

STRATEGIST'S HANDBOOK

Strategy, Mathematics & Algorithms

BCG & Bruce Henderson • McKinsey • Porter • Bain • Drucker • Ansoff • Christensen • Rumelt •
Mintzberg • Deming • Goldratt • Boyd • Game Theory • Industrial Organization • Corporate Finance
• Operations Research

A professional reference that translates strategic concepts into plain English, syllogisms, formulas, worked examples, algorithms, limitations, acronyms and decision rules.

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How to Use This Handbook

This handbook treats strategy as a combination of **judgment, economics, logic and computation**. Named frameworks are useful, but none should be treated as a universal law. The central habit is to ask: *What must be true for this framework to apply here?*

Every major quantitative concept follows the same pattern: full name and acronym, plain-English explanation, syllogism, formula, variables, worked example, practical use and failure conditions. Acronyms are expanded when first introduced and again in the glossary.

A syllogism is used here as a teaching device: a general premise, a case-specific premise and a conclusion. It does not magically prove an empirical business claim; it makes the logic visible so the assumptions can be challenged.

Recurring example. Many chapters use an illustrative market with shares of 25%, 20%, 15%, 10% and 7%. The numbers are teaching examples, not a claim that all industries follow that exact distribution.

Footnotes

¹ Bruce Henderson described the Rule of Three and Four as a hypothesis rather than a rigorously proven law.

² BCG's later retrospective research found the rule most applicable to stable, competitive industries and less applicable to turbulent or heavily regulated environments.

Chapter 1 - Henderson and the BCG School

Rule of Three and Four

In plain English. In a stable competitive market, industry structure may consolidate around a few significant competitors. Henderson's classic formulation predicts no more than three significant competitors, with the largest no more than four times the smallest significant competitor.

Syllogism. Major premise: scale and experience can reward stronger relative positions. Minor premise: weaker generalist competitors cannot indefinitely match the economics of stronger rivals. Conclusion: a stable market may consolidate toward a small set of significant competitors.

Equilibrium heuristic: market-share relationship $\approx 4 : 2 : 1$

Worked example. A mature market might settle near 48%, 24% and 12%, with the remainder fragmented or specialized. The exact percentages are not the rule; the relative structure is the idea.

Use it when. analyzing mature, reasonably stable industries and thinking about consolidation, relative position and the strategic vulnerability of smaller generalists.

Do not overread it. It is a hypothesis and heuristic. Market definition, regulation, turbulence, niches, platforms and technological change can make the pattern inapplicable.

Experience Curve

In plain English. The more cumulative experience an organization gains producing something, the lower its real unit cost may become because of learning, specialization, redesign and scale effects.

Syllogism. Major premise: repeated production can create learning and efficiency. Minor premise: Firm A accumulates experience faster than Firm B. Conclusion: Firm A may develop a structural cost advantage.

$C(Q) = C_0 \times Q^b$ and Progress Ratio (PR) = 2^b

Variables. $C(Q)$ = unit cost at cumulative output Q ; C_0 = reference cost; b = experience exponent; PR = cost retained after each doubling.

Worked example. With an 80% progress ratio, a \$100 unit cost becomes about \$80 after one cumulative-output doubling, \$64 after the next, then \$51.20.

Use it when. cost strategy, pricing, capacity investment, early market-share strategy and estimating how cumulative volume might affect economics.

Do not overread it. Costs do not fall automatically. Poor execution, input inflation, technological resets or weak transfer of learning can overwhelm experience effects.

Growth-Share Matrix

In plain English. A portfolio tool that compares market growth with relative market share to distinguish Stars, Cash Cows, Question Marks and Dogs.

Syllogism. Major premise: growth tends to consume cash while strong competitive position can generate cash. Minor premise: business units differ in growth and relative position. Conclusion: they should not all receive the same capital-allocation treatment.

Relative Market Share (RMS) = Your Share / Largest Competitor Share

Variables. RMS = relative market share.

Worked example. A business with 15% share against a 25% leader has $RMS = 15/25 = 0.60$.

Use it when. portfolio discussions, especially when capital is scarce and business units have different growth and competitive positions.

Do not overread it. Two axes cannot capture every strategic variable. Profitability, disruption, synergies and market definition also matter.

Henderson's Connected Logic

The BCG classics are strongest when treated as a system: **cumulative volume can affect cost; cost can affect competitive position; competitive position can affect cash generation; and portfolio choices determine where cash is reinvested.**

A useful acquisition question is not merely 'Does the target add revenue?' but 'Does the target change our relative competitive position enough to alter future economics?'

