ReGeo ISSN: 2177-3246

BARRIERS TO FEDERAL CONTRACTING PARTICIPATION AMONG U.S. SMALL BUSINESSES: A CONTRACTING READINESS ASSESSMENT FRAMEWORK FOR DIAGNOSING COMPETITIVE CAPACITY

BARREIRAS À PARTICIPAÇÃO EM CONTRATAÇÃO FEDERAL ENTRE PEQUENAS EMPRESAS DOS EUA: UM MARCO DE AVALIAÇÃO DE PRONTIDÃO PARA CONTRATAÇÃO PARA DIAGNOSTICAR CAPACIDADE COMPETITIVA

BARRERAS PARA LA PARTICIPACIÓN EN CONTRATACIÓN FEDERAL ENTRE PEQUEÑAS EMPRESAS DE EE.UU.: UN MARCO DE EVALUACIÓN DE DISPOSICIÓN PARA CONTRATACIÓN PARA DIAGNOSTICAR CAPACIDAD COMPETITIVA

https://doi.org/10.56238/revgeov17n10-225

Data de submissão: 30/09/2026 **Data de publicação:** 30/10/2026

Karla Cristina de Jesus Santos[1]

ABSTRACT

Small businesses received approximately $179 billion in federal prime contract awards in fiscal year 2025, nearly 28% of eligible federal prime contracting dollars. Earlier evidence raises a participation concern: at the Department of Defense, the number of small businesses receiving awards fell by 43% between fiscal years 2011 and 2020 while obligations to small businesses increased during that period. These observations concern different time windows and do not, alone, establish a continuous trend through 2025. This article asks how administrative, documentary, and operational difficulties influence the capacity of U.S. small businesses to participate in federal contracting. The study combines a targeted narrative literature review, documentary analysis of U.S. public sources, and a design-science orientation for building an artifact. The synthesis proposes three pathways for empirical testing: eligibility exclusion, loss of proposal responsiveness, and self-selection out of competitions when preparation costs and risks outweigh expected returns. The contribution is methodological: the resulting Contracting Readiness Assessment Framework (CRAF) assesses pre-bid preparedness in five dimensions: registration compliance, documentary capacity, operational capacity, proposal management, and risk management. It specifies 15 indicators, an evidence-based 0–4 scale, a provisional readiness classification with a non-compensatory ceiling, opportunity-specific checkpoints, and actions linked to assessed weaknesses.

Keywords: Federal Procurement. Small Businesses. Government Contracting. Contracting Readiness. Administrative Burden. Proposal Management. Organizational Capability. Assessment Framework.

RESUMO

Pequenas empresas receberam aproximadamente $179 bilhões em contratos federais diretos no ano fiscal de 2025, quase 28% dos dólares elegíveis em contratos federais diretos.

[1] Bachelor of Laws (LL.B.), with a Postgraduate Certificate in Civil Law and Civil Procedure. Institution: Pontifical Catholic University of Goiás (PUC Goiás). E-mail: karla.cjs@hotmail.com
Orcid: https://orcid.org/0009-0005-8315-4818

Evidências anteriores levantam uma preocupação de participação: no Departamento de Defesa, o número de pequenas empresas que receberam contratos caiu 43% entre os anos fiscais de 2011 e 2020, enquanto as obrigações para pequenas empresas aumentaram durante esse período. Essas observações referem-se a períodos de tempo diferentes e não estabelecem, por si sós, uma tendência contínua até 2025. Este artigo questiona como dificuldades administrativas, documentais e operacionais influenciam a capacidade das pequenas empresas dos EUA de participar em contratos federais. O estudo combina uma revisão narrativa direcionada da literatura, análise documental de fontes públicas dos EUA e uma orientação de design science para construir um artefato. A síntese propõe três caminhos para testes empíricos: exclusão de elegibilidade, perda de responsividade de propostas e autosseleção fora das competições quando os custos de preparação e riscos superam os retornos esperados. A contribuição é metodológica: o Contracting Readiness Assessment Framework (CRAF) resultante avalia a prontidão pré-licitação em cinco dimensões: conformidade de registro, capacidade documental, capacidade operacional, gerenciamento de propostas e gerenciamento de riscos. Especifica 15 indicadores, uma escala baseada em evidências de 0–4, uma classificação de prontidão provisória com um teto não compensatório, pontos de verificação específicos da oportunidade e ações vinculadas às fraquezas avaliadas.

Palavras-chave: Licitação Federal. Pequenas Empresas. Contratação Governamental. Prontidão de Contratos. Carga Administrativa. Gerenciamento de Propostas. Capacidade Organizacional. Estrutura de Avaliação.

RESUMEN

Las pequeñas empresas recibieron aproximadamente $179 mil millones en adjudicaciones de contratos federales directos en el año fiscal 2025, casi el 28% de los dólares elegibles de contratación federal directa. Evidencia anterior plantea una preocupación sobre la participación: en el Departamento de Defensa, el número de pequeñas empresas que recibieron adjudicaciones cayó un 43% entre los años fiscales 2011 y 2020, mientras que las obligaciones hacia pequeñas empresas aumentaron durante ese período. Estas observaciones se refieren a ventanas de tiempo diferentes y no establecen, por sí solas, una tendencia continua hasta 2025. Este artículo examina cómo las dificultades administrativas, documentales y operacionales influyen en la capacidad de las pequeñas empresas estadounidenses para participar en la contratación federal. El estudio combina una revisión narrativa dirigida de la literatura, análisis documental de fuentes públicas estadounidenses y una orientación de design science para construir un artefacto. La síntesis propone tres caminos para pruebas empíricas: exclusión de elegibilidad, pérdida de capacidad de respuesta de propuestas y autosselección fuera de las licitaciones cuando los costos de preparación y riesgos superan los retornos esperados. La contribución es metodológica: el Marco de Evaluación de Disposición para Contratación (CRAF) resultante evalúa la preparación previa a la licitación en cinco dimensiones: conformidad de registro, capacidad documental, capacidad operacional, gestión de propuestas y gestión de riesgos. Especifica 15 indicadores, una escala basada en evidencia de 0–4, una clasificación de disposición provisional con un techo no compensatorio, puntos de control específicos de la oportunidad y acciones vinculadas a las debilidades evaluadas.

Palabras clave: Contratación Federal. Pequeñas Empresas. Contratación Gubernamental. Disposición para Contratos. Carga Administrativa. Gestión de Propuestas. Capacidad Organizacional. Marco de Evaluación.

1 INTRODUCTION

Public procurement is among the largest markets available to small firms in the United States. According to the U.S. Small Business Administration (SBA, 2026), small businesses received approximately $179 billion in federal prime contract awards in fiscal year (FY) 2025, nearly 28% of eligible prime contracting dollars and above the statutory government-wide goal of 23%. When subcontracting is included, small-business awards reached nearly $273 billion. These figures demonstrate the economic scale of the market, but they do not show that opportunities are equally accessible across firms, industries, or regions.

A longer-term participation concern appears in earlier datasets. The U.S. Government Accountability Office (GAO, 2021) found that the number of small businesses receiving Department of Defense (DOD) contract awards declined from 42,723 in FY 2011 to 24,296 in FY 2020, a 43% drop, while DOD obligations to small businesses reached $80.5 billion in FY 2020, the highest level of that decade in constant dollars. Separately, a 2021 Bipartisan Policy Center analysis reported an approximately 38% decline since 2010 in the number of small businesses participating as federal contractors (Stangler, 2021). GAO identified possible contributing factors, including consolidated purchases, unpredictable delays, and cybersecurity compliance costs, rather than demonstrating causal effects. The historical participation counts and the FY 2025 contracting totals refer to different populations and periods; they cannot be combined to estimate concentration in FY 2025. Together, however, they motivate closer analysis of the barriers facing prospective small-business contractors.

