This chapter provides an overview of the public procurement framework surrounding the New International Airport of Mexico City (Nuevo Aeropuerto Internacional de la Ciudad de México, NAICM) project. It describes the interactions between various stakeholders in competitive procurement processes. The analysis focuses on procurement strategies and objectives defined by the Airport Group of Mexico City (GACM), and provides recommendations on adapting standard processes according to the magnitude and complexity of the project. It identifies challenges and opportunities in the critical phase of selecting suppliers who will be participating in the construction of the airport.
As discussed in Chapter 2, GACM (Grupo Aeroportuario de la Ciudad de México, Airport Group of Mexico City) was established in 1998 through a governmental decree as an enterprise with state participation. As such, GACM is subject to the public procurement framework applicable to public entities.

Beyond being subject to public procurement regulations, the nature of the project also impacts its surrounding legislative environment. The construction of an airport, a major infrastructure asset, with several different components, including military facilities, shall also abide, yet in a more indirect way, by legislative frameworks relating to environmental policies and national security rules.

These different laws, although not directly framing the procurement processes carried out for the construction of the airport, have effects on some of their features from the type of procurement process used to the definition of award criteria.

However this regulatory framework does not prevent GACM from adapting standard public procurement processes for the provision of public works to the extraordinary nature and complexity of the project. GACM should then adapt its procurement strategy to its overarching ambition to deliver a new international airport in an exceptionally short timeframe and which will provide, throughout its different stages, the expected economic, social and environmental benefits.

The public procurement framework in Mexico: a constrained regulatory environment

A fragmented and detailed regulatory environment applicable to public procurement

In Mexico, all procurement entities are bound by various primary and secondary rules ranging from the Mexican Constitution (Constitución Política de los Estados Unidos Mexicanos, CPEUM) to a series of laws, regulations, codes, decrees, institutional agreements and manuals.

Article 134 of the Constitution establishes that the procurement of goods and services by the Federal Public Administration, states, municipalities and the Federal District is carried out through public tenders in order to achieve the best terms in price, quantity, financing arrangements, and convenience. As a consequence, public tender shall be the rule unless specific and justified circumstances prevent its being so.

When GACM carries out public procurement, one of the following federal statutes (and their associated regulations) is applicable: the Procurement Act, covering the public procurement of goods and services; the Public Works Act, covering the commissioning of public works and related services; and the Public-Private Partnerships Act. In accordance with the choice made by the Government and the nature of the project, the main set of laws and regulations where the applicable regulatory framework is to be found are the laws, regulations, codes, decrees, institutional agreements, and manuals governing public works and associated services.

The principles set out in the Constitution are then detailed in a set of normative instruments, some of which apply to the federal public administration as a whole, while others are specific to GACM.

The primary legislation that regulates public procurement in this area is the Law on Public Works and Associated Services (Ley de Obras Públicas y Servicios Relacionados
Article 1, Section V specifies that it is applicable to private companies whose majority of shares are owned by the State. This is the case of GACM, which is owned in majority by the Federal Government through Airports and Auxiliary Services (Aeropuertos y Servicios Auxiliares, ASA) and the Ministry for Communication and Transport (Secretaría de Comunicaciones y Transportes, SCT).

Beyond strict public works, the Law also encompasses all related services. Article 4 of the Law on Public Works broadly defines related services that fall under this law, including preliminary studies of all sorts (structural, environmental, financial). All procurement operations in the New International Airport of Mexico City (Nuevo Aeropuerto Internacional de la Ciudad de México, NAICM) project shall thus be governed by its provisions and associated regulations, codes and manuals.

The Law details overarching principles governing public procurement for public works and associated services. It notably defines the major steps applicable to competitive procurement processes, from the procurement plan to contract management. It also provides the grounds for exception to public tender and provisions on the settlement of disputes arising during the competitive procurement process.

The Law on Public Works is directly complemented by the Regulation on Public Works and Associated Services (Reglamento de Obras Públicas y Servicios Relacionados con las Mismas, ROPSRM). These provisions depict administrative procedures and steps relating to the procurement of public works. It provides additional details on aspects of public procurement specific to the Law on Public Works such as the Works Committee (Comité de Obras) responsible for granting derogations to open public procurement, the prevalence of award criteria combining qualitative and quantitative aspects (puntos y porcentajes) and variations mechanisms to contracts during the execution phase.

In addition, every public institution designs and issues its own Policies, Ground Rules and Guidelines for Public Works and Associated Services (Políticas, bases y lineamientos en materia de Obras Públicas y Servicios Relacionados con las Mismas, POBALINES) to ensure that institutional procurement processes are aligned with the Law on Public Works and other applicable laws.

POBALINES must include administrative divisions within each public agency in charge of administering the public procurement acts and their implementing regulations. It should also detail the position and level of the procurement officials within each public agency responsible for supervising the different procedures during the tender processes and the manner in which each public agency complies with the terms and conditions of the laws and implementing regulations. The POBALINES issued by GACM detail all these elements.

Moreover, GACM is in the process of developing further practical guidance on various aspects relating to the construction of the NAICM such as the Manual for Planning, Contracting and Execution of Public Works and Associated Services (Manual de Procedimientos para la Planeación, Contratación y Ejecución de Obra Pública y Servicios Relacionados con la Misma). A first draft was issued in August 2014 and should be updated.

To further assist public procurement officials and describe the various procurement procedures, the Ministry of Public Administration (Secretaría de la Función Pública,
SFP) has released procurement manuals – the Administrative Manual for General Application concerning Acquisitions, Leasing and Services of the Public Sector (Manual Administrativo de Aplicación General en Materia de Aquisiciones, Arrendamientos y Servicios del Sector Público, MAAGMAASSP) and the Administrative Manual for General Application concerning Public Works and Associated Services (Manual Administrativo de Aplicación General en Materia de Obra Públicas y Servicios Relacionados con las Mismas, MAAGMOPSRM) commonly known as the General Procurement Manuals. Both detail procurement procedures step by step, supply general guidelines, and templates, and supersede any internal procurement document that may duplicate their content.

Increasingly complex within the regulatory environment applicable to airport infrastructure

In addition to the set of rules governing public procurement, the construction of airport infrastructure also has to comply with specific laws and regulations (notably the laws on civil aviation, national security, telecommunications, environmental policies and all their derived regulations).

While most of the specific provisions contained in these regulations have unsubstantial effects on public procurement activities relating to the NAICM, two components participate in framing the entire procurement strategy.

The first component is to be found in environmental regulatory framework. Article 20 of the Law on Public Works states that prior to conducting public works the procuring area shall conduct environmental impact assessments in accordance with the provisions set out in the General Law on Ecological Sustainability and Protection of the Environment (Ley General del Equilibrio Ecológico y la Protección al Ambiente).

Integrating environmental considerations into procurement processes related to infrastructure projects is relatively common in many OECD countries, e.g. Austria and France. Environmental objectives can be translated into procurement processes either by requiring environmental performance certificates from bidders or by assessing the relative environmental performance of proposals received. The Netherlands, for example, uses a mix of those two components (Box 3.1).

The second significant component that will influence the overall procurement strategy is to be found in legislation relating to national security since the airport should provide both civil and military aviation facilities.

The military component is subject to specific legislation, notably defining national or public security, which is broadly understood as any action causing prejudice to national strategic interests. The concept of national security, which could eventually be applied to some packages of the construction of NAICM, has one major consequence.

According to Article 42 Section IV of the LOPSRM, exception to public tendering is authorised when public works are being carried out for exclusive military purposes or if the open tender procedure would cause a significant prejudice to national security or public security according to their definitions in the corresponding laws. In this case, the oversight *ex ante* mechanism foreseen in the Law – the Committee on Public Works – is not mandatorily required to assess the justifications for derogation to open public tenders. The *ex post* oversight mechanism – the internal control body – is neither informed of the existence of the deriving contracts.
Box 3.1. Green public procurement in the Netherlands

*Rijkswaterstaat* (the Department of Public Works of the Ministry of Infrastructure and the Environment, RWS) developed a methodology for infrastructure projects whereby the functional specification of the tender, together with the quality input from the client, ensure an innovative and high-quality solution. The tenderer is also asked to respond to specific quality criteria. The RWS uses the most economically advantageous tender (MEAT) methodology, including specific sustainability criteria.

The RWS has decided to focus on two criteria when assessing the sustainability attributes of offers, work processes and associated products: CO$_2$ emissions and environmental impact. Two instruments have therefore been developed: the CO$_2$ performance ladder and “DuboCalc”, respectively.

The CO$_2$ performance ladder is a certification system with which a tenderer can show the measures to be taken to limit CO$_2$ emissions within the company and in projects, as well as elsewhere in the supply chain. DuboCalc is a life-cycle analysis (LCA) based tool that calculates the sustainability value of a specific design based on the materials to be used. Bidders use DuboCalc to compare different design options for their submissions. The DuboCalc score of the preferred design is submitted with the tender price.

A tenderer can submit a CO$_2$ performance ladder certificate with their tender submission. The certificate obliges the tenderer to comply with a certain CO$_2$ reduction target according to its method of execution and working processes. Holders of the certificate have their submission price reduced by a value proportional to the effort made to reduce CO$_2$ emissions. The CO$_2$ performance ladder certificate can be provided as evidence at the tender submission stage, but this is not compulsory as long as the certificate is provided within one year of signing the contract.

**CO$_2$ performance ladder**

Contractors can apply for a CO$_2$ performance ladder certificate. In order to comply, contractors need to take steps towards reducing their carbon footprint. The first step (or “rung” on the ladder) is to measure the company’s CO$_2$ emissions. In further steps, supply chain CO$_2$ emissions are also measured, and more importantly goals are set towards reducing emissions. The higher levels on the CO$_2$ ladder include steps towards CO$_2$ reduction in the supply chain.

The CO$_2$ performance ladder is used in the tendering procedure as follows: the bidder indicates at which of the five rungs (ambition levels) of the CO$_2$ performance ladder he/she intends to carry out the work; the higher the effort to reduce CO$_2$ emissions, the higher the rung. A commitment to a higher rung results in a greater deduction from the submission price, which increases the chance of winning the contract. Each CO$_2$ ambition level corresponds to a different percentage reduction of the submission price. The final amount assessed by the RWS using the CO$_2$ performance ladder is a deduction of 1% per rung of the submission price. The highest level is Rung 5, so the maximum deduction is 5%.

**DuboCalc**

To quantify the sustainability of material use, the RWS has developed a software tool that calculates the environmental impact of construction materials. This calculation is based on an LCA of the material. The software is called the Sustainable Building Calculator, or “DuboCalc”. This tool can be used in tenders for works if the design phase is included in the tender. Dubocalc was developed as part of an overall trend towards performance-based tendering assessing the overall environmental impact of constructions rather than prescribing details.

With DuboCalc, all embedded environmental impacts of material use can be calculated, from raw material extraction and production up to and including demolition and recycling (the entire life cycle). DuboCalc also calculates the energy consumed by infrastructure works during the use phase.

For a DuboCalc calculation of infrastructure works, the programme requires input of the amounts of materials used for a particular design. Using LCA data from a built-in database, it calculates 11 environmental impact parameters. The software is based on an independent (national) dataset containing certified LCA information for each material.
Box 3.1. Green public procurement in the Netherlands (continued)

DuboCalc calculates the value of these effects via the so-called “shadow price method” to arrive at a single figure, the Environmental Cost Indicator value (ECI value). The shadow price method is based on the costs of preventing emissions from arising. The ECI value indicates the environmental impact of a particular design for civil engineering works. A lower value indicates lower environmental impact. Designs that differ significantly from each other in terms of material use also differ in terms of environmental quality. DuboCalc enables designers to calculate ECI values of alternative designs to arrive at an optimally sustainable design.

The ECI value is used in the tendering procedure as follows: the contracting authority provides the tenderer with all the functional requirements and the latest version of the DuboCalc programme. The tenderer designs the infrastructure and calculates the price and the ECI value. The ECI value is transformed into a monetary value according to a formula that is prescribed by the tenderer (the ECI value and monetary value are inversely related and there is a minimum and a maximum). These two prices are offered to the contracting authority. The contracting authority selects the tenderer with the lowest price and ECI value combined to undertake the work.


While providing operational details on a number of aspects of public procurement, this regulatory environment is also significantly fragmented. Instructions, rules and guidance are provided by the Government, specific ministries and are also complemented by internal GACM policies. Still, this environment offers flexibility in a number of areas, which could be used to adapt standard public procurement processes to the extraordinary nature of this project.

Yet it provides opportunities to adapt procurement processes to the magnitude and complexity of the project

These laws, regulations, and manuals governing public procurement in Mexico, and more particularly in GACM, induce a series of operational consequences which together might somewhat affect the performance of public procurement processes. However, GACM could also take advantage of some of these consequences to align procurement operations with the scale of such an infrastructure project.

Supporting a sustainable financing architecture

Financial elements of infrastructure works also impact public procurement processes. Being the main method for spending public funds (OECD, 2015a), public procurement shall inherently follow government budget orientations or allocations of public funds. Considering the size and magnitude of public works, the Law on Public Works puts stronger emphasis on the surrounding budgetary preconditions to public procurement.

Figure 3.1 does not however do justice to procurement for public goods in Mexico. While Mexico ranks in the lower half of general government procurement as a percentage of GDP (gross domestic product) or share of total government expenditures, these data do not integrate procurement activities carried out by state-owned enterprises (SOEs). In Mexico, public procurement activities carried out by SOEs are extremely significant. As an example, one single SOE, the national oil company Petróleos Mexicanos (PEMEX), accounted for 26% of the total federal procurement expenditure in 2010.
Public procurement in Mexico, including for GACM, is subject to the prior availability of financial resources and the alignment of the projected public works with national strategic objectives. The laws relating to public financing comprise the National Development Plan (Plan Nacional de Desarrollo) and annual budget laws (Ley Federal de Presupuesto y Responsabilidad Hacendaria). Article 17 of the Public Works Law indicates that, before initiating any public works, federal entities shall ensure that planned operation fit within the objectives set out in the National Development Plan and corresponding resources are included in the annual budget law.

Building upon the general statements mentioned in the National Development Plan, the sectorial programme of the Ministry of Communications and Transport for 2013-18 further details the need to modernise airports infrastructures and to answer the increasing demand for airport services in Mexico City valley and in the centre of the country. NAICM, and the corresponding public works and associated services needed for its construction therefore fit with the requirement of Article 17 of the Law on Public Works. In addition, Article 18 indicates that public works relating to infrastructures shall be subject to feasibility studies, plan and development programmes in line with the National Development Plan.
GACM, as other entities subject to laws relating to public procurement, shall provide procurement plans for the fiscal year that shall be submitted to the Ministry of Public Administration. This is also the case for subsequent modifications.

