, Kotzab and Grieger (2003, p. 200) define the Internet-driven electronic marketplace as “a place on the Internet where many business buyers and suppliers meet, trade and collaborate” and examine the topics of their various different configurations. Whitaker, Murphy, Haltzel and Dik (2001) focus on the diverse types of interaction between buyers and sellers. Bakos (1997) models an electronic-market mediated buyer-seller relationship. The suggested reduction of buyer search costs seems to have significant impact on market equilibria, leading to increase resource allocation efficiency and higher level of competition among suppliers. Choudhury, Hartzel and Konsynski (1998) empirically analyse uses and consequences of electronic marketplaces in the aircraft parts industry. Their results suggest that the use of marketplace is driven by a set of

variables including the two ones already treated by Malone et al. (1987: i.e., asset specificity and complexity of the description) but also market variability, frequency of purchase and product value. Moreover, the use of electronic marketplace is not systematically associated with better price for the buyer, and the role of brokers still remain important, even though with a changed nature of their added value. The authors recognize that both these results could depend on industry and marketplace specificity (in fact, they have investigated a marketplace which only offers product information but not prices, and which cannot be used to select the supplier or to complete online transactions).

A recurring issue in e-proc studies is the analysis of its potential advantages. Chopra, Dougan and Taylor (2001) state that they can derive from reduced transaction charges, improved market efficiency and enhanced supply chain benefits. Croom (2000) investigates the impact of e-proc on MRO supply, highlighting two operative and two strategic advantages. Essig and Arnold (2001) show how e-procurement deeply empowers the buyer's position because of both the greater ex-ante and ex-post information it can guarantee in the purchase of search, experience and credence goods. Presutti (2003) points out that supply managers are now asked to make out the business case for e-procurement, as it represents a significant opportunity for shareholders to increase the creation of value.

Attaran (2001) classifies e-proc benefits into three different categories: (a) strategic, which concerns organizational changes and market advantage, (b) opportunity, mainly related to improved and unexplored relations with present or even new suppliers, and (c) operational, that means cheaper and more efficient purchasing process. Roche (2001) emphasises the benefits coming from immediate availability of information, paperless process and supply chain integration. Among the benefits above-mentioned, this last one is quite important especially for small suppliers, that can reach integration with their customers without recurring to expensive EDI solutions. In their explorative work, de Boer, Harink & Heijboer (2002) investigate the impact of different e-proc solutions on a firm's integral purchasing costs. Firstly they define six different electronic procurement forms, then for each of them they analyse the impact on organization and on some categories of purchasing costs. They make a distinction between direct and indirect impact on costs. The study doesn't show clear evidences anyway, leading the authors to conclude that the assessment of the direct

but especially the indirect impact of electronic procurement is far from straightforward.

The down side of e-procurement has been explored by Gilbert (2000), who when presenting practical experiences, underlines the various difficulties involved. In particular, he focuses on the problems of system integration, suppliers' backwardness and the resistance from consumers and professional buyers. Jap (2000) recognizes that on the one hand, reverse auctions (one the most common e-procurement tools) stimulate competitiveness of the supply base and suppliers' willingness to make dedicated investments on behalf of buyers, but on the other hand, they can undermine relationships with suppliers. Moreover, the remarkable price reduction they induce cannot be sustained by some suppliers over the long term.

The adoption of suitable solutions in different situations has been studied by Smeltzer and Carter (2001) and Kaplan and Sawhney (2000). This latter study refers to a classification based on an analysis of expenditure proposed by Ellram and Olsen (1997), and it provides four different e-hub solutions, each one covering a specific category of goods. Bartezzaghi and Ronchi (2004) develop a portfolio approach based on a survey research, and through cluster analysis they identify four different e-purchasing strategies. They also show how different situations, in terms of objectives and purchased material typologies, drive the various approaches, and finally they add an investigation on performance of the different choices.