International research consistently identifies similar obstacles. The Organisation for Economic Co-operation and Development (OECD, 2018) points to administrative burdens, complex procedures, demanding qualification standards, and limited tender-preparation capacity as recurring barriers for small and medium-sized enterprises (SMEs). Empirical studies show that firm size shapes tendering resources, frequency of bidding, and success rates (Flynn *et al.*, 2015), that procedural capability—the ability to handle the formal and technical side of a tender—drives participation (Flynn & Davis, 2017), and that barriers persist despite decades of SME-friendly policy (Loader, 2013; Nicholas & Fruhmann, 2014). In the U.S. federal system, these issues must be interpreted alongside the Federal Acquisition Regulation (FAR), which is itself undergoing a comprehensive rewrite under the Revolutionary FAR Overhaul launched by Executive Order 14275 (2025).

Assistance programs already address part of this challenge. APEX Accelerators provide readiness counseling (SBA, n.d.), the SBA offers government-contracting education

(SBA, 2022), and the Department of Defense provides standardized cybersecurity assessments (U.S. Department of Defense, 2020, n.d.). Publicly described tools also include the General Services Administration's Multiple Award Schedule (MAS) offeror readiness assessment (U.S. General Services Administration, 2025) and an APEX contracting-readiness checklist (Maryland APEX Accelerator, n.d.). The research need is therefore not to suggest that readiness tools are unavailable. Instead, the proposed contribution is to make the relationship between procurement barriers, cross-domain evidence, non-compensatory scoring, and verifiable corrective actions explicit and reproducible (Section 2.3), subject to empirical validation (Sections 3.3 and 6.3).

Central research question: How do administrative, documentary, and operational difficulties influence the capacity of U.S. small businesses to participate in federal public contracting?

To answer this question, the article pursues three specific objectives: (a) to identify and classify the main barriers documented in the literature and in U.S. public sources (process complexity, difficulty interpreting requirements, insufficient document preparation, lack of specialized staff, and internal resource constraints); (b) to explain the mechanisms through which these barriers reduce competitive capacity; and (c) to propose and specify the Contracting Readiness Assessment Framework (CRAF), an instrument for diagnosing a firm's level of preparation before it participates in a federal contracting opportunity. The intended contribution is methodological and applied. The framework supports internal planning and nonlegal procurement-management assistance; it does not determine legal eligibility, replace a contracting officer's decisions, or predict contract awards.

The article is organized as follows. Section 2 reviews the theoretical and regulatory background. Section 3 describes the methodology, including the framework construction procedure and the planned validation protocol. Section 4 synthesizes barriers and offers propositions about their influence on competitive capacity. Section 5 specifies the CRAF, its scoring rules, and an illustrative application. Section 6 discusses contributions, implications, limitations, and the validation agenda, and Section 7 concludes. Appendix A provides a proposed indicator-level evidence guide.

2 THEORETICAL AND REGULATORY BACKGROUND

2.1 BARRIERS TO SME PARTICIPATION: INTERNATIONAL AND U.S. EVIDENCE

A substantial international literature documents why SMEs participate in public procurement less than their share of the economy would suggest. The OECD (2018) groups the main obstacles into information barriers (difficulty finding and understanding opportunities), administrative barriers (complex procedures and documentation), qualification barriers (financial and technical requirements disproportionate to contract scope), and capacity barriers (limited staff and time to prepare tenders). Loader (2013), reviewing the evidence on public procurement as a small-business support policy, concludes that barriers have proved persistent despite successive policy initiatives. Drawing on suppliers' own accounts, Loader and Norton (2015) show that SMEs experience procurement processes as disproportionately burdensome relative to contract value, with documentation demands and opaque requirements among the most frequent complaints. Nicholas and Fruhmann (2014) argue that many SME-oriented procurement policies have been designed without sufficient evidence of their effects and call for a more systematic understanding of the obstacles firms actually face.

A second strand of research looks inside the firm. Karjalainen and Kemppainen (2008) show that SMEs' involvement in public procurement is associated with their perceptions of available resources, their use of electronic systems, and enterprise size. Flynn *et al.* (2015), using survey data from Irish SMEs, find that micro-enterprises have fewer tendering resources, tender less often, and win less frequently than larger SMEs, which indicates that the “small business” category is heterogeneous. Flynn and Davis (2016) find that firms' experience of SME-friendly policy helps explain their success rates and commercial orientation toward the public sector, but not the frequency with which they tender, suggesting that policy alone does not overcome internal constraints on participation. Tammi *et al.* (2014) show that market orientation, that is, the firm's capacity to gather and use information on customers and competitors, is positively associated with how actively SMEs search for and bid on tenders. Together, these studies indicate that participation depends on both the external design of procurement and the internal readiness of the firm.

The U.S. federal system addresses small-business participation primarily through statutory goals, set-asides, and socioeconomic programs established under FAR Part 19 and the Small Business Act. Research on this system suggests that small firms are capable suppliers when they reach the competition. Hawkins *et al.* (2018), based on a survey of 350

government source selections, find that sourcing from small businesses reduces transaction costs and the perceived risk of bid protests and that small businesses perform as well as large businesses. Roy *et al.* (2024), analyzing U.S. federal research and development contracts, find that set-aside contracts exhibited lower schedule and cost overruns than openly competed contracts, particularly when awarded to contractors with relevant prior experience. Polyviou *et al.* (2025), analyzing 38,417 federal contracts awarded between 2011 and 2022, show that small and diverse suppliers are more likely to win less complex contracts, that set-asides increase their chances of winning more complex contracts, and that their performance is comparable to that of other suppliers.

These findings suggest that pre-award processes warrant attention, but do not prove that limited preparation is the dominant cause of supplier-base attrition. The participation evidence covers particular agencies and historical periods (GAO, 2021; Stangler, 2021), whereas the cited performance studies examine firms that obtained awards. GAO (2021) also describes the upfront resource commitments associated with category management and larger contracting vehicles. Therefore, the article treats pre-award readiness as one potentially important and measurable component of competitive capacity, alongside market and policy conditions beyond a firm's control.

2.2 THEORETICAL LENSES: ADMINISTRATIVE BURDEN, CAPABILITIES, AND READINESS

Public administration research conceptualizes administrative burden as the learning, compliance, and psychological costs that individuals and organizations experience in their interactions with the state (Herd & Moynihan, 2018; Moynihan *et al.*, 2015). Although this literature originated in the study of citizens' access to public programs, its components translate directly to procurement: firms must learn which rules apply and how to navigate systems such as SAM.gov (learning costs), assemble registrations, representations, certifications, and proposal documents (compliance costs), and absorb the uncertainty and frustration of complex processes (psychological costs). Because many of these costs are fixed rather than proportional to contract value, they weigh more heavily on small firms. This is consistent with the “liability of smallness” described in organizational studies, according to which small firms face higher risks because they lack the slack resources, specialized staff, and formalized routines of larger organizations (Aldrich & Auster, 1986).

The resource-based view holds that a firm's competitive advantage depends on valuable, rare, and difficult-to-imitate resources (Barney, 1991), while the dynamic capabilities perspective emphasizes the firm's capacity to integrate, build, and reconfigure competencies in response to its environment (Teece *et al.*, 1997). Applied to procurement, Flynn and Davis (2017) propose a capability-based model of tendering that distinguishes procedural capability (managing formal and technical tender requirements) from relational capability (understanding and engaging with public buyers). They find that procedural capability explains how often and for what contract values SMEs tender, while both capabilities explain success rates. This distinction underpins the CRAF: most of the barriers examined here concern procedural capability, which can be documented, assessed, and improved.

The concept of readiness provides a complementary lens. In the organizational change literature, readiness refers to members' shared commitment and perceived capacity to implement a change (Armenakis *et al.*, 1993; Weiner, 2009). This article defines federal contracting readiness as the degree to which a firm can document and coordinate the regulatory, administrative, operational, and managerial capabilities needed to evaluate and pursue a specified federal contracting opportunity. Readiness is distinct from award probability: even a well-prepared firm may lose because of price, technical evaluation, competition, or changing agency needs. Readiness is also multidimensional and graded rather than binary, which aligns it with maturity-model approaches in management and information systems, where capabilities are assessed along defined levels and dimensions (Becker *et al.*, 2009).

