



## The Science of the Framework Foundry

A White Paper by Rowland Chen

March 2026

### Key Message

Framework development is both an art and a science. The art governs judgment: the original insight, the choice of metaphor, the instinct that one dimension of a market matters more than another. The science governs construction: the cognitive laws that determine whether a framework lands in the mind, sticks in memory, and moves people to act. This paper focuses on science. Master it, and the art becomes repeatable. The CEO who builds frameworks from science-first principles does not wait for inspiration. The discipline of framework conceptualization and implementation produces customer insights and arms the CEO with competitive weapons to win markets, align organizations, and set the standards by which entire industries think.

---

### Introduction

#### Purpose of This Paper

Every framework that has changed a boardroom decision or broken a strategic deadlock began inside a mind, not on a whiteboard. Researchers have documented that process. It is teachable and repeatable. This paper makes it explicit for the chief executive officer.

The argument is direct: a CEO who understands the science of framework construction builds tools that align organizations, defeat competitors, and establish the standards by which entire industries think. A CEO who builds frameworks by instinct alone produces tools that depend on luck.

#### The Science in Brief

A framework operates simultaneously at three levels. At the cognitive level, it must accurately represent the real-world phenomenon it addresses. Strip any framework of its labels, and the underlying logic must still hold. At the functional level, it must give its users something concrete to do: a choice to make, a gap to close, a hypothesis to test. At the lexical level, the labels must do cognitive work. A well-chosen word activates prior knowledge and accelerates comprehension. A poorly chosen one forces the viewer to build meaning from scratch, or worse, imports the wrong meaning entirely.

Consider the BCG Growth-Share Matrix. Stars, Cash Cows, Question Marks, Dogs. Four labels that lodge in memory on first hearing and never leave. Bruce Henderson chose those words

because each activates a schema the viewer already carries. A star rises. A cash cow gives without demanding. A dog drags. The labels do cognitive work before the framework is even explained. That is lexical design at its best, and it is a reproducible technique, not an accident of genius.

The physical process of visual comprehension reinforces these levels. The eye-brain system constructs a structural map of a framework before language engages. Geometry communicates logic automatically: a circle implies cyclical, a triangle implies hierarchy, and a horizontal progression implies sequence. Short-term memory constrains complexity. George Miller's landmark research placed the ceiling at roughly seven sets of information. A framework that exceeds that budget forces the viewer to offload material before integrating the whole, which defeats the purpose entirely.

### **What Frameworks Achieve and What Their Absence Costs**

Science predicts the outcomes. Historical records confirm them.

- **BCG Growth-Share Matrix.** Before Henderson's matrix, diversified companies allocated capital by lobbying and inertia. The framework gave executives a shared grammar for the most consequential question in strategy: which businesses deserve more investment, and which deserve less. Companies that applied it redirected capital from maturing businesses to growth engines. Those who did not continued funding the past.
- **Porter's Five Forces.** PC manufacturers in the 1980s and 1990s competed ferociously on hardware specifications while two suppliers, Microsoft and Intel, captured most of the industry's value. Porter's Five Forces made that structural fact visible to anyone willing to run the analysis. The companies that did ask the right question: what part of this value chain do we control? The companies that did not drive margins to near zero.
- **Grove's Strategic Inflection Point.** When Japanese manufacturers destroyed Intel's memory chip margins in the early 1980s, Andy Grove's inflection point framework gave the leadership team a name for what they were experiencing and a decision protocol for acting on it. Intel exited memory chips in 1985 and became the dominant processor supplier of the PC era. The framework did not make the decision easy. It made the decision possible.
- **Blockbuster.** Porter's Five Forces, applied with discipline, would have identified the substitutes force as the existential threat: not a rival chain, but a delivery model that made the physical store irrelevant. Blockbuster never named that force. It analyzed competition through the lens of existing rivals and missed the one that mattered. The company filed for bankruptcy in 2010.
- **Kodak.** Kodak engineer Steve Sasson built the first digital camera in 1975. Management's response: Do not tell anyone about it. The company tracked digital adoption rates for two decades without a framework that gave the digital business permission to cannibalize the film business. Kodak's revenue peaked at sixteen billion dollars in 1996. It filed for bankruptcy in 2012, destroyed by the technology it had invented.

The pattern across all five cases holds: the companies that won did not have better information. They had better structures. The companies that failed were not blind to the threat. They lacked the cognitive architecture to convert awareness into committed action.

### What This Paper Delivers

The full paper gives the CEO a practical architecture for building frameworks that win:

- A working model of the three representation levels every framework must satisfy: cognitive, functional, and lexical.
- A grounded account of how the eye-brain processing sequence determines whether a framework lands or requires explanation.
- Five documented competitive cases linking framework discipline and its absence to market outcomes.
- A design audit the CEO can apply before deploying any framework: Does the structure represent reality accurately? Does it ask users to act? Do the labels activate the right knowledge?

This paper provides a list of Further Reading at the end.