Footnotes

¹ Bruce D. Henderson, 'The Experience Curve,' Boston Consulting Group, 1968.

² Bruce D. Henderson, 'The Rule of Three and Four,' Boston Consulting Group, 1976.

³ Martin Reeves et al., 'BCG Classics Revisited: The Rule of Three and Four,' Boston Consulting Group, 2012.

⁴ Boston Consulting Group, 'Classic BCG Insights' collection.

Chapter 2 - McKinsey: Problem Solving, Growth and Organization

7-S Framework (7-S)

In plain English. An organization works as a system of seven interdependent elements: strategy, structure, systems, shared values, skills, style and staff.

Syllogism. Major premise: execution depends on more than formal structure. Minor premise: a strategy requires capabilities, people, systems and behaviors that support it. Conclusion: changing strategy without aligning the rest of the organization can produce weak execution.

Use it when. organizational redesign, transformation, post-merger integration and diagnosing why a strategy is not being executed.

Do not overread it. It is a diagnostic framework, not a mathematical optimization model.

Three Horizons of Growth

In plain English. Manage the core business, emerging growth engines and future options at the same time.

Syllogism. Major premise: today's core will not necessarily produce tomorrow's growth. Minor premise: future businesses require investment before the core declines. Conclusion: management must simultaneously protect Horizon 1, build Horizon 2 and cultivate Horizon 3.

Use it when. innovation portfolios, corporate growth and balancing present cash generation with future options.

Do not overread it. The horizons are not simply calendar buckets. A Horizon 3 idea still requires attention today.

GE-McKinsey Portfolio Matrix (GE-McKinsey)

In plain English. Evaluate a business using two multi-factor dimensions: industry attractiveness and competitive strength.

Syllogism. Major premise: attractive markets and strong positions deserve different treatment from unattractive markets and weak positions. Minor premise: businesses vary on both dimensions. Conclusion: investment, selectivity, harvesting and divestment should differ by position.

Portfolio position = f(Industry Attractiveness, Competitive Strength)

Use it when. multi-business capital allocation when the simple BCG growth/share axes are insufficient.

Do not overread it. The result depends heavily on factor selection, scoring and weights.

MECE, Issue Trees and Hypothesis-Driven Analysis

MECE means **Mutually Exclusive, Collectively Exhaustive**. In plain English: divide a problem so categories do not unnecessarily overlap and, together, cover the whole problem.

Syllogism. If a decision depends on several causes, and the causes are organized without gaps or double counting, then the analysis becomes easier to test. Therefore, a MECE issue tree can make complex strategy questions more tractable.

Hypothesis-driven problem solving begins with a provisional answer, identifies what evidence would have to be true, then tests the most decision-relevant uncertainties first.

Granularity of Growth

Company Growth $\approx$ Market Momentum + Share Gain/Loss + M&A;

M&A; means **Mergers and Acquisitions**. The equation is a decomposition idea rather than an accounting identity in every implementation. It forces the analyst to distinguish riding a growing market from actually taking share or buying growth.

Footnotes

¹ McKinsey & Company, 'Enduring Ideas: The 7-S Framework,' 2008.

² Mehrdad Baghai, Stephen Coley, and David White, The Alchemy of Growth, 1999; see also McKinsey's 'Three Horizons of Growth' retrospective.

³ McKinsey & Company, 'Enduring Ideas: Classic McKinsey frameworks that continue to inform management thinking.'

Chapter 3 - Porter, Bain and the Strategy Schools

Porter's Five Forces

The five forces are rivalry among existing competitors, threat of new entrants, threat of substitutes, bargaining power of suppliers and bargaining power of buyers.

Syllogism. Industry profit is affected by more than direct rivals. Buyers, suppliers, entrants and substitutes can also capture value. Therefore, understanding industry structure requires examining all five forces.

Generic Strategies and Trade-Offs

Porter's classic generic strategies emphasize **cost leadership, differentiation and focus**. A key strategic maxim is that a coherent position requires trade-offs: choosing what not to do protects the distinctiveness of the activity system.

Value Chain

Break the company into activities - inbound logistics, operations, outbound logistics, marketing and sales, service, plus supporting activities - and ask where cost, differentiation and coordination advantages actually arise.

