| | Strengths | Weaknesses |
|---|---|---|
| **Opportunities** | Achieve opportunities that greatly match the organizational strengths | Overcome weaknesses to attain opportunities |
| **Threats** | Use strengths to reduce the organization's vulnerability to threats | Prevent weaknesses to avoid making the organization more susceptible to threats |

**Figure 2.1.** SWOT Analysis

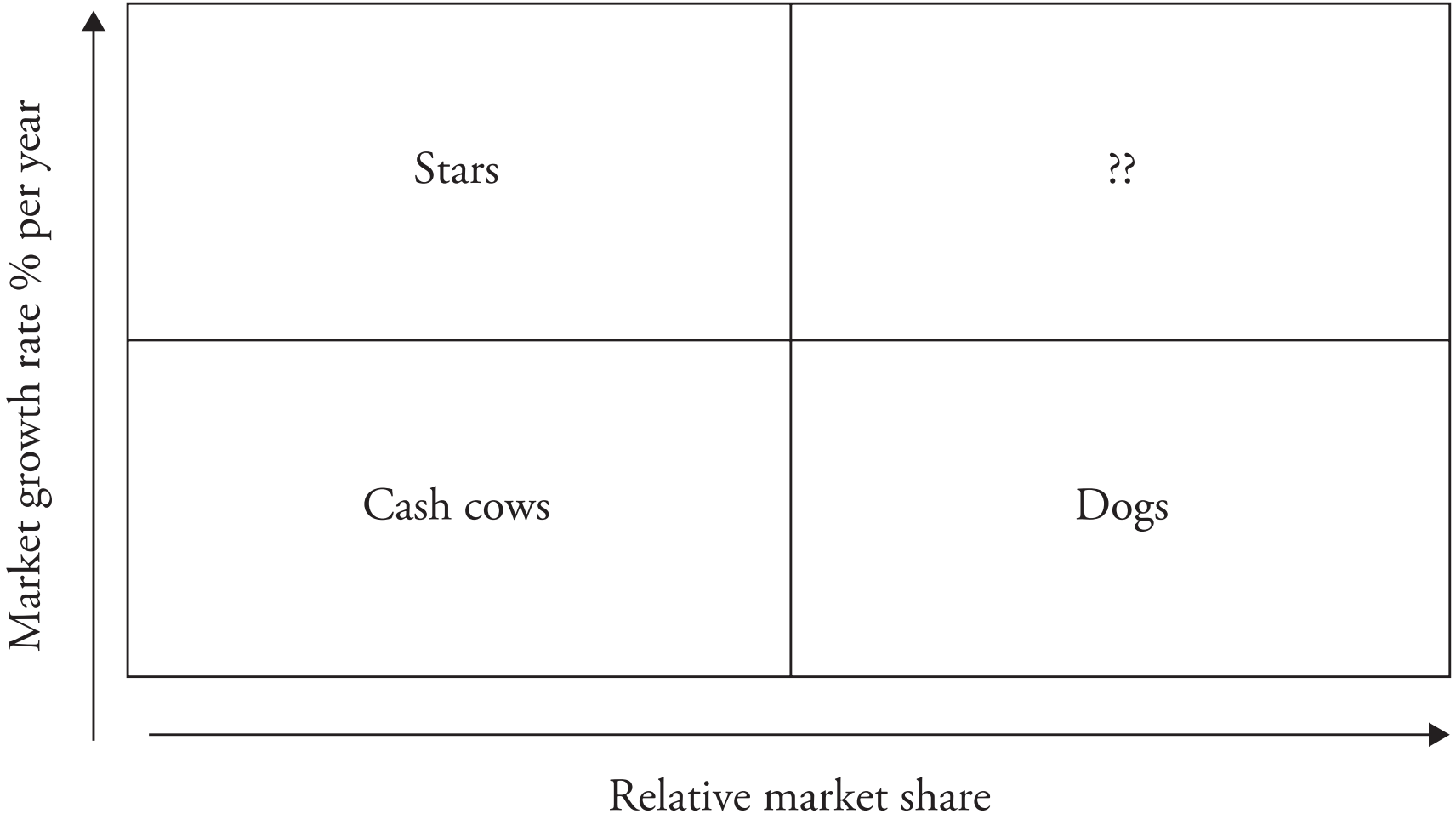


**Figure 2.2.** BCG Matrix

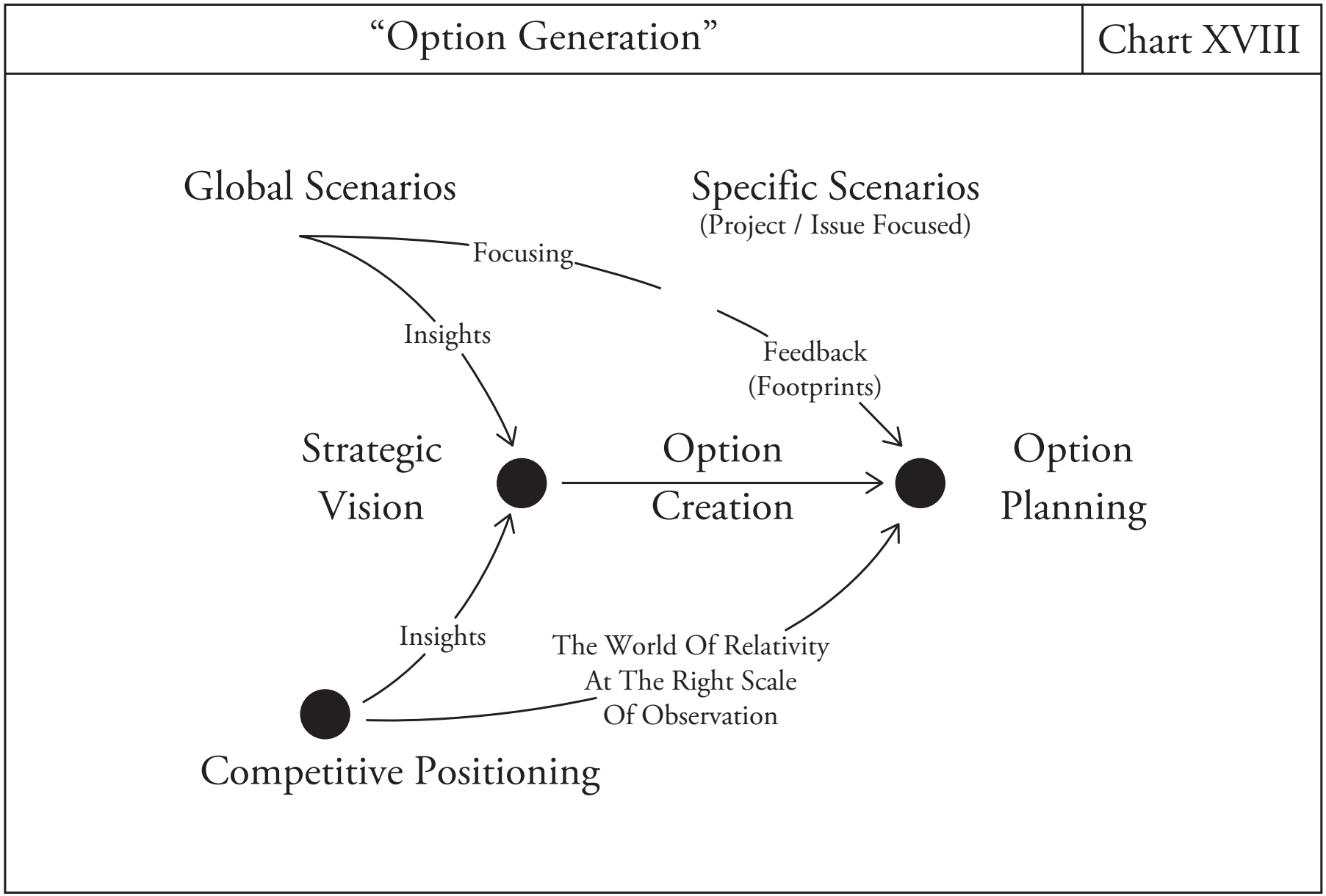


**Figure 3.1.** Pierre Wack's "Option Generation" (1985b, p. 89)

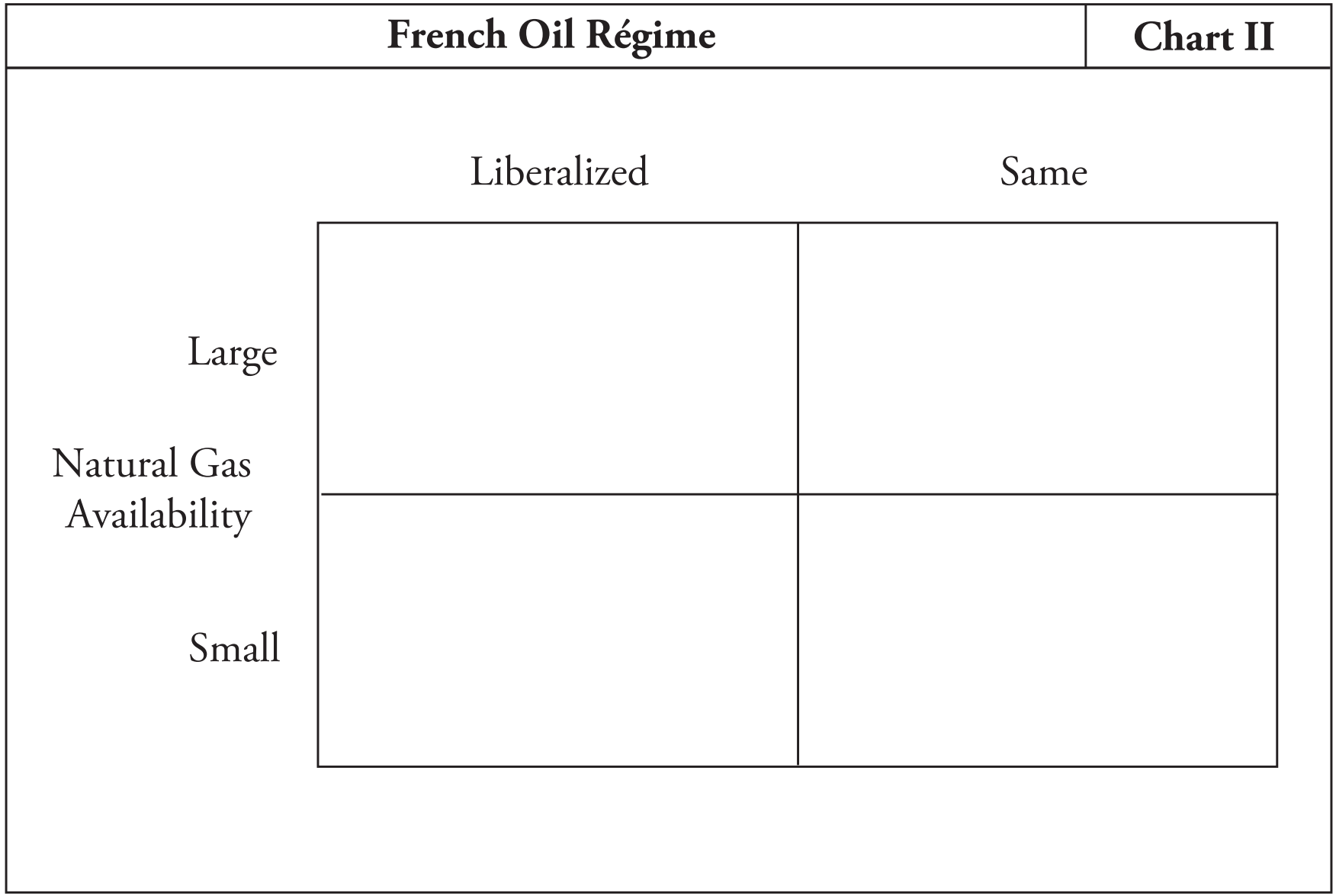


**Figure 3.2.** Wack's First 2 × 2 Matrix (Wack, 1985a)

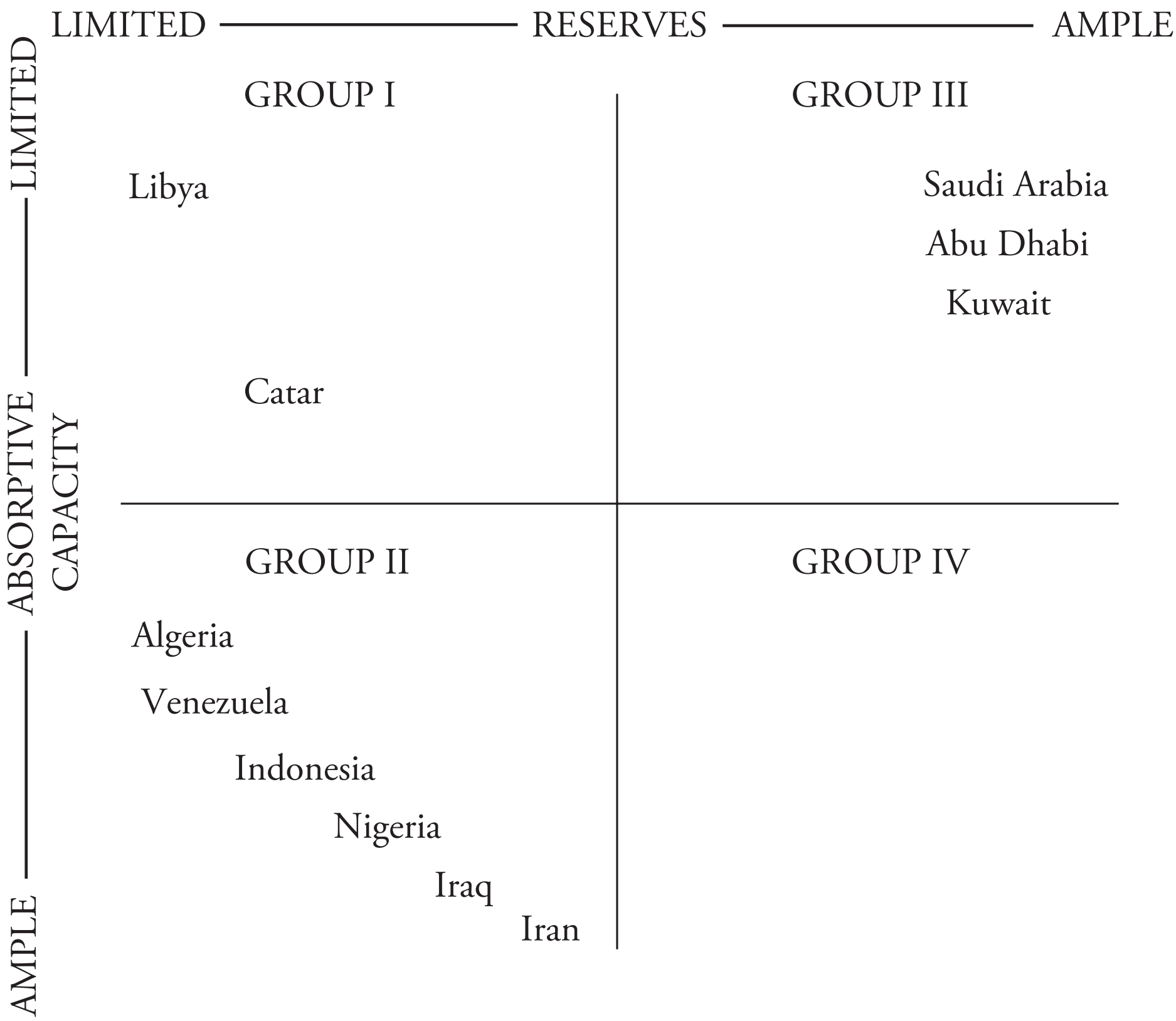


**Figure 3.3.** Major Oil Exporters (Wack 1985a)

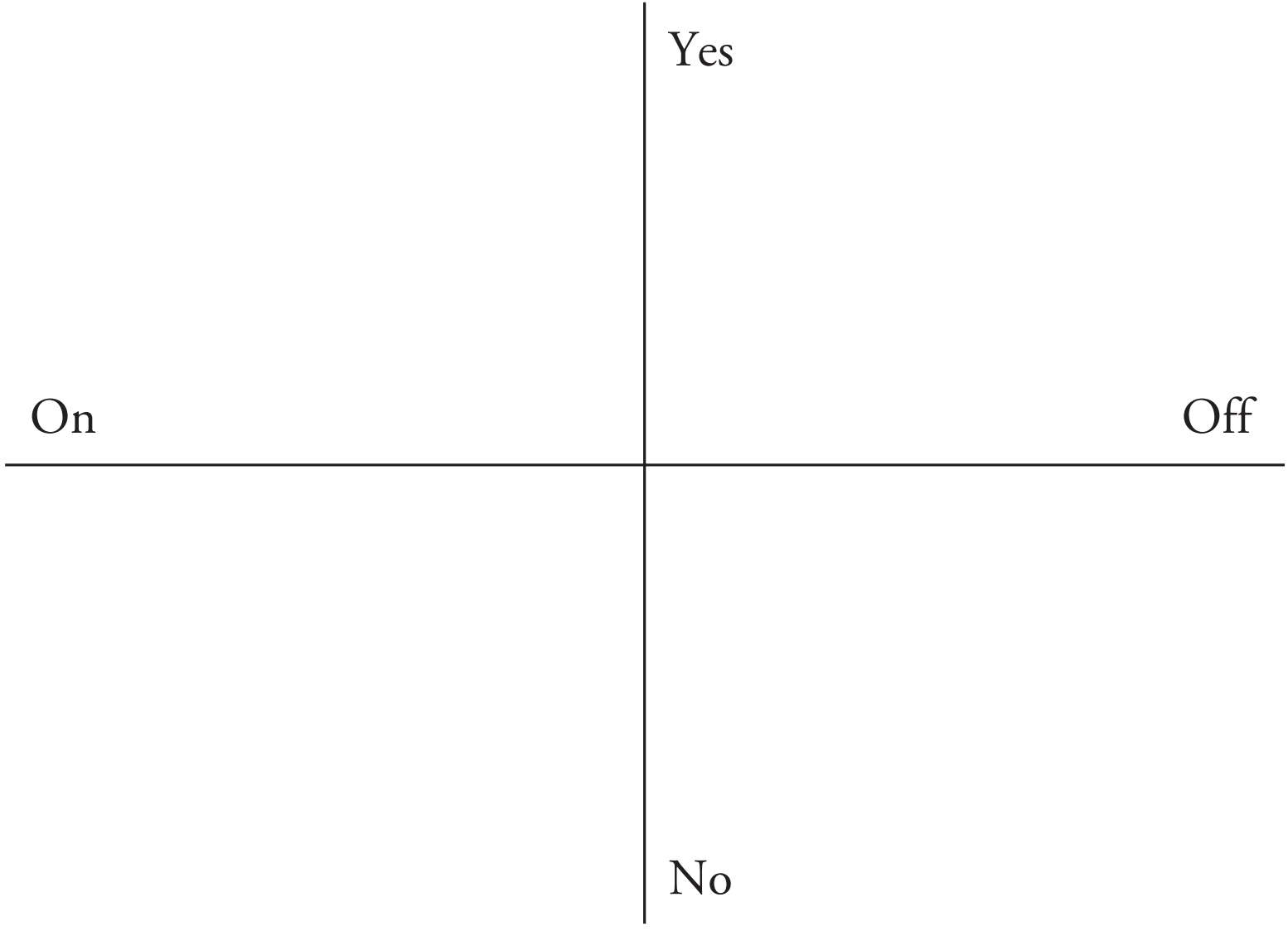


**Figure 3.4.** The Scenario Matrix as a Grid (Ramirez & Wilkinson, 2014)

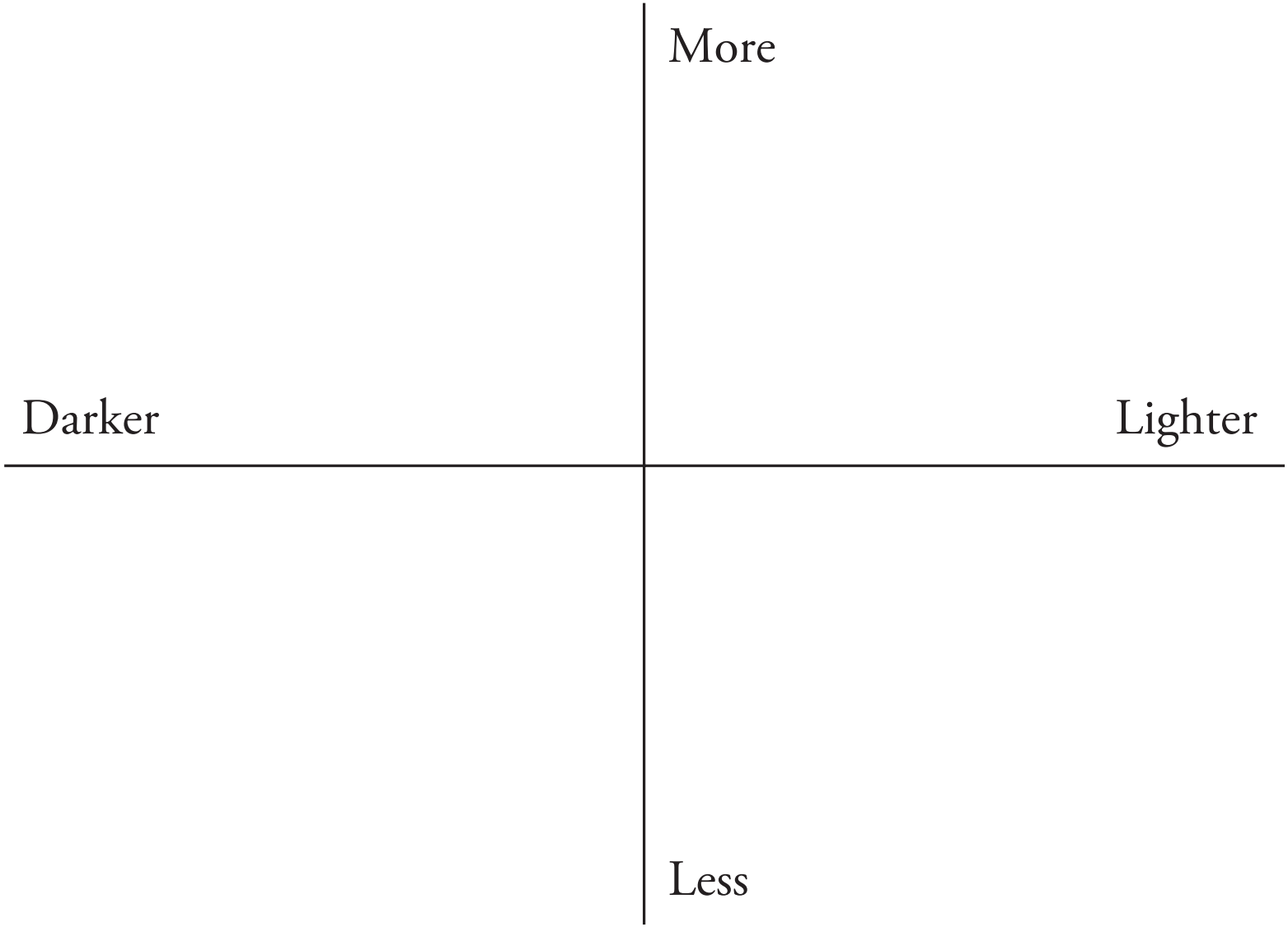