In addition to the annual budget authorising the issuance of procurement processes, the nature of the project requires additional budgetary authorisation. For example, the construction of the terminal identified in the annual public works plan (GACM, 2015a) will last for more than a year. Article 50 of the Federal Law of Budget and Fiscal Responsibility (Ley Federal de Presupuesto y Responsabilidad Hacendaria, LFPRH) stipulates that public works entailing multi-year budget shall be duly justified and shall include a breakdown of budget by fiscal years. The proposal shall be approved in advance by the Director General of GACM. The relevant information, including the outcome of the procurement process, shall be submitted for information to the Ministry of Budget and Fiscal Responsibility.

The potential impact of these financial requirements is twofold. First, additional financial authorisations could influence the timeframe needed to carry out the corresponding competitive procurement procedures. In addition, the annual breakdown of works carried out in timeframes exceeding the fiscal year could require additional efforts on the structure of the technical specifications so that the execution of works and the level of investment required from suppliers are not negatively impacted.

While procurement procedures could be impacted by financial preconditions foreseen in the law, financial sustainability of the project might be influenced by the outcomes of competitive procurement processes, let alone a potential increase in the overall costs of construction. Indeed, a significant share of the construction costs will be financed via capital markets. According to public announcements, GACM intends to finance the initial phase of the construction of NAICM with up to 42% of private funding, including with long-term bonds.

Having recourse to private financing in infrastructure projects is not uncommon given scarce public resources and the financial significance of such projects. However this financing mechanism is dependent on the confidence of financial markets in the project and on the revenues it will be able to generate.

When investment decisions relate to infrastructure projects, securing private financing can be seriously affected, not only by a lack of planning in infrastructure projects, but also by the absence of demonstration of the capacity to prepare and execute projects successfully (OECD, 2015c). Delays or problems in the construction phase could therefore complicate the GACM’s quest for private financing, which would in turn further delay the issuance of the following competitive procurement processes given the preconditions stated in the law. Alternatively, investors might require commensurate risk-adjusted compensation or insist on some form of minimum revenue guarantee to invest at all (OECD, 2015d). Deficient outcomes of procurement processes could therefore not only impact the timing of the construction of the airport or its direct costs, but also dramatically increase the total cost of ownership for the Mexican Government.

**Identifying proposals which provide the best value for money**

As in any other public procurement system, evaluation criteria set out in public procurement laws or in tender documentation is the main driver for identifying the submission that responds best to requirements put to tender. In Mexico, different evaluation methods exist, depending on the nature of the goods, services or works
procured. Building on the duality of public procurement laws, the first consequence of the application of one normative instrument or the other relates to the method for evaluating responses to public tenders. The Procurement Act allows for two methods of evaluation: the points-based or the binary criterion. The Public Works Act favours, unless the area responsible decides not to do so, the utilisation of the points-based criterion for public works and related services and imposes the use of such criteria for infrastructure works.

The binary criterion awards the contract to the supplier that meets all of the qualifications conditions in the call for tender and offers the lowest price. This criterion is often used when standardised characteristics and specifications of the goods and services render those relatively interchangeable, thus giving financial attributes a decisive advantage.

The points-based criterion (puntos y porcentajes) provides a multidimensional assessment of goods, services and works presenting highly specialised or innovative characteristics and which require an expert evaluation. Under this evaluation mechanism, factors in addition to price are considered and a value is assigned for each factor to determine the most qualified bid (tenders are scored higher the more they satisfy the technical and qualitative requirements in the call for tender).

In these situations, purchasing entities face the challenge of designing tender processes which identify the optimal bid. This generally involves a trade-off between price and quality. A variety of awarding mechanisms have been used by governments in an attempt to account for quality, including: simultaneous bid evaluation of all attributes (price and non-price); two-stage evaluation procedures; over bids submitted on price and technical criteria; setting minimum quality standards for bidding participation; and private negotiations on all dimensions with a number of selected counterparts (OECD, 2015e). In public works, Mexico uses a two-stage approach where only qualified bids on the technical aspects are subject to a financial evaluation.

According to Article 31 Section XXII of the Law on Public Works, award criteria and their corresponding weightings shall be included in the tender documentation so as to duly inform potential bidders of the assessment mechanisms of their proposals. Article 38 further imposes that, among the criteria used to assess the overall value for money of proposals received, specific attention is given to the percentage of disabled workers employed by bidders. This requirement thus introduces social considerations into procurement processes.

In addition, Article 31 Section XX stipulates that the tender documentation, as the case may be, shall indicate the percentage of national content requested in the proposal. As opposed to the Law on Acquisitions, Leasing and Services of the Public Sector, the Law on Public Works does not impose a minimum threshold for such national content, except for labour workforce, which should equal at least 30% of the total labour workforce. The law merely refers to rules defined by the Ministry of Economy that provide additional guidance on formulas for evaluating the national content of public works. The percentage of national content requested in submissions from bidders is therefore mainly left to the discretion of the contracting authority.

In imposing points-based criteria for complex works, the Mexican legislative framework is aligned with best practices (for example the “Most Economically Advantageous Tender” in European countries, “Best Value” in the United States and Canada or the “Most Conveninet Offer” in Costa Rica). Indeed, targeted evaluation criteria, relevant to the individual nature of the works put to tender and proportionate to
their complexity, help identify solutions that best respond to the needs described in the
technical specifications (OECD, 2014b). As an example, the terminal foundations for
which works are planned to be put to tender in November 2015 are supposed to face
technical challenges linked to land subsidence in the Mexico City valley (El Debate,
2015). The corresponding public tender could include specific evaluation criteria
assessing the robustness of the proposals in addressing this issue.

The combination of qualitative and quantitative criteria, irrespective of the name
given to this assessment method (cost/benefit ratio, value for money, most advantageous
economically tender) is used in a large proportion of OECD countries, yet with
differences in terms of coverage and on associated weightings (OECD, 2015e). Since the
choice of the criteria and their corresponding weighting is often left to the discretion of
the purchasing authority (except for disabled workers in the Law on Public Works), they
are also often accompanied by detailed guidance based on the nature of goods, services or
works put to tender.

This is not different in Mexico. Along with other practical documentation, the
Ministry of Public Administration set out detailed guidance about criteria (SFP, 2010) to
be used in procurement of public works and the range of percentages each criteria or sub-
criteria could be assigned in the overall assessment of proposals received. This guidance
however also allows for deviations from proposed evaluation criteria and weightings
according to the nature of the project.

Yet, identification of the best-value-for-money proposal could not be achieved only
by using multidimensional evaluation criteria; the assessment framework also needs to be
tailored to tender specifics or to the objectives of the purchasing entity. The greater
complexity of this assessment method providing evaluation of non-financial attributes
entails higher scrutiny of the clarity and the structure of technical specifications, so
responses provided by competitors could be seamlessly analysed against the criteria and
the weighting defined in the tender documentation. Formulas used to score proposals
received also significantly impact tender outcome (Box 3.2).

**Taking advantage of CompraNet to alert markets and disseminate public
procurement information**

Various provisions of public procurement laws mandate contracting authorities
(унidades compradoras) to disseminate procurement-related information via CompraNet,
the electronic platform put in place by the Mexican Government. The SFP (Ministry of
Public Administration) is in charge of administering this system, which includes
information regarding the annual procurement and public works plans of public agencies,
the registry of suppliers and contractors (including sanctioned suppliers), calls for tenders
and their amendments, the minutes of “clarification meetings”, the receipt and opening of
proposals, the statements of “social witnesses”, contract information and complaint
resolutions. In 2014, 3 278 purchasing units from federal, state, and municipal
governments utilised this system, representing a 42% increase compared to 2011.

While the first objective of the dissemination of procurement-related information on
CompraNet is to increase the transparency of the public procurement system at all stages
of the procurement cycle and promoting competition, it could also prove beneficial in
alerting the market about future public procurement opportunities and help GACM
finalise public tenders adapted to market capabilities.
Box 3.2. Formulas for identifying the proposal that offers the best value for money

Choosing the best bid is a significant step in any tendering process. If the award criterion is the economically most advantageous tender, this involves scoring bids on price and quality and ranking them. Scores are calculated using a bid evaluation formula that takes price and quality as inputs, and their respective weights. The choice of formula critically affects which bid wins.

A study of 38 formulas, against a sample of 382 real tenders, illustrates several aspects of these formulas and effects that derive from their application to real submissions.

- **Relative versus absolute scoring:** In the relative approach all bids are assessed against a formula which includes a component based on the characteristic of one bid or the average of bids (i.e. the highest or lowest price/quality or the average price/quality). Absolute formulas do not integrate information from the submitted bids as a reference point. The score calculated using an absolute formula depends only on the assessment of a given bid. While the former has been found to be used in the majority of the studied formulas, the second approach could support bidders’ decisions to favour certain criteria.

- **Indifference curves:** Used in microeconomic theory, an indifference curve represents all combinations of price and quality that would receive the same overall scoring against a formula. This tool is useful to assess whether the substitution of one unit of quality by one unit of price has a constant effect (the curve is then straight) or if it evolves over time (the curve is either concave when consecutive units of quality are more and more valued or convex when consecutive units of quality are less and less valued).

- **Protection against an extremely high price:** Although a cautious balance in the corresponding weightings of price and quality components could protect purchasing entities from extremely high prices, tests where the price of the best bid in terms of quality has been multiplied by 50 show that some formulas provide rankings that are independent from price evolutions.

- **How a formula reflects the weights of price and quality:** Besides the mathematical method used to assess proposals, the weighting associated with each criterion plays a significant role in identifying the proposal offering the best value for money. The application of hypothetical scenarios (two proposals with low quality and significant price difference, two proposals different in quality and similar in price, etc.) allows for the definition of the tipping point, which is understood as the percentage weight of price above which the lower price-lower quality bid becomes the best bid.

While the definition of award criteria is commonly understood by purchasing entities, the choice of the formula itself often gets far less attention; formulas are often chosen without carefully analysing their properties and could have substantial effects on tender outcomes.


On the basis of Article 22 of LOPSRM, contracting authorities shall make publicly available, through CompraNet and its Internet website, no later than the 31st of January of every year, their Public Works and Related Services’ Annual Programme, corresponding to the fiscal year in question, with the exception of the information that, in accordance with the applicable provisions, either of a reserved or confidential nature, under the established terms in the Federal Law of Transparency and Access to Governmental Public Information.

In accordance with Article 31 of LOPSRM for projects whose estimated value is above 10 000 times the minimum daily wage, the draft tender notice should be publicised...
on CompraNet for at least ten days before the issuance of the public tender. Below this threshold, any prior publication of the draft tender notice is optional. This disclosure is meant to allow interested parties to comment on the draft tender notice that includes detailed information about the modalities of the competition, the technical specifications or the duration of the works. The ROPSRM (Article 35) further indicates that comments and responses shall be duly documented, including justifications for not integrating comments into the final tender notice.

This information could help suppliers identify public procurement opportunities in which they could have interest. It could also provide additional time useful to form ad hoc alliances with other suppliers in case of tenders requiring distinct expertise or additional human resources which one supplier alone could not provide. It further offers GACM the opportunity to receive comments and feedback from the market on the tender documentation prior to the issuance of the open public tender.

**Strengthening civil society’s involvement in the project**

Further engaging civil society in the project, and more specifically in procurement processes, is an objective which could be pursued in two ways. First, legislative requirements impose the integration of civil society in procurement processes above a certain threshold. However, these requirements provide for some flexibility and offer GACM the opportunity to further strengthen public engagement in the project.

Article 27b of LOPSRM stipulates that a social witness (*testigos sociales*) shall participate in all phases of open public tender procedures whose estimated value exceeds the equivalent of 10 million days of minimum wage in force in the Federal District where works shall be carried out, or upon decision of the Ministry of Public Administration as it sees fit. In financial terms, this means that participation of social witnesses is mandatory for procurement process whose estimated value exceeds approximately USD 46 million. The social witness could either be a natural person or a legal entity such as chambers of commerce or professional organisations. Social witnesses, selected by the Ministry of Public Administration (SFP), shall be honourable, possess an expertise related to the nature of services or works procurement and be independent from the parties involved in the process.

Below the threshold defined in the law, participation of social witnesses is optional. In addition to reinforcing citizen trust in public procurement by integrating social oversight in processes, social witnesses can also prove useful in providing non-binding advice in the process (OECD, 2013a). GACM could thus decide to make social witness participation mandatory in all procurement processes relating to the construction of the airport irrespective of the estimated amount of the packages put to tender.

Beyond including external scrutiny in public procurement processes, GACM also provides the procurement information related to NAICM to the general public via its website. This information includes procurement plans, latest major contracts awarded, and impact studies carried out before initiating the project. The integrity and communication chapters of this review assess the completeness of the information and address key recommendations to improve the overall transparency and accountability of the procurement process.
Ensuring transparency when granting derogations to open public procurement processes

Laws applicable to public procurement mandate purchasing entities, including GACM, to create oversight bodies responsible for assessing exceptions to open public tenders. The Committee on Public Works and Committee on Acquisition (Comité de Obras y Comité de Adquisiciones) are therefore responsible for granting derogations to open public procurement processes. In accordance with Article 26 of the ROPSRM, the Committee on Public Works shall be composed of:

- the General Director of GACM
- the Head of the Corporate Directorate for Real Estate Management and Administration
- the Head of the Corporate Directorate for Financing
- civil servants having recognised subject matter expertise and not affiliated to the Central Management Office (Oficialía Mayor).

The above composition ensures that this oversight body can function. However, the Law on Public Works also provides additional flexibility when stating that the Committee on Public Works could invite, but without the right to vote, any individual, bound by confidentiality obligations, whose clarifications are deemed necessary. This possibility could enhance transparency when a request for derogation is submitted to it and could ensure that the Committee makes an informed decision when deciding to grant a derogation to open public tender.

Derogation grounds are fully listed in Article 42 of the Law on Public Works and mostly find their origins in either technical (e.g. impossibility to precisely define the perimeter and amount of work needed) or legal matters (e.g. reserved intellectual property rights, force majeure, etc.). POBALINES indicate that technical justifications for the derogations submitted to the Committee on Public Works are provided by the Corporate Directorate for Infrastructure (Dirección Corporativa de Infraestructura).

