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Instruments Creating Demand for Innovative Public Procurement in Light of Empirical Research*

***Abstract.** Public procurement has been, for many years, one of the main instruments of the European Union in creating demand for innovation. Proof of this is seen in numerous strategic documents on this subject, as well as, good practices regarding their use in selected countries. Unfortunately, the use of public procurement in order to create innovation in Poland is a reflection of the low position of our country in the European ranking of the most innovative states. Moreover, the problem is not broadly addressed in Polish literature on the subject. Therefore, the aim of this article is to identify the instruments creating demand for innovative public procurement in Poland. Their characteristics have been enhanced with empirical studies carried out on 165 authorities who were obliged to apply the provisions of the Public Procurement Act, supplemented by data from secondary sources from publications of the Public Procurement Office.*

***Keywords:** innovativeness of economy, public procurement, creation of demand*

Introduction

The subject literature sources share a view according to which Polish economy has a high potential for innovation. It consists of a strong entrepreneurship of Poles (according to Eurostat, Poland is one of the most entrepreneurial countries in the world), a success of many industries in creating innovation in spite of the lack of interest of the state in financing their new ideas, as well as greater attention

* The paper translated by Jan Sosnowski.

paid to the development of metropolis, all causing changes in attitude and thinking about innovation.¹ However, using this potential requires an appropriate economic policy of the state and a rational approach to resources and legal solutions. One possibility for an effective action is a consistent use of solutions provided by the public procurement system. The point is to utilize the existing legal provisions and capital in order to create demand for innovative products and services. This problem does not involve any regulatory changes, but more efficient use of available resources to meet social needs, which is the essence of modern economics.

Demand for innovation is a need for new ideas and solutions raised by all potential customers. From the point of view of this article, this demand is understood as the demand for new products reported by public sector entities. It should, however, be noted that the supply of innovations is an offer of new solutions proposed by contractors in procurement procedures. Creating demand for innovation refers to the development by public sector entities of demand for innovative solutions in the economy, which (given their funding) can be used by the whole of society, and the creation of supply may involve all stakeholders of the market. On the other hand, innovative public procurement means a remitted contract concluded between the contracting authority and the contractor, the subject of which is an innovative service, innovative delivery or innovative construction works.

The achievements of theoretical and empirical research on creating demand for innovation through the public procurement system are very modest in global literature. The issue of creating demand for innovation by this system is addressed mainly by the EU strategic documents such as the Lisbon Strategy, for example, while in Poland publications of the Polish Agency for Enterprise Development and the Ministry of Economy. However, they do not include any in-depth research and analysis indicating the possible use of the development potential within public procurement in order to create new solutions in the form of innovative products and services. It should also be noted that the literature related to public procurement is dominated by all kinds of legal publications and the economic issues have not been of particular interest so far.

This fact is surprising, since the public procurement market is one of the fastest growing markets in Poland. Its value in 2013 increased by 8 percentage points over the previous year and amounted to 143,2 billion PLN [UZP 2013: 26]. It undoubtedly points to a significant impact this market has on the entire national economy.

The analysis of creating demand for innovations through public procurement system (and thus the use of the existing potential of this system) is a very important economic problem Polish economy has to face. Despite the lack of empirical

¹ *Go Global! Raport o innowacyjności polskiej gospodarki 2001* [Go Global! Innovation Report of Polish Economy 2001], http://polskiwroclaw.pl/upload/Raport_final.pdf [access: 10.12.2014].

achievements in this regard, the examples of highly developed countries show that through the effective use of existing resources and legal status and with solutions used by the public administration, the innovativeness of many economies could be raised.

The purpose of this article is, therefore, to present (against the background of empirical studies and data from secondary sources) the instruments creating demand for innovative public procurement in Poland. The study involved 165 authorities obligated to apply the Public Procurement Act. Purposeful sampling was used primarily to receive professional and real answers, because individuals not participating in public procurement procedures often manifest ignorance of the public procurement system. In order to validate the results and to determine dependencies a test of independence was applied according to the chi-square and the time range of the sample covered the years 2010-2012. The study was conducted among entities throughout the entire country.