**Figure 3.5.** The Scenario Matrix as Frames (Ramirez & Wilkinson, 2014)

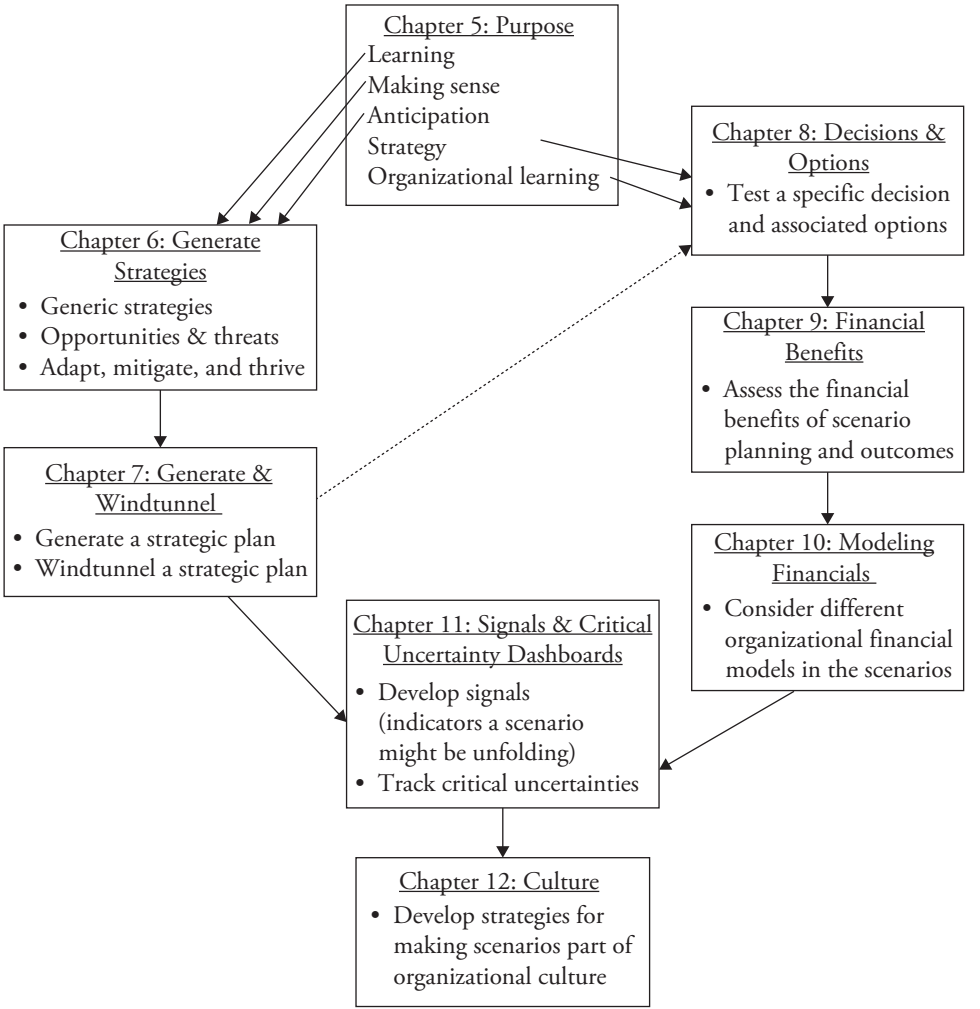


**Figure 4.1.** Overall Process Flow for Using Scenarios

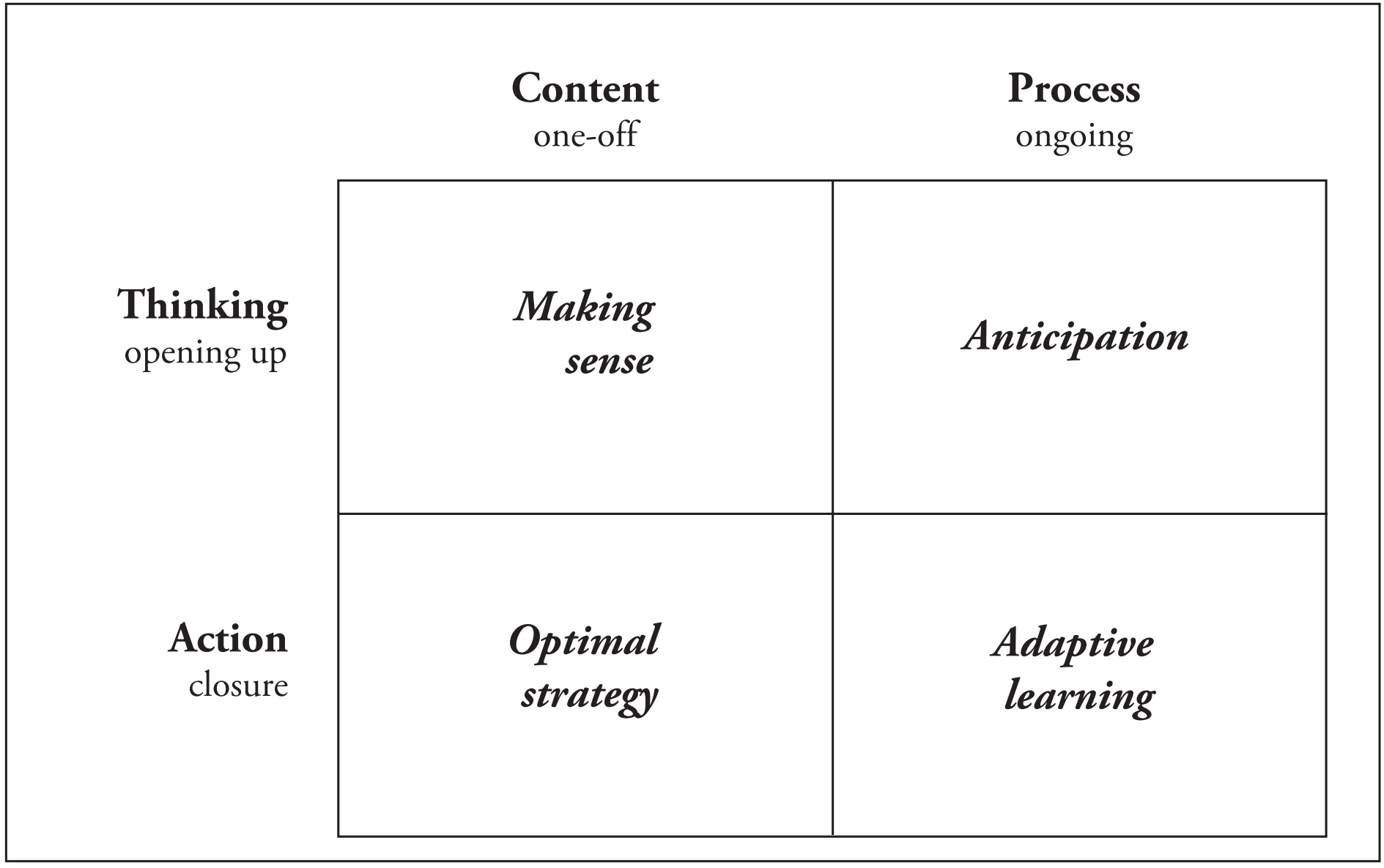


**Figure 5.1.** Van der Heijden's Categories of Scenario Purpose (2004)

Critical Uncertainty 1

Scenario A

- Generic strategy 1
- Generic strategy 2
- Generic strategy 3
- Generic strategy 4
- Etc.

Scenario B

- Generic strategy 1
- Generic strategy 2
- Generic strategy 3
- Generic strategy 4
- Etc.

Critical Uncertainty 2

- Generic strategy 1
- Generic strategy 2
- Generic strategy 3
- Generic strategy 4
- Etc.

Scenario D

- Generic strategy 1
- Generic strategy 2
- Generic strategy 3
- Generic strategy 4
- Etc.

Scenario C

**Figure 6.1.** Scenarios and Generic Strategies Template

| | Scenario 1 | Scenario 2 | Scenario 3 |
|---|---|---|---|