Studies of e-procurement are still of a mainly empirical nature. One of the first attempts at defining a theoretical framework has been made by Boyer and Olson (2002), whose declared aim was to link the internet-enabled purchasing performance to a set of drivers, some of them company-specific, others based on Internet factors. A more descriptive model of how to succeed in e-business has been elaborated by Barua, Konana, Whinston, and Yin (2001), and is based on eight enabling drivers.

Finally, in this rather uncertain, constantly changing scenario, efforts have been made to find lasting, competitive solutions. Such contributions include the work of Kalakota (2000), Wise and Morrison (2000) and Whitaker et al. (2001).

DESIGN AND IMPLEMENTATION OF THE PROJECT

The Public Procurement Model: The Role of Consip SpA

The University E-procurement project has constituted a vital step in the process of rationalization of the Italian government's expenditure on goods and services. The Italian government launched its own plan for reengineering the public procurement system in accordance with the guidelines laid down by the EU "E-Europe" document and with the previous experience of other European countries. The plan was part of the 2000 Finance Law, and has been subsequently updated and perfected. In our view, three main aspects of what is a rather complex picture ought to be mentioned here:

- a) The constitution of an innovative government procurement system, based on digital procurement tools;
- b) The adoption, for the first time in public procurement, of a delegation method during the sellers' selection phase (Bertini & Sciandra, 2001); in this way, each single agency leaves the tasks of choosing suppliers and stipulating contracts to the Ministry of Economics and Finance, which in turn entrusts these tasks to an external society, Consip SpA. Consip basically acts as a supporting structure for the government, which continues to exercise control over the ordering of supplies (Spagnolo, 2001);
- c) The development of a purchasing system which is expected to contain unit costs by aggregating demand and transaction costs by means of the centralization of the selection process [whereby individual agencies avoid the cost of organising and managing tenders (Catalano & Gallo, 2003).

Consip SpA, which is responsible for implementation of the e-procurement tools, has developed an operative approach whereby the various goods bought by the Public Administration are matched by the appropriate procurement solution (Consip SpA, 2002). According to this approach, the types of supply and demand have been identified as relevant variables, which can be represented, respectively, in the form of a couple of proxies, that is, "technology & price volatility" for the former and "purchasing frequency" for the latter (Zanoni, 2004).

Once these proxies have been plotted on a chart, they enable different sectors on the diagram, corresponding to categories of goods treatable with the same e-proc tool, to be identified: this tool could be

some form of digital catalogue, on-line auction or electronic marketplace¹. Thus a convenient way of purchasing a large batch of personal computers (high volatility but low frequency) seems to be the reverse auction, while as purchasing frequency grows, as in the case of software packages, the marketplace is probably a better option (Bertini & Sciandra, 2001). Consip SpA is the “middleman” between the purchasing points and the suppliers. It is in charge of the drawing up of the electronic catalogues, managing the different phases of the process, including requirements analysis, vendor sourcing and selection, business negotiation and the establishment of contractual terms.

The constraint in the utilization of the catalogues that each single Administration is subject to has evolved during the development of the project. The focus was originally on the joint expenditure of the Central Administration (amounting to an estimated 2.48 billion euros), which was forced to use the catalogues. The 2001 Financial Law extended the option to use the said catalogues to other public structures such as local governments, the health service and universities, in keeping with an “untying model” (Catalano & Gallo, 2003): they were not forced to adhere to this scheme, but were asked to justify any external purchases made at less advantageous terms and prices (Spadaro & Nobile, 2003). We will briefly discuss recent modifications in the relationship between Consip and local governments at the end of the present paper.

The Case of Italian Universities

Since the demand for cost savings and improved efficiency also characterised universities, specific actions designed to satisfy these needs were conceived, together with their appropriate implementation. This project was supposed to be complementary to the previous one. Its aims were purchasing optimization, simplification of procurement procedures and the spread of the e-procurement culture (Catalano & Gallo, 2003, p.35).

