



Seven Domains

How the Road Pricing Body of Knowledge is built, and why the number is seven

KEY INSIGHTS

- A Body of Knowledge is the agreed map of what a competent practitioner is expected to understand. It is the foundation a credential rests on, not a byproduct of one.
- The Road Pricing Professional™ Body of Knowledge is organized into seven domains. Seven is a structural finding, not a stylistic preference.
- Too few domains create containers too broad to examine meaningfully. Too many fragment the field into units too thin to measure reliably.
- A domain earns its place by passing three tests: distinctness, measurability, and independence of competence.
- Every RPP exam, at every tier, is built from the same seven domains. Specialty credentials do not add domains. They change the weighting.
- The domain structure is stewarded by IRPP's Subject Matter Expert Technical Advisory Committee (SMETAC) and will be validated by a formal job task analysis before launch.

What a Body of Knowledge actually is

Ask what separates a profession from a job and you will get several plausible answers: a license, a code of ethics, an entrance examination, a professional association. Each of these is real, and each is downstream of something more basic. A profession is a field that has written down what it knows.

That written record is a Body of Knowledge — a structured, agreed account of what a competent practitioner in the field is expected to understand. Planning has one, and the AICP examines against it. Engineering has one, and the PE examines against it. In every case the sequence runs the same way: the field agrees what constitutes competence, and only then does anyone build an examination to test for it.

Road pricing has never had one. This is not because the knowledge does not exist. It plainly does, in the heads of experienced operators, in agency procedures, in vendor institutional memory, and across a long shelf of excellent standards and reports. What the field has lacked is a single agreed map of that knowledge: one place that says, this is what a road pricing professional is expected to know, and here is how those things relate to one another.

The absence has real costs. It is why an agency writing a job description has no standard to point to, why a capable engineer moving from one corner of the field to another has to be taken on faith, and why the expertise accumulated over a thirty-year career walks out of the building at retirement with nothing written down behind it.

The Body of Knowledge comes first at IRPP, and the credential is downstream of it. That order matters, and we state it deliberately: 1) the BoK is the knowledge required by practitioners to perform their roles in the domain; 2) the training program prepares candidates to test for the 3) credential which is the mechanism by which the profession verifies that knowledge - but the knowledge itself is the point.

Why the number matters

When we say the Body of Knowledge is organized into seven domains, the reasonable next question is: why seven? Why not four, or ten?

It is a fair question, and the honest answer is that the number is an output rather than an input. Nobody sat down intending to produce seven of anything. The number falls out of two failure modes that sit on either side of it.

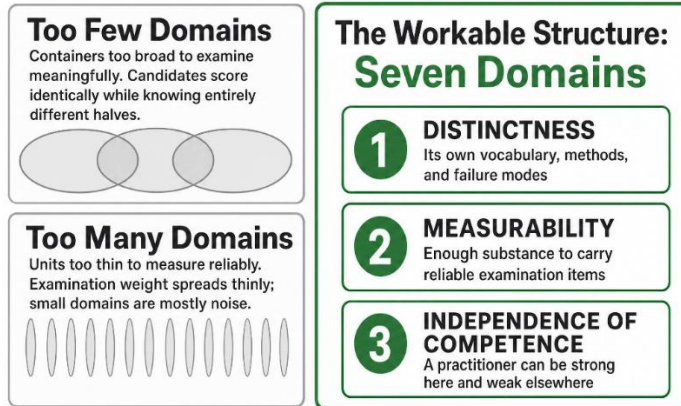
Too few domains produce containers too broad to examine. Consider a structure that merges technology and operations into a single domain. That container now holds vehicle detection physics, back-office financial reconciliation, and customer service level agreements — three subjects with different vocabularies, different methods, and almost no overlap in the skills required to be good at them. You cannot write a coherent examination blueprint against a domain like that, and a candidate's score in it tells an employer almost nothing, because two candidates could earn identical marks while knowing entirely different halves of it.

Too many domains fragment the field into units too thin to measure. Examination weight spreads across whatever number of domains you declare, and a domain carrying too few questions cannot support a reliable judgment about a candidate. E.g., with five questions, the difference between a strong candidate and a weak one comes down to which five they happened to get. Push toward ten or twelve domains and you begin to elevate individual competencies into domains of their own: interoperability, cybersecurity, data privacy, procurement law. Each is important, and each is a capability within a broader area of practice rather than an area of practice itself.

Between those two failure modes sits a workable structure. To find it, we applied three tests. A body of knowledge earns status as a domain only if it passes all three.

1. **Distinctness.** It has its own vocabulary, its own methods, and its own characteristic failure modes. If it can only be described using another domain's language, it belongs to that domain.
2. **Measurability.** It contains enough substance to carry enough examination items to be measured reliably. A domain that cannot be tested with confidence cannot be credentialed with confidence.
3. **Independence of competence.** A practitioner could plausibly be strong in it and weak elsewhere. If being good at one thing reliably predicts being good at another, they are not two domains. They are one.

Why Seven? How a Domain Earns Its Place



How we arrived at seven

The starting point was five, drawn from the knowledge areas set out in IRPP’s founding proposal: road pricing fundamentals, policy and governance, technology, operations and customer service, and project planning and delivery. Building the Foundation-tier study guide against those five surfaced two problems, and fixing them produced the structure now in use.