The Public Works Committee is normally responsible for deciding whether to grant derogation from the obligation for public entities to award public contracts via an open tender procedure in advance of the process. However, based on Article 42 Section IV of the LOPSRM, exception to public tenders based on national security issues are not put forward before the Committee which is only informed by the purchasing entity after the contract is signed. Therefore, there is no ex ante control of this exception.

In addition, the internal control body (Órgano Interno de Control) shall be provided, in accordance with Article 41 of the LOPSRM, with a list of contracts signed by the entity in the preceding month and that were subject to derogations from the open public tender procedure. However, it is not necessary to report contracts based on derogations granted on the grounds of national security issues.
Infrastructure project requires the involvement of various stakeholders with distinct and uneven experience

Several directorates within GACM as well as other ministries have distinct, but interrelated, responsibilities in the procurement cycle

The POBALINES define the various areas responsible for the different stages of procurement processes.

The Corporate Directorate for Planning, Evaluation and Outreach is responsible for the overall co-ordination of GACM’s activities and, more specifically, for the strategic planning for the development of the airport infrastructure of the Mexico Valley, its evaluation, and follow up.

The Corporate Directorate for Infrastructure is responsible for programming and managing the impact assessments, projects, works and related services, elaborating the terms of reference, managing the investment contracts, and supervising execution of the works.

The Corporate Directorate for Finance is responsible for planning, establishing and co-ordinating strategies and guidelines for carrying out the appropriate programming, budgeting and financial strategy.

Finally, the Corporate Directorate for Administration and Real Estate Management is responsible, among other things, for legally representing GACM and for carrying out the procurement processes necessary for public works acquisitions and related services.

Table 3.1 sets out a summary of the procurement-related responsibilities as they are carried out by each GACM corporate directorate.

Within these corporate directorates, entities are responsible for specific aspects embedded in the procurement process. While roles and responsibilities of the different areas are clearly spelled out in the POBALINES, the tight sequencing of activities required by the procurement strategy devised by GACM requires sound and efficient co-ordination.

From the initial procurement plan until the verification of the execution of the public works, a typical procurement process in GACM involves the four different directorates and no fewer than nine different sub-directorates or units. The most complex procurement processes, for example when social witnesses are required and contractual periods exceed a year, will involve other GACM directorates and other governmental entities, such as the SFP, the Ministry of Finance and Public Credit (Secretaría de Hacienda y Crédito Público, SHCP) and the Ministry of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales, SEMARNAT).
### Table 3.1. Procurement related responsibilities per GACM corporate directorate

<table>
<thead>
<tr>
<th>Corporate Directorate for Planning</th>
<th>Corporate Directorate for Infrastructure</th>
<th>Corporate Directorate for Finance</th>
<th>Corporate Directorate for Administration and Real Estate Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Overall co-ordination of GACM’s activities</td>
<td>• Planning and managing impact assessments, projects, works and related services</td>
<td>• Planning, and establishing the necessary funding for the development of NAICM</td>
<td>• Legally representing GACM</td>
</tr>
<tr>
<td>• Strategic planning for the development of the airport infrastructure of the Mexico Valley</td>
<td>• Elaborating terms of reference for the construction of NAICM</td>
<td>• Co-ordinating strategies and guidelines for carrying out the appropriate programming, budgeting and financial strategy</td>
<td>• Ensuring compliance with the applicable regulatory frameworks</td>
</tr>
<tr>
<td>• Evaluation</td>
<td>• Management of investment contracts</td>
<td></td>
<td>• Carrying out the procurement processes necessary for public works acquisitions and related services, including market research</td>
</tr>
<tr>
<td>• Follow up</td>
<td>• Supervising execution of the works</td>
<td></td>
<td>• Real estate strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Planning, integration, direction, and management of human resources, real estate, buildings, and general services</td>
</tr>
</tbody>
</table>

Source: Author’s own work.

**GACM procurement activities, since GACM’s inception, suggest limited experience in managing open competition procedures**

Although formally created in 1998, GACM was only granted an organisational structure and the corresponding budget in late 2014 when the NAICM project was formally endorsed by the Mexican Government. Since then, GACM has been developing some internal practical guidance and notably procurement manuals to complement those published by the Ministry of Public Administration. Other manuals providing guidance on budgetary issues or on Committees on Public Works and on Acquisitions shall be further developed.

Its procurement activities only started the same year and are related to the NAICM project. Up to 12 August 2015, GACM carried out 36 distinct procurement processes directly relating to public works (Figure 3.2).
Those procurement operations related almost exclusively to various impact assessments forming pre-conditions to the execution of public works relating to infrastructure (Articles 18 and 20 of the Law on Public Works). Considering the extraordinary character of infrastructure projects of this scale and size and the uneven related experience of public officials involved in those procurement processes, GACM also sought assistance in the design of the terms of reference.

More than two-thirds of the procurement processes carried out by GACM since its inception were conducted under exceptions to open public tenders and most notably under restricted competition (invitación a cuando menos tres personas). By limiting competition to invited bidders, GACM incurred the risk of receiving proposals that were not of sufficient quality, and therefore had to cancel and re-issue the corresponding process. This happened in 21% of the procurement processes carried out under restricted competition. In addition, it is worth noting that more than 90% of the procurement processes only allowed for the participation of national companies.

Based on the information provided by GACM on the main construction packages (see “The packages: From strategy to implementation”, below), these trends, both in terms of competitive procurement process used, and in terms of openness, will drastically change according to the public statements made to conduct all procurement activities relating to the construction of the NAICM under open public tenders.
This limited experience is mitigated by external assistance throughout the procurement cycle

In addition to ad hoc, outsourced technical assistance and considering the nature of the project, GACM will co-ordinate inputs that will come from a wide range of governmental entities, the project manager (PM) and the master architect.

Ministries of Communications and Transport, Public Administration, Environment and Natural Resources, Defence and Budget and Fiscal Responsibility will all be directly involved at one stage in the project as detailed above. This is without taking into account other several governmental entities, a significant part of the Mexican Government, which will be indirectly impacted.

Since the beginning of OECD support of the project, GACM has indicated that it has received technical assistance from specialised companies, notably for the PM. The company awarded with the responsibility to conduct the project management is Parsons, a US-based company with extensive know-how in large infrastructure constructions projects, and comprehensive experience in airports. Parsons provides inputs on the global design of the NAICM project, the structure of the packaging strategy, the outsourcing model in accordance with the legislative framework detailed above. They also participate in the drafting of the technical specifications that form the basis of the procurement processes and the rationale for the type of procedure used. As a project manager, Parsons will also play a lead role in the monitoring of the execution of the work, the co-ordination of the different lots and the reception of the work. As a project management office (PMO), they will design the work programme; plan and manage the project, including execution projects, equipment and systems; control all required actions for obtaining licensing; identify and monitor risks during the development of the project; monitor the quality systems; manage the allocated budget; and prepare the transfer of the current airport to the new one.

The adjudication of Parsons was managed by ASA in 2014 as GACM was not active by then. The process was concluded in May 2014 and signed in October 2014. Comprehensive market research was conducted first at the national level with no results, and then at the international level to identify the most qualified firms available to provide the wide range of services for the PM. The top seven firms in the world, plus the one responsible for the initial studies of the NAICM, were invited to present a quote for their services, following the Mexican Law of Public Works and Related Services, but limited responses were received. Parsons is the world leader in this type of service. The price presented by Parsons was compared with the civil engineers’ unit personnel costs table in Mexico. An independent assessment of the total PM costs relative to the total amount of the project was conducted by the Mexican Consultants Chamber and the result was 2-5% of total project value. With this information, ASA studied Parsons’ proposal and concluded that it was below market price. The market research concluded also that there was no significant number of competitors available in the global market, besides the ones invited.

One step of the procurement process where Parsons’ participation is less clear is the phase relating to the analysis of the proposals received. Considering their technical expertise and experience in procurement of public works for large infrastructure projects, GACM officials would benefit from Parsons’ inputs in identifying the strength and weaknesses of the proposals received in response to public tenders. This would be particularly true when several criteria form the basis for awarding public contracts.
The Minister of Transport and Communications (SCT) stated his vision of the public procurement operations necessary for the construction of the NAICM in a press conference held on 8 June 2015. Mr. Ruiz Esparza indicated that tenders are aimed at encouraging the participation of Mexican companies; establish clear rules from the start; identify the largest number of qualified participants; and ensure transparency.

The growing recognition of public procurement in participating in services delivery for governments has been evidenced in a great number of countries and led to the “Recommendation of the Council on Public Procurement” (OECD, 2015f). Strategic use of procurement also advocates for smart implementation, which ensures that public procurement operations are effective, sustainable and deliver the best value for money from a whole-of-government perspective.

Achieving the strategic objectives defined by GACM and more largely by the Mexican authorities in the construction of the NAICM will thus require aligning implementation decisions made throughout the project with these objectives in mind.

Both the delivery model and the overall structure and openness of procurement processes are strategic choices that lead to a series of consequences. They are meant to bring certain benefits, but also come with associated challenges.

**Balancing the allocation of responsibilities and risks between the public and private sectors in the project**

The first and foremost strategic choice made by the Mexican Government relates to the outsourcing mode of the construction work. In infrastructure projects, three main processes are used: public procurement, concessions and public-private partnerships (PPPs). One commonality of concessions and PPPs is their inherent long-term approach, since the deriving contracts offset initial investment costs with long-term operation revenues. In sharp contrast, public procurement adopts a more phased approach (Burger and Hawkesworth, 2011).

Some analysis suggests that PPPs and long-term concessions may prove more adapted to the design, construction and operation of large infrastructure projects since these contractual schemes might transfer a great share of the risks to economic operators, if designed properly. Yet, they also open the door to drastic renegotiations of contracts if initial projections or assumptions are not met. A recent study shows that in Chile, Colombia and Peru between 1993 and 2010, 50 road concessions contracts out of 61 were renegotiated at least once (OECD, 2013b).

While putting most of the financial burden on the government upfront, public procurement, often limited to construction activities, also limits the risk of unsustainable long-term relationships with economic operators based on initial assumptions or projections that could prove overly optimistic. In line with this choice, GACM decided to phase the different construction activities into a series of sequential 21 procurement processes (GACM, 2015b).

Beyond the strategic choice of the global delivery method, another important factor is defining the allocation of risks in the project between the public and private sectors. Considering the complexity of large infrastructure projects such as the Nuevo Aeropuerto Internacional de la Ciudad de Mexico (NAICM), tender design strategy play a crucial role in the delivery of the project. The strategy defined by GACM as it pertains to the
procurement of public works adopts a sequenced approach to the construction of the NAICM with a mix of Design-Bid-Build and Design-Build models.

These two models have several advantages, but also come with inherent challenges that should not be underestimated. The Design–Bid-Build model distinguishes the design phase from the construction phase, the latter being provided in the tender documentation with the plans and concepts elaborated by the design team. This traditional approach to public procurement for infrastructure projects differs from the Design-Build approach where all responsibilities, from architectural concepts to construction works, are granted to one contractor.

The major differences between these models, which are only two options amongst the different delivery models for infrastructure projects (Table 3.2), lie with the allocation of risks and the control over the construction of the infrastructure.

Table 3.2. Different types of infrastructure delivery models

<table>
<thead>
<tr>
<th>Model</th>
<th>Responsibilities and risks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design–bid–build</td>
<td>- Contracting authority has completed the majority of design work (sometimes with the assistance of specialised consultants).</td>
</tr>
<tr>
<td></td>
<td>- Government engages contractor to build, based on supplied design.</td>
</tr>
<tr>
<td></td>
<td>- Risks associated with design faults, changing requirements and adverse site conditions are typically borne by the contracting authority.</td>
</tr>
<tr>
<td>Design–build</td>
<td>- Contracting authority only provides a project brief in the tender documentation, sometimes with only performance-based requirements.</td>
</tr>
<tr>
<td></td>
<td>- Contractor engages design consultants.</td>
</tr>
<tr>
<td></td>
<td>- Contractors bid on their developed design and lump sum construction price.</td>
</tr>
<tr>
<td></td>
<td>- Risks associated with errors or omissions in final design, and latent conditions typically borne by contractors and design consultants.</td>
</tr>
<tr>
<td></td>
<td>- Costs of directed variation typically borne by the contracting authority.</td>
</tr>
<tr>
<td>Construction management or general contractor</td>
<td>- Contractor undertakes significant part of project management role, including:</td>
</tr>
<tr>
<td></td>
<td>o obtaining development approvals</td>
</tr>
<tr>
<td></td>
<td>o undertaking onsite investigations</td>
</tr>
<tr>
<td></td>
<td>o finalisation of design</td>
</tr>
<tr>
<td></td>
<td>o developing construction, commissioning and maintenance programme.</td>
</tr>
<tr>
<td></td>
<td>- Assumes the risk for construction performance as the equivalent of a general contractor holding all subcontracts during the construction phase.</td>
</tr>
<tr>
<td></td>
<td>- Contractors given incentives to manage project costs by sharing cost savings.</td>
</tr>
<tr>
<td>Alliance contracting</td>
<td>- Contracting authority and other alliance partners jointly develop design and share risks.</td>
</tr>
<tr>
<td></td>
<td>- Other alliance partners may include designers, consultants, management service providers, suppliers, construction contractors.</td>
</tr>
<tr>
<td></td>
<td>- Often considered to be of greatest value where the contracting authority has had limited experience with the risks for the project.</td>
</tr>
<tr>
<td>Public-private partnership (PPP) and concessions</td>
<td>- Contract between the public and private sector, which can reflect a number of different partnership models.</td>
</tr>
<tr>
<td></td>
<td>- Private sector delivers infrastructure and services over the long term.</td>
</tr>
<tr>
<td></td>
<td>- Some level of private financing for the project.</td>
</tr>
<tr>
<td></td>
<td>- Project may be funded by government, user payments or a combination of the two.</td>
</tr>
</tbody>
</table>


The Design-Bid-Build model could imply several advantages, such as diversifying the pool of suppliers working on the project, ensuring that detailed technical specifications are included in the tender documentation for construction works or assisting GACM in estimating the amounts of the different packages, thus maintaining strong financial
oversight. Yet, it also comes with difficulties, most notably the risks linked to design changes or inconsistencies that require precisely defining the roles, responsibilities and contractual obligations of the various consultants and companies.

Conversely, the Design-Build approach assigns all activities to one contractor. In terms of liability, it offers more certainty to the contracting authority since risks associated with design defaults are typically borne by the contractor. However, it also carries risks linked to reduced control by the contracting authority on the different phases of the project and reduced visibility of the overall value for money of the project, since design decisions made by the contractor will directly affect deriving construction costs (CMAA, 2012).

