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The Cube: A Lawful, Incremental Framework for Using Public Procurement to Pull Innovation

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Executive Summary

Governments already spend large sums to promote innovation through grants, tax credits, loans, equity instruments, incubators, prizes, and advisory programs. Yet public procurement is vastly larger than conventional innovation-policy budgets. In OECD economies, procurement is roughly 13 percent of GDP, while direct support and tax relief for business R&D together are only a fraction of one percent of GDP. This asymmetry matters. Even a very small innovation-oriented tilt in procurement can represent a material increase in the effective scale of innovation policy.

Yet procurement systems are rarely used this way. Most public procurement organizations are designed to secure timely delivery, preserve integrity, ensure equal treatment of suppliers[1], and obtain value for money[2]. They are not designed to explore technological uncertainty, nurture early markets, or orchestrate experimentation with new solutions. Procurement officers are typically judged on compliance, continuity of service, and avoidance of visible failure. Under those incentives, the safe equilibrium is predictable: detailed specifications, strong threshold requirements, large established suppliers, price-dominant competitions, and risk transfer to vendors wherever possible.

This report argues that governments do not need to choose between lawful procurement and innovation policy. They can make procurement more innovation-friendly without abandoning core procurement principles. The relevant question is not whether procurement law should be suspended in the name of innovation. The relevant question is how familiar and lawful procurement tools can be re-framed so that public buyers learn about technological possibilities, reduce uncertainty, validate solutions, and scale what works.

This is the purpose of **The Cube**.

The Cube is not a new legal instrument. It is a practical framework for organizing existing instruments into a usable workflow. It is built on three principles:

1. **Lawful**: it works within ordinary procurement rules and preserves equal treatment, transparency, and defensibility.

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[1] **Equal treatment** means that comparable suppliers must be given the same information, deadlines, and evaluation logic; the buyer cannot tilt the process toward a favored firm.

[2] **Value for money (VfM)** means the best overall use of public resources once price, quality, risk, and where relevant lifecycle costs are considered; it is not always the lowest upfront price.

2. **Incremental**: it relies on small, reversible steps rather than large, all-or-nothing bets.
3. **Information-revealing**: it helps governments discover what exists, what does not yet exist, and what could be made to exist.

The Cube is organized into three stages and seven instruments.

Stage I. Revealing information

- Request for Information (RFI)
- Innovation platforms

Stage II. Shaping and de-risking the market

- Certifications
- Pilots
- Coalitions

Stage III. Procuring the solution

- Innovation-friendly traditional tenders
- Challenge tenders / Public Procurement of Innovation (PPI)

The basic logic is simple. Governments should not begin with the most complex and risky procurement forms. They should begin by learning. If a need is known but the market is uncertain, use an RFI. If government needs a systematic channel to receive signals from the market, create an innovation platform. If solutions exist but are not yet trusted, use certification. If performance must be demonstrated before scaling, use pilots. If demand is too small or too fragmented to shape the market, build coalitions and pool demand. Only after the market has been explored and de-risked should the buyer move to scaled procurement through either an innovation-friendly traditional tender or, where capabilities permit, a challenge tender or PPI process.

The Cube is therefore not a substitute for innovation policy. It is a way to make procurement part of the innovation-policy mix. Traditional innovation policy often supports the supply side of innovation. Procurement can complement it from the demand side by acting as a credible first buyer, by validating solutions, by revealing public needs to the market, and by creating a pathway from experimentation to scale.

The report is written for three overlapping audiences:

- **Procurement officers**, who need lawful, defensible, and practical ways to incorporate innovation goals into their work.
- **Innovation officers**, who need structured access to public-sector problems, better market signals, and a route from promising ideas to adoption.

- **Line ministries and sector agencies**, which know the operational problems to be solved but often lack a disciplined way to engage markets before launching a formal tender.

The report's main propositions are the following.

1. Innovation requires more than supply-side support

Many innovations fail not because the technology is impossible, but because firms face uncertain demand, high commercialization risk, coordination failures, missing standards, missing testing environments, or difficulty persuading a conservative buyer to adopt a new solution. Procurement can address these problems in ways that grants and tax incentives cannot.

2. Procurement systems are rationally conservative

The default conservatism of procurement systems is not irrational. Procurement law exists for good reasons: to guard against favoritism, corruption, waste, arbitrary discretion, and delivery failure. Any useful framework must work with those realities rather than wish them away.

3. The real bottleneck is sequencing and governance

Most tools associated with innovation-friendly procurement already exist in some form. The problem is that they are either used in isolation or introduced too late. Buyers often tender before learning. Or they leap too quickly into complex instruments that exceed the technical and institutional capacity of the system. The Cube addresses this by re-framing familiar tools from discovery, to de-risking, to scaled procurement.

4. Procurement and innovation functions should be coordinated, not merged

Procurement officers and innovation officers do different jobs. Procurement professionals safeguard legality, competition, equal treatment, and contractibility. Innovation professionals scan emerging technologies, assess technical novelty, and interact with innovators. The Cube requires collaboration between these functions, not the collapse of one into the other.

5. Innovation-friendly procurement must be managed as a learning process

Governments should not evaluate innovation-oriented procurement solely as a one-shot purchasing decision. It should also be managed as a structured learning process. Not every pilot should scale. Not every challenge should produce a solution. The point is not to guarantee success in every instance, but to create a

disciplined portfolio of small experiments with clear documentation, safeguards, and escalation criteria.

What this report does and does not do

This report focuses on how procurement can encourage innovation. It does not attempt to cover all of industrial policy. Nor does it argue that every procurement exercise should pursue innovation. Many purchases are routine and should remain routine. Paper, fuel, standard office hardware, cleaning services, and commoditized supplies usually do not require innovation-oriented methods. The Cube is meant for situations in which public needs are real, markets are evolving, and there is reason to believe that more structured market engagement could improve outcomes.

The report also does not argue against challenge tenders, PPI, or mission-oriented procurement. Those instruments can be powerful, but they are demanding. They belong in places which can handle them. In many systems, the better route is more modest: lawful discovery, small pilots, selective certification, pooled demand, and better tender design.

Summary recommendation

Governments should treat procurement not only as a compliance function or a purchasing function, but also as a disciplined instrument for discovering, validating, and scaling innovative solutions. The right way to do so is not through sweeping legal exemptions, but through a staged framework that starts with information revelation, moves through market shaping, and only then proceeds to procurement at scale.

That framework is The Cube.

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1. Why Procurement Deserves a Place in Innovation Policy

Innovation policy has traditionally focused on the supply side. Governments fund research, subsidize private R&D, offer tax incentives, support incubators and accelerators, provide concessional finance, create standards, and sponsor prizes or challenge funds. These tools respond to familiar market failures: knowledge spillovers, non-rivalry of ideas, financing constraints, and uncertainty in research.

That toolkit is important, but incomplete. A firm can receive a grant, a tax credit, or seed financing and still fail to innovate at scale if there is no credible buyer, no reference customer, no testing environment, or no path to adoption in the markets

that matter. For many public-purpose technologies, the missing piece is not science. It is demand.

Public procurement can address this missing piece because the state is not merely a regulator or grant-maker. It is also a buyer. In sectors such as health, education, mobility, defense, energy, water, digital government, waste management, and construction, it is often the largest or among the largest buyers in the market. This gives procurement a distinctive role in innovation policy.