The first was that technology could not stay as one domain. The third test settles it decisively: an excellent roadside engineer is routinely weak on payment reconciliation, and an excellent back-office architect is routinely weak on detection and classification. These are not two shades of the same competence; they are different disciplines, drawing on different training, and in practice they are different labour markets. Roadside Technology and Back Office & Payments therefore separate into two domains.

The second was ethics. In the original proposal, ethics appeared as a code that candidates would sign. Signing is not knowing. Planning and engineering both examine ethics directly, and for a field that operates on public roads, spends public money, and holds data on millions of travellers, a signature is too thin an instrument. Professional Ethics became a domain in its own right — the smallest by weight, and the one carrying the heaviest thing in the framework. Five, plus one split, plus one addition. Seven.

The Seven Domains



I. Foundations. The economic logic of charging for road use, the full range of pricing mechanisms, the history of how the field arrived where it is, and the shared vocabulary that lets practitioners talk to one another without talking past one another.

II. Policy, Legal & Governance. The legislative and regulatory frameworks that grant the authority to charge in the first place, the roles of the agencies and governments involved, partnership structures, rate-setting authority, and the equity and stakeholder considerations that decide whether a system is accepted or resisted.

III. Roadside Technology. Vehicle detection and classification, transponder and AVI protocols, plate-based imaging and automated recognition, roadside communications, accuracy and reliability standards, and the emerging edge of the field — satellite-based charging, C-V2X, LIDAR, and the machine-learning tools now reshaping automated image review.

IV. Back Office & Payments. Account management architectures, payment processing, violation processing, revenue reconciliation, interoperability between agencies, the data security and privacy obligations that come with holding customer accounts, and the discipline of leakage prevention — the gap between revenue owed and revenue actually collected.

V. Operations & Customer Experience. The day-to-day running of a live system: revenue collection operations, customer service, the customer's side of disputes and violations, performance measurement, service standards, and incident management.

VI. Planning, Procurement & Delivery. Traffic and revenue demand modelling, environmental review, procurement, the project lifecycle, risk management, network integration, and the design and scalability decisions that determine what a system can eventually become.

VII. Professional Ethics. The obligations of a credentialed practitioner: conflicts of interest, stewardship of public money and public data, honest representation of system performance, fair treatment of the travelling public, and a duty to the public interest that does not end at any single employer's door.

Those seven have a shape, and it is worth naming, because it is the same shape as a working toll system. Foundations is the floor everything stands on. Three domains - Roadside, Back Office, Operations - are the operational layers that make a system run. Two domains - Policy and Planning - determine whether a system is ever built and how it is delivered. And Professional Ethics is the spine, running through all of them: it governs how rates are set, how data is protected, how disputes are handled, and how a procurement is run. It occupies no single box on the diagram because it belongs in all of them.

How the domains carry through the credential

The seven domains are not a preamble to the exam. They are the blueprint. Every IRPP examination is assembled against them, and the weighting of each domain on each form is a deliberate, documented decision rather than an artefact of whichever questions happened to be available.

This holds true at every tier. The IRPP ladder runs from Foundation through Practitioner and Specialist to Fellow, and all four draw on the same seven domains. What changes as a candidate climbs it is not the subject matter but the depth and the cognitive demand. Foundation asks predominantly for recall and comprehension: what a mechanism is, how a process works, what a term means. The higher tiers ask for applied knowledge and judgement. Given X situation, what Y follows, what breaks, and what would you do about it. The domains stay constant; the questions get harder in a specific and intentional way.

Specialty credentials work the same way, and this is the point most often misunderstood. A specialty badge does not introduce an eighth domain. Rather, it re-weights the existing seven. A roadside systems specialty examination naturally concentrates its questions in Roadside Technology. That is what makes it a specialty. But it continues to examine the policy constraints a roadside deployment operates under, the back office that consumes the data the roadside produces, the operational consequences of a detection error, and the procurement decisions that shaped the installation in the first place.

That is deliberate. A specialist who knows only their specialty is not a professional; they are better described as technicians. The whole argument for a body of knowledge is that the parts of this field are connected, and the credential should require practitioners to understand the connections — more heavily in their own area, but never exclusively there.

What is not yet settled

Two things about the framework are provisional, and we say so plainly:

- The first is weighting. The relative weight of each domain on the examination has been set provisionally on judgement. It will be set properly by a formal Job Task Analysis, a structured survey of working practitioners establishing which tasks they actually perform, how often, and how consequentially. That analysis, not anyone's intuition, will determine the final weights.
- The second is the domain structure itself. Seven is our answer today, tested against the three criteria above and against a large body of collateral built on it. It is not frozen. The BoK is stewarded by IRPP's Subject Matter Expert Technical Advisory Committee, a group drawn from Founding Sponsor agencies, vendors, and consultancies. Its standing responsibility is to keep the framework honest as the field evolves. If satellite-based charging or an emerging area of practice eventually meets all three tests on its own, the framework should change to reflect that. A body of knowledge that cannot change is not a description of a living profession.

What will not change is the order. The knowledge comes first. The credential exists to verify it.

Tim McGuckin is Founder and Executive Director of the Institute for Road Pricing Professionals. The full Body of Knowledge discussion paper is available at roadpricinginstitute.org/rppstandard.