| Strategies | • Generic strategy | • Generic strategy | • Generic strategy |
| | • Generic strategy | • Generic strategy | • Generic strategy |
| | • Etc. | • Etc. | • Etc. |

**Figure 6.2.** Modified Scenarios and Generic Strategies Template

| Social Values—Toward Mutualist | |
|---|---|
| - Technical assistance to improve quality of habitat in and near urban areas<br>- Influence development codes to be wildlife habitat friendly<br>- Shift Wildlife Recreation Program from urban/suburban fee/ce acquisitions<br>- Partner with commerce, science centers, zoos<br>- Target new residents and meet them where they are<br>- Offer wildlife viewing expeditions<br>- Create urban habitat spaces with corridors<br>- Reprioritize focus (acquisition) on urban habitats<br>- Shift existing Department of Fish and Wildlife staff capacity toward nongame while increasing reliance on comanagement of game space with tribes<br>- Identify new revenue sources (i.e., Coke using wildlife spaces for royalties to DFW)<br>- DFW-owned transportation to get urban folks out to "Big nature" (DFW lands)<br>- Biologists become nature guides and can charge for participating in experiences | - Consider culling deer and elk to avoid wild fluctuations in populations of deer and elk and carnivores and/or contaminants of disease<br>- Staff shifted toward zoonotic disease unit<br>- Emergency declaration for open access to new funds<br>- Increase restoration of sea grasses: kelp to store carbon (trade-off in ecosystem)<br>- Monitor base of food web and acidification to prioritize areas and actions to identify at-risk areas<br>- Work with superintendent of public schools to integrate at-risk wildlife education into statewide curriculum<br>- Increase health testing<br>- Partner with health and food industry<br>- Disease mitigation and emergency