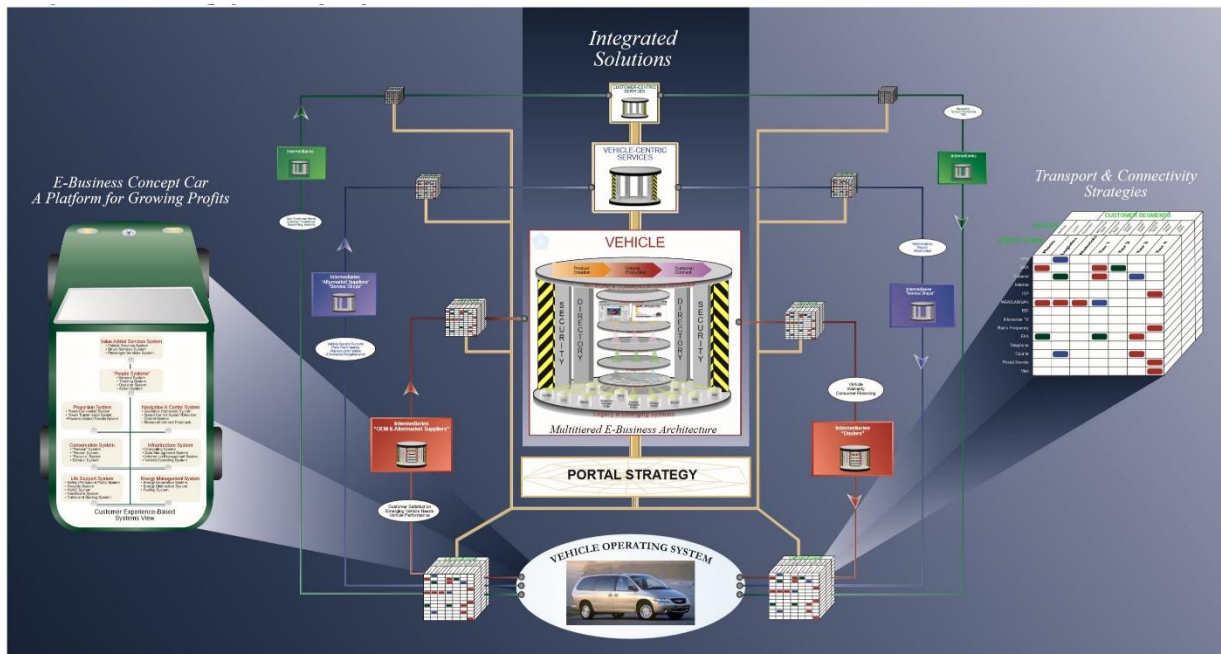


Figure 1. This sample framework is at the apex of the framework hierarchy. Shown here is a concept map for a connected car envisioned in 1998 for an automotive OEM.

## What is a Framework?

The frameworks that endure are not the cleverest or the most elaborate. They are the ones that align with how human cognition operates. Build frameworks at that level, and they stop being presentation aids. They become thinking tools and, as the record shows, competitive weapons.

Every framework that has ever changed a boardroom decision, reoriented a company, or unlocked a strategic impasse began not on a whiteboard but inside a mind. Before the first rectangle appears on a slide or the first arrow connects two boxes, a human cognitive process fires. Understanding that process transforms a framework builder from a clever arranger of ideas into something more rigorous: a designer of mental architecture.



Figure 2. “Framework” means different things to different people. Word choice, or a label, for the development and communication of a framework should be deliberate.

Think of it this way: a master chef and a line cook both know recipes, but only one understands what happens chemically when heat meets fat and protein. The line cook reproduces. The chef creates. Framework building works the same way. Executives who have a good understanding of the cognitive science behind a framework do not copy structures they have seen. They engineer new ones.

The science behind framework creation draws on cognitive psychology, neuroscience, visual perception, and information theory. Executives rarely study this science explicitly, yet the best strategic thinkers apply it intuitively. This paper makes the implicit explicit, giving you conceptual tools to build frameworks that stick.

An effective framework:

- Serves as an executive and organizational alignment tool
- Organizes information and knowledge
- Simplifies a complex situation into essential elements
- Visualizes a problem and a solution

- Supports both long-term and short-term high-stakes decision-making
- Spans strategy, execution, and perpetual improvement
- Helps the organization identify and attack critical business issues

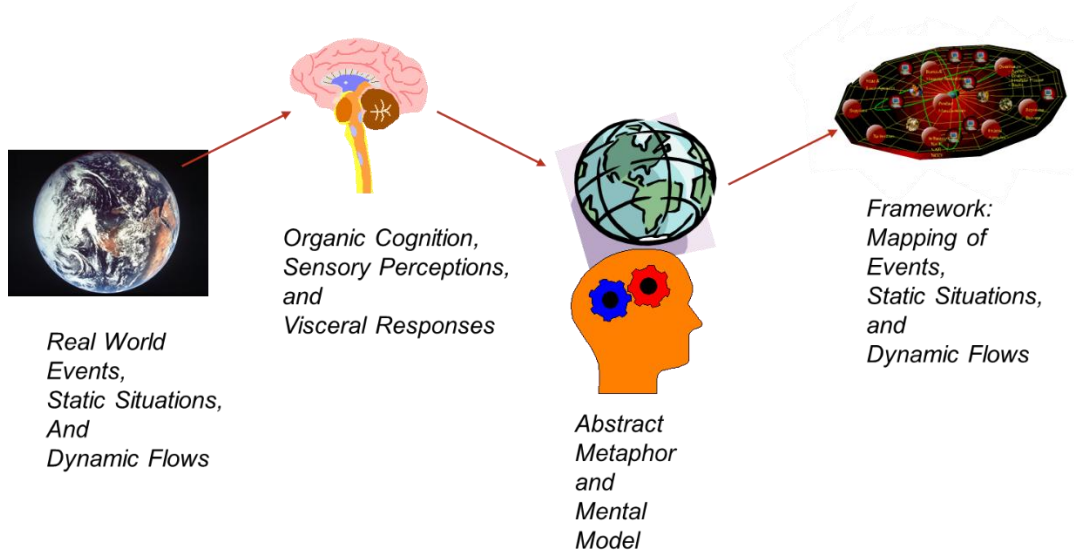


Figure 3. From the real world to a framework, a framework for creating a framework.

