

Public Procurements in the Space Economy: Space Procurements

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ABSTRACT

Within the scope of the space economy, which expresses a process economy, space activities are carried out on a global scale. Some criteria such as the number, quality, outputs of space activities, the importance given to these activities, financial resources, and time present a picture of States experiencing different processes in the field of the space economy. For this reason, there is no uniform financial and legal picture for each State. However, there is a certainty that space activities are gaining speed day by day, and this situation brings with it researches on the space economy. Parallel to this, an area of space law emerges in which the space economy forms its infrastructure. Space procurements take a central place in an examination of the space economy. Within the scope of space activities, it can be clearly determined that space procurements are at the centre of the space economy in the examples of NASA and ESA. Because ESA and NASA spend almost all of the budget allocated to space activities with space procurements. Turkiye's space activities have gained momentum in recent years in the space economy process. In this context, at this point where the space economy process needs the most in the current situation, in terms of these activities, for a Turkish space strategy/policy to be formed under the leadership of the TSA, which is tasked and authorized, it has become very important to present the concrete situation with sample applications and to develop proposals for space procurements.

Keywords: Space activities, space procurements, European Space Agency, National Aeronautics and Space Administration, Turkish Space Agency

Submitted: 29.05.2021 Accepted: 12.11.2021

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Citation: Akin, Y. N. (2022). Public Procurements in the Space Economy: Space Procurements. In B. E. Balin, V. N. Akun & S. Alis (Eds.), *Proceedings for the First Symposium on Space Economy, Space Law and Space Sciences* (pp. 59-31). <https://doi.org/10.26650/PB/SS46PS01.2022.001.005>

1. Procurement Legislation and Tendering System within the Scope of Space Activities of the European Space Agency (ESA)

It is beneficial to obtain information about the organization, activities, and practices of ESA¹, which is defined as Europe's gateway to space and whose mission (ESA, ESA facts) is to shape the development of Europe's space capability and to ensure that the investment in space continues to deliver benefits to the citizens of Europe and the World. One of the tools in the mission of “**shaping the development of space capability**” and “**investing in space**” appears as procurements.

As stated by ESA, **procurement** is a key tool that enables ESA to implement its programs and pursue industry policy objectives (ESA, Doing business with ESA). At this point, it can be stated that due to the global integration about the space economy, one of the programs managed by the European Union in the OECD Report, which collects global data and evaluates it at this scale, is the Galileo Satellite Navigation Program, a governance framework was created in 2008. It has been stated that it can reach full operational capacity with 30 satellites and that the full operational capacity of the constellation has been deployed in accordance with **a public procurement plan** financed entirely from the European Union budget (OECD, The space economy at a glance 2014).

ESA, which currently has 22 Member States, does not include all Member States of the European Union; ESA's Member States are also not necessarily members of the European Union. Although ESA maintains close ties with the European Union through an *ESA/EC Framework Agreement*, it is a completely independent organization. ESA and the European Union jointly develop the European Space Policy by sharing a common European Space Strategy².

The European Center for Space Law (ECSL) is a body established within the ESA tasked with operating towards the norms within the scope of this study. One of the issues that ECSL has specified as the area of regulation in space law is the area of procurement (ESA, Procurement). In this sense, it is seen that ESA has developed a tendering system that has a legal basis within the scope of space activities over time.

The Space Agency Industry Portal (ESAIP) is a platform where information on business opportunities or how to do business with ESA is shared. It is possible to learn about all the procurements made by ESA and external organizations and to download documents related to open tenders from the Portal (ESA, European Space Agency's Industry Portal).

As one of the focal points in this study, it is thought that examining the normative regulations developed by ESA and the tendering system on this basis may be functional in the proposals to be developed in terms of Turkish public procurement legislation.

1 For detailed information about ESA, see also: ESA. *About ESA*. (15.05.2021).

2 Member States of ESA are Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, and the United Kingdom. See: ESA. *Member states & cooperating states*. (01.03.2021). See also: ESA. *ESA facts*. (11.03.2021).

1.1. ESA's Procurement Legislation

When the procurement legislation of ESA is examined, it is seen that two basic regulations are applied, and guides have been prepared in order to present them to the information of the users.

1.1.1. ESA Convention

ESA space activities are carried out in accordance with the provisions of the *Convention Concerning the Establishment of the European Space Agency-CSE/CS (73) 20, rev.7* (ESA, ESA Convention) that entered into force on October 30, 1980, and procurements appear both as one of these activities and the procedure of the realization of these activities.

ESA primarily makes financial arrangements with each new State becoming a member. Because with the participation of each member, a new financial resource is transferred to the ESA budget (ESA, ESA Convention pocket edition). In this context, ESA, which is an international organization, can carry out programs and activities far beyond the scope of any European country by coordinating the financial and intellectual resources of its members (ESA, ESA facts). Therefore, it is clear that new financial resources that cause financial arrangements with new members will also affect ESA's space activities. This situation is also critical in terms of procurements.

1.1.2. ESA Convention and Council Rules of Procedure

ESA Convention and Council Rules of Procedure-SP-1337 (ESA, ESA Convention and Council Rules of Procedure) of November 2019, updated (ESA, ESA Convention pocket edition) with the participation of new Member States to include previous regulations including SP-1271, SP-1300 and SP-1317) is in effect. This legal regulation stipulates the rules to be applied in the procurements of ESA.

1.1.3. ESA Procurement Regulations and Related Implementing Instructions

It conducts procurements in accordance with the provisions of the *Agency's Procurement Regulations* based on this Agreement, together with the ESA Convention and Council Rules of Procedure. Currently, the *ESA Tender Regulation and Related Implementing Instructions ESA/REG/001, rev. 5* (ESA, Tender Regulation and Related Implementing Instructions) consisting of 60 articles dated 12 July 2019 are in force.

1.2. Tendering System at ESA

It should be noted that the *Electronic Mailing Invitation to Tender System (EMITS)*, developed and updated in ESA's tendering system since the 1980s, was closed to external users on March 23, 2021, and switched to the *ESA-Star System* (ESA, Doing business with ESA). Parallel to this change, ESA has published 27 administrative documents and technical standards that makeup reference documents on 18.03.2021 (ESA, Supporting documentation)

In general, the stages of the procurement process that make up the tender system of ESA are as follows (ESA, The ESA procurement process):

1. The Planning and Preparatory Phase
2. The Initiation Phase
3. Preparation of the Invitation to Tender/Request for Quotation (ITT / RFQ)
4. Distribution of ITTs/RFQs
5. The Tendering Phase: Preparation and Submission of an Offer
6. Admission and Evaluation of Offers
7. Award and Placing of Contracts
8. Debriefing of unsuccessful Tenderers³

1.2.1. Electronic Mailing Invitation to Tender System (EMITS)

Although it has been in operation since the mid-1980s; **Electronic Mailing Invitation to Tender System (EMITS)**, the new version of which has been in force since September 2001 and which is mandatory to be used within the framework of ESA programs, is based on legal procedures **Intended Invitation to Tender System (IITT)** and **Invitations to Tender (ITT)** on the basis of tenders, as named by ESA (ESA, ESA's Invitation to Tender System EMITS). By simplifying the procurement process of EMITS, especially small and medium-sized enterprises, that is, facilitates access to tender calls for SMEs (ESA, ESA's Invitation to Tender System EMITS).

As will be explained below, it is understood that EMITS was actually established as a tendering system acting as a bridge between IITT and ITT.

1.2.1.1. Intended Invitation to Tender (IITT)

Forthcoming Invitations to Tender (FITT) are defined as IITT, and for each of the **Invitation to Tender (ITT)** the following information is regularly updated to reflect changes in IITTs (ESA, Intended invitations to tender):

- *A summary of the work to be done*
- *An indication of the price range*
- *The planned issue date-that is the date on which the IITT is expected to become an open ITT*
- *The ESA Organizational Unit responsible for the ITT*

Hence ESA publishes and keeps up-to-date lists of listings that include a summary of the work to be performed at each IITT, an estimated price range, the scheduled release date on an annual, quarterly basis, and the initial services within the ESA (ESA, ESA's invitation to tender system-EMITS).

³ According to article 2 of the ESA Tender Regulation and Related Implementation Instructions, where *definitions* are regulated, *tenderer* an economic operator who has submitted a tender. **See:** ESA. *Tender Regulation and Related Implementing Instructions*. (19.03.2021).

With the up-to-date information contained in IITT, potential bidders⁴ are encouraged to prepare for the process in advance by ensuring that they are aware of any developments that may occur in the preparation of the procurement process. Furthermore, other companies can consider this information when creating their strategies at the ITT stage of the relevant tender (ESA, Intended invitations to tender). Because in IITT, if any company is interested in one tender, it can report it online as *an expression of interest*. Even the relevant participant could share it. In other words, persons who have made a declaration expression of interest can share with the public that they have made such a declaration in one tender without any obligation (ESA, ESA's invitation to tender system-EMITS).

In article 20 of the ESA Tender Regulation and Related Implementation Instructions, where *advanced notice* is regulated, it is stated that ESA will regularly publish, on a competitive basis, a list of IITTs in its dedicated electronic medium for procurement; however, these broadcasts may also be made on a non-competitive basis at the discretion of the Director-General⁵, and potential bidders can make a declaration of expression of interest to IITT, which has been directly published in the electronic environment of ESA regarding the procurement (ESA, Tender Regulation and Related Implementing Instructions). It should be noted here that, instead of the ITT System, in the procurements made in the non-competitive tendering, the Request for Quotation-RFQ (ESA, The ESA procurement process) which expresses a tender procedure in which the intended activity is awarded to a single nominated Tenderer, is applied⁶.

In addition, in article 16/3 of the ESA Tender Regulation and Related Implementation Instructions, where *two-stage tendering* is regulated, the first stage of the tender may be in the form of a call for expression of interest or an ITT, where ESA set out its needs and requirements in its solicitation documents; in the article 28/1, which regulates the *publication of the invitation to tender*, it is stated that the ITT or of the call for expression of interest will be made simultaneously to all potential bidders through the electronic tool dedicated procurement of ESA (ESA, Tender Regulation and Related Implementing Instructions).

1.2.1.2. Invitations to Tender (ITT)

ITT is defined as a formal invitation to economic operators⁷ to submit tenders for a contract containing the submission conditions and the technical, managerial, and contractual solicitation documents⁸.

4 According to article 2 of the ESA Tender Regulation and Related Implementation Instructions, where *definitions* are regulated, *potential bidder* is an economic operator who has registered with the Agency. **See:** ESA, *Tender Regulation and Related Implementing Instructions*. (19.03.2021).

5 According to Article 10 of the ESA Convention and Council Rules of Procedure, in which *organs* are regulated, the organs of ESA consist of the ESA Council and the Director General. In addition, according to Article 13 of the ESA Convention and Council Rules of Procedure, which regulates the director general and staff, the Director General, appointed by a two-thirds majority of all Member States of ESA for a specified term, is the chief executive and legal representative of ESA. **See:** ESA. *ESA Convention and Council Rules of Procedure*. (22.03.2021).

6 Besides general information about ESA's ITTs has been arranged in the section *General Conditions of Tender for ESA Contracts*, Annex 4 of the ESA Tender Regulation and Related Implementation Instructions (ESA/REG/001, rev. 5). It is stated that ITT in the case of a competitive tendering procedure or Request for Quotation (RFQ) in the case of a non-competitive tendering procedure referred to as ITT. **See:** ESA. *General Conditions of Tender for ESA Contracts*. (19.03.2021).

7 *Economic operator* means any natural or legal person or public entity or group of such persons and/or bodies which offers on the market, respectively, the delivery of supplies, products or services. **See:** ESA. *Glossary*. (19.03.2021).

8 The same definition applies to the Request for Quotation (RFQ). **See:** ESA. *Glossary*. (19.03.2021).

When it is officially decided to switch from the IITT process to the ITT process, the company that has submitted an expression of interest to the tender at the IITT stage is notified by e-mail that the ITT stage has been passed by ESA. There is no obligation for people who have an expression of interest to participate in the tender. There is no obstacle for people who do not have a statement of interest to participate in the tender (ESA, ESA's Invitation to Tender System EMITS). In this sense, not submitting an expression of interest in IITT is not envisaged as a barrier to participation in the tender. The expression of interest in IITT only activates the mechanism that provides notification by ESA by e-mail.