2.3 FEDERAL ACQUISITION RULES AND EXISTING READINESS TOOLS

The FAR provides the regulatory reference against which readiness is assessed. FAR Part 19 establishes small-business programs and set-aside policies; FAR 9.104-1 sets general responsibility standards, including adequate financial resources, the ability to meet delivery or performance schedules, a satisfactory performance record, integrity and business ethics, and the necessary organization, experience, operational controls, and technical skills; and FAR 52.204-7 addresses registration in the System for Award Management (SAM) where that provision applies. Small-business size status depends on the North American Industry Classification System (NAICS) code assigned to each solicitation and on SBA size standards (13 C.F.R. Part 121). Applicable requirements therefore vary by solicitation, acquisition method, program, and agency.

These requirements are also in transition. Executive Order 14275 (2025), “Restoring Common Sense to Federal Procurement,” directed a comprehensive revision of the FAR, and the resulting Revolutionary FAR Overhaul is being implemented through agency class deviations and formal rulemaking (Acquisition.gov, n.d.). For this reason, the CRAF anchors its indicators in functional capabilities—maintaining accurate registrations, controlling documents, interpreting instructions—rather than in specific clause numbers, and it requires that opportunity-specific requirements be verified against the solicitation and the regulation in force at the time of assessment.

Readiness support for small businesses seeking federal contracts already exists. Table 1 compares six categories or examples of publicly described resources. APEX Accelerators offer tailored assistance, and some publish their own readiness checklists (SBA, n.d.; Maryland APEX Accelerator, n.d.), so it would be inaccurate to imply that all counseling criteria are unpublished. The SBA's Ascent platform provides education rather than a unified firm-level score (SBA, 2022). The U.S. General Services Administration (GSA) MAS offeror readiness assessment is structured but is specifically intended to help firms decide whether a MAS contract is suitable for them (U.S. General Services Administration, 2025). The NIST SP 800-171 DoD Assessment Methodology and Project Spectrum Cyber Readiness Check concentrate on cybersecurity (U.S. Department of Defense, 2020, n.d.). Commercial checklists vary in scope and public transparency. On the basis of these public descriptions, CRAF's proposed distinction is its explicit five-dimension evidence rubric, non-compensatory dimension threshold, opportunity-specific eligibility review, and evidence-linked improvement plan—not the invention of contracting-readiness assessment itself. No claim of comprehensive market coverage or superior predictive performance is made.

Table 1

Comparison between existing readiness resources and the proposed CRAF

Resource	Main purpose	Scope	Standardized and scored?	Main limitation addressed by the CRAF
APEX Accelerator counseling (SBA, n.d.)	Individualized advice and training	Broad	Variable; public checklists exist	Consistent evidence anchors and repeatable cross-dimension scores
SBA Ascent, government contracting journey (SBA, 2022)	Education	Broad (knowledge)	No	Assessment of the firm's own capabilities and evidence
GSA MAS offeror readiness assessment (GSA, 2025)	Contract suitability screening	GSA MAS offerors	Structured assessment; no cross-domain CRAF score	Opportunity-specific scope; comparison of broader firm capabilities
Maryland APEX contracting-readiness checklist (Maryland APEX Accelerator, n.d.)	Counseling intake and self-check	Broad, includes state and federal	Public questions; no common numerical score stated	Explicit evidence anchors, dimension scores, and follow-up actions
NIST SP 800-171 DoD Assessment Methodology; Project Spectrum Cyber Readiness Check	Compliance self-assessment	Cybersecurity only	Yes	Coverage of registration, documentary, operational, proposal, and risk dimensions
Consultancy and proposal-management checklists	Commercial diagnosis	Variable	Variable, usually proprietary	Transparency and replicability of criteria
Proposed CRAF	Pre-bid diagnosis linked to improvement actions	Five dimensions, 15 indicators	Designed; not yet validated	Distinctive proposed design, subject to empirical evaluation

Source: The Authors.

The gap addressed by this article is therefore not the absence of readiness support but the absence, in the academic and public literature consulted, of an open, multidimensional, and evidence-based instrument that (a) is explicitly derived from documented barriers, (b) requires verifiable evidence for each score, (c) prevents strengths in one dimension from masking critical weaknesses in another, and (d) links each weakness to a verifiable improvement action. The CRAF is designed to complement, not replace, existing resources: it can structure the intake and follow-up of APEX Accelerator counseling, incorporate the results of specialized assessments such as the cybersecurity score as evidence for its risk-management dimension, and make the results of different advisers comparable.

3 METHODOLOGY

3.1 RESEARCH DESIGN AND EVIDENCE SOURCES

This is an applied, exploratory, and descriptive study (Gil, 2008; Prodanov & Freitas, 2013) using a design-science orientation to develop a purposeful assessment artifact (Hevner *et al.*, 2004). Following Peffers *et al.* (2007), it addresses problem identification, objectives for a solution, design and development, and an illustrative demonstration. The evaluation phase remains prospective and is specified as a protocol (Section 3.3). No original interview, survey, pilot, or observed-firm performance data are reported. Consequently, the framework is a designed proposal, not an empirically validated scale.

The literature review is a targeted narrative review (Snyder, 2019), not a systematic or exhaustive review. Its purpose was to identify concepts and findings relevant to the proposed dimensions and indicators rather than to estimate effect sizes. Sources were located through web searches oriented to scholarly publisher sites and institutional repositories and through backward and forward citation tracking of core procurement studies (Loader, 2013; OECD, 2018; Flynn & Davis, 2017). Search expressions combined “small business” or “SME” with “public procurement”, “government contracting”, “federal contracting”, “barriers”, “tendering capability”, and “readiness”. The paper does not contain an auditable database-by-database search log, date-stamped search strings, hit counts, or exclusions; accordingly, the review is treated as purposive conceptual synthesis rather than reproducible evidence mapping. A future systematic review should record these elements prospectively.

Sources were selected for relevance to at least one of three purposes: (a) empirical evidence on participation barriers or procurement performance; (b) conceptual constructs interpretable as organizational capabilities, including administrative burden and readiness; or (c) methodological guidance for building and validating assessment instruments. Peer-reviewed research and U.S. federal government sources were prioritized where available. Selection was purposive, leaving potential publication, geographic, and confirmation biases. Evidence from other countries or sectors is used for conceptual support rather than as direct estimates of barriers among U.S. federal contractors.

Documentary analysis examined publicly available U.S. sources (Table 2), including procurement statistics, a federal audit, a policy analysis, acquisition rules, and descriptions of readiness resources (Bowen, 2009). Documents were selected for their relevance to legal and operational requirements or the pre-bid capacity of small firms. The comparison records each source's purpose, coverage, degree of standardization, and the capability or constraint

it helps identify. Concepts were grouped into five proposed dimensions: registration, documentary, operational, proposal-management, and risk capacities. This is a qualitative synthesis of public materials, not a coded representative sample of federal contractors. Neither formal intercoder agreement nor a comprehensive instrument-market inventory is claimed; the basis for any uniqueness claim is therefore limited to the resources examined.

Table 2

Corpus of U.S. public documents analyzed

Source	Type	Use in the study
SBA (2026), FY 2025 Small Business Procurement Scorecard	Official statistics	Scale of the market and goal achievement
GAO (2021), GAO-22-104621	Federal audit report	Supplier-base trends and potential barriers at DOD
Stangler (2021), Bipartisan Policy Center	Policy analysis	Government-wide decline in participating small businesses
FAR Parts 9 and 19; FAR 52.204-7	Regulation	Responsibility, small-business programs, SAM registration
13 C.F.R. Part 121	Regulation	NAICS-based size standards
Executive Order 14275 (2025); Revolutionary FAR Overhaul materials	Executive order and implementation documents	Regulatory change affecting requirements
SBA (n.d.), APEX Accelerators; SBA (2022), Ascent	Program descriptions	Existing assistance and readiness services
GSA (2025), MAS offeror readiness assessment	Agency readiness resource	Public structured assessment for a specific procurement vehicle
Maryland APEX Accelerator (n.d.), readiness checklist	Counseling checklist	Public cross-topic self-check for contractors
U.S. Department of Defense (2020, n.d.); DFARS 252.204-7019	Assessment methodology and program description	Existing standardized cybersecurity self-assessments

Source: The Authors.