### The Three Levels of Framework Representation

A framework does not live in one place. It exists simultaneously at three levels, each influencing how an audience receives and retains the thinking inside it.

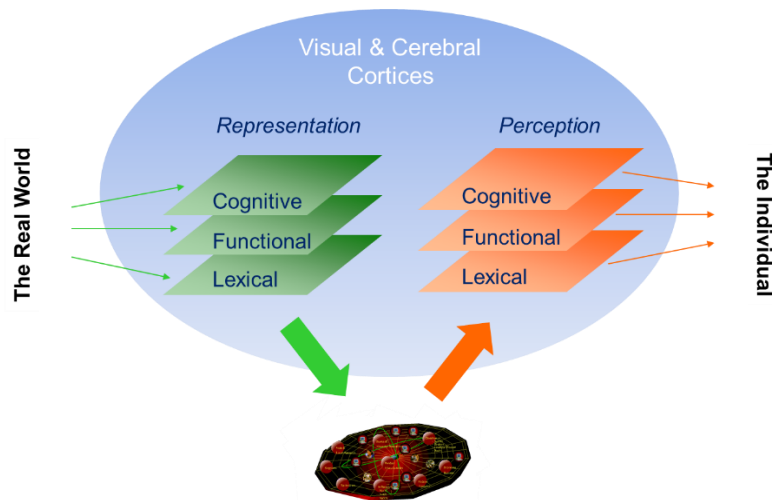


Figure 4. Three levels of information processing for representation and perception.

The first level is cognitive. This is where a framework earns its right to exist. A cognitively sound framework maps accurately onto the real-world phenomenon it represents: a market dynamic, an organizational tension, a competitive pattern, a causal chain. Strip any framework of its labels, and the underlying logic must still hold. Framework builders who treat this level as

secondary produce tools that look polished and reason poorly. The cognitive level is the foundation. Everything else rests on it.

The second level is functional. Every person who encounters a framework arrives with prior experience, habitual decision patterns, and practical questions that need answering. A framework succeeds at the functional level when it gives its users something useful to do: a choice to make, a gap to close, a hypothesis to test. Two executives can look at the same matrix and reach different conclusions because each maps the framework onto a different operational reality. Framework builders who design only for cognitive accuracy, without asking what the tool demands of its users, produce something intellectually correct and practically inert.

The third level is lexical. Words carry frameworks. The labels on the axes, the names of the quadrants, the titles of the stages: these are not decoration. They are the interface between a framework's structure and the viewer's existing knowledge schemata. A well-chosen label activates prior knowledge and accelerates comprehension. A poorly chosen one forces the viewer to build meaning from scratch, or worse, imports the wrong meaning entirely. The lexical level is where many technically sound frameworks fail in practice, because their builders underestimated how much cognitive work a single word can do.

Consider the BCG Growth-Share Matrix. Stars, Cash Cows, Question Marks, Dogs — four labels that lodge in memory on first hearing and never leave. Bruce Henderson at the Boston Consulting Group did not choose those words at random. Each activates the schema a viewer already carries. A star rises. A cash cow gives without demanding. A dog drags. The labels do cognitive work before the framework is even explained. That is lexical design at its best.

Mastery across all three levels separates frameworks that executives repeatedly reach for from those that collect digital dust.

### **How the Eye-Brain System Processes a Framework**

The journey from visual input to conceptual understanding follows a documented path. Research in cognitive cartography and visual information processing maps that path clearly, and the implications for framework design are direct.

The process begins with the retinal image. When light falls on a framework, photoreceptors convert it into neural signals. This happens in nanoseconds, before any deliberate attention engages. The retinal image feeds into what perception researchers call the visual array: the raw spatial and color data available for further processing.

The visual cortex then constructs what David Marr termed the "primal sketch": a representation of edges, boundaries, and regions that defines the structural skeleton of what the eye sees. Think of it as the brain's first draft of the scene. All structure, no meaning. This is why framework geometry matters so much. A circle implies cyclicity. A triangle implies hierarchy or priority. A horizontal progression implies sequence. These signals communicate concepts before cognition has time to intervene. The executive, looking at a circular framework, does not decide to think about cycles. The primal sketch sends the signal before the decision is made.