Again, each ITT contains a summary of the project and its associated technical, administrative and contractual requirements. These online reference information and documents provide support to companies to help them prepare their proposals in accordance with ITT-specific requirements (ESA, ESA's Invitation to Tender System EMITS).

The approach to procurement at ITT is based on awarding an intended activity after open competition or competition restricted to certain nominated Tenderers. In the case of specific programmatic requirements, it may be possible to restrict ITT to Tenderers from specific Member States of the ESA (ESA, The ESA procurement process).

1.2.2. ESA-Star Tendering System (ESA-Star Tendering)

ESA-Star Tendering, which refers to ESA's fully electronic, integrated, online tendering system, was created in the ESA-Star system, which replaced EMITS. In this System, which covers the entire procurement process, document processing is simplified, and tender offers can be submitted to ESA for evaluation as well as the management of procurement processes (ESA, ESA-Star tendering).

After the abolition of EMITS, **ESA-Star Publication System** was established by ESA together with the ESA-Star Tendering System, and the implementation of ESA procurement legislation is continued with this System (ESA, Welcome to the ESA-Star Publication System). With this new ESA-Star Publication System, it is seen that ITTs are expressed as **Open Invitations to Tender (OITT)**.

The ESA-Star Publication System also includes a full list of all ITTs with the full text of all documents and all relevant pictures/graphics required for tendering, open to all potential bidders. The following matters are included in the text of the ITTs⁹:

- *A summary of the work to be carried out and of the basic elements of the programme for which the work will be carried out*
- *A letter of invitation.*
- *A detailed statement of work (if applicable)*
- *Details of any special contract conditions (if applicable)*
- *Details of any special tender conditions (if applicable)*
- *Clarification(s) (if applicable)*

⁹ The information on this page continues to be updated after the transition to the new ESA-Star Publication System. See: ESA. *Open invitations to tender*. (06.04.2021).

Invitation to tender has been issued in the **General Conditions of Tender for ESA Contracts** section in Annex 4 of the ESA Tender Regulation and Related Implementation Instructions and the mandatory requirement of ESA's ITT; however, it is stated that it will typically include the following elements (ESA, General Conditions of Tender for ESA Contracts):

- A cover letter.
- General conditions of the tender.
 - *For the presentation and submission of the tender.*
 - *For the structure and contents of the tender.*
- Special conditions of the tender.
 - *For the presentation and submission of the tender.*
 - *For the structure and contents of the tender.*
- The evaluation criteria and weighting factors.
- The draft contract includes the statement of work and any other technical and management requirements.
- Other specific documents.

As mentioned above, the expression of interest has the function of providing a response to an IITT or ITT. In other words, when an expression of interest is made to an IITT by allowing a statement of interest to be made to an ITT that is planned to be opened or open, notification is made when the ITT or OITT process is passed in the IITT process (ESA, Expression of interest). Potential bidders can also use the ESA-Star Publication System to publish an expression of interest at a particular ITT (ESA, Open invitations to tender) just like EMITS previously (ESA, Intended invitations to tender).

1.3. Procurement Objectives and Procurement Principles in ESA

As stated earlier, as can be seen from the regulations of the ESA Convention (Article 7 and Annex 5, Article 3), tendering is a key tool to enable ESA to implement activities and pursue industry objectives (ESA, About ESA's procurement process). In this context, under this title, explanations will be made about the **procurement principles**¹⁰ of ESA, which we are trying to compile for **the purpose of industrial policy**¹¹, which is also stipulated in the tender legislation of ESA.

It should be noted that **the Head of the Procurement Department**, which was established in charge of all aspects of ESA's tenders, is official and authorized in the tender objectives and principles of ESA discussed under this title (ESA, The ESA procurement department).

1.3.1. Procurement Principles

Within the scope of ESA's procurement legislation, **key principles of ESA procurement** are activated (ESA, About ESA's procurement process).

10 For the study in which the concept of tender principles is used, see: (Akel, 2018a: 2, 44).

11 It is seen that the instrumental nature of public procurements has been made effective with the changes made or foreseen in the public procurement legislation within the framework of the measures/policies included in the Presidential Annual Programs since 2019. For detailed information about this, see: (Akın, 2019a).

In *the preamble* of the ESA Procurement Regulation and Related Implementing Instructions, the efficient and effective management of public resources made available to ESA by Member States, Associate Member States and the Collaborating States and the performance of their respective industries form the basis for the integrity and predictability of ESA's procurement system; It was stated that the ***procurement processes should be conducted in a transparent, impartial and non-discriminatory manner, conflicts of interest should be avoided, and the importance of using and promoting electronic tools for tenders*** was recognized by the ESA Council (ESA, Tender Regulation and Related Implementing Instructions).

EMITS, which ESA-Star replaced, was originally used only for ESA's own competitive bidding activities; however, over time, this System has developed to meet the increasing needs of users both inside and outside the ESA, and in this context, the first purpose of the System is the ***principle of fair competition***¹² and ***the principle of fair access***. In addition, it has been reported that increasing the ***transparency*** in the tender procedures of EMITS and ESA (ESA, ESA's invitation to tender system-EMITS). In this context, it is stipulated that the ITT/RFQ package should clearly specify the evaluation criteria and weighting factors to be defined by the *Tender Evaluation Board* for the tender evaluation stage (ESA, 3 - Preparation of the invitation to tender / Request for quotation (ITT / RFQ)).

In further detail, the first principle applied in ESA tenders was determined as ***the principle of maximizing the advantages of free competitive procurements***. According to this principle, open competitive tendering is essential, and any exception, such as restricted competitive tendering or non-competitive tendering, must be duly justified. Here, it can be said that ESA has adopted the ***principle of justification*** in tender procedures.

In more detail, the first principle applied in ESA auctions can be expressed as ***the principle of exploiting the advantages of free competitive bidding***. According to this principle, *open competitive tendering* is essential, and any exception, such as *restricted competitive tendering* or *non-competitive tendering*, must be duly justified (ESA, About ESA's procurement process). Here, it can be said that ESA has adopted ***the principle of justification*** in tender procedures.

Another principle is ***transparency and fair and equitable treatment of all economic operators***. According to this principle, various safeguards and checks and balances are in place to ensure that every step is fair, impartial and traceable at all stages of the procurement process, that all individuals involved in the process are responsible, that they are committed to confidentiality and that no conflict of interest occurs (ESA, About ESA's procurement process). At this point, in the tender system of ESA, the Tender Evaluation Board is also subject to the rules regarding confidentiality and non-interest during the whole process, including the evaluation (ESA, 2 - The initiation phase). In this context, the Tender Evaluation Board will address each element of the ITT/RFQ package (cover letter, draft contract, statement of work, special conditions of tender) with a thorough, consistent, fair and equitable approach to its compliance with ESA's requirements for the intended activity (ESA, 3 - Preparation of the invitation to tender / Request for quotation (ITT / RFQ)).

¹² The ESA also states that it consistently pursues its goal of ensuring *fairness of competition* at all levels, within the framework of major tenders. See: ESA. *The best practices ITTs published by "entities"*. (20.03.2021).

Another principle has been determined as the ***most economical and effective employment of the resources***. According to the principle, ESA actively strives to achieve technical excellence in the space sector in terms of Industrial Policy objectives, such as making European economic actors competitive worldwide. However, this must be balanced with the way ESA resources are used. At this point, the quality/price ratio plays a non-negligible role in ESA's decision to contract with an economic operator (ESA, About ESA's procurement process). *The evaluation criteria and weighting factors* are regulated in the 4th Annex of the ESA Tender Regulation and Related Implementation Instructions section of *the General Conditions of Tender for ESA Contracts*. It is stipulated that as a result of the overall assessment of tenders, a final recommendation for awarding the contract to the Tenderer who offers the most economical and effective employment of the ESA's resources is made elements (ESA, General Conditions of Tender for ESA Contracts).

Finally, it is seen that the aim of industrial policy, for which ESA tenders are envisaged as a tool, is also addressed at the principal level. In accordance with the ***principle of pursuing Industrial Policy objectives***, ESA guarantees to the ESA Member States a fair return on their contributions to ESA and its programmes in terms of contracts placed with operators based in each of the Member States, measures in favor of SMEs and Research Organizations, measures in favor of non-Prime operators (ESA, About ESA's procurement process).

In addition, the first part of the ESA Tender Regulation and Related Implementation Instructions is for *general provisions and principles*. According to article 10, in which *principles* are regulated, the provisions in this Regulation and the application instructions for the conclusion of contracts shall always be interpreted so as to ensure (ESA, The basic principles of ESA's procurement approach)¹³:

- Transparency and fair and equitable treatment of all economic operators,
- That the participation of a Tendering Body¹⁴ does not cause any distortion of competition in relation to private economic operators,
- The most economical and effective employment of the Agency's resources,
- The implementation of the defined industrial policy and with the exception of general procurement contracts to guarantee distribution of work among the Member States is consistent with the prescriptions of Article VII and Annex V of the Convention.

Furthermore, it is thought that the ***online procurement principle*** in NASA tenders is ensured by enabling the use of digital tools for the procurement process in the ESA-Star Tender System adopted by NASA.

1.3.2. Purpose of Industrial Policy in Tenders: Instrumentality of Tenders

ESA develops and implements industry policy in line with its program; It has set the aim to propose a coherent **industrial policy** to Member States (ESA, ESA facts). In fact, it has been stated that industrial policy along with economic factors can affect the tender decision at the tender evaluation stage of ESA (ESA, 7 - Award and placing of contracts).

¹³ See also: ESA. *Tender Regulation and Related Implementing Instructions*. (19.03.2021).

¹⁴ According to Article 2 of the ESA Tender Regulation and Related Implementing Instructions, where *definitions* are set, Tender Body is defined as A public body (including intergovernmental organisations) acting as potential contractor. See: ESA. *Tender Regulation and Related Implementing Instructions*. (19.03.2021).

However, when ESA's procurement legislation is examined, it is seen that the rules governing ESA tenders are specified in the ESA Convention and are implemented through the following regulatory tools (ESA, The basic principles of ESA's procurement approach):

- *ESA Procurement Regulations*
- *General Clauses and Conditions for ESA Contracts*
- *Industrial Policy Committee Terms of Reference*

When the above regulations are examined, it is seen that ESA Procurement Regulations and General Clauses and Conditions for ESA Contracts are regulated together in ESA Procurement Regulations and Related Implementing Instructions. Additionally, it is stated that the Industrial Policy Committee established in accordance with the article 11/8-b of the ESA Convention and Council Rules of Procedure can also make normative changes in the ESA Procurement Regulations and Related Implementing Instructions (ESA, Glossary).

Therefore, it is understood that in ESA's procurement legislation, tenders are adopted **as a basis of industrial policy**, which is one of the objectives of ESA. In this context, it can be stated that ESA has created a tender system that foresees tenders *as a tool of industrial policy*. Therefore, **tenders are an instrument of industrial policy** in the ESA tender system.

In ESA's tendering system, as stated as the *general rule* nature of the ESA Procurement Regulations and Related Implementing Instructions, the purpose of the Regulation and its annexed implementation instructions is in line with the ESA industrial policy objectives in Article 7 and Annex 5 of the Convention, organizes procurements for the execution of its activities and programs (ESA, Tender Regulation and Related Implementing Instructions).

Pursuant to Article 2 of the ESA Convention and Council Rules of Procedure, which regulates the *purpose*, the purpose of ESA is to be used between the European States for space exploration and technology and space applications only in terms of their use for peaceful purposes, scientific purposes and operational space application systems to ensure and encourage cooperation in its implementations. This aim also includes proposing to the Member States a coherent industrial policy by detailing and implementing the industrial policy in line with the European space program (ESA, ESA Convention and Council Rules of Procedure).

