Advancing Green Purchasing in Italian Municipalities

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Advancing Green Purchasing in Italian Municipalities

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Executive Summary

Italy was the first European country to create a full mandatory plan known as the National Action Plan on Green Public Procurement. This plan established a framework through which green purchasing polices can diffuse throughout Italian municipalities. A primary reason for this action is that green purchasing policies have the potential to significantly reduce carbon impacts across the globe and can help Italy achieve its carbon emissions goals.

However, at the local level, many municipal governments have struggled to implement green purchasing policies. Consequently, green purchasing has not reached its full potential to help municipalities mitigate their environmental impacts. These are significant concerns that the United Nations Environmental Programme, the Organization for Economic Co-operation and Development, the Sustainable Purchasing Leadership Council (SPLC), and others suggest must be resolved if Italy is to move toward an environmentally sustainable economy.

Researchers at Sant' Anna School of Advance Studies' Institute of Management and Arizona State University's (ASU's) Sustainable Purchasing Research Initiative have sought to address these issues. Our three broad objectives are to:

- Determine the facilitators and barriers to adoption and implementation of green purchasing policies in Italian municipalities
- Recommend actions for advancing green purchasing practices more effectively
- Encourage Italian municipalities that lack green purchasing policies to adopt and implement them within their jurisdictions

To accomplish these objectives, we conducted a national survey of finance, environmental, and municipal engineering directors in Italian municipalities. The survey generated 152 individual responses from 395 municipalities with 25,000 residents or more. These municipalities were representative based on their population size, income and geographic dispersion by prefecture.

Our results show that 20 percent of directors reported that their municipalities have a green purchasing policy; 34 percent reported they have no policy, and 45 percent did not know if their municipality had such a policy.

How are municipalities that have adopted green purchasing policies different from nonadopters?

Department directors indicated that municipalities that adopt green purchasing policies differ in five ways from those municipalities without such policies:

1. Complementary policies and practices
2. Purchasing criteria
3. Information access
4. Leadership, employees and resources
5. Vendor roles

What factors are more strongly related to implementation success?

Of the 20 percent (31 total) of department directors who reported that their municipalities had adopted green purchasing policies, most (84 percent, 26 total) indicated that their municipalities have implemented the policy successfully.

By contrast, 16 percent (5 total) of the department directors considered the implementation of their green purchasing policies to be either "neutral" (neither successful nor unsuccessful) or "unsuccessful."

Directors in municipalities who reported successful implementation of their green purchasing policies noted that their departments are more likely to have five general features:

1. Complementary policies and practices
2. Information access
3. Leadership and implementation responsibility
4. Vendor roles
5. Innovation culture

Recommendations:

Based on these findings, we have developed five recommendations aimed at increasing municipalities' green purchasing policy adoption and implementation success:

1. Build on complementary policies and practices
2. Use information about environmentally preferred products
3. Track spending related to green purchases
4. Assign accountability to top-level management
5. Participate in professional networks to share best practices

Acknowledgements

We thank the 20 stakeholders who provided feedback on the development of our research approach. A full list of these individuals is available at Sustainable Purchasing Research Initiative and the Sant' Anna School of Advanced Studies' Institute of Management and the websites: sustainability.asu.edu/spri and santannapisa.it/en/institute/management/institute-management.

Research Collaboration

This report was developed in collaboration with researchers at Sant' Anna School of Advanced Studies' (SSSA) Institute of Management and Arizona State University's (ASU's) Sustainable Purchasing Research Initiative.

The Institute of Management is a research institute within Sant' Anna School of Advanced Studies. It is the result of a long-term cultural project that focuses on innovation, sustainability, and health. It disseminates knowledge between researchers and international publications to inspire practical application.

The Sustainable Purchasing Research Initiative is a cross-university collaboration between researchers in ASU's School of Sustainability, the Global Institute of Sustainability, the School of Public Affairs, the Center for Organization Research and Design and faculty in other ASU units. It is a leading authority for research insights and knowledge about sustainable purchasing globally.

Please Share this Report

This report is designed to help municipalities integrate green purchasing into their procurement processes. Please share it widely among your professional networks. A physical copy of this report can be obtained by emailing:

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Additional Information

Please visit Sant' Anna School of Advanced Studies' Institute of Management (santannapisa.it/en/institute/management/institute-management) and ASU's Sustainable Purchasing Research Initiative (https://sustainability.asu.edu/spri) for additional information about green purchasing, best practices, project updates and related research papers.

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Introduction

In 2017, Italy's government purchasing accounted for 10-11% percent of country-level gross domestic product.* Purchased items include vehicle fleets, construction materials, chemicals, electronics and office materials, all contributors to global climate change and other environmental concerns during these products' production and use.

To address the environmental impacts associated with government purchasing, some municipalities have implemented green purchasing policies. A green purchasing policy refers to the set of activities undertaken by an organization to implement purchasing that reduces negative effects on the environment.

Governments that practice green purchasing can reduce their climate impacts significantly. By purchasing green products, municipalities can reduce energy-related carbon emissions, water, solid waste and a host of other activities, while increasing internal efficiencies (e.g., reduced energy use) that lead to cost savings.

Since green products often are designed with enhanced durability features, green purchasing policies have the potential to reduce consumption, while creating significant market incentives for companies to reconsider their production processes, incorporate environmental principles into their daily business routines and thereby reduce their environmental impacts. Further, green purchasing policies can expand the production of green products and services by increasing demand.

By virtue of municipalities encouraging their suppliers to produce and deliver greener products, research shows that 40 percent of these companies will, in turn, assess the environmental activities of the organizations that supply them. Green purchasing policies therefore have the potential to create spillover benefits that extend up the supply chain and across the globe, leading to significant environmental improvements.

Within Italy, the national government has embraced the European Commission's focus on green public procurement by creating Italy's National Action Plan on Green Public Procurement. This plan integrates environmental criteria into every stage of the purchasing process, to have the lowest possible impact throughout the entire lifecycle of a product. First signed into law in April of 2008, Italy's plan assesses the current situation, sets targets, and encourages an exchange of best practices among procurement authorities. This plan also made Italy the only European State to have a compulsory law for green purchasing.

One important target to come out of the National Action Plan was the creation of the Minimum Environmental Criteria (CAM), which provides requirements at each stage of the purchasing process to ensure environmental and social impacts throughout the lifecycle of a product are taken into account. This criterion is mandatory for all contracting positions as ensured by legislative decree.

Beyond a national plan for green purchasing, the National Association of Italian Municipalities (ANCI) also has created an emphasis on environmental and social matters through the creation of a department focusing on these issues at a more local level.

* OECD (2017), "Size of public procurement", in *Government at a Glance 2017*, OECD Publishing, Paris, DOI: 10.1787.

Project Goals

To enhance green purchasing in Italian municipalities, this report is guided by three project goals:

1. *Determine the facilitators and the barriers to adoption and implementation of green purchasing policies in Italian municipalities*

   To achieve this goal, we surveyed 152 directors of departments of finance, municipal engineering, and environmental compliance from the 2018 census of 395 municipalities with 25,000 residents or more. These governments consisted of municipalities that had green purchasing policies in place and those that did not. We identified the factors related to municipalities' green purchasing policy adoption.

2. *Recommend actions for advancing green purchasing practices more effectively*

   We applied statistical tools to the survey data to identify which factors are related to the implementation success of municipalities' green purchasing policies.

3. *Encourage Italian municipalities that lack green purchasing policies to implement them within their jurisdictions*

   We combined the results of project goals 1 and 2 to develop a list of best practices that facilitate the implementation success of green purchasing policies.

We are sharing our findings through the following outlets:

- Emails to professional organizations and international governance bodies that have agreed to distribute the report's findings to their network members
- Emails to relevant media outlets with direct links to the report

Additionally, we developed a project summary and professional articles that are posted to Sant' Anna School of Advanced Studies' Institute of Management (santannapisa.it/en/institute/management/institute-management) and the Sustainable Purchasing Research Initiative (sustainability.asu.edu/spri) websites. These materials will be featured in social media posts via Twitter, Facebook, and LinkedIn.

Research Approach

To achieve our project goals, we first reviewed prior research relating to public purchasing. While prior surveys had assessed sustainability efforts and practices in local governments, they were not specific to green purchasing. Additionally, many green purchasing practices are not applicable to cities that have not adopted a green purchasing policy. For this reason, we adapted an original survey constructed by researchers at ASU. **

The ASU survey was implemented in U.S. cities in 2017. It addressed the following areas:

- Local government purchasing activities
- Local government environmental sustainability policies/practices
- Department-level policies/practices
- Department structure and culture
- Professional/personal information

Within these broader areas, questions covered topics that included:

- The structure of purchasing decisions in a municipality
- Municipal-level purchasing policies and practices
- Department-level purchasing policies and practices
- Information on sustainable products
- Information on vendor relationships
- Influence of external groups (e.g. citizens, higher-levels of government)

To determine which entities should be surveyed, we first determined the level of governance in which a mayor or elected council exists in local governments. Using the 2018 Italian Census, 395 municipalities were found to have 25,000 residents or more, from a total of nearly 8,000 local municipalities. The target population for our survey was these 395 municipalities.

