

Management and Procurement:
Identifying Efficient Processes in the Lombardy Region

Report Presented to ARCA LOMBARDIA:
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I. Executive Summary

The goal of ARCA's use of resources is to streamline procurement policies, further aggregate the needs of the tender, and apply the Hub & Spoke model to the procurement process through delegating and identifying centers of excellence. As a result, ARCA requested consulting services addressing the following concerns:

- How to improve periphery relationships from the center through the implementation of organizational arrangements and coordination methods;
- Which goods & services can, or should be, standardized and integrated into ARCA's Hub & Spoke model, including the impact can we expect from the market.

Approaching the Problem

Building Capacity and Dialogue:

Empowering Small Municipalities to Improve Periphery Relations

Working with small municipalities is a new market for ARCA. Often, smaller municipalities lack capacity to have a specialized procurement agent on staff. As a result, we identified policies and instruments that would be crucial to gather dispersed needs. Our focus includes instruments that allow small municipalities to engage in dialogue with both ARCA as a centralized body, and to ensure mutual trust and accountability. The hope is that our recommendations help to empower small local authorities to directly manage those purchases which cannot be delegated. In our analysis, we focus on three specific case studies with e-procurement and managerial best practices in Portugal, Germany, and the United States. Our research resulted in a process with specific action items within each of the following process functions: Diagnose, Implement, and Evaluate.

Standardization:

Determining the Categorization of Goods & Services

In order to further the indirect benefits of centralization and enable efficiency, we identified various categories of goods and services that should be integrated into ARCA's Hub & Spoke model or managed by peripheral authorities, while keeping in mind the impact on the market. In particular, we looked at which types of purchases are more likely to be aggregated based on

complexity or strategic significance. Additionally, we identified strategies to avoid excessive concentrations and market distortions.

Our recommendations include: categorize goods and services according to characteristics of the good and the supplier market; establish contract mechanisms and communication to counteract potential market distortions; and establish benchmarks for the implemented procurement process for goods and services.

Aim of Strategy

In providing recommendations for ARCA, we sought to establish a management framework within municipal public entities that would benchmark and monitor progress against the following targets (Barnsley Metropolitan Council, 2006):

- Promote a Cultural Shift
- Building Leadership Capacity
- Delivering Community Benefits

II. Background

The region of Lombardy is located in the northernmost part of Italy and is made up of twelve provinces and 1,530 municipalities, with a total population of 9,973,397 (see Appendix A) (Comuni Italiani, 2015). It is one of the most populated Italian regions and the regional GDP is 20.9% of the Italian GDP (ARCA, 2015). The region has an interesting mix of land, which can make access to services and supplies a challenge. For example, 47.1% of the Lombardy territory is flat and 40.5% is mountainous (Comuni Italiani, 2015).

The governing structure of Italy's regions adds a layer of complexity to consider when providing client recommendations. Italy is made up of Regions (*regioni*), Provinces (*province*), Municipalities (*comuni*) and metropolitan cities (*citta metropolitana*), each with their own autonomous powers. The Regions, the Provinces and the Municipalities may adopt their own statutes; however, the Italian State is vested with regulatory powers, although it may delegate executive power to the Regions. The Provinces and Municipalities have regulatory powers for

the organization and implementation of their functions (Comuni Italiani, 2015). Administrative responsibilities of the municipalities are governed by Italian law (Art. 13 of Legislative Decree 267/2000). Responsibilities that can be impacted by public procurement include social welfare, in particular personal social services and community assistance; and purchasing for education, including including school-related services such as canteens, school buses, assistance for the disabled, pre-school childcare and nursery schools (Comuni Italiani, 2015).

III. Client Profile

ARCA currently serves as the regional procurement body for the entire region of Lombardy, offering its services to all public authorities within the region. Within this group, ARCA works closely with public organizations called SIREG and Local Health Authorities. Through a service contract, ARCA sets its own institutional mission, goals and financing objectives. Additionally, it approves a Yearly Plan of Activities which defines projects and contracts to be implemented by ARCA (ARCA, 2015). ARCA's services for the region are focused on three main areas:

Framework Contract Manager

ARCA develops tendering procedures, which when partnering with public entities within the region, assists with realizing economies of scale. ARCA's management of supplies and services through centralized tender contracts have assisted with the optimization of purchasing activities at the regional level.

e-Procurement Provider

ARCA manages a range of public e-procurement solutions that are available to be used by contracting authorities and suppliers, free of charge. The goal is to manage and promote the e-procurement platform SINTEL and marketplace NECA (Negocio Electronico). According to ARCA's most recent SINTEL participation report, the Monza-Brianza Province has the highest municipality activity, with over 100% utilization in April 2015 (ARCA, 2015). And although 11 new bodies in the Province of Pavia began utilizing the Sintel procurement system, only 41% of the municipalities are actively participating in the system (ARCA, 2015).

Procurement Competence Center

ARCA offers consultancy to public authorities regarding public procurement issues. ARCA can also award tenders on behalf of other public entities and it may also delegate single awarding bodies – or “centers of excellence” within the region to implement tendering procedures. ARCA works together with similar entities at the national level to aid in establishing planning guidelines and objectives.

IV. Empowering Small Municipalities to Improve Periphery Relations

ARCA is utilizing a Hub & Spoke model to effectively manage the relationship between center and periphery procurement authorities. As the regional authority in Lombardy on procurement, ARCA seeks to adopt effective organizational and institutional mechanisms to facilitate coordination of a centralized procurement system. This shift towards centralization will require initiating a culture around new procurement strategies, building leadership capacity, and to deliver demonstrated community benefits.

Methodology

In order to identify a successful strategy around engaging local municipalities, we analyzed three case studies with regards to e-procurement adoption and municipal buy-in within three distinct countries: Portugal, Germany, and the United States. Within these practices, we identified components of the models that would be applicable to the Italian context. We looked at how Portugal was able to achieve 100% e-procurement adoption; why Germany chose to adopt an e-procurement process; and what management practices within the United States have been implemented to build external capacity and increase dialogue among partnerships.

Recommendations

Our research resulted in a process with specific action items within each of the following process phases:

- Diagnostic Phase
- Implementation Phase
- Evaluation Phase

Diagnostic Phase

The diagnostic phase is the initial step of centralizing procurement practices within the various municipalities. By investing in this stage of future planning, ARCA can ensure proactive measures around centralized procurement strategies. It is highly important that the regional authority take the time to actively communicate with municipalities regarding how ARCA can best serve them. Additionally, analyzing the current situation with procurement authorities and constructing a future plan will help ensure the strategic facilitation of a centralized system.

Task I: Conduct a Needs Assessment

A needs assessment should be performed to gather information around evaluating opportunities for improvement, identifying quick wins, and specifying product categories to centralize. To better understand the needs of the municipalities, ARCA should establish a line of communication with local contacts by convening focus groups and scheduling planning meetings. ARCA should convene the following groups to help determine the sector's needs: municipalities that have been identified as potential adopters; municipalities that are already participating; agency representatives; and experts in the field of procurement. The needs assessment stage should aid in ARCA's efforts to establish a dialogue with municipalities and better determine a strategy to meet the needs of the area.