From this point of view, according to article 7 of the ESA Convention and Council Rules of Procedure, in which the *industrial policy* is regulated, the industrial policy that will be detailed and implemented according to article 2/d of the Convention focuses on the following areas (ESA, ESA Convention and Council Rules of Procedure):

- *Meet the requirements of the European space programme and the coordinated national space programmes in a cost-effective manner.*
- *Improve the worldwide competitiveness of European industry by maintaining and developing space technology and by encouraging the rationalization and development of an industrial structure appropriate to market requirements, making use in the first place of the existing industrial potential of all Member States.*
- *Ensure that all Member States participate in an equitable manner, having regard to their financial contribution, in implementing the European space programme and in*

the associated development of space technology; in particular, the Agency shall, for the execution of its programmes, grant preference to the fullest extent possible to the industry in all Member States, which shall be given the maximum opportunity to participate in the work of technological interest undertaken for the Agency.

- *Exploit the advantages of free competitive bidding in all cases, except where this would be incompatible with other defined objectives of industrial policy.*

Detailed arrangements for achieving the above foci will be those set out in the rules contained in Additional Article 5 of the ESA Convention and Council Rules of Procedure, which will be adopted by the ESA Council¹⁵ by a two-thirds majority of all Member States and reviewed periodically.

Article 3 of the 5th Annex of the ESA Convention and Council Rules of Procedure, in which the *industrial policy* is regulated, is for direct procurements. According to the provision, the Director-General shall, before the contract and the sending of the tender invitations, *i. Containing an estimated value above the limits that will be defined in the rules of industrial policy and will depend on the nature of the work, ii. Submits to the ESA Council a proposal for a procurement policy for a contract that, in the opinion of the Director-General, is not adequately covered by the rules on industrial policy or by additional guidelines set by the Council, or which may conflict with the principles in these rules or guidelines (ESA, ESA Convention and Council Rules of Procedure).*

In the ESA Tender Regulation and Related Implementation Instructions, *the Industrial Policy Committee*, as a sub-organ of the ESA Council with competence in industrial policy issues and procurements, and Article 7 and Annex 5 of the ESA Convention and Council Rules of Procedure Consistent with its provisions, it prescribes *industrial policy measures*, which refer to the measures defined by the ESA in advancing the industrial policy objectives defined by the ESA (ESA, Glossary).

1.4. SMEs and Cooperation at ESA

ESA, also referred to as *the Code of Best Practices* (ESA, The best practices ITTs published by “entities”), was established by ESA in 2005 to ensure fairness of competition at all levels and in particular between prime contractors and subcontractors, to concern the participation of SMEs at all levels in the frame of major procurements. *Best Practices for the Selection of Subcontractors by Prime Contractors in the Frame of ESA’s Procurements*¹⁶ has been accepted as a mandatory contract document (ESA, Small and medium sized enterprises)¹⁷.

Later, these rules were revised in 2012 to align with ESA’s Procurement Regulation (ESA, The best practices ITTs published by “entities”). According to article 17 of the ESA Tender Regulation and Related Implementation Instructions, which regulates *best practices*, in order

15 According to Article 10 of the ESA Convention and Council Rules of Procedure, in which *organs* are regulated, the organs of ESA consist of the ESA Council and the Director General. Again, according to Article 11 of the ESA Convention and Council Rules of Procedure, which regulates *The Council*, the ESA Council will consist of representatives of the ESA Member States. See: ESA. *ESA Convention and Council Rules of Procedure*. (22.03.2021).

16 For detailed information on the *general principles* of Best Practices for the Selection of Subcontractors by Prime Contractors in the Frame of ESA’s Procurements, see: ESA. *Best practices explained*. (11.04.2021).

17 See also: ESA. *ESA’s invitation to tender system-EMITS*. (03.03.2021).

to ensure that the principle of transparency and fair and equitable treatment of all economic operators established under Article 10/1-a of these Regulations are implemented throughout its procurements, the Agency shall have the right to contractually impose on its Prime Contractors the tendering requirements they have to follow in the selection of their industrial consortium and the contractual replication by the Prime Contractors of such requirements on their sub-contractors. To that effect, the Director-General shall establish a specific set of procurement requirements to be made applicable to all such contracts between the Agency and Prime Contractors. Such requirements shall be called “Best Practices for the Selection of Subcontractors by Prime Contractors in the Frame of ESA’s Procurements” and shall be approved by the Industrial Policy Committee (ESA, Tender Regulation and Related Implementing Instructions).

The Best Practices Rules and their annexes form an integral part of the ITTs/RFPs, contracting and management requirements for the selection of the Prime Contractor and therefore, an explicit statement of acceptance is sought from the Tenderers (ESA, The best practices ITTs published by “entities”). In this context, *the industrial procurement plan* is expected to be submitted by the Prime Contractors (ESA, Best practices explained).

According to article 24 of *the content of the invitation to tender*, in the fourth part of the ESA Tender Regulation and Related Implementation Instructions, which also includes the *tendering proceedings*, one of the information that should be included in the invitation to tender at a minimum, should be given in the best appropriate way. It is stated that there is an explanation about the use of best practices (ESA, Tender Regulation and Related Implementing Instructions).

The list of SMEs registered with ESA-Star is also shared with the public (ESA, Registered SME list). The link to individuals provides the industry with a wide range of useful information on how to do business with ESA, providing information and documents such as forums, news, a directory of companies working with ESA, publications, facilitating the search for partners. Companies are allowed to learn about and communicate with potential partners, thereby encouraging interaction between potential tenderers and improving networking opportunities. In this context, for example, a list of SMEs that meet ESA’s SME definition criteria for mandatory participation in the industry team is presented to interested parties (ESA, ESA’s invitation to tender system-EMITS).

It should also be noted here that ESA both promotes SMEs (ESA, ESA’s invitation to tender system-EMITS) and publishes lists of programs and activities that may be of particular interest to SMEs. In this context, ESA carries out ***Procurement Actions Reserved for SME and “Non-Primes” (C1-C4 Clauses)*** and these publications are made up-to-date through ESA’s ESA-Star Publication System ESA. (ESA, Programmes and activities of interest to SMEs). “Clauses C1-C4” implemented by the ESA apply to certain types of procurement in order to guarantee fair access to activities for all company categories¹⁸. It has been stated that the ESA application in the form of “C1-C4 Clauses” provides a balance in the participation of economic actors (Faix et al., 2011: 77).

The aim of these C1 and C3 clauses (*Actions Reserved for Non-Primes and SMEs*) is to foster the competitiveness of equipment suppliers and SMEs (for C1 Clause), and of SMEs and Research Institutes (for C3 Clause), in areas where the concerned organizations have recognized

18 See also: ESA. *Latest business opportunities adapted to SMEs*. (03.05.2021).

expertise and capabilities. Procurements, where the C1 and C3 clauses are used, include those for technology research activities and for the development of equipment, components, or instruments - where SMEs and their partners have the necessary expertise, and where favoring these entities would result in more efficient use of funds (ESA, Procurement policy on fair access for SMEs - The C1-C4 clauses).

C2 and C4 clauses (*Open Competition with the encouragement of subcontracting to Non-Primes and SMEs*) are open to all, but the main Contractors are requested (under the C2 clause) to include adequate participation (in terms of quantity & quality) of Non-Primes and SMEs - or under C4 clause, uniquely SMEs - in their teams. Offers must provide an analysis of the proposed participations. If no SMEs are included in the offer, the bidder must provide evidence of efforts made and the reasons for lack of success in including SMEs. Procurements, where the C2 and C4 clauses are used, include those for innovative technology activities issued as open competitive tenders, where capabilities are available at Non-Primes and/or SMEs, and generally, which have a budget greater than or equal to 250.000 Euro (some procurements of lesser value may also be subject to these clauses). (ESA, Procurement policy on fair access for SMEs - The C1-C4 clauses).

In the light of this information, it is understood that ESA envisages a tender system to develop joint ventures through cooperation in the tenders. In more detail, it is seen that a tender system that encourages participation by creating special tender areas, especially for subcontractors and SMEs to receive a share from the tenders, has been adopted.

1.5. Procurements and Budget at ESA

ESA's activities are divided into two categories, mandatory and optional (ESA, ESA budget 2021). ESA's mandatory activities are financed by the financial contribution of all Member States, calculated on the basis of the gross national product of each Member State (ESA, ESA facts). According to article 13/1 of the ESA Convention and the Council Rules of Procedure, in which *financial contributions* are regulated, each Member State will contribute to the costs of the activities and program referred to in article 5/1-a of the Convention, and that each Member State has determined the level of this contribution for the last three years. It is stated that it will be based on the average national income (ESA, ESA Convention and Council Rules of Procedure). Programs such as future projects, technology research, joint technical investments, studies on information systems and education programs, which include the main activities of ESA, are mandatory within the scope of the General Budget and Space Science Programme Budget created with this financial contribution (ESA, ESA budget 2021).

ESA also has a number of optional programmes, and each Member State decides which optional program they wish to participate in and the amount they wish to contribute (ESA, ESA facts). Formally declare that pursuant to article 13/2 of the ESA Convention and Council Rules of Procedure, each Member State is not interested in participating in that program and is therefore not a participant, at the expense of each optional program covered by article 5/1-b of the Convention unless it is stated that it will contribute (ESA, ESA Convention and Council Rules of Procedure). Programmes, known as optional, are only of interest to some Member States, who are free to decide on their level of involvement. Optional programmes cover areas such as Earth observation, telecommunications, satellite navigation and space transportation.

Similarly, the International Space Station and microgravity research are financed by optional contributions (ESA, ESA budget 2021).

ESA's 2017 budget was **5.75 billion Euros (ESA, ESA budget 2017)**, the 2018 budget was **5.60 billion Euros (ESA, ESA budget 2018)**, the 2019 budget was **5.72 billion Euros (ESA, ESA budget 2019)**, and the 2020 budget was **6.68 billion Euros (ESA, ESA budget 2020)**. Ultimately, ESA's budget was **6.49 billion Euros (ESA, ESA facts)**¹⁹. In total, in 2021, which covers the period when this study was written, and although it fell behind 2020, it was higher than in previous years.

It is stated that approximately 90% of the annual budget of the ESA, which is financed by the Member States' financial contributions, is spent through procurements (ESA, Procurement review procedure). In this context, in the last five years, 5 billion Euros per year; in total, it can be stated that over **25 billion Euros** will have been spent through procurements by ESA.

2. Procurement Legislation and Tendering System within the Scope of Space Activities of the National Aeronautics and Space Administration (NASA)

It is beneficial to obtain information about NASA's organization, activities, and practices²⁰, which is America's civilian space program, which develops and finances space technologies that will provide future exploration and benefit life on Earth, just like ESA.

NASA's organization also includes **the Office of Procurement**, whose mission is to discover and execute innovative, effective and efficient procurement business solutions to optimize capacity and operations to ensure NASA's missions are achieved (NASA, NASA procurement; NASA, About the office of procurement).

Information about NASA's space procurements is also obtained from **the State of NASA Procurement** guides, published for the first time in 2019 and updated data for 2020. In this context, NASA's Procurement Office has the mission of "Acquisition Excellence in An Evolving Environment". The NASA Headquarters Office of Procurement has been purchased to **enable NASA's current and future missions**. It was stated that he supervised the procurement process (NASA, The state of NASA procurement, 2020). In this context, it is thought that the direct link between NASA's space activities and the tender system has been revealed.

2.1. NASA's Procurement Legislation

In NASA, the definition of tender is considered to be quite appropriate. In its annual reports, NASA includes the terminological use of **procurement action**²¹, which is defined as a contractual action to procure goods, services, or constructions that increase or decrease resources (NASA, Fiscal year 2020). In our opinion, defining a procurement in this way is highly functional in the interests of resources, especially in the creation of uniform procurement legislation.

19 Also see: ESA. *ESA budget 2021*. (21.05.2021).

20 For detailed information, see: NASA. *About NASA*. (28.04.2021).

21 It is worth noting that the terminological use of the procurement action was also included in the previous statements about ESA in the study.

In addition, a serious situation has been determined in the procurement legislation of NASA and ESA in terms of the legislation to be applied in space procurements. Both ESA and NASA have procurement legislation prepared specifically for space procurements. In other words, a specific space procurement legislation is in effect.