Bain-style Profit Pool Thinking

Revenue share and profit share can be very different. A strategically attractive position may sit in a small part of an industry's revenue chain that captures a disproportionate share of profit.

Syllogism. Revenue is not the same as economic attractiveness. Some activities capture more profit per dollar of sales. Therefore, strategy should examine where profits pool, not merely where revenue is largest.

Other Schools

School / thinker	Core idea	Layman's question
Drucker	Effectiveness, objectives, abandonment	Are we doing the right things, and what should we stop?
Ansoff	Product/market growth vectors	Are we selling old/new products to old/new markets?
Mintzberg	Deliberate and emergent strategy	What strategy actually emerged from our actions?
Rumelt	Diagnosis → guiding policy → coherent actions	What is the real challenge, our approach, and the coordinated moves?
Christensen	Disruption and Jobs to Be Done	What job is the customer hiring this product to do?
Deming	Systems, variation and PDSA	Is the problem the worker, or the system producing the variation?
Goldratt	Theory of Constraints	What single bottleneck limits the whole system?
Boyd	OODA loop	Can we observe, orient, decide and act more effectively?

Footnotes

¹ Michael E. Porter, Competitive Strategy (1980) and Competitive Advantage (1985).

² Michael E. Porter, 'The Five Competitive Forces That Shape Strategy,' Harvard Business Review, 2008.

³ Richard Rumelt, Good Strategy/Bad Strategy (2011).

⁴ Eliyahu M. Goldratt and Jeff Cox, The Goal (1984).

Chapter 4 - Market Structure Mathematics

Four-Firm Concentration Ratio (CR4)

In plain English. Add the market shares of the four largest firms. It answers: how much of the market is controlled by the top four?

Syllogism. Major premise: concentration rises when more sales are controlled by the largest firms. Minor premise: the top four control 70% of this market. Conclusion: the market is substantially concentrated at the top, though CR4 alone does not describe how that 70% is distributed.

$$CR4 = s1 + s2 + s3 + s4$$

Variables. $s1 \dots s4$ = market shares of the four largest firms.

Worked example. $25\% + 20\% + 15\% + 10\% = 70\%$.

Herfindahl-Hirschman Index (HHI)

In plain English. Square every firm's market-share percentage and add the results. Large firms count disproportionately because their shares are squared.

Syllogism. Major premise: concentration is greater when large shares are concentrated in fewer firms. Minor premise: squaring shares gives larger firms more weight. Conclusion: HHI provides a compact concentration measure.

$$HHI = \sum (s_i^2)$$

Variables. Σ means 'sum'; s_i = each firm's market-share percentage.

Worked example. For 25, 20, 15, 10 and 7 percent, the partial HHI is $25^2 + 20^2 + 15^2 + 10^2 + 7^2 = 1,399$ before adding the remaining firms.

Use it when. market concentration and merger analysis.

Do not overread it. Market definition matters enormously, and HHI does not directly measure profitability, innovation or customer welfare.

Lerner Index

In plain English. A measure of price markup over marginal cost.

Syllogism. Major premise: a firm with market power may sustain price above marginal cost. Minor premise: price substantially exceeds marginal cost. Conclusion: the observed markup is consistent with greater pricing power, subject to measurement and market conditions.

$$L = (P - MC) / P$$

Variables. P = price; MC = marginal cost.

Worked example. If price is \$100 and marginal cost is \$70, $L = 0.30$.

Use it when. studying pricing power in industrial organization.

Do not overread it. Marginal cost is difficult to measure and high markups can arise for reasons other than simple monopoly power.

Price Elasticity of Demand (PED)

In plain English. Measures how strongly quantity demanded changes when price changes.

Syllogism. Major premise: customers respond differently to price changes. Minor premise: quantity changes more than proportionally when price changes. Conclusion: demand is relatively elastic.

$$\text{PED} = \% \text{ change in quantity demanded} / \% \text{ change in price}$$

Worked example. If price rises 10% and quantity falls 20%, elasticity is about -2.

Use it when. pricing, revenue management and estimating customer sensitivity.

Chapter 5 - Corporate Finance and Value Creation

Return on Invested Capital (ROIC)

In plain English. How much after-tax operating profit the business produces for the capital tied up in operations.

Syllogism. Major premise: capital has an opportunity cost. Minor premise: the company earns a return on operating capital. Conclusion: compare that return with the cost of capital to judge economic value creation.

$$\text{ROIC} = \text{NOPAT} / \text{Invested Capital}$$

Variables. NOPAT = Net Operating Profit After Tax.