In this present section we are going to describe the hypothesized pattern for the adoption of e-procurement in universities, and the most suitable ways it may be implemented. The expenditure of the higher education sector may be sub-divided into two macro-categories: the first of these is also shared by other entities, while the second is specific to academic institutions. The latter is partly homogeneous among all universities and partly shared by only a few universities or not shared at

all [such as certain assets specific to research and teaching activities (Bartezzaghi & Kalchschmidt, 2004a)].

This classification is extremely useful when it comes to defining the e-procurement pattern for universities, because an appropriate intervention can be exploited for each category. Shared expenditure (including various services, stationery, fuel, etc.) can easily be managed using the same electronic catalogues already used by the government sector: thus the point is to publicise these tools within the purchasing structures of universities, and to help people learn how to use them.

In the case of standard expenditure (i.e., building facilities and services, insurance, meal tickets, classroom equipment and furniture) specific action focusing on the aggregation of needs is suggested. Since the 2001 Financial Law recommends that Local Administration join together and launch their own electronic catalogues (Spagnolo, 2001, p. 33), this could be a prime solution. Another stimulating one could be the creation of “centres of excellence”, consisting of a network of universities, each one specializing in particular goods/services categories and satisfying the requirements of the whole network. The added value of such a solution lies in the economy of experience and the great skills systematically acquired within the individual categories (Zanoni, 2004).

Finally, different solutions should be considered for highly specific goods/services, based on their degree of standardization. For example, teaching equipment, classroom furniture and magazines could be purchased through electronic catalogues, while the marketplace or auctions would be better suited to specific software, technical equipment or special machines, depending on the respective purchasing frequency and unit price.

The final version of the e-procurement system is expected to be based on a portal integrating the different tools, so the potential buyer will be able to choose the most appropriate one according to his/her needs. Extensions of the catalogues and of the marketplace, or involvement in auctions will also be hosted on the portal, thus increasing opportunities for the buyer. The described intervention should efficiently respond to the shortcomings of current academic procurement such as the clear predominance of private bargaining over public bargaining, the low average value of individual orders, and the excessive number of suppliers (Bartezzaghi & Kalchschmidt, 2004b).

Implementation of the Model

We now move on to analyze how the described model could be implemented. First of all, communication and sponsorship measures have to be sustained in order to improve people's awareness of e-procurement aims and opportunities, in particular electronic catalogues. A feasible scheme could include meetings, training sessions for purchasing operators, circular letters and dedicated mailboxes. We are less optimistic about the effectiveness of newsletters, which tend to be ignored when official communication channels are in use, because of their informal nature. As well as the spread of knowledge, promotional action is also required; this has to come from the universities' top management, who are responsible for officially recommending the adoption of innovative tools, and for underlining their considerable advantages.

In the mid-term, there would also seem to be a need for a wider-ranging form of action, one that directly affects the organization itself, in order to institutionalize the model. We believe that a dedicated structure - - basically, an "e-proc" office -- has to be introduced, working on different tasks according to the different needs and available resources of each university. The need for the creation of this structure is due, on the one hand, to the lack of technological skills in the peripheral centres and, on the other hand, to the variations in the purchasing process that come from e-proc adoption. Particularly, they may concern new regulations which are currently ignored by the decentralized offices. Whatever its chosen configuration is, the office must at least provide for the spread of knowledge, consulting tasks, training and the interface with Consip SpA.

In other words, the "spread of knowledge" implies the prompt communication of new purchasing enterprises (in the form of new catalogues or in-process auctions) or services (for example, the report of a successful experience) and the evolution of regulation. "Consulting" concerns support for the daily usage of tools, including summaries of contents and schemes of contracts and off-line support -- together with other instruments managed directly by Consip, such as the call center and an "ask the on-line expert" service. Moreover, the office could provide help to auction organizations, offering standardized forms and reports on similar cases; it could also support users' registration and their subsequent use of the marketplace. Finally "training" should basically

consist of specific meetings and practical lessons for the operators, together with an e-learning project conceived by Consip.