** Sources: Darnall, N., J.M. Stritch, S. Bretschneider, L. Hsueh , M. Duscha, J. Iles, W. No, J. Suarez, C. Burwell. 2017. *Advancing Green Purchasing in Local Governments.* Phoenix: Arizona State University, Center for Organization Research and Design, Sustainable Purchasing Research Initiative.

Darnall, N., J.M. Stritch, S. Bretschneider, L. Hsueh. 2017. *Local Government Green Purchasing Survey.* Phoenix: Arizona State University, Center for Organization Research and Design, Sustainable Purchasing Research Initiative.

The first step in adapting the U.S. sustainable purchasing survey to Italy was to translate it to Italian. In August 2018, two native Italian speakers, with a high level of English proficiency from the Sant' Anna School of Advanced Studies (SSSA), completed the translation. The research team convened three focus group meetings with municipal officials to resolve concerns relating to terminology. Municipal directors in Collesalvetti Municipality within Livorno Province participated in the first focus group meeting. Collesalvetti Municipality is a small-sized municipality, with a resident population of about 16,000 people. Although this municipality is smaller than the municipalities we intended to survey, its common internal structure and willingness of its officers provided useful feedback. Based on feedback from Collesalvetti Municipality officials, we modified the survey to enhance its clarity and structure.

The second focus group meeting was held with the Capannori Municipality of the Lucca Province. Capannori Municipality has a resident population of about 46,000 people. We selected this municipality for our second focus group meeting to solicit feedback regarding the survey's relevance to municipal operations in Italy, as well as the length of the survey. Based on this feedback, we further honed the survey.

This version of the survey edited by the SSSA researchers who worked with 20 stakeholders to further refine the survey. Stakeholders worked in municipal government, The National Association of Italian Municipalities, Italy's Ministry of the Environment, as well as universities.

Finally, we held a third focus group meeting with the Lerici Municipality of the La Spezia Province, a small municipality with just over 10,000 residents. They offered minor feedback that allowed the survey to be edited and finalized.

Survey recipients

Because the project is focused on the implementation of organization-level purchasing and green purchasing policies, we surveyed municipal managers whose operations were a) related to purchasing; b) related to environmental management; or c) significantly affected by purchasing. We surveyed directors within the following departments to obtain a representative view of green purchasing implementation:

1. Purchasing and Public Tender Departments
2. Public Works Departments
3. Environmental Departments

Purchasing and Public Tender Departments. Directors of purchasing and public tender departments generally have a large role in procurement within a given municipality. Their activities include supply management, preparation of tender documents and contracting authority. In Italy, sometimes the Public Tender director is separated from the purchasing office, to avoid confusion, this category included both labels.

Public Works Departments. In many Italian municipalities, the public works department has a large role in purchasing. Their duties range from maintenance of public facilities and infrastructures, to the design of public works projects as well as other activities related to public assets. These items purchased generally cover a large number of items across many different categories.

Environmental Departments. Across Italian municipalities, environmental departments are generally responsible for a large range of activities that contribute to the purchasing done by the municipality. These activates include public green maintenance, waste management, inspections, remediation, and environmental assessments. Furthermore, they generally have a reasonable understanding of environmental concerns. In smaller municipalities, environmental directors sometimes operate within the same department as public works. When this was found to be the case, a lower-level manager was preferred for this title.

Consistent with the U.S. study, we used the following protocol to obtain department contacts within each of the 395 municipalities:

1. Using the 2018 Italian Census, we identified all Italian municipalities with $\geq$ 25,000 residents
2. In Google, we used search words (e.g., Capannori Municipality) to find each municipality's official webpage
3. Once a webpage was found, we identified the relevant municipal department's webpage
4. The title of each director, email address, phone number and mailing address was recorded
5. If the department director's information was not available, we conducted a Google search for the position title and the municipality. For example, if searching for the finance director of Capannori Municipality, we would enter the search term "Director of Finance, Capannori Municipality" to identify the appropriate individual

The final population size was 1,380 directors in 395 municipalities.

Survey administration

We finalized the survey in November 2018. The final survey was nine pages in length and contained 42 questions.

The survey was distributed to department directors via email in rounds. Over the course of two weeks, all emails were sent. Emails contained a cover letter, as well as a link to the survey on the software SurveyMonkey.

Three weeks after our initial mailing, we emailed, as well as called nonresponding municipal directors, to remind them of participation before the deadline. A few weeks later, we sent another email and called nonresponding department directors, along with information stating the survey deadline was extended by two weeks. Data collection concluded after 11 weeks.

Our response rate at the individual level was 11.0 percent (n=152) and 23.54 (n=93) percent at the organization level. Of the 152 directors who responded to our survey, 44.7 percent were finance directors, 37.5 percent public works or environmental compliance directors, and 17.8 percent reported themselves as other. We received responses from at least one director in 23.5 percent of the municipalities in our sample.

A comparison of our sample to the population of Italian municipalities of 25,000 residents or more (using 2018 Italy Census data) indicates that our sample is representative of all Italian municipalities, based on their total population, location, and mean income.

The following documents provide further explanation about our research approach. All documents are available at sustainability.asu.edu/spri.

- A list of expert stakeholders who provided feedback on the Italy survey and research protocols
- The final Italian surveys
- Print materials used to contact Italian department directors (e.g., initial letter, postcards)
- Frequencies associated with each of the Italian survey questions
- The original U.S. survey and print materials

Measurement and statistical assessment

Consistent with the U.S. study, two survey questions formed the basis of our evaluation of the factors that impede or facilitate Italian municipalities' green purchasing. The first question examined green purchasing policy adoption and asked, *"To the best of your knowledge, has your municipality implemented a formal policy pertaining to the following purchasing issues?"* Department directors were provided a list of policies, one of which was *"Environmentally friendly purchasing."* The following definition was provided:

> *Environmentally friendly purchasing is the set of activities undertaken by an organization to implement purchasing that reduces negative effects on the environment.*

Department directors who answered "Yes" to this question were identified as individuals working in municipalities that had a green purchasing policy in place. Those who answered "No" were identified as working in municipalities with no green purchasing policy.

The second survey question that formed the basis of our evaluation assessed department directors' perceptions of the success of their green purchasing policies' implementation. Directors who responded "Yes" to the question above were asked to answer a follow-up question that was positioned at the end of the survey: *"We are interested in your overall assessment of the implementation of your municipality's environmentally friendly purchasing policy. How would you assess your municipality's overall implementation of this policy?*

Department directors responded on an 11-point scale with 5 being "Very successful," 0 being "Neither successful nor unsuccessful" and -5 being "Very unsuccessful." For the purposes of this report, we identified municipalities as having a "Successful" green purchasing policy by combining responses of 1 through 5. We identified policies that were "Less than successful" by combining responses 0 through -5.

This measure of success is perceptual and was used for several reasons. First, municipalities' green purchasing policies are extremely diverse. They vary based on their degree of formalization, scope, maturity and other factors. Determining *actual* implementation success would require using a benchmarking tool that must be applicable to all settings. Additionally, many directors reported that their municipalities green purchasing policies were unsuccessful. We anticipated that asking directors within these municipalities a series of questions that would not be applicable to them would lead to survey fatigue and nonresponse. Measuring perceptual success attempts to balance these survey design concerns.

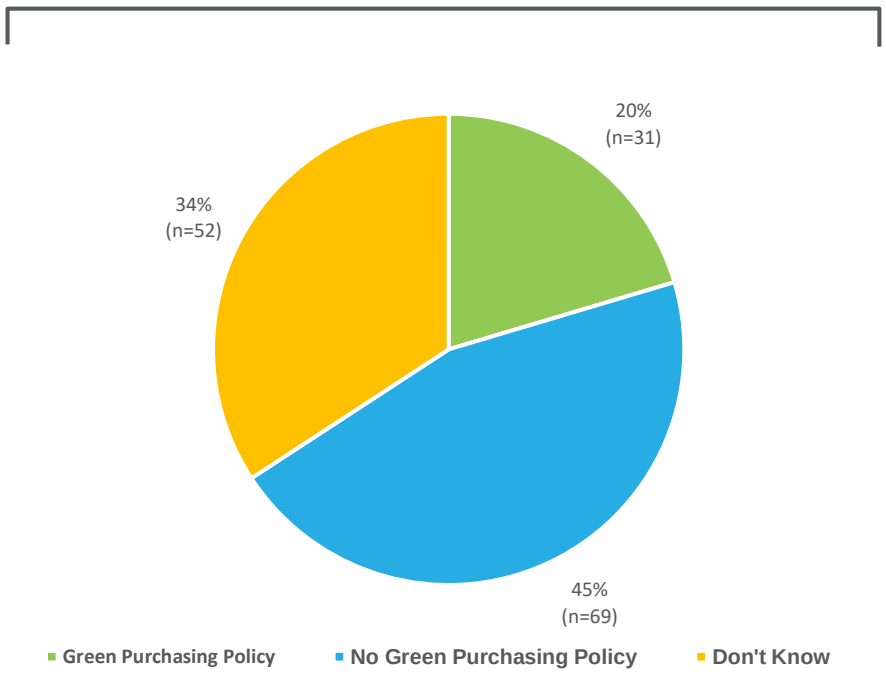
Responses to both questions were compared to all other survey responses using Chi-square and Fishers' exact statistical tests, depending on if the datasets were large or small respectively. In order to facilitate comparison between the Italian setting and the U.S., we list all factors found to be statistically significant in U.S. local governments but mark those factors which were not statistically significant for Italian municipalities with asterisks (*). Our findings offer a preliminary assessment of the factors that facilitate the adoption of green purchasing policies and their implementation success.