When "outside" organizations enter a new community with the intent to build competencies and implement new strategy models, they must first understand the community. While implementing new youth cognitive behavioral models in Astana, American healthcare experts found that the initial needs assessment was key to their success in implementing a new system. By working across the cultural divide early on, American trainers were able to tailor the curriculum in real time and adjust their strategy (Nakamura, et al., 2014). In addition, a needs assessment is necessary to evaluate the capacity of small municipalities to adopt an e-procurement process and determine the likelihood of adoptions (Bhatnagar, 2002). Capacities to consider include: sharing of data and equipment abilities; information exchange capabilities; and access to e-procurement resources (such as internet access or municipalities working with CONSIP).

It is recommended that ARCA conduct a survey to municipalities to identify individual procurement needs and expectations from an e-procurement platform. Specific questions should address reasons why municipalities selected the e-procurement platform they did, why they may be relying on traditional methods of procurement, and perceptions of the regional authority. This survey should aim to address how ARCA can best serve municipalities' varied needs. By administering such a survey, municipalities will feel that they are being included in the dialogue from day one and this will help establish an environment of trust in ARCA as the regional procurement authority figure.

Portugal began with a diagnostic phase as they implemented a pilot project for e-procurement adoption (see Appendix B) with eight targeted ministries. They evaluated opportunities for improvement, identified quick wins, and specified product categories to centralize. By understanding the demand needs of municipalities, ARCA can more effectively structure policies in line with purchasing authorities. Furthermore, from surveying the needs of municipalities as the initial step, ARCA will establish a foundation for open dialogue and facilitate trust in the regional-municipal relationship. This action will empower local authorities, by including them in the process from day one.

Task II: Identify Key Municipalities to Facilitate Adoption of Procurement Strategies

ARCA should consult with its task force to identify certain municipalities with capacity and buy-in to the SINTEL platform. These key municipalities can then act as leaders in facilitating adoption of procurement practices amongst peer municipalities. For example, in the last month, the province of Monza-Brianza had 100% participation (ARCA, 2015). ARCA can further investigate what distinguishing features led to full integration in the region. *Is there a certain structure in the providence that made adoption of SINTEL easier? Was there an initiator or thought leader in the area that spurred participation?* Answering questions such as these may help ARCA determine how to get other municipalities on board.

Implementation Phase

The second phase in facilitating e-procurement adoption and centralizing procurement strategies is implementation. The following are recommendations around how to best implement a centralized procurement system with small municipalities in the Lombardy region:

Task I: Identify “Quick Wins”

Portugal went for “quick wins” in targeting ministries already on board and with the capacity to implement e-procurement strategies. The central procurement agency helped ministries identify negotiation best practices, assisted in reformulating procurement procedures, implemented strategies for reorganization and cultural shifts around the new procedures, and specified tool parameterization. They identified which key products to standardize in this phase one of e-procurement centralization. Training was given to key users in both technology as well as negotiation and sourcing strategies to empower procurement authorities. Identifying municipalities within Lombardy with the capacity to achieve the above strategies will allow ARCA to spread its presence among smaller neighboring municipalities. Municipalities that have capacity, under the guidance of ARCA, would in essence would create an opportunity for municipal procurement councils to form that will aid in encouraging an exchange of ideas and best practices within procurement.

Task II: Brand ARCA as a Resource Center

In order to maximize the capacity of ARCA and to build trust among the small municipalities that it wishes to target, we recommend that ARCA brand itself as a resource center, serving as a “hub” of information for procurement best practices, SINTEL, and other e-procurement platforms. The goal of this recommendation is to position ARCA as a thought leader in procurement within the region of Lombardy, thereby empowering small municipalities to partner with ARCA early adopters. We propose the following to implement this task:

- a. **Best Practices Outline:** Develop a list of best practices around different procurement models. This should be a list municipalities can refer to, regardless of which e-procurement platform they are using, to better understand negotiating principles, the correct process for procuring items and services, and recommendations on how to support small and medium enterprises in the community. Best practices should include knowledge from the field that provides

guidelines to create more effective practices and improve efficiency in procurement.

- b. **Publish Best Practices:** The best practice list should be published on ARCA's website. This will enable them to be a HUB of regional authority on procurement strategies. Municipalities will come to see ARCA as a resource for procurement procedures and other relevant information, regardless of e-procurement platform used.
- c. **Workflows and Web Training:** Create opportunities for existing employees through workflow documents published on the ARCA website and web training videos. These should reflect important concepts such as negotiation strategies or recurrent procurement issues to familiarize municipalities with the procurement process. ARCA has already begun to publish such training videos online and we recommend expanding its efforts.
- d. **Templates for Contracts:** Provide resources that have already stood the test of time and litigation. Enabling municipalities access to samples that reflect the standard of success will facilitate a greater understanding of procurement expectations and encourage adoption of appropriate procurement methods.

Task III: Establish A Training Model

Adequate training and human development is a crucial component of any trust building-partnership (Lobina & Hall, 2006).

Leverage Peer-to-Peer Influence

A research article on German municipalities found that peer-to-peer influence was one of the most successful strategies in the adoption of e-procurement (see Appendix C). As indicated by several interviews, municipalities rely on the experiences of peer organizations rather than on best practices developed at the federal level. Therefore, in addition to policy-makers fostering the standardization of procurement platforms, it is recommended that pioneering municipalities be subsidized and encouraged to become leaders among peer municipalities. The ability of leading municipalities to demonstrate to their neighbors that e-procurement positively impacts public procurement is likely to reduce risk perceptions, increase benefit perceptions and improve acceptance among peer organizations.

Implement a Train-the-Trainer Model

Train-the-Trainer (TTT) Model has proven effective in delivering new practices into the field in a cost-effective manner. Mostly utilized in the healthcare and education fields, TTT leverages peer-to-peer relationships and empowers professionals in the field to disseminate knowledge to their colleagues, thus furthering the field as a whole. For procurement, ARCA can adopt the TTT model to train municipalities in procurement strategies, who will in turn train neighboring municipalities (Nakamura, et al., 2014).

The TTT model begins with conducting a needs assessment and community outreach to connect to the targeted audience, as detailed above in the diagnostic phase. Second, ARCA will need to develop curriculum based on the information gathered from the diagnostic phase. The training curriculum should be specific and easy to implement. Lastly, training is conducted in two phases. The initial training, in which ARCA trains local authorities in procurement strategies, should be conducted in one or multiple participating regions to provide relevant, “on the ground” support. The initial training should also include handouts and be recorded for later reference. The second training can be conducted in Milan and focuses on providing the training curriculum to aid municipal leaders in training their colleagues. The second training is much more flexible, providing opportunity for questions, addressing any cultural or situational concerns and allowing for room to modify training documents. If necessary, follow up training and regional convenings to share best practices amongst trainers can also be arranged.

Evaluation Phase

The final phase of ensuring effective adoption is evaluation. Evaluation is an important strategy after the first round of implementation strategies. While quantitative measures can allow ARCA to benchmark the standardization of goods and services, we recommend ARCA establish qualitative benchmarks to determine the improvement of relationships with peripheral partners (Barnsley Metropolitan Council, 2006). The following is a starting point of recommended qualitative benchmarks:

Task I: Establish Qualitative Benchmarks

- For citizens, reduced tax or improved levels of service where municipalities save money
- Improved compliance of tendering process among municipalities
- Sharing of knowledge and expertise
- More efficient use of time and finance
- Larger or more advanced authorities able to help smaller councils or later starters
- Better customer service

Conclusions

Based on the above recommendations, we hypothesize that small municipalities throughout the Lombardy region will experience an increase in capacity through the transfer of knowledge and an improved open dialogue with the central authority. In addition, mutual trust and accountability can be ensured through a process that is both inclusive and transparent. This will result in a cultural shift away from distrust, empowered leadership, and overall benefits to the community at large.