2.1.1. The Code of Federal Regulations-CFR

At NASA, the tender legislation has been shaped based on *The Code of Federal Regulations (CFR (NASA, Governing Statutes, Regulations & Standards))* as an upper norm. CFR consists of 50 separate legal titles. One of the 50 legal titles is the *Federal Acquisition Regulations System (FARS)* regulated in Article 48 of the Code of Federal Regulations (Code of Federal Regulations (Annual Edition)). 42-50 of the CFR. Titles are updated on 1 October each year and are currently in effect as updated on 1 October 2020 (Code of Federal Regulations (CFR), 1996 to present).

CFR annual edition is the codification of the general and permanent rules published in the Federal Register by the departments and agencies of the Federal Government ((Code of Federal Regulations (Annual Edition)²²). It should also be noted that NASA has published the *Electronic Code of Federal Regulation (eCFR²³)*, a constantly updated online version of the CFR.

2.1.2. Federal Acquisition Regulation-FAR

Federal Acquisition Regulation (FAR²⁴) is the primary regulation published by NASA's Administrator of General Services, the Secretary of Defense, after the fiscal year 2019 and used by all executive agencies in purchasing materials and services with funds allocated to them in NASA's procurement system²⁵. In this context, FAR is the primary regulation, enacted on April 1, 1984, for all executive agencies, including NASA, to purchase materials and services with appropriate funds (United States Government, Federal acquisition regulation).

Chapter 48 of the CFR consists of 7 volumes; 99 chapters and 9999 parts are under these volumes. FAR is made up of 99 parts as part 1 of chapter 48 of the CFR and in volumes 1 and 2 (Title 48-Federal acquisition regulations system). The next sections are reserved for acquisition arrangements that implement or supplement the FAR (United States Government, Federal acquisition regulation).

The National Aeronautics and Space Administration is regulated under the title of section 18 of article 48 of the CFR. Part 1801 in this section provides general information about NASA's FAR Supplement, called NFS (FAR chapter 18- National Aeronautics and Space Administration).

2.2. Tendering System at NASA: The Federal Acquisition Regulations System (FARS)

Pursuant to article 2.101 of the FAR where *definitions* are regulated, the acquisition means the contractual supply of goods or services (including construction) allocated by the

22 See also: Code of Federal Regulations (CFR), 1996 to Present. (17.04.2021).

23 See: Code of Federal Regulations, eCFR. (19.03.2021).

24 See: United States Government. *Federal acquisition regulation*. (20.03.2021).

25 However, multiple procurement regulations are in effect in the Federal System. See: United States Government. *Regulations*. (20.03.2021).

Federal Government for its use and purchase or lease. NASA has adopted FAR, the primary arrangement they use in acquisitioning materials and services, and the order that consists of NASA procurement regulations that implement or complement FAR as the tendering system. This system referred to as The Federal Acquisition Regulations System (FARS), was created to codify and publish uniform policies and procedures in the procurement of all executive agencies (United States Government, Federal acquisition regulation).

2.3. Procurement Objectives and Procurement Principles in NASA

2.3.1. Procurement Principles

Two basic documents are considered to be functional in revealing the principles developed to be applied in NASA's tendering system. The first is *the Statement of Guiding Principles for the Federal Acquisition System* adopted by NASA (United States Government, Federal acquisition regulation). Apart from this, the NASA Procurement Debriefing Guide was prepared in May 2012 (NASA, NASA procurement debriefing guide).

Principles have been adopted in tenders in article 1.102 of the FAR's Statement of Guiding Principles for the Federal Procurement System (United States Government, Federal acquisition regulation). According to the provision, the vision of NASA's FAR systematized tendering system is to maintain the public's trust and fulfil public policy objectives while delivering the most valuable product or service to the buyer in a timely manner. In addition, participants in the tendering process should work together as a team and have the authority to make decisions within their area of responsibility.

With the interpretation of the above-mentioned provision, it can be stated that NASA makes the *principle of reliability* effective in space procurements.

Apart from this, in the continuation of the provision, it is seen that FARS is specific to the following matters (United States Government, Federal acquisition regulation):

- Satisfy the customer in terms of cost, quality, and timeliness of the delivered product or service.
- Maximizing the use of commercial products and services.
- Using contractors who have a track record of successful past performance or who demonstrate a current superior ability to perform.
- Promoting competition.
- Minimize administrative operating costs.
- Conduct business with integrity, fairness, and openness.
- Fulfil public policy objectives.

With the interpretation of the above normative arrangement, it is thought that *the principle of meeting the needs under appropriate conditions and on time, the principle of reliability, the principle of commercial product priority, the principle of affordable price, the principle of adequacy, the principle of competition, the principle of equal treatment, the principle of realization of public policy* and *the principle of openness* are considered effective in NASA's procurements.

In addition, when examining the NASA Procurement Debriefing Guide, designed to assist NASA, it is NASA's operational philosophy that information retrieval should provide tenders with the maximum practical scope of information allowed by FAR although contracting officers acknowledge that tenders have wide flexibility in their information retrieval (NASA, NASA procurement debriefing guide). It is thought that *the principle of openness* in procurements is emphasized by stating that the tenders deserve to receive comprehensive and meaningful information since they spend a significant amount of time and money to participate in the procurement process.

2.3.2. Enterprise Operating Model: 4 P (*Four P*)

NASA Procurement Office has moved from a decentralized operating model to an enterprise operating model that focuses on four key areas known as the Four P's: *people, procure, process, and policies (NASA, The state of NASA procurement, 2020)*. Within the scope of *the people (roles and responsibilities)* from these four areas, it is aimed to develop, train, inspire and motivate the acquisition workforce. Within the scope of *the procure* is intended to deliver exceptional, timely acquisition business solutions and results to enable NASA missions. Within the scope of *the process*, it is aimed to develop sound and flexible procurement processes that integrate the acquisition workforce. It is aimed to deliver a procurement policy that is required, clear and easily implemented within the scope of *the policies (NASA, About the office of procurement)*. It is seen that these basic and sub-areas included in the corporate operating model also shape NASA's procurement legislation.

FAR aims to provide coordination, simplicity, and uniformity in the Federal procurement process (United States Government, Federal acquisition regulation). In this context, it is thought that the above-mentioned Enterprise Operating Model foresight indicates a situation regarding NASA's sensitivity towards the application of uniform tender legislation. In this context, one of NASA's basic principles in terms of tenders can be expressed as *the principle of centralization in the legislation*.

2.4. SMEs and Cooperation at NASA

In NASA, it has been determined that the participation of small businesses in space activities is carefully examined against the participation of large businesses.

NASA's organizational structure includes the *Small Business Program* within the scope of Legislative and Intergovernmental Affairs (NASA, FY 2017 agency financial report). In addition, it is seen that small business programs are regulated as one of the *socioeconomic programs* in the 18th section of Article 48 of the CFR (FAR chapter 18- National Aeronautics and Space Administration).

In fiscal 2020, the amount NASA awarded small businesses was *3.307 million USD*, with small businesses representing 21.8% of all businesses. In this context, the Small Business Innovation Research (SBIR) program and the Federal Research/Research and Development (R&D) incentive system, which has the potential to commercialize local small businesses, has been established (NASA, Fiscal year 2020).

Furthermore, NASA manages competitive procurement processes that are limited to small businesses with ***Small Business Set-Asides*** implementations to continue to have a strong impact on the ability of small businesses to participate in the space program only (NASA, Fiscal year 2020). In this context, it can be stated that NASA aims to make *small business utilization* (NASA, *The state of NASA procurement, 2019*) effective in space activities.

Additionally, NASA is expanding public/private partnerships, including joint venture opportunities for small businesses and nonprofit research institutions, through the ***Small Business Technology Transfer (STTR)*** program ((NASA, Fiscal year 2020).

In the light of these explanations, it is seen that NASA attaches great importance to the participation of small enterprises in space activities, which are the subject of space procurements, as can be seen from the shared budgetary statistical data.

2.5. Procurements and Budget at NASA

It can be stated that the scope of space activities in terms of NASA's tendering system is quite wide when evaluated in terms of the financing amount of the procurements.

For NASA's space activities, ***USD 18.5 billion*** in the fiscal year 2017²⁶, ***USD 19.1 billion*** in the fiscal year 2018²⁷, ***USD 19.5 billion*** in the fiscal year 2019 (NASA, *The state of NASA procurement, 2019*²⁸), and ***USD 19.6 billion*** in the fiscal year 2020 (NASA, *The state of NASA procurement, 2020*²⁹) were spent through procurements.

According to the data shared by NASA, the amount spent through tenders between 2015 and 2019 was over 80% of the total budget. However, in the fiscal year 2020, a total of 28,098 procurements were made by NASA and a total of ***USD 19,6 billion*** was spent in response to these, the highest of the last 6 years, but this amount was 78% of the total budget (NASA, *The state of NASA procurement, 2020*³⁰). However, it can be noted that, on average, ***80% of NASA's budget is spent through procurements***³¹.

Ultimately, NASA's budget was calculated ***as 25.2 billion US Dollars*** (NASA, *FY 2021 budget estimates*) in the 2021 fiscal year, which covers the period when this study was written, and it is estimated that it will be ***20.1 billion US Dollars*** in 2021, considering the 80% rate.

3. Procurement Legislation and Tendering System within the Scope of Space Activities of the Turkish Space Agency (TSA)

Space services are the type of service in which the public also participates in financing. When the space activities of ESA and NASA are examined, it is seen that the public also participates

26 For more detailed information, see: NASA. *FY 2017 agency financial report*. (16.04.2021).

27 For more detailed information, see: NASA. *FY 2018 agency financial report*. (17.04.2021).

28 For more detailed information, see: NASA. *FY 2019 agency financial report*. (18.04.2021).

29 For more detailed information, see: NASA. *FY 2020 agency financial report*. (18.04.2021).

30 See also: NASA. *Fiscal year 2020*. (16.04.2021).

31 See also: NASA. *FY 2020 annual performance report*. (20.04.2021).

in the financing to a large extent. In Turkiye, it has not been financed by the public yet; that is, there is no space activity financed directly in the market economy³².

On the basis of space activities in Turkiye, from past to present, the Presidency of the Republic of Turkiye, the Ministry of National Defense of the Republic of Turkiye, the Ministry of Industry and Technology of the Republic of Turkiye, the Ministry of Transport and Infrastructure of the Republic of Turkiye, the Information Technologies and Communications Authority, the Presidency of Defense Industries, the General Directorate of Civil Aviation, Turkiye Scientific and Technological Research Council, Turkish Space Agency, it is seen that public space has been formed.

In terms of space services, which are considered to be a public service in this study, Turkiye is not at a minimum level; it has the will to pursue higher levels of public service in this field outside of planet Earth. In this context, it is thought that the *Presidential Decree No. 23 on the Turkish Space Agency*³³ (Presidential Decree No. 23) and the TSA formed in the Turkish administrative organization reflect this will. In this sense, TSA stands out as an administrative authority that will help the public and private sector investments in space services be implemented in a safe, effective and economical way.

The procedures and principles regarding the duties and authorities of the TSA, which was established as a legal entity, administrative and financial autonomy, special budget, Ministry of Industry and Technology, in order to fulfil the duties and authorities determined by the Presidential Decree No. 23, have been regulated. TSA, which has a public legal personality in terms of administrative function, has been established as the “related” institution of the Ministry of Industry and Technology with administrative autonomy. A mixed legal regime is envisaged for the TSA. To the public law regime within the scope of Presidential Decree No. 23; however, in cases where there is no provision in the Decree, it will be subject to the private law regime.

In the provision of Article 4/1 of Presidential Decree No. 23, duties are envisaged in 21 subparagraphs. These duties can be summarized as follows by making some classifications and determining the focal points:

- 1) Missions about the National Space Programme.
- 2) Missions to space and aeronautical science and technologies.
- 3) Missions to the aerospace industry.
- 4) Missions to spacecraft and space ground systems.
- 5) Missions to space operations.
- 6) Duties for space law.
- 7) Other duties.