1. Instruments creating demand for innovative public procurement

As already mentioned, public procurement may become in the near future one of the main tools to boost competitive position of the Polish economy by creating innovative solutions which would carry economic benefits for many years to come. So let's trace the most important instruments that should determine the demand for innovation in the current legal status. They primarily include the following:

- the use of the so-called pre-commercial procurement,
- technical dialogue between the contracting authority and the contractors,
- the use of competitive dialogue and negotiation modes,
- publication by the contracting authority of initial information notices on procurement,
- the use of the so-called *Value for Money* rule (benefit ratio rule),
- formulating the terms of reference within the terms of the contract,
- admission by the contracting authority of variants and equivalents,
- giving up the lowest price criteria at the expense of the criteria leading to the most economically advantageous tender,
- providing advances to contractors who have submitted the best bid,
- proper drafting of contracts with contractors winning tender procedures and the introduction of appropriate records supporting innovation-oriented solutions,
- professional commitment of the tender committee knowing the criteria for the selection of innovative public procurement (optional involvement of substantive experts).

Pre-commercial procurement processes are related to the provision of innovative public procurement, so that public authorities can control the development of new technology solutions,² which are designed to meet the specific needs of the contracting authorities, and in particular in areas where there are no commercial solutions or where they are not sufficient. They refer to tenders for research work and scientific research prior to commercialization. They constitute a modern instrument which facilitates the adjustment of the object of the contract in the best possible way to the needs of the contracting authority.

Pre-commercial public procurement is a potential for a review of various possible solutions before committing to procuring a commercial product. It is worth noting that in the case of pre-commercial procurement, public entity can be composed of contracting authorities from different countries or regions. It diversifies the risk and reduces the financial burden.

Against the background of the basics related to the provision of pre-commercial procurement it is worth considering what is the condition for their use in Poland. Unfortunately, the reality in this area is staggering because as late as the end of 2010 the first and probably the only comprehensive analysis appeared in which the foundations for contracts of this type were laid down. Thus, the existence of disorientation of Polish authorities regarding the concepts and procedures for their implementation. None of the participants of the study on barriers to the implementation of innovative public procurement was able to answer the following question: what is the pre-commercial public procurement. And none of them has ever implemented such procurement nor planned such an implementation.

A good solution prior to the granting of pre-commercial procurement can be the use of **technical dialogue**, because the development of innovation may influence expectations balance between the demand side and the supply side [Moverly & Rosenberg 1979: 148]. One needs to keep in mind that public sector employees are generally professionals with regard to the implementation of innovative solutions and technologies, thus by defining their needs they will be forced to consult them with entrepreneurs who are specialists in their respective industries. Therefore, they should be very careful in identifying their needs and then effectively analyze the market of contractors.

Technical dialogue is therefore a tool in the hands of the public entity that enables the exploitation of consulting firms, academics and experts before tender procedures, which should help to correct inaccuracies in the formulation and development of the content of tender specifications. Technical dialogue can be carried out in several ways, e.g. by the following: commissioning of an analysis, development of specifications or testing on the basis of solutions used in other

² Draft Preliminary Paper on the Community Law applicable to Pre-commercial Public Procurement, September 2006, Version of 29.09.2006.