Worked example. NOPAT of \$120 million on \$1 billion of invested capital gives ROIC = 12%.

Weighted Average Cost of Capital (WACC)

In plain English. The blended required return demanded by the company's debt and equity financing sources.

Syllogism. Major premise: financing is not free. Minor premise: investors and lenders require compensation for risk. Conclusion: projects should be evaluated against an appropriate cost of capital.

$$\text{WACC} = (E/V)Re + (D/V)Rd(1-T)$$

Variables. E = equity value; D = debt value; V = D+E; Re = cost of equity; Rd = cost of debt; T = tax rate.

Core relationship:

If ROIC > WACC → potential economic value creation; if ROIC < WACC → potential value destruction.

Economic Profit / Economic Value Added (EVA)

In plain English. Profit remaining after charging the business for the capital it uses.

Syllogism. Major premise: accounting profit can be positive even when capital earns too little. Minor premise: capital has a required return. Conclusion: subtract a capital charge to estimate economic profit.

$$\text{Economic Profit} = \text{NOPAT} - (\text{Invested Capital} \times \text{WACC})$$

Worked example. \$120M NOPAT - (\$1B × 9%) = \$30M economic profit.

Net Present Value (NPV)

In plain English. Convert future cash flows into today's dollars and subtract the initial investment.

Syllogism. Major premise: a dollar today is worth more than a dollar received later. Minor premise: an investment produces future cash flows. Conclusion: discount those flows before comparing them with today's cost.

$$\text{NPV} = \sum [\text{CF}_t / (1+r)^t] - \text{Initial Investment}$$

Variables. CF_t = cash flow in period t; r = discount rate; t = time period.

Internal Rate of Return (IRR)

In plain English. The discount rate that makes an investment's NPV equal zero.

Syllogism. Major premise: investments can be summarized by an implied rate of return. Minor premise: the project's cash-flow pattern produces a rate at which NPV equals zero. Conclusion: that rate is the IRR.

Find r such that $0 = \sum [CF_t / (1+r)^t] - \text{Initial Investment}$

Do not overread it. IRR can mislead with unconventional cash flows, mutually exclusive projects or unrealistic reinvestment assumptions.

DuPont Analysis

$ROE = \text{Net Profit Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}$

ROE means **Return on Equity**. DuPont analysis asks whether shareholder returns come from margins, efficient use of assets or financial leverage.

Chapter 6 - Growth, Customers and Unit Economics

Compound Annual Growth Rate (CAGR)

In plain English. The constant annual rate that would turn a beginning value into an ending value over a given number of years.

Syllogism. Major premise: multi-year growth compounds. Minor premise: beginning and ending values span several periods. Conclusion: use a compound rate rather than a simple arithmetic average.

$$\text{CAGR} = (\text{Ending} / \text{Beginning})^{(1/n)} - 1$$

Worked example. \$500M growing to \$1B over five years has CAGR $\approx$ 14.87%.

Customer Lifetime Value (LTV)

In plain English. An estimate of the economic value generated by a customer over the relationship.

Syllogism. Major premise: customers generate value over time, not only at acquisition. Minor premise: retention, margin and purchase behavior can be estimated. Conclusion: those expected future contributions can inform acquisition spending.

$$\text{Simple LTV} \approx \text{Average Revenue per Customer} \times \text{Gross Margin} \times \text{Average Lifetime}$$

Customer Acquisition Cost (CAC)

In plain English. How much sales and marketing spending is required to acquire a customer.

Syllogism. Major premise: growth has an acquisition cost. Minor premise: acquisition spending produces new customers. Conclusion: divide relevant acquisition spending by customers acquired.

$$\text{CAC} = \text{Sales \& Marketing Acquisition Spend} / \text{New Customers Acquired}$$

$$\text{LTV} / \text{CAC} = \text{customer value relative to acquisition cost}$$

Churn and Retention

$$\text{Customer Churn Rate} = \text{Customers Lost During Period} / \text{Customers at Start of Period}$$

$$\text{Retention Rate} \approx 1 - \text{Churn Rate (when definitions and periods align)}$$

Bass Diffusion Model

The Bass model describes adoption using two forces: innovation and imitation. It is useful for thinking about how new products spread through a population.

$$f(t) / [1 - F(t)] = p + qF(t)$$

p is the innovation coefficient; q is the imitation coefficient; $F(t)$ is cumulative adoption by time t .