As we previously mentioned, weightier forms of the e-proc office are also possible. For example, it could act as a requirements planner for the various different structures, thus becoming an aggregator; control and monitoring are a further two services it could provide. In its most complete version, the office takes on a genuinely operative role, buying directly for the different users. In this way, it comes to be the fulcrum of the “centres of excellence” model that should be adopted for the standard expenditure of universities. In addition, the operative e-procurement office could take on formal responsibility for auctions management, and it could finally provide new categories and suppliers that can be part of the marketplace. Qualified managers and an adequate amount of resources are clearly essential for this ultimate version. A wide treatment of e-procurement office’s configurations and tasks is available in Catalano (2004).

Together with this “cross-section” communication and promotion measure, the implementation of the model also envisages the testing of innovative purchasing. It focuses on the various categories of universities’ specific expenditures, and appears to be important for many different reasons. In order to perfect the system, whereby each University is perceived as an autonomous buyer, a period of transition is necessary during which the operators manage to (a) become more familiar with digital procurement tools and the management of the new purchasing processes (such as the on-line reverse auctions); (b) develop a deeper knowledge of the peculiarity of their expenditure, so that the most convenient tool for each specific case can be chosen; (c) acquire skills in the field of supply analysis; (d) reach a qualified level of purchasing management; (e) test aggregate purchasing behaviour, and take advantage of the consequent benefits. These issues represent an adaptation of the organizational changes which occur in the procurement context when a technological innovation takes place. It has to be considered that in this particular case, innovation opens a wide range of previously ignored opportunities in terms of larger market dimension, involvement of new, geographically distant suppliers, and quicker aggregate demand evaluation and management.

For all these reasons, three pilot projects were designed and launched, targeting expenditure on buildings’ services, magazines and

technical-scientific equipment. We shall now take a closer look at the last of these. The e-procurement approach we are suggesting may also include another important aspect, even though no practical steps have been taken in this direction. This is the opportunity of joint action -- involving both the universities and the other local governments -- over partially common needs such as furnishings, cleaning and maintenance. At the moment these goods/services are acquired on local markets through traditional systems, but they could be effectively procured through special electronic catalogues listing both local buyers and suppliers. Moreover, local governments could directly provide those categories which are of significant importance to them but of only marginal importance for the Universities, as the limited increase should not complicate the procurement process.

Finally, we would like to point out the different roles Consip should play, depending on the type of goods and the market structure. For shared goods, Consip is clearly the primary administrator on the national market, and it should act as a local aggregator among the different government entities when the suppliers are smaller and the market is regional. For specific goods on the national market, Consip could be a sectorial aggregator of specific entities (such as universities, health care organizations, etc.) and just a supporting player on local markets, providing information systems, market analysis etc.

INITIAL RESULTS AND DISCUSSION

After the description of the purchasing model and its implementation, we shall now analyse what results have emerged from its initial use. A committee composed of representatives from the Ministry of Finance, the Ministry of Higher Education, and members from the academic world (CRUI² and Codau³), was in charge of the strategic management of the project, according to the ministerial decree issued by the Ministry of Economics on the 7th of May 2001. Its job was to establish the priorities and guide lines of the project. A project management team was responsible, however, for the implementation of the project, by defining and coordinating the activities of “third-level groups”, constituted by groups of universities and supported by Consip. Each group had to focus on a specific task, such as the experimentation of new purchasing techniques or communications and promotional measures (Catalano & Gallo, 2003, p.35).

With regard to the issue of communications, a number of meetings were organized to explain the terms of the project and its potential benefits to those responsible for purchasing. Then the purchasing operators were involved in training sessions in order to acquire further familiarity with the new electronic tools, particularly the government portal for on-line purchasing. Moreover, the traditional channels of internal communication were used, and a newsletter service was activated. A significant increase in the number of registrations to the electronic catalogue service was assessed by Consip after these measures had been taken.