management<br>- Enhance emergency management<br>- Science around disease statistics to help plants and animals adapt to acidifications<br>- Are there ways to protect and preserve endangered species from natural disaster? |

**Figure 6.3.** Generic Strategies for Fish and Wildlife Agency

| Habitat—Urban | Habitat—Wild |
|---|---|
| - Green energy development codes and mitigation methods<br>- Work with ranching/farming community to preserve native habitat<br>- Enhance emergency management processes (east vs. west tensions)<br>- Partner with tech company leaders to innovate around solar and wildlife conflicts<br>- More outreach and education around ranching and farming practices<br>- Enhanced and tailored messaging<br>- Work with farmers to develop wildlife-friendly practices in addition to incentives to conserve shrub steppe (state farm bill and funding)<br>- Fund community gardens<br>- Incentivize solar development in urban areas<br>- Wildlife-friendly solar best management practices | - Develop community-based grant programs to further enhance pace and effectiveness of coexistence efforts<br>- Try to outpace climate impact on people and wildlife<br>- Work with Office of Superintendent of Public Instruction to integrate living with wildlife into statewide school curriculum<br>- Harness community programs to advocate for fish and wildlife protections in renewable energy regulation<br>- Reconsider the positive effects of hydro energy/h20 storage in light of water supply challenges<br>- Identify costs and impact of green energy and make green greener<br>- Provide outreach for what responsible watching and living with wildlife looks like, using conservation corps<br>- Learn how to better recycle water for fish production/health and public education |
| Social Values—Divisive | |