V. Determining the Categorization of Goods & Services

ARCA has determined to utilize the Hub & Spoke Model as the main structure for the organization's procurement process. As the Hub, ARCA hopes to support the planning, design, management, legal assistance, and control procurement procedures for the contracting authorities that are the Spokes, in the Hub & Spoke Model (ARCA Lombardia, 2015). The main contracting authorities that act as the spokes for ARCA are: Healthcare Authorities, Public Residential Housing Entities, Regional Entities, Chambers of Commerce, and Local Public Entities (ARCA Lombardia, 2015). When a contracting authority submits a tender for a good or service, it will be up to the Hub - ARCA - to define what models of service provision to follow. These models include:

- Direct Centralized - Push
- Indirect Centralized - Pull

In order to obtain the “best value” in the procurement of goods or services by contracting authorities, a technical task force within ARCA selects the best possible service provision based on the type of goods procured (ARCA Lombardia, 2015).

Methodology

In order to address ARCA’s concerns regarding maximizing efficiency through centralizing the procurement process, we looked at various case studies and theories regarding centralization and decentralization. These studies include: a report from the Barnsley Metropolitan Borough Council, a case study regarding Scotland’s procurement system, and applied theories from the Kraljic Matrix. In addition, we reviewed recommended strategies regarding the centralization and decentralization of procurement systems within the international context.

Recommendations

Our research resulted in the following recommended best practices:

- Categorize goods and services according to characteristics of the good and the supplier market;
- Establish contract mechanisms and communication to counteract potential market distortions; and
- Establish benchmarks for the implemented procurement process for goods and services.

Task I: Categorize goods and services according to characteristics of the good and the supplier market

Several models for public procurements have evolved in the last decade based on the characteristics of countries, regions, the capabilities of the public procurement authorities and the national and local economic and market environments (Wagner & Johnson, 2004). Purchasing portfolio models have received much attention and one of the most famous portfolio models was introduced by Kraljic (see Appendix D). Kraljic (1983) proposes a two-stage approach as a framework for developing procurement strategies for single products or product groups. In the first stage, Kraljic (1983) classifies products on the basis of two dimensions: profit impact and

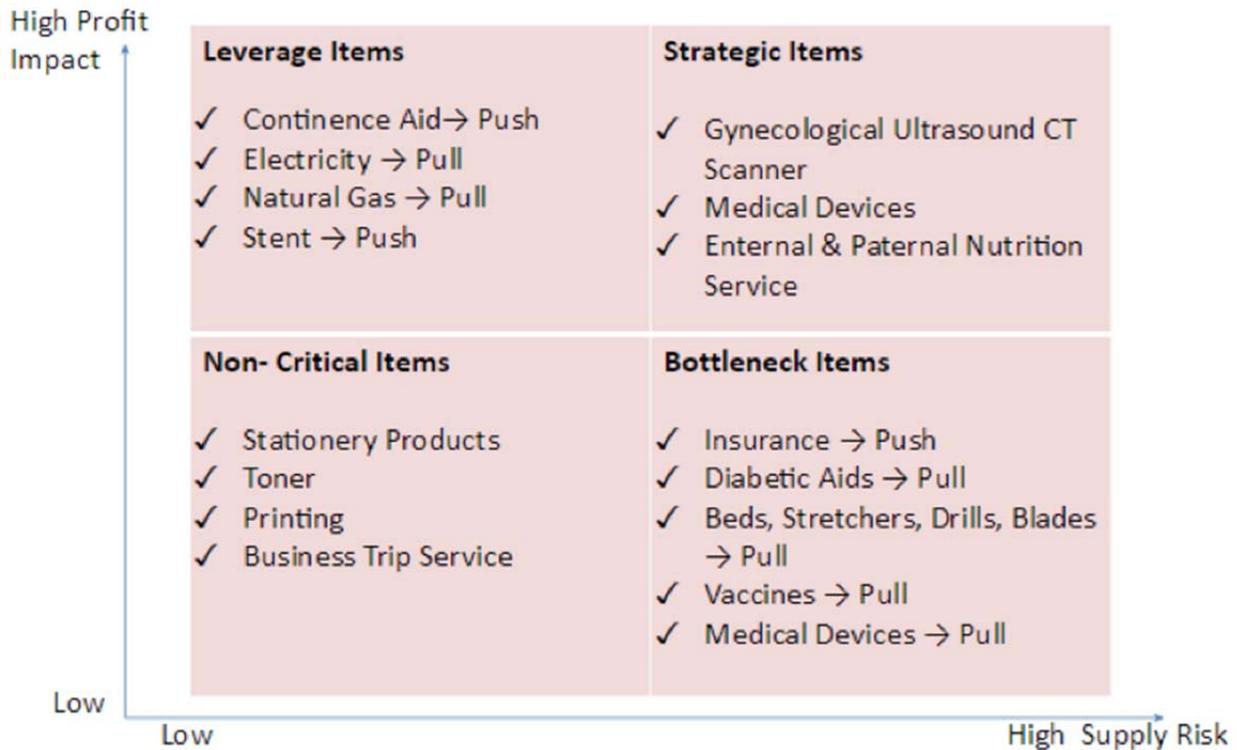
supply risk. According to Kraljic (1983) two-stage approach, as a framework for developing procurement strategies, the goods and services that ARCA purchases could be put into four item categories:

- Bottleneck
- Non-Critical
- Leverage
- Strategic

The items in the bottleneck and strategic categories would generally be those goods and services which are of strategic importance for the public administration in the Lombardy Region. In the case of strategic items, further analysis is recommended of the buying strengths against the strengths of the supply market.

Additionally, in order to determine which of the above goods and services to decentralize or centralize, we used a quantitative approach to evaluate cost implications. Administrative costs for centralization are much higher than for decentralization; however, the purchase power is stronger with centralization, which implies lower purchase prices in a centralized system. For this reason, ARCA can use the recommended equation to determine whether or not items should be centralized or decentralized (see Appendix E).

Finally, non-critical items can be decentralized due to their low supply risk and low profit impact. The matrix below was built using goods and services procured by ARCA:



Finally, implementation of a strategic procurement system requires a Hub & Spoke Model, where the Hub will lead, implement and support the procurement system with the supporting help of the Spokes.

Task II: Establish contract mechanisms and communication to counteract potential market distortions

The establishing of contract mechanisms while developing a dialogue between the hub and spokes are to be utilized in a way that can help counteract potential market distortions. Best practices were taken from the Kraljic Matrix categories, the Barnsley Metropolitan Borough study, and the Scotland case study.

According to the above item classification, subsequently, Kraljic (1983) proposes a second stage where the public procurement entity develops purchasing strategies and action plans for every of the four categories of purchased items. Additionally, certain purchase categories have been suggested as more suitable for centralization than others.