**Fostering competition while safeguarding efficiency: A strategic assessment**

Following strategies employed in other airport construction projects, the overall construction effort is divided into several packages. The Washington Dulles airport and the International Airport in Doha, among others, followed the same rationale. For example, the construction of the Doha International Airport initiated in 2004 was initially divided into 19 distinct lots that expanded to 21 different lots during the construction phase (GACM, 2014).

While other projects have been designed in a similar way to NAICM, alternative scenarios also exist, such as for the expansion of the Abu Dhabi airport where one main contractor, with several subcontractors, was appointed (GACM, 2014). Although this limits the diversity of suppliers that have direct contractual relationships with the entity responsible for the infrastructure project, this option also inherently contains the dilution of responsibilities deriving from multiple and interconnected contracts.

Construction works related to NAICM and carried out by GACM are divided into 21 different main lots, the so-called packages. In addition, the National Commission on Water (CONAGUA) will be responsible for the issuance of competitive procurement processes of public works relating to the drainage system in the Mexico valley and soil decontamination. Since the NAICM will provide infrastructures both for civil and military aviation, the Secretariat of National Defence (SEDENA) should also be directly responsible for undertaking and monitoring public works that affect national security.

The 21 main packages represent almost 75% (MXN 95 million) of the MXN 127 million allocated to the airport infrastructure. According to GACM statements, the remainder should finance various additional works, such as airlines and tenant facilities or information technology (IT) systems. They are not, however, integrated into the global strategy defined for the main 21 packages.

The overarching principle of the packaging strategy for the 21 main packages (hereafter referred to as the “packaging strategy”), as announced on 8 July 2015 during a press conference, is to have recourse to open public tenders for all packages, contrasting with previous GACM experience as evidenced by information available in CompraNet (see Figure 3.2).

According to Article 134 of the Constitution, open public tender is the norm. However, based on specific circumstances, derogations can be granted to use either direct award or restricted competition procedures. Derogations should be duly justified and works should be carried out under the same overarching principles of transparency, efficiency and financial soundness of the operation.
In fact, more than imposing open competition, the Constitution promotes the use of the procurement method, which best achieves the above-mentioned principles since the underlying rationale for granting exceptions is that these objectives would not be ideally pursued using open public tenders. Therefore, in accordance with the Constitution, GACM decisions concerning purchasing methods (open competition, direct award, and restricted competition) should first and foremost assess their relative merits in attaining these objectives.

Promoting competition is often found to result in better outcomes in public procurement and notably in infrastructure projects. On the basis of 200 infrastructure works put to tender in developing countries, fostering competition has been estimated to generate an 8.2% savings (Estache and Iimi, 2008). However, favouring competition should not be understood as just carrying out procurement processes under open public tenders.

Some analyses indeed suggest that fostered competition is dependent on three main factors: the complexity of the project and the level of details included in the tender documentation, the number of potential suppliers in the market and the costs of bidding (Tadelis and Bajari, 2006). In complex projects, competition opened to all interested suppliers, which requires significant investment from bidders in preparing a response may not provide sufficient incentives to bidders to submit a response, thus harming the competitiveness of proposals received. Worse, it may primarily influence the decisions of the most qualified bidders, since they might have higher confidence in their ability and greater experience in winning competitive procurement processes in other markets. Choices on the nature of the procurement process often imply a trade-off between competition and efficiency (OECD, 2015e).

Based on the information provided by GACM, the exact structure and content of packages is however still subject to further aggregation/disaggregation discussions on several components, such as the different phases of the terminal construction work. Decisions regarding the size and scope of packages inherently affect the outcome of the deriving competitive procurement processes.

Beyond identifying the main 21 packages and committing to carrying them out under open public tenders, the strategy details the timeline and main milestones for rolling out each procurement process, the level of openness (national vs. international) and the corresponding estimated amount for each package. This packaging strategy should provide GACM with a procurement dashboard useful for translating the objectives and strategies mentioned above into practical decisions and monitoring implementation.

However given the complexity and magnitude of infrastructure projects, further complicated by the phased approach chosen by GACM, the packaging strategy should be regularly updated and reviewed to assess whether it continues to deliver the objectives defined at the beginning of the project. Box 3.3 sets out a checklist that may be useful to GACM to this end.
Box 3.3. Checklist for a periodic assessment of a procurement strategy in infrastructure projects

<table>
<thead>
<tr>
<th>Strategic consideration</th>
<th>Questions for purchasing entity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is there a clear statement of the outputs to be purchased?</td>
<td>Have all elements of the output been clearly specified?</td>
</tr>
<tr>
<td>2. Is there clear alignment to the objectives as stated in the procurement strategy?</td>
<td>Does your approach to this procurement activity still align with your strategic priorities?</td>
</tr>
<tr>
<td>3. Is there appropriate procurement capability (either internal or external) to undertake the activity?</td>
<td>Do you have the capability to undertake the procurement activity?</td>
</tr>
<tr>
<td>4. What is the status of the supplier market?</td>
<td>Have there been any significant and relevant changes to the supplier market (i.e. number of suppliers, competitiveness of the market) that will affect your intended approach to the procurement activity?</td>
</tr>
<tr>
<td>5. What are the risks and opportunities?</td>
<td>Are the risks associated with the procurement activity understood and quantified? Who is best placed to manage this risk?</td>
</tr>
</tbody>
</table>


The draft tender notice released on 10 September 2015 provides different elements. First, the tender is reserved to Mexican companies. Second, the timeframe for carrying out the procurement process is reduced to 69 days. Major milestones affected by this reduction relate to the deadline for submission of bids (reduced by approximately 37%) and identification of the proposal offering the best value for money (reduced by approximately 57%). As discussed in this chapter, these two phases prove crucial in fostering competition and generating best value for money.

Promoting local content, which provides expected benefits to society, while maintaining competition

As stated by the Minister of Transport and Communication (SCT), tenders are meant to benefit Mexican companies. GACM employs two different options to pursue this objective. Considering the potential impact on local employment of such an infrastructure project (estimated to represent 160 000 jobs during the construction phase), Mexico, like many other countries, actively promotes requirements that favour local content in public procurement. These requirements could however impact competitiveness if not adapted to the context of the national market and expertise.

Article 30 of the Law on Public Works stipulates that open public tenders could either be national and thus limited to suppliers established in Mexico; international under the umbrella of free trade agreements where only suppliers originating from one party of the agreement could participate; or international with no limitation. The last procedure is only carried out when the previous two could not be carried out due to lack of national capacity following investigation or when a prior national procedure has not yielded a response.
Last paragraph of Article 30 also foresees another possibility, which is to introduce in open public tenders a “local content requirement”. This requires bidders to submit proposals with a certain percentage of the total value of the public works set apart for national raw materials, machineries or equipment. Besides national products, open public tenders should, without prejudice of international treaties, comprise at least 30% of the workforce of Mexican nationality.

Based on the information provided by GACM, 42% of its open public tenders are intended to be limited to national suppliers, translating into approximately 47% of the total estimated value of the 21 packages. However, this figure does not capture the local content requirement that will supposedly be embedded into international open public tenders. If this requirement is set by GACM at 30% of the international public tenders, the overall national dimension of the packages would amount to approximately 60% of the total project (Figure 3.3).

**Figure 3.3. Size of packages against level of competition foreseen over time**

Note: The first package relating to land levelling will be subject to a national public tender, according to the draft tender notice released on 10 September 2015.


Arguably, these various requirements could directly frame the involvement of the national private sector into this project and thus yield economic benefits for Mexico. Yet, an infrastructure project of this magnitude also advocates for a cautious assessment and implementation of procedures that are understandably designed for more day-to-day government procurement activities. Those requirements could indeed prove detrimental not only to competition, but also to national welfare if not adequately used.

It could first have a perverse impact on the competitiveness of the processes if internal market capacity is not able to respond to the needs put out to national public tenders. The market investigation phase, mandatory prior to each open public tender,
should play a crucial role here in assessing the likely competitiveness of internal markets against each package. Failing to do so may result in additional delays due to unsuccessful tenders. Internal markets that are too constrained could also open the door to bid-rigging and notably to cover-bidding or market allocation (OECD, 2011) (Box 3.4).

Box 3.4. Bid rigging and cartels during tendering in the European Union

2014 - Power cable cartel: In 2014, the European Commission fined producers of high voltage power cables EUR 302 million for operating a cartel in violation of the EC Treaty’s ban on restrictive business practices (Article 81). Such cables are typically used to connect generation capacity to the electricity grid or to interconnect power grids in different countries. The EC press release stated: “From 1999 onwards and for almost ten years, these companies shared markets and allocated customers between themselves on an almost worldwide scale. Part of this plan was to allocate important high voltage power cable projects in the European Economic Area (EEA), including large infrastructure and renewable energy projects such as offshore wind farms. Most of the world’s largest high voltage power cable producers, namely ABB, Nexans, Prysmian (previously Pirelli), J-Power Systems (previously Sumitomo Electric and Hitachi Metals), VISCAS (previously Furukawa Electric and Fujikura), EXSYM (previously SWCC Showa and Mitsubishi Cable), Brugg, NKT, Silec (previously Safran), LS Cable and Taihan, participated in the illegal agreements. ABB received full immunity from fines under the Commission's 2006 Leniency Notice as it was the first to reveal the cartel to the Commission.”

2007 - Switchgear cartel: In 2007, the European Commission fined members of a gas insulated switchgear cartel over EUR 750 million. The companies fined were ABB, Alstom, Areva, Fuji Electric, Hitachi Japan AE Power Systems, Mitsubishi Electric Corporation, Schneider, Siemens, Toshiba and VA Tech. The EC press release stated: “Between 1988 and 2004, the companies rigged bids for procurement contracts, fixed prices, allocated projects to each other, shared markets and exchanged commercially important and confidential information. ABB received full immunity from fines under the Commission’s leniency programme, as it was the first company to come forward with information about the cartel. The fine of EUR 396 million on Siemens, Germany constituted the largest ever fine imposed by the Commission on a single company for a single cartel infringement.” The investigation started with surprise inspections in May 2004, which were prompted by an application for immunity lodged by ABB under a 2002 Leniency Notice.

2007 - Lifts and elevators cartel: In 2007, the European Commission fined members of lifts and escalators cartels over EUR 990 million for operating cartels for the installation and maintenance of lifts and escalators in Belgium, Germany, Luxembourg and the Netherlands. The companies fined were Otis, Kone, Schindler and ThyssenKrupp groups. The EC press release stated: “Between at least 1995 and 2004, these companies rigged bids for procurement contracts, fixed prices and allocated projects to each other, shared markets and exchanged commercially important and confidential information. The effects of this cartel may continue for twenty to fifty years as maintenance was often done by the companies that installed the equipment in the first place; by cartelising the installation, the companies had distorted the markets for years to come. Kone subsidiaries received full immunity from fines under the Commission’s leniency programme in respect of the cartels in Belgium and Luxembourg, as they were first to provide information about these cartels. Similarly, Otis Netherlands received full immunity in respect of the Netherlands cartel. The fines imposed on the ThyssenKrupp companies were increased by 50%, as it was a repeat offender.”

Although not distorting competition, open public tenders limited to national suppliers could merely lead to a sub-optimal outcome and not provide GACM with the assurance to generate the overall best value for money from public tenders. Without an open international competition, purchasing entities limit de facto the scope of suppliers able to answer public procurement demand. See Box 3.5 for a case study from Australia that speaks to the benefits of international competition.

**Box 3.5. International competition in infrastructure projects in Australia**

Trade Minister Andrew Robb has hailed the emergence of new international competition in the local construction industry as an opportunity to get AUD 125 billion of infrastructure built cheaper and faster than it could have five years ago.

Mr. Robb said the arrival of six Spanish construction firms in Australia to compete for greenfields infrastructure had broken down the duopoly that had dominated the Australian market and highlighted the benefits of freer global trade.

Wrapping up weekend talks with trade ministers from the G20 meeting of the world’s biggest economies, Mr. Robb said the competition had been drawn to Australia by the prospect of infrastructure investment being reinvigorated by asset sales to fund new developments.

“It is a huge opportunity to do it and have some of the best construction companies in the world bringing state-of-the-art expertise and innovation to all of this rollout of infrastructure,” Mr. Robb told The Australian.

“What was seen as a duopoly in Australia with major projects has now become highly competitive in the space of five years,” Mr. Robb said. He highlighted the east-west road development in Melbourne where there were Spanish companies in each of three short-listed consortia bidding for the project.

Infrastructure investment is one of the major themes for the G20 under Australia’s presidency this year, in line with domestic efforts to encourage states to sell assets and recycle the money back into new projects.

Treasurer Joe Hockey has offered the states AUD 5 billion in top-up payments if they sell assets such as ports and electricity transmission and distribution networks and use the proceeds to build new roads, rail and hospitals.

Mr. Robb said the apparent certainty of funding for the projects from asset sales, combined with low financing costs and a shortfall of work elsewhere in the world had drawn international players to Australia.


Local content requirements in international open public tenders should also be carefully used and adapted to the nature of the project. The Law on Public Works only mandates bidders to provide a declaration on oath stating that they comply with local content conditions set out in the call for tender, making this condition a requirement rather than a qualitative component of proposals received. Rather than being seen as a concrete policy objective, it could thus be perceived by suppliers as an administrative requirement.
Traditionally, large infrastructure projects are extremely labour intensive and therefore generate jobs. As a consequence, requiring bidders to commit to employing a certain percentage of local workers may offer a unique opportunity for the construction sector in Mexico. While the proportion of local content in terms of machineries, equipment and raw materials is left to the discretion of the purchasing entity, the share of local workforce should equal at least 30% of the total workforce employed for the works.

However statistics show that the construction sector, together with agriculture, is the sector with the largest percentage of low-qualified employees (76.7% of workers have only attained primary or secondary education) (Figure 3.4).

![Employee educational attainment, by economic sector, Mexico](image)


Without additional guidance in the tender documentation, the local content requirement could thus incentivise foreign suppliers to recruit low-skilled workers of Mexican origin. Those low-skilled workers would likely be paid according to the minimum wage published by the National Commission on Minimum Salary (Comisión Nacional de los Salarios Mínimos, CONASMI). The minimum wage in the Mexico City valley is set at MXN 70.10 per day of work. According to OECD statistics on employment, the average wage paid to Mexican workers accounts for the lower average wage of OECD countries based on purchasing power parity (OECD, 2015g). Mexico is also the most unequal OECD country with the ten richest individuals in Mexico earning 30 times that of the poorest 10% workers.