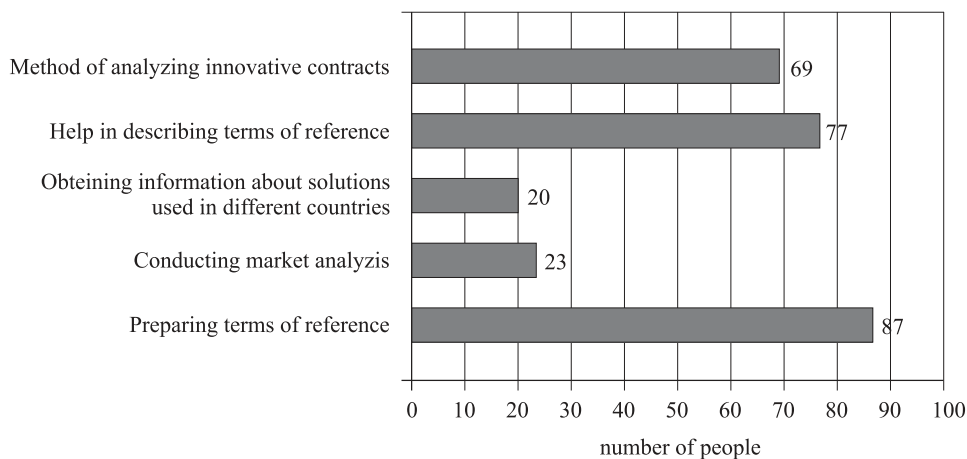
countries. Another method is to conduct interviews with clients, professionals and even potential contractors to obtain knowledge about the existing market solutions and technologies that can be obtained. Finally, another way is to use a tendering mode which allows negotiations [Serbeńska 2011].

It turns out that none of the 165 surveyed persons ever got familiar with the concept of technical dialogue and never introduced it in practice. Few officials (12%) admit, however, that they often consulted with third parties how to prepare tender documentation. But those were never advisory or consulting firms, but above all, direct superiors and colleagues.

Interestingly, more than half of the respondents (55%) see the need for such consultations primarily regarding the preparation of the terms of contract, the terms of reference, and formulating equitable methods for the assessment of contractors participating in tenders. The majority also believes that the use of this approach in the future may contribute to the growth of innovative public procurement in Poland and to create demand for innovation. Chart 1 presents the results of studies related to the demand for the application of technical dialogue at different stages of a tender procedure. Respondents presented their opinions regarding the cases in which the technical dialogue could assist them.

According to the survey, the smallest interest in the field of technical dialogue was enjoyed by the opportunity to obtain information about the solutions used in other countries. This result seems to be disturbing, because Polish economy holds one of the last positions in the European Union in the field of innovation, and the solutions implemented in other countries often seem to be a lot more useful.

Chart 1. Areas indicating the need to use technical dialogue in the opinion of the contracting parties



Source: own study based on test results.

Also, a low interest in performing market analysis is worrying, because only good knowledge of such an analysis is a prerequisite to obtain information about the latest technologies and the most technologically advanced entities. The results do not sum up to the sample size, as respondents had an opportunity to simultaneously identify multiple answers, as well as add all their own proposals. Of these, the most frequently appeared the need to use technical dialogue in terms of cost estimate regarding construction works, as well as the conditions of contract.

Another tool for contracting authorities to create demand for innovative supplies, services and works is the use of a competitive dialogue or negotiation as a mode of public procurement. These modes are undoubtedly suitable as the best of the eight created by the legislature to test and verify new ideas. In accordance with the applicable regulations the **competitive dialogue** is a procurement procedure in which, after the public announcement of public procurement, the contracting authority shall pursue a dialog with selected contractors, and then invite them to tender. Due to its design, this mode enables a wide range of innovative products and services. As pointed out by Paweł Granecki [2007: 201] in his commentary on the Public Procurement Act, it enables the provision of complex contracts often associated with ICT, infrastructure projects, or projects regarding funding processes. It seems that this mode is also suitable for projects financed in the form of public-private partnership, as in this case it is the hardest to describe an innovative project.