Chapter 7 - Decision Science, Probability and Risk

Expected Value (EV)

In plain English. Multiply each possible outcome by its probability and add the results.

Syllogism. Major premise: uncertain choices have multiple possible outcomes. Minor premise: each outcome has a probability and value. Conclusion: probability-weighted value provides a useful decision benchmark.

$$EV = \sum(p_i \times V_i)$$

Variables. p_i = probability of outcome i ; V_i = value of outcome i .

Worked example. 60% chance of +\$100M and 40% chance of -\$50M gives $EV = \$40M$.

Bayesian Updating

In plain English. Start with an initial probability and update it when new evidence arrives.

Syllogism. Major premise: beliefs should respond to evidence. Minor premise: new evidence is more or less likely under competing hypotheses. Conclusion: update the probability of each hypothesis accordingly.

$$P(H|E) = P(E|H)P(H) / P(E)$$

Variables. H = hypothesis; E = evidence; $P(H|E)$ = probability of the hypothesis after observing evidence.

Decision Trees

Decision trees map choices, chance events, probabilities and payoffs. Solve them from right to left by calculating expected values at chance nodes and choosing the preferred branch at decision nodes.

Monte Carlo Simulation

Plain English. Instead of making one forecast, define uncertain inputs, randomly sample them thousands of times, calculate the outcome each time and inspect the resulting distribution.

Syllogism. The future is uncertain. A single forecast hides the range of plausible outcomes. Repeated simulation reveals that range. Therefore, Monte Carlo analysis can provide a richer risk picture than one-point forecasting.

Algorithm: define distributions → sample inputs → calculate outcome → repeat N times → summarize percentiles and probabilities

Kelly Criterion

$$f^* = (bp - q) / b$$

The Kelly criterion estimates a growth-optimal wager fraction under specific assumptions. In corporate strategy, the more transferable lesson is position sizing: **positive expected value does not imply risking the whole enterprise.**

Sharpe and Sortino Ratios

$$\text{Sharpe} = (R_p - R_f) / \sigma_p$$

$$\text{Sortino} = (R_p - \text{Target Return}) / \text{Downside Deviation}$$

Sharpe uses total volatility; Sortino focuses on harmful downside variation. Both are primarily investment-performance measures, but the risk-adjusted-return logic is broadly instructive.

Chapter 8 - Game Theory and Competitive Interaction

Nash Equilibrium

A set of strategies where no player benefits by changing its own strategy alone, given what the others are doing.

Syllogism. Each competitor chooses a best response to the others. If everyone is already playing a best response, unilateral deviation does not improve the outcome. Therefore, the strategy profile is a Nash equilibrium.

Prisoner's Dilemma

Individually rational choices can produce a collectively worse result. Business analogues include price wars, excessive promotion and capacity races.

Bertrand Competition

A model in which firms compete primarily through price. Under strong assumptions, price competition can push price toward marginal cost.

Cournot Competition

A model in which firms choose quantities. Each firm's optimal quantity depends on the quantity it expects rivals to produce.

Stackelberg Competition

A sequential quantity model with a leader that moves first and a follower that responds.

Repeated Games

When competitors interact repeatedly, reputation, punishment, trust and future consequences can change behavior relative to a one-shot game.

Signaling

A costly or credible action can reveal private information. Examples include warranties, capacity commitments, certifications or insider investment.

Auctions and Bargaining

Auction design changes incentives and information revelation. Bargaining models focus on outside options, patience, information and the division of surplus.

Chapter 9 - Operations Research and Optimization

Linear Programming

$$\text{Maximize } Z = c_1x_1 + c_2x_2 + \dots + c_nx_n \text{ subject to } Ax \leq b, x \geq 0$$

Use linear programming when the objective and constraints can reasonably be represented as linear relationships: production mix, distribution, staffing and capital allocation.

Integer Programming

Add integer or binary restrictions when choices are indivisible: open this plant or not, acquire this target or not, assign this team to one project.

0/1 Knapsack Problem

Choose the subset of opportunities that maximizes value without exceeding a budget or capacity constraint.

$$\text{Maximize } \sum(v_i x_i) \text{ subject to } \sum(c_i x_i) \leq \text{Budget, where } x_i \in \{0,1\}$$

Pareto Frontier

With multiple objectives, there may be no single best solution. A solution is Pareto-efficient when improving one objective necessarily worsens another.

Dynamic Programming

Break a multi-stage decision into smaller overlapping subproblems, solve them, and reuse the results. It is useful when today's choice changes tomorrow's state.