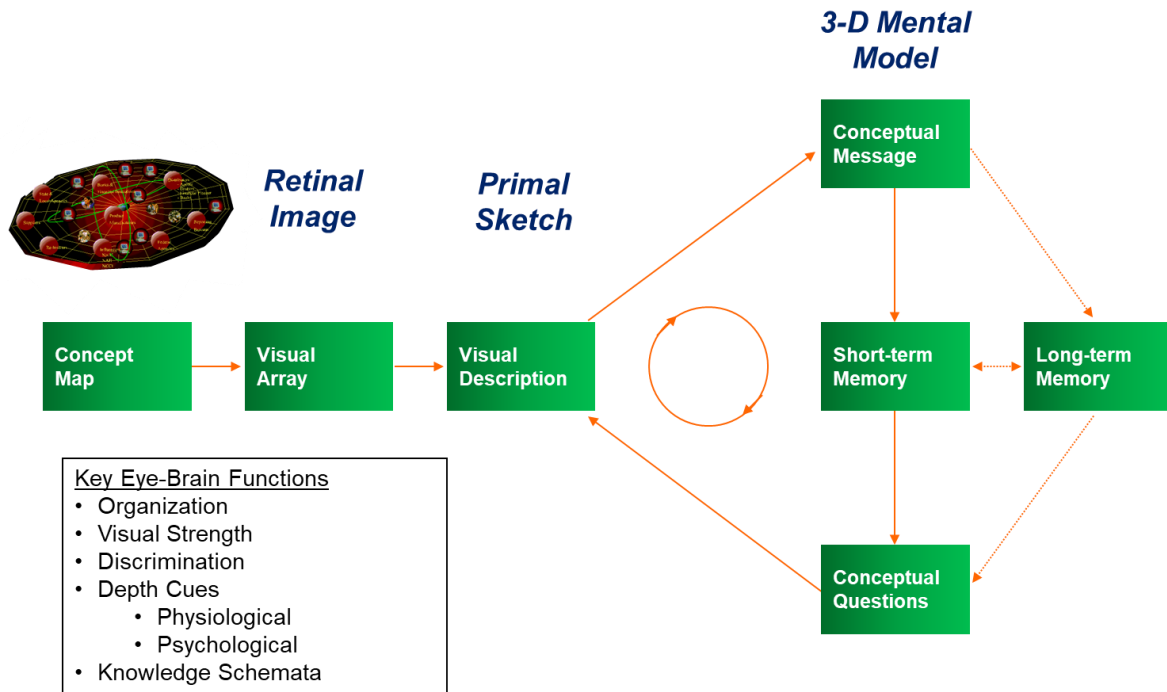


Figure 5. From concept to a 3-D mental model and memory.

From the primal sketch, the brain constructs a three-dimensional mental model. Even a flat framework on a slide activates depth-processing circuits. Shading, overlap, and spatial separation all contribute to this model. A framework designer who treats the canvas as purely two-dimensional misses the depth signals the brain applies regardless.

The mental model feeds into short-term memory, where the viewer holds a framework's structure while reading its content. Short-term memory has limits. George Miller's landmark research put that ceiling at roughly seven sets of information. A phone number tests that ceiling. A twelve-element framework blows through it. Frameworks that exceed this cognitive budget force the viewer to offload material before integrating the whole, which defeats the framework's purpose.

Long-term memory enters the process through knowledge schemata: organized structures of prior knowledge that the brain uses to interpret new information. A viewer who encounters a familiar hierarchical structure activates a schema built from every visual and textual image they have encountered in that form. That schema accelerates processing but also shapes interpretation. When a framework violates schema expectations, it forces effortful processing, which is sometimes the intended effect — but must never be accidental. Every element of a framework must be conceptualized with purpose.

## **Four Key Eye-Brain Functions That Determine Framework Utility**

Four cognitive functions govern how well a framework lands. Framework builders who design with these functions in mind create tools that work at the perceptual level, not just the logical one.

### **Organization**

The brain seeks grouped, structured information. Frameworks that impose clear visual organization reduce the cognitive work required to extract meaning. White space, consistent alignment, and deliberate grouping all signal organization to the perceptual system before any content is read. A framework that looks organized communicates competence before the viewer reads a single word.

### **Visual Strength**

Not all elements of a framework carry equal weight in the viewer's perceptual field. Size, contrast, color saturation, and position on the canvas determine what the eye visits first and how long it lingers. A framework builder who does not manage visual strength implicitly cedes control of the viewer's attention sequence. The element with the highest visual strength becomes the de facto starting point for interpretation, regardless of the builder's intent.

### **Discrimination**

The brain identifies differences before it processes similarities. Frameworks that use consistent visual language for similar ideas and distinct visual language for different ideas exploit this function. When visual distinctions do not map to conceptual distinctions, the viewer's perceptual system sends a misleading signal to cognition, and the framework creates confusion rather than clarity.

### **Depth Cues**

The brain applies three-dimensional interpretation to two-dimensional surfaces. Effective frameworks use depth cues such as overlap, shading, and size gradients to convey priority, sequence, and relationship in ways that a flat two-by-two matrix cannot achieve alone.

## **The Translation from Visual Input to Conceptual Message**

The final stage in the framework processing chain is the most consequential: the translation of visual input into a conceptual message. This is where a framework either earns its place in executive decision-making or fails.