3.2 FRAMEWORK CONSTRUCTION PROCEDURE

The CRAF draws methodologically on indicator-based diagnostic instruments in other applied fields. Pourre (2020) and Furlan and dos Santos (2016) illustrate the decomposition of multidimensional transport-performance or service-quality constructs into observable measures. Pourre and Magalhães (2025) compare indicator systems and emphasize conceptual coherence, measurability, and practical use. These studies offer design principles for constructing indicators; they do not provide evidence about federal contractor behavior or the performance of the CRAF.

At a broader design level, Pourre (2024) surveys research clusters in smart-city framework scholarship, while Pourre (2026) proposes an ex ante viability instrument for urban projects. The limited analogy to contracting is methodological: an organization must judge

whether to commit scarce resources before outcomes are known. The present study does not assume that findings from urban planning transfer empirically to federal procurement. Instead, domain-specific procurement literature (Section 2) defines the substantive barriers, while indicator-design scholarship helps organize measurable capabilities and staged validation. Related work on decision support and structured process modeling (Magalhães & Pourre, 2022; Pourre *et al.*, 2022; Moysés *et al.*, 2022) provides supplementary design examples, not tests of CRAF effectiveness.

The CRAF was developed in five design steps, informed by maturity-model procedures (Becker *et al.*, 2009). First, the barriers described in the selected literature and documents were classified by type. Second, these categories were translated into capabilities that a firm can document or demonstrate. Third, the capabilities were organized into five dimensions. Fourth, three indicators per dimension were specified, based on measurability, conceptual coherence, and evidence availability (Pourre, 2020; Pourre & Magalhães, 2025). Fifth, a provisional rating scale, classification rule, opportunity-level checkpoints, and improvement actions were developed. The choice of three indicators per dimension and equal dimension weights is a design assumption, not an empirical result. The intended assessment unit is one firm in relation to a specified federal prime-contract opportunity or a clearly defined target market.

3.3 PLANNED EMPIRICAL VALIDATION: INTERVIEWS, EXPERT PANEL, AND PILOT

To identify the barriers as perceived by practitioners and to validate the instrument, the study proposes a qualitative field stage, not yet conducted, structured in three steps.

Step 1 — Semi-structured interviews. Interviews will be held with three groups selected by purposive sampling: (a) owners or managers of small businesses that have competed for federal contracts; (b) owners of small businesses that considered competing but did not submit offers; and (c) federal contracting specialists, such as APEX Accelerator counselors, proposal managers, and former contracting professionals. An initial sample of 15 to 20 participants is planned, with the final number determined by thematic saturation (Guest *et al.*, 2006). The interview guide addresses the difficulties experienced at each stage of the contracting process, the internal resources involved, and the decisions to bid or not to bid. Transcripts will be analyzed through reflexive thematic analysis (Braun & Clarke, 2006), comparing emergent themes with the barrier categories of Section 4.

Step 2 — Expert content validation. A proposed panel of at least eight specialists will independently evaluate the relevance and clarity of each indicator on a four-point scale and identify missing capabilities. For relevance, the item-level content validity index (I-CVI) will be the proportion rating an item 3 or 4; an initial I-CVI criterion of at least 0.78 is proposed for panels of six or more judges (Lynn, 1986). Experts will separately identify indicators essential to the intended construct, and the content validity ratio (CVR; Lawshe, 1975) will be calculated as $(n_e - N/2)/(N/2)$, where n_e is the number judging the indicator essential. The critical CVR will be selected for the actual panel size and a prespecified significance level, using recalculated values (Wilson *et al.*, 2012); for N = 8, a provisional 0.75 benchmark corresponds to seven of eight essential ratings. Items not meeting the criteria will be revised or removed with documented rationale and may be re-rated. A second Delphi-type round may solicit views on weights, non-applicability rules, and classification thresholds (Okoli & Pawlowski, 2004). These criteria are proposed, not results of an expert panel.

Step 3 — Pilot application. The revised instrument will be piloted with firms spanning different NAICS sectors and prior bidding experience. Two trained assessors will independently evaluate the same documentary evidence to estimate inter-rater agreement (weighted agreement for ordinal indicator scores and agreement on readiness categories). They will log disputed scores, not-applicable decisions, missing evidence, time to completion, and recommendations for refining the guide. Feasibility and perceived usefulness will be gathered from participants. The protocol will be submitted for any applicable ethics or institutional review before recruitment and will include informed consent and confidentiality safeguards; no approval or recruitment has occurred in the present study.

4 ANALYTICAL SYNTHESIS: HOW BARRIERS AFFECT COMPETITIVE CAPACITY

This section synthesizes the evidence gathered in the literature review and documentary analysis, organized by category of barrier. It does not report original empirical results: the evidence comes from secondary sources, and the mechanisms described are formulated as propositions to be tested in the field stage. The synthesis establishes the conceptual grounding of the framework but does not estimate the prevalence of each barrier among U.S. small businesses. The participation evidence summarized in Sections 1 and 2.1 is treated as motivation rather than as proof of causal mechanisms, and the barriers are grouped below according to the pathways through which they are proposed to affect competitive capacity.

4.1 REGISTRATION AND ELIGIBILITY BARRIERS

The first group of barriers concerns registration and eligibility. Pursuing a federal prime contract generally requires an active SAM registration, a unique entity identifier, accurate representations and certifications, correct NAICS classification, and, where applicable, certifications for socioeconomic programs. Each of these elements imposes learning and compliance costs (Moynihan *et al.*, 2015) that are largely fixed, and errors may lead to ineligibility regardless of a firm's technical merit. GAO (2021) further reports that small-business executives cited unpredictable delays in award decisions, security clearances, start dates, and payments as reasons to prefer private-sector work. These barriers influence competitive capacity through **eligibility exclusion**: a firm that is not correctly registered or classified cannot compete at all.

4.2 DOCUMENTARY AND PROPOSAL-MANAGEMENT BARRIERS

The second group concerns documentation and the interpretation of solicitations. Federal solicitations combine instructions to offerors, evaluation criteria, statements of work, and incorporated clauses, often across many attachments. The literature identifies documentation demands and opaque requirements as among the most frequent complaints of SME suppliers (Loader & Norton, 2015; OECD, 2018). Firms without centralized and version-controlled records must reassemble certificates, past-performance information, financial statements, and capability descriptions for each opportunity, increasing preparation time and the risk of error. These barriers operate through **loss of responsiveness**: proposals that omit required information or misread instructions may be eliminated or downgraded, even when the firm could perform the work.

A closely related group of barriers concerns the process of identifying, screening, and responding to opportunities. Flynn and Davis (2017) demonstrate that procedural capability is the main driver of how often and for what values SMEs tender, while Tammi *et al.* (2014) associate market orientation with more active searching and bidding. In the construction and engineering literature, structured bid/no-bid decision models show that systematic assessment of opportunity attractiveness, firm capability, and risk improves bidding decisions compared with informal judgment (Egemen & Mohamed, 2007; Lowe & Parvar, 2004). Firms without a proposal process tend to pursue poorly matched opportunities, to start late, and to lack compliance controls such as requirement-to-response matrices and independent

reviews. These weaknesses compound the loss of responsiveness described above and increase the likelihood of poorly matched bids.

4.3 OPERATIONAL, RESOURCE, AND RISK BARRIERS

The third group concerns operational capacity and internal resources. Flynn *et al.* (2015) show that tendering resources, frequency, and success increase with firm size, so micro and very small firms are disproportionately affected. Contract complexity amplifies this effect: small and diverse suppliers are more likely to win less complex contracts (Polyviou *et al.*, 2025), and relevant prior experience improves performance outcomes (Roy *et al.*, 2024). Requirements such as cybersecurity compliance were described by small businesses as difficult to understand, implement, and afford (GAO, 2021), and consolidated contract vehicles require greater up-front investments (GAO, 2021; Stangler, 2021). The liability of smallness (Aldrich & Auster, 1986) appears here as a lack of specialized staff and of financial slack to fund mobilization, compliance, and delays in payment. These barriers affect both eligibility, through responsibility standards under FAR 9.104-1, and the credibility of the technical and management approach.