Illustrative example. Advanced market commitments for vaccines, and later the demand guarantees and advance purchasing commitments associated with Operation Warp Speed, are not identical to ordinary civil procurement under standard rules. But they illustrate the same basic mechanism: the state can accelerate innovation not only by subsidizing science, but by making demand more credible.

1.1 What procurement adds that other instruments do not

Procurement can do at least four things that conventional innovation tools do less well.

It can create a credible buyer

A grant may help develop a prototype. A tax credit may reduce the cost of R&D. But neither guarantees that anyone will buy the result. Procurement can reduce commercialization risk by signaling that, if a solution meets the public need under defensible conditions, there may be a real path to adoption.

It can reveal public needs in operational terms

Innovation policy is often organized around sectors or technologies. Procurement starts from problems. A public buyer does not need “AI” in the abstract; it needs faster claims processing, fewer traffic deaths, lower energy use in hospitals, better diagnostics in rural clinics, or lower-carbon concrete that meets safety standards. Procurement can convert broad policy ambition into operational demand.

It can validate performance

In many emerging fields, the obstacle is not invention but trust. Buyers are unwilling to adopt unfamiliar technologies without evidence that they work in real operating conditions. Procurement-related pilots, certifications, testing pathways, and staged adoption can generate that evidence.

It can help scale

An innovation that works in a lab or a small demonstration often fails to scale because demand remains fragmented and uncertain. Procurement can help move

from proof of concept to repeatable demand, especially when multiple public buyers coordinate.

1.2 Why innovation often needs demand-side support

The case for procurement as part of innovation policy does not rest on the claim that public officials know better than the market what should be invented. It rests on a narrower claim: many socially valuable innovations face obstacles that private markets alone do not solve well.

Three obstacles are especially relevant.

Demand uncertainty and commercialization risk

Firms may be reluctant to invest in solutions for public needs when demand is difficult to observe, requirements are uncertain, procurement cycles are long, and adoption depends on winning a formal competition that may not occur for years. Even when a technology appears promising, the expected path to revenue may be too weak to justify private investment.

Coordination failures and missing complements

A solution may depend on complementary standards, regulatory clarity, interoperability rules[3], testing environments, trained users, or complementary infrastructure. No single firm can create all of these by itself. A public buyer, especially one working with regulators and innovation agencies, may be able to coordinate them.

Information revelation and self-discovery

Governments often do not know what the market can do. Firms often do not know whether government demand is real, large enough, or contractible. Both sides face uncertainty. Structured engagement is needed to reveal which solutions are feasible, which suppliers exist, which standards are missing, and which obstacles prevent adoption.

These issues are particularly acute where innovation requires adaptation to local public-service conditions: hospitals, roads, schools, energy systems, public fleets, data platforms, or municipal infrastructure. In such settings, procurement is not just a purchasing mechanism. It is a search mechanism.

[3] **Interoperability** means that a product or system can work effectively with other systems, data standards, or equipment already in use.

1.3 The scale argument

The quantitative case for taking public procurement seriously is straightforward. Public procurement is large. Traditional innovation budgets are much smaller. This does not mean that public procurement should replace grants, tax incentives, or other innovation tools. It means that a small change in public procurement behavior can have first-order consequences.

Suppose a government does not change public procurement law, does not create a new fund, and does not redirect its whole purchasing system toward innovation. Suppose it only makes a small share of public procurement more innovation-friendly in sectors where public needs are substantial and solutions are evolving. Because the underlying budget is large, even a marginal strategic tilt can materially expand the effective demand-side support for innovation.

This is the central quantitative intuition behind The Cube: **public procurement can be a large lever even when only a small fraction of the lever is moved**.

1.4 Public procurement is not just for buying what already exists

Much of the existing debate treats public procurement as the process of selecting the best supplier for a known requirement. That remains its core function. But for innovation purposes, public procurement can also help answer a prior question: what should the requirement be? If technology is evolving, if performance can be met in different ways, or if a public problem has no satisfactory off-the-shelf solution, then the buyer's task is not only to compare bids. It is to structure discovery before bidding.

That is where The Cube begins.

1.5 What The Cube contributes

The literature on demand-side innovation policy already contains important concepts: lead markets, challenge procurement, pre-commercial procurement, mission-oriented policy, advanced market commitments, public procurement of innovation, and market-shaping state action. This report does not deny or replace that literature.

Its contribution is more practical. It asks how a procurement system can encourage innovation **under ordinary administrative realities**:

- procurement officers are compliance-constrained;
- legal discretion is scrutinized;
- capacity is uneven;
- not every buyer can run a sophisticated challenge competition;

- and many governments need a way to proceed without relying on sweeping exemptions or heroic institutional assumptions.

A fair critique of The Cube is that some innovation-oriented procurement processes already exist, especially **Public Procurement of Innovation (PPI)** and **Pre-Commercial Procurement (PCP)**. Why, then, is another framework necessary?

The answer is that these instruments do not solve the operational problem faced by most public buyers.

PPI, in practice, is often quite rigid. It functions less like a modular framework and more like a tube: once the buyer enters the process, it must proceed through a demanding and relatively fixed sequence to the other end. That can work in capable systems, but it is difficult to adapt, pause, or simplify midway. PCP is different again. Properly understood, PCP is a demand-side tool that shares risk between public and private actors during solution development. But it is not, in essence, a standard procurement instrument for procurement authorities. It is closer to a grant-financed innovation mechanism, typically requiring dedicated funding streams, bespoke rules, and substantial technical handling.

That distinction matters. The Cube deliberately excludes grant-like funding instruments not because they are unimportant, but because they usually belong institutionally to innovation offices rather than procurement offices.

This is where organizational capacity becomes decisive. Less mature central procurement bodies and procurement offices often find PCP and PPI too complex to operate reliably. More advanced bodies may have the technical ability to use them, yet still avoid them because of the fear of visible, politically salient “grand failures.” In that sense, the problem is not just legal authority. It is fit with institutional stage, administrative capacity, and risk tolerance.

The Cube answers that problem by offering a framework that is usable across different stages of procurement-system development. A low-capacity buyer can move gradually from one building block to another and stop the process at any point. A more capable buyer can move further, including into more advanced instruments where warranted. This flexibility is one of the framework’s central novelties.

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2. Why Procurement Officers Rarely Use Procurement to Pull Innovation

If procurement is so large and so potentially useful, why is it not already a routine instrument of innovation policy?

The answer is not ignorance. It is that procurement systems are designed to solve a different problem.

Procurement law and practice emerged to protect public resources against corruption, favoritism, waste, arbitrariness, and delivery failure. These objectives remain central. Public buyers are expected to preserve integrity, document decisions, ensure equal treatment of suppliers, and secure timely delivery of goods, services, and works. In that setting, innovation is often perceived not as an opportunity but as a complication.

2.1 The default operating model

The default operating model of many procurement systems has a recognizable shape:

- the need is specified in detail;
- threshold requirements[4] are used to screen for established suppliers;
- competition is structured to minimize discretion;
- price carries heavy weight, especially where quality is hard to defend;
- the contract is awarded to one or a few suppliers;
- the system is designed to avoid surprises.

This model is not irrational. It is often appropriate for routine and standardized purchases. The problem arises when the same model is applied to non-routine purchases in which the public need is real but the market is evolving, the solution is uncertain, or performance can be achieved in several different ways.