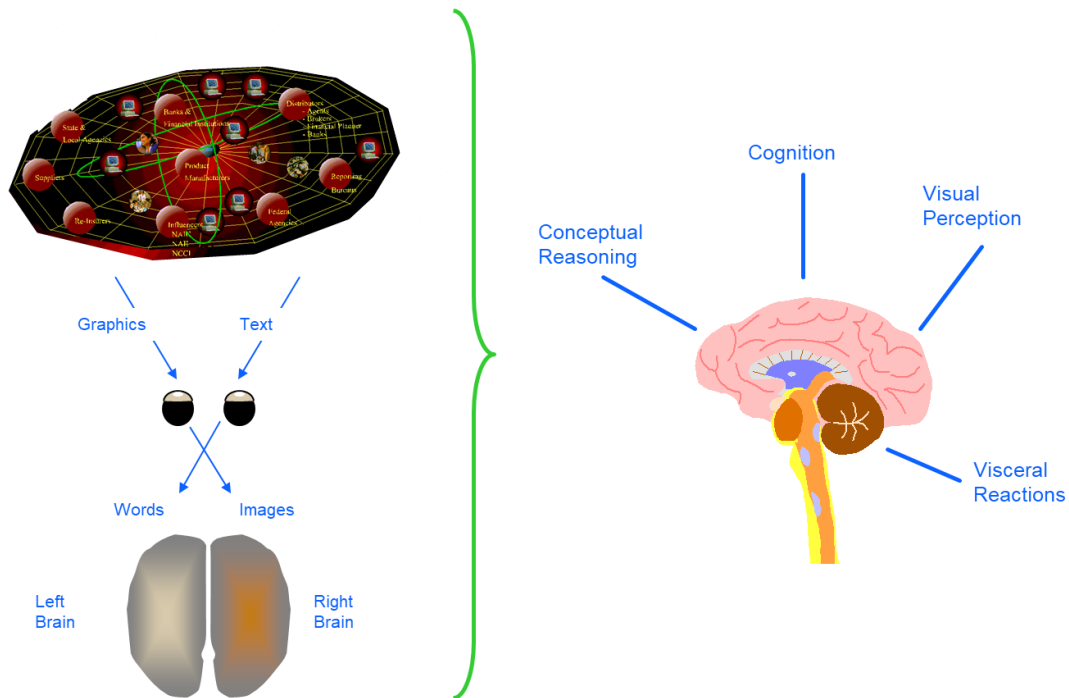


Figure 6. Mapping of the framework process in the mind.

The conceptual message is what the viewer concludes the framework means. It is distinct from what the framework builder intended. The gap between those two things is the central challenge of framework design. That gap closes when the three levels of representation align. The framework accurately represents the real-world phenomenon, accounts for the individual viewer's prior knowledge, and exploits the eye-brain system's perceptual tendencies rather than fighting them.

The conceptual questions a framework generates are as important as the answers it provides. A framework that ends inquiry rather than sharpening it has done only half its job. The most durable frameworks in executive strategy — from the BCG Growth-Share Matrix to Porter's Five Forces — generate productive questions every time a team engages with them. New insights emerge. Next steps clarify. That is not accidental. Their builders constructed those tools at the intersection of accurate real-world representation, perceptual clarity, and deliberate cognitive design.

The frameworks that endure are not the cleverest or the most elaborate. They are the ones that align with how human cognition operates. They organize information into chunks a working memory can hold, exploit perceptual signals the visual cortex processes automatically, and connect new ideas to mental models a CEO already carries. That alignment is what makes a framework feel immediately right, rather than requiring explanation.

Build frameworks at that level, and they stop being presentation aids. They become thinking tools and, as the record shows, competitive weapons.

Framework building is not decoration. It is applied cognitive science. The Framework Foundry team treats it that way.

## Frameworks in Practice: Evidence from the Field

Cognitive science explains how frameworks work. History demonstrates what happens when they do — and what happens when they do not. Three cases illustrate the power of a well-constructed framework to shape competitive outcomes. Two cases show what the absence of a framework costs.

### Case 1: The BCG Growth-Share Matrix and the Logic of Portfolio Discipline

Before Bruce Henderson developed the Growth-Share Matrix at the Boston Consulting Group in 1970, diversified companies allocated capital largely by feel. Division heads lobbied. Boards debated. CEOs decide. There was no shared visual language for the most consequential question in corporate strategy: which businesses deserved more investment, and which deserved less?

Henderson's framework changed the vocabulary of that conversation. Two axes — relative market share and market growth rate — produced four quadrants: Stars, Cash Cows, Question Marks, and Dogs. The labels did cognitive work instantly. A Cash Cow did not need an explanation. Neither did a Dog. The framework gave CEOs never-before-seen views of their industries and the basis for formulating competitive strategies.

The practical effect was direct. Companies that applied the matrix stopped funding weak businesses out of inertia and started redirecting capital from Cash Cows toward promising Stars. The underlying logic drew on the experience curve: high relative market share implied lower unit costs and, therefore, stronger cash generation as markets matured. That was not intuition. It was a structured argument with visual force.

The framework's durability across five decades is itself evidence of its cognitive design. It survives because the two-axis structure sits comfortably inside working memory, the quadrant labels activate immediate schema associations, and the strategic logic — fund growth from profits — maps clearly onto how markets actually behave. Simplicity here is not a limitation. It is the design.

#### What the BCG matrix demonstrates about framework design

The matrix succeeded because all three levels of representation aligned. Cognitively, it modeled real portfolio economics. Functionally, it gave executives an immediate decision: invest, harvest, or exit. Lexically, four words did the work of four paragraphs. When a framework achieves that alignment, executives stop asking what it means and start asking what it requires of them.