Closely linked to these resource constraints is the identification and management of uncertainty before submission. Risks include eligibility challenges, pricing errors, cash-flow strain, inadequate staffing for performance, subcontractor dependence, cybersecurity obligations, and delays in payment (GAO, 2021). Risk management standards recommend identifying, analyzing, evaluating, and treating risks systematically and assigning ownership for mitigation (International Organization for Standardization [ISO], 2018). Firms that lack such routines either take on excessive risk or, more commonly, avoid competing altogether. Combined with the fixed costs of preparation, this leads to the third pathway of influence, **self-selection out of competitions**: when the expected cost and risk of preparing an offer exceed its expected value, rational firms do not bid. This mechanism is consistent with the finding that SME-friendly policy explains success rates but not tendering frequency (Flynn & Davis, 2016).

4.4 PROPOSITIONS: A PROVISIONAL ANSWER TO THE RESEARCH QUESTION

Table 3 synthesizes the barriers, the supporting evidence, the mechanism through which each affects competitive capacity, and the corresponding CRAF dimension.

Table 3

Barriers, evidence, mechanisms of influence, and corresponding CRAF dimension

Barrier	Main evidence	Mechanism of influence	CRAF dimension
Complex registration, classification, and certification requirements	FAR 52.204-7; 13 C.F.R. Part 121; Moynihan et al. (2015); GAO (2021)	Eligibility exclusion	D1. Registration compliance
Insufficient document preparation and difficulty interpreting requirements	Loader & Norton (2015); OECD (2018); Karjalainen & Kemppainen (2008)	Loss of responsiveness	D2. Documentary capacity
Lack of specialized staff, financial slack, and relevant experience	Flynn et al. (2015); Roy et al. (2024); Polyviou et al. (2025); Aldrich & Auster (1986)	Eligibility (responsibility) and credibility of the offer	D3. Operational capacity
Absence of a structured process to screen opportunities and prepare offers	Flynn & Davis (2017); Tammi et al. (2014); Egemen & Mohamed (2007)	Loss of responsiveness and poorly matched bids	D4. Proposal management
Unidentified vulnerabilities (cash flow, cybersecurity, performance, payment delays)	GAO (2021); ISO (2018); Flynn & Davis (2016)	Self-selection out of competitions or excessive risk	D5. Risk management

Source: The Authors.

Based on this synthesis, the article offers a provisional answer to the central research question in the form of three propositions. The evidence suggests that administrative, documentary, and operational difficulties influence the capacity of small businesses to participate in federal contracting cumulatively and through three distinct pathways:

Proposition 1 (eligibility exclusion): registration, classification, and responsibility-related weaknesses prevent participation regardless of the firm's technical merit.

Proposition 2 (loss of responsiveness): documentary and procedural weaknesses reduce the probability that an offer will be considered compliant and competitive.

Proposition 3 (self-selection): the fixed costs and uncertainties of preparing an offer, relative to the firm's resources, lead firms to abstain from competing.

Because these pathways interact—a firm with excellent technical skills may fail at the registration stage, while a well-registered firm may lack the resources to prepare a compliant offer—a further implication is that readiness should be assessed in multiple dimensions and that weaknesses in one dimension cannot be fully compensated by strengths in another. These propositions are derived from secondary evidence and must be tested empirically; the interview protocol (Section 3.3) is designed to examine each of them.

5 THE CONTRACTING READINESS ASSESSMENT FRAMEWORK (CRAF)

5.1 ARCHITECTURE

The CRAF is a diagnostic instrument to be applied before a firm decides to participate in a federal contracting opportunity. It comprises (a) five assessment dimensions, (b) fifteen observable indicators, (c) a five-level evidence-based scoring scale, (d) a readiness classification, (e) mandatory opportunity-specific checkpoints, and (f) an improvement matrix linking weaknesses to actions. Table 4 presents the dimensions, what each assesses, and the corresponding indicators.

Table 4

CRAF dimensions, scope of assessment, and indicators

Dimension	What is assessed	Indicators
D1. Registration compliance	SAM.gov registration, NAICS classification, and applicable requirements	(1) Active and accurate SAM registration and unique entity identifier; (2) documented NAICS and size-standard screening; (3) review of program-specific eligibility and certifications
D2. Documentary capacity	Organization of certificates, forms, and proposal documents	(4) Centralized and indexed document repository; (5) version and expiration-date control; (6) up-to-date evidence of past performance and capabilities
D3. Operational capacity	Staff, experience, resources, and conditions for execution	(7) Staffing and key-personnel plan; (8) financial capacity and cash-flow analysis; (9) delivery and performance controls
D4. Proposal management	Procedures for analyzing solicitations, deadlines, and preparing offers	(10) Opportunity-screening and bid/no-bid procedure; (11) requirement-to-response compliance matrix; (12) proposal schedule, review, and submission controls
D5. Risk management	Identification of vulnerabilities before submitting an offer	(13) Pre-submission risk register; (14) assigned owners and mitigation measures; (15) corrective-action and lessons-learned routine

Source: The Authors.

D1 addresses baseline information and eligibility screening, not legal certification. D2 focuses on the retrievability, accuracy, and traceability of documents. D3 reflects the capacity considerations relevant to responsibility determinations under FAR 9.104-1. D4 operationalizes the procedural capability identified by Flynn and Davis (2017) as a driver of tendering activity. D5 captures the firm's ability to identify and manage uncertainty before committing resources to a bid, consistent with ISO (2018).

5.2 SCORING SCALE AND READINESS CLASSIFICATION

Each indicator is scored on a five-level scale based on documentary evidence, adapting the logic of maturity models (Becker *et al.*, 2009):

0 — Absent: no relevant process or supporting evidence exists.

1 — Informal: the activity occurs inconsistently and relies on individual knowledge.

2 — Documented: a basic procedure or record exists, but its application is incomplete.

3 — Implemented: the procedure is used regularly and supported by traceable evidence.

4 — Controlled and reviewed: the procedure is implemented, assigned to a responsible person, monitored, and periodically improved.

For dimension d with A^d applicable indicators, each scored from 0 to 4, the dimension score is $D^d = [\Sigma(\text{score of applicable indicators})/(4 \times A^d)] \times 100$. If all three indicators apply, this reduces to [sum of three scores/12] × 100. An indicator can be marked not applicable (N/A) only when a documented reason tied to the target opportunity shows that the capability or requirement is genuinely irrelevant; a missing document, failed requirement, or unperformed screening is scored 0 rather than N/A. Every dimension must retain at least two applicable indicators; otherwise the assessment is reported as incomplete and is not classified. The overall CRAF score is the mean of the five dimension scores. Equal dimension weighting and the N/A rule are provisional design choices to be assessed during validation. Appendix A proposes evidence anchors for all 15 indicators.

Table 5

Proposed CRAF readiness levels

Level	Overall score	Interpretation	Recommended course of action
Level 1 — Initial	0–39 (always Level 1)	Foundational gaps in several dimensions	Build basic capabilities before pursuing prime contracts; consider subcontracting and support services
Level 2 — Developing	40–69 (or 70–100 after ceiling rule)	Partial capabilities with critical gaps	Address critical dimensions; pursue selected, lower-complexity opportunities
Level 3 — Structured	70–84, if all dimensions ≥40	Substantial readiness with identified gaps	Compete for well-matched opportunities while implementing targeted improvements
Level 4 — Advanced	85–100, if all dimensions ≥40	Consolidated internal preparedness	Compete selectively, including for more complex opportunities; maintain periodic review

Source: The Authors.