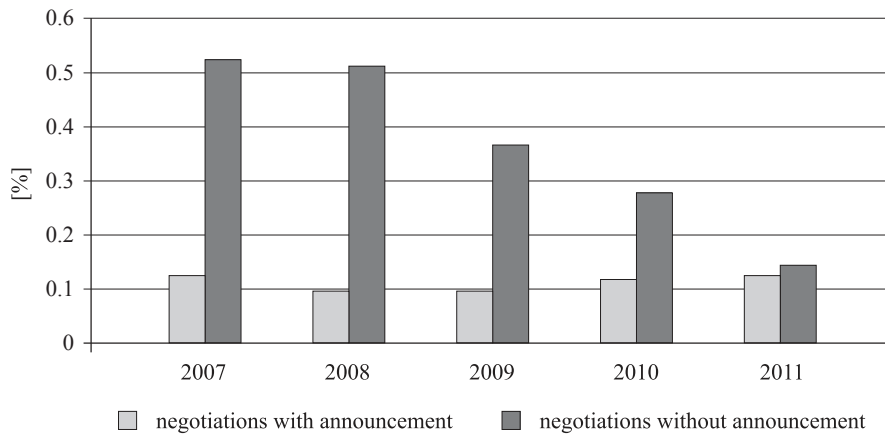
Unfortunately, in Poland the competitive dialogue is virtually never used. Of all the respondents, none has ever used this mode in practice, and none has even known any provisions or conditions concerning its application.

Among the reasons put forward by respondents with regard to the reluctance in the use of this mode the uncertainty of obtaining a contract dominates. Concerns are often raised about the participation in the dialogue, because no one wants to sell their ideas before implementing them in practice. Hence, it is essential to reward potential contractors participating in the dialogue, which would encourage them to participate in it even further. The possibility of such remuneration is given to authorities by the PPL Act.

A solution similar to competitive dialogue is a negotiation procurement mode. Polish Public Procurement Act among such modes includes negotiations with announcement and without announcement. **Negotiations with announcement** are a mode in which, after the public announcement of a contract, the contracting authority invites contractors authorized to participate in the proceedings to submit initial bids not containing prices, leads negotiations with them, and then invites them to re-tender. On the other hand, **negotiations without announcement** are a mode where the contracting authority negotiates the terms contract with contractors of its choice and then invites them to tender.

Unfortunately, in this respect, as in the case of the competitive dialogue, the capacity of its utilization is low. The data of Public Procurement Office on this subject is shown in Chart 2.

Chart 2. The proportion of the use of modes of negotiation in 2007-2011 among Polish contracting authorities



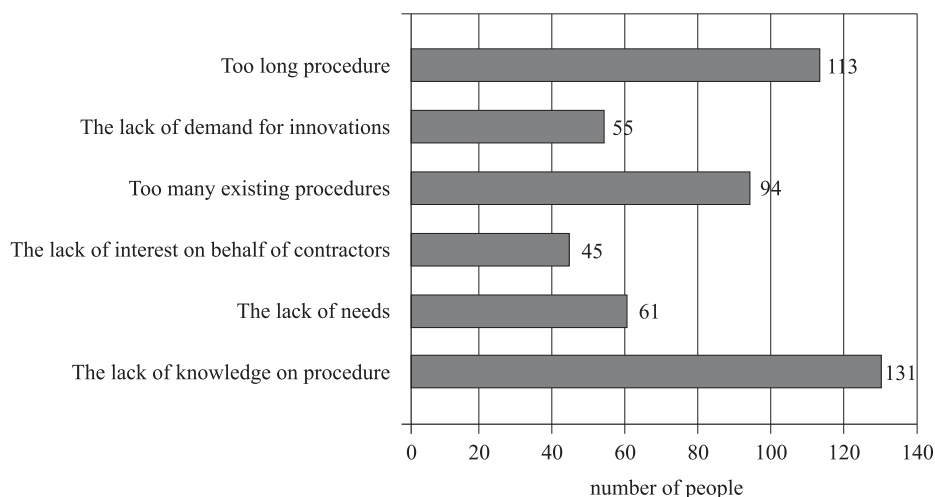
Source: own study based on data from the Public Procurement Office.

Chart 2 shows a large downward trend in the use of negotiation modes by Polish authorities, as well as a very low percentage compared to other modes of public procurement. As in the case of competitive dialogue, the use of these modes requires the fulfillment of statutory requirements and is not always possible. Chart 3 shows the most important barriers to the use of negotiation modes.