Green Purchasing in Italian Municipalities

Green purchasing policies consist of formal policies such as legal frameworks, ordinances, executive orders, resolutions and administrative directives. They also include less-formal approaches that involve adding green purchasing criteria to existing or complementary policies (e.g., a sustainability plan or an energy conservation policy).

From those surveyed, only a fifth (20 percent, n=31) of the department directors reported that their municipalities have a green purchasing policy (see Figure 1). This compares with 45 percent (n=69) of department directors who reported that their municipalities do not have a green purchasing policy. About 34 percent (n=52) of directors did not know whether a green purchasing policy existed in their municipalities, which suggests that the municipality likely did not have a green purchasing policy.

Figure 1. Green Purchasing Policy Adoption in Italian Municipalities



Which Factors Impede or Facilitate Green Purchasing Policy Adoption?

Overall, the survey responses indicate that Italian municipalities which adopt green purchasing policies differ in five ways from municipalities without such policies:

1. Complementary policies and practices
2. Purchasing criteria
3. Information access
4. Leadership, employees and resources
5. Vendor roles

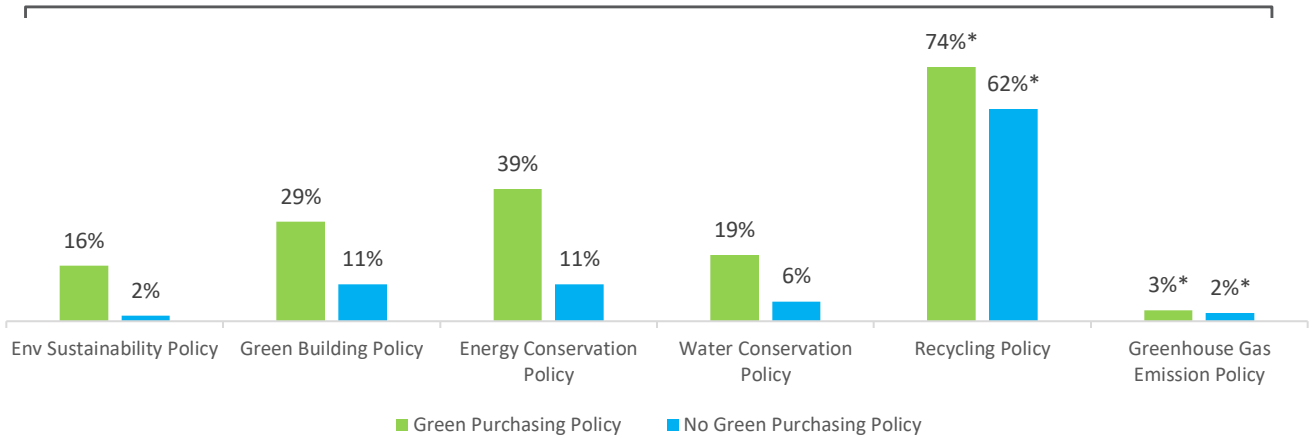
1. Complementary policies and practices

Complementary policies and practices are existing organizational activities that can be used to support green purchasing. They can help reduce the costs of adopting green purchasing policies because organizations that have complementary policies and practices already have a foundation in place to build their green purchasing programs. Complementary policies and practices also help create management commitment and shared vision around similar issues.

We asked department directors several questions about their municipalities' complementary policies and practices, the first of which was, "*To the best of your knowledge, does your municipality have any of the following?*"

Department directors were presented a list of complementary policies and practices. Figure 2 describes those found to be statistically significant in the U.S. survey, a majority of which were also statistically significant for Italian municipalities.

Figure 2. Municipal-wide Implementation of Complementary Environmental Policies



Our findings show that 16 percent of directors in municipalities with green purchasing policies also have a municipal-wide environmental sustainability policy and 29 percent of directors reported also having a green building policy. This compares to directors in municipalities that lack a green purchasing policy, where 2 percent have an environmental sustainability policy and only 11 percent have a green building policy.

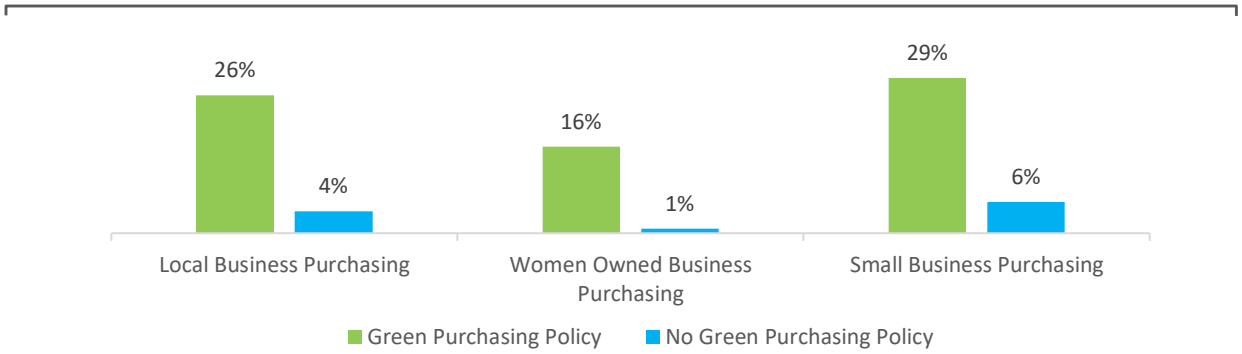
Similarly, 39 percent of directors in municipalities with a green purchasing policy also have an energy conservation policy and 19 percent have a water conservation policy. By contrast, 11 percent of directors in municipalities without a green purchasing policy have an energy conservation policy and 6 percent have a water conservation policy.

The influence of recycling policies and greenhouse gas emission policies, while important in the US, were insignificant in Italy, and thus were marked with an asterisk. The recycling procedures of Italian municipalities are rewarded financially for the quantity and quality of recycled materials, which could be a factor as to why rates of recycling policies were so high whether or not there was a presence of a green purchasing plan.

To explore issues related to more socially oriented complementary policies, department directors were also asked, *"To the best of your knowledge, has your municipality implemented a formal policy pertaining to any of the following purchasing issues?"*

Department directors were presented a list of options. Figure 3 describes the items found to be statistically significant in U.S. local government that pertained to the broader social aspects of sustainability. Our results show that directors in municipalities with green purchasing policies are more likely than others to have implemented these broader purchasing policies. For instance, 26 percent of department directors in municipalities with green purchasing policies have a local business purchasing policy in place, compared with 4 percent of directors in municipalities without a green purchasing policy.

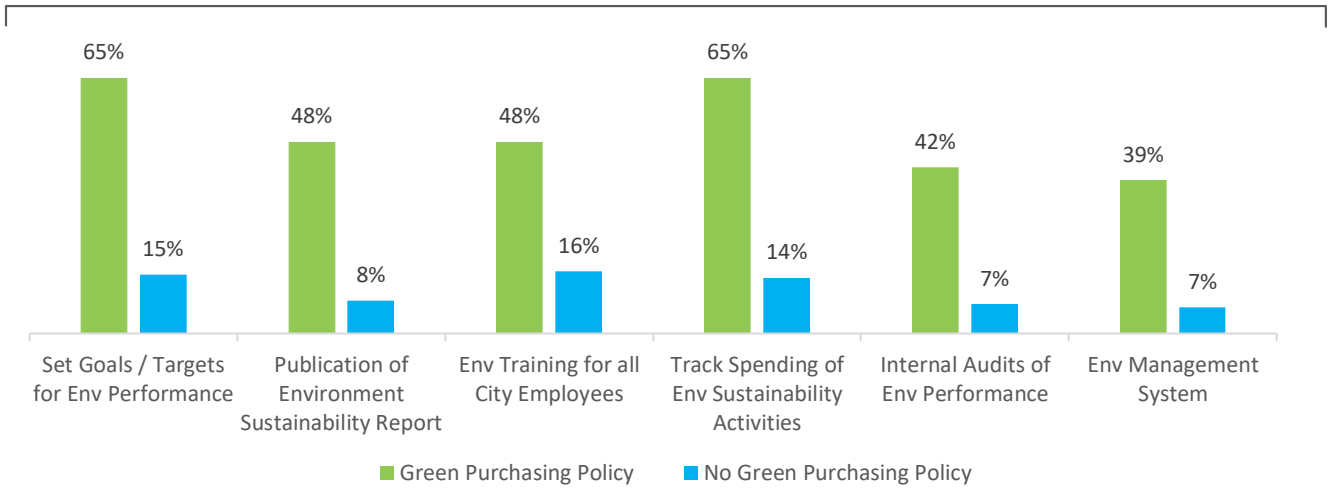
Figure 3. Municipal-wide Implementation of Complementary Social Policies



Of directors with a green purchasing policy, 16 percent indicated the presence of a purchasing policy to increase purchases from women-owned businesses, whereas only 1 percent of the directors without a green purchasing policy had a similar policy. Additionally, 29 percent of directors in municipalities with green purchasing policies have a small business purchasing policy, compared to 6 percent of directors without a green purchasing policy.