In February 2003, together with the e-proc office, we conducted an explorative survey⁴ among the purchasing structures of our university, with the aim of evaluating their commitment to the digital catalogues. The current level of usage is below our expectations, also because only two catalogues (stationery, 59.4%; IT equipment and material, 62.5%) had moderately high values. As the survey has been conducted in order to obtain a first picture of the levels of usage, it lacks in a deeper analysis of their antecedents. However, considering also the answers we received from the purchasing operators during the interviews, we think that some of the reasons that may justify these results are the lack of familiarity with the new tools; the existence of current contracts with other suppliers; the restricted number of operating catalogues that were not covering the whole portfolio of required goods/services, therefore making the traditional procurement still necessary.

The 2003 Financial Law actually forced each single entity to use the catalogues, and this led to an increase in registrations and orders placed. In order to verify how the system was working, the Codau launched a poll designed to highlight its criticalities.⁵ The results were in keeping with the evidence emerging from the interviews that we conducted with purchasing operators of different departments within our own university.

The greatest downfalls mainly concern stationery, reams of paper and personal computers. Problems derive from the unsatisfactory quality of products, inadequate delivering times and scarce supply variability. We consequently argue there are some problems concerning the specifications of the products sold through the digital catalogues. The award of contracts perhaps placed too much emphasis on economic aspects, while the quality of the products was often not perceived as adequate by the final users. The point is that traditionally the government

procurement process was directed to intermediaries instead of directly to the manufacturers, so there was no need for accurate specification of the technical requirements of the product. A specific product was chosen, and the dealers were simply asked to bid for it, the lowest price being the order winner. This procedure is no more effective when manufacturers are involved, because a particular product cannot be chosen *a priori*. Consequently, the complete knowledge of the product and the ability to exploit it in well-done and precise technical specifications assume a prominent role. Even though stationery is a commodity and consequently should be easily treatable by electronic tools (Schneider & Perry, 2000), we think indeed that considerable knowledge of, and familiarity with, the product is a clear prerequisite. In fact, this enables the buyer either to establish the specifications the product must possess, or to directly specify the desired brand.

The latter hypothesis does not seem to be appropriate to public procurement, as it sounds too restrictive for potential suppliers. It could also compromise total cost savings, and reduce the number and variety of supplies. The first one appears to be more feasible, by involving qualified purchasing professionals in a centralized office, or otherwise by instituting some centres of excellence. As for the other aspects, lengthy delivery times can generate delays in research projects, while scarce variability of the products -- commonly associated with the computer catalogue -- does not correspond to the heterogeneous requirements of users: for example, researchers and department secretaries obviously ask for different configurations. The electronic marketplace would seem to be much more suited to this kind of good.

Results regarding prices are less uniform. According to our survey, savings were indicated by 28 purchasing centres out of 32, whereas dissatisfaction with rising prices appeared in the Codau's poll, particularly in the case of stationery and reams of paper. An interesting dynamic occasionally emerges from the interviews we conducted; this is the re-negotiation at lower prices between the purchasing structures and their traditional suppliers -- Consip's prices constituting the benchmark. This fact is mainly due to a reduction in the asymmetrical nature of information (Afuah, Tucci & Virili, 2001), and it provides immediate benefits to the buyer, who simply obtains better conditions *ceteris paribus*. However, problems may emerge in the mid-term. The "official" Consip-selected suppliers, faced with lower orders than expected, would not confirm the same economic conditions in future agreements.

The e-Procurement Offices and the Current Situation

With regard to the design and implementation of the project, we recommend the institution of special e-procurement offices. We analyzed the case of two universities (the University of Bologna and the Polytechnic of Milan) in which similar structures have been set up. Both offices are fully operative for communication and consultancy at the basic level. They provide general information and new e-procurement activities, and they also support the different structures managing the digital tools. Moreover, documents, schemes and summaries are now available on-line.