Non-critical items

Due to the characteristic of these items, the contractual strategy implemented by the public entity have to have in mind the ideas of reduce the logistic and administrative complexity. One way is applying e-procurement systems as a contracting system as a tool to doing business with suppliers of these products.

However, in cases where the public procurement entity does not have the capacity to pool the purchasing requirements, the local or public entities purchasers could adopt some kind of individual ordering strategies, as a decentralization strategy. In that case, Vincze *et al.* (2010) claims that this strategy could be beneficial to improve the links between local suppliers, including small and medium enterprises, and local entities.

In the case of the Barnsley Metropolitan Borough to enable the leverage of its buying power and ensure consistency as well as to provide suppliers with a single point of entry there is a need of communication (see Appendix F). Barnsley recognized the need to pay close attention to understanding the requirements of the customers being affected by these purchases (Barnsley Metropolitan Borough Council, 2006). To establish this dialogue, several initiatives were enacted to support communicated between the Hub and Spokes as well as between the Spokes (Barnsley Metropolitan Borough Council, 2006).

In many of the governments that make up the United Kingdom (England, Scotland, and Wales) have sought to obtain the maximum value from public spending for its citizens. The UK Sustainable Procurement Task Force has defined community benefit clauses as “where organizations meet their needs for goods, services, works, and utilities in a way that achieves value for money on a whole-life basis in term of generating benefits to society and the economy” (Welsh Government). The benefits achieved by the Community Benefits Programs range from training and employment opportunities for inactive people as part of the workforce in the local area, to maximising the supply chain opportunities for SMEs to bid for the 2nd and 3rd tier supply chain opportunities (Welsh Government).

Finally, we recommend that ARCA should decentralize goods and services utilizing the traditional means of procurement due to the lack of communication between ARCA and local municipalities. From our research, we feel centralization would be inefficient based on the gap of specific knowledge regarding the needs of local municipalities. Until better communication is established, ARCA should decentralize the procurement of *non-critical items*.

Leverage items

In general, for leverage items, Gelderman and Van Weele (2003) recommends a strategy directed towards exploitation of the buying power. In this strategy the public procurement entity pursues competitive bidding. Since suppliers and products are interchangeable, there is no need for long-term supply contracts. In general, a centralized purchasing approach could be adopted that has the form of a centrally negotiated umbrella agreement with preferred suppliers. Additionally, the public procurement entity could have an important role for the purchase of these items as entity which coordinates a strategic partnership between suppliers and public entities.

An issue that is prevalent with the procurement of *leverage goods* is the possible distortion of the market for the good or service, where only large suppliers are the only ones able to enter the market. Contract mechanisms can be utilized to reduce the adverse effect of the limitations experienced by SMEs. In order to balance demand aggregation and participation of SMEs, ARCA can split the procurement contract into several lots and/or soften the constraints for joint bidding (Sparro, 2010).

Barnsley recognized that these types of purchases were very much price driven and saw the need for collaboration between the Spokes to leverage buying power and generate savings (Barnsley Metropolitan Borough Council, 2006), similar to the strategy for *non-critical items*. Again, communication is vital between the Hub and Spoke and between the Spokes in order to understand the local requirements of the Spokes and to ensure that the best value for the goods and services.

We recommend that the centralization of these goods and services should incorporate a contract mechanism to counteract the effects of the market distortion. Communication is also critical to achieve efficiency in sharing expertise and having a better understanding of the local requirements.

Bottleneck Items

The main strategy to control bottleneck items is to centralize the public purchases. The focus of this strategy is to assure supply, if necessary, even at additional cost. As Gelderman and Van Weele (2003) illustrates, designing long term contracts and developing consigned stock agreements with suppliers could also assist in controlling bottleneck items. By performing a risk analysis the public procurement entity can identify the most important bottleneck products and consider the implications.

Often there are only a few potential suppliers in these markets as the goods and services are specialized. This may result in the procurer in being locked in to a dominant supplier. To avoid the risk of lock-in, the procurement contract can be split up and the upper limit that each firm can be awarded to can be adjusted (Sparro, 2010). This mechanism forces the number of awardees to be greater than one, although it results in the loss of some competition. Overall, it preserves the potential competition for future contract. The “split-award tendering process” is another solution to reduce the risk of lock-in. It is where each firm submits two separate bids, one bid for the sole source of the contract and a bid for only a share of it (Sparro, 2010). The buyer then may award the contract to the best offer for the whole contract or to a combination of the partial offers (Sparro, 2010). The last alternative is to simply rotate the suppliers. These mechanisms helps to ensure that more than a single firm can improve its technical skills, thus reinforcing the competition of the market. (Sparro, 2010).

In recognition of the specialization of these goods, Barnsley managed the procurement of these goods as a joint-project with the Hub and the Spoke who acts as the specialist (Barnsley Metropolitan Borough Council, 2006). Working jointly they would then develop the appropriate brief. There was also the recognition that the utilisation can be simplified by implementing long-term relationships.

Finally, we believe that ARCA should utilize a centralized procurement system. Many of the items within *bottleneck* are procured for the Healthcare Authorities who have already established a dialogue between themselves and ARCA. This allows for ARCA to centralize the procurement process for these goods and services in either a top-down or bottom up approach.

Strategic items

Gelderman and Van Weele (2003) argues that for strategic items, in order to counterbalance the supply risk, a centralized public procurement for these kind of items could aim at building a partnership relationship with its suppliers. The mutual trust and commitment would likely reduce the supply risk to a minimum level. Additionally, Tuten and Urban (2001) long term contract could be design for these items and suppliers will lead to improvements in product quality, delivery reliability, lead times, product development, product design, and it will result in cost reduction supplier.

The procurement of these goods and services required the greatest amount of resources and skills. Barnsley developed a similar procurement strategy as the *bottleneck items*, where it will be managed together with the Hub and the specialist Spoke. Barnsley also recognized the need to work closely with the customers to develop the brief to ensure that the goods and services are delivered to the cost and quality (Barnsley Metropolitan Borough Council, 2006).

Although it is highly recommended to centralize the purchase of strategic items, it is relevant to note that the degree of centralization of the purchasing function is positively related to the degree of formalization and to specialization of public procurement entity. In cases where procurement entities do not have the capability, it is highly recommended to centralize indirectly while encouraging and maintaining communications with hub of excellence. In that case, ARCA could follow Scotland's procurement strategy where it used an indirect centralization. For example, Scotland Excel is the Hub that contains the necessary expertise in health (McClelland, 2006).

Strategic items requires an indirect centralization approach, as ARCA lacks the expertise in these specialized areas. ARCA needs to designate centers of excellence for these goods and services to

be able to obtain the required knowledge and best practices to reduce the costs and increase savings.

Task III: Establish benchmarks for the implemented procurement process for goods and services

Benchmarking can be useful for collecting data and measuring performance.

According to United Nations Procurement Practitioner's Handbook, there are five steps of performance measures (see Appendix G) in the bidding and transaction processes, including:

- Efficiency of the competitive process
- Cost reduction / Containment
- Supplier Management
- Efficiency of internal systems and processes
- Procurement Management

By adopting those performance measures, public authorities can adjust their strategies and their relationships with suppliers accordingly. Suppliers will pay more attention to their products and services under greater supervision. Therefore, there will be a guarantee for both buyers and suppliers to reach a win-win outcome.