In addition to asking about complementary policies, we also examined municipalities' complementary environmental practices. Department directors were asked to, *"Please indicate whether the following environmental practices have been implemented or adopted throughout your municipality."* Department directors were presented a list of options. Figure 4 describes those found to be statistically significant in the U.S. survey.

Figure 4. Municipal-wide Implementation of Environmental Practices



Directors in municipalities with green purchasing policies reported having a greater presence of municipal-wide environmental practices. Neary two-thirds (65 percent) of directors in municipalities with green purchasing policies also report having goals/targets for environmental performance. Just under half (48 percent) also publish an environmental sustainability report. This compares with 15 percent and 8 percent (respectively) of municipalities without a green purchasing policy. Additionally, 48 percent of department directors in municipalities with green purchasing policies have municipal-wide environmental training for all municipal employees, compared with 16 percent of directors in municipalities without a green purchasing policy.

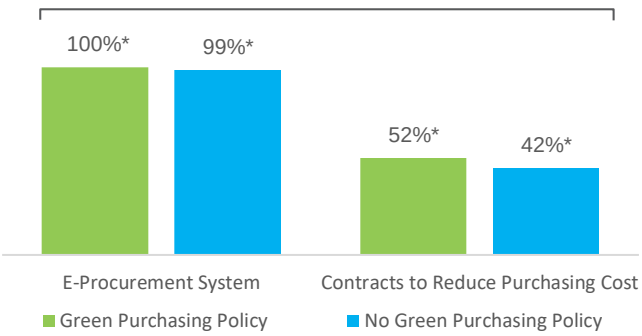
Nearly two thirds (65 percent) of directors in municipalities with green purchasing policies reported having municipal-wide practices that track spending of environmental activities, compared with 14 percent of directors in municipalities without a green purchasing policy. Similar patterns are seen for department directors' reported use of internal audits of environmental performance and the use of environmental management systems.

While department directors of municipalities with green purchasing policies tend to have more complementary environmental practices, many do not have them. Yet, setting goals/targets for environmental performance, environmental training for all municipal employees, and internal audits of environmental performance are necessary to improve the performance outcomes of a municipality's green purchasing policy. As such, there are potential opportunities for municipalities with green purchasing policies to strengthen their internal capabilities in a way that improves their implementation success.

The final area we assessed focused on complementary policies and practices related to the more technical aspects of purchasing. Department directors were asked, *"To the best of your knowledge, has your municipality implemented the following purchasing activities?"* Both were found to be statistically insignificant for the Italian municipalities surveyed.

Our results, presented in Figure 5, indicate the presence of contracts to reduce purchasing costs was statistically similar in both municipalities with and without green purchasing policies.

Figure 5. Municipal-wide Implementation of Complementary Purchasing Activities



E-procurement systems are recognized as being important facilitators of the successful implementation of green purchasing policies. These systems help routinize sustainability concerns in the purchasing process if they are coupled with information about green products and services. In Italy, E-procurement Systems are required by national law, and our results demonstrate this requirement. Nearly all of those surveyed indicated the presence of an E-procurement system.

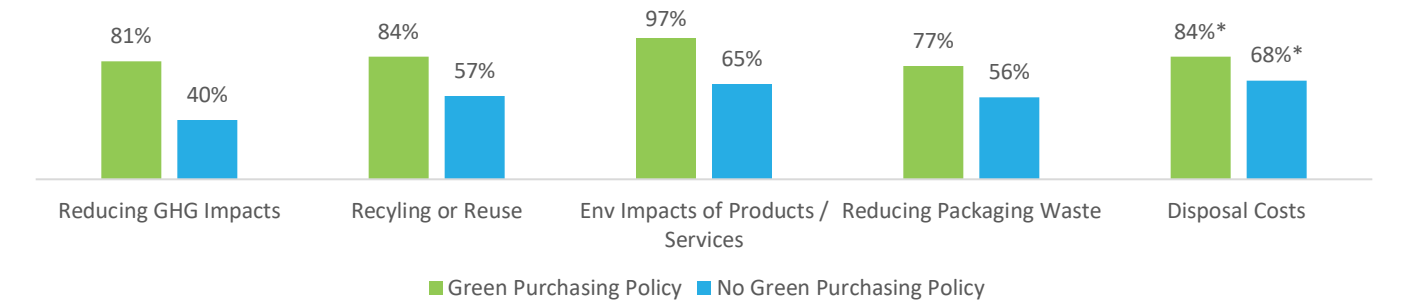
In sum, directors in municipalities with green purchasing policies reported having more complementary policies and practices than directors in municipalities without green purchasing policies. However, the rate of adoption of these complementary policies and practices is only moderate, even in municipalities that have adopted a green purchasing policy. Having these supporting policies and practices can reduce the cost of adopting a green purchasing policy and facilitate its overall implementation success. Our findings thus identify a potential opportunity for municipalities to further embed green purchasing concerns within the procurement process.

2. Purchasing criteria

Purchasing criteria are the factors that individuals consider when deciding to purchase a good or service. Department directors were asked, *"In thinking about your department's purchasing criteria, how important is each of the following characteristics of a product or service?"*

Department directors were presented a list of options described in Figure 6 and asked how important these options were in their department's purchasing criteria. Over four-fifths (81 percent) of directors in municipalities with a green purchasing policy reported that reducing greenhouse gas (GHG) impacts, 84 percent of directors with a recycling and reuse , and environmental impacts of products/services (97 percent) were "Important" or "Very Important" purchasing criteria, compared with 40 percent, 57 percent, and 65 percent of directors in municipalities without green purchasing policies.

Figure 6. Importance of Departments' Purchasing Criteria

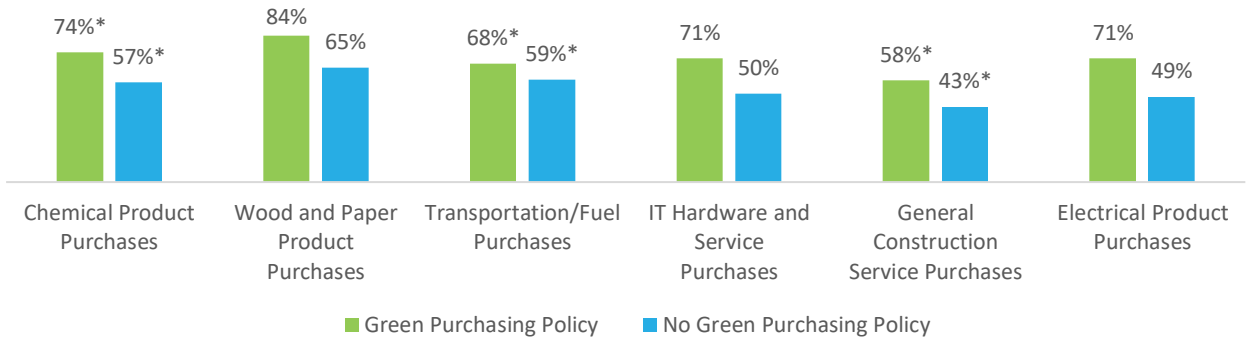


Fewer department directors (77 percent) in municipalities with green purchasing policies also stated that reducing packaging waste is an "Important" or "Very Important" purchasing criterion. This compares to about 56 percent of directors in municipalities without a green purchasing policy. Purchasing criteria related to disposal costs were not statistically different for directors in cities with and without green purchasing policies.

To explore the importance of environmental concerns as they relate to specific purchasing categories, we asked department directors, *"Within your department, how important are environmental sustainability concerns to the purchase of the following types of products and services?"*

Department directors were presented a list of product/service categories, seen in Figure 7. Nearly all of these factors are also not statistically different for Italian municipalities. Only environmental concerns related to wood and paper product purchases, IT Hardware and Service Purchases and electrical product purchases, differed among municipalities with and without a green purchasing plan.