2.2 The institutional reasons for conservatism

Equal treatment and defensibility

Public buyers must avoid unfair advantage. That means they cannot casually consult one supplier, copy one firm's product into the specification, or change requirements in ways that privilege insiders. When officials do not know how to engage the market safely, they avoid engagement altogether.

Low technical capacity

Innovation-oriented procurement requires capabilities that not every procurement office has: market scanning, performance specification, technical dialogue,

[4] **Threshold requirements** are minimum conditions a bidder must satisfy to be admitted to the competition, such as financial capacity, technical experience, licenses, or certifications.

contract management[5], data analysis, pilot design, and escalation from test to scale. Where those capabilities are weak, buyers rationally retreat to simpler methods.

Limited contract-management capacity

The difficulty of procurement does not end at award. Innovative solutions often require active contract management: testing, milestones, adaptation, and performance verification. Many organizations do not have the staff or systems to manage these processes in relation to innovation-oriented procurement.

Fear of corruption

Because public procurement is a high-risk area for favoritism and rent-seeking, officials often treat simplicity as integrity. Detailed specifications and price-dominant awards are seen as safer than performance-oriented methods or market interaction, even when the latter might deliver better outcomes.

Fear of grand failures

Even in relatively advanced systems, public officials face asymmetric accountability. A routine purchase that performs adequately attracts little attention. A visible innovation failure can generate audits, media criticism, political backlash, and personal reputational damage. The result is a strong bias toward avoiding high-profile experimentation.

Illustrative example. In South African preferential treatment of groups previously disadvantaged under Apartheid led to the appearance of so-called "tenderpreneurs", firms with no productive capabilities that specialized in getting the contracts only to sub-contract them to others. This serves as a warning about what can happen when broader strategic objectives are introduced into procurement without enough design discipline, verification capacity, and contract-management capability. The lesson is not that procurement should abandon social or innovation goals. It is that ambition must be matched with institutional capacity.

2.3 Why the answer is not simply "just do PPI"

The existing literature often points to challenge tenders, pre-commercial procurement, and public procurement of innovation as the solution. These instruments can indeed be valuable. But they are demanding.

[5] **Contract management** refers to the activities that follow award—monitoring delivery, verifying performance, handling changes, enforcing terms, and managing the buyer-supplier relationship.

PPI requires the buyer to define a problem clearly, engage the market lawfully, assess heterogeneous solution pathways, defend evaluation logic, manage technical uncertainty, and often sustain the process through multiple demanding steps. PCP requires even more. It typically involves staged development support, public-private risk sharing, dedicated funds, specialized handling, and a regulatory framework that clearly authorizes this form of intervention. In the European Union, where it was developed, PCP required a specific enabling policy framework precisely because it sits at the boundary between procurement, innovation support, and R&D contracting. For these reasons, their introduction required legislation and new bylaws. The Cube has no such authorizing requirements.

This means that PCP and PPI are not neutral benchmarks against which all procurement systems should be judged. They are advanced tools, appropriate only under certain institutional conditions.

In systems with limited capability, the push to use sophisticated innovation instruments can backfire. Either the instruments are not used at all, or they are used badly and discredit the broader idea. In systems with greater sophistication, the barrier is often no longer technical ability but fear of failure. The higher the visibility of the initiative, the more exposed public officials feel.

The better question is therefore not how to persuade every procurement system to run advanced innovation competitions. The better question is: **what can procurement officers do, lawfully and defensibly, at different levels of institutional capability, to make procurement more supportive of innovation?**

That is the practical question The Cube addresses.

2.4 The design challenge

A usable framework must satisfy five conditions at once.

1. It must respect equal treatment and transparency.
2. It must be feasible for systems with uneven capacity.
3. It must allow learning before large commitments are made.
4. It must create a pathway from discovery to adoption.
5. It must reduce, rather than increase, the perceived exposure of procurement officers.

Any framework that ignores these conditions will remain either theoretical or marginal.

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3. The Cube in One Page

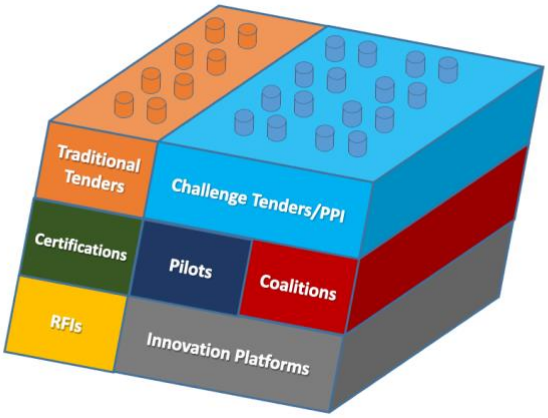
3.1 Definition

The Cube is a lawful, incremental, information-revealing framework for using existing procurement-related tools to discover, de-risk, and adopt innovative solutions to public-sector problems.

It does not begin with a large tender. It begins with structured market learning.

3.2 The three stages

Stage	Objective	Core question	Instruments
I. Reveal information	Learn what exists, what does not, and who can help solve the problem	What can the market do, and how should the need be framed?	RFIs, innovation platforms
II. Shape and de-risk the market	Reduce uncertainty and prepare the market for adoption	What evidence, validation, and demand shaping are needed before scale?	Certifications, pilots, coalitions
III. Procure the solution	Buy and scale the solution through appropriate procurement methods	Is the solution and market mature enough for procurement at scale?	Traditional tenders, challenge tenders / PPI



3.3 The three guiding principles

Lawful

The Cube works through instruments that can ordinarily be justified within existing procurement frameworks. It is not built on exemptions from competition law or procurement law as its default mode.

Incremental

The Cube favors small, reversible steps over grand one-shot schemes. It reduces risk by allowing learning before commitment.

Information-revealing

The Cube treats procurement-related activity as a process of structured discovery. Public buyers learn from suppliers, users, certifiers, pilots, and partner organizations before deciding how to buy.

3.4 The seven instruments

1. **RFI**: a structured method of asking the market what is possible.
2. **Innovation platform**: a standing channel through which firms can surface relevant solutions.
3. **Certification**: a public validation pathway that lowers uncertainty about quality or compliance.
4. **Pilot**: a small-scale test in real operating conditions.
5. **Coalition**: pooled demand or coordinated action among public buyers and related institutions.
6. **Traditional tender**: if the prior steps have been successfully completed, procurement can be done through a standard call for bids.
7. **Challenge tender / PPI**: to be used only in situations where the previous steps are insufficient and where the institutional capacity is strong, and these avenues are already legally authorized.

3.5 The novelty claim

The Cube does not invent these tools. Its contribution is to **re-frame** them in a flexible way.

Most procurement systems either do too little before the tender, or jump too quickly into complex instruments. The Cube organizes a different path:

- discover first,
- de-risk second,
- procure third.

Its flexibility is central. Unlike PPI or challenge procurement in their more rigid forms, the Cube allows the buyer to move step by step and stop at any point. A procurement office does not need to commit at the outset to a long, highly structured process. It can use one building block, learn, decide whether to proceed, and select the next step that fits its capability and the state of the market.

That makes the framework usable across a wide range of procurement-system maturity. A low-capacity buyer may use the first two layers of the Cube and still end at a relatively simple formal tender. A high-capacity buyer may go further and, if circumstances warrant, move into a more complex tender route.

3.6 A practical decision guide

A buyer considering The Cube should ask the following questions.