Among the most important barriers stemming from the research on the use of negotiation procedures, it is worth to mention primarily those associated with long-term durability and procedure difficulty. Very often contracting authorities are not interested in procedures, which are time-consuming and rarely lead to the expected results. At the same time too many possible solutions also result in the resignation from harder modes and preference of the easier ones and thus shorter lasting in time.

Discussing the negotiation modes one needs to mention one more procedure relating to the award of public contracts, namely **contest**. The associated procedure also allows the presentation and selection of innovative solutions. It is important, however, for the contest works to be actions which are in fact pieces, since it is desired that the subject of the competition was protected and the rights were transferred to the contractor [Starzyńska 2011]. As shown by many specialists in the field of public procurement, a contest is an excellent platform for the

Chart 3. The barriers to the use of negotiation modes
in the opinion of contracting authorities



Source: own study based on test results.

exchange of experiences and presenting innovative solutions by the private sector. The problem linked to its use, however, lies primarily in the fact that it is not a mandatory procedure and is not on the list of modes provided for by law. Therefore, the proportion of proceedings conducted by the authorities on a contest basis is similar to the modes of negotiation.

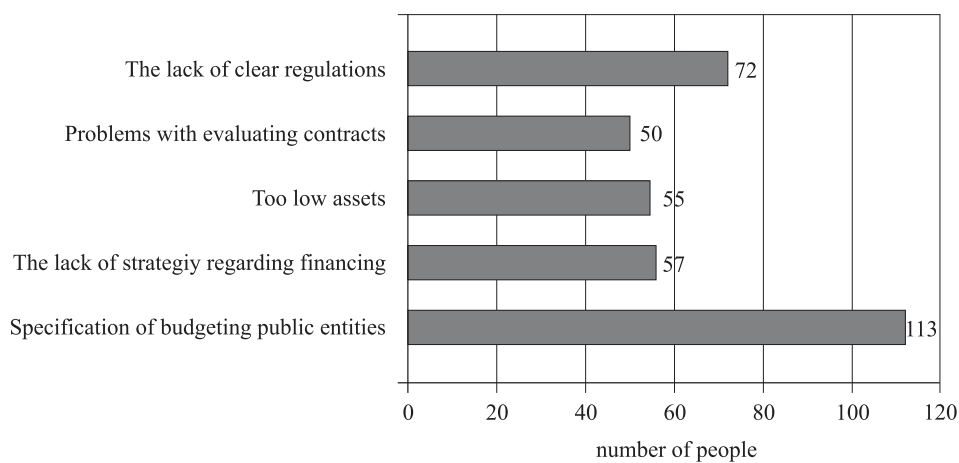
Another solution favorable to the creation of demand for innovations by the contracting authorities is to publish their pre-information notice for procurements. Early **planning of public procurement of innovative** character is decisive when it comes to obtaining a solution that would meet the requirements of the customer. Therefore, in order to effectively create demand for innovation, a public sector entity must articulate its needs well in advance regarding what it wants to purchase, and how it wants to carry out the contract.

A very important element in this respect should be an evaluation committee appointed by the contracting authority. It should begin its work at the stage of preparing specific procedures, because – if it begins to work too late – it will not be able to implement solutions leading to an innovative subject of the contract. Members of this committee should also benefit from a broad support of other organizational units or internal entities to describe the object of contract characterized by innovativeness and a specialized nature. It is also recommended for the committee members to be people who are the end users of products or services. In the case of contracts for a totally unknown object, it is also worth considering the

use of an external professional company, which will be able to the highest extent to take advantage of the possibilities offered by legal provisions.

Unfortunately, despite the benefits stemming from obtaining innovative solutions (resulting from quick planning of customer's needs), the process is not fully exploited by public institutions. Reasons related to the lack of effective planning of public procurement diagnosed in the course of the study are shown in Chart 4.