Figure 7. Importance of Environmental Concerns to Specific Types of Products



Over 80 percent of directors in municipalities with a green purchasing policy recognized that the environmental concerns of wood and paper products are important, compared 65 percent in municipalities without a green purchasing policy.

The difference between directors in municipalities with and those without a green purchasing policy is also seen in IT hardware and service purchases and in electrical product purchases: 71 percent of directors in municipalities with a green purchasing policy reported that the environmental concerns specific to these types of products are "Important" or "Very Important." The results compare with only 50 percent and 49 percent (respectively) of department directors without a green purchasing policy.

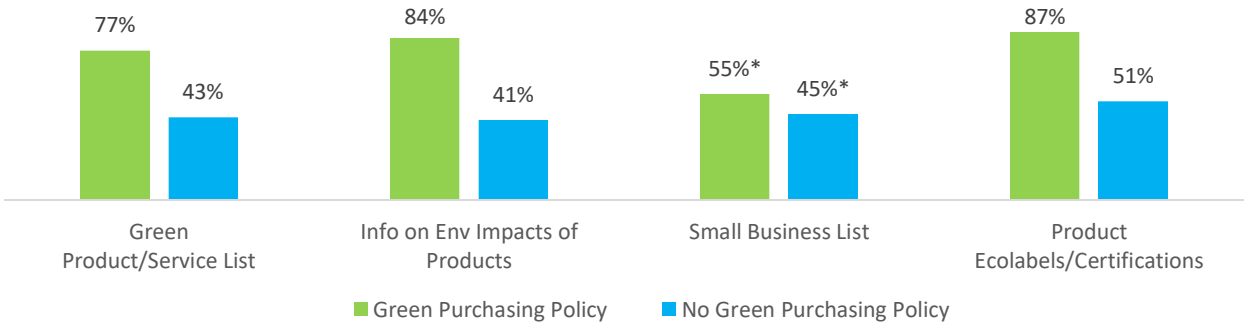
One observation about these findings (Figures 6 and 7) is that for municipalities with a green purchasing plan, between 58 and 97 percent report their purchasing decisions are based on some type of environmental criteria. This compares to between 40 and 68 percent of municipalities without a green purchasing plan. These results are consistent with our overall finding that directors in municipalities with green purchasing policies have more complementary environmental policies/practices than directors in municipalities without green purchasing policies (Figures 2 and 4).

3. Information access

Information can influence purchasing decisions and outcomes. We hence asked department directors about their departments' access to specific information sources in the following question, *"Departments may use a number of different information sources when making purchases. Please indicate whether each of the following information sources is available to your department when making purchasing decisions."*

Our findings show that 77 percent of directors in municipalities with green purchasing policies report having a green product/service list available to their departments when making purchasing decisions (see Figure 8). By contrast, only 43 percent of municipalities without green purchasing policies report having access to green product/service lists.

Figure 8. Information Sources Available to Departments When Making Purchasing Decisions



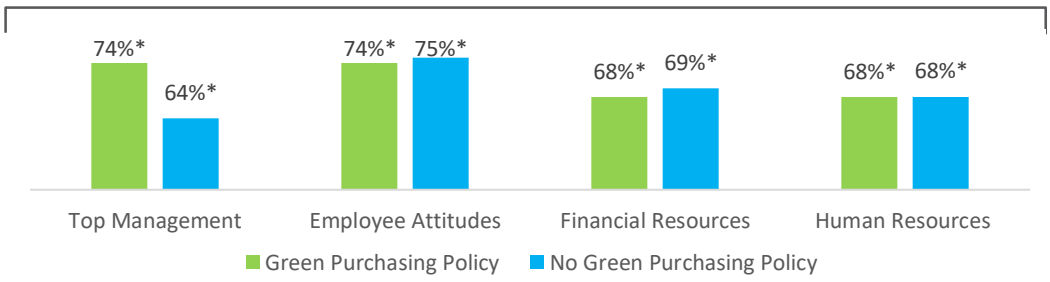
Additionally, more than four-fifths of directors (84 percent) in municipalities with green purchasing policies reported that when making purchasing decisions, access to information about the environmental impacts of products is available. Similarly, 87 percent of municipalities with green purchasing policies have access to product ecolabel/certification information when making purchasing decisions. This compares to 51 percent of directors in municipalities without a green purchasing policy. However, the result related to the information access of small business list is not statistically significant.

These findings suggest that directors in municipalities with green purchasing policies have greater access to environmental information sources when making purchasing decisions than municipalities without a green purchasing policy.

4. Leadership, employees and resources

Leadership, employees and resources are often cited as critical elements in the adoption and implementation of organizational policies. Department directors were asked, *"In your view, to what extent does each of the following either constrain or facilitate your department's ability to implement environmentally sustainable purchasing?"* None of these factors were found to be statistically significant in the Italian data.

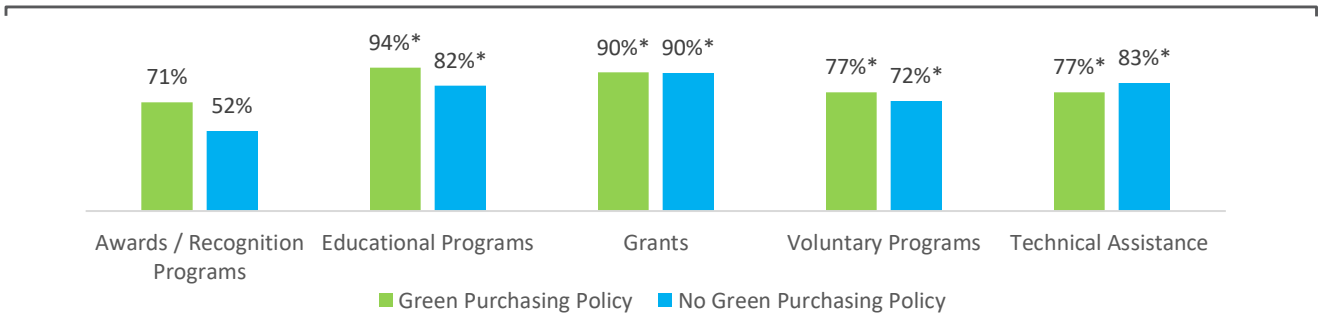
Figure 9. Facilitators of Departments' Ability to Implement Green Purchasing



Although these facilitators were found to be linked to the existence of a formal green purchasing policy in the U.S., in Italy these facilitators were present whether a green purchasing plan existed or not. For both municipalities with and without a green purchasing plan top management, employee attitudes, financial resources, and human resources reflect the ability to implement green purchasing for over half of those surveyed.

To further consider the role of financial resources, we asked department directors about the importance of external support in promoting their municipality's environmental programs with the following question, *"Over the last five years, how important has each of the following federal government programs been in promoting environmental sustainability in your municipality?"* Department directors were presented a list of options. The results are shown in Figure 10.

Figure 10. Importance of Federal Resources to Promoting Municipal-Level Environmental Sustainability



Central government resources appear to be equally as important for municipalities with and without a green purchasing policy. Only awards and recognition programs were found to be statistically significant in the Italian data. That is, 71 percent of directors in municipalities with green purchasing reported awards and recognition programs are important in promoting municipal-level environmental sustainability, compared to less than a half (43 percent) in municipalities without green purchasing. Of those surveyed, similar results were found for educational programs, grants, voluntary programs, and technical assistance. This is likely because there is a national motivation to achieve sustainability goals, and rather than the motivation being limited to municipalities with a green purchasing plan.

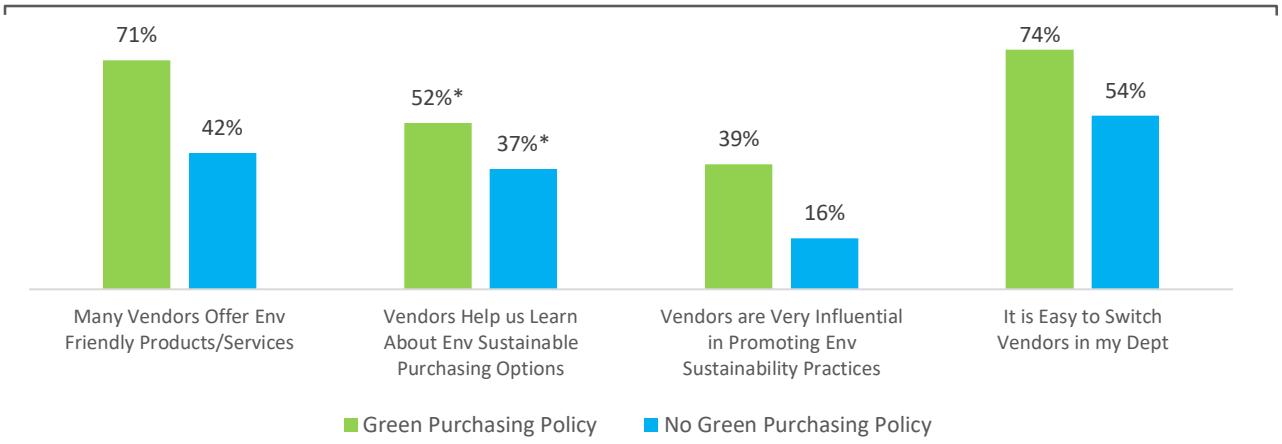
Overall, these findings are noteworthy because organizations often report that financial constraints prevent the adoption of sustainability-oriented policies. While central government financial resources are relevant to the adoption of green purchasing plans in the U.S., in Italy these financial resources are available to all municipalities, rather than targeted to those with a green procurement strategy.