1. Is the public need clear enough to define, even if the solution is not?
2. Do we know what the market can currently provide?
3. Is there enough trust, evidence, or standardization to buy at scale now?
4. Would a small pilot or certification materially reduce uncertainty?
5. Is demand too fragmented to shape the market unless buyers coordinate?
6. Is the system capable of managing a challenge tender, or should it rely on simpler steps first?

If the answer to Question 2 is no, start with Stage I. If the answer to Question 3 is no, move through Stage II. If the answer to Questions 2 and 3 is yes, move to Stage III.

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4. Stage I — Revealing Information: RFIs and Innovation Platforms

The first mistake in innovation-oriented procurement is to tender too early. When a buyer does not know what the market can provide, how performance should be framed, what standards exist, or whether suppliers are ready, a formal tender can fail for avoidable reasons. The resulting failure is then interpreted as evidence that innovation-oriented procurement is inherently risky, when the real problem was lack of prior discovery.

Stage I is designed to prevent that outcome.

4.1 Requests for Information (RFI)

An RFI[6] is a structured request to the market for information about capabilities, constraints, solution approaches, standards, timelines, and relevant suppliers. It is not a tender. It is not a promise of purchase. Its purpose is to inform the buyer.

What an RFI can do

An RFI can help the buyer:

- understand whether solutions already exist;
- identify firms, consortia, or research partners that may be relevant;
- refine the problem statement;
- distinguish essential from optional requirements;
- learn which standards, interoperability requirements, or regulatory issues matter;
- test whether the market is ready for a formal procurement process;
- signal to the market that government demand may emerge in a given area. As such, it may "nudge" the market to create future innovative solutions as well.

Why RFIs matter

In many public organizations, market knowledge is weak at the moment the procurement file is opened. Procurement officers may know the rules but not the technological frontier. User ministries may know the problem but not the supplier landscape. An RFI creates a lawful bridge between public need and market knowledge.

How to use an RFI well

A useful RFI starts from a problem, not from a hidden preferred product. It should describe the operational need, the environment of use, relevant constraints, and the kinds of evidence the buyer seeks. It should avoid turning the RFI into a pseudo-tender by asking for full financial offers or demanding burdensome submission requirements.

Good RFIs ask questions such as:

- What solution approaches currently exist?
- What performance levels are feasible today?

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[6] **Request for Information (RFI)** is a pre-tender market consultation tool through which a public buyer asks suppliers or other market actors for information about capabilities, standards, timelines, and solution options.

- What standards or certifications are relevant?
- What are the main barriers to adoption in the public sector?
- What testing or piloting would be required before full deployment?
- What contractual structures would be workable?

Safeguards

To remain defensible, RFIs should be published openly, documented carefully, and framed in a way that allows broad participation. Responses should be summarized internally and used to refine procurement strategy, not to favor one respondent.

Typical output

The output of an RFI is not a contract. It is a better procurement strategy.

Illustrative example. The Israeli Governmental Vehicle Administration used an RFI to search for new ways to charge electric vehicles in government parking lots. The process reportedly surfaced a local company working on a mobile charging robot—a kind of "battery on wheels"—that the public buyer had not been considering through its standard procurement lens. The RFI did not solve the problem by itself, but it changed what the government knew the market might be able to do.

4.2 Innovation platforms

An innovation platform is a standing, open channel through which firms, researchers, start-ups, and other solution providers can surface technologies or approaches that may be relevant to public needs. Unlike an RFI, which is tied to a particular problem and time window, an innovation platform is continuous.

Why a standing channel matters

Governments do not know all the problems that can be solved, and procurement units do not monitor every technological development. A standing platform allows the market to send signals upward. It reduces the chance that potentially relevant solutions remain invisible until well after procurement strategies have hardened.

Three practical functions

An innovation platform can perform three distinct functions.

1. **Inbound discovery**: firms submit solutions they believe are relevant to public needs.
2. **Outbound signaling**: the government publishes problem statements, priority areas, or innovation themes.
3. **Routing and triage**: submissions are reviewed and directed to the relevant line ministries, innovation agencies, or procurement units.

How it works

An innovation platform is an open window for new solutions to problems that neither procurement or innovation authorities may have been thinking about. It provides a channel for unsolicited proposals. But the platform can also be used to prompt the market by publishing innovation challenges (for grants, or information gathering by the innovation authorities), challenge tenders or PPIs (by the procurement authorities).

Governance considerations

Platforms require curation. Someone must review submissions, classify them, assess relevance, and connect them to public needs. Without this function, a platform becomes a dead repository or a public-relations exercise.

The ideal home for the platform depends on institutional structure. In some countries it may sit with a central procurement body. In others it may be jointly managed with an innovation agency. What matters is that there is a credible operating team with the authority to triage, refer, and close the loop.

Illustrative examples. There are several real-world variants of this idea. Italy's Platform for Innovation Procurement uses a public interface to publish challenge-oriented needs. In the United States, GSA maintains an unsolicited proposals channel, while Korea's Public Procurement Service and Canada's Public Services and Procurement Canada have used online submission mechanisms to surface innovative products for possible examination and future procurement. The institutional forms differ, but the shared logic is clear: make it easier for the state to hear from the market before a tender is written.

4.3 The output of Stage I

Stage I should end with clearer answers to four questions:

1. What problem are we actually trying to solve?
2. What solutions or solution pathways exist?
3. What barriers prevent immediate procurement at scale?
4. Which Stage II instrument would reduce those barriers most effectively?

In many cases, the answer will be that the market is further along than the government assumed. In others, the answer will be that procurement is premature and that the next step should be certification, a pilot, or coalition-building.

Stage I therefore does more than gather information. It prevents bad tender design.

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5. Stage II — Shaping and De-Risking the Market: Certifications, Pilots, and Coalitions

Once the buyer has learned more about the market, the next task is often not to buy immediately, but to reduce uncertainty.

The market may already contain relevant solutions, but public buyers may not trust them. Or solutions may exist but require validation in public operating conditions. Or the demand from a single public buyer may be too small or too fragmented to justify supplier investment. Stage II addresses these problems.

5.1 Certifications

Certification is a structured public validation mechanism. It does not necessarily mean full product approval in a regulatory sense. It can also mean a recognized pathway through which a product or solution is assessed against agreed criteria so that public buyers can treat it as credible.

Why certification matters

Many innovative suppliers face a paradox. Public buyers say they want evidence and trusted standards before purchasing, but the product cannot become established without early public adoption. Certification can help break that deadlock.

What certification can accomplish

A certification process can:

- reduce information asymmetry between suppliers and buyers;
- create a visible threshold of credibility, not only for the government but for markets as well.
- allow multiple procuring entities to rely on a shared assessment;
- reduce duplication of technical review across agencies;
- give innovative suppliers a recognized route into the public market.

How certification should be used

Certification is especially useful when the main obstacle is not the absence of a solution, but the lack of a trusted basis for comparing or admitting new solutions. This is common where quality, environmental performance, safety, interoperability, or reliability are difficult to evaluate case by case.

Certification should remain open, criteria-based, and periodically reviewed. It should not become a disguised mechanism for favoring incumbents or freezing a technology too early.

Illustrative examples. Korea's New Excellent Product certification is a way of making innovative products more visible and more legible to public buyers. In Portland, Oregon, city actors worked with producers around an Environmental Product Declaration pathway for lower-carbon concrete. These are different models, but both show how certification can reduce uncertainty before large-scale procurement.