Chart 4. The reasons for the lack of effective planning of public procurement in the opinion of authorities



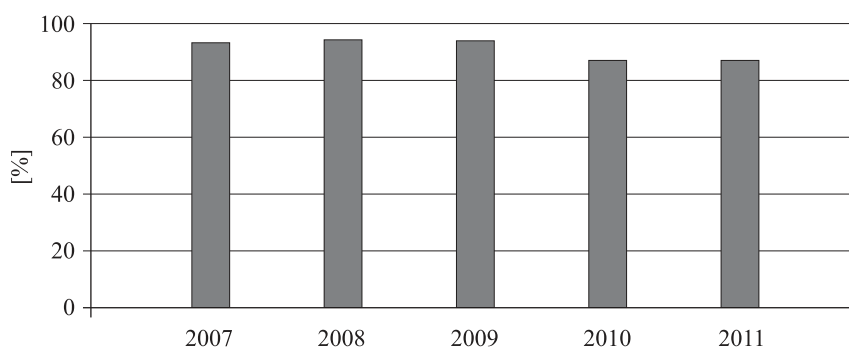
Source: own study based on test results.

The reason for the lack of effective planning of expenses related to the award of public contracts in the opinion of most authorities is the nature of public budgeting. It is hardly surprising that the ordering authorities approach any plans in a skeptical and careful way as they do not know the amount of funding they would receive from the regulatory authorities in the next financial year. They often point to the fact that the amount of funds obtained by them in subsequent years undergoes major changes, and especially in the case of construction works, investment planning is often irrelevant.

One solution to create demand for innovation is the use of the so-called *Value for Money* index. It is achieved by the time they reach the widest possible benefits in terms of their existing resources and capabilities. Obtaining the said index involves primarily an analysis of criteria for selection of the best bid, because – as it turns out – the contracting authorities, while deciding upon tendering procedures, are guided by the most current purchase cost, not further costs of operating, maintenance or repair. It may turn out that a higher cost of purchase when selecting the most advantageous and innovative solutions can result in greater savings in the op-

eration phase. It is worth pointing to additional aspects, so that additional savings may arise such as: lower consumption of electricity or water, longer product life cycle or cheaper materials associated with the operation or exchange. Chart 5 shows the percentage of procurement procedures in 2007-2011 in which the contracting authorities were solely guided by the lowest price when choosing the best bid.

Chart 5. The percentage of procedures in which the contracting authorities were guided by the sole criterion of price in 2007-2011



Source: own study based on UZP data.

As can be seen from the presented data the contracting authorities are in any proceedings always guided by the principle of the lowest price. The ratio of the number of proceedings where it is the only criterion for selection oscillates in the range of 90% and indicates that Polish authorities do not take into account that a more expensive offer may be more favorable. It is impossible, therefore, in this case to talk about Polish officials making purchases in any reasonable manner. Application of the *Value for Money* principle provides a possibility of linking limited financial resources with an innovative effect. Unfortunately, this concept is unknown among Polish authorities. None of the interviewed authorities could identify what it is, or point out to innovative procurement in other countries, which in the long run helped to generate financial savings.

Therefore, Polish authorities should be encouraged to apply such criteria, which are a combination of both price and object criteria, and which allow the selection of the most economically advantageous tender. These criteria may include the following: term of the contract, technical performance, cost of ownership, quality of service, functional characteristics, material quality, after sales service and technical support [Trepte 2004: 202]. What is important, the weight of each of these criteria can be consciously and with great freedom shaped by the contracting authority.

The effective use of the *Value for Money* index is also linked to an appropriate (and consistent with legal provisions) **terms of reference**. Unfortunately, in this respect, the contracting authorities are guided chiefly by means of descriptions of technical standards, well-known in the market, solutions, moving away from defining the functional requirements defining products and services planned for purchase. Only the creation of opportunities for a flexible approach to offer preparation by contractors creates a possibility of preparing a bid for innovative supplies, services or works. As many as 96% of respondents admitted that at the time of describing the object of the contract they only pay attention to descriptions and technical specifications of products that are already available on the market, or those for which they have already filed a request. Often they also declare that the terms of reference is a duplication of previous or turnkey solution found online. This approach is unfortunately quite worrying and does not prognosticate well for the use of functional requirements, which leads (as already mentioned) to more innovative solutions.