Although creating jobs, requiring bidders to include a certain threshold of the local (Mexican) labour force without comprehensively assessing their working conditions, including salaries and benefits, could therefore lead to greater inequality. Conversely, embedding this element into the overall qualitative components of the proposals received could help evaluate the relative merits of each proposal, assess its influence on other factors, such as price, and purposely serve secondary policy objectives.
This would align this commendable objective with the OECD Recommendation on Public Procurement which indicates in Principle IV that “any use of a public procurement system to pursue secondary policy objectives should be balanced against the primary procurement objective.” To this end, countries are encouraged to employ appropriate impact assessment methodology to measure the effectiveness of procurement in achieving secondary policy objectives. When trying to promote the development of the national market and local employment, such impact assessment should also be used to decide whether it is desirable and effective to leverage on public procurement to achieve such an objective.

**Designing sustainable tender processes to roll out the project efficiently**

Based on the information provided by GACM, the entire procurement cycle for construction works of the NAICM spans two years (from August 2015 until August 2017). Figure 3.5 illustrates the sequencing of the competition processes carried out by GACM.

![Sequencing of the competition processes carried out by GACM](image)


The packaging strategy and the sequencing of procurement processes should allow some work to advance in parallel, which could help GACM meet the global timeline. Construction activities for the first phase of the airport should be finalised in 2018, in order to allow for two years of tests and certifications before opening to the public in 2020.
Other examples suggest that the global timeframe for the construction of NAICM is extremely ambitious. The expansion of the Abu Dhabi airport with the construction of a new terminal handling 30 million passengers – significantly less than the projected 50 million of passengers per year of NAICM – started in early 2012 with a construction phase of four years and will not be opened before 2017 (Abu Dhabi Airports, 2011).

This sequencing also presupposes that no major delays will occur in the procurement processes. Indeed, some packages are highly dependent on the successful completion of previous works. This implies that delays in specific areas will not only impact the timely conclusion of these works, but might also influence others.

Figure 3.5 illustrates the overall articulation of the different packages. It is worth noting that one-third of the procurement processes will be issued within approximately a three-month period (from March 2016 until June 2016). Information provided by GACM suggests that preparatory phases of two-thirds of the 21 packages will be carried out simultaneously with at least one other package.

As an example, the market analysis and finalisation of the tender documentation for the rainwater drainage system will be performed concurrently with the same for the terminal foundations. These decisions will undoubtedly impact resources allocated to the different processes. This phase proves crucial in the successful outcomes of public tenders processes (OECD, forthcoming-a), so timing and attention devoted to it should be commensurate with the relative size and complexity of the packages.

Early engagement with potential suppliers is vital to understanding the key issues before the procurement process begins and can be critical to its success. Principle V of the OECD “Recommendation of the Council on Public Procurement” provides that countries should:

...engage in transparent and regular dialogues with suppliers and business associations to present public procurement objectives and to assure a correct understanding of markets. Effective communication should be conducted to provide potential vendors with a better understanding of the country’s needs, and government buyers with information to develop more realistic and effective tender specifications by better understanding market capabilities. Such interactions should be subject to due fairness, transparency and integrity safeguards, which vary depending on whether an active procurement process is ongoing. (OECD, 2015f)

While *ex ante* exchanges on the draft tender notice are foreseen in the Law on Public Works for significant works, GACM opted to conduct roadshows, either via face-to-face meetings or remotely, to better understand the market structure and to ensure that public works put to tender met market capabilities as much as possible. These initiatives, if planned sufficiently in advance and widely communicated to allow the supplier community to mobilise, should help reduce asymmetry of information often evidenced in complex procurement projects (Saussier and Tirole, 2015).

Article 30 Section III of the Law on Public Works states that international open tenders can be carried out should previous market investigations reveal that national suppliers would not have the capacity to perform the works and it would not be desirable from a financial perspective. The role played by market analyses is therefore crucial in deciding the degree of openness of the procurement procedure.
Yet market analyses should not be limited to verifying the existence of similar works in CompraNet and assessing whether suppliers have previously responded to these types of works. Considering the scale of the project and the extent of resources needed to successfully carry out the construction work, GACM should not only assess the existence of Mexican suppliers in the different fields of expertise required but also their capacity to perform contracts of this magnitude. A recent decision of the Comptroller General of the United States highlights the necessity for purchasing entities to evaluate capabilities of the market against contractual requirements (Box 3.6).

**Box 3.6. Purchasing decisions guided by market analysis**

Protest is sustained where the agency’s market research was insufficient to conclude that the agency would likely receive quotations from at least two responsible small business concerns that could meet the requirements in the RFQ at a fair market price, and therefore, the agency’s decision to restrict the solicitation to small business concerns was unreasonable.

Under Federal Acquisition Regulation (FAR) § 19.502-2(b), a procurement with an anticipated dollar value of no more than USD 150 000, must be set aside for exclusive small business participation when there is a reasonable expectation that offers will be received from at least two responsible small business concerns, and award will be made at a fair market price.

On 2 April 2015, the Department of Veterans Affairs (VA) issued a RFQ for the manufacture and delivery of radiopharmaceutical and non-radiopharmaceutical items, as a small business set-aside, and designated North American Industry Classification System (NAICS) code 325412, Pharmaceutical Preparation Manufacturing, which has a corresponding size standard of 750 employees, as the size standard for small business participation in the procurement. The RFQ anticipates the issuance of a fixed-price contract, for a base year and four one-year options.

A contracting agency’s investigation to determine the availability of responsible small business concerns for set-aside purposes, however, must address not only the existence of small businesses that might submit proposals, but also their capability to perform the contract; the fact that multiple small businesses are identified in the course of market research is not necessarily determinative.

The decision to set aside this procurement for small businesses resulted from market research conducted in November 2014 the result of which, “netted 14 companies”. The market research also involved “[a] search of the SBA Dynamic Small Business Database (DSBD) which produced 676 vendors.” The report explained that the Market Research was not limited by state or location, as it is common for pharmaceutical companies which produce radioisotopes to have facilities in other locations with their headquarters locations which show in DSBD.” The market research report also noted the results of prior attempts to procure these items. Specifically, the report stated that a solicitation for the same requirement was posted on 9 September 2014, for isotope manufacture and delivery, with a performance period of four months.

In short, Triad contends that the VA has not reasonably shown that there is even one small business that can both meet the requirement that it manufacture its own radiopharmaceuticals and meet the brief delivery requirements set out in the solicitation.

VA’s market research was insufficient to conclude that the agency would receive quotations from at least two responsible small business concerns that could meet the requirements in the RFQ at a fair market price. For this reason, the agency’s decision to restrict the solicitation to small business concerns was unreasonable.

Beyond this initial phase, another area of particular attention is the assessment of proposals received to ensure that awarded bidders both represent the overall best-value-for-money option and effectively deliver the commitments taken into their proposals. This phase, starting with the receipt of proposals and ending on the award of the contract, is estimated to last either 30 or 40 calendar days, depending on the complexity of the works. On average, the time needed to carry out this phase lasts approximately 25% of a typical total duration of a procurement process.

While this proportion seems commensurate to the duration of each process, it should be noted that several processes will run concurrently according to the above analyses of the sequencing, therefore limiting the effective timeframe allocated to the assessment of proposals received for each package. In addition, the release of the first draft tender notice on 10 September 2015 demonstrates a significant decrease of the estimated time allotted to the assessment of proposals received and identification of the preferred bidder for the first package. In the draft tender notice, the phase starting with the opening of proposals and ending with the award of the contract decreased to 13 calendar days.

Considering the scale and complexity of infrastructure works which will be put to tenders, the timeframe allotted to review the submissions received, clarify with bidders their technical and financial proposals, analyse these against the predefined selection criteria and document the decision-making process supporting the entire procurement cycle should be cautiously factored in. Infrastructure Australia carried out a consultative study with stakeholders typically involved in infrastructure projects (government, procurement agencies, construction sector, etc.) to identify the optimal timeframe of each procurement phase to drive efficient outcomes in infrastructure projects varying in size and complexity of the contracting model (Table 3.3). This benchmark highlights significant differences with regard to the estimated timeframes set out in the GACM packaging strategy.

Ensuring an adequate degree of transparency and a thorough analysis of submissions received is crucial in both achieving efficient results and reinforcing citizen trust.

Infrastructure projects require inputs from various ministries and public agencies, and lack of co-ordination can be a major root for failure of sound implementation of infrastructure projects (OECD, 2015d). For example, the Ministry of Environment (SEMARNAT) will be responsible for assessing the environmental performance of proposals received. Likewise, the Ministry of National Defence should participate in procurement processes which, albeit not exclusively being for military purposes, could affect national security or public order.

These different interactions, crucial to abide by the anticipated sequencing and structure of the packages and the imposed recourse to complex evaluation criteria in infrastructure works should be cautiously factored in the timeframe devoted to each phase.
### Table 3.3. Benchmark of timeframes for main milestones of infrastructure procurement in Australia

<table>
<thead>
<tr>
<th>Procurement phase</th>
<th>Benchmark event</th>
<th>Measure</th>
<th>Design and construct</th>
<th>PPP</th>
<th>Alliance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>More complex</td>
<td>Less complex</td>
<td>More complex</td>
</tr>
<tr>
<td>Pre-procurement phase</td>
<td>Initial advance notice of project and market engagement</td>
<td>Months before issue of EOI</td>
<td>12</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Commence the market interaction with specific notice of likely scope, value, roles, contracts model and packaging</td>
<td>Months before issue of EOI</td>
<td>6</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Formal discussions, specific project details advised in terms of scope, contract models, risk, value, turnover, roles, timing</td>
<td>Months before issue of EOI</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>EOI phase</td>
<td>EOI preparation</td>
<td>Weeks from release of EOI document to submission of EOI responses</td>
<td>6*</td>
<td>4*</td>
<td>8*</td>
</tr>
<tr>
<td>RFP phase</td>
<td>Duration of RFP period</td>
<td>Weeks from issue of RFP documents to submission of proposals</td>
<td>12 to 16</td>
<td>8 to 12</td>
<td>24**</td>
</tr>
<tr>
<td>Evaluation / finalisation phase</td>
<td>Duration of evaluation</td>
<td>Weeks from submission close to selection of projects</td>
<td>6</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Duration of finalisation</td>
<td>Weeks (selection to final documentation) assuming all material issues are resolved</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Note:**
* Assumes effective engagement during Pre-Procurement Phase.

** Maximum 34 weeks for unique complex PPP and subject to specific market feedback at the Pre-Procurement Phase.

Less complex projects are those infrastructure projects valued around AUD 200 million (approximately USD 143 million) or AUD 1 billion (USD 716 million) for PPPs that do not require international expertise.

More complex projects are valued in excess of AUD 1 billion (USD 716 million) or AUD 2 billion (USD 1.4 billion) and require international specialists participation.

Source: Infrastructure Australia (2012), “Benchmark for efficient procurement of major infrastructure in efficiencies in major project procurement”.

---

EFFECTIVE DELIVERY OF LARGE INFRASTRUCTURE PROJECTS: THE CASE OF THE NEW INTERNATIONAL AIRPORT OF MEXICO CITY © OECD 2015
Assessing the effectiveness of procurement processes in achieving their primary and secondary objectives, and adapting accordingly

Strategic decisions taken by GACM on the structure and content of procurement processes are meant to generate benefits in various areas ranging from a sound management of financial resources, deadlines for completing the project, to social and urban developments. Therefore, the outcomes of the public procurement processes shall be measured and assessed against these objectives. Tools for measuring the performance of public procurement generated a lot of attention in OECD countries and discussions highlighted the main challenges involved in evaluating the performance of a procurement system as a whole, and notably the scarcity of standardised data to showcase meaningful information and analyses (OECD, 2013c).

These challenges might however be overcome more easily at the micro-level of the NAICM project. Indeed, although various stakeholders participate in the project as a whole, procurement processes are relatively concentrated in the hands of GACM. It could therefore offer a unique opportunity to measure performance of procurement activities in the project. Key performance indicators (KPIs) not only measure aggregated procurement performance, but prove also extremely helpful in assessing specific procurement process performance and providing grounds for procurement officials to guide future procurement decisions (OECD, 2015f). In so doing, GACM would transform itself into an agile organisation able to adapt to changing environments and pursue government objectives.

Based on the experience of different public procurement systems in several OECD countries the OECD proposed a first set of key performance indicators aiming at measuring the performance of the procurement system as a whole. Although all identified KPIs could be of relevance to assessing the performance of procurement processes of the construction of NAICM as a whole, some are of direct interest to assessing the degree of achievements of the packaging strategy’s underlying objectives.

The first and foremost policy objective pursued in the construction of the NAICM is to foster economic benefits for the region, and for Mexico at large. Indeed, the construction of this new airport aims primarily at further developing tourism in the country and making the site a hub for the entire region. In OECD countries, tourism directly contributes to almost 5% of GDP, 6% of employment, and 21% of exports of services. While public procurement operations in this project don’t directly account for the development of tourism, one related area where the efficiency of procurement process is directly involved is the overall cost for building the airport. Constraining construction costs of the airport will make this investment more profitable, thus yielding economic benefits to the country. Therefore, savings in the procurement process need to be measured (Box 3.7).
Box 3.7. Key performance indicators: Savings

**Total savings = average % of savings per package**

\[
\text{% of savings per package} = \frac{\text{Historical price} - \text{price paid for each package}}{\text{Historical price}} \times 100
\]

\[
\text{Average % of savings} = \frac{\sum \text{Historical prices} - \sum \text{prices paid for each package}}{\sum \text{Historical prices}} \times 100
\]

**Total savings = \sum \text{savings per package}**

**Savings per goods or services =** Historical price of goods or services – Price paid per goods or services \times Q

\[
\text{Savings per package} = \sum \text{savings per goods or services}
\]

**Historical prices:** In the first formula, historical price is the value of the package estimated by GACM at the start of the process. In the second formula, it can be calculated as an average of past procurement prices for similar goods or services. If the good/service is not procured in the same year, the inflation impact should be calculated and removed.

**Quantity** (Q) is the number of each goods or services purchased for the package in question.


KPIs on savings tailored to the specificities of the project could provide meaningful results to assess the performance of procurement processes in constraining construction costs and achieving best value for money. Since GACM requests from bidders both lump prices and a detailed breakdown by unit price, it could assess both the overall performance of procurement in generating savings and obtain disaggregated information on prices, which could guide future procurement decisions.