5.2 Pilots

A pilot is a small-scale procurement or deployment designed to test an innovative solution under real operating conditions. Its purpose is not only to see whether the technology works, but whether it works in the administrative, physical, behavioral, and budgetary environment of the public buyer.

Why pilots are central to The Cube

Pilots are the most practical bridge between curiosity and commitment. They reduce uncertainty through experience rather than speculation.

A pilot can answer questions such as:

- Does the solution perform under real public-sector conditions?
- What operational changes are required for adoption?
- What training or integration is needed?
- How should performance be measured in a scaled contract?
- What total cost of ownership or lifecycle costs emerge in practice?

Why small matters

The value of a pilot is not proportional to its budget. A pilot can be strategically important precisely because it is small, visible, and reversible. It allows a public buyer to generate evidence without pretending to know in advance what a full roll-out would look like. It is also an easy to use tool since in most countries small scale procurement does not require a full scale tender.

The pilot-to-scale trap

Pilots often fail not because they underperform, but because no one defines in advance what success would mean, how results will be measured, who has authority to decide next steps, or how a scaled procurement would be structured if the pilot succeeds.

A good pilot therefore requires an exit strategy at the start:

- What is the hypothesis?
- What metrics matter?

- Over what time period?
- Who will evaluate the results?
- What decision gates will determine whether the buyer proceeds, stops, or redesigns?

Without this discipline, pilots become performative rather than informative.

Illustrative examples. Portland reportedly used small sidewalk projects to test lower-carbon concrete before wider adoption in public works. Another useful stylized case is from Israel's government vehicle fleet: once a mobile charging robot had been identified, the acquisition of a single-unit pilot in a government parking lot generated the evidence needed to decide whether the concept was operationally viable. In both cases, the strategic value of the pilot lied less in the amount spent than in the evidence created.

5.3 Coalitions

A coalition is a coordinated arrangement among multiple public buyers or related institutions to align demand, pool information, harmonize requirements, or create a larger and more credible market signal.

Why coalitions matter

Single public buyers are often too small to shape supplier behavior. Even when a ministry or municipality has a real need, the expected volume may not justify supplier investment in adaptation, certification, or production scale-up. Fragmented demand also forces suppliers to navigate many separate procurement processes, standards, and technical requirements.

Coalitions can reduce this fragmentation.

What coalitions can do

Coalitions can:

- aggregate demand;
- harmonize technical requirements;
- share evidence from pilots;
- create a common certification pathway;
- publish joint problem statements;
- coordinate future procurement timelines;
- lower supplier uncertainty about market size.

Coalition forms

Coalitions can take several forms:

- a central procurement body acting on behalf of many agencies;
- a network of municipalities with similar needs;
- a sectoral group of hospitals or schools;
- collaboration between procurement bodies, regulators, innovation agencies, standards organizations, and research institutions.

The strategic value of coalition-building

Coalitions are especially useful in fields where the innovation challenge is real but individual buyers are too small to move the market. They allow procurement-related demand to become more legible and more consequential.

Illustrative examples. Portland participates in the Clean Air Construction Regional Initiative, through which multiple public entities align requirements for cleaner construction inputs. The Israeli government vehicle administration widened the market by coordinating with several other countries around electric-vehicle charging challenges. The forms differ, but the underlying point is the same: suppliers respond more seriously when public demand looks coordinated rather than solitary.

5.4 The output of Stage II

Stage II should end with a more mature adoption environment.

By the end of this stage, the buyer should know:

- whether solutions can meet public needs under real conditions;
- what evidence supports procurement at scale;
- what certifications or standards should be referenced in a tender;
- whether demand is large and coordinated enough to justify supplier participation;
- what procurement path in Stage III is most appropriate.

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6. Stage III — Procuring the Solution: Traditional Tenders and Challenge Tenders

The third layer of The Cube is the procurement layer. Its central insight is often misunderstood.

The point of the first two layers is not to culminate automatically in a sophisticated challenge tender. The point is to generate enough information, trust, validation, and market readiness that a procurement office can use **whatever tender format it is capable of handling**.

That means the default endpoint of The Cube is often a traditional tender. If the earlier layers have done their job, even a relatively simple procurement office may be able to issue a formal tender—sometimes even a fairly basic price-based competition—because the problem has been clarified, the market has been sounded out, uncertainty has been reduced, and relevant suppliers have had time to prepare. This is one of the framework's core novelties.

In other words, the first two layers do not exist to force the buyer into a complex procurement method. They exist to make ordinary procurement smarter and more innovation-friendly without requiring the buyer to adopt a level of procedural complexity beyond its institutional capacity.

Stage III therefore has two routes.

6.1 Traditional tenders

In many cases, the appropriate procurement method is still a traditional competition. The difference is that the tender has been informed by prior learning and designed to procure innovation.

What makes a traditional tender relevant for procuring innovation?

A traditional tender does not try to buy "innovation" in the abstract. It buys a result while leaving room for competing solution pathways.

Depending on the capabilities of the procurement authority, a traditional tender may:

- use performance or outcome specifications[7] where feasible rather than over-prescriptive conformance specifications[8];
- avoid unnecessary threshold requirements that exclude capable younger firms when the market status is known;
- recognize lifecycle costs[9] rather than headline price alone where appropriate;
- allow equivalent standards or alternative technical approaches when defensible;

[7] **Performance or outcome specifications** describe the result the buyer needs, leaving bidders more freedom to propose how to achieve it.

[8] **Conformance specifications** describe in detail how a good or service must be designed or delivered, leaving less room for alternative approaches.

[9] **Lifecycle costs** are the total costs of owning and using a solution over time, including operation, maintenance, energy use, replacement, and disposal, not just the purchase price.

- structure evaluation criteria to reward relevant quality dimensions;
- using lots[10], phases, or multi-award arrangements[11] where this supports competition and learning.

Why prior learning matters here

A buyer should not write a performance-oriented specification without knowing how performance can actually be measured. Nor should it invite innovation in the tender if it has not learned enough through RFIs, pilots, or certification to evaluate supplier claims. The Cube makes traditional tenders more relevant for innovation procurement by improving buyer knowledge before the tender is issued.

When this route is appropriate

This route is appropriate when:

- the public need is clear;
- the market is reasonably understood;
- there are multiple credible suppliers or approaches;
- the buyer can define defensible evaluation criteria;
- the system can manage the resulting contract.

For many governments, this will be the most important route. The point of The Cube is not to replace ordinary procurement, but to improve it.

Illustrative example. The Israeli "Blue Sky Project" is a useful example of a traditional tender. Faced with high energy costs in government medical centers, the Israeli Ministry of Health specified a desired measurable result - a reduction in energy costs - and allowed suppliers to propose how to achieve it, with compensation linked to shared savings. This is an example for an outcome-oriented design, and not a challenge tender.

A crucial implication follows: a procurement office that is only comfortable with relatively simple tendering methods can still use The Cube. It can progress gradually through the earlier building blocks and then issue a tender whose final complexity matches what the institution can actually manage. That is why the framework is fit for procurement bodies at very different stages of development.

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[10] **Lots** are subdivisions of a tender into separate packages, which can make it easier for smaller or specialized suppliers to compete for part of the requirement.

[11] **Multi-award arrangements** allow the buyer to contract with more than one supplier under the same procurement exercise, which can preserve competition, resilience, and learning.

6.2 Challenge tenders and Public Procurement of Innovation (PPI)[12]

Challenge tenders and related PPI processes are the Stage III instruments. They presume we have answered the questions for which stages I and II are designed for. But in that case, a traditional tender may solve the problem. They should be used only by procurement authorities that have been legally empowered with these instruments and typically require that something important changed since performing stages I and II.