A flexible approach to the formulation of the terms of reference, which would be pro-innovative, allows for a variant or an equivalent offer. If the contracting authority admits **variant offers**, it allows the selection of the contractor who will meet the object of the contract, as well as the technology of its implementation. Variant offers allow different proposals from those indicated in the terms of the contract, for example in the field of technical solutions or the type of material used. Such offers facilitate process innovations, because as a result of their submission a product should be comparable with respect to its description made by the contracting authority. Thus they relate to the various methods of performing the contract. It should also be emphasized that the possibility of such offers exists only if the price is not the only criterion of selection. However, this leads to an increase in contractor's responsibility for the design, technology, technical or organizational solutions, which is reflected in innovative effects and desired operating parameters.

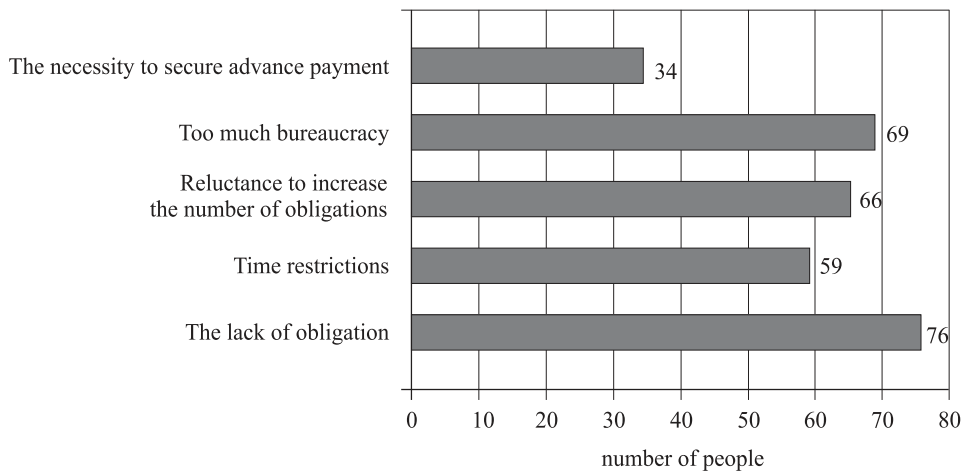
The results of studies on the use of variant offers are quite disturbing. It turns out that only 3% of the surveyed officials applied this solution in their work, and only 7% were familiar with the rules relating to its application. This may prove, on the one hand, that there is a shortage of knowledge and skills associated with the practice, while on the other, the lack of awareness of the implications of this solution for creating more innovative products.

An interesting solution introduced by the amendment of the Public Procurement Act of 2009 is the possibility of granting **advances** to contractors who submit the lowest bid. It seems that this is a very favorable settlement, especially for the efficient implementation of public tasks. It should encourage the especially innovative small and medium-sized enterprises to become more involved in tender

procedures. Such a situation, from the point of view of competition, would favor the probability of appearance of innovative solutions submitted by contractors in the market, as well as real financial support at the stage of contract implementation, which normally (especially in the case of an innovative projects) would cause large strain for budgets of companies.

In the case of Polish authorities, as shown by the results of the study, pre-financing of contracts is not of particular interest. The reasons for this unwillingness are shown in Chart 6.

Chart 6. Causes related to the reluctance of authorities to grant advances in public tender procedures



Source: own study based on research results.

According to the research, the lack of a statutory obligation to provide advances by the authorities is the most common reason for discontinued activities in this area. In combination with an excess of bureaucracy caused by the extra load time, it is hardly surprising that only in the case of 35% of the respondents it was possible to apply this type of solution in the course of the contract. They agree, however, in the majority (78%) that pre-financing of supplies of particularly complex and sophisticated (in terms of technology) items and services not easily available on the market is linked to advance payments for contractors.