In addition, the mission of TSA is stated as being the pioneer and leading institution that carries out works that will benefit our country and all humanity in accordance with the requirements of the New Space Age. Apart from this, TSA, which is a state institution, carries out studies on finance, law, management, business, marketing and similar issues in support of the development and dissemination of space and aviation science and technologies and is a

³² For detailed information about Turkiye’s space technologies, see: TUA. *Uzay teknolojileri*. (19.04.2021).

³³ See: Official Gazette, 13.12.2018/30624.

national institution for the protection and assurance of the rights and interests of the Republic of Turkiye in space and coordinates with international organizations (TUA, Kurumsal).

When the above-mentioned duties and missions are examined, it can be seen that TSA, like ESA and NASA, is at the focal point of the transactions that will be the subject of the tender in the process of carrying out its activities.

3.1. TSA's Procurement Legislation

In the examination of TSA's procurement legislation, it is seen that the TSA Tendering System is different from the ESA and NASA tendering systems examined in this study. That is to say; there is no procurement legislation specific to space procurements in Turkiye yet. Because it should be noted that there is no field of "space procurements" in Turkiye. However, this situation is related to the process in Turkiye and TSA are engaged in terms of space activities. ESA for more than 40 years and NASA for more than 50 years have been carrying out space activities. There was no space procurements area at the very beginning of the process when both ESA and NASA started space activities similar to Turkiye.

The reason for this process-based connection between space activities and space tenders is the definition and, therefore, the nature of public tenders. For a public transaction to be considered a public tender, it is thought that public funds should be created by using public resources, by applying an administrative procedure subject to strict conditions stipulated within the framework of the competition principle. In this context, in the definition of the space tender discussed in this study, the administrative and financial procedure consisting of *the principles of competition, the use of public resources* and the *creation of public resources* are the minimum conditions.

When the minimum conditions in the definition given above are examined, it is clear that a tender cannot always be a legal and financial procedure that can be applied in the first phase of any economic activity. Because the existence of the principle of competition, which gives a public transaction the quality of a tender, requires the existence of a private economic area in the relevant economic transaction, as well as the public economy. For this reason, the mere existence of a public economy is not sufficient for tenders. When we evaluate this situation in terms of space procurements, there is a need for private enterprises capable of supplying the works that can be expressed as *space goods, space services* or *space constructions* that the public needs.

Moreover, these undertakings should be more than one, and thus the principle of competition should be established. In other words, more than one tenderer who is a candidate to be included in the space exchange must be produced by the market economy. For this reason, in the area where the financial procedure has not matured, it may be possible that the administrative procedure, which includes strict terms and conditions in the contract to be concluded by the public, is not applied.

Therefore, Turkiye and TSA are experiencing a similar situation at the beginning of the process for space activities of ESA and NASA in terms of space procurements. It should also be noted that both ESA and NASA still have legal regulations regarding the application of a non-tender area for certain space activities. However, as the number and diversity of space

activities, which are determined as the duties of TSA, increase, it is clear that the field of space procurements will also emerge. In this context, in the near future, Türkiye's space procurements will appear as a legal and financial field of study on its own.

In the light of all these explanations, it should not be concluded that Türkiye does not have space procurement legislation in the current situation. Because, in our opinion, Türkiye's public procurement legislation, together with the establishment of the economic infrastructure of space procurements, includes highly detailed legal regulations and normative regulations for public procurements, are largely suitable for the implementation of space procurements.

3.1.1. Public Finance Procedural Laws

The public procurement legislation in Türkiye presents a fragmented structure consisting of more than one law (Akın, 2019b: 1). It is also referred to as *the legislation foreseeing the public tender procedure* (Kutlu Gürsel, 2008: 4). In order to understand this fragmented structure of public procurement legislation, a classification has been developed in the administrative law doctrine, as *special tender procedures* and *most private tender procedures* (Gözler, 2019: 107-110; Gözler & Gürsel, 2018: 440-441) on the basis of public tender procedures (Kutlu Gürsel, 2008a: 4-5).

In the Turkish public procurement legislation, the **Public Procurement Law No. 2886**³⁴ and the **Public Procurement Law No. 4734**³⁵, which have special tender procedures and are also defined as the basic law or basic procurement laws in the doctrine, are in force.

In addition, **Public Procurement Contracts Law No. 4735**³⁶, which came into force in order to determine the principles and procedures related to the issuance and implementation of contracts regarding the procurements made in accordance with Law No. 4734, is considered as one of the basic laws of the Turkish public procurement legislation. In this sense, the tender area, whose legal framework is drawn with Laws No. 2886, 4734 and 4735, constitutes *the narrow definition of public tenders* (Akel, 2018a: 14-16).

Apart from this, Turkish public procurement legislation also includes the most special tender procedures, apart from the three tender procedure laws (Gözler, 2019: 108-109; Gözler & Gürsel, 2018: 440-441). When the laws that constitute the most special tender procedures are examined, it is seen that although they remain within the scope of the basic tender laws in terms of budget, administration, and tender procedures, they are separately regulated as a separate legal regulation subject with the will of the legislator.

It is claimed that the field of tender, whose legal framework is drawn with all the laws in the public procurement legislation, constitutes *the broad definition of public procurement* (Akel, 2018a: 14-16). At this point, in this study, the laws regulating public tenders, which also **concern the economic dimension of public law** (Kutlu Gürsel, 2006: 25) and constitute one of the issues regulated by **financial procedure** (Balta, 1968/1970: 187, 197) are expressed as **public finance procedure law/fiscal procedure law**.

34 See: Official Gazette, 10.09.1983/18161.

35 See: Official Gazette, 22.01.2002/24648.

36 See: Official Gazette, 22.1.2002/24648.

As can be understood from the explanations above, space procurements (tenders) in Türkiye are not specifically regulated by a public finance procedure law. They, therefore, are not subject to the law within the scope of the most special tender procedures. From this point of view, Laws No. 2886, 4734 and 4735, which are within the scope of special tender procedures in terms of space tenders in Türkiye and constitute the basic tender legislation, will find application.

3.1.1.1. Space Tenders Where Money in Accounts (Allowance) Generates Expenses Through Public Expenditure

It is observed that Türkiye also follows this legislative orientation in terms of public procurement regulations prepared by global and regional organizations such as the World Trade Organization, the United Nations International Trade Law Commission, the European Union and the OECD, which contain binding and guiding provisions for its member states (Akdoğan, 2014: 699).

At this point, especially the enactment process of Law No. 4734 gains importance, and when its General Justification is examined, it is seen that Law No. 2886 is insufficient to respond to the developing and changing needs, it is far from the European Union and international tender practices, and the tenders that create public expenditure and public income are combined. It has been stated that laws numbered 4734 and 4735 have been prepared in order to make the procurement legislation in goods, services and construction works parallel to the procurement legislation of international organizations such as the European Union and the World Trade Organization (Türkiye Büyük Millet Meclisi, Kamu İhale Kanunu Tasarısı³⁷). For the reasons explained, as a rule, the provisions of Law No. 4734 must be applied for public procurements (Akin, 2019b: 30) in which the money in the accounts (allowance) constitutes an expense by making public expenditures. The procedure of public expenditures made for the needs included in Law No. 4734, the scope of administration and work, is regulated in this Law.

However, it is seen that public institutions and organizations that are exempted³⁸ from the regulations of Law No. 4734 and excluded from the scope also carry out public expenditures according to their own legislation.

It is seen that public institutions and organizations that are exempted from the regulations of Law No. 4734 and excluded from the scope also carry out public expenditures in accordance with their own legislation. Apart from this, as stated above, although it is within the scope of Law No. 4734 on the basis of budget, administration and tender procedures, the most special tender procedures; that is, there are also tenders and public expenditures carried out with public finance procedure laws other than the Law No. 4734.

Furthermore, *direct procurement* and *design competitions* are defined as *ordinary tender procedures* (Gözler & Kaplan, 2018: 449), *non-tender procurement procedures* (Oder, 2017: 593), *procurement procedures other than tender procedures* (Özdemir, 2020: 726) or *non-tender procedures* (Akin, 2019b: 213) in the doctrine, and are not stipulated as a tender procedure in Law No. 4734, and which are subject to public law or audit by the public. Public

37 See also on the subject: (Uz, 2008: 185-191).

38 In Article 3 of Law No. 4734, in which *exceptions* are regulated, it is stipulated that Law No. 4734 will not be applied in terms of which public institutions and organizations and which procurement transactions.

expenditures are made by public institutions and organizations that are under or using public resources.

3.1.1.2. Space Tenders Where the Money in the Accounts (Allowance) Does Not Create Expenses by Public Expenditure

With Law No. 4734 and Law No. 2886, the scope of work and transaction has narrowed, and some of them have become unenforceable. Pursuant to Article 2 of Law No. 4734, in which the *scope* is regulated, the procurement of goods or services and the procurement for construction works financed from all kinds of resources at the disposal of the administrations specified in this article will be carried out in accordance with the provisions of this Law. For this reason, the scope of the tenders carried out in accordance with Law No. 2886 is applied as sale, construction, lease, exchange, and establishment of non-real rights of property (Akin, 2019b: 152)³⁹.

In legal texts in Türkiye, the concept of the tender has been preferred to meet *public procurement* (Toprak, 2016: 2); in this context, the term tender has been used specifically and consistently in Türkiye's public procurement legislation (Akdoğan, 2014: 685). The concept of *public procurement* and *government procurement* is more widely used in international literature. This concept, which we can translate into Turkish as public procurement or procurement, is itself an object of regulation in international regulations. Similarly, in Turkish legislation, there is Law No. 4734, which includes public procurement within the scope of regulation. However, in practice, public procurement and public procurement are used synonymously (Uz, 2005: 1). Because in the Turkish public procurement legislation, the scope of all the public finance procedure laws regulating tender procedures is not limited to public procurement.

Considering that a public procurement process cannot be reduced to just a tender, it has been stated in the doctrine that public procurement is a more inclusive concept that includes the tender (Akdoğan, 2014: 685). However, it does not seem possible to agree with this view. That is, not every public procurement is a public tender, and it cannot be said that every public tender is a public procurement.

As examined in the previous sections of the study, it is understood that the use of resources is foreseen in the tendering system with the legislation of ESA for space tenders. On the other hand, NASA went a step further and emphasized the resource-increasing aspect in the definition of the procurement process from a resource perspective but limited the procurement processes to the procurement of goods and services and construction works. In other words, space activities have been organized in terms of resource use in both ESA and NASA.

However, with the development and deepening of space activities over time, the implementation of transactions can be expressed *as space sales, space construction works, space leases, space exchanges* and *space non-property rights facilities* within the scope of Law No. 2886 will also come to the fore. Therefore, for today, public procurements in the space economy; that is, although financial expenditure-oriented procurement legislation and the system is foreseen in space tenders, space activities will also be carried out in the future, where the money in the accounts (allowance) does not create an expense by public expenditures

39 For more detailed information, **see also:** (Akel, 2018a: 17-19; Akin, 2018b; Kutlu Gürsel, 2008b: 149; 151-152).

(Akın, 2019b: 30). And for this reason, it is clear that there will be a need for tender legislation similar to the scope of Law No. 2886.

As a result, it seems correct to point out an administrative transaction with the concept of public tender and to interpret the concept in this way (Toprak, 2016: 2-7). In this context, the concept of tender should not be considered as a procedure used only in public procurement (Akdoğan, 2014: 685). For tender legislation and tendering system that will cover the future, it is necessary to define a space tender from the beginning, ensuring uniformity in national and international regulations and fully expressing the legal and financial field.

In order to meet this requirement in this study, it has been stated that the administrative and financial procedure, which consists of the principles of competition, the use of public resources and the creation of public resources, constitute the minimum conditions in public tenders. Making an initial tender definition in this way is also very important for the future of space tenders. In this context, it can be stated that there is an intersection between public procurement and tenders.