5. Vendor roles

"Vendor roles" refers to the ways in which municipalities engage their vendors over time. We asked directors about their department's roles for vendors with this survey question: *"In thinking about your relationships with vendors, to what extent do you disagree or agree with the following statements about procurement/purchasing in your department?"*

Our findings show that 71 percent of directors in municipalities with green purchasing policies "Agree" or "Strongly Agree" that many vendors offer environmentally friendly products/services, compared to 42 percent of directors from municipalities that lack a green purchasing policy, and who answered the same (see Figure 11). Moreover, 39 percent of directors from municipalities with a green purchasing policy answered they either "agree" or "strongly agree" that it is easy to switch vendors, compared to 16 percent of directors in municipalities without green purchasing policies.

Figure 11. Vendor Roles



However, related to whether or not vendors help them learn about environmentally sustainable purchasing options, the result was statistically insignificant for Italian municipalities. Overall, the results point to a couple of ways in which vendors may facilitate the adoption of municipalities' green purchasing policies and implementation success.

Similarities among municipalities with and without green purchasing policies

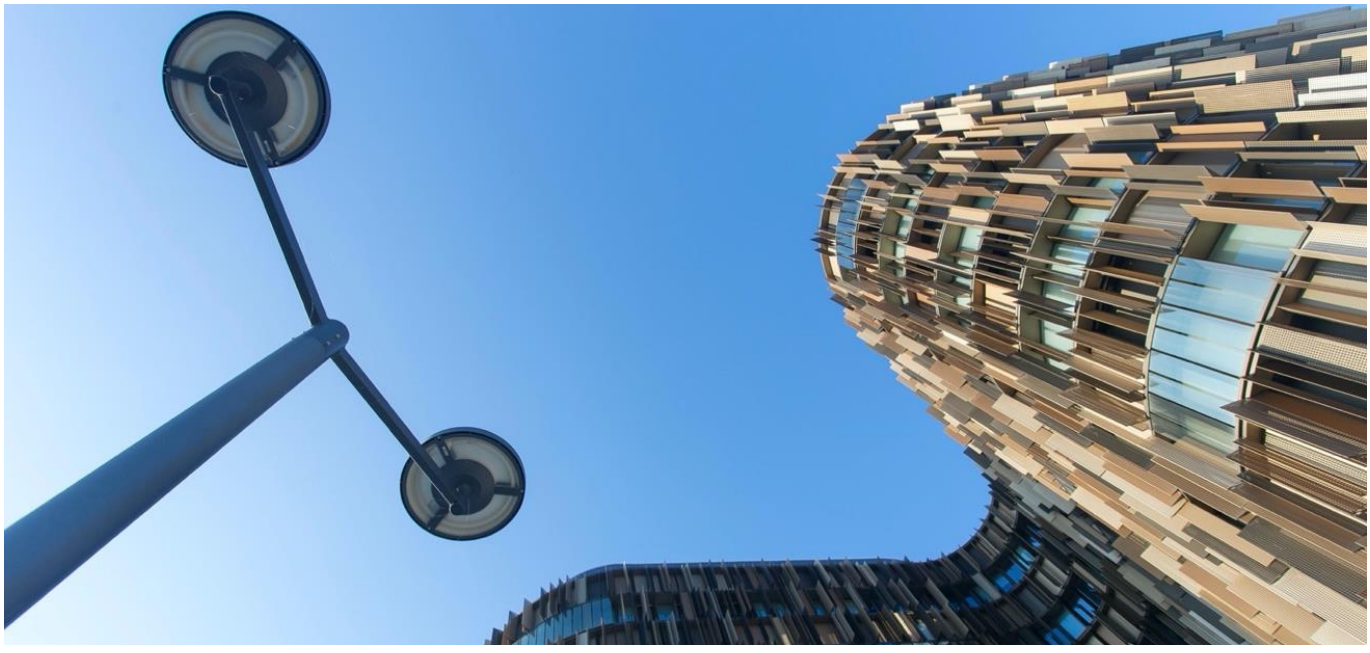
Related to their use of general purchasing criteria, directors reported many similarities across their municipalities, regardless of whether the municipality had a green purchasing policy. These similarities parallel the U.S. findings. They include their municipality's use of purchasing criteria related to:

- Price
- Performance requirements
- Pre-existing contract agreements
- Technical specifications in managing purchase complexity
- Product lifecycle costs

Outside of purchasing criteria, other similarities across directors in municipalities with and without a green purchasing policy include:

- Purchasing rules and procedures
- Levels of bureaucracy
- Commitments to innovation
- Employee rewards systems for innovative solutions
- Entrepreneurial nature and risk-tolerance

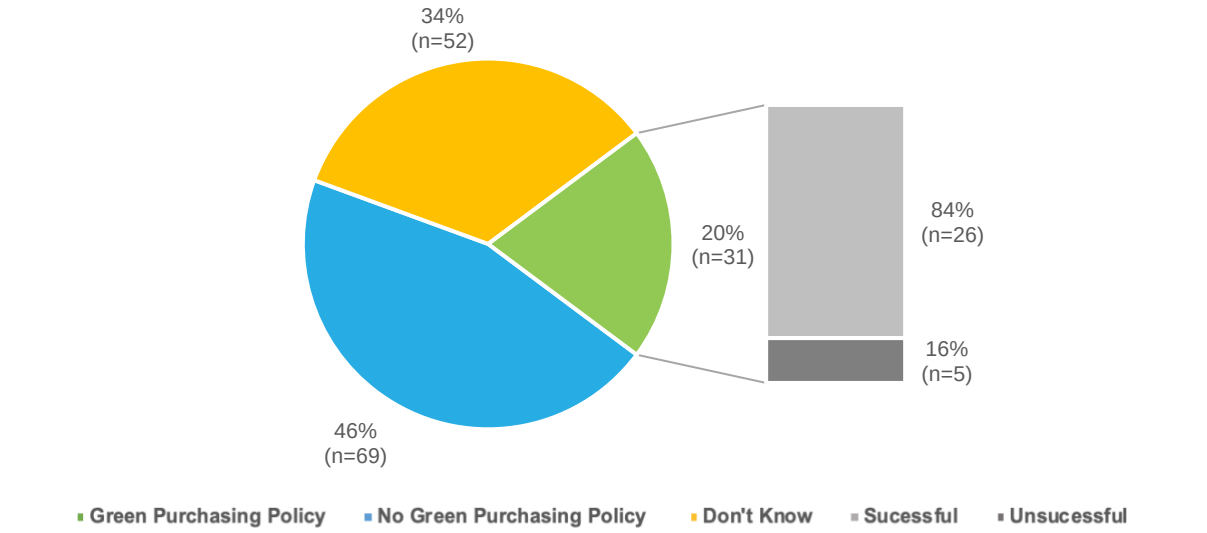
These results suggest that, as in the U.S. and Japan department directors perceive that their municipality's general administrative environment (e.g. rule formalization, bureaucratization and degree of entrepreneurship) and traditional procurement criteria are the same, regardless of their municipality's capacity to adopt a green purchasing policy.



What Factors are Associated with Green Purchasing Implementation Success?

Simply adopting a green purchasing policy does not necessarily mean that its implementation is successful. Of the 20 percent (31 total) of department directors who reported that their municipalities have adopted a green purchasing policy, most (84 percent, 26 total) indicated that their policy is "Successful." About 16 percent (5 total) reported their policy success is either "Neutral" (neither successful nor unsuccessful) or "Unsuccessful".

