THE DECISION SCIENCE SERIES

The Decision Sequence

Designing Engagement Strategies Based on How Consumers Decide.

What the Marketing Summary and AI Cannot Teach



DS 18

Expertise and Pattern Recognition

–A Strategic Resource by Joe Worden | More @ www.jworden.com

DECISION ARCHITECTURE RESEARCH LIBRARY
Foundations of Decision Science · Entry 18

Expertise, Pattern Recognition, and Judgment

Chase & Simon · Chi, Feltovich & Glaser · Klein · Ericsson · Kahneman & Klein · Dreyfus & Dreyfus

Questions this paper answers

- How do we demonstrate expertise beyond listing years of experience?
- What kind of content lets a buyer see how our experts notice and judge a problem?
- When should we trust an experienced person's intuition, and when should we question it?
- How can AI-generated answers make expert review more useful to a client?

Definition. Expertise tends to be described as having a lot of knowledge on tap. The literature keeps pulling that picture apart. In chess, in physics, in medicine, in firefighting, what separates the expert is less what they can recite and more what they can see: meaningful patterns that slip past everyone else, patterns that steer judgment quickly, often before deliberate reasoning has even started. That ability comes from experience that is practiced, not merely lived, and from feedback that is real, not imagined. Even then, it holds only where the world is stable enough to offer learnable regularities. That's the hinge of Decision Architecture: information is what you can retrieve, expertise is what tells you what counts, and what the situation really is.

The Man Who Read the Silence

I once watched a veteran allocator flip through a forty-page pitch deck in about ninety seconds. He put it down, looked up, and asked, "Why did your CFO leave?"

Nothing in the deck mentioned the CFO. Nothing in the deck mentioned anyone leaving. The manager sputtered through an answer, and the meeting never recovered.

Afterward I asked him how he knew. He had to think about it, which was the interesting part, because the knowing had happened faster than any reasoning he could report. Something about the dates. A fund that changes administrators and auditors in the same eighteen months has usually changed something else too, and the bios page had a seam in it where a name used to be. He'd seen that configuration before, more than once, and it had cost somebody money every time.

The junior analysts on his team had been through the same deck for a week. They'd verified every number. He'd read the silence.

That's the subject of this entry: the thing that man had, where it comes from, why it can't be downloaded, and why, in a world where every junior analyst now has a machine that can verify every number, the silence-readers are getting more valuable by the quarter.

Experts See Patterns, Not Pieces

Chess supplied the cleanest early proof. Adriaan de Groot found it first: masters could glance at a real midgame position and then rebuild it with striking accuracy, far beyond what novices could manage. William Chase and Herbert Simon added the control that explained it. Shuffle the pieces into nonsense, and much of that advantage disappears. Meaningful configurations were doing important work. Nothing about raw recall had changed, what disappeared was meaning. Their advantage was never "more memory," it was the capacity to register familiar configurations that a beginner can't even parse. Expertise lived in perception.

That same fault line shows up in how problems are read. Michelene Chi, Paul Feltovich, and Robert Glaser asked participants to sort physics problems into groups. Beginners sorted by the obvious skin of the question, ramps, pulleys, springs. Experts grouped by the governing idea required to solve it, conservation of energy, for example. One person is guided by what the problem resembles, the other by what the problem is. So the Decision Architecture phrasing lands, the expert does not just know more, the expert notices differently.

Deciding by Recognition

Watch people decide when time is short and stakes are real, and the textbook image of careful option weighing starts to look like a polite fiction. Gary Klein shadowed firefighters, nurses, and military commanders and told the story in Sources of Power. He went looking for lists of alternatives and systematic comparisons. Mostly he found something else. Under pressure, experts typically recognize a situation as a known type, a workable action presents itself, they run a quick mental check, and they move. The recognition-primed decision model names this sequence. In that account, intuition is not fog or mysticism, it is rapid pattern matching, drawn from a deep store of lived cases.

My allocator was a Klein case study wearing a golf shirt. Situation recognized as a known type, action generated, checked, executed, all before his coffee got cold.

Built, Not Given, and Only in Some Places

That store doesn't arrive as a gift. Anders Ericsson's work on deliberate practice makes the point uncomfortable and clarifying: expertise is tied less to sheer time spent and more to the quality of training. The work has to be focused, effortful, aimed directly at weaknesses, and paired with immediate corrective feedback. Years in a role aren't the same as years of improvement. The framework leans hard on that distinction, and it should.

Still, even earned expertise has boundaries. In a notable convergence between two camps that usually clash, Daniel Kahneman and Gary Klein laid out shared conditions for when intuitive expertise deserves trust. Two things must be true. The domain has to be regular enough that patterns really exist, and the person needs enough practice with feedback to learn those patterns. Where the environment is chaotic and low in validity, confident intuition is not a badge of mastery, it is noise speaking fluently. Expertise stays local to places that can be learned at all.

From Rules to Fluency

Stuart and Hubert Dreyfus approached the same phenomenon from the inside, as a shift in how skill is carried. Beginners cling to explicit, context-free rules. As competence grows, rules stop sitting in the foreground. By the time someone reaches expert performance, action becomes holistic and intuitive, no longer a matter of consciously applying a checklist. It can look effortless, but that appearance is the afterimage of earlier labor, effort folded into perception. The Dreyfus brothers also insisted that this kind of knowing resists full translation into stated rules, which helps explain why the most valuable part of expertise is so hard to write down.