3.1.2. Secondary Legislation: Tender Implementation Regulations and Public Procurement General Communiqué

The explanations made so far in terms of the legal regulations in force in the Turkish public procurement legislation will be tried to be shaped with suggestions in the continuation of our study. However, on the basis of the regulations in force, it should be noted that it also has a very detailed secondary legislation based on Law No 4734. The secondary legislation⁴⁰ that will be discussed in this study is as follows:

- *Goods Procurement Tenders Implementation Regulation*
- *Service Procurement Tenders Implementation Regulation*
- *Construction Works Tenders Implementation Regulation*
- *Consultancy Service Procurement Tenders Implementation Regulation*
- *Framework Agreement Tenders Implementation Regulation*⁴¹
- *Electronic Tender Implementation Regulation*⁴²
- *Public Procurement General Communiqué*⁴³

3.2. Tendering System at TSA: E-Procurement

Pursuant to the provision of article 2/1-a in which the *scope* of Law No. 4734 is regulated, expenditure tenders requiring the use of public appropriations by administrations with special budgets will be conducted in accordance with this Law.

Since TSA is not an administration excluded from the scope in Article 2 of Law No. 4734 or included in the scope of exemption pursuant to Article 3 of the Law No. 4734, which is

40 For other secondary legislation arrangements prepared based on the Law No. 4734, **see also:** Kamu İhale Kurumu. *Kamu İhale Mevzuatı*. (14.04.2021).

41 **See:** Official Gazette, 04.03.2009/27159-Repeating.

42 **See:** Official Gazette, 25.02.2011/27857.

43 **See:** Official Gazette, 22.08.2009/27327.

regulated by the exceptions, it will be subject to this Law in goods-service procurements and construction works tenders for space services⁴⁴.

Although it is seen that TSA, which was formed with Presidential Decree No. 23 in 2018, has carried out procurements with the tender procedures within the scope of Law No. 4734, it appears that they are not intended for space goods, space services, or space construction works. However, this study, it is aimed to present the concrete situation about the tender system in space tenders in Türkiye and to develop some suggestions.

In addition, for the time being, the provisions of Law No. 4734 are considered to have functional legal regulations for any space procurement to be conducted in Türkiye. These legal regulations were brought into the public procurement legislation with the amendments made in Law No. 4734 with *Law No. 5812 on the Amendment of the Law on Public Procurement Contracts and the Law on Amendments to the Law on Public Procurement Contracts*⁴⁵.

3.2.1. Non-Tender Procedure: Direct Procurement Procedure

Since TSA is an administration within the scope of Law No. 4734, the provisions of Law No. 4734 will have to be applied when there is a need to meet the need to be met by using public resources in space goods, space services and space construction transactions.

To illustrate, within the scope of “*All kinds of necessities purchased, movable and immovable goods and rights*”, there are all kinds of necessities to be used in the construction of satellites or all kinds of intellectual-industrial rights purchased for the establishment of this service.

Besides, within the scope of “*Maintenance and repair, transportation, communication, insurance, research and development, accounting, market research and survey, consultancy, promotion, printing and publishing, cleaning, food preparation and distribution, meeting, organization, exhibition, protection and security, vocational training, photography, film, intellectual and fine arts, computer systems and software services, rental of movable and immovable property and rights and other similar services*”, there are all kinds of intellectual-industrial rights leased for the establishment of satellite services, and personnel services for non-essential services.

In addition, within the scope of “*Building, highway, railway, highway, airport, dock, port, shipyard, bridge, tunnel, subway, viaduct, sports facility, infrastructure, pipe transmission line, communication and energy transmission line, dam, power plant, refinery facility, irrigation facility, soil improvement, flood protection and stripping, and related installation, manufacturing, preparation, transportation, completion, major repair, restoration, landscaping, drilling, demolition, reinforcement and assembly works and similar construction works*” there are all kinds of construction works such as the construction of a communication system that will participate in space services is within this scope.

44 In addition, TSA is subject to the provisions of Law No. 2886 in terms of tenders in which the money in the accounts (allowance) does not constitute an expense by making public expenditures. Because, as stated in the Presidential Decree No. 23 and in the Schedule (II) of the *Public Financial Management and Control Law No. 5018*, it is one of the other administrations with a special budget. See: Official Gazette, 24.12.2003/25326. For detailed information on the relationship between the scope of Laws No. 2886 and 4734 and the public budget, see also: (Akel, 2017).

45 See: Official Gazette, 05.12.2008/27075.

At this point, as stated before, as one of the public expenditure procedures in the Turkish public procurement legislation, direct procurement procedure⁴⁶ emerges as a non-tender procedure.

In Article 4 of Law No. 4734, where *definitions* are regulated, direct procurement is defined as the procedure in which the needs, technical conditions, and price can be met directly with the tenderers invited by the administration in cases specified in this Law. Again, in Article 22 of Law No. 4734, which regulates *direct procurement*, the cases in which the direct procurement procedure can be applied in a limited way, depending on the discretion of the administrations, are regulated in 10 subparagraphs. When the situation is evaluated in terms of space procurements within the scope of this study, it is thought that direct procurement procedure can be applied primarily in the following cases:

- Determining that the need can only be met by a single real or legal person
- Only one real or legal person has a special right regarding the need.
- Obtaining the goods and services that are obligatory in order to ensure compatibility and standardization with existing goods, equipment, technology or services, from the real or legal person from whom the first purchase is made, with contracts to be drawn up on the basis of the original contract and whose total duration will not exceed three years

Therefore, in terms of space procurements, it is thought that TSA applies and can apply the direct procurement procedure in terms of space expenditures mentioned above.

3.2.2. Tender Procedure: Tender Procedure Among Certain Tenderers

In the current situation, since we are in the early stages of the process economy, the public sector is predominantly involved in the financing model due to the site-specific risks and high costs of investment projects in space (Bozkurt & Ercan 2016: 3). In other words, in the face of high costs, public economies will have to make a cost-benefit analysis, and more importantly, the increase in the weight of the private economy in the financing model in the space field will directly depend on these economic results. In this sense, an economic contribution for the formation of a market economy; that is, the potential for profit to occur will motivate entrepreneurs. As mentioned before, this nature of space activities has created a non-tender period for ESA and NASA in the past and for TSA in Turkiye today.

The above-mentioned feature of space activities, which produces a public financing model, is also effective in the tender procedure in which space tenders that generate expenditure will be carried out. Because, in space economy activities involving high-tech manufacturing, the supply of their parts and services, *the tender procedure among certain tenderers*⁴⁷, which is regulated as a basic tender procedure in Law No. 4734, gains importance.

In Article 4 of Law No. 4734, the tender procedure among certain tenderers is defined as the procedure in which the administration invites the tenderers to submit proposals as a result of the pre-qualification evaluation.

46 For detailed information on the subject, see also: (Akel, 2018c: 14; Akin, 2019b: 164-165).

47 For detailed information on the subject, see also: (Akin, 2019b: 166-170).

Furthermore, in Article 21 of the Law No. 4734, which *regulates the tender procedure among certain tenderers*, depending on the discretion, the tender of goods and services and construction works, due to the nature of the work requires expertise and/or advanced technology, the tender of the works for which the open tender procedure cannot be applied, and the approximate cost is half the threshold value. It has been decreed that the construction works exceeding the contract can be made according to this procedure. In this context, the issue of “expertise and/or advanced technology requirement of the nature of the work”, which is the legal reason specific to the tender procedure among certain tenderers regarding the use of discretion in Law No. 4734, corresponds to the subject of space procurements.

3.2.3. Preliminary Announcement System

With the amendment made with Law No. 5812, it would be beneficial to consider the preliminary announcement system, which was included for the first time in Law No. 4734 in this study. According to Article 4 of Law No. 4734, *preliminary announcement* refers to the announcement made as soon as possible following the beginning of the financial year regarding the works planned to be tendered during the year. In addition, according to Article 13 of Law No. 4734, which *regulates the tender announcement periods and rules and the preliminary announcement*, the administrations can make a preliminary announcement in the Public Procurement Bulletin for the tenders whose approximate costs are equal to or exceeding the threshold values specified in Article 8 of the Law.

In case of the preliminary announcement, including international announcements, the forty-day announcement and invitation period can be reduced to twenty-four days. In the preliminary announcement, a) The name, address, telephone and fax number and e-mail address of the Administration, b) The name, nature, type of the tender, items and estimated quantities in the purchase of goods and services, and in the construction work, according to the place, construction technique and requirement program. The estimated physical amount or scope, c) Whether a framework agreement will be made, d) The place where the tender will be held, e) In which quarter of the year the tender notice will be published must be specified.

In cases where pre-announcement is made, the tender notice must be published at least forty days after the pre-announcement date in order to benefit from the time reduction. The fact that a preliminary announcement has been made does not impose an obligation on the administration to make a tender. In cases where pre-announcement is made, it is obligatory that the tender be realized by one of the open tenders or one of the tender procedures among certain tenderers. Preliminary advertisements are published free of charge in the Public Procurement Bulletin.

When the explanations given above are evaluated together, an announcement is published, and an announcement is made in accordance with Law No. 4734, just like the IITT, which ESA implements for space tenders; in fact, this legal process is terminologically expressed as a pre-announcement in our national legislation.

As in IITT, the essential thing in the preliminary announcement system is the publication of the tender notice. It is possible for people who are not aware of the pre-announcement to participate in the tender or, on the contrary, not to participate in the tender opened by those who are aware of the pre-announcement. In terms of the tender announcement system, which

we draw a similarity with ITT, there are specifications, which are also referred to as the *main specification* (Özay, 2017: 511) or *stipulation* (Duran, 1982: 437; Özay, 2017: 511) in the Law No. 4734. As defined in Article 4 of Law No. 4734, as a rule, administrative specifications including instructions to the tenderers for the works subject to the tender, technical specifications including the project of the work to be done, the contract draft and the tender document expressing other necessary documents and information are prepared. Again, according to the 12th article of Law No. 4734, it is essential that the administrative and technical specifications specifying the procurement of goods or services subject to tender and all the characteristics of the construction works are prepared by the administrations. In this context, the specifications that form a part of the tender document and the standard tender documents and standard contracts, the preparation of which is given to the Public Procurement Authority as a duty and authority with the 53rd article of Law No. 4734, are informative to those who want to submit a bid for the tender.

The announcement, which is the basis for the announcement within the scope of IITT, contains the summary of the work to be carried out, the initial services within the ESA and the planned publication date on an annual, quarterly basis. In the preliminary announcement published in accordance with Law No. 4734 and the secondary legislation prepared on the basis of the Law, the name, nature, type of the tender, items and estimated quantities in the procurement of goods and services, and in the construction works, according to the place, construction technique and requirement program. The estimated physical amount or scope, the quarter in which the tender notice will be published, must be included.

Besides these similarities, there are some differences between IITT and preliminary advertisement. There is an estimated price range in the advertisements published within the scope of IITT implemented by ESA; however, one of the most important issues on which the confidentiality principle, which is one of the general tender principles of Law No. 4734, is established is the approximate cost (Akel, 2018c: 13; Akın, 2019b: 181, 215-216). According to Article 9 of Law No. 4734, which regulates the *approximate cost*, the approximate cost excluding value-added tax is determined by the administration by conducting all kinds of price research before the procurement of goods or services and the construction works are made, and it is shown in a chart of accounts together with its bases. However, the approximate cost is not included in the tender and pre-qualification announcements and is not disclosed to the tenderers or other persons who do not have an official relationship with the procurement process. Therefore, it is forbidden to include the approximate cost, which is expressed as an estimated price range in IITT, in the preliminary advertisements published within the scope of Law No. 4734. There is also another difference arising from the approximate cost, and no threshold value has been stipulated in ESA's IITT system; however, in order to make a preliminary announcement pursuant to Law No. 4734, it is a requirement that the estimated cost of the tender, which is conducted, as a rule, equals or exceeds the threshold values. In this context, according to the *Public Procurement Communique No. 2021/I*⁴⁸, the threshold values for the year 2021 are **2.225.824 Turkish Liras** for the procurement of goods and services by the departments included in the general budget subject to Law No. 4734 and the administrations with annexed budgets. **3.709.717 Turkish Liras** in the purchase of goods and services and the construction works of the administrations within the scope of the Law. It is stated as **81.614.303 Turkish Liras**. Therefore, according to the contracting authority, which is the subject of the tender, no preliminary announcement can be made below these thresholds. Another difference

48 See: Official Gazette, 26.01.2021/31376.

that can be pointed out from this point of view is that while ESA implements the IITT system as a rule, in Law No. 4734, the publication of the preliminary notice in public tenders exceeding the threshold values is stipulated as an exception, subject to the discretion of the administrations.