Figure 12. Green Purchasing Policy Adoption and Implementation Success



To determine what factors are associated with green purchasing policy implementation success, we examined their presence across a variety of activities or policies. From this analysis, we identified five key practices and activities associated with the likelihood of implementation success:

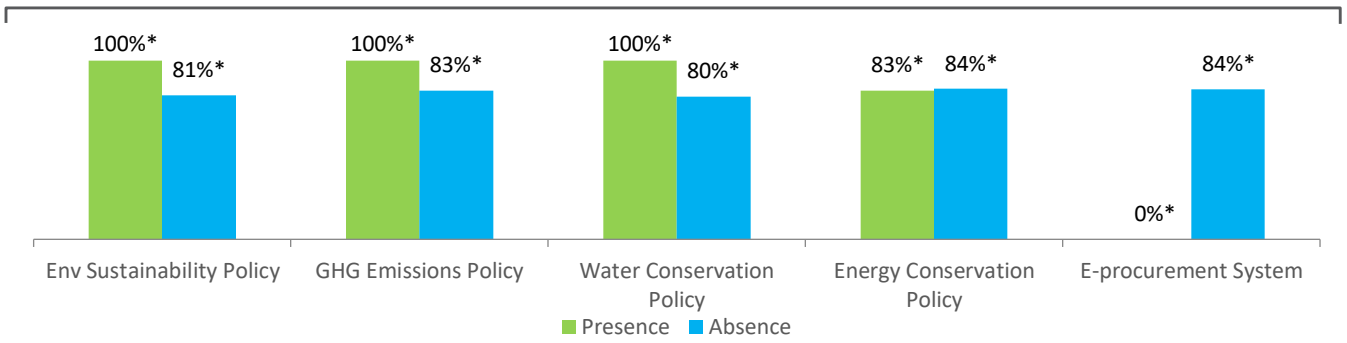
1. Complementary policies and practices
2. Information access
3. Leadership and implementation responsibility
4. Vendor roles
5. Innovation culture

1. *Complementary policies and practices*

As discussed earlier, complementary policies and practices are formalized procedures that can facilitate green purchasing, and thus increase their likely success because similar internal capabilities are needed to manage both types of activities. They also create management commitment and shared vision around similar issues, thus embedding green purchasing deeper into a municipality's routine operations.

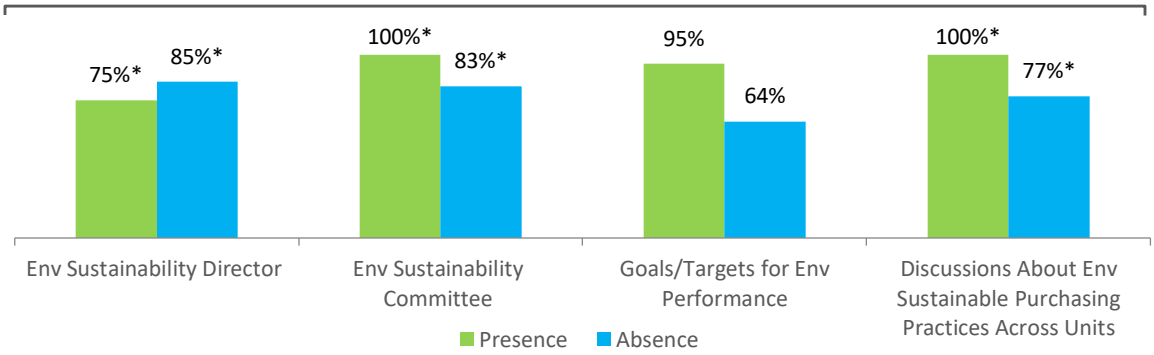
For directors who indicated that the green purchasing policies in their municipalities were successful, we compared them based on whether the municipality had or had not implemented complementary policies. Our findings show that, in general, directors in municipalities that have specific complementary policies in place are equally as likely to report the successful implementation of their green purchasing policy than those without such policies (see Figure 13). It is possible that the relatively low statistical significance is due to the fact that in Italy those without municipal-wide policies were more likely to answer either they did not have or were not aware of a green purchasing plan within their municipality.

Figure 13. Probability of Successful Implementation of Green Purchasing Policy, Given Municipal-wide Policies



The presence of a municipal-wide environmental sustainability policy is more likely (100 percent) to lead to green purchasing success than if a municipality does not have such a policy (81 percent). Another way to say this is that municipalities with municipal-wide environmental sustainability policies are 19 percent (100 percent minus 81 percent) more likely to be successful at implementing their sustainable purchasing policies. Additionally, the probability of successfully implementing a green purchasing policy increases in the presence of a greenhouse gas emissions policy and a water conservation policy. Although none of these variables were found to be statistically significant in our data for Italy.

Figure 14. Probability of Successful Implementation of Green Purchasing Policy, Given Municipality Practices



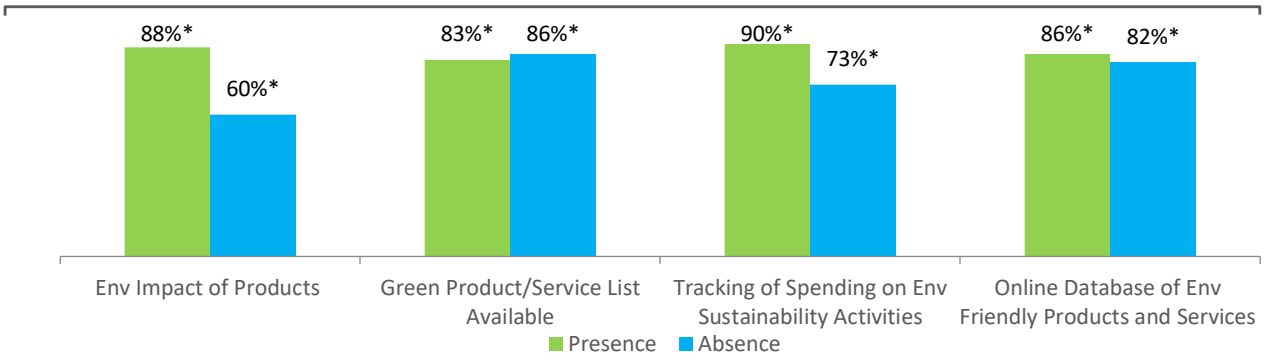
Directors' reported perceptions of the successful implementation of their municipalities' green purchasing policy success are similarly conditioned on complementary practices (see Figure 14). Setting goals and targets for environmental performance increased the success of the program. For instance, our survey results show setting targets increased the probability of the successful implementation of a green purchasing policy

from 64 percent to 95 percent. Discussions on green purchasing policies, and the presence of an environmental sustainability committee and director were found to be similar across municipalities with both successful and unsuccessful green purchasing policies.

2. *Information access*

Information often shapes purchasing decisions, however in Italy the municipalities that reported implementation of a green purchasing policy were no more likely to have access to relevant environmental information (see Figure 15).

Figure 15. Probability of Successful Implementation of Green Purchasing Policy, Given Access to Types of Information

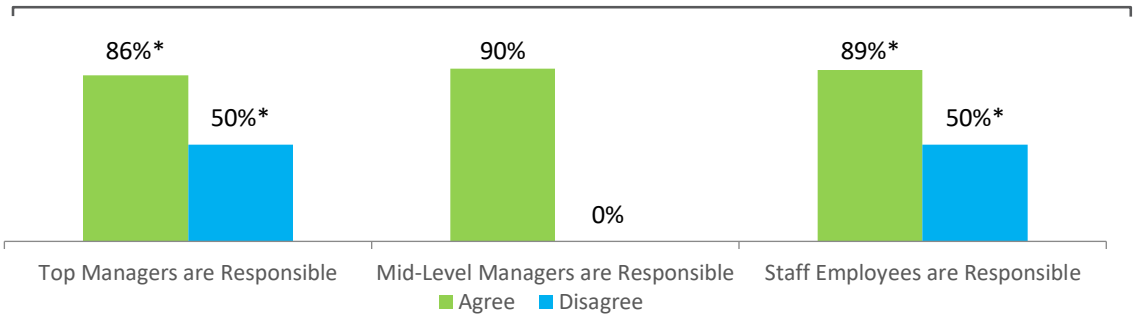


Despite the fact that all these variables were statistically insignificant in determining the likelihood of success of the green purchasing policies, they demonstrate the wide availability of information across Italian municipalities with a green purchasing policy. Furthermore only 5 of the 31 municipalities with a green purchasing policy responded that the program was unsuccessful, so studying this relationship in a greater sample size could better demonstrate the relationship between these variables.

3. *Leadership and implementation responsibility*

Earlier we described how leadership is related to municipalities' adoption of green purchasing policies. Figure 16 shows that leadership is also related to the implementation success of municipalities' green purchasing policies. Indeed, department directors' "agreement" that mid-level managers are responsible for the implementation of the department's environmental practices increases the probability of reporting successful implementation of a green purchasing policy to 90 percent, compared with 0 percent when there is "disagreement." While the responsibilities of top managers and staff employees were similar across municipalities with both successful and unsuccessful green purchasing policies.