When these instruments make sense

These instruments are best used when:

- the public problem is significant and well defined;
- solutions are still emerging or not fully standardized;
- the buyer is willing and able to compare alternative solution concepts;
- technical assessment capacity is available;
- legal and governance arrangements are robust;
- there is institutional appetite for a more exploratory procurement process.

Why they should not be the default

Because they are demanding, challenge tenders should not be treated as the natural entry point for every procurement system that wants to support innovation. In lower-capacity environments, the attempt to run a sophisticated innovation competition can fail for reasons unrelated to the value of the underlying problem.

Illustrative example. In Copenhagen, the city invited solutions around problems such as traffic congestion, waste management, and energy efficiency. That captures the spirit of a challenge tender: the buyer defines the problem, not the exact technical answer. But it also shows why these approaches require real capacity. The public buyer must be able to compare heterogeneous proposals, defend the evaluation logic, and manage a more open-ended process.

The Cube therefore treats challenge tenders and PPI as an optional route, not the inevitable culmination of the process. They should be used when something important has changed along the way—for example, technology has moved, the solution space remains too open for an ordinary tender, or the earlier stages have revealed that a more exploratory procurement process is still required. In that

[12] **Public Procurement of Innovation (PPI)** refers to procurement processes in which innovation is central to meeting the public need; the buyer is not simply buying a routine off-the-shelf solution.

sense, challenge procurement under The Cube is the exception, not the default endpoint.

This is also why rigid “tube-like” processes have an Achilles’ heel. Their sequence can be powerful, but it offers less room to pause, redirect, simplify, or exit. The Cube preserves that option.

6.3 The transition from pilot to procurement

A recurring weakness in public systems is the gap between successful demonstration and actual adoption. Solutions prove themselves in pilots, but procurement rules, budget processes, and contract design are not prepared to scale them.

The Cube addresses this by making transition planning explicit. Before a pilot concludes, the buyer should already know what a scaled procurement path would require:

- what evidence threshold triggers the move to procurement;
- what contract form will be used;
- whether a new competition is required;
- how equal treatment will be preserved;
- whether the pilot generated information relevant to all suppliers, not just the pilot provider;
- what budget line will support scale-up.

The principle is simple: **pilot with scale in mind, but do not promise scale before evidence exists**.

7. Governance: Who Does What

The Cube is not a tool for procurement officers alone. It is a coordination framework across several public functions. That is one reason why innovation-oriented procurement is difficult: it requires different kinds of expertise that are rarely housed in a single office.

7.1 Distinct roles

Procurement function

The procurement function protects legality, competition, equal treatment, documentation, and contractibility. It understands procedures, thresholds, defensibility, evaluation, and award discipline.

User ministry or operational agency

The user ministry knows the problem. It understands the operational environment, service constraints, and the practical consequences of success or failure.

Innovation agency or equivalent

The innovation function knows the technology landscape, start-up ecosystem, research institutions, and possibly available supply-side support instruments. It can help identify solution pathways and assess technical novelty.

Legal office

The legal function ensures that market engagement, certification pathways, pilot structures, and procurement documents remain defensible.

Finance or budget authority

The finance function ensures that pilots, certifications, or scale-up pathways are fiscally credible and that procurement strategy aligns with budgeting constraints.

Technical evaluators and standards bodies

These actors may be needed to define performance tests, certification criteria, safety conditions, interoperability rules, or evaluation protocols.

Contract-management unit

Once procurement proceeds, contract management becomes central. Innovation-friendly procurement without contract-management capacity is fragile.

7.2 A simple governance model

The Cube works best when one public actor owns the process end to end, but not all tasks. In practice, that often means one of two models:

1. a central procurement body leads, with user ministries and innovation agencies as structured partners; or
2. a user ministry leads the problem definition, while procurement and innovation functions jointly support the process.

What matters is clarity.

A simple governance arrangement should specify:

- who can initiate a Cube process;
- who approves movement from one stage to the next;
- who documents the rationale for each step;

- who owns the market-engagement process;
- who decides whether evidence is sufficient to move from pilot to procurement;
- who manages the contract after award.

7.3 Suggested stage leadership

Stage	Lead	Core partners
I. Information revelation	Procurement or user ministry	Innovation agency, legal, technical experts
II. De-risking	User ministry or sector agency	Procurement, innovation agency, legal, finance, standards bodies
III. Procurement	Procurement function	User ministry, legal, finance, technical evaluators, contract management

7.4 Why roles should not be collapsed

Some systems respond to complexity by trying to place everything under one office. That is rarely ideal. Procurement officers should not be expected to become venture scouts. Innovation officers should not be expected to become procurement lawyers. User ministries should not be left alone to invent procurement strategy.

The Cube requires collaboration, but with role clarity.

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8. Safeguards, Integrity, and Learning

A framework meant for procurement officers will only be credible if it addresses integrity concerns directly.

8.1 Equal treatment and transparency

Every stage of The Cube must preserve the basic logic of equal treatment.

- RFIs should be published openly and responses documented.
- Innovation platforms should be open and rules-based.
- Certification pathways should rely on objective criteria.
- Pilots should be justified through transparent selection and evaluation logic.
- Scaling decisions should be linked to documented evidence and lawful procurement steps.

The point is not to eliminate discretion entirely. The point is to discipline discretion.

8.2 Avoiding capture

Market engagement is useful, but it can become a vector for capture if poorly managed. The risk is highest when one firm shapes the problem statement or when the public buyer confuses learning with commitment.

Basic anti-capture safeguards include:

- open publication of opportunities to engage;
- internal logs of all material interactions;
- multi-person review of market input;
- clear separation between pre-procurement learning and award decisions;
- disclosure of conflicts of interest;
- careful documentation of why final specifications do not privilege one supplier.

8.3 Documentation and audit trail

Innovation-friendly procurement should be more documented, not less. For each stage, the file should show:

- the problem being addressed;
- why market learning was needed;
- what information was received;
- how the buyer interpreted it;
- why a pilot, certification, coalition, or tender route was chosen;
- what evidence supported movement to the next stage.

This level of documentation protects both the institution and the individual officer.

8.4 Learning metrics

Because The Cube is a staged learning process, it should be assessed with metrics that go beyond award value.

Useful metrics include:

- number of RFIs issued;
- number and diversity of market responses;
- number of relevant submissions through the innovation platform;
- time from problem identification to pilot launch;
- number of pilots completed;
- share of pilots that generate a clear next-step decision;

- number of new suppliers participating in later tenders;
- cycle time from pilot to scale;
- performance gains from adopted solutions;
- evidence of lower lifecycle cost, better quality, or better outcomes.

Not every process should lead to scale. A stopped pilot can still be a successful learning outcome if it prevents a bad procurement at scale.

8.5 Portfolio logic

Public officials are often judged as if every experiment must succeed. That is a mistake. A disciplined innovation-oriented procurement system should manage a portfolio of small experiments. Some will fail. The relevant question is whether the portfolio, taken together, generates learning and better adoption decisions at acceptable risk.

This is one reason The Cube emphasizes incrementalism. A portfolio of documented, bounded experiments is more defensible than a single oversized initiative that attempts to do everything at once.

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9. Implementation Pathways

Not all governments start from the same institutional base. The Cube must therefore be adopted differently depending on capability.