**Figure 6.3.** (continued)

| Scenario | Opportunities | Strategies | Threats | Strategies |
|---|---|---|---|---|
| Scenario 1 | | | | |
| Scenario 2 | | | | |
| Scenario 3 | | | | |
| Scenario 4 | | | | |

**Figure 6.4.** Scenario Opportunities and Threats Template

| Scenario | Opportunities | Strategies | Threats | Strategies |
|---|---|---|---|---|
| Scenario 1 | Desperate need for health-care support, but government structures prohibit success<br><br>Cures for cancer, blindness, obesity | Lobbying efforts—increased attention to our relationships with state governments<br><br>Opportunity to track developments in these areas and be on the leading edge of the cures | Health care takes a backseat to larger global issues<br><br>Political unrest and upheaval<br><br>Major divide between haves and have-nots | We are in a slump, focus on internal efficiencies<br><br>Consider how to cut costs to make medications and procedures more affordable |
| Scenario 2 | Personal technology advancements<br><br>Available disposable income and a focus on health care | Ramp up our own understanding and investment on the tech side<br><br>Consider a few innovation projects and products that may be expensive but that people would be able to afford | Complicated access systems<br><br>Reimbursements dysfunctional<br><br>Increased scrutiny from regulators | Streamline our own access systems<br><br>Can we get involved in / overtake the reimbursement process? |

**Figure 6.5.** Healthcare Company Opportunities and Threats Example

| Scenario | Opportunities | Strategies | Threats | Strategies |
|---|---|---|---|---|
| Scenario 3 | Numerous potential diseases develop<br><br>Significant medical technology advancement | Many of our innovations in process could help—keep investing in these<br><br>Maintain or increase our investments in medical technologies—we are already on the edge of innovation | Economic and environmental crises create migration<br><br>Disease spreads quickly<br><br>Collapsing economies pose real threat | How do we aim for low-cost solutions?<br><br>Tracking migration allows our ability to focus efforts in certain states / regions |
| Scenario 4 | Leveraging social media more effectively to inform and persuade consumers<br><br>Pharmaceutical cure for diabetes pioneered | Do we even have a social media presence? We probably should . . .<br><br>Ramp up diabetes research and products—we have some, but this scenario suggests real opportunities | Dichotomous: economy recovered but consumers anxious<br><br>Booming economy results in major deregulation of industry | Marketing and trust building with the public is critical<br><br>Innovative and higher-cost products will be affordable, though probably to the "few." What are our ethics on this? |

**Figure 6.5.** (continued)

| Scenario | Adapt | Mitigate | Thrive |
|---|---|---|---|
| Scenario 1 | | | |
| Scenario 2 | | | |
| Scenario 3 | | | |
| Scenario 4 | | | |

**Figure 6.6.** Scenario Adapt, Mitigate, and Thrive Template

| Scenario | Adapt | Mitigate | Thrive |
|---|---|---|---|
| Single-Speed Bike Scenario | Get on faculty council and university curriculum commitee<br><br>Be transparent about money—invest wisely in university services<br><br>Define what success looks like for each unit and/or program<br><br>Establish goals for success, knowing when university will help or hinder<br><br>Don't fight the battles<br><br>Articulate the value of continuing education for the community<br><br>Advocate, advocate, advocate (externally)<br><br>Define what we are good at, and excel regardless of support | Prioritize campus communications and building understanding, not just relationships<br><br>Keep quality<br><br>Advocate to the right individuals<br><br>Internal marketing—telling our story<br><br>Get full buy-in on any external partnership<br><br>Implement and clarify who we are to build our relationships<br><br>Retention and growth go hand in hand | Continue investments in online conversion (moderately)<br><br>Marketing across the university to programs that might want online programs—services we can provide |

**Figure 6.7.** Online University's Adapt, Mitigate, and Thrive Strategies

| Scenario | Adapt | Mitigate | Thrive |
|---|---|---|---|
| Cruiser Bike Scenario | How can we increase supply/capacity by partnering to fund faculty lines<br><br>We're in a position to leverage quality and choose whether to aim for greater growth<br><br>Disciplined teaching methods and services innovation<br><br>Build a national reputation for excellence<br><br>Select the few departments that support growth and focus resources there<br><br>Expand by consulting and selling knowledge and experience related to quality and technology—will bring in more innovative staff to do this<br><br>Select the few departments that support growth and focus resources there | Be aware of our spending nature<br><br>Articulate Division of Continuing Education role and value to university leaders and stakeholders<br><br>Prioritize internal communication to ensure there is not confusion about mission and vision<br><br>Be more aware of maintaining opportunities for growth and development for staff to retain them<br><br>Be more visible through community participation<br><br>Articulate DCE role and value to university leaders and stakeholders<br><br>If innovation is not a driver, focus on our partnership / our value<br><br>Focus on methods and services, not technology innovation | Promote hiring of faculty—every way we can<br><br>Build programs online with excellence in mind (created by tenure / tenure track faculty) |

**Figure 6.7.** (continued)

| Scenario | Adapt | Mitigate | Thrive |
|---|---|---|---|
| Cannondale Bike Scenario | Internal roles and communication<br><br>Need to resource infrastructure / cross-training<br><br>Retention plan<br><br>Monitor data and quality<br><br>Integrate into all department meetings—program team knows department inside and out<br><br>Very large team / organizational structure needs to be tight—4 layers deep<br><br>Internal roles and communication<br><br>Advocate for quality in customer service and program development / management<br><br>Define resident instruction success and its relationship to Division of Continuing Education success | Challenges presented by this scenario are easy to overcome<br><br>Invest in staff, hiring, leadership, and HR development<br><br>Invest in quality customer service—hire specifically at the customer service level | Hire, hire, hire! Develop programs—actively seek programs that want an online presence<br><br>Support marketing to reach across the university to find the right programs |