Figure 16. Probability of Successful Implementation of Green Purchasing Policy Given Directors' Perceptions of Locus of Responsibility

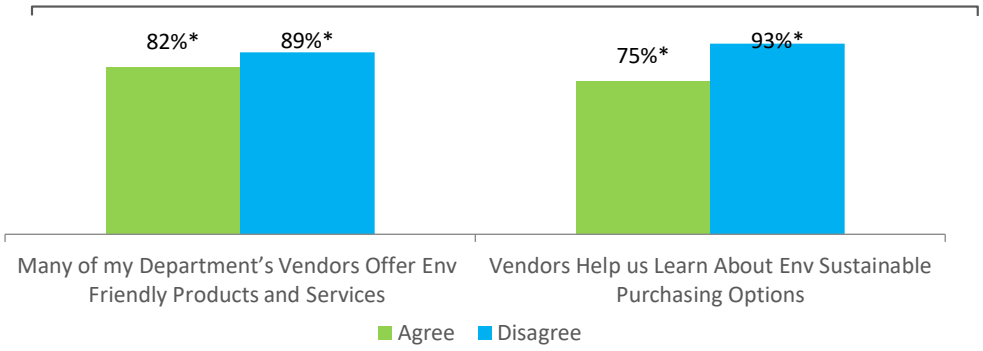


4. *Vendor roles*

Although the roles of vendors appear to be important to a municipality's adoption of green purchasing policies, they are not important to the municipality's successful implementation of that policy (see Figure 17). Municipalities with both successful and unsuccessful implementation of green purchasing policies appear to have similar perceptions of vendor roles. More specifically, department directors' "agreement" that when their department vendors offer environmentally friendly products and services the probability of reporting a successful implementation is only 82 percent, compared with 89 percent when directors "disagree" with the notion that vendors offer environmentally friendly products and services.

Additionally, directors whom reported "agreement" that vendors help a municipality learn about environmentally sustainable purchasing options have a probability of green purchasing policy implementation success of 75 percent, compared with 93 percent when directors "disagree" that vendors help a municipality learn. Although these findings are not statistically significant in the Italian dataset, and display counterintuitive results, they point to the fact that vendor relationships are nationally regulated and influenced by the Anticorruption Law. In an effort to limit the risk of corruption, relationships with vendors are limited, and rotation of vendors is encouraged among all municipalities.

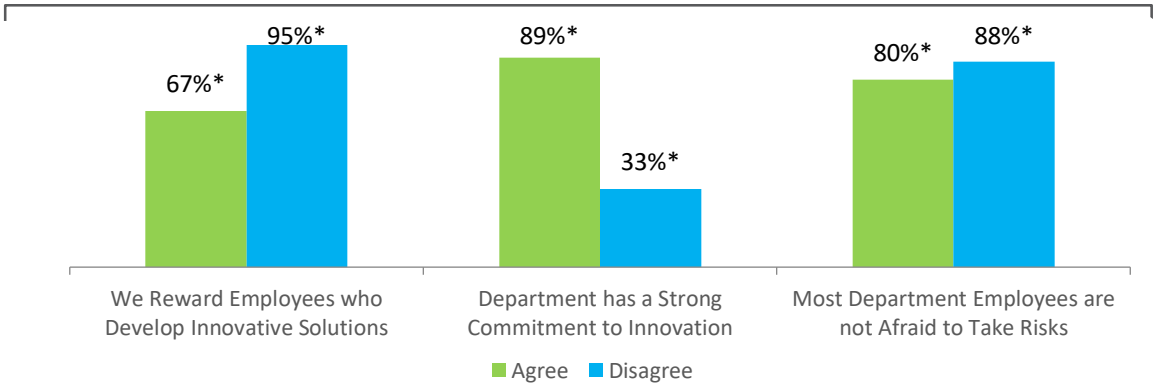
Figure 17. Probability of Successful Implementation of Green Purchasing Policy, Given Directors' Perceptions of Vendor Roles



5. *Innovation culture*

An organization's culture is a function of leaders' and employees' values, norms, messages and behaviors. Strong cultures for innovation encourage organizational change and openness to new ideas. A department's innovation culture is neither related to its adoption of a green purchasing policy nor the policy's implementation success (see Figure 18). The results were found to be statistically insignificant and seemed counterintuitive.

Figure 18. Probability of Successful Implementation of Green Purchasing Policy, Given Directors' Perceptions of Departments' Innovation Culture



Similarities among municipalities with and without successful green purchasing policies

Finally, as was the case in the U.S., there are several areas in which directors within municipalities with a green purchasing policy responded similarly with respect to the successful implementation of their green purchasing policies. Similarities across directors related to general purchasing criteria, which were unrelated to implementation success include:

- Price
- Performance requirements
- Pre-existing contract agreements
- Technical specifications in managing purchase complexity

Other similarities among municipalities with and without successful green purchasing policies relate to their:

- Department rules and procedures
- Levels of bureaucracy
- Environmental pressures exerted by internal or external stakeholders

Five Actions to Advance Green Purchasing in Italian Municipalities

Our preliminary analysis of the survey data underscores several key facilitating factors for green purchasing adoption and implementation success in Italian municipalities. We offer five actions to advance green purchasing in Italian municipalities, which parallel the findings in the U.S. study. These recommendations are applicable to both Italian municipalities that lack a green purchasing policy and those that wish to strengthen their existing green purchasing activities.

1. Build on complementary policies and practices

Four-fifths of the department directors we surveyed reported that their municipalities either did not have a green purchasing policy or did not know whether one existed; however, they have developed some complementary policies and programs such as GHG emissions policies, water conservation policies and energy conservation policies. In other instances, municipalities have set goals/targets for environmental performance. All of these sustainability activities are associated with the successful implementation of green purchasing policies. Municipalities that have implemented complementary policies and activities are in a strong position to adopt a green purchasing policy.

For Italian municipalities that already have a green purchasing policy, having also adopted complementary policies and activities puts them in a stronger position to improve the implementation success of their purchasing policy. This is because the internal capabilities necessary for managing both types of activities are either similar or related. This type of complementarity can create economies of scale and reduce operational costs. Complementary policies and practices also help create management commitment and shared vision around similar issues, reduce the cost of green purchasing adoption and facilitate the overall implementation success of green purchasing policies.

2. Use information about environmentally preferred products

Even for simple decisions, information is critical to the decision-making process. Directors in municipalities with green purchasing policies experience some success with their green purchasing activities, and roughly three-fourths of directors reported that they have access to environmental information for the implementation of these policies. Such information includes access to product ecolabels/certifications and online databases of environmentally friendly products and services. Although this information does not significantly contribute to a more successful green purchasing policy, there is a slight correlation. In the absence of this information, the implementation of municipalities' green purchasing activities is constrained.

Environmental labels and certifications are already a main component of the National Action Plan on Green Public Procurement, which explains why municipalities with green purchasing plans were more likely to use them in decision making. Since the infrastructure of environmental labels, product declarations, and certifications is already available, Italian municipalities are at a unique advantage to base purchasing criteria on the environmental impact of the products and services.

3. Track spending related to green purchases

Organizations manage what they measure. Municipalities that track their green purchase spending therefore are more likely to elevate the importance of green purchasing in organizational routines and practices. Additionally, by tracking spending related to green purchases, municipalities are better positioned to reduce costs related to energy, water, fuel and other expenditures. Other tracking approaches might involve monitoring the quantity of environmentally friendly products purchased. Whatever the approach, monitoring green purchases creates opportunities for municipalities to develop goals and targets around green purchasing and more appropriately recognize departments and employees who are meeting or exceeding (or failing to meet) green purchasing expectations.

Ideally, the tracking of green purchases should be integrated into an e-procurement system to assess green product attributes throughout the procurement process and as part of the contract management process. In Italy the use of an e-procurement system is nationally regulated, and almost all of respondents indicated the existence of one in their department. This puts Italian municipalities in a good position to integrate a tracking feature into their system, to further customize their system with green procurement features.

4. Assign responsibility to top-level management

Our results underscore the importance of top-management responsibility to both the adoption of green purchasing policies. Department directors indicate that top-management involvement is more important to the successful implementation of green purchasing than financial resources. Leadership resolve in the adoption and implementation of green purchasing policies will build momentum and commitment. Municipalities that wish to implement a successful green purchasing policy should consider seriously the role of leadership and assignment of responsibility to top-level managers.

5. Participate in professional networks to share best practices

Our final recommendation is related to several of the recommended actions identified above. As more municipalities develop their green purchasing programs, an opportunity is created to learn from best practices. Professional networks such as the National Association of Italian Municipalities (ANCI), Procura+ Network, and the United Nations Environment Programmed (UNEP) have emerged to support green purchasing in municipalities, companies and other organizations. Participating in these networks also help members gaining access to information on best practices and additional ways to introduce or strengthen green purchasing by making it part of the municipality's routines and processes and enhancing vendor relations. Further, because professional networks often offer learning opportunities through training webinars and conferences, municipalities avoid implementation hurdles already encountered by others. Networks can also inform municipalities of external support, such as grants, educational programs and awards/recognitions that can assist with the development of a green purchasing policy and its successful implementation.

Additional Resources

Please visit our website sustainability.asu.edu/spri for additional resources, including:

- Project updates
- Survey materials
- Related research papers and reports
- Video clips
- Podcasts
- Slide decks
- Links to news articles about this research
- Links to other green purchasing resources

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INSTITUTE OF MANAGEMENT

Scuola Superiore Sant'Anna

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