Network Optimization

Graph-based algorithms can optimize routes, flows, assignments and supply networks. Examples include shortest path, maximum flow and minimum-cost flow.

Theory of Constraints

Goldratt's practical cycle: **identify the constraint** → **exploit it** → **subordinate other activities** → **elevate the constraint** → **repeat**.

Chapter 10 - Operations, Queues and Process Mathematics

Little's Law

In plain English. In a stable flow system, the average number of items in the system equals the average arrival/throughput rate multiplied by average time in the system.

Syllogism. Major premise: work accumulates when flow rate and time interact. Minor premise: the system is sufficiently stable for long-run averages. Conclusion: inventory/work-in-process, throughput and flow time are mathematically linked.

$$L = \lambda W$$

Variables. L = average items in system; λ = average throughput/arrival rate; W = average time in system.

Worked example. If 20 jobs per day flow through a process and each spends 3 days in it, average work-in-process is about 60 jobs.

Economic Order Quantity (EOQ)

In plain English. Balances ordering cost against inventory holding cost to estimate an efficient order quantity.

Syllogism. Major premise: ordering too frequently is costly, but holding too much inventory is also costly. Minor premise: both costs can be estimated. Conclusion: there is a quantity that minimizes their sum under the model assumptions.

$$EOQ = \sqrt{(2DS / H)}$$

Variables. D = annual demand; S = cost per order; H = annual holding cost per unit.

Queueing

Queueing models study waiting lines. A key warning is that as utilization approaches 100%, waiting time can increase dramatically. Therefore, maximizing utilization is not always the same as maximizing system performance.

PDSA

PDSA means **Plan-Do-Study-Act**. It is a learning cycle: plan a change, test it, study the result and adjust.

Chapter 11 - Strategic Algorithms

Acquisition Re-Ranking Algorithm

$$\text{New Share}(\text{buyer}) = \text{Share}(\text{buyer}) + \text{Share}(\text{target})$$

Then remove the target, re-rank all firms and recompute CR3/CR4, HHI, relative market share and leader gap.

Pseudocode.

1. Sort firms by share 2. For every permitted buyer-target pair: 3. combine shares 4. remove target 5. re-rank 6. calculate HHI, CR4, RMS and leader gap 7. estimate price, synergies and ROIC 8. reject combinations violating constraints 9. rank surviving scenarios by strategic objective

Leader-Gap Algorithm

$$\text{Leader Gap}(i) = \text{Share}(\text{leader}) - \text{Share}(i)$$

This gives a simple measure of the share distance between a competitor and the leader. For acquisition analysis, test which targets close the gap at acceptable cost.

Market-Share Momentum

$$\Delta \text{Share} = \text{Share}(t) - \text{Share}(t-1)$$

$$\text{Share Growth Rate} = [\text{Share}(t) - \text{Share}(t-1)] / \text{Share}(t-1)$$

Rank Velocity

$$\text{Rank Velocity} = \text{Old Rank} - \text{New Rank}$$

Positive values indicate upward movement in rank; negative values indicate deterioration.

Composite Strategic Strength Score

$$\text{Score} = w1(\text{RMS}) + w2(\text{ROIC-WACC}) + w3(\text{Growth}) + w4(\text{Moat}) + w5(\text{Cost Advantage}) - w6(\text{Risk})$$

The formula is a template, not a validated universal score. Weights should be justified empirically, tested for sensitivity and ideally back-tested against historical outcomes.

Moat Score

Possible components include scale, network effects, switching costs, brand, proprietary technology, cost advantage, distribution and regulatory position. Score each consistently and document evidence.

Chapter 12 - Integrated Henderson-to-McKinsey Case

Assume an illustrative market begins with five visible competitors:

Firm	Share	Rank
A	25%	#1
B	20%	#2
C	15%	#3
D	10%	#4
E	7%	#5

Step 1 - Henderson

Ask whether the market is stable enough for the Rule of Three and Four to be informative. If it is, C and D deserve special attention because their future relative positions may determine which generalists remain significant.

Step 2 - Concentration

$$CR4 = 25 + 20 + 15 + 10 = 70\%$$

$$\text{Partial HHI} = 25^2 + 20^2 + 15^2 + 10^2 + 7^2 = 1,399 + \text{remaining firms}$$

Step 3 - Acquisition Scenario

If D acquires E, its illustrative share becomes 17%. Re-ranking gives A 25%, B 20%, D 17%, C 15%. D jumps from #4 to #3.