It's also why my allocator struggled to explain his own question. The answer lived somewhere his sentences didn't reach.

Why This Belongs in Decision Architecture

Decision Architecture defines expertise as the capacity to recognize meaningful patterns that reliably yield better judgments. That single sentence is, in effect, this research tradition condensed. Reflection, where experience is converted into judgment, echoes Ericsson's feedback loop, practice guided by correction. Expertise is not information warehoused, it is pattern recognition earned.

That also answers the prior entry's challenge. Cognitive offloading and the illusion of understanding point to what expertise is not: fluency without apprenticeship, an explanation that sounds right because it is smooth. Here is what expertise is: trained attention, the ability to pick out the pattern that matters. And that boundary is also where expertise parts ways with AI synthesis. A system can

reorganize information into something coherent. But the kind of pattern recognition described here was paid for in consequences inside a real domain, the firefighter who senses something wrong in the floor, the physician who hears a story that is too tidy. That is not just "having an answer," it is being answerable.

So AI doesn't erase expertise, it raises its price. Machines are unmatched at assembling and rephrasing information, and expertise is precisely not assembly. A model has read about patterns, it hasn't had to live with them. When fluent answers become abundant, someone still has to tell which one fits the moment at hand and which one is merely plausible. That act of recognition belongs to the trained person, not the tool. The Dreyfus point comes back with force, the part of expertise that matters most is the part that can't be fully reduced to rules, and that stubborn remainder is exactly what refuses to sit neatly inside a prompt. AI can supply synthesis and useful candidate judgments. The firm still has to test what fits the situation and take responsibility for acting on it. The pattern still has to be seen, and only those who earned the eyes will see it.

The Marketing Read

Everything your firm can look up, your buyer's machine can look up faster. What's left to sell is the noticing, and most professional-services marketing has never once put the noticing on display.

So publish the patterns you paid to learn. The observation that only shows up after a hundred reps, the configuration that precedes trouble, the question you ask that nobody expects, that's the content category you can substantiate from practice. A machine can imitate the language of experience; your advantage is being able to explain the case, the consequence and what changed your mind. "Five trends in our industry" is assembly, and assembly is free now. "The one line item we always read first, and the story it usually tells" is trained perception, and it does what credentials can't: it lets the buyer watch you see.

Rebuild the bios around reps and feedback, because Ericsson's distinction is now commercially decisive. "Twenty-five years of experience" claims time; buyers have met plenty of people with twenty-five years of the same year repeated. The bio that says what the person has learned to spot, the calls they've made, the feedback that trained them, gives the buyer something more specific to evaluate than elapsed time.

Respect your validity zone, because Kahneman and Klein drew a boundary your positioning should honor. Claim trained intuition where your domain is regular and your feedback has been real, and say so plainly where it isn't. The firm that claims pattern-recognition in a domain too chaotic to have patterns is selling noise that speaks fluently, and sophisticated buyers, the silence-readers on the other side of the table, recognize that configuration too.

Then productize the judgment moment. If the scarce act is telling which plausible answer fits this situation, sell exactly that: the second opinion, the pre-decision review, the "which of these three machine-generated options would we bet on, and why" engagement. AI created a market flooded with answers. Somebody has to grade them, and grading is a service with your name on it.

What backfires: renting fluency. The AI-drafted thought leadership that sounds expert is the previous entry's glow, sold outbound, and buyers armed with the same tools now recognize the texture. Worse, it advertises that your firm's advantage is assembly, at a time when assembly alone is much easier for a buyer to obtain.

The hard call: audit your last quarter's content and sort it into two piles, things a smart stranger could have looked up, and things only your firm could have noticed. If the first pile wins, you're competing with the machine at the machine's game. Publish the eyes. The summary is free everywhere.

Primary Sources

- William G. Chase & Herbert A. Simon, "Perception in Chess." Cognitive Psychology, vol. 4, 1973, pp. 55–81.
- Adriaan D. de Groot, Thought and Choice in Chess. Mouton, 1965 (Dutch original 1946).
- Michelene T. H. Chi, Paul J. Feltovich & Robert Glaser, "Categorization and Representation of Physics Problems by Experts and Novices." Cognitive Science, vol. 5, 1981, pp. 121–152.
- Gary Klein, Sources of Power: How People Make Decisions. MIT Press, 1998.
- Gary Klein, "A Recognition-Primed Decision (RPD) Model of Rapid Decision Making," in Decision Making in Action: Models and Methods (Klein, Orasanu, Calderwood & Zsambok, eds.). Ablex, 1993.
- K. Anders Ericsson, Ralf Th. Krampe & Clemens Tesch-Römer, "The Role of Deliberate Practice in the Acquisition of Expert Performance." Psychological Review, vol. 100, 1993, pp. 363–406.
- Daniel Kahneman & Gary Klein, "Conditions for Intuitive Expertise: A Failure to Disagree." American Psychologist, vol. 64, 2009, pp. 515–526.
- Stuart E. Dreyfus & Hubert L. Dreyfus, five-stage model of skill acquisition (1980); and Mind Over Machine. Free Press, 1986.