Furthermore, although there is no restriction on the tender procedure in IITT (ESA, ESA's invitation to tender system-EMITS); in order to publish a preliminary announcement within the scope of Law No. 4734, the tender subject to this preliminary announcement was not allowed to be carried out with all the tender procedures regulated in the Law, and only the open tender procedure regulated in Articles 19 and 20 of the Law and the application of the tender procedure among certain tenderers was allowed. In this context, the bargaining procedure regulated in Article 21 of Law No. 4734 cannot be applied to tenders for which preliminary announcements are made⁴⁹.

In this sense, the status gained here in terms of our national legislation, although there is no such regulation, can be named an *expression of the potential tenderer*⁵⁰. However, in the event that a preliminary announcement is published within the scope of Law No. 4734, no bid is submitted, and no other declaration is sent to the contracting authority.

Therefore, at this stage, no *tender adjective*⁵¹ is formed. It is also stipulated in Law No. 4734 that the preliminary announcement does not impose any responsibility on the relevant administration to make a tender. The purpose of publishing the preliminary announcement here is to notify the relevant parties in advance of the announcement made in the Public Procurement Bulletin, even though the administration is not obliged to execute the tender subject of the preliminary announcement. Apart from this, discretionary power is also given to shorten the periods in the announcement to be made later.

3.2.4. E-Procurement System

When the situation is evaluated in terms of Turkish public procurement legislation, it should be noted that the *electronic procurement (e-procurement)⁵² method⁵³* has been brought into

49 For detailed information about this, see: (Akın, 2019b: 188-198).

50 *Potential tenderer* is defined as a natural or legal person or joint venture formed by them, operating in the area subject to the tender and purchasing tender or pre-qualification documents article 4 of Law No. 4734

51 For detailed information about this, see: (Akın, 2019b: 242).

52 The concept of *electronic procurement* is not available in the Law No. 4734 and the Public Procurement General Communiqué, but took place in Goods Procurement Tenders Implementation Regulation, Service Procurement Tenders Implementation Regulation and Construction Works Tenders Implementation Regulation after the amendments made in the Official Gazette dated 19.06.2018 and numbered 30453. Prior to this change, Goods Procurement Tenders Implementation Regulation and Service Procurement Tenders Implementation Regulation have been regulated by including the concept of *declaration procedure for which procurements are received* in electronic environment instead of the concept of electronic procurement. For detailed information about this, see: (Akın, 2019b: 383). However, it should be reiterated that the Electronic Tender Implementation Regulation, based on the Law No. 4734, exists. The concept of *e-procurement*, which is not included in the regulations in the public procurement legislation, was included for the first time in the 2019 Presidential Annual Program. Following this, the concept of e-procurement was also included in the 2019 and 2020 Public Procurement Monitoring Reports prepared by the Public Procurement Authority. See: Kamu İhale Kurumu. *Kamu Alımları İzleme Raporu 2019, Dönem 01.01.2019-31.12.2019*. (14.05.2021); Kamu İhale Kurumu. *Kamu Alımları İzleme Raporu 2020, Dönem 01.01.2020-31.12.2020*. (14.05.2021). In this study, it was preferred to use the concept of e-procurement as included in the Presidential Annual Programs. In addition, e-procurement has been considered as a system in order not to be confused with the tender procedures in the Law No. 4734.

53 For detailed information, see also: (Akın, 2019a: 81-82, 92-93).

practice to a large extent in order to increase (Türkiye Cumhuriyeti Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2019 yılı Cumhurbaşkanlığı Yıllık Programı; Türkiye Cumhuriyeti Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2020 yılı Cumhurbaşkanlığı Yıllık Programı) the efficiency and transparency in public expenditures. The normative infrastructure of the e-tendering system was regulated much earlier in Law No. 4734, and the most comprehensive changes in this regard were made with Law No. 5812. As one of these changes, the Electronic Public Procurement Platform (EPPP), which refers to the electronic environment where e-procurement is currently carried out, where administrations and parties to the public procurement process can carry out transactions related to this process over the internet, and which is managed by the Public Procurement Authority, has been regulated. According to additional article 1 of Law No. 4734, all announcements to be made pursuant to article 13 of this Law are also published in EPPP. Since the preliminary announcement mentioned in the previous study is one of the announcements regulated in Article 13 of Law No. 4734, it should be said that it will also be published in EPPP.

E-procurements conducted through EPPP can be defined as *tenders made by receiving e-bids*, as regulated in the provisions of article 58/A of Goods Procurement Tenders Implementation Regulation, article 59/A of Service Procurement Tenders Implementation Regulation and article 60/A of Construction Works Tenders Implementation Regulation. According to article 3/1-c of the Electronic Tender Implementation Regulation, *e-bid*⁵⁴ refers to the offer prepared electronically via EPPP and signed with e-signature by the tenderer or the authorized person or persons on behalf of the tenderer.

In addition, according to the definition made in the 2019 Public Procurement Monitoring Report, e-procurement is the name given to the realization of public procurements over electronic media. Unlike the traditional system, e-procurement refers to the initiation of the public tender, the submission of bids and the completion of the tender in a virtual environment by using information and communication technologies.

Furthermore, according to the definition made in the 2019 Public Procurement Monitoring Report, e-procurement is the name given to the realization of public procurements over electronic media. Unlike the traditional system, e-procurement refers to the initiation of the public tender, the submission of bids and the completion of the tender in a virtual environment by using information and communication technologies (Kamu İhale Kurumu, Kamu Alımları İzleme Raporu 2019).

According to the definition made in the Public Procurement Monitoring Report for the Year 2020, e-procurement is the tender method in which the bids are prepared electronically over EPPP and signed with e-signature by the tenderer or the authorized person or persons on behalf of the tenderer, and the bid evaluation procedures are completed via EPPP (Kamu İhale Kurumu, Kamu Alımları İzleme Raporu 2020).

54 The concept of *e-bid* is also not available in the Law No. 4734 and Public Procurement General Communique but took place in Goods Procurement Tenders Implementation Regulation and Service Procurement Tenders Implementation Regulation after the amendments made in the Official Gazette dated 27.05.2016 and numbered 29724 (Repeated). E-bid took place after the changes made in the Official Gazette dated 19.06.2018 and numbered 30453 in Construction Works Tenders Implementation Regulation. **See also:** (Akın, 2019b: 383).

In the *2019 Presidential Annual Program*⁵⁵, it was stated that within the scope of Law No. 4734, secondary legislation would be prepared for the use of e-procurement in all procurement types and procedures and for purchases with an approximate cost up to a certain amount, and EPPP developments will be completed. In addition, in the *2020 Presidential Annual Program*⁵⁶, a policy/measure has been stated that within the scope of Law No. 4734, e-procurement will be made compulsory in all tender procedures.

In the current situation, although it is possible to carry out e-procurement with all tender procedures within the scope of Law No. 4734, there is no obligation to implement it. According to the statistical data published by the Public Procurement Authority, 39,948 tenders were conducted in the e-procurement system as of 18.05.2021 (Kamu İhale Kurumu, EKAP). In this context, 8% of the procurements held within the scope of Law No. 4734 in 2019; on the other hand, 24% (Türkiye Cumhuriyeti Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2020 Yılı Cumhurbaşkanlığı Yıllık Programı) of the procurements held in 2020 were realized in the e-procurement system.

In addition to the explanations above, it should be noted that *the electronic reduction (e-reduction) method*⁵⁷, which can be said to be a part of the e-procurement system, was added to Law No. 4734 with the amendment of Law 5812. According to Article 4 of Law No. 4734, *electronic reduction* refers to the repetitive processes of re-evaluation and sorting of new prices submitted in electronic form in the form of bidding after the evaluation of the bids, or the new values related to certain bid elements by means of an electronic tool, using automatic assessment methods.

Furthermore, according to additional article 5 of Law No. 4734, provided that it is specified in the announcement and tender documents, procurements carried out with open tender procedure, tender procedure among certain tenderers and bargaining procedure in accordance with subparagraphs (a), (d) and (e) of Article 21 of the Law, after the completion of the evaluation stage of the bids, the electronic reduction can be made.

In the Presidential Annual Program of 2020, the concept of *e-reduction* was included for the first time. A policy/measure was stated that e-reduction and e-procurement would be made compulsory in all tender procedures. In the current situation, it is not possible to carry out e-reduction with all tender procedures within the scope of Law No. 4734, and it will not be possible to apply for procurements conducted by bargaining procedure pursuant to subparagraphs (b), (c) and (f) of Article 21 of Law No. 4734.

3.3. Procurement Objectives and Procurement Principles in TSA

Although not mentioned in the statements about ESA and NASA, it is generally thought that space procurements have a significant difference from other tenders. Space procurements

55 See: Official Gazette, 27.10.2018/30578-Repeating.

56 See: Official Gazette, 04.11.2019/30938-Repeating.

57 The concept of *electronic reduction* took place in in Goods Procurement Tenders Implementation Regulation, Service Procurement Tenders Implementation Regulation and Construction Works Tenders Implementation Regulation after the amendments made in the Official Gazette dated 19.06.2018 and numbered 30453. See also: (Akin, 2019a: 81-82, 92-93). In addition, electronic reduction was included for the first time in the 2020 Presidential Annual Program as e-reduction. See: Türkiye Cumhuriyeti Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2020 yılı Cumhurbaşkanlığı Yıllık Programı. (20.03.2021). In this study, it was preferred to use the concept of e-reduction as included in the Presidential Annual Program. In addition, e-reduction has been considered as a system in order not to be confused with the tender procedures in the Law No. 4734.

appear as the legal and financial procedure of space activities carried out in the name of more macro-State purposes. Because, in the explanations for the *National Space Program*⁵⁸ specific to Türkiye, it is seen that there is an emphasis on the planning of space technologies for the use of space technologies as a tool in the development of the country. In this context, it is considered that the function of being a tool is more dominant in the context of macro purposes of space procurements when compared to other tenders.

3.3.1. Procurement Principles

It is seen that the principles aimed to be effective in space procurements through the legal mechanisms in the tendering system put into effect by ESA and NASA are also stipulated in detail in the Turkish public procurement legislation.

Considering the procurement principles in Article 5 of Law No. 4734, in which the *basic principles* are regulated, in case a space procurement is conducted in accordance with Law No. 4734, the following principles must be provided in the tenders⁵⁹:

- The principle of transparency.
- The principle of competition.
- The principle of equal treatment.
- The principle of reliability.
- The principle of privacy.
- The principle of public scrutiny.
- The principle of meeting the conditions of the inappropriate need and on time.
- The principle of efficient use of resources.

3.3.2. Uniform and Centralized Execution Model: 5 İ (Five İ)

Although it is seen that the Turkish public procurement legislation has the infrastructure to meet the needs in the execution of space procurements, and in fact, the fragmented structure that emerged due to multiple legal regulations in the public procurement legislation is not supported by us; considering Türkiye's accelerated space activities, it is also considered that *a space procurement plan* should be established. At this point, it is also possible to design the space procurement plan within the framework of the National Space Program.

The necessity of carrying out the process of space procurements centrally and by trained personnel with a uniform application emerges due to reasons such as the fact that all of the space procurement issues have the expertise and/or advanced technology for today, they need high budgets⁶⁰, the high-quality human capital required for the whole process, and the collaborations that will require a global perspective.

All these requirements will bring into question the creation of special procurement legislation as part of the space procurement plan led by the TSA. At this point, special procurement legislation as part of the space procurement plan will be functional in revising

58 For detailed information about the National Space Program, see: TUA, Milli Uzay Programı. (04.05.2021).

59 For detailed information on tender principles, see: (Akel, 2018c: 13; Özkan, 2014; Üstün, & Çalış, 2018).

60 See also: TUA, Neden Milli Uzay Programı? (04.05.2021).

some procurement principles that are used as a basis for ordinary tenders, adding some new principles, reconsidering economic cooperation models, and realizing the long-term objectives of space activities, which are the subject of space procurements.