Step 4 - Do Not Stop at Share

Test whether the acquisition actually creates value: purchase price, integration cost, synergies, customer losses, financing, ROIC, WACC, competitor response and regulatory constraints all matter.

Step 5 - McKinsey Decomposition

Separate the buyer's subsequent growth into market momentum, organic share movement and M&A.; Buying share is not the same thing as demonstrating organic competitive superiority.

Step 6 - Porter

Re-run Five Forces. Consolidation may improve rivalry economics, but it may also strengthen buyers, attract entrants, accelerate substitutes or trigger aggressive responses.

Step 7 - Monte Carlo

Model uncertain integration synergies, growth, margins, financing cost and competitor reactions as distributions. Estimate the probability that the deal creates economic value rather than relying only on a single base case.

Step 8 - Three Horizons

Finally, ask whether management is over-investing in today's competitive battle while neglecting the businesses that must become tomorrow's growth engines.

Appendix A - 100 Strategic Rules and Maxims

- 1. Rule of Three and Four.** Stable competitive industries may consolidate around a few significant competitors.
- 2. Experience Curve.** Cumulative experience can reduce real unit costs.
- 3. Relative Market Share.** Compare your share with the strongest rival, not only with the whole market.
- 4. Growth Consumes Cash.** Fast growth often requires capital before it generates mature cash flow.
- 5. Market Share Can Generate Cash.** Strong position plus favorable economics can produce cash.
- 6. Growth-Share Matrix.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 7. Cash Cow Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 8. Question-Mark Decision.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 9. Portfolio Balance.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 10. Price Umbrella.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 11. Competitive Equilibrium.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 12. Competitor Reaction Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 13. Advantage Matrix.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 14. Volume Business.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 15. Specialized Business.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 16. Fragmented Business.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 17. Stalemate Business.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 18. Time-Based Competition.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 19. Strategic Segmentation.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 20. Consolidation as Strategy.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 21. Five Forces.** Industry profit is shaped by rivalry, entrants, substitutes, suppliers and buyers.
- 22. Cost Leadership.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 23. Differentiation.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 24. Focus Strategy.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 25. Stuck in the Middle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 26. Trade-Off Principle.** A strategy becomes clearer when it specifies what the organization will not do.
- 27. Activity Fit.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 28. Value Chain.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.

- 29. Barriers to Entry.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 30. Substitution Threat.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 31. Supplier Power.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 32. Buyer Power.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 33. Rivalry Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 34. Strategic Positioning.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 35. Sustainable Advantage.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 36. Ansoff: Market Penetration.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 37. Ansoff: Market Development.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 38. Ansoff: Product Development.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 39. Ansoff: Diversification.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 40. S-Curve.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 41. Second S-Curve Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 42. Economies of Scale.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 43. Economies of Scope.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 44. Network Effects.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 45. Two-Sided Network Effect.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 46. Critical Mass.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 47. Winner-Take-Most.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 48. Cannibalization Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 49. Adjacent-Market Expansion.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 50. Core Competence.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 51. Opportunity Cost.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 52. Sunk-Cost Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 53. ROIC vs. WACC.** Compare operating return on capital with the cost of financing that capital.
- 54. Economic Profit.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 55. Buy vs. Build.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 56. Capital Rationing.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.

- 57. Margin vs. Turnover.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 58. Operating Leverage.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 59. Financial Leverage.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 60. Margin of Safety.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 61. Innovator's Dilemma.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 62. Disruption from Below.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 63. New-Market Disruption.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 64. Crossing the Chasm.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 65. Jobs to Be Done.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 66. Technology Adoption Curve.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 67. Dominant Design.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 68. Modularity Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 69. Commoditization.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 70. Creative Destruction.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 71. Drucker's Effectiveness Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 72. Abandonment Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 73. Concentration Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 74. Peter Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 75. Parkinson's Law.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 76. Goodhart's Law.** A metric can become less informative when people are strongly rewarded for hitting it.
- 77. Campbell's Law.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 78. Span of Control.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 79. Principal-Agent Problem.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 80. Conway's Law.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 81. Pareto Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 82. Law of Diminishing Returns.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 83. Regression to the Mean.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.