Fostering competition also generates, albeit more indirectly, savings (Estache and Limi, 2008). One of the key arguments put forward by GACM to support the decision to divide construction works into a series of distinct packages is the possibility of attracting more bidders and favouring new entrants in the market. GACM could develop a multidimensional assessment of competition that could help assess the efficiency of procurement processes in achieving these desired outcomes (Box 3.8).
Box 3.8. **Key performance indicators: Promoting competition**

**Attractiveness of competition = Ratio of bids received**

\[
\text{Ratio of bids received} = \frac{\text{Bids received per package}}{\text{Bidders consulted per package}}
\]

**and/or**

**Efficiency of competition = Ratio of qualified bids received**

\[
\text{Ratio of qualified bids received} = \frac{\text{Qualified bids}}{\text{Bids received per package}}
\]

**Bids received per package:** This indicates the number of proposals received by the deadline of the public tender.

**Bidders consulted per package:** This could indicate the number of potential bidders that participated in the clarification meetings.

**Qualified bidders:** This indicates bidders that have been assessed and judged of sufficient technical quality to warrant the assessment of their financial proposal.


When using points-based criteria GACM employs a two-stage assessment procedure that requires a first evaluation on whether the bid meets a minimum threshold of points on quality components to qualify for the assessment of its financial components. This assessment mechanism could be particularly useful to assess market capabilities and adapt future procurement procedures should previous processes fail to meet an acceptable quantity of bids of sufficient quality.

Another crucial element of the strategy whose evolution would inevitably affect the successfulness of the project is the sequencing of competitive procurement processes. Delays in carrying out these processes could have several consequences, ranging from accelerating procurement procedures that would somehow affect competition to postpone the planned date for the opening of the airport, thus delaying potential revenues generated by its operation. Delays in carrying out procurement processes could be either caused by delays in accomplishing certain mandatory steps or by unsuccessful procurement processes leading to reissuance of the package (Box 3.9).
Box 3.9. **Key performance indicators: Timely conclusion of procurement processes**

Sequencing effectiveness = Level of unsuccessful processes

\[
\text{Number of unsuccessful processes} \div (\text{Total number of awarded contracts} + \text{total number of unsuccessful processes}) \times 100
\]

and/or

Planning effectiveness = Award time for packages

\[
\text{Total number of contracts awarded by GACM according to time guidelines} \div (\text{Total number of contracts awarded} + \text{total number of unsuccessful processes}) \times 100
\]

**Time guidelines:** This indicates the planned start and end date of each procurement process. Additional analysis could be performed when comparing the planned and effective date for each milestone within each package.


These indicators could obviously be complemented by others measuring the performance of procurement processes in achieving the local content objectives identified above or contract performance management. Yet, using this first set of indicators for the first packages to be released could provide GACM with detailed insights in procurement performance and allow for a swift adaption of the strategy should the first procurement processes not meet the desired objectives.

**Procurement carries risks which could affect the project**

The packaging strategy designed by GACM is supposed to yield several advantages, such as:

- diversifying risks
- fostering competition by providing wide access and transparency to suppliers to the tender processes
- simultaneous progress in several works to best meet timing constraints
- reaching out to more diverse expertise sources
- opening opportunities to national companies and small and medium-sized enterprises (SMEs).

However, this strategy also implies risks that must be considered beforehand to anticipate mitigation measures. In line with Principle XI of the OECD “Recommendation of the Council on Public Procurement”, GACM implemented a risk management strategy to map, detect and mitigate risks throughout the procurement cycle. While some are
identified, others risks linked to the procurement strategy are absent and should be integrated.

**Risk management strategy developed by GACM**

GACM set up a risk register (GACM, 2015c) to identify and assess – in terms of severity, criticality and likelihood – major risks to the successful completion of the project, probable causes and mitigation measures that could help reduce or alleviate those risks.

**Lack of transparency**

GACM identified risks linked to procurement processes relating to biased perception of civil society on the awarding procedures of contracts. Due to the lack of clarity on procurement processes, civil society could question the procedures, hence challenging the overall project.

This risk has been assessed as being high both in terms of severity and likelihood while the imminence of it is logically lower since this risk is more likely to arise towards the end of the procurement operations linked to the project. GACM considers that appropriate mitigation measures could derive from extensive disclosure of information related to all the steps of the procurement processes.

However, transparency does not only apply to the procurement process *stricto sensu* and could also be supported by additional measures demonstrating inclusive processes such as the broadcasting of the anticipated roadshows or the disclosure of detailed information on market consultations phases. This would provide civil society with a greater understanding of the different steps of the procurement processes.

Also, transparency should not end with the signature of the contract. While not disclosing information of a confidential nature that could be detrimental to the industrial secrets and business models of awarded suppliers, GACM could provide summaries of contracts’ execution.

**Inadequate or incomplete contractual design**

This risk linked to the absence of adequate contractual expertise could lead to the signature of contracts which would prove unsustainable and result in disputes or renegotiations. This risk has the highest impact identified in the risk register and is also classified as high in terms of likelihood while being estimated to occur in the medium term.

To mitigate this risk, the Corporate Directorate of Real Estate Management and Administration, responsible for contract management, suggests relying on specialised external expertise such as specialised lawyers or the project manager and on internal co-ordination with other specialised entities, and notably the Corporate Directorate for Infrastructure.

Beyond the inherent complexity of infrastructure projects, the packaging strategy in itself, and the dilution of responsibilities implied by it, advocate for a cautious assessment of contractual robustness. Yet, exhaustive contracts are often found to be non-existent (Tirole, 2009).
Absence of internal co-ordination

GACM also identified risks linked to the absence of internal co-ordination. For example, issues such as the poor definition of responsibilities and the lack of empowered personnel to make decisions should be addressed to avoid bottlenecks that might delay tender decisions. While these issues pertain to GACM internal structure, they might be magnified by the participation of other stakeholders during the implementation of the packaging strategy.

The strategy imposes well thought-out co-ordination mechanisms and a shared understanding among stakeholders. While ownership of the project lies with GACM, the strategy calls for robust co-ordination between suppliers, consultants, the PM, control authorities (i.e. SFP), and GACM itself.

Risks linked to procurement processes and absent from the risk register

In addition to risks already identified by GACM, other factors directly associated with procurement processes could be detrimental to the successful completion of the project.

Sub-optimal performance of procurement processes

This risk is intimately linked and affected by the structure of the packaging strategy. The division of the construction into several packages could provide opportunities to attract more specialised companies otherwise not being able to respond to tenders, hence increasing competition and possibly further engaging with SMEs.

However, this strategy also runs the risk of inefficiently dividing some works, resulting in increased transaction costs both for GACM and for competitors who would have to mobilise resources and provide legal documentation on a number of different occasions. It could also induce an increase in management and co-ordination costs that should be factored in when defining the perimeter of each lot.

Overall transaction costs of procurement processes could also be mitigated by giving due consideration to possibilities to include post-construction activities in some tenders, such as periodic maintenance as a means to providing long-term opportunities to competitors, reinforcing attractiveness of public tenders.

Lack of engagement of suppliers

The project can only prove successful if the packages put to tender meet market capabilities and expectations, hence providing incentives to suppliers to respond. One major risk is the absence of response to a procurement process, or inadequacy of responses partially addressing GACM’s needs, which would both have direct consequences on the timeframe of the project. This risk finds its roots in the various steps of procurement processes.

Firstly, considering the standard timeframes allocated to market consultation, insufficiently prepared suppliers could cause a significant drop in the number of submissions received in response to public procurement processes, which affects the level of competition.

GACM indicated it will allow at least two months between the public presentation of the packing strategy and the issuance of the first tenders. The period between the two should allow sufficient time for businesses to prepare their proposals, look for partners in case they are needed, and explore financing alternatives, in order to encourage as much
competition as possible. Insufficient time between those two milestones might become a barrier for entry and hinder the reception of competitive offers or force GACM to carry out non-competitive procedures.

Secondly, the inadequacy between the nature of the procurement procedure and its requirements and the suppliers’ capabilities could prove harmful to the attractiveness of the processes. For example, the proportion of national content requested in the proposal could negatively impact the level of competition if not aligned with national market capabilities. The type of procedure used for each package shall be proportionate to market size and structure, promote transparency and achieve value for money. Market analyses should help define the degree of openness of procurement processes.

According to the overarching principles set out in the Constitution, procurement procedures should first achieve the best possible outcome in terms of transparency, quality and efficiency. The choice of the procedure to be used (open public tenders, restricted competition or direct award) derives from this assessment. Considering the scale of this infrastructure and the duration of construction works, detailed market research shall be carried out by GACM and other stakeholders before deciding the exact type of procurement process, and considering both the national and international state of play in terms of competitors.

**Insufficient or inadequate tools to generate best value for money**

While constrained by the overall timeline of the project, the strategy should provide for specific timeframe for completion of each procurement process proportionate to its nature and complexity. Considering the infrastructure nature of the project and the technical dimensions of the packages, specialised expertise from stakeholders outside of GACM is likely to be required. One of the risks that could arise from excessive constraints on timeframes for completion of procurement process relates to inadequate award criteria. The greater complexity of points-based criteria necessitates close attention and strong expertise to appropriately design terms of reference and allow for a multidimensional assessment of proposals received, which would lead to identifying the submission offering the best value for money.

The timeframe allotted to review the submissions received, analyse these against the predefined selection criteria, and document the decision-making process supporting the entire procurement cycle should be defined on an ad hoc basis, considering at a minimum both the breadth of expertise required for evaluation proposals and the competitiveness of the market since those two elements have a direct impact on the time needed to evaluate responses. Ensuring an adequate degree of transparency and a thorough analysis of submissions received is crucial in both achieving efficient results and reinforcing citizen trust.

Grounded identification of proposals offering the best value for money has to translate into strong contract management ensuring that contractors’ performance is periodically assessed against commitments spelled out in their proposals. Albeit not eliminated, contract management helps mitigate the risk of contract renegotiations increasing the overall cost of infrastructure.
Proposals for action

The successful construction of NAICM should represent a major achievement for the Mexican Government and for the development of Mexico. It should increase the country’s competitiveness while demonstrating transparency and efficiency in its different development stages. Public procurement has been chosen to proceed with its construction as opposed to other delivery modes such as concession or public-private partnership.

This initial choice and the corresponding allocation of risks provide several advantages and most notably help to avoid long-term exploitation costs (either paid by governments or by taxpayers) based on overly optimistic projections which prove unsustainable, thus subject to renegotiations. Yet, this choice also implies challenges since it could prove less adapted to complex infrastructure projects, if not carefully prepared, and not deliver the best overall value for money.

Although not warranting success, strategic public procurement is a prerequisite to the completion of the project. Smart procurement demands an agile organisation able to reconcile regulatory environments, diversity of stakeholders, project structure, civil society requirements and government expectations to achieve the best possible value for money.

Adapting to the nature of the project

The very nature of the project, the construction of a major infrastructure asset, generates a series of consequences – from the nature of goods and services procured to the time needed to complete the project – that need to be integrated into the procurement strategy and governance.

Co-ordinating expertise allowing informed decisions

By creating a project-oriented advisory committee federating the different expertise, GACM could foster transparent and effective stakeholder direct participation to ensure a co-ordinated approach to the project.

While the ownership of the project lies with GACM, other stakeholders will be responsible for issuing specific packages. Therefore, appropriate sequencing of actions and co-ordination between the different stakeholders is indispensable to the success of the project.

In addition, considering the nature of the works carried out, the surrounding regulatory environment imposes interactions both within GACM and with other public entities. Complementary efforts are needed from different areas of expertise in GACM and beyond in each step of the procurement process.

These inputs are not merely ad hoc advice or authorisations that would justify irregular interactions. As evidenced in some examples, interactions rather suggest stronger ties between public stakeholders. On environmental aspects, the authorisation of the Ministry of Environment and Natural Resources will be required for mandatory prior impact assessments in accordance with Article 20 of the Law on Public Works. However, the Ministry also has discretionary investigation powers to assess the effective compliance of the public works with environmental commitments.
Interactions with the Ministry of Public Administration will also be frequent, from developments of guidance material on public procurement processes to the use of social witnesses or participation in the Committee on Public Works.

The Cabinet Office of the United Kingdom identified the lack of effective engagement with stakeholders as one of the most common causes for project failure. To improve efficiency in infrastructure delivery, the Cabinet Office suggests that large-scale projects mobilising unprecedented experience where critical aspects of requirements or procurement are not yet fully set in stone should include a formalised governance structure allowing stakeholders to align their objectives (Infrastructure UK, HM Treasury and Lord Deighton, 2014) (Box 3.10).

Box 3.10. The UK infrastructure procurement routemap

The Government, through the Infrastructure Cost Review programme, has worked with leading infrastructure clients, industry and academics to develop an Infrastructure Procurement Routemap, a guide to improving delivery capability. It is aimed primarily at the sponsor and client organisations that deliver major projects and programmes, long-term capital investment plans and publicly procured megaprojects.

The key components and application of the routemap are based on:

- A suite of assessment tools developed as part of the routemap to enable sponsors, clients and the supply chain to align behaviours and identify capability gaps.
- The use of “complexity” assessment tools for establishing the nature of the delivery environment.
- Enabling the adoption of the common characteristics and behaviours associated with successful infrastructure project and programme delivery, including *inter alia*:
  - early visibility and commitment to the pipeline of programme opportunities or the specific project
  - clearly articulated sponsor requirements adopting whole life principles linked to service outcomes that define the project or programme requirement
  - effective governance, accountability and timely decision making
  - early supplier engagement that engages all tiers of the supply chain
  - effective use and structuring of standard contracts such as the NEC suite to align risk, reward and behaviours in an integrated supply chain
  - appropriate incentive-driven approaches that stimulate further integration of the supply chain
  - an environment that encourages innovation and departures from standards that embed cost and add no value to the outcome or safety.
- Pragmatic approaches to compliance with EU procurement legislation.
- An ongoing role for industry leaders and experts in the infrastructure sector to identify, develop and disseminate best practice.

The project imposes well thought-out co-ordination mechanisms and a shared understanding among stakeholders. GACM could consider creating a project-oriented advisory committee federating the different expertise required to successfully develop NAICM, either by setting up a new body or by expanding its existing administrative board to include all relevant public stakeholders.

Such a body would foster participation of all stakeholders in the procurement processes carried out for the completion of the project. Beyond general procurement governance of the project, the phased approach adopted by GACM to roll out the procurement processes in distinct packages could support the creation of multidisciplinary teams dedicated to each package. This would further strengthen decision-making processes.