9.1 Low-capacity systems

Low-capacity systems should start modestly.

Recommended priorities:

- adopt simple, open RFIs;
- create a lightweight innovation channel, even if it is not yet a full platform;
- identify one or two sectors where the public need is important and measurable;
- launch very small pilots with clear success criteria;
- avoid advanced challenge tenders until capacity improves.

The goal at this stage is not to run a sophisticated innovation portfolio. It is to normalize lawful market learning before tendering.

9.2 Intermediate-capacity systems

Intermediate-capacity systems can do more.

Recommended priorities:

- institutionalize the innovation platform;
- develop sector-specific certification or assessment pathways where relevant;
- use pilots more systematically;
- build coalitions among agencies or municipalities with common needs;
- redesign selected traditional tenders around performance outcomes rather than detailed input prescriptions;
- create a cross-functional governance group linking procurement, user ministries, and innovation functions.

9.3 Advanced systems

Advanced systems can selectively deploy the full Cube.

Recommended priorities:

- operate a standing innovation pipeline;
- use shared certification and testing frameworks;
- move more seamlessly from pilots to procurement at scale;
- run challenge tenders or PPI where justified;
- measure portfolio performance over time;
- professionalize technical evaluation and contract management for innovation-oriented contracts.

9.4 A practical 12-month roadmap

First 90 days

- Identify one lead institution.
- Select one or two sectors with clear public problems.
- Draft standard RFI and pilot templates.
- Map legal boundaries for pre-tender market engagement.
- Establish a small cross-functional working group.

Next 6 months

- Run the first RFIs.
- Launch or designate an innovation intake channel.
- Select one pilot candidate per sector.
- Develop a simple decision memo format for moving between stages.
- Train procurement and user officials on the Cube workflow.

By 12 months

- Complete at least one full Stage I process.
- Launch and evaluate initial pilots.
- Decide whether certification or coalition-building is warranted in priority areas.
- Redesign one traditional tender using insights from the earlier stages.
- Publish an internal learning report and refine the process.

9.5 What success looks like in year one

Year one success should not be defined by the number of large innovative contracts awarded. That is too crude and too ambitious. A more realistic definition of success is:

- public buyers begin to learn before tendering;
- innovation and procurement functions coordinate more effectively;
- small pilots generate evidence rather than theater;
- at least one procurement process is materially improved by prior discovery and de-risking.

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10. Conclusion

Public procurement is too large to remain outside the innovation-policy conversation. But it is also too important, too regulated, and too exposed to integrity risk to be treated casually.

The choice is not between conventional procurement and heroic mission-oriented purchasing. There is a middle path: use familiar, lawful tools in a disciplined sequence that begins with discovery, moves through de-risking, and culminates in procurement only when the buyer and the market are ready.

That is the practical value of The Cube.

It does not ask procurement officers to suspend the principles of public procurement. It asks them to use those principles more intelligently in environments where public needs are evolving and solutions are uncertain. It does not ask innovation officers to become buyers. It asks them to work with buyers to convert public problems into pathways for experimentation and adoption. It does not promise that every pilot will scale or that every procurement process will become innovative. It promises something more useful: a disciplined way to learn before committing public money at scale.

If governments can do even a small share of procurement this way, the quantitative impact could be large. Procurement will remain mainly about delivery, value, and integrity. It should. But when carefully designed, it can also become a powerful instrument for discovering, validating, and scaling innovation.

That possibility is too important to leave unused.

Appendix A. Literature in Brief

This appendix situates The Cube in the broader literature.

A1. Why innovation policy exists

The classic rationale for innovation policy rests on knowledge spillovers, uncertainty, indivisibilities, and financing constraints. Arrow emphasized underinvestment in innovation when private returns fall short of social returns. Nelson highlighted the special features of scientific and technical advance. Romer formalized the non-rival character of ideas. Aghion and Howitt linked growth to creative destruction.

These arguments justify public intervention, but they do not specify procurement as the primary tool. Most of the early literature points instead toward science funding, R&D support, intellectual property, and related supply-side instruments.

A2. Self-discovery and coordination failures

A second strand, associated with Hausmann and Rodrik, emphasizes self-discovery: firms and governments do not know in advance which activities are feasible and profitable in a given context. Discovery generates information externalities. Pioneers often bear costs that followers can later exploit. Coordination failures and missing public goods further impede entry into new activities.

This literature is highly relevant to procurement because procurement can serve as a discovery device. It can reveal demand, suppliers, standards, and operational bottlenecks. It can also reduce some of the costs that pioneers face when entering areas relevant to public demand.

A3. Demand-side innovation policy

A third strand focuses explicitly on demand-side instruments. This includes work on lead markets, public procurement of innovation, pre-commercial procurement, advanced market commitments, and mission-oriented policy. The common idea is

that innovation is shaped not only by supply-side subsidies but also by the structure and credibility of demand.

Procurement is central in this literature because public demand can validate, accelerate, and scale innovative solutions, especially in sectors where the state is a major buyer.

A4. PCP and PPI in the literature

Two instruments recur frequently in this discussion.

Pre-Commercial Procurement (PCP) refers to staged public purchasing of R&D services before routine procurement at scale. PCP is a genuine demand-side tool because public demand helps direct the innovation effort and because risk is shared between the public and private sectors during development. But PCP is also demanding. It typically requires dedicated funding, specific regulatory authorization, active technical handling, and capabilities that resemble those of an innovation office as much as those of a procurement office.

Public Procurement of Innovation (PPI) refers to procurement in which innovation is central to meeting the public need, rather than the simple purchase of a routine off-the-shelf solution. PPI can be powerful, but in practice it is often procedurally rigid and demanding. It requires public buyers to sustain an end-to-end process with limited room for simplification once underway.

The literature, including work such as Uyarra et al. (2020), repeatedly highlights capacity, complexity, and risk aversion as major constraints on the use of PCP and PPI. Those observations are important for The Cube because they explain why an additional framework is still useful.

A5. The practitioner gap

Despite the strength of this literature, a practitioner gap remains. Much of the discussion focuses either on high-level justifications for innovation-oriented procurement or on advanced instruments such as PCP and PPI. Less attention is given to a staged framework that ordinary procurement organizations can use under real-world constraints of capacity, compliance, and political risk.

The Cube is designed to fill that gap.

A6. What The Cube adds

The Cube's contribution is fourfold:

1. It frames procurement as a **workflow** rather than a one-off instrument.
2. It begins with **information revelation** rather than procurement formalism.
3. It provides an **incremental path** from discovery to adoption.

4. It is designed for settings where integrity, defensibility, uneven capacity, and fear of visible failure are central realities.

Most importantly, it allows procurement offices at different stages of institutional development to stop at the level of complexity they can realistically handle.

Appendix B. Instrument Cards

B1. Request for Information (RFI)

Purpose: learn what the market can do and refine the problem statement.

Use when: the need is known but solution space is uncertain.

Lead: procurement or user ministry.

Main safeguard: open publication and documentation.

Main output: refined procurement strategy.

Main risk: turning the RFI into an informal tender or favoring one respondent.

B2. Innovation Platform

Purpose: create a standing channel for market signals and public problem statements.

Use when: the government needs a systematic way to surface solutions over time.

Lead: central procurement body, innovation agency, or joint unit.

Main safeguard: clear rules that platform participation does not create entitlement.

Main output: pipeline of potentially relevant solutions and opportunities.

Main risk: becoming a passive repository with no routing or follow-up.