Table 5 sets out provisional score bands and a non-compensatory ceiling. Classification follows a fixed order: (1) calculate the five dimension scores and their average; (2) assign a provisional level from the overall-score bands; and (3) if any dimension is below 40, cap a provisional Level 3 or 4 at Level 2. A firm with an overall score below 40 remains

Level 1, even if one or more dimensions are below 40. Thus, the ceiling never upgrades a low-scoring firm and no firm qualifies for Level 3 or 4 with a critical dimension.

These bands and the threshold of 40 are not official government classifications or validated benchmarks. Each assessment must report its target opportunity, underlying indicator scores, evidence references, applicable/N/A decisions, each dimension score, checkpoint status, and the effect of any ceiling rule. Comparability across firms requires identical indicator definitions and consistent assessor training, which will be tested during the pilot.

5.3 OPPORTUNITY-SPECIFIC CHECKPOINTS AND IMPROVEMENT PLAN

An aggregate score must not override a material eligibility failure. Before submitting an offer, the firm must complete a separate checkpoint review of requirements that actually apply to the targeted opportunity: active registration, size status under the assigned NAICS code, program eligibility when relevant, representations and certifications, mandatory licenses, exclusion status, cybersecurity or security requirements, and proposal instructions. A failed or unresolved checkpoint results in a **hold for resolution or specialist review**, rather than in an assertion that a high readiness score authorizes submission. This separation prevents a management diagnostic from being mistaken for a legal determination; qualified professionals should be consulted when requirements involve individualized legal interpretation.

The practical output of an assessment consists of (a) a firm profile and target market, (b) a five-dimension readiness profile, (c) an evidence inventory, (d) a checkpoint register, and (e) a prioritized improvement plan. Table 6 presents the improvement matrix, which links typical weaknesses in each dimension to improvement actions and to the evidence that verifies their implementation.

Table 6

CRAF improvement matrix: typical weaknesses, improvement actions, and verification evidence

Dimension	Typical weakness	Improvement action	Verification evidence
D1. Registration compliance	Expired or inconsistent SAM data; NAICS codes not reviewed against target markets	Establish a registration calendar and an annual NAICS and size-standard review; seek APEX Accelerator counseling	Current SAM record; NAICS screening worksheet; review log
D2. Documentary capacity	Documents scattered across personal files; expired certificates; outdated capability statement	Create an indexed repository with version and expiration control; update past-performance records after each contract	Document index; control log; updated capability statement
D3. Operational capacity	No staffing plan for new contracts; cash flow not tested against mobilization costs and payment delays	Prepare staffing and key-personnel plans; model cash flow under delayed-payment scenarios; identify teaming partners	Staffing matrix; cash-flow scenarios; teaming agreements
D4. Proposal management	Opportunities pursued without screening; late start; no compliance check	Adopt a bid/no-bid checklist, a proposal calendar, and a requirement-to-response matrix with independent review	Completed checklists; compliance matrices; review records
D5. Risk management	Risks not identified before submission; no responsible person for mitigation	Implement a pre-submission risk register with owners and deadlines; conduct post-submission lessons-learned reviews	Risk register; mitigation tracker; lessons-learned records

Source: The Authors.

Each improvement action should specify the identified weakness, the supporting evidence, the responsible person, the proposed remedy, the expected completion date, and the verification method. Repeated assessments allow the firm to track progress over time, much as outcome-oriented indicator systems allow public managers to monitor the evolution of service performance (Pourre, 2020).

5.4 ILLUSTRATIVE APPLICATION

To illustrate the calculations, consider a hypothetical small professional-services firm evaluating a specified set-aside prime-contract opportunity. These scores are invented examples, not observations. D1: its SAM registration is maintained (4), NAICS and size screening is implemented (3), and a basic but incomplete eligibility checklist exists (2), totaling 9/12 = 75.0. D2: its repository is partially documented (2), expiration controls are informal (1), and capability records are incomplete (2), totaling 5/12 = 41.7. D3: a staffing plan is used (3), but cash-flow scenarios and performance controls are only partially documented (2 and 2), totaling 7/12 = 58.3. D4: opportunity screening and response mapping occur

informally (1 and 1), with partial scheduling controls (2), totaling 4/12 = 33.3. D5: no pre-submission risk register exists (0), but risk ownership and lessons learned occur informally (1 and 1), totaling 2/12 = 16.7. All 15 indicators are applicable in this example.

The overall score is (75.0 + 41.7 + 58.3 + 33.3 + 16.7) / 5 = 45.0, giving a provisional Level 2 (Developing). D4 and D5 are below 40, but the ceiling does not change the result because the overall score already falls within Level 2. If the overall score had been 70 or higher, either dimension would have capped the category at Level 2. The priority actions are to introduce a documented bid/no-bid and compliance-review routine (D4), create a pre-submission risk register with assigned owners (D5), and implement document-expiration controls (D2). This demonstration shows how evidence and scoring lead to an action plan; it does not demonstrate an increase in contract awards.

6 DISCUSSION

6.1 CONTRIBUTIONS AND IMPLICATIONS

The proposed contribution of the CRAF is a transparent mapping from barriers in the procurement literature to 15 firm-level indicators and evidence-linked improvement actions. Prior studies establish that size, resources, and procedural capability matter (Flynn *et al.*, 2015; Flynn & Davis, 2017) and that participation barriers persist (Loader, 2013; Nicholas & Fruhmann, 2014). Existing support—including APEX checklists and the GSA MAS offeror assessment—already addresses readiness, so novelty cannot rest on introducing the term or concept (Maryland APEX Accelerator, n.d.; U.S. General Services Administration, 2025). The distinctive proposed combination is a cross-domain rating rubric, a ceiling to prevent compensation for critical weaknesses, opportunity-specific checkpoints, and documented corrective actions. Whether this combination is more consistent, usable, or consequential than existing practice is an empirical question. Indicator-design studies in other fields (Pourre, 2020, 2026; Pourre & Magalhães, 2025) inform construction but do not establish effectiveness in procurement.

The framework also distinguishes **market accessibility** from **organizational preparedness**. Accessibility depends on conditions set by public buyers, such as contract bundling and the design of solicitations; preparedness depends on the firm's ability to respond within that environment. Recognizing these distinct mechanisms avoids placing the entire responsibility for participation on small businesses while acknowledging that internal readiness is a dimension firms can act on.

For firms, the CRAF could help prioritize investments in registration maintenance, document systems, staff training, and proposal review, and support more informed bid/no-bid decisions. For support organizations such as APEX Accelerators and Small Business Development Centers, a standardized instrument could make diagnostics comparable across clients and over time, and could help target counseling to the dimensions where weaknesses are concentrated. For policymakers, aggregated and anonymized CRAF results could, if validated, reveal which barriers are most common in particular sectors or regions, complementing the aggregate statistics in the SBA scorecards with firm-level information on the barriers that constrain participation.

6.2 REGULATORY CHANGE AND THE DURABILITY OF THE INSTRUMENT

The Revolutionary FAR Overhaul (Executive Order 14275, 2025) may reduce some non-statutory requirements and simplify the language of the regulation. Simplification could lower some learning and compliance costs, but it may also create a transition period during which firms must understand new structures, deviations, and agency-specific practices. By anchoring indicators in functional capabilities rather than in specific clauses, and by requiring opportunity-specific checkpoints, the CRAF is designed to remain applicable as rules change, provided that its reference requirements are reviewed periodically.

6.3 LIMITATIONS AND VALIDATION AGENDA

This study is based on a purposive narrative review and a selected documentary corpus, not on a systematic evidence search or primary observations. The review does not report complete database-search logs, screening counts, or an independently replicated coding process. Some included studies concern other countries, industries, or awarded contractors; those findings cannot quantify barriers among all U.S. federal small-business applicants. DOD supplier counts from FY 2011–2020 and government-wide spending in FY 2025 should not be interpreted as a continuous firm-level series or as proof of causal relationships.

The 15 indicators, equal dimension weights, five scoring categories, non-applicability rule, 40-point dimension threshold, and readiness bands reflect reasoned design decisions. Their content validity, test–retest stability, inter-rater reliability, sector comparability, and sensitivity to changes in solicitation-specific requirements have not yet been established. The

tool must not replace legal eligibility determinations, cybersecurity audits, or contracting officers' responsibility findings.