So far, the e-proc office in Bologna is not involved in more complex tasks. Even though it has provided considerable support during the pilot phase involving its own university, it is not yet fully operative with regard to purchasing, and neither is it proactive in aggregating expenditure or exploring new e-proc opportunities.

The Milan experience is indeed at a more advanced stage. First of all, the e-proc office evaluates the convenience of Consip's supply, as the Polytechnic has developed its own system of catalogues. Moreover, the office is frequently involved in the implementation of internal measures aimed at aggregated purchases. It plays various different roles depending on the case in question: it can offer support to the central administration in centralized purchasing, or it can directly lead and coordinate action when peripheral centres are involved.

If we analyze the national panorama of suggested purchasing strategies, we notice that auctions are still generally ad hoc rather than systematic events, and they rarely involve a significant amount of universities. With regard to standard expenditure, the first university-oriented catalogue has recently been started up. It lists furnishings and fittings for teaching activities. It is managed by Consip, although the six universities involved have made a significant contribution to defining its technical specifications.

No steps have yet been taken to implement the "centres of excellence" model. In a certain sense, the University of Bologna is a rather advanced knowledge-holder as far as the organisation of auctions is concerned, given that it has taken part in three different ones so far, each time playing an increasingly important role. Nevertheless, the specialization of categories and not tools was the central idea for the

model. Finally, the Public Administration is currently experimenting the e-market.

Results from the Pilot Project on Technical-Scientific Equipment

Six universities were involved in the project. As the acquisition of knowledge about this kind of equipment was required, a sample of chemistry, physics and engineering departments was selected and a data request sent to their respective purchasing operators. They were asked to report those technical-scientific items purchased from 1999 to 2001, including information about prices paid and suppliers. An analysis of the results reveals five “quite homogenous for the usage” categories. Of these, two were definitely specific to each department: we will call them “technological infrastructure” and “measurement and analysis instruments”, which each department used to acquire in an exclusive manner (i.e. it did not share them with other departments). However, it has to be said that departments from different fields of research were selected in order to ascertain whether any common expenses arose; the categories that we have identified as “specific” would obviously be less specific if we considered departments within the same fields of research.

Two more categories included common purchases among departments: i.e. “consumer materials” and “teaching equipment.” The fifth one, generally called “IT equipment,” was rather standardised with regard to its simpler components such as monitors and printers, but became more specific with the increasing complexity of the product. The aim was to identify and then train in those innovative purchasing methods -- particularly reverse auctions and marketplaces -- capable of fitting such different categories. Reverse auctions are suggested when the frequency of purchase is low, and a matchmaker should be used in the case of less specific products, so that the aggregation of demand becomes easier; as the frequency grows, the marketplace is to be preferred. The experimentation of this operative scheme has so far involved the reverse auction. Two auctions were organized to purchase 38 projectors (the total requirement from 5 universities) and 13 fume cupboards (for 3 universities). The choice of these two kinds of goods was partly contingent and partly due to the progressive exploration of increased managerial complexity. The specific categories are definitely more expensive than the common ones, nevertheless the experimentation started with a standard item, the projector, whose specifications were easy to define. In addition, no particular after-sale services were expected

to be necessary. With regard to the fume cupboards, the principal intent was to explore the extent of the aggregation of expenditure that such a complex item could afford. To give an idea of the difficulties that emerged over aggregation, 8 different types of the product had to be included in the technical specification form to buy just 13 items.

Both the auctions gave good economic results⁶, although some problems arose regarding the cupboards after the awarding of the contract. They concerned non-suitability issues such as high noise, delays in the plant etc. Basically, these problems concern something that had to be specified before the auction took place, so that the question of the importance of qualified buyers emerges once again. Moreover the high possibility of customization of the product and the impossibility of obtaining an agreement on behalf of the users did not produce scale advantages.