- 84. Base-Rate Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 85. Bayesian Updating.** Change probabilities when new evidence arrives.
- 86. Expected Value.** Weight outcomes by their probabilities.
- 87. Optionality.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 88. Reversibility Principle.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 89. Second-Order Effects.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 90. Incentives Matter.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 91. Concentration of Force.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 92. Economy of Force.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 93. Unity of Command.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 94. Interior Lines.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 95. OODA Loop.** Observe, orient, decide and act in a repeating competitive cycle.
- 96. Tempo.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 97. Indirect Approach.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 98. Center of Gravity.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 99. Friction.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.
- 100. No Plan Survives Contact.** Use this as a strategic lens, then test its assumptions against the specific industry, economics and evidence.

Appendix B - Acronym and Symbol Glossary

Acronym / Symbol	Meaning in plain English
7-S	Seven interdependent organizational elements: strategy, structure, systems, shared values, skills, style and staff.
CAC	Customer Acquisition Cost - cost to acquire a new customer.
CAGR	Compound Annual Growth Rate - compounded yearly growth between two values.
CF	Cash Flow.
CR3 / CR4	Three-Firm / Four-Firm Concentration Ratio - share controlled by the largest three/four firms.
DCF	Discounted Cash Flow - valuation using present value of expected future cash flows.
EOQ	Economic Order Quantity - inventory order size balancing ordering and holding costs.
EV	Expected Value - probability-weighted average outcome.
EVA	Economic Value Added - economic profit after charging for capital.
GE	General Electric; in the GE-McKinsey matrix, the corporate partner associated with the portfolio framework.
HHI	Herfindahl-Hirschman Index - sum of squared market shares.
IRR	Internal Rate of Return - discount rate at which NPV equals zero.
LTV	Customer Lifetime Value - estimated economic value of a customer relationship.
M&A;	Mergers and Acquisitions.
MC	Marginal Cost - cost of producing one additional unit.
MECE	Mutually Exclusive, Collectively Exhaustive - categories should avoid unnecessary overlap and cover the problem.
NOPAT	Net Operating Profit After Tax.
NPV	Net Present Value - present value of future cash flows minus investment.
OODA	Observe, Orient, Decide, Act.
PDSA	Plan, Do, Study, Act.
PED	Price Elasticity of Demand.
RMS	Relative Market Share.
ROE	Return on Equity.
ROIC	Return on Invested Capital.
WACC	Weighted Average Cost of Capital.
Σ	Sigma - sum the terms that follow the specified rule.
Δ	Delta - change in a variable.
σ	Sigma in statistics - commonly standard deviation.
μ	Mu - commonly the population mean.
P(A)	Probability of event A.
P(A B)	Conditional probability of A given B.

Appendix C - Formula Sheet

Concept	Formula	What it tells you
CR4	$s_1+s_2+s_3+s_4$	Top-four market concentration.
HHI	$\sum(s_i^2)$	Market concentration with larger firms weighted more heavily.
RMS	Your share / largest competitor share	Relative competitive position.
Experience curve	$C(Q)=C_0 \times Q^b$	Cost as a function of cumulative output.
CAGR	$(\text{Ending}/\text{Beginning})^{(1/n)}-1$	Compounded annual growth.
ROIC	$\text{NOPAT} / \text{Invested Capital}$	Operating return on capital.
WACC	$(E/V)R_e + (D/V)R_d(1-T)$	Blended financing cost.
Economic Profit	$\text{NOPAT} - (\text{Invested Capital} \times \text{WACC})$	Profit after capital charge.
NPV	$\sum [CF_t / (1+r)^t] - \text{Initial Investment}$	Present value created by an investment.
IRR	$r \text{ where } \text{NPV}=0$	Implied project return.
DuPont ROE	$\text{Margin} \times \text{Asset Turnover} \times \text{Equity Multiplier}$	Drivers of return on equity.
Elasticity	$\% \Delta Q / \% \Delta P$	Demand sensitivity to price.
Lerner Index	$(P-MC)/P$	Price markup over marginal cost.
EV	$\sum(p_i \times V_i)$	Probability-weighted outcome.
Bayes	$P(H E) = P(E H)P(H)/P(E)$	Update a hypothesis using evidence.
Little's Law	$L = \lambda W$	Flow inventory = rate $\times$ time.
EOQ	$\sqrt{(2DS/H)}$	Inventory order quantity under classic assumptions.
Kelly	$(bp-q)/b$	Growth-optimal stake fraction under strict assumptions.
Sharpe	$(R_p - R_f)/\sigma_p$	Return per unit of total volatility.
Leader gap	$S_1 - S_i$	Share distance from the leader.

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