The CRAF is not a validated predictor of awards, costs, or supplier diversity. Even perfect internal readiness cannot correct externally imposed barriers such as contract aggregation or solicitation design. Its initial testable outcomes are scoring reliability, evidence completeness, process consistency, and usefulness for bid/no-bid decisions.

The next phase should document a reproducible literature-search and instrument-comparison protocol, conduct the interviews and expert validation proposed in Section 3.3, and pilot the evidence guide (Appendix A). The pilot should assess scoring consistency, missing-data treatment, respondent burden, suitability for first-time and experienced offerors, and differences by industry and contract complexity. A later prospective evaluation could assess whether documented readiness improvements precede higher rates of compliant submissions or improved bid/no-bid decisions, while controlling for market conditions; award outcomes require separate study. All proposed procedures remain future work.

7 CONCLUSION

This article examined how administrative, documentary, and operational difficulties influence the capacity of U.S. small businesses to participate in federal contracting. The synthesis of the literature and of U.S. public sources suggests that these barriers act cumulatively through three pathways -eligibility exclusion, loss of responsiveness, and self-selection out of competitions - and that they are likely to weigh most heavily before award, given evidence that small businesses that win federal contracts perform comparably to other suppliers. In response, the article proposed the Contracting Readiness Assessment Framework (CRAF), which evaluates readiness across five dimensions (registration compliance, documentary capacity, operational capacity, proposal management, and risk management) through 15 observable indicators, an evidence-based scale, a readiness classification, mandatory checkpoints, and an improvement matrix. The framework's main contribution is methodological: it translates broad discussions of procurement barriers into assessable and improvable management practices.

REFERENCES

Acquisition.gov. (n.d.). Revolutionary FAR Overhaul. U.S. General Services Administration. https://www.acquisition.gov/far-overhaul

Aldrich, H., & Auster, E. R. (1986). Even dwarfs started small: Liabilities of age and size and their strategic implications. Research in Organizational Behavior, 8, 165–198.

Armenakis, A. A., Harris, S. G., & Mossholder, K. W. (1993). Creating readiness for organizational change. Human Relations, 46(6), 681–703. https://doi.org/10.1177/001872679304600601

Barney, J. (1991). Firm resources and sustained competitive advantage. Journal of Management, 17(1), 99–120. https://doi.org/10.1177/014920639101700108

Becker, J., Knackstedt, R., & Pöppelbuß, J. (2009). Developing maturity models for IT management: A procedure model and its application. Business & Information Systems Engineering, 1(3), 213–222. https://doi.org/10.1007/s12599-009-0044-5

Bowen, G. A. (2009). Document analysis as a qualitative research method. Qualitative Research Journal, 9(2), 27–40. https://doi.org/10.3316/QRJ0902027

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Defense Federal Acquisition Regulation Supplement. (n.d.). 252.204-7019—Notice of NIST SP 800-171 DoD assessment requirements. Acquisition.gov. https://www.acquisition.gov/dfars/252.204-7019

Egemen, M., & Mohamed, A. N. (2007). A framework for contractors to reach strategically correct bid/no bid and mark-up size decisions. Building and Environment, 42(3), 1373–1385. https://doi.org/10.1016/j.buildenv.2005.11.016

Exec. Order No. 14275, Restoring Common Sense to Federal Procurement, 90 Fed. Reg. 16447 (April 18, 2025). https://www.govinfo.gov/content/pkg/FR-2025-04-18/html/2025-06839.htm

Federal Acquisition Regulation. (n.d.-a). Part 9—Contractor qualifications (including § 9.104-1). Acquisition.gov. https://www.acquisition.gov/far/part-9

Federal Acquisition Regulation. (n.d.-b). Part 19—Small business programs. Acquisition.gov. https://www.acquisition.gov/far/part-19

Federal Acquisition Regulation. (n.d.-c). 52.204-7—System for Award Management. Acquisition.gov. https://www.acquisition.gov/far/52.204-7

Flynn, A., & Davis, P. (2016). Firms' experience of SME-friendly policy and their participation and success in public procurement. Journal of Small Business and Enterprise Development, 23(3), 616–635. https://doi.org/10.1108/JSBED-10-2015-0140

Flynn, A., & Davis, P. (2017). Explaining SME participation and success in public procurement using a capability-based model of tendering. Journal of Public Procurement, 17(3), 337–372. https://doi.org/10.1108/JOPP-17-03-2017-B003

Flynn, A., McKevitt, D., & Davis, P. (2015). The impact of size on small and medium-sized enterprise public sector tendering. International Small Business Journal, 33(4), 443–461. https://doi.org/10.1177/0266242613503178

Furlan, C. B., & dos Santos, G. I. R. (2016). A qualidade do transporte público urbano em cidades médias: Estudo de caso em Palmas-Tocantins. Revista em Gestão, Inovação e Sustentabilidade, 2(2).

Gil, A. C. (2008). Métodos e técnicas de pesquisa social (6th ed.). Atlas.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. Field Methods, 18(1), 59–82. https://doi.org/10.1177/1525822X05279903

Hawkins, T., Gravier, M., & Randall, W. S. (2018). Socio-economic sourcing: Benefits of small business set-asides in public procurement. Journal of Public Procurement, 18(3), 217–239. https://doi.org/10.1108/JOPP-09-2018-014

Herd, P., & Moynihan, D. P. (2018). Administrative burden: Policymaking by other means. Russell Sage Foundation.

Hevner, A. R., March, S. T., Park, J., & Ram, S. (2004). Design science in information systems research. MIS Quarterly, 28(1), 75–105. https://doi.org/10.2307/25148625

International Organization for Standardization. (2018). ISO 31000:2018 Risk management — Guidelines. ISO.

Karjalainen, K., & Kemppainen, K. (2008). The involvement of small- and medium-sized enterprises in public procurement: Impact of resource perceptions, electronic systems and enterprise size. Journal of Purchasing and Supply Management, 14(4), 230–240. https://doi.org/10.1016/j.pursup.2008.08.003

Lawshe, C. H. (1975). A quantitative approach to content validity. Personnel Psychology, 28(4), 563–575. https://doi.org/10.1111/j.1744-6570.1975.tb01393.x

Loader, K. (2013). Is public procurement a successful small business support policy? A review of the evidence. Environment and Planning C: Government and Policy, 31(1), 39–55. https://doi.org/10.1068/c1213b

Loader, K., & Norton, S. (2015). SME access to public procurement: An analysis of the experiences of SMEs supplying the publicly funded UK heritage sector. Journal of Purchasing and Supply Management, 21(4), 241–250. https://doi.org/10.1016/j.pursup.2015.02.001

Lowe, D. J., & Parvar, J. (2004). A logistic regression approach to modelling the contractor's decision to bid. Construction Management and Economics, 22(6), 643–653. https://doi.org/10.1080/01446190310001649056

Lynn, M. R. (1986). Determination and quantification of content validity. Nursing Research, 35(6), 382–386. https://doi.org/10.1097/00006199-198611000-00017

Magalhães, M. T. Q., & Pourre, C. B. F. (2022). Planejamento e smart cities. Editora ECoS.