Demand for innovative solutions can also be created by appropriately constructed **terms of reference**. Efforts should be made to reach such provisions of the contract, that after the public procurement procedure there still are further opportunities to develop innovative solutions during the term of the contract, which is particularly important in terms of appropriate regulation of copyright. It is all

about preventing public finance entities from condemning citizens to use products and services that would not keep pace with new trends or changes in the market. However, as the results show, only 4% of contracting authorities declare the introduction of pro-innovation content in the contract records. Introduction of such records in the case of certain sectors should become obligatory. This applies especially to computer equipment that depreciates rapidly, high-tech industries and services, and medical equipment.

From the viewpoint of improving the conditions for creating demand for innovation, it is worth forming a **professional procurement committee** or a group of professionals who know how to properly analyze the risks associated with the implementation of innovative solutions. This is not only about the ability to determine the probability of a contract gaining public approval, but above all, a proper diversification of financial risk between the contracting authority and the contractor whose offer proves to be the most advantageous.

Conclusion

Polish economy lacks positive examples indicating the correct and sensible application of the Public Procurement Act in order to ensure greater demand for innovative supplies, services and construction works. Thus, it is worth emphasizing the importance of public entities in promoting innovation through public procurement.

It seems that one of the main barriers to the development of innovativeness is the human factor. As a result, it is worth considering model training programs for the formulation of the terms of reference, to define its functions as well as to determine the evaluation criteria. Such trainings are worth propagating, so the public procurement system attracts employees who are competent, able to interpret the law and apply it in order to create demand for innovation.

In terms of training and promotion policy, the support should focus on such solutions in the procurement process that would lead to the use of negotiated procurement modes, especially the competitive dialogue. The ordering authorities should also see the benefits from advisory services before the initiation of the public procurement procedures i.e. technical dialogue and training on the use of this tool.

The public procurement procedures should abandon the lowest price criteria, at the expense of greater use of the most economically advantageous tender, as well as the possibility of variants. It is well known that the lowest price does not necessarily mean the best solution, and the benefit ratio analysis leads to the conclusion that it often requires more resources and money in the later phase of the contract.

In order to implement pro-innovative public procurement it is necessary to plan well in advance the conduct designed to serve the private sector. Informing the market in advance about the needs of government can contribute to a better and more professional preparation of potential contractors. As part of a comprehensive innovation policy, the contracting authorities should also establish a dialogue with key stakeholders, legal practitioners and experts.

It seems absolutely necessary to develop model contracts that would allow for the acquisition and development of innovative solutions. It is important to fully respect the copyright of the owners. In any proceedings of innovative potential the contracting authorities should also analyze the feasibility of pre-commercial procurement in accordance with applicable regulations.

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Instrumenty kreowania popytu na innowacyjne zamówienia publiczne w świetle badań empirycznych

Streszczenie. *Zamówienia publiczne od wielu lat są jednym z podstawowych instrumentów Unii Europejskiej związanych z kreowaniem popytu na innowacje. Mogą o tym świadczyć liczne dokumenty strategiczne poświęcone temu zagadnieniu, jak również dobre praktyki w zakresie ich stosowania w wybranych krajach. Niestety stosowanie zamówień publicznych w celu tworzenia innowacji w Polsce jest odzwierciedleniem niskiej pozycji naszego kraju w europejskim rankingu najbardziej innowacyjnych państw, a ponadto problem ten nie znajduje w polskiej literaturze przedmiotu sze-*

rokiej reprezentacji. W związku z tym celem artykułu jest przedstawienie instrumentów kreowania popytu na innowacyjne zamówienia publiczne w Polsce. Ich charakterystyka została wzbogacona badaniami empirycznymi przeprowadzonymi na 165 zamawiających zobowiązanych do stosowania przepisów ustawy Prawo zamówień publicznych oraz uzupełniona o dane ze źródeł wtórnych pochodzące z publikacji Urzędu Zamówień Publicznych.

Słowa kluczowe: *innowacyjność gospodarki, zamówienia publiczne, kreowanie popytu*