Despite those five measures, a service level assessment should also be conducted to evaluate the outcome of procurement (see Appendix H). Service level assessment includes four elements: service level inspection, survey analysis, complaint analysis and corrective measures. By taking these measures after procurement, public authorities can assess the outcomes of public goods and services, thus considering whether or not continuing this partnership in the future. As for suppliers, outcome assessment can give them incentives to provide better supply quality both on products and services; it can also give them the chance to update their products to meet the need of the market. Last but not least, service level assessment can help ARCA develop an effective procurement strategy and optimize suppliers selection process.

Conclusion

Based on our studies, we believe that the two approaches: Kraljic Matrix and Financial Effect Model can be applied to design a strategic procurement system, and help develop a procurement organization within a Hub & Spoke Model. Although centralized purchasing is the primary trend in most European countries, there exists both benefits and risks, as well as decentralization.

VI. CONCLUSION

Through this report, our team has provided a set of recommendations and tools to effectively and efficiently manage a center/periphery relationship between ARCA and local authorities, and how to manage an efficient procurement process through the standardization of goods and services. The proposed action items are a result of best practices gathered by a variety of global models and applying the best components to the Italian context.

ARCA's short-term goals include platform adoption and the increased efficiency of their current service provision model. In the long-term, we anticipate ARCA would serve as a procurement knowledge hub between small municipalities and the region of Lombardy, keeping in mind three anchors as a target for success:

- Promote a Cultural Shift
- Build Leadership Capacity
- Deliver Community Benefits

By utilizing case studies and analyzing procurement strategies, we have propose the following:

- To empower small municipalities and improve periphery relations, we advise ARCA to utilize a three phase process with specific tasks: **diagnose, implement and evaluate**.
- To most efficiently integrate goods and services to the Hub & Spoke Model, we recommend the following best practices: **categorize goods and services according to characteristics of the market; establish contract mechanisms and communication to counteract potential market distortions, and; establish benchmarks for the implemented procurement process for goods and services.**

We hope that our recommendations will assist ARCA to maximize capacity within this new market of small municipalities, while ensuring long-lasting social and economic benefits for the region of Lombardy.

Appendix A

Characteristics of small and large Lombardy region provinces that include diverse municipalities in size and population:

Bergamo

Municipalities: 242

Total Population: 1,107,441

Cremona

Municipalities: 115

Total Population: 362,141

Mantova

Municipalities: 69

Total Population: 415,141

Pavia

Municipalities: 189

Total Population: 548,326

Brescia

Municipalities: 206

Total Population: 1,262,295

Lecco

Municipalities: 88

Total Population: 340,814

Milan

Municipalities: 134

Total Population: 3,176,180

Sondrio

Municipalities: 78

Total Population: 182,480

Como

Municipalities: 154

Total Population: 598,810

Lodi

Municipalities: 61

Total Population: 229,082

Monza e della Brianza

Municipalities: 55

Total Population: 862,684

Varese

Municipalities: 139

Total Population: 887,997

Appendix B**E-procurement Success: The Case of Portugal**

The government of Portugal began promoting electronic commerce in 1999 and by 2002 it started using electronic means of public procurement. The National e-Procurement Program (PNCE) was initiated in 2003, facilitating the creation of e-procurement platforms. In 2005, the government began a pilot project in eight ministries to disperse and improve e-procurement measures.

There were three major steps in implementation of the pilot project:

1. **Diagnostic** of the situation to understand the profile of function and existing procedures of ministries (how they procured items, etc). Evaluated opportunities for improvement, identification of quick wins, and specification of product categories.
2. **Implementation** of the solutions identified in first component. Negotiation, reformulation of procedures, reorganization and tools parameterization. Identification of products in a catalogue. Training given to key users in both technology and negotiation/sourcing strategies.
3. **Evaluation** report and recommendations. Increasing the number of service categories and the creation of annual purchasing plans for the involved ministries (Adrião, n.d.).

Monthly meetings were held with the eight ministries of the initial pilot-projects in which ministerial reports and critical issues were discussed among all actors.

The following were identified as obstacles to overcome:

- Over 1,500 entities with financial autonomy, different procurement profiles, and non centralized actions;
- A high variation in technological and organizational background among different entities, of the same ministry;
- No common procurement guidelines or policies within Central Administration;
- No technological platforms were in use to aggregate procurement information or to share knowledge;
- Inexistence of monitoring or historic analyses policies;
- Human resources with a great deal of legal knowledge, but a low or inexistent knowledge on different areas of procurement, as in sourcing and negotiation.
- Public bodies felt uncomfortable giving up their stocking ability, being skeptical on the effectiveness of suppliers to deliver on time, and feelings of disempowerment with centralization of this task.
- Low broadband internet diffusion throughout public administration (Adrião, n.d.).

In 2008, Portugal established legal framework that made e-procurement compulsory for all public tenders by 2009. Finally, in November, 2009, this was effected into law, encouraging the mass adoption of e-procurement platforms. There are currently eight procurement platforms on the market, encouraging market competition (Costa, Arantes, & Tavares, 2013). However all tenders are funneled through the centralized system BASE, which enables transparency, as it is a central location in which to view all public procurements.

A survey conducted by Costa, Arantes, & Tavares (2013) identified the major difficulties in the Portuguese e-procurement system, as reported by public entities:

- “Lack of training of the human resources that use e-procurement platforms (26%);
- e-platform malfunctions (19%); shift
- Excessive number of e-platforms available, which is an obstacle to standardization of processes (16%);
- Resistance to change induced by e-procurement implementation within organization (15%);

- e-signature use complexity and cost (12%);
- Lack of qualified human resources to support e-procurement processes (6%);
- Lack of interoperability between e-procurement platforms (3%);
- timestamp cost (3%)” (p. 242)

Survey results demonstrated that many procurement authorities consider training as essential, but that even after one year of e-procurement implementation, a significant number of entities responded that they did not change nor intend to change their organizational structure. Therefore, although there is notably a great need for training and technical experts, often procurement authorities lack the capacity for effective implementation, indicating this is a role central or regional government should provide.

Appendix C

Germany: E-Procurement Adoption at the Municipal Level

A research article authored by Huntgeburth, Steininger, Parasie, & Veit, (2012) inquired into the most influential factors that would lead German municipalities to adopt e-procurement strategies. In selecting the eight largest municipalities from 13 of the 16 German states, they found that after perceptions of risks and concern about the local business community, peer influence was the third strongest determinant of e-procurement adoption. The qualitative analysis demonstrated that municipalities believed that larger peer organizations like the state government or neighboring cities should pioneer the field, as they have more resources to pursue e-procurement adoption. Municipalities will apply a wait-and-see strategy as long as larger peer organizations have not adopted e-procurement. In contrast, when the majority of peers are using e-procurement, non-adopting peers may feel encouraged to adopt as well based on the experiences provided.

Appendix D

Public Purchasing strategies in the Kraljic Matrix

According to Albano and Sparro (2010), the basis to support a centralized purchasing system exists when two or more public entities have common requirements and the ability to standardize their demands using centralized contracts. Under this framework, public procurement systems have been developed around a set of goals that include transparency and the better use of public money. Although a centralizing purchasing system could be implemented to all public purchases, Lilliecreutz and Ydreskog (1999) state that certain purchase categories have been suggested as more suitable for centralization than others. In that sense, this part of the document analyzes which goods and services should be centralized or decentralized, according to a Hub & Spoke Model, and what are the expected effects on the market of this centralization or decentralization.