Maryland APEX Accelerator. (n.d.). Contracting readiness checklist. https://www.marylandapex.org/contracting-readiness-checklist

Moynihan, D., Herd, P., & Harvey, H. (2015). Administrative burden: Learning, psychological, and compliance costs in citizen-state interactions. Journal of Public Administration Research and Theory, 25(1), 43–69. https://doi.org/10.1093/jopart/muu009

Moysés, D. A., Fernandes, J. H. C., Hosoume, J. M., Piña, A. B. S., Bernardes, M. B., Bauchspiess, A., Pourre, C. B. F., Carvalho, M. T. M., Garcia, L. P. F., & Borges, G. A. (2022). Iniciativas experimentais. In CESUs: Centros de Eficiência em Sustentabilidade Urbana (Vol. II: Aplicações). Editora ECoS. https://repositorio.ecos.unb.br/exhibits/show/editoraecos/item/554

Nicholas, C., & Fruhmann, M. (2014). Small and medium-sized enterprises policies in public procurement: Time for a rethink? Journal of Public Procurement, 14(3), 328–360. https://doi.org/10.1108/JOPP-14-03-2014-B002

Okoli, C., & Pawlowski, S. D. (2004). The Delphi method as a research tool: An example, design considerations and applications. Information & Management, 42(1), 15–29. https://doi.org/10.1016/j.im.2003.11.002

Organisation for Economic Co-operation and Development. (2018). SMEs in public procurement: Practices and strategies for shared benefits. OECD Publishing. https://doi.org/10.1787/9789264307476-en

Peffers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A design science research methodology for information systems research. Journal of Management Information Systems, 24(3), 45–77. https://doi.org/10.2753/MIS0742-1222240302

Polyviou, M., Ried, L., & Wiedmer, R. (2025). Selection of small and diverse suppliers and contractual performance: Do set-asides pay off? Production and Operations Management, 34(3), 475–492. https://doi.org/10.1177/10591478241265646

Pourre, Carlla Brito Furlan. (2020). Indicadores de resultados finalísticos como instrumento de diagnóstico do transporte urbano: Um estudo de caso do Distrito Federal. Master's dissertation, Universidade de Brasília, Faculdade de Arquitetura e Urbanismo, Brasília.

Pourre, Carlla Brito Furlan. (2024). Uma análise bibliométrica da pesquisa de framework de cidades inteligentes. Revista Científica Sistemática, 14(8), 591–605. https://doi.org/10.56238/rcsv14n8-009. DOI: https://doi.org/10.56238/rcsv14n8-009.

Pourre, Carlla Brito Furlan. (2026). Modelo conceitual de um instrumento de desenvolvimento econômico: Aplicação à viabilidade de projetos urbanos em pequenas cidades. Doctoral dissertation, Universidade de Brasília, Faculdade de Arquitetura e Urbanismo, Brasília.

Pourre, Carlla Brito Furlan, & Magalhães, M. T. Q. (2025). Urban planning and transport indicators: A comparative analysis of three Brazilian experiences. Paranoá, 18, Article e59408. DOI: https://doi.org/10.18830/1679-09442025v18e59408.

Pourre, Carlla Brito Furlan, Moysés, D. A., Magalhães, M. T. Q., & Fernandes, J. H. C. (2022). Processos finalísticos de um CESU. CESUs: Centros de Eficiência em Sustentabilidade Urbana (Livro) Volume III: Proposições e Perspectivas. Editora Ecos. Disponível em: https://repositorio.ecos.unb.br/exhibits/show/editoraecos/item/563#?c=&m=&s=&cv=.

Prodanov, C. C., & Freitas, E. C. (2013). Metodologia do trabalho científico: Métodos e técnicas da pesquisa e do trabalho acadêmico (2nd ed.). Feevale.

Roy, D., Mishra, A., & Sinha, K. K. (2024). Advancing small business inclusion in public procurement: Evidence from U.S. federal government R&D contracts. Production and Operations Management, 33(11), 2201–2220. https://doi.org/10.1177/10591478241270112

Small Business Size Regulations, 13 C.F.R. pt. 121 (2026).

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. Journal of Business Research, 104, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Stangler, D. (2021, June 4). Fact sheet: Small business procurement. Bipartisan Policy Center. https://bipartisanpolicy.org/explainer/fact-sheet-small-business-procurement

Tammi, T., Saastamoinen, J., & Reijonen, H. (2014). Market orientation and SMEs' activity in public sector procurement participation. Journal of Public Procurement, 14(3), 304–327. https://doi.org/10.1108/JOPP-14-03-2014-B001

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

U.S. Department of Defense. (2020). NIST SP 800-171 DoD assessment methodology (Version 1.2.1). Office of the Under Secretary of Defense for Acquisition and Sustainment.

U.S. Department of Defense. (n.d.). Project Spectrum: Prepare, protect, and comply. Office of Small Business Programs. https://business.defense.gov/Resources/Be-Cyber-Smart/

U.S. General Services Administration. (2025, March 21). Readiness assessment for MAS offerors. https://www.gsa.gov/sell-to-government/step-1-learn-about-government-contracting/how-to-access-contract-opportunities/help-with-mas-contracts-to-sell-to-government/roadmap-to-get-a-mas-contract/readiness-assessment-for-mas-offerors

U.S. Government Accountability Office. (2021). Small business contracting: Actions needed to implement and monitor DOD's small business strategy (GAO-22-104621). https://www.gao.gov/products/gao-22-104621

U.S. Small Business Administration. (2022, February 7). The Ascent digital platform expands: SBA introduces course in government contracting to online digital learning platform. https://www.sba.gov/article/2022/feb/07/ascent-digital-platform-expands-sba-introduces-course-government-contracting-online-digital-learning

U.S. Small Business Administration. (2026, June 25). SBA releases FY25 scorecard for small business contracting. https://www.sba.gov/article/2026/06/25/sba-releases-fy25-scorecard-small-business-contracting

U.S. Small Business Administration. (n.d.). Targeted support and services (APEX Accelerators). https://www.sba.gov/counseling/local-assistance/targeted-support-and-services/

Weiner, B. J. (2009). A theory of organizational readiness for change. Implementation Science, 4, Article 67. https://doi.org/10.1186/1748-5908-4-67

Wilson, F. R., Pan, W., & Schumsky, D. A. (2012). Recalculation of the critical values for Lawshe's content validity ratio. Measurement and Evaluation in Counseling and Development, 45(3), 197–210. https://doi.org/10.1177/0748175612440286

APPENDICES

APPENDIX A. PROPOSED CRAF INDICATOR EVIDENCE GUIDE

This is a design-stage assessment aid, not an empirically validated rubric. For each applicable indicator, score 0 when no practice or evidence exists; 1 for an informal or inconsistently applied practice; 2 when basic documentary evidence exists but implementation is incomplete; 3 when it is regularly implemented with dated or traceable records; and 4 when implementation, ownership, monitoring, and periodic review are all evidenced. The examples below illustrate acceptable evidence; their presence alone does not establish performance quality. N/A decisions must follow Section 5.2.

Table A1

Proposed evidence examples by indicator

Indicator	Examples of documentary evidence (score 2+)	Additional evidence for controlled/reviewed operation (score 4)
1. Active SAM / UEI	Dated SAM entity record; verification of relevant fields	Assigned owner; recurring verification log and correction history
2. NAICS / size screening	Opportunity-to-NAICS/size-standard worksheet	Independent review and dated updates for new solicitations
3. Program eligibility	Program-specific screening checklist and supporting certifications when applicable	Documented validation at each target opportunity; renewal/exception log
4. Document repository	Indexed company records with controlled access	Periodic completeness review and retrieval test
5. Version / expiration control	Version history and expiration-date list	Automated or reviewed reminders with remediation log
6. Capability / past performance	Current capability statement and project evidence	Update after each contract and quality review of evidence
7. Staffing and key personnel	Role matrix, availability commitments, staffing plan	Documented capacity reviews and contingency staffing tests
8. Financial / cash-flow capacity	Budget, working-capital and cash-flow projections	Scenarios monitored against actuals and corrective thresholds
9. Delivery / performance controls	Project schedule, quality controls, fulfillment procedure	Measured delivery performance and formal process reviews
10. Opportunity screening	Bid/no-bid criteria or completed assessment form	Consistent application and review of post-decision outcomes
11. Response compliance matrix	Solicitation requirement-to-response mapping	Independent compliance check and closure of exceptions
12. Proposal controls	Bid schedule, owners, reviews, submission confirmations	Documented review gates and post-submission review
13. Pre-submission risk register	Dated risk list with likelihood, impact, and response	Periodic risk review, trend monitoring, and escalation
14. Risk ownership / mitigation	Assigned risk owners, actions, deadlines	Closure evidence and verified mitigation effectiveness
15. Corrective action / lessons learned	Recorded lessons or corrective actions	Tracked due dates, verified closure, repeated-process improvements

Source: Prepared by the authors.