### Case 2: Porter's Five Forces and the PC Industry's Missing Map

Michael Porter published his Five Forces framework in the Harvard Business Review in 1979, introducing a discipline that most strategists had not applied: systematic analysis of where profit actually lives in an industry, as opposed to where revenue shows up on an income statement.

The personal computer industry in the 1980s and 1990s illustrates what the framework reveals when executives fail to apply it. PC manufacturers sold hundreds of millions of units per year. Revenue was enormous. But profit was not where the revenue was. Two suppliers had captured most of the industry's value: Microsoft controlled the operating system, and Intel controlled the processor. The Five Forces analysis could have made that structural fact visible to any PC maker willing to run it. Buyer power was high. Consumers could switch brands easily. Rivalry among existing competitors was fierce. Dell, Compaq, and IBM competed on price. Supplier power was the pivotal force that PC makers were not managing.

Companies that understood the framework asked the right question: what part of this value chain do we control? Companies that did not apply the framework competed on hardware specifications and drove margins to near zero. The frameworks did not change the industry's structure. They changed who could see it clearly enough to act before others did.

Porter's Five Forces works as a framework precisely because it asks the eye-brain system to hold five forces in relation to one another, not in sequence. The hub-and-spoke visual keeps all five forces simultaneously visible in working memory. An executive scanning the diagram does not need to hold the logic in text. The structure carries it.

#### **What Porter's Five Forces demonstrates about framework design**

The framework's power is not in the five categories themselves. Executives knew buyers had power before Porter named it. The power is in the simultaneous display — all five forces visible at once, their interactions legible in the structure. That is a depth-cue and organization function operating together. The executive who sees the framework does not read a list. The structure communicates the relationships before the reading begins.

### **Case 3: Andy Grove's Strategic Inflection Point Framework and Intel's Survival**

In the early 1980s, Intel faced destruction. Japanese semiconductor manufacturers had entered the memory chip market with lower costs, better quality, and patient capital. Intel had built its identity, its culture, and its revenue base on DRAM memory. The old competitive moves stopped working. Costs fell. Margins collapsed. The company's engineers and managers could not see their way clear, because they were inside the business they needed to abandon.

Andy Grove, then president of Intel, later described the moment he found a way through. He asked Gordon Moore, Intel's co-founder, if the board replaced both of them tomorrow and brought in a new CEO, what would that person do? Moore said without hesitation that the new CEO would exit memory chips. Grove's response: Why don't we walk out the door, come back, and do it ourselves?

That question was not just a thought experiment. It was a framework, a structured cognitive device for separating what the company was from what the company needed to become. Grove later formalized this thinking in his concept of the strategic inflection point: the moment when competitive forces change so fundamentally that the rules governing the previous business no

longer apply. He defined the signal as a 10x change in one of Porter's five forces, large enough to invalidate the existing strategy.

The framework did what frameworks do best. It gave Intel's leadership a shared language for a situation that felt incoherent from the inside. Once Grove and Moore could name what they were experiencing — a strategic inflection point — they could debate it, test it, and act on it. Intel exited memory chips in 1985 and pivoted entirely to microprocessors. Within a decade, it became the dominant chip company in the world and the dominant supplier of the PC era's most valuable component.

The framework did not make the decision easy. It made the decision possible. Without it, Intel's leadership would have continued managing symptoms — cutting costs here, defending share there — while the strategic ground shifted beneath them.

### **What Grove's framework demonstrates about framework design**

Grove's inflection point framework works because it names what is otherwise invisible. A 10x change in competitive force does not announce itself. It arrives gradually, then suddenly. The framework gives leaders a tripwire: when you sense the rules changing, ask probing and clarifying questions. That functional level, what it asks its users to do, is what makes this framework operational rather than merely diagnostic. It does not describe the situation. It issues a direction.

## **When the Framework Is Missing: Two Competitive Autopsies**

The cases above document what frameworks enable. The cases below document what their absence costs. In both, executives had access to the analytical traditions that could have structured their thinking. Neither applied them with discipline.

### **Failure Case 1: Blockbuster and the Substitutes Force It Did Not See**

In 2000, Reed Hastings flew to Dallas and offered to sell Netflix to Blockbuster for fifty million dollars. Blockbuster's CEO declined — reportedly with visible amusement. Blockbuster had nine thousand stores, deep relationships with the studios, and a brand that was synonymous with home video rental. Netflix had a mail-order DVD business and about a million subscribers. The offer made no strategic sense to Blockbuster because Blockbuster had not run the analysis that would have made it visible.

Porter's Five Forces framework, applied with discipline, would have surfaced the threat. The specific force at work was the threat of substitutes: not a rival video rental chain, but an entirely different delivery model that made the physical store irrelevant. A disciplined Five Forces analysis asks: Can the customer solve the same problem a different way? For Blockbuster, the answer was plainly yes, and becoming more yes by the month as broadband penetration rose and Netflix refined its subscription model. Blockbuster's late fees generated close to eight hundred million dollars annually at peak. They were also the single most powerful driver of customer

resentment. Netflix eliminated them. A framework built around the customer's full experience would have made that vulnerability explicit.

Instead, Blockbuster's leadership analyzed competition through the lens of rival stores. That is the most common strategic error: treating rivalry among existing competitors as the dominant force when the decisive force is elsewhere. The company eventually launched its own online service in 2004, years after Netflix had established the subscription model and its own customer data flywheel. The response was structurally correct and tactically too late. Blockbuster filed for bankruptcy in 2010.