Characteristics of Kraljic Matrix

According to Wagner and Johnson (2004), several models for public procurements have evolved in the last decade based on the characteristics of countries, regions, the capabilities of the public procurement authorities and the national and local economic and market environments. These characteristics have an important role to determine which goods and services should be centralized or decentralized. Faes et al. (2003) highlights that the success of a public procurement system is not the centralization itself, but the identification of the right cases in which to do it.

In that sense, there is a consensus, into the procurement management literature, that the decisions about what and how to implement a centralized procurement system is determined by value for and the level of complexity of the products and services that are demanded by the public authorities. In that order, purchasing portfolio models have received much attention and one of the most famous portfolio models was introduced by Kraljic (1983). Kraljic (1983) proposes a two-stage approach as a framework for developing procurement strategies for single products or product groups. In the first stage, Kraljic (1983) classifies products on the basis of two dimensions: profit impact and supply risk. From these two dimensions, four categories of purchased items emerge: bottleneck, non-critical, leverage and strategic items.

Leverage Items

In general, leverage products can be obtained from various suppliers. These products have a relatively high price in combination with a relatively low supply risk. In that case, the buyer or the procurement entity has many possibilities and incentives for negotiation, since small percentages of cost savings usually involve large sums of money with a minimal supply risk. In that sense, for these kinds of items it is highly recommended an aggressive approach to the supply market like purchasing strategy directed towards exploitation of the buying power.

Strategic Items

Strategic items represent a considerable value to the public entities because they have a large impact on profit and a high supply risk. Generally, these items are supplied by one company or organization and this fact could cause a significant supply risk. The general recommendation for a public procurement management entity, in this Kraljic's matrix quadrant, is to maintain a strategic partnership with the supplier.

Non-critical Items

The main characteristic of these items is that they have small price per unit. In addition, many suppliers and substitutive items suppliers can be found. From a public purchasing point of view, these items bring only few technical problems in order to produce or supply the goals of public policy. As Gelderman and Van Weele (2003) states for these products or services, the procurement entities require 80% of the purchasing department's time, while they often represent less than 20% of the purchasing turnover. In that case, the non-critical Items in public procurement could be decentralized due to their low supply risk and low profit impact.

Bottleneck Items

These products have the characteristic that their price and volume is high. The suppliers in this quadrant have a dominant power position for these products. Additionally, items in the bottleneck would generally be those goods and services which are of strategic importance for the public administration due to their impact on its policies. A purchasing strategy, which is commonly recommended for these products, is primarily based on acceptance of the dependence and reduction of the negative effects of the unfavorable position.

Appendix E

Quantitative Approach to Categorize Item - Cost & Benefit Analysis

Administrative expenses Cdec are assessed by analyzing the length of working time and the amounts of pay to the employees carrying out the procurement procedures in decentralized procurement. Administrative expenses Ccen are assessed from the financial performance indicators of the central contracting authority. Savings due to

changes in administrative expenses are assessed by calculating the administrative expenses in case of decentralized procurement $C_{dec} \cdot n$ and in case of partial centralization $(C_{cen} + C_{dec} \cdot (n - n_{cen}))$, where n is the number of contracting authorities and n_{cen} is the number of organizations centralizing procurement. Thus, in case of full decentralization, administrative expenses would amount to $C_{dec} \cdot n$, while in case of full centralization to C_{cen} . The formula for the determination of savings due to changes in administrative expenses depends on the organizational structure of public procurement at the beginning and at the end of the period.

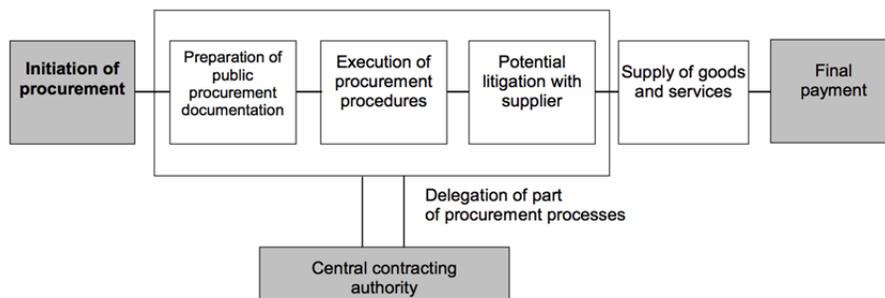
$$\Delta C_{administrative\ expenses} = C_{dec} \cdot n - (C_{cen} + C_{dec} \cdot (n - n_{cen})).$$

Based on a comparison of the prices, the savings indicator *Sperc* is calculated.

In order to calculate the results as accurately as possible, savings (*Ssavings*) were determined for each contracting authority separately, followed by the calculation of the savings percentage *Sperc* for each procurement category from the formula:

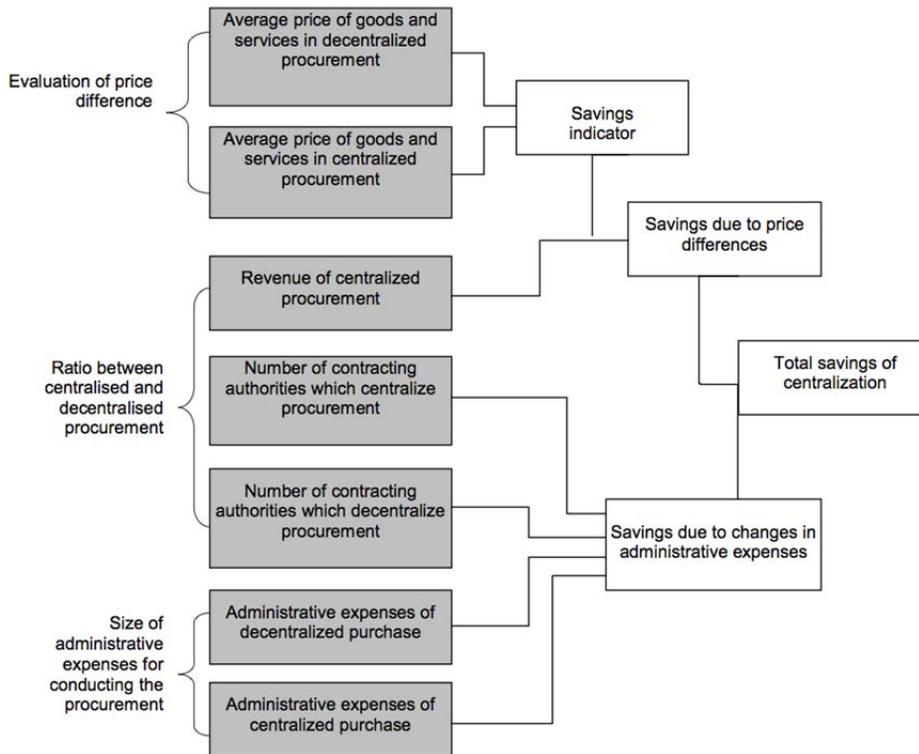
$$Sperc = \sum Ssavings / \sum R_{revenue\ of\ centralised\ procurement}$$

Figure 1 Public Procurement process centralization scheme



Source: Evaluation of financial effects of public procurement centralization

Figure 2. Model for the determination of the financial effect of centralization in e-procurement



Source: Evaluation of financial effects of public procurement centralization

Appendix F

Case Study: Barnsley Metropolitan Borough Council

In 2006 the Barnsley Metropolitan Borough Council decided to begin the implementation of the Hub & Spoke Model as its procurement organizational model (Barnsley Metropolitan Borough Council, 2006). The setup of the model for the borough is illustrated below. The Hub seeks to “lead, develop, implement, and support procurement strategies, policies, systems, processes, and procedures” (Barnsley Metropolitan Borough Council, 2006). Similar to ARCA, Barnsley

proposed to have a strong central Hub that brings together commercial and supply management professionals. The focus for the Hub is provided below.