It should also be noted here that the aim of completing the legal regulation gaps for regulating space activities has been expressed by TSA (TUA, Türkiye Uzay Ajansı 2020 yılı faaliyet raporu). In this study, it has been tried to develop suggestions for legal regulations in the perspective of space tenders.

In the light of the explanations above, first of all, it should be noted that there is no model included in this title in the TSA Procurement System. However, in this study, as a result of the research on ESA and NASA examples, it is deemed necessary to establish a most special tender procedure, called the “*Space Procurement Law*”, or the public finance procedure law, as it is expressed in this study, for the Turkish procurement legislation. The creation of this new law was inspired by the 4 Ps, which NASA envisaged as the corporate operating model, which determines the general framework for forming NASA’s space procurement legislation. In this context, for the space procurement plan to be created under the leadership of TSA as the “*Where the Future Begins*”, **5 İ** are suggested in this study in Turkish: **İnsan (Human), İlke (Principle), İş Birliği (Cooperation), İstikrar (Stability), and (İnovasyon) Innovation.**

3.4. SMEs and Cooperation at TSA

Although it is seen that Law No. 4734 regulates the issue of joint ventures in participation in the tender, it is seen that there is no legal basis for an application to ensure SME cooperation in the tendering systems of ESA and NASA. Although this is the case, a policy/measure is envisaged to simplify the secondary legislation regarding Law No. 4734, to encourage the participation of SMEs in procurements and to adapt them to today’s needs, in order to increase competition by improving the processes of public procurements and public procurement contracts in order to save on public investment expenditures in the 2021 Presidential Annual Program⁶¹. Therefore, in the Turkish public procurement legislation, it can be stated that in the near future, legal arrangements will be made for the practices that will ensure SME cooperation in the procurements carried out within the scope of Law No. 4734. For this reason, in a space procurement to be carried out within the scope of current legal regulations, it may be possible to apply an economic model of cooperation with SMEs.

In addition, at this point, it is useful to specify another important situation. In Article 4 of Law No. 4734, joint ventures are stipulated as one of the tenderers. Article 14 of the Law stipulated that those joint ventures are of two types as business partnerships or consortiums by more than one real or legal person. In the aforementioned article, it is stated that the business partnership with which it is a partner can bid for all kinds of procurements, do all the work together with the rights and responsibilities of its members, and be jointly and severally responsible for the fulfilment of the commitment. Again, in the aforementioned article, it is stated that the consortiums, whose members are partners in order to separate their rights and responsibilities and to carry out the parts of the work related to their field of expertise, are at the discretion of the administration if the work requires different expertise, whether the consortia can submit proposals. In this context, in order to submit bids from joint ventures as a business partnership,

61 See: Official Gazette, 27.10.2020/31287-Repeating.

it is sufficient to fulfil the conditions specified in Law No. 4734 and the secondary legislation. However, consortiums from joint ventures will be able to submit bids for the procurement, provided that it is appreciated by the contracting authority that bids will be submitted.

When the policy/measures⁶² for conducting tenders by creating procurement plans to meet the needs of the administrations in accordance with the common - and collective - procurement envisaged by the 2019 Presidential Annual Program are desired, it is understood that a transition to a centralized system is aimed in public procurement.

In parallel with the transition to the central procurement system, if the needs of the administrations suitable for joint - and collective - procurement are determined as a very high procurement, it is likely that the risk that those with smaller production capacity may not be able to participate in the procurements. In order to eliminate this risk, it is foreseen that many more organizations in the form of joint ventures will participate in the procurements conducted within the scope of Law No. 4734. In other words, in order to participate in public procurements, it is thought that individuals will apply to joint ventures in the form of business partnerships, where it is possible to submit bids in all tenders conducted within the scope of Law No. 4734. Furthermore, this organization is suggested as an advantage in participating in the procurements in the central tender system (Akın, 2019a: 86-88). Therefore, in the Turkish public procurement legislation, there is an instrumentality in establishing a joint venture on the basis of the transition to the centralized system in public procurement, and normative regulations can be guiding for joint ventures.

3.5. Procurements and Budget at TSA

Since the 2000s, the resources spent on space activities have been increasing in Türkiye. The total expenditure amount of TSA in 2020 was **82.301.644.59 Turkish Liras**, and its revenues for 2020 were calculated as **209.891.651.17 Turkish Liras** (TSA, Türkiye Uzay Ajansı 2020 yılı Faaliyet Raporu 2020⁶³).

TSA's 2021 fiscal year budget revenues are **350.000.000 Turkish Liras**; 2022 fiscal year budget revenues are estimated as **450.000.000 Turkish Liras** and 2023 fiscal year budget revenues are estimated as **550.000.000 Turkish Liras** (*Türkiye Cumhuriyeti Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, Merkezi yönetim*). In addition, TSA's 2021 fiscal year budget expenses are **38.071.000 Turkish Liras**; 2022 fiscal year budget expenditures are estimated as **39.784.000 Turkish Liras** and 2023 fiscal year budget expenditures are estimated as **42.381.000 Turkish Liras** (*Türkiye Cumhuriyeti Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2021 yılı*).

Finally, it is useful to state an important situation about the budgetary and financial statistics mentioned above. That is to say, within the scope of space activities, financial resources are not used by TSA alone in Türkiye, and the financing in this field is carried out by more than one public administration or organization. For this reason, it should be said that an amount more than the above-mentioned budget amounts has been spent within the scope of space activities in

62 The same policy/measure was included in the 2020 Presidential Annual Program. See: Türkiye Cumhuriyeti Cumhurbaşkanlığı Strateji ve Bütçe Başkanlığı, 2020 Yılı Cumhurbaşkanlığı Yıllık Programı. (20.03.2021).

63 For more detailed information on the basic financial statements of TUA for 2020, see: TUA. 2020 yılı temel mali tablolar. (17.05.2021).

Turkiye. In this context, in order to reach real financial amounts in the evaluations to be made in comparison with other applications in the world and to make the uniform and centralized execution model effective in this study, it is necessary to put an end to the decentralized practice in terms of administrations in space tenders. At this point, in the focus of cooperation, which is one of the 5 I models systematized in the study, it is suggested that TSA be authorized as the sole public institution in the budget and financial financing of space tenders.

4. Conclusion

Financing is an indispensable condition for the execution of space activities; that is, the financial resources to be used depend on a successful space economy. Space procurements are primarily effective in ensuring this quality of a successful space economy. In this context, legal regulations and practices regarding space procurements gain importance for a successful space economy and activities. Therefore, while creating a space strategy or space policy, the legislative equation regarding the budget and space procurements is the first and most important issue to be considered. In terms of space services, which are considered to be a public service in this study, this quality constitutes a public space. The formation of public space brings together the issue of public finance. In this context, financing is linked to a successful space economy; in other words, there is a public space today in terms of financial resources to be used.

In the examples of ESA and NASA discussed in this study, it is seen that primarily public finance is dominant. However, with the vertical and horizontal development of space activities over time, that is, with the increase in quality and quantity, it has been determined that there are some changes.

First of all, at the very beginning of the process for ESA and NASA's space activities and still some individual space activities, it seems that there is no public tender as defined in this study. Because, in the sense of this study, public tenders are tenders in which public resources are used and created, and at the same time, the principle of competition is activated. However, the dynamics of space procurements are not conducive to the implementation of procurements, which still consist of administrative and financial procedures, both at the beginning of the process and today. Because space procurements are a relatively new activity in terms of process economy when compared to ordinary procurements. For this reason, without gaining an economical depth, as a rule, the atmosphere in which any public procurement will be held does not occur, and this is also true for space procurements. In addition, space activities involve high costs along with site-specific risks due to this new nature. Due to these high costs, high budgets are allocated for space activities, as can be seen in the study, and the financial financing of this area poses a challenge. In addition, space activities are of the nature that requires expertise and/or advanced technology. This situation can be evaluated as a risk and high-cost justification. For these reasons, which are stated as a minimum, the formation of the financial infrastructure required for a public procurement and the related legal infrastructure has been delayed as an obstacle to the market economy alongside the public economy in space economies.

The effectiveness and priority of the role of the public economy in the space economy, which has the characteristics of a process economy, continues. However, ESA and NASA applications show that almost all of the budget allocated to space activities is spent with space procurements. Some of the expenditure items in this amount are space procurements, which are defined in this

study. In this context, it can be stated that as the process in space activities deepens, the place and importance of space procurements in the space economy increases.

Apart from this, the deepening of the process presented outputs that became more evident over time in terms of some risks in space activities. This situation encouraged the private economy to participate in these activities. The budget amounts that ESA and NASA allocate to space activities almost every year and financial resources other than the public economy have also increased. It is thought that the technologies, which are the outputs of space activities, will help humanity, especially in the COVID-19 global epidemic, and it will bring harmony in the perspective of space activities that require high financial resources.

It should also be noted that space procurements, which consist of an administrative and financial method, require both a legal and financial perspective. Of course, the priority is the financial perspective and the procedure, but the legal perspective and procedure also have to accompany this financial area as a complement for a rational application that ensures effective and efficient use of resources. It is clear that the importance given to normative regulations by the ESA and NASA examined in the study is at a very high level. In this context, ESA and NASA have established administrative organizations consisting of qualified personnel in the execution of space procurements and have created highly detailed public procurement legislation. However, as it is also stated in this study, it will be a legal deficiency in the near future to deal with economic actions that only constitute expenditure in terms of space procurements. Because, in our opinion, in the very near future, there will be procurement actions that do not constitute expenditure within the scope of space procurements. For this reason, it is foreseen that ESA and NASA will also consider space sales, space construction works, space leases, space exchanges and space non-property rights facilities in terms of space economy and space procurement legislation by abandoning the expenditure-oriented one-way perspective in space procurements. It is also thought that for this reason, the situation that makes us very difficult in this study in terms of terminological use will be resolved by ESA and NASA, and the use of synonyms for procurement and expenditures (purchases/acquisitions) will be terminated.

It is thought that the above-mentioned determinations should also be taken into account for the countries that have made progress in terms of space activities. For this reason, ESA and NASA applications have been examined in detail in our study, and realistic proposals have been tried to be developed for Türkiye and TSA, whose economic process in space activities is rapidly progressing. At this point, it can be stated that the process Türkiye is in terms of space economy is in a critical period for space procurements. Because Türkiye is also making rapid developments in space activities in terms of global competition and thus its depth in the space economy is also gaining momentum. It is seen that Türkiye is in a non-tender practice as it should be in terms of its position in the process economy, considering space procurements within the scope of Türkiye's space activities, where public finance is dominant. However, in the near future, it is foreseen that space procurements will start in Türkiye in the interest of financial resources. In terms of this process, Turkish public procurement legislation is sufficient. In other words, Turkish public procurement legislation regulations are functional for the execution of space procurement.

Although this is the case, space activities are qualified to determine the future of the Earth. For this reason, the instrumentality of space procurements for the macro and global purposes of

States comes to the fore. This feature is one of the most important features that distinguish space tenders from other tenders together with high costs, expertise and/or advanced technological content. Therefore, as in the ESA and NASA applications, it is recommended to develop a space procurement legislation different from the general procurement regulations, which will be developed under the leadership of TSA, and which takes into account the characteristics specific to these activities. In terms of this proposal, a public procurement plan should be established as a complement to the National Space Program, which came into force as Türkiye's space strategy/policy. For this, first of all, a uniform and centralized executive model should be made effective. This model is also functional in revealing the real figures of the space economy created by Türkiye for space activities. In this context, TSA should be the only institution in the financial financing of space procurements in central administration. In addition, it becomes very important to establish a basic space procurement norm, with the name proposed in this study, in the form of "Space Procurement Law" for uniform application. For this basic norm, as a result of the research made for space activities and economy, it would be quite appropriate to observe the focuses in the form of Human, Principle, Cooperation, Stability and Innovation at every stage, which we call the 5İ.

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