### **The diagnostic question Blockbuster needed**

Porter's Five Forces is a map of where profit lives. Blockbuster drew a smaller map — one that showed only rivals, not substitutes. That is not an analytical failure. It is a framework failure. A well-applied Five Forces analysis does not let the strategist skip a force because it feels remote. The substitute force was the existential one. Blockbuster never named it as such, so it never managed it.

### **Failure Case 2: Kodak and the Strategic Inflection Point It Could Not Act On**

In 1975, Kodak engineer Steve Sasson built the first digital camera. Management's documented response was: that's cute, but do not tell anyone about it. The reasoning was rational in the short term: Kodak's business model ran on film sales, film processing, and chemical paper. Digital photography cannibalized all three. The problem was not that Kodak lacked knowledge of the threat. The problem was that it lacked a framework for weighing the long-term cost of inaction against the short-term cost of cannibalization.

Grove's strategic inflection point framework, applied to Kodak's situation in the late 1970s and early 1980s, would have issued a clear signal. The change from analog to digital represented a tectonic shift in the technology force: not an incremental improvement in film speed or camera ergonomics, but a fundamental change in the physics of the product and the economics of the consumable. Once digital images required no film, no processing lab, and no chemical paper, Kodak's entire value chain faced structural irrelevance. Kodak had built the device that made it so.

Grove's inflection point would have forced the issue. If an outsider took the helm with no attachment to film revenue, what would that person do? The answer in 1980 was clear: build the digital capability aggressively. Sony, Canon, and Nikon had no film empires to protect. They entered digital photography with fresh eyes and captured the market that Kodak had invented.

Kodak's annual revenue peaked at sixteen billion dollars in 1996. The company filed for bankruptcy in 2012. The technology that ended it was the technology Kodak had patented. What it lacked was not the invention. It was the cognitive structure to act on what the invention implied.

### **The diagnostic question Kodak needed**

Kodak's failure was not technological blindness. It was strategic framework paralysis. The company could see the inflection point approaching — management tracked digital adoption rates throughout the 1990s. What it could not do was translate that awareness into a decision architecture that gave the digital business permission to cannibalize the film business. A framework is not just a diagnostic. It is a decision structure. Kodak had data. It did not have a framework that converted data into committed action.

### **Conclusion**

The science of framework creation is not a detour from the work of strategy. It is the work of strategy. When executives understand how the eye-brain system processes visual information, how short-term memory constrains comprehension, and how knowledge schemata shape interpretation, they stop building frameworks by instinct and start building them by design. The intuitive, implicit thinking of chief executive officers becomes fact-based, explicit creation of a framework to accelerate strategy execution, customer engagement, and realization of competitive advantages.

Standing the test of time, the BCG Growth-Share Matrix gives executives a shared vocabulary for capital allocation decisions that organizational politics had previously governed. Porter's Five Forces gave strategists a map of profit structure that most of their competitors were not reading at all. Grove's strategic inflection point framework gave Intel's leadership a tripwire and a decision protocol for the most difficult question a management team can face: whether to abandon the business that made them successful.

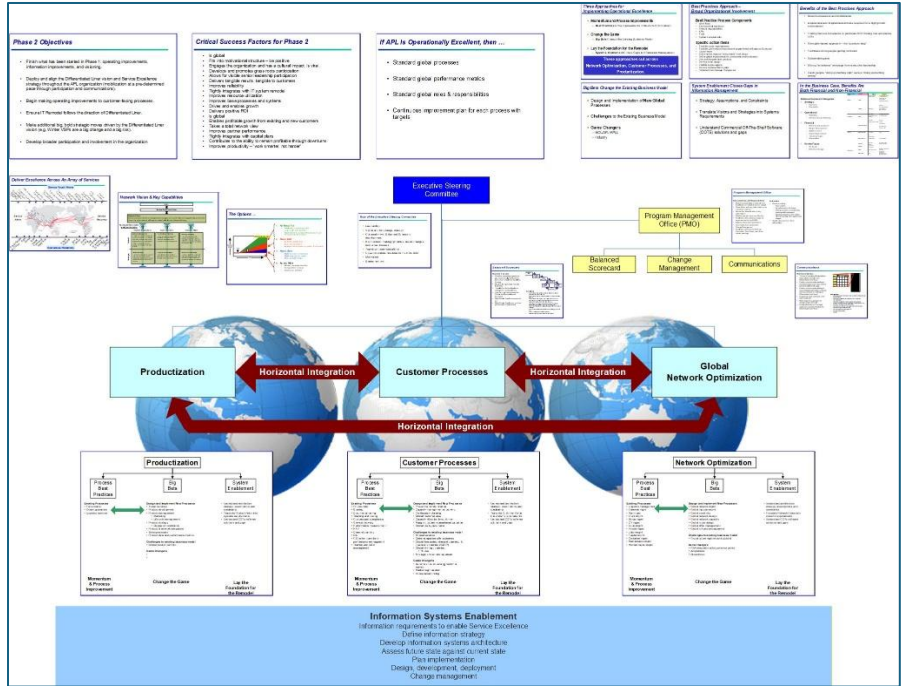


Figure 7. Global industry disruption framework. Notice the customer-centric approach.

The discipline of modern framework conceptualization and implementation produces customer insights and arms CEOs with competitive weapons to win markets, align organizations, and set the standards by which entire ecosystems operate.