B3. Certification

Purpose: reduce uncertainty by validating solutions against agreed criteria.

Use when: solutions exist but buyers lack trusted evidence or a common assessment basis.

Lead: standards body, sector ministry, or procurement-supported technical unit.

Main safeguard: objective and open criteria.

Main output: recognized signal of credibility for later procurement.

Main risk: locking in incumbents or freezing technology standards prematurely.

B4. Pilot

Purpose: test performance under real operating conditions.

Use when: the buyer needs evidence before committing to full-scale procurement.

Lead: user ministry with procurement and legal support.

Main safeguard: explicit success criteria and documented next-step rules.

Main output: operational evidence.

Main risk: pilot theater without a path to scale or termination.

B5. Coalition

Purpose: pool demand, share information, and harmonize requirements.

Use when: a single buyer is too small or too fragmented to shape the market.

Lead: central procurement body, sector coordinator, or inter-agency network.

Main safeguard: clear governance and common technical requirements.

Main output: larger and more credible market signal.

Main risk: slow coordination or lowest-common-denominator design.

B6. Traditional Tender

Purpose: buy and scale solutions through ordinary competition designed to procure innovation.

Use when: the need and market are sufficiently clear for formal procurement.

Lead: procurement function.

Main safeguard: defensible criteria, equal treatment, and documented evaluation logic.

Main output: contract award at scale.

Main risk: over-promising performance-based design without enough evidence.

B7. Challenge Tender / PPI

Purpose: procure against a problem where innovation is central to the competition.

Use when: institutional capability is strong and the problem warrants a more exploratory procurement design. In The Cube – only if something important has changed along the way.

Lead: advanced procurement body with technical and legal depth.

Main safeguard: robust governance, evaluation discipline, and technical review.

Main output: acquisition pathway for more novel solutions.

Main risk: excessive complexity relative to system capability.

Appendix C. Pre-Tender Checklist

Before moving to a formal procurement process, the buyer should be able to answer yes to most of the following questions.

1. Is the public problem clearly stated?
2. Has the market been consulted lawfully and openly where needed?
3. Do we understand whether existing solutions already meet the need?
4. Are the relevant standards, certifications, or interoperability constraints known?
5. Do we know whether a pilot is required before full adoption?
6. Have we documented how equal treatment will be preserved?
7. Are performance and evaluation criteria measurable and defensible?
8. Do we have budget, legal, and contract-management readiness?
9. If the process follows a pilot, have transition-to-scale rules been documented?
10. Have we selected the procurement route that matches our institutional capability?

Appendix D. Suggested Templates

D1. Basic RFI outline

1. Statement of public problem
2. Operating context
3. Questions to the market
4. Information sought on standards, feasibility, timing, and deployment
5. Submission rules
6. Disclaimer that the RFI is not a tender or promise of procurement

7. Transparency and contact rules

D2. Pilot memo outline

1. Problem addressed
2. Why a pilot is necessary
3. Pilot hypothesis
4. Site and duration
5. Metrics and evidence plan
6. Roles and responsibilities
7. Legal basis
8. Budget source
9. Decision gates for stop, redesign, or scale

D3. Stage transition memo

1. What was learned in the previous stage?
2. What uncertainty remains?
3. Why is the proposed next stage justified?
4. What safeguards will apply?
5. What capacity is required?
6. Who approves the transition?

Appendix E. Selected References

Aghion, P., and P. Howitt. *A Model of Growth Through Creative Destruction*.

Arrow, K. *Economic Welfare and the Allocation of Resources for Invention*.

Beard, T., et al. *The University and the Valley of Death*.

Bloch, C., and M. Bugge. *Public Sector Innovation—From Theory to Measurement*.

Hausmann, R. *The Procurement Goldmine*.

Hausmann, R. *Export-led Growth*.

Hausmann, R., and D. Rodrik. *Economic Development as Self-Discovery*.

Hidalgo, C., and R. Hausmann. *The Building Blocks of Economic Complexity*.

Kremer, M. *Creating Markets for New Vaccines*.

Mazzucato, M. *Mission Economy*.

McCrudden, C. *Using Public Procurement to Achieve Social Outcomes*.

Nelson, R. *The Simple Economics of Basic Scientific Research*.

Romer, P. *The Origins of Endogenous Growth*.

Uyarra, E., et al. *Public Procurement, Innovation and Industrial Policy*.

Volker, L., and F. Schotanus. *Market Consultation in Public Procurement*.

Appendix F. Glossary of Procurement and Innovation Terms

Award criteria: The factors a public buyer uses to compare admissible bids, such as price, quality, technical merit, delivery time, or lifecycle cost.

Central procurement body (CPB): A public entity that conducts procurement on behalf of multiple ministries, agencies, or public institutions, often to aggregate demand or develop specialized expertise.

Certification: A formal process through which a product, service, or supplier is assessed against defined criteria so that buyers can rely on a recognized signal of quality, compliance, or performance.

Challenge tender: A procurement process in which the buyer states the problem to be solved and leaves greater room for suppliers to propose different technical solutions.

Conformance specification: A specification that tells bidders in detail how a good or service must be designed or delivered.

Contract management: The set of activities that follow award, including monitoring delivery, verifying performance, handling changes, and enforcing contractual obligations.

Equal treatment: The principle that comparable suppliers must be treated in the same way during a procurement process, without favoritism or unjustified discrimination.

Framework agreement: An umbrella arrangement that sets core terms, prices, or conditions for future purchases, often without requiring the buyer to order everything at once.

Innovation platform: A standing channel through which firms or other actors can submit potentially relevant solutions, and through which public authorities can publish innovation-related needs or problem statements.

Interoperability: The capacity of a product, system, or dataset to work with other systems, standards, or equipment already in use.

Lifecycle costs: The full cost of owning and using a product or service over time, including operation, maintenance, energy use, replacement, and disposal.

Lots: Subdivisions of a procurement into separate packages, which can allow smaller or more specialized suppliers to compete for part of the requirement.

Market consultation: Any structured pre-tender engagement with the market, such as an RFI, supplier day, or technical dialogue, aimed at improving buyer understanding before procurement begins.

Multi-award arrangement: An arrangement in which more than one supplier is selected through the same procurement exercise.

Outcome specification: A specification that describes the result to be achieved rather than prescribing each input or technical step.

Pilot: A limited deployment designed to test whether a solution works under real operating conditions before larger-scale adoption.

Pre-commercial procurement (PCP): A staged public purchasing process focused on R&D services and solution development before routine procurement at scale.

Public Procurement of Innovation (PPI): Procurement in which innovation is central to meeting the public need, rather than the simple purchase of a standard off-the-shelf solution.

Request for Information (RFI): A pre-tender request through which a buyer asks the market for information about capabilities, standards, timelines, and possible solution approaches.

Threshold requirements: Minimum conditions a bidder must satisfy to participate in the competition, such as financial capacity, licenses, technical experience, or certifications.

Value for money (VfM): The best overall use of public resources once price, quality, risk, and, where relevant, lifecycle costs are taken into account.

Notes on Key Terms Used in the Main Text

Endnote on Use

This draft is intentionally written as a practitioner report rather than an academic article. Its purpose is to help procurement officers, innovation officers, and line ministries develop a shared language and a usable workflow. The next round of

revision should add jurisdiction-specific examples, refine legal language to fit the target audience, and decide whether the final publication will include more detailed case studies or implementation tools.