Designing efficient award criteria

In designing appropriate award criteria and adequate frameworks proportionate to the need, GACM could facilitate access to procurement opportunities to competitors of all sizes and help identify proposals offering the best value for money.

The Law on Public Works imposes, considering their magnitude and complexity, the application of points-based evaluation criteria allowing for multidimensional assessment of proposals in competitive procurement processes for infrastructure works (Article 38 of the Law on Public Works and Article 63 of ROPSRM). The criteria and their corresponding weightings shall be publicised in the tender documentation (Article 39 of the Law on Public Works).

In April 2015, the OECD issued a survey (OECD, 2015e) to 56 jurisdictions in which questions about criteria for tender award were asked. Almost all respondents indicated using hybrid criteria for certain procurement processes to account for price and quality of submissions. The survey further evidences that the choice of non-price criteria and their corresponding weighting are often left to the discretion of the contracting authority.

Less flexibility is given to GACM in the selection and weights of relevant award criteria. The regulatory framework on Public Works imposes taking into account two secondary policy objectives when using points-based evaluation mechanisms. The percentage of disabled workers employed by the bidder and the share of subcontracting arrangements with SMEs shall be factored in the assessment. Yet, they do not count for stand-alone criteria, but rather for weighting factors of sub-criteria.

The Ministry of Public Administration provides practical guidance to identify and weight selection criteria (Lineamientos para la aplicación del criterio de evaluación de proposiciones a través del mecanismo de punto o porcentajes en los procedimientos de contratación). Although stating detailed guidance on the nature of the criteria and their minimum and maximum weightings, Section 1-7 allows for derogation to these guidelines when the specific characteristics of the works so require, subject to prior authorisation of the unit responsible for public contracts (Unidad de Normatividad de Contrataciones Públicas).

Using this flexibility will allow GACM to tailor award criteria to the specifics of each package, including secondary policy objectives. For example, public works could include specific award criteria when i) time for completion could be a competing factor because of possible alternative methodologies; or ii) where supply chain management of raw materials is of the essence considering the consequences a disruption of supplies would
have; or iii) when prior market analysis suggests strong potential to develop local capacities.

Yet, designing strategic award criteria would only achieve partial results without efficient and unbiased assessments. Assessment frameworks need to be tailored to tender specifics or to the objectives of the purchasing entity. The greater complexity of this assessment method providing evaluation of non-financial attributes entails higher scrutiny on the clarity and the structure of technical specifications. Complex award criteria call for additional guidance provided to bidders. To ensure seamless and transparent assessment of proposals, bidders should be required to provide submissions in a standardised format, thus easing comparative analyses and ensuring that suppliers are on an equal footing.

GACM should mobilise the necessary expertise to design efficient award criteria and weightings in competitive procurement processes allowing for better identification of value for money and provide competitors with sound and standardised response frameworks so as to ensure streamlined, fair and transparent comparative assessments.

**Effective procurement in infrastructure should lead to effective management of contracts**

**Sound contract design, including renegotiations mechanisms, and post-implementation contract management could allow GACM to drive efficiency throughout the entire procurement cycle.**

Although extensive competition including efficient award criteria allows for identification of the proposal which represent the best value for money, the process in itself would have little relevance if not followed by solid contract execution and contract management.

GACM needs to ensure that contractors will effectively deliver what they committed to in their proposals. This presupposes both efficient contract design and effective contract management to periodically assess contractors’ performance and verify that they are continuing to abide by their initial commitments (Box 3.11).

---

**Box 3.11. Delays and cost overruns in selected EU airports**

The EU auditors examined investment projects at 20 airports – in Estonia, Greece, Italy, Poland and Spain – which received more than EUR 600 million of EU funds from 2000 to 2013. The auditors found that only half of these airports could show the need for EU-funded investment and that funded infrastructure was often underused, with some EUR 38 million worth not being used at all.

The audit found that 17 of the 20 airports experienced delays. In 14 cases, the delay was more than a year with the average delay being 23 months. In 45% of the cases, airport construction experienced cost overruns of several million euros.

Only half of the airports audited increased passenger numbers, while, for more than half of them, air traffic forecasts significantly over-estimated increases. In Cordoba, for example, fewer than 7 000 passengers travelled in 2013, against the 179 000 forecast. In addition, for most airports there was little evidence of an improvement in customer service or of regional socio-economic benefits, such as the creation of additional jobs.

Seven of the airports, mostly those with fewer than 100 000 passengers per year, are not financially self-sustainable and will struggle to remain in operation without more public money. Some of the airports are no longer in operation.

The regulatory environment surrounding the project puts a strong emphasis on the execution of the contracts deriving from public procurement of public works. It details supervision mechanisms of the execution of the works and also provides guidance on calculations methods for unforeseen extensions of the contracts.

The first significant factor shaping the outcomes of procurement processes is contract management. Once a supplier has been awarded a contract, detailed and thorough assessment of contractor’s contract execution at regular intervals against pre-defined criteria or targets can create an environment conducive to performance (OECD, 2013a) (Box 3.12).

**Box 3.12. Fraud during construction: Short piling (Hong Kong, China)**

In 1997, Zen Pacific Civil Contractors Ltd. (“Zen Pacific”) was the successful bidder for the piling works of all five buildings of the Yuen Chau Kok Home Ownership Scheme (“HOS”) being built for the Hong Kong Housing Department (“HD”), an Hong Kong Government agency. The five buildings were to be two 41-storey buildings, three 33-storey buildings and one 4-storey facilities complex with a car park. Following the award of contract, and without informing the HD, Zen Pacific sub-contracted the piling works to Hui Hon Contractors Ltd., who was not on the HD’s approved list of contractors. Throughout the entire construction period, Hui Hon’s role as a subcontractor was concealed. Hui Hon staff were introduced as Zen Pacific staff and the Hui Hon site agent corresponded with the HD on Zen Pacific letterhead.

During 1998, Hui Hon carried out defective piling works for two of the apartment blocks. However, the subcontractor’s directors took steps to ensure that these defects were concealed. During the subsequent investigation, some of the construction irregularities and deceptions included:

- driving the temporary casings to a depth of only 20–30m below ground, rather than to founding level.
- using Super Mud to stabilise the walls of excavated shafts without installing temporary casings.
- making the pile shafts shorter than specified so they could not hold the required amount of concrete.
- dropping temporary casings into the pile shafts instead of installing them properly.
- cleaning the pile shafts by running the pipes only halfway down the shaft, so guaranteeing that the flushing water from the shaft would run clear and give the impression that the cleaning process had been properly completed, when in fact it had not.
- faking core samples for core tests carried out to test the length of the piles and the integrity of the concrete.
- shortening the measuring tape that would be used to measure the actual length of the pile. This became known as the “magic measuring tape”.
- arranging for concreting work to be completed well after 7:00 pm, thus ensuring that the concreting of 30 out of the 36 piles escaped the supervision of HD staff.

In 1999, the HD carried out an inspection of settlement conditions and found abnormal settlement conditions of two of the HOS buildings making it difficult to install lift shafts. An independent inquiry confirmed that the settlement of these two blocks was caused by short piling and was indeed severe. Out of 36 large diameter bored piles for two buildings, only four met the requirements. Twenty-one were shorter than the prescribed length by 2 m to 15 m, while 11 were resting on soft mud instead of bedrock. This meant that 90% or so of the bored piles in these two buildings failed to comply with standards and the already extensive superstructure was being supported by the only 10% of bored piles that were fully compliant. When the short piling was discovered, the two HOS buildings had already been constructed up to their 33rd and 34th floors respectively. Eventually on 16 March 2000, HD announced that the two buildings would be demolished in the interests of safety.
Box 3.12. Fraud during construction: Short piling (Hong Kong, China) *(continued)*

The Hong Kong Independent Commission Against Corruption was called in to investigate. There were criminal and civil proceedings with the following outcomes:

- The two ex-directors and a site agent of Hui Hon were charged with dishonestly defrauding the HD. The site agent pleaded guilty and was sentenced to three and a half years in jail. Two ex-directors of Hui Hon were convicted and following an appeal were sentenced to ten years in jail.
- HD lodged a claim against Zen Pacific for losses amounting to HKD 650 million. These included the costs of demolishing the two buildings and the compensation paid to the superstructure contractor. After four years of arbitration lasting from 2000 to 2003, at legal costs of around HKD 40 million, HD reached an agreement with the Zen Pacific that Zen Pacific would pay compensation of HKD 80 million.
- Zen Pacific was permanently delisted from HD’s list of approved contractors for constructing large diameter bored piles and demolition, and a Zen Pacific sister company was barred from undertaking any works for HD for two years.
- Nine HD staff members were held to have failed to perform their duties and three HD site officers to have turned a blind eye to the non-compliance of foundation works. It was found that they had approved the works without checking properly and failed to report progress to the project engineer. Disciplinary action was taken against these three by the Civil Service Bureau. The other six staff members were transferred to other posts.

The ICAC Report stated: “If the short piling had not come to light, as many as 656 households would have been placed in grave peril. The site was eventually turned into a leisure park.”

**Recommended preventive measures:** The Corruption Prevention Department of the ICAC, in conjunction with HD and related Government departments, subsequently formulated corruption preventive measures including the following (as taken from the ICAC Report):

- **Strengthening of works supervision:** A works supervision plan should be formulated before the commencement of works under which professionals should be involved in monitoring major procedures and the frequency of inspections should be specified. All records relating to the works should be properly maintained.
- **Monitoring of works at night:** When it proved necessary to carry out any works at night, suitable supervisory staff should be appointed to stay at the site to monitor the quality of the works.
- **Specifying testing procedures:** Testing procedures, including how tests should be monitored, how frequent they should be, and the detailed nature of samples for testing, should be clearly specified. In particular, tight controls should be implemented over the extraction of samples and their secure storage and transport.
- **Preventing tampering with reports:** To prevent tampering, laboratories should be requested to deliver the reports directly to the consultancy companies. Consultancy companies should conduct independent random checks to verify the reliability of tests.
- **Monitoring subcontractors:** Contracts should include probity clauses covering such matters as codes of conduct and guidelines on conflicts of interest. The terms of the contracts should be so phrased as to deter main contractors and subcontractors from turning to corruption and malpractice.
- **Enhancing staff’s awareness of corruption prevention:** Site supervisors’ understanding of the Prevention of Bribery Ordinance should be improved and their ethical standards enhanced.
### Box 3.12. Fraud during construction: Short piling (Hong Kong, China) (continued)

Further investigation by the ICAC: To tackle the series of short piling scams that had come to light since 1999, the ICAC set up a 45-man task force on 1 February 2000 to investigate reports of corruption involving short piles and jerry-built construction works. The number of corruption reports received by the ICAC concerning the construction industry dropped since 2002, from a high of 295 reports in 2001 to 114 reports in 2007. This decline indicates that positive progress has been made in building a culture of integrity in the construction industry.

Source: Short Piling report by the ICAC: [www.icac.org.hk/new_icac/eng/cases/piling/p03b.html](http://www.icac.org.hk/new_icac/eng/cases/piling/p03b.html).

---

The inherent nature of infrastructure works – scale and complexity of the works, interdependence of some packages and duration of contracts – opens the door to contract renegotiations. A study on Brazilian public works contracts awarded by the Federal Government between 2002 and 2007 estimates that nearly 30% of contracts were renegotiated and final prices were 40% higher on average than initial awarded prices (Fiuza and Rezende, 2012).

Most of the time contract renegotiations are caused by incomplete technical specifications in the tender documentation, which in turn influences bidders’ strategies (Bajari, Houghton and Tadelis, 2014). The possibility of *ex post* renegotiations can incentivise bidders to submit abnormally low proposals, knowing that the playing field in case of renegotiations will be in their favour (OECD, 2015e). This possibility is further emphasised by the phased structure of the project since the packaging strategy might exponentially increase the costs for GACM in the case of disruption of activities.

As reported by some countries such as Sweden, putting a lower value on the financial component in the cost/benefit analysis helps mitigate bidders’ incentives to submit abnormally low tenders which they know will be renegotiated. However, beyond intentional behaviour of competitors, renegotiations happen because of truly unforeseen circumstances.

As a first step, GACM could update its procurement guidelines and manuals to include more detailed guidance on the management of supplier’s performance building upon the existing provisions in the ROPSRM. For example, additional guidance could be provided on regular assessments of ongoing work and introduce regular progress meetings to ensure works are carried out within the agreed timeframe.

More generally, GACM could introduce in the contracts service level agreements (SLAs) on key factors contributing to the successful completion of the works. Including an assessment framework of contractor’s performance could also support objective evaluation of the necessity of contracts extensions.

To mitigate contractors’ bargaining power, GACM could further develop in the contract governance mechanisms in situations allowing for renegotiations (*convenios modificatorios*). For example, roles and responsibilities of the parties and risks distribution mechanisms against various situations (natural disaster, changes in the design, etc.) that could lead to renegotiations could be detailed in the contract. This would frame the negotiation process.
Adapting to the environment of the project

Based on a sample of 200 infrastructure works put to tender in developing countries, the mere fact of promoting competition in infrastructure projects generates approximately 8.2% of savings (Estache and Limi, 2008). The phased approach in the packaging strategy for the construction of the NAICM should create in a relatively short timeframe a large competitive environment for suppliers within Mexico and from abroad. However specific attention should be placed on measures that affect competitiveness and those that could foster this environment.

Incentivise competitor participation

Implementing procurement strategies proportionate to the magnitude of the project and aiming to facilitate access and increase attractiveness of public procurement operations while pursuing other policy objectives.

Competitor participation could be incentivised by removing barriers to entry into the competition and easing access to opportunities offered by the project. As an example, the purchasing entity might decide that the submission of proposals (Article 28 and 31 Section VIII LOPSIM, Article 34 Section VII ROPSIM) could be done remotely by electronic means or mailed in sealed envelopes, thus avoiding physical presence. This could ultimately encourage participation of competitors not reasonably close to GACM headquarters.

The national content requirement mentioned in the Law on Public Works and which could be included by the contracting authority as a qualification criterion in public tenders could also prove detrimental to competition and to its underlying objective. The Law on Public Works only mandates bidders to provide a declaration on oath stating that they comply with local content conditions set out in the call for tender, making this condition a requirement rather than a qualitative component of proposals received.

Close attention to market structure and diversity should be placed when defining this percentage since a high value could induce a series of consequences on the effectiveness of the procurement process. The national content requirement could affect the supply base by reducing, if not eliminating at all, competition. It could also negatively affect the financial element of the submissions. Finally it could prove counterproductive if not comprehensively assessed.