Scientific Principle	Implication for Framework Creators
Working memory holds roughly 7 information sets. Beyond 7, the human mind offloads material to deal with complexity.	Keep the framework's primary structure at five to seven elements. Simplicity is a design decision, not a concession.
Geometry signals logic before language engages. Circles, triangles, and progressions carry semantic content automatically.	Choose geometry that matches the logic: cycles for iteration, hierarchies for priority, and flows for sequence.
Labels activate or block prior knowledge schemata. The wrong word imports the wrong concept.	Test labels on a cold audience before publishing. If a label requires explanation, it has already failed at the lexical level.
Visual strength determines the attention sequence. The highest-contrast element becomes the <i>de facto</i> entry point.	Manage visual weight deliberately. The element with the most strategic importance should carry the most visual force.
Frameworks must operate at cognitive, functional, and lexical levels simultaneously. Failure at any one level costs the others.	Audit a framework against all three levels before deployment. A framework that passes two of three will underperform in the field.

Figure 8. At-a-glance: the science of framework creation.

## Further Reading

Bertin, J. (1983). *Semiology of graphics: Diagrams, networks, maps* (W. J. Berg, Trans.). University of Wisconsin Press. (Original work published 1967)

Card, S. K., Mackinlay, J. D., & Schneiderman, B. (Eds.). (1999). *Readings in information visualization: Using vision to think*. Morgan Kaufmann.

Chen, R., Dannenberg, R., Singh, R., & Raj, B. (2020). *Artificial creative intelligence: Breaking the imitation barrier*. Proceedings of the 11th Conference on Computational Creativity.

Grove, A. S. (1996). *Only the paranoid survive: How to exploit the crisis points that challenge every company*. Currency Doubleday.

Kahneman, D. (2011). *Thinking, fast and slow*. Farrar, Straus and Giroux.

MacEachren, A. M. (1995). *How maps work: Representation, visualization, and design*. Guilford Press.

Marr, D. (1982). *Vision: A computational investigation into the human representation and processing of visual information*. W. H. Freeman.

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63(2), 81–97.

Porter, M. E. (1980). *Competitive strategy: Techniques for analyzing industries and competitors*. Free Press.

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. *Cognitive Science*, 12(2), 257–285.

Ware, C. (2004). *Information visualization: Perception for design* (2nd ed.). Morgan Kaufmann.

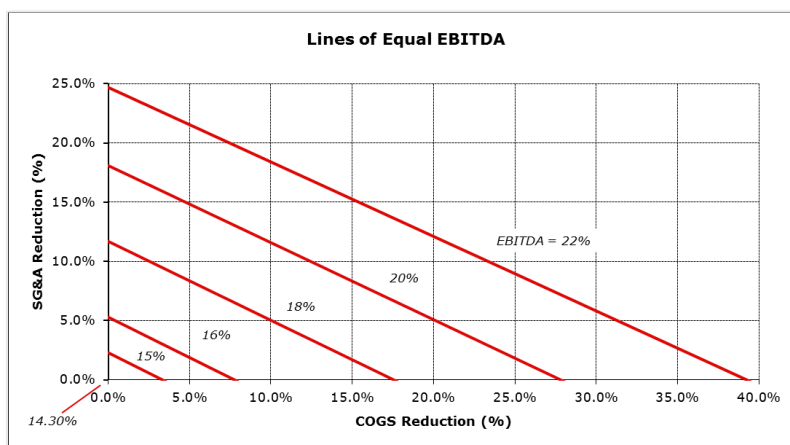


Figure 9. Framework for plotting cost reductions to boost EBITDA.



## About the Author

Rowland Chen has spent four decades helping chief executive officers get things done, including strategy formulation, execution, innovation, financial performance improvement, successful pivots, mergers & acquisitions, and human-centered transformation. Chen's portfolio of work includes over 200 projects (large and small), each requiring a custom, unifying alignment framework. Through Chen and his teams, clients have realized over \$5 billion in improvements to their financial results.

Chen's client work spans an unusually broad range: preventing cruise missiles from failing at takeoff, disrupting a 150-year-old industry through deep customer engagement and internal transformation, winning market share in a declining market, and advancing the science of artificial creative intelligence.

As founder of Framework Foundry, Chen draws on 43 years of front-line transformation work to bring field-tested solutions to the strategic problems CEOs face.

A published author, Chen's work has appeared in the New York Times, Boston Globe, Harvard Business Review, International Entrepreneurship and Management Journal, Proceedings of the 11th International Conference on Computational Creativity, and Management Review Quarterly. His writing spans business strategy, artificial intelligence, physiology, supply chain, transformation, ethical innovation, trade policy resilience, and entrepreneurship.

Chen holds degrees from Johns Hopkins University (BES, Bioengineering), Rensselaer Polytechnic Institute (MS, Biomedical Engineering), and MIT Sloan School of Management (MBA). He served as a Visiting Scientist at Carnegie Mellon University's School of Computer Science and currently teaches at De Anza College in Cupertino, California, and advises CEOs of Global 1000 enterprises and early-stage ventures based in North America, Asia, and Europe.

He lives in the heart of Silicon Valley: San Jose, California, and has been a local fixture since 1983.

Chen can be reached at [rowland@frameworkfoundry.ai](mailto:rowland@frameworkfoundry.ai).