The Spokes would continue to provide their services, though place a greater emphasis on developing specialist skills to “lead category management and deliver corporate wide contract” (Barnsley Metropolitan Borough Council, 2006). Category management is where the supply markets are developed and managed to deliver the best value for the public goods or services (Barnsley Metropolitan Borough Council, 2006). Any recommendations to commodity strategies would be submitted to the Assistant Executive Director Procurement, who is in charge of the delivery of the commodities in the Hub. This ensures a dialogue between the Hub & Spokes to strengthen the communication of expertise and the local situation to increase the efficiency of the delivery of goods and services for the best value.

The determination of the tendering approach for the contracts of the goods and services was determined by the mapping the Council’s expenditure, against the risk for that category of expenditure (Barnsley Metropolitan Borough Council, 2006). As a result is the creation of four categories: Low Value Low Risk, High Value Low Risk, Low Value High Risk, and High Value High Risk (see below). This allows for the standardization of the tendering process that reduces inefficiencies and allows the Hub to able to procure the best value for the goods and services.

Hub Role for Barnsley Metropolitan Borough

1. Provide clear strategic direction through procurement policies, systems, processes and procedures and effective communication and dissemination
2. Raise the awareness and understanding of the importance of commissioning procurement activity in achieving the goals and key objectives
3. Further develop construction contracts by building on the Beacon Statues it has already achieved and negotiating the best contracts and supply frameworks
4. Further develop corporate contracts by managing the corporate contacts portfolio and negotiating the best contracts and supply frameworks
5. Provide specialist advice in commissioning and procurement, support, training, and development of all staff involved in commissioning and procurement

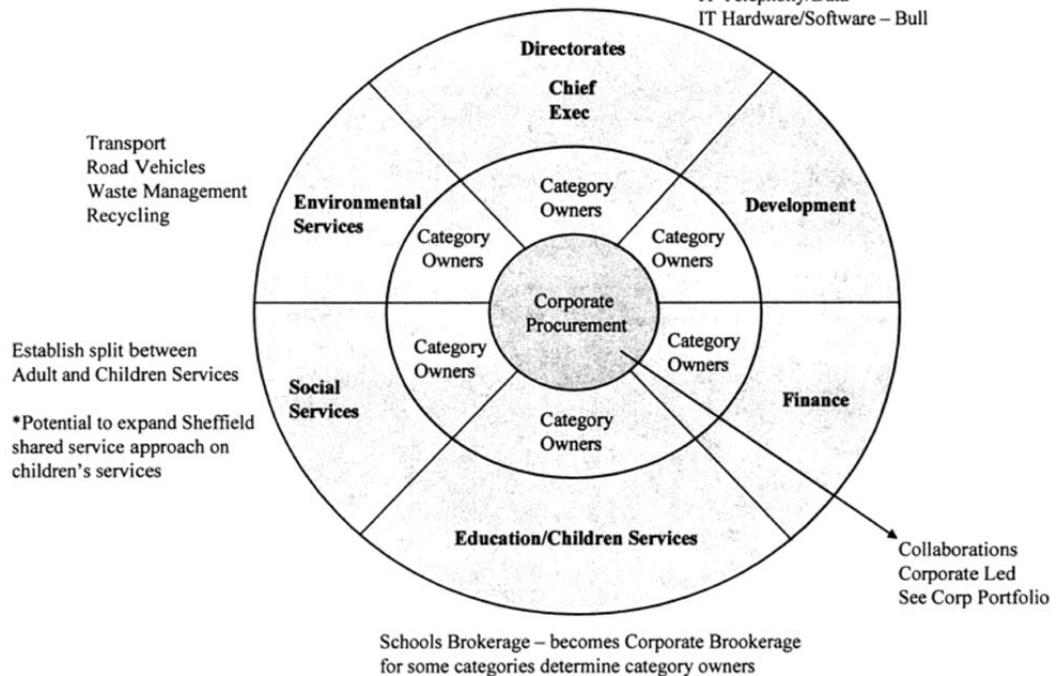
6. Manage the YPO contracts and keeping abreast of future opportunities
7. Maintain the Barnsley MBC Contracts Register until such time it is embedded within the new Supplier Contract Management System
8. Monitor and audit procurement performances across the Council, establishing targets and performances indicators and report on performances
9. Provide the strategic lead using knowledge and market research and stakeholder consultation to initiate innovation, continuous improvement and wider collaborative opportunities
10. Champion Procurement
11. Continually develop the Procurement Strategy and manage change

(Barnsley Metropolitan Borough Council, 2006)

Hub & Spoke Model

The below is to illustrate examples and is not meant to be a comprehensive list. These will be agreed going forward.

Legal Services
 IT – Partnership
 IT Telephony/Data
 IT Hardware/Software – Bull



Barnsley Tendering Approach

<p>High Value/Low Risk</p> <ul style="list-style-type: none"> • Purchases very much price driven, called for collaboration and leverage of buying power • Examples: office furniture and equipment, IT consumables, hardware, utilities, travel 	<p>High Value/High Risk</p> <ul style="list-style-type: none"> • Items of strategic importance will be managed as joint projects between hub and specialist spoke • Requires effective risk management and strong program/project management approach • Examples: large IT projects, specialized medical equipment
<p>Low Value/Low Risk</p> <ul style="list-style-type: none"> • Procured in Hub to leverage buying power • Ensure consistency • Close attention required to understand local requirements • Initiatives needed to support communication needed • Examples: magazine subscriptions, seminars and training courses 	<p>Low Value/High Risk</p> <ul style="list-style-type: none"> • Requires the greatest resources and skills to manage • Will be managed as joint projects with hub and spoke • Working closely with customers to develop the brief and ensure goods, works, and services are delivered to the cost and quality specified • Examples: IT software development and services, professional and specialist services

Appendix G

Table 1 UN Performance Measures in Procurement

Performance measures	Including
Efficiency of the competitive process	<ul style="list-style-type: none"> • Number of compliant bids and proposals. • Number of suppliers involved in the competition. • Suppliers feedback on process.
Cost reduction / containment	<ul style="list-style-type: none"> • Level/amount of savings/cost reductions achieved. • Reduction of stockholdings. • Reduction in demand. • Number of 'stock-outs'. • Number of goods rejected. • Increased use of alternatives.
Supplier management	<ul style="list-style-type: none"> • Number of 'new' suppliers involved in competition. • Number of late/damaged/inadequate deliveries. • Level of quality achieved.
Efficiency of internal systems and processes	<ul style="list-style-type: none"> • Volume of low value transactions. • Usage of aggregated arrangements or long term agreements. • Reduction in transaction cost. • Internal customer satisfaction.
Procurement management	<ul style="list-style-type: none"> • % of procurement officers certified. • Number of staff days for training.