In addition to measures facilitating access to public opportunities for competitors of all sizes and origins, participation of suppliers could be incentivised by lowering transaction costs or increasing possible revenues.

While access to public tenders and submissions of proposals are free of charge, competitors incur costs linked to mobilising resources to answer needs detailed in the tender documentation and to provide the required legal documentation for each procurement process (for example tax payment and social security certificates). Diminishing the cost of procurement participation could prove useful to augment the level of competition and generate savings for both the public and private sectors (Box 3.13).
Box 3.13. Reducing transaction costs for suppliers

The Korean e-Procurement system (KONEPS) includes tools that reduce burden on suppliers by eliminating the need to submit duplicative certificates and other records, helping to ensure that the extent and complexity of information required in tender documentation and the time allotted for suppliers to respond is proportionate to the size and complexity of the procurement.

Companies that previously had to register individually for each public procurement bidding could now register only once with the Public Procurement Service and participate in all biddings from central government entities, local government entities, and public enterprises.

Through the shared use of government data through data interchange between KONEPS and other database owned by public authorities, KONEPS enabled the elimination of paper submission of business registration certificate and tax payment certificate. For public construction tenders, bidders become no longer required to submit certificates on past experiences, as such information was electronically collected through data interchange with construction industry associations.

According to a study conducted in 2009, annual transaction cost savings enabled through KONEPS amounts to KRW 9.5 trillion. Of this, the saving of KRW 1.6 trillion occurs in the public sector, from reduced labour and process time due to the streamlined and digitalised work process. KRW 7.9 trillion was saved in the private sector, mainly from reduced costs for visiting public entities and obtaining required certificates and proof documents. Reduced labour and time from streamlined and standardised process also contributed to the savings.


Another means for lowering public competition costs for suppliers would reside in the grouping of public works that are of similar nature in the same tender process. This would avoid duplication of processes, which will reduce transaction costs both for suppliers and for GACM.

This exercise should not be done, however, at the expense of efficiency. Discussions in OECD countries on division of contracts into lots highlight that, while it could be a means to foster competition, this strategy could induce a trade-off between potential competition gains and efficiency losses. To avoid this situation, suppliers should be offered the possibility to submit bundle offers (OECD, 2015e).

As an example, open public tenders for the construction of the runways and taxiways are grouped into the same procurement process. To avoid harming competition, GACM could consider offering the option to suppliers to either submit a proposal on one of the two lots or on both. Should a supplier send an offer on both lots, it could be asked to demonstrate in its submission the extent of additional efficiencies which would derive from awarding the two lots to the same bidder. In doing so GACM would explore additional possibilities and synergies the market could possibly offer.

The packaging strategy seems to focus strictly on the construction phase for all lots. While this is understandable for most of the lots and the mandate given to GACM to render the new airport operational, some lots seem to include public works which would
require further ongoing maintenance, whether to replace spare parts of the initial works or to maintain them in suitable operational working conditions.

For example, the visual signs allowing planes to take off and land (ayudas visuales) would require after their initial implementation, recurrent maintenance to ensure the constant safety of aviation operations. This deriving maintenance will obviously be subject to some sort of fees, whether recurring annual lump sums or fees paid based on unit prices. Including this work into the packaged tender could help foster competition by providing bidders with additional revenue sources. Should the implementation of the initial visual signs being based on proprietary techniques or materials, it will also avoid unnecessary future exception to public tender based on Article 42 Section I of the LOPSRM.

GACM could implement tailored procurement strategy for each package allowing both sides – demand and offer – to explore the different possibilities and scenarios for the construction of the NAICM project. GACM could therefore cautiously assess the existing barriers to entry into the competition which would diminish competition or affect the outcome of the procurement process.

Meeting market capabilities

Considering the crucial role played by the market consultation phase, GACM needs to engage in transparent and regular dialogues with suppliers, business associations and experts so as to decide the most efficient procurement process, its openness and design effective technical specifications and appropriate award criteria.

The type of procedure used for each package shall be proportionate to market size and structure, promote transparency and achieve value for money. As such, the main factor contributing to deciding which procedure to adopt should be the understanding of the market structure and capabilities. Similar assessment should be done on the national or international dimension of the process, including verifying its compliance with free trade agreements. As previously discussed, the national dimension of the packages could be no less than 60% of the total project based on the initial decision made by GACM.

Large constructions companies in Mexico capable of meeting the needs for the construction of the NAICM are scarce (GACM, 2014). Therefore, designing procurement processes capable of meeting market capabilities is essential. Sound and planned consultations are also an important factor in fostering competition and benefit from suppliers’ expertise to reduce asymmetry of information before issuing tenders (Box 3.14).

Under the umbrella of the Corporate Directorate for Real Estate Management and Administration and in the presence of social witnesses nominated for the package, the Corporate Directorate for Infrastructure could meet with potential suppliers to better understand market capabilities.

As part of the effort to further publicise the construction of NAICM to increase private sector participation in procurement process, GACM could also consider advertising procurement opportunities beyond CompraNet and notably on specialised construction or civil engineering platforms.
Box 3.14. Early engagement in Canada

The Public Works and Government Services (PWGSC) in Canada encourages in its Supply Manual early engagement between client departments and potential suppliers to ensure that public tenders meet market capabilities.

Client departments are invited to engage with PWGSC contracting officers early in the process. This engagement may focus on different topics and may include various levels of engagement. It may be long before a signed requisition is received within PWGSC.

The early engagement with industry may also take many forms, such as issuing Letters of Interest (LOIs), Requests for Information (RFIs), one-on-one consultations with suppliers, the holding of industry days, etc. By engaging clients and suppliers through early and ongoing consultation and dialogue, contracting officers are better situated to identify the various complexities and risks associated with a client’s requirement, enabling the development of mitigation strategies. Acquiring the knowledge of the requirement and its related complexities and risk better positions all stakeholders for a successful procurement that meets the client’s needs.

Various tools are available to facilitate this early engagement. Some are listed below:

- the Acquisitions Program Policy Suite, which provides policy instruments on topics such as engagement and communications, governance, socio-economic objectives, risk management, etc.
- the Procurement Library, which includes the Complexity Assessment tools as well as copies of Risk Assessments for Complexity Levels 1 through 3 inclusive
- the Procurement Nuggets, which provide quick references on various procurement issues.


Considering the scale of this infrastructure and the duration of construction works, detailed market analyses must be carried out by GACM and other stakeholders before deciding the exact nature of the procurement process and considering both national and international state of play in terms of competitors.

Encouraging participation of SMEs

GACM should trigger all available means to foster participation of SMEs in the NAICM project.

The Law on Public Works foresees the possibility, as in many other countries such as the United States or China, to set aside a proportion of public procurement to SMEs. Yet, this share of public procurement reserved for SMEs is not to be found in infrastructure projects. Considering the nature, size and workforce necessary to perform public works related to the NAICM project, SME participation is likely to occur in subcontracting arrangements.

Article 63 Section II of the Regulations on Public Works encourages the integration of SME participation in the execution of public works by assigning a multiplication factor
to proposals including subcontracting arrangements with SMEs in excess of the percentage indicated in the tender documentation.

The Ministry of Public Administration set out detailed guidance about award criteria (Lineamientos para la aplicación del criterio de evaluación de proposiciones a través del mecanismo de puntos o porcentajes en los procedimientos de contratación) and their corresponding weightings.

Yet, GACM has the possibility to derive from these instructions if deemed necessary. As a first step, GACM could then further increase in its tender procedures (whether open public tender or restricted competition) the multiplying factor for proposals committing to subcontract part of the work to SMEs. Unlike the traditional national content requirement, the additional points given to proposals including SMEs promote a positive approach towards the inclusion of the SMEs without prejudging market capabilities.

Such a strategy towards award criteria should then be widely disseminated to SME networks sufficiently in advance to leave them with sufficient time to explore consortia options or to negotiate subcontracting agreements. To do so, GACM could benefit from the existing specialised public entities.

**Mapping and assessing the risks of the project**

Risk management strategies commensurate to the magnitude and complexity of the NAICM should be an integral part of the procurement process and packaging strategy to ensure that threats of all sorts affecting the project are duly identified and mitigation measures are implemented.

Risks are inherent to an infrastructure project of this magnitude and they could evolve over time. Therefore their likelihood and criticality should be regularly assessed. The existence of mitigation measures and their effectiveness should also be reviewed at regular intervals (Table 3.4).
Table 3.4. **Risks and mitigation measures**

<table>
<thead>
<tr>
<th>Risk</th>
<th>Mitigation measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Co-ordination failures</td>
<td>• Address internal co-ordination and decision-making issues by updating the Organisation Manual and the procedures manuals.</td>
</tr>
<tr>
<td></td>
<td>• Clear definition of roles, responsibilities, and decision-making powers considering all the stakeholders (GACM Corporate Directorates, PMO, etc.).</td>
</tr>
<tr>
<td></td>
<td>• Mapping of consultants providing services to GACM on tender documentation, which will form the basis of technical specifications for the construction works.</td>
</tr>
<tr>
<td></td>
<td>• Create a dedicated unit in SFP specifically devoted to review NAICM tender documents and preparations. Annex A details the case study of 2105 Expo Milano model set by the Italian Anti-Corruption Authority, ANAC.</td>
</tr>
<tr>
<td>Sub-optimal performance in process and outcomes</td>
<td>• Defining a clear critical route for each item in every package by assessing the procurement timeframe against planned completion dates and their interdependence with other packages.</td>
</tr>
<tr>
<td></td>
<td>• Establishing an accountability scheme to require justification at the highest level for delays and adjustments to the critical route.</td>
</tr>
<tr>
<td></td>
<td>• Defining relevant awarding criteria and corresponding weightings, proportionate to the nature of the works in each package. Avoid the trend to award contracts just based on the lowest price criterion.</td>
</tr>
<tr>
<td></td>
<td>• Designing a control board with key performance indicators (KPIs).</td>
</tr>
<tr>
<td></td>
<td>• Including post-construction activities in some tenders.</td>
</tr>
<tr>
<td></td>
<td>• Balancing secondary objectives against achieving value for money by applying impact assessment methodologies to periodically measure effectiveness in the achievement of secondary objectives.</td>
</tr>
<tr>
<td>Limited use of competitive procedures</td>
<td>• Market research to gather information regarding the national and international state of play and be able to justify decisions.</td>
</tr>
<tr>
<td></td>
<td>• Full transparency as to how decisions were taken, which implies full disclosure of procurement information on the GACM website.</td>
</tr>
<tr>
<td></td>
<td>• Using social witnesses and social observers.</td>
</tr>
<tr>
<td></td>
<td>• Documented use of exceptions to competitive tendering.</td>
</tr>
<tr>
<td></td>
<td>• Periodically analysing the use of exceptions to competitive tendering to identify opportunities to minimise direct awards.</td>
</tr>
<tr>
<td>Insufficient time for potential suppliers to prepare their bids and for GACM to review submissions</td>
<td>• Early supplier engagement.</td>
</tr>
<tr>
<td></td>
<td>• Consultation with key stakeholders (i.e. CMIC, the Architects Association, chambers of industries, etc.) regarding the time required for companies to get ready.</td>
</tr>
<tr>
<td></td>
<td>• Estimation of time required to review submissions on the basis of other megaprojects (in Mexico and abroad).</td>
</tr>
<tr>
<td>Absence of suitable proposals</td>
<td>• Early supplier engagement discussing content and structure of technical specifications and awarding criteria.</td>
</tr>
<tr>
<td></td>
<td>• Market research to allow for informed decisions.</td>
</tr>
<tr>
<td></td>
<td>• Develop a market intelligence methodology and plan, assessing human and material resources required and including method variations according to complexity.</td>
</tr>
<tr>
<td></td>
<td>• Strengthen the Deputy Direction for Procurement by formalising a market intelligence team.</td>
</tr>
<tr>
<td></td>
<td>• Work with other institutions (i.e., Ministry of Economy, COFECE, ASA, AICM) to pool knowledge.</td>
</tr>
<tr>
<td></td>
<td>• The goal of the market research is to collect information about the goods and services to be procured, at least: i) market size and the procurement volume in relation to market size; ii) market structure (percentage of SMEs in the market segment or concentration by big companies); iii) the most important suppliers in the market; iv) maturity of the products or services, pricing models, and different conditions offered by suppliers, and their commercial activities; and v) market development outlook for the coming years.</td>
</tr>
<tr>
<td>Poor design of tender documentation by consultants</td>
<td>• Accountability mechanisms by which GACM reviews and follows up the work of consultants.</td>
</tr>
<tr>
<td></td>
<td>• Ensure that design and specification is written sufficiently broadly that a wide pool of contractors can bid (i.e., that the design or specification is not limited so as to favour one contractor).</td>
</tr>
<tr>
<td></td>
<td>• Avoid naming specified products (or, if done for essential illustrative purposes, state “or equivalent”).</td>
</tr>
<tr>
<td>Inadequate sequencing of operations</td>
<td>• Assess competitors’ supply chain management and quality assurance processes to identify the least potential for disruption in construction activities.</td>
</tr>
<tr>
<td></td>
<td>• Strong contract management.</td>
</tr>
<tr>
<td></td>
<td>• Constantly reassessing the sequencing of procurement processes.</td>
</tr>
</tbody>
</table>
Notes

1. The Secretary of National Defence (SEDENA) will undertake and monitor the military components of public works which affect national security. The National Commission on Water (CONAGUA) will be responsible for the issuance of competitive procurement processes of public works relating to the drainage system and soil decontamination.

References


Infrastructure Australia (2012), “Benchmark for efficient procurement of major infrastructure in efficiencies in major project procurement”.


SFP (Secretaría de la Función Pública) (2010), “Lineamientos para la aplicación del criterio de evaluación de proposiciones a través del mecanismo de puntos o porcentajes en los procedimientos de contratación”, DOF, 9 September.


From: 
**Effective Delivery of Large Infrastructure Projects**
The Case of the New International Airport of Mexico City

Access the complete publication at:
https://doi.org/10.1787/9789264248335-en

---

Please cite this chapter as:


DOI: https://doi.org/10.1787/9789264248335-6-en

---

This work is published under the responsibility of the Secretary-General of the OECD. The opinions expressed and arguments employed herein do not necessarily reflect the official views of OECD member countries.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to rights@oecd.org. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at info@copyright.com or the Centre français d'exploitation du droit de copie (CFC) at contact@cfcopies.com.