Different management models were adopted in the two cases, partly because Consip acted as contractor in the first one, while the University of Bologna did in the second (representing the various universities involved). Consequently, in the first auction the academic subject only partially provided the definition of requirements and technical specifications, before delegating formal responsibility for contact with the suppliers and the bureaucratic aspects to Consip. In the case of the fume cupboards, the University of Bologna took over many of these tasks, while Consip maintained a supporting role, and it also screened the market and lent the digital platform for the auction. The described progression is in keeping with the desire to see the university as an autonomous buyer in the definitive situation.

The University of Bologna then organised a third auction for the purchase of a batch of “small factor form computers”, thus continuing to explore new criticalities. This auction was a “beyond the EU threshold” one, that is, one involving greater advertising action. Moreover, a different system of awarding the contract was tested, whereby the winning bid was judged to be “the most convenient overall” rather than just the cheapest one. The economic results have been encouraging, as a 57.76% saving on the starting price was reached. We think that the convergence of all the buyers on just one single configuration of the product has definitely played the crucial role in assuring this good result. It also seems to indirectly confirm our impression concerning the reasons which eventually compromised the previous auction for the cupboards.

When a deep, hardly-definable customization of the product can take place, and the requirement of the single item is low, scale effect and the effectiveness of the whole purchasing process tend to reduce. It is our opinion that, if the cupboards auction had involved a simpler configuration (for example, cupboards for teaching laboratories instead of research-oriented ones), there probably would have been higher demand aggregation and better economic and technical results.

The “small factor form computer” auction provided some further considerations on strategic sourcing. In order to involve the highest number of sellers, a screening of the market has been conducted, revealing a rather different landscape from what was expected. Supply concentration has not emerged as high as it was thought, so that a considerable number of suppliers (17) took part in the auction, more than three times over that known before the sourcing procedure was conducted. Moreover, the auction by itself and the revision of the sourcing process it implies seem to assure some advantages as they go to break a well-established, repeated and routine purchasing scheme which at the end risks to leading the seller to opportunistic behaviour (CAPS Research, 2003; de Boer et al., 2002).

CONCLUSIONS

In the present study, we have started to explore the e-procurement experience of Italian universities. We have managed to define an operative purchasing model and to suggest some steps by which this model could be implemented. It has been conceived by taking into consideration the specificity of the academic environment, and trying to have it complement the one characterising the public administration. Initial results suggest the interesting potentiality of the system in terms of cost savings and higher process efficiency. However, in order to fully exploit the potential benefits, there appears to be a fundamental need for suitable familiarity with the tools, a correct knowledge of the types of expenditure, and qualified buyers.

Finally, it should be pointed out that any evaluation of the experience is complicated by the inconsistent set of rules. The 2004 Financial Law, in breaking with the previous one, establishes the use of electronic catalogues as optional. In our opinion, this choice will underline the problem of the quality of agreements. Without any regulatory provisions, the catalogues will probably be used once both competitive standards of

quality and cost savings are guaranteed, unless collusive behaviour is seen.

NOTES

1. We intend an “electronic marketplace” as a virtual space where buyers and sellers can meet and trade on-line. It hosts different qualified suppliers that offer their products through catalogues. Dynamic pricing is admitted as the suppliers are supposed to change the prices, operating in a competitive environment.
2. Conferenza dei Rettori delle Università Italiane (i.e., the Conference of Italian Universities’ Rectors).
3. Convegno Permanente dei Dirigenti Amministrativi delle Università Italiane (i.e., the Permanent Pool of Italian Universities’ Administrative Managers).
4. Questionnaires sent: 135. Received back: 47 (34.8%). Entities using the catalogues (at least one): 32 out of 47 (68.1%).
5. The results refer to July, 7th 2003, and include responses from 14 universities and 16 departments within the University of Bologna.
6. Money savings results: for the projectors, 54,740 € less than the fixed base of the auction (i.e. 28%); for the cupboards, 22,000 € (i.e. 31%).

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