Source: UN Procurement Practitioner's Handbook

Appendix H

Founded in 1997, CONSIP is a limited public company, totally and directly owned by the Ministry of Economy and Finance (MEF). In 1999, CONSIP was put in charge of assisting public administrations with their procurement of goods and services. Since then, it has created a comprehensive set of purchasing tools within its e-procurement system, including e-shops (2000), online tenders (2002), e-marketplace – MEPA (2004), framework agreements and dynamic purchasing system (2010/2012).

Table 1 CONSIP e-Procurement System

E-Procurement Tools	Contract Methods	Characteristics of Goods and Services
E-shops	Framework Contract	Large volumes Low price volatility Demand aggregation Standardized goods
Online Tenders	Framework Contract	Large volumes High price volatility Demand aggregation Standardized/Specialized goods
E-Marketplace – MEPA	Direct Order	Spot purchasing Low cost goods

		Highly fragmented offer E-catalogue
Dynamic Purchasing System	Framework Agreements	Online tenders in a structured and managed environment (two-stage procedures) Standardized procedures for commonly used goods & services with customization

Source: CONSIP

Table 2 The Phases of CONSIP Framework Contracts

Phase 1	Feasibility study and definition of procurement strategy	Open consultation with relevant market Demand analysis and market analysis Opportunity identification and feasibility study deliverable Economic design of the tender Procurement strategy deliverable
Phase 2	Supplier selection and contract award	Tender documentation deliverable Authority opinion acquisition Tender documentation publication Framework Contract signing
Phase 3	Framework Contract management	Support to administrations during purchasing phases Tracking of orders issued and remaining product/service availability Contract unit/quantity/ time extension (if necessary)
Phase 4	Service level monitoring	Service level inspection Surveys analysis Complaint analysis Corrective measures

Source: CONSIP

In MEPA, public buyers can select goods offered by several suppliers, for purchases below the EU threshold. In general, there are two ways for buyers to buy: 1) making a direct purchase selecting goods and services from the catalogue; 2) negotiating the product quality and service levels with qualified suppliers (Request for Quotation), handling on-line the entire purchasing process and digitally signing the order. Suppliers (and goods) are qualified according to the selection criteria stated in the Call for Qualification Notice. The entire process is digital, using digital signature in order to ensure legal compliance.

References

Adrião, R. (n.d.). Portuguese public eProcurement program. Retrieved from http://www.4qcconference.org/en/bp_cases_of_the_4qc/portugal/portugal_b.php

ARCA (2015).

http://www.arca.regione.lombardia.it/cs/Satellite?childpagename=DG_CRA%2FPage%2FCRALayout&c=Page&pagename=DG_CRAWrapper&rendermode=live&cid=1213279274964

ARCA Lombardia. (2015). *The Regional Procurement Body and the awareness of Hub and Spoke Model and the increasing importance of e-procurement*. Milan: ARCA Lombardia.

Albano, G.L., and Sparro, M. (2008). A Simple Model of Framework Agreements: Competition and Efficiency. *Journal of Public Procurement*, 8 (3), 356-378

Barnsley Metropolitan Borough Council. (2006). *The New Procurement Strategy and Hub and Spoke Procurement Organisational Model*. Barnsley Metropolitan Borough Council. Barnsley Metropolitan Borough: Barnsley Metropolitan Borough Council.

Costa, A.A., Arantes, A., & Tavares, L.V. (2013, December). Evidence of the impacts of public e-procurement: The Portuguese experience. *Journal of Purchasing and Supply Management*, 19(4), 238-246. doi: [10.1016/j.pursup.2013.07.004](https://doi.org/10.1016/j.pursup.2013.07.004)

Dröge, C.; Germain, R. (1989). The Impact of the Centralized Structuring of logistics activities on span of control, formalization and performance. *Journal of the Academy of Marketing Science*, pp. 83–89.

Dimitri, N, Piga, G., Spagnolo G. (2006). *Handbook of Procurement*. Cambridge University Press.

Faes, W., Knight, L., and Matthyssens, P. (2003). Buyer profiles: An empirical investigation of changing organizational requirements. *European Journal of Purchasing and Supply Management* 7 (3) 197-208.

Ferlie, E., Lynn, Jr. L. E., Pollitt, C. (2005). *The oxford handbook of Public Management*. New York: Oxford University Press.

Gian Luigi Albano, Marco Sparro. (2010). Flexible Strategies for Centralized Public Procurement. *Review of Economics and Institutions*

Gelderman, C.J., and Van Weele, A.J. (2003). Handling measurement issues and strategic directions in Kraljic's purchasing portfolio model. *Journal of Purchasing and Supply Management* 9 (5–6), 207–216.

Huntgeburth, J. C., Steininger, D. M., Parasie, N. P., & Veit, D. J. (2012). Increasing the adoption of E-procurement services at the municipal Level. *E - Service Journal*, 8(3), 3-23,98-99. Retrieved from <http://search.proquest.com/docview/1362605994?accountid=14749>

Kraljic, P., (1983). Purchasing must become supply management. *Harvard Business Review* 61 (5), 109–117

Lilliecreutz, J., Ydreskog, L., (1999). Supplier classification as an enabler for a differentiated purchasing strategy. *Global Purchasing & Supply Chain Management* 11, 66–74

McClelland J.F. (2006) Review of Public Procurement in Scotland. CBE Final Report. Retrieved from: <http://www.scotland-excel.org.uk/home/WhatWeDo/PublicProcurementLandscape/PublicProcurementLandscape.aspx>

Nakamura, B. J., Selbo-Bruns, A., Okamura, K., Chang, J., Slavin, L., & Shimabukuro, S. (2014). Developing a systematic evaluation approach for training programs within a train-the-trainer model for youth cognitive behavior therapy. *Behaviour Research and Therapy*, 53, 10-19. doi:10.1016/j.brat.2013.12.001

OECD (2000), “Centralised and Decentralised Public Procurement”, *SIGMA Papers*, No. 29, OECD Publishing. <http://dx.doi.org/10.1787/5kml60w5dxr1-en>

OECD (2011), “Centralised Purchasing Systems in the European Union”, *SIGMA Papers*, No. 47, OECD Publishing. <http://dx.doi.org/10.1787/5kgkqgv703xw-en>

Sparro, G. L. (2010). Flexible Strategies for Centralized Public Procurement. *Review of Economics and Institutions*, 1 (2), 1-32.

Tuten, T.L., Urban, D.J., (2001). An expanded model of business-to-business partnership formation and success. *Industrial Marketing Management* 30, 149–164.

Vincze M.P., Mathis J., Dumitrescu A., Erbilgic A., Coscia E., and Megliola M. (2010) Evaluation of SMEs’ access to public procurement markets in the EU. (Mimeo)

Wagner, S.M., Johnson, J.L., (2004) Configuring and managing strategic supplier portfolios. *Industrial Marketing Management* 33 (88), 717–730.

Welsh Government. (n.d.). *Community Benefits Programme*. Retrieved 6 10, 2015, from Welsh Government: <http://prp.gov.wales/planners/social/strategicframework/wgpolicystrategyguidance/cbprogramme/>