**Figure 6.7.** (continued)

| Scenario | Adapt | Mitigate | Thrive |
|---|---|---|---|
| Banana-Seat Bike Scenario | Rebuild, restructure, and refocus on a few programs<br><br>Establish priorities for specific efforts in program growth and quality<br><br>Focus on external reputation and quality<br><br>Prove we are a better choice than going alone (lost quality)<br><br>Define directed strategies around student and program achievements<br><br>Define what we would do if registration was not a service we offer<br><br>Maintain the core values of the customer experience statement | Keep our positive results visible to administration and use data to drive decisions<br><br>Stay conservative / aware of spending, even when funds are abundant<br><br>Invest to keep the student as the customer, not the supplier as customer | Choose boutique programs—those ripe for online transition<br><br>Focus groups with students from selected programs—what do they want? |

**Figure 6.7.** (continued)

| Strategy | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
|---|---|---|---|---|
| Strategy 1 | | | | |
| Strategy 2 | | | | |
| Strategy 3 | | | | |
| Strategy . . . | | | | |

**Figure 7.1.** Windtunneling Template

| Social Values—Toward Mutualist | |
|---|---|
| - Technical assistance to improve quality of habitat in and near urban areas<br>- Influence development codes to be wildlife habitat friendly<br>- Shift Wildlife Recreation Program from urban/suburban fee/ce acquisitions<br>- Partner with commerce, science centers, zoos<br>- Target new residents and meet them where they are<br>- Offer wildlife viewing expeditions<br>- Create urban habitat spaces with corridors<br>- Reprioritize focus (acquisition) on urban habitats<br>- Shift existing Department of Fish and Wildlife staff capacity toward nongame while increasing reliance on comanagement of game space with tribes<br>- Identify new revenue sources (i.e., Coke using wildlife spaces for royalties to DFW)<br>- DFW-owned transportation to get urban folks out to "Big nature" (DFW lands)<br>- Biologists become nature guides and can charge for participating in experiences | - Consider culling deer and elk to avoid wild fluctuations in populations of deer and elk and carnivores and/or contaminants of disease<br>- Staff shifted toward zoonotic disease unit<br>- Emergency declaration for open access to new funds<br>- Increase restoration of sea grasses: kelp to store carbon (trade-off in ecosystem)<br>- Monitor base of food web and acidification to prioritize areas and actions to identify at-risk areas<br>- Work with superintendent of public schools to integrate at-risk wildlife education into statewide curriculum<br>- Increase health testing<br>- Partner with health and food industry<br>- Disease mitigation and emergency management<br>- Enhance emergency management<br>- Science around disease statistics to help plants and animals adapt to acidifications<br>- Are there ways to protect and preserve endangered species from natural disaster? |

**Figure 7.2.** Generic Strategies for Fish and Wildlife Agency

| Habitat—Urban | Habitat—Wild |
|---|---|
| - Green energy development codes and mitigation methods<br>- Work with ranching/farming community to preserve native habitat<br>- Enhance emergency management processes (east vs. west tensions)<br>- Partner with tech company leaders to innovate around solar and wildlife conflicts<br>- More outreach and education around ranching and farming practices<br>- Enhanced and tailored messaging<br>- Work with farmers to develop wildlife-friendly practices in addition to incentives to conserve shrub steppe (state farm bill and funding)<br>- Fund community gardens<br>- Incentivize solar development in urban areas<br>- Wildlife-friendly solar best management practices | - Develop community-based grant programs to further enhance pace and effectiveness of coexistence efforts<br>- Try to outpace climate impact on people and wildlife<br>- Work with Office of Superintendent of Public Instruction to integrate living with wildlife into statewide school curriculum<br>- Harness community programs to advocate for fish and wildlife protections in renewable energy regulation<br>- Reconsider the positive effects of hydro energy/h20 storage in light of water supply challenges<br>- Identify costs and impact of green energy and make green greener<br>- Provide outreach for what responsible watching and living with wildlife looks like, using conservation corps<br>- Learn how to better recycle water for fish production/health and public education |
| Social Values—Divisive | |

**Figure 7.2.** (continued)

| | Washington Monument Scenario | Central Park Scenario | Yosemite National Park Scenario | Denali National Park Scenario |
|---|---|---|---|---|
| Develop targeted outreach to new [state] residents | **High utility** | **High utility** | **Medium utility** | **High utility** |
| Explore and identify new revenue sources (taxes, royalties, fees) | **High utility** | **High utility** | **High utility** | **High utility** |
| Increase partnerships with public, private, and nongovernmental organizations | **Low utility** | **Medium utility** | **Medium utility** | **Medium utility** |
| Partner with education to enhance K–12 wildlife curriculum | **Medium utility** | **High utility** | **Low utility** | **Medium utility** |
| Offer "see and experience" wildlife tours | **High utility** | **High utility** | **High utility** | **High utility** |
| Restructure Fish and Wildlife Agency to regional offices | **Low utility** | **Low utility** | **Low utility** | **Low utility** |
| Develop and provide resources for enhanced emergency management planning | **High utility** | **High utility** | **High utility** | **High utility** |
| Engage partners and facilitate discussions on at-risk ecosystems | **Medium utility** | **High utility** | **Medium utility** | **Medium utility** |
| Invest in climate change analysis tools and programs | **High utility** | **Low utility** | **Medium utility** | **Medium utility** |
| Modify water infrastructure | **Low utility** | **High utility** | **Low utility** | **Low utility** |

**Figure 7.3.** Windtunneling Generic Strategies for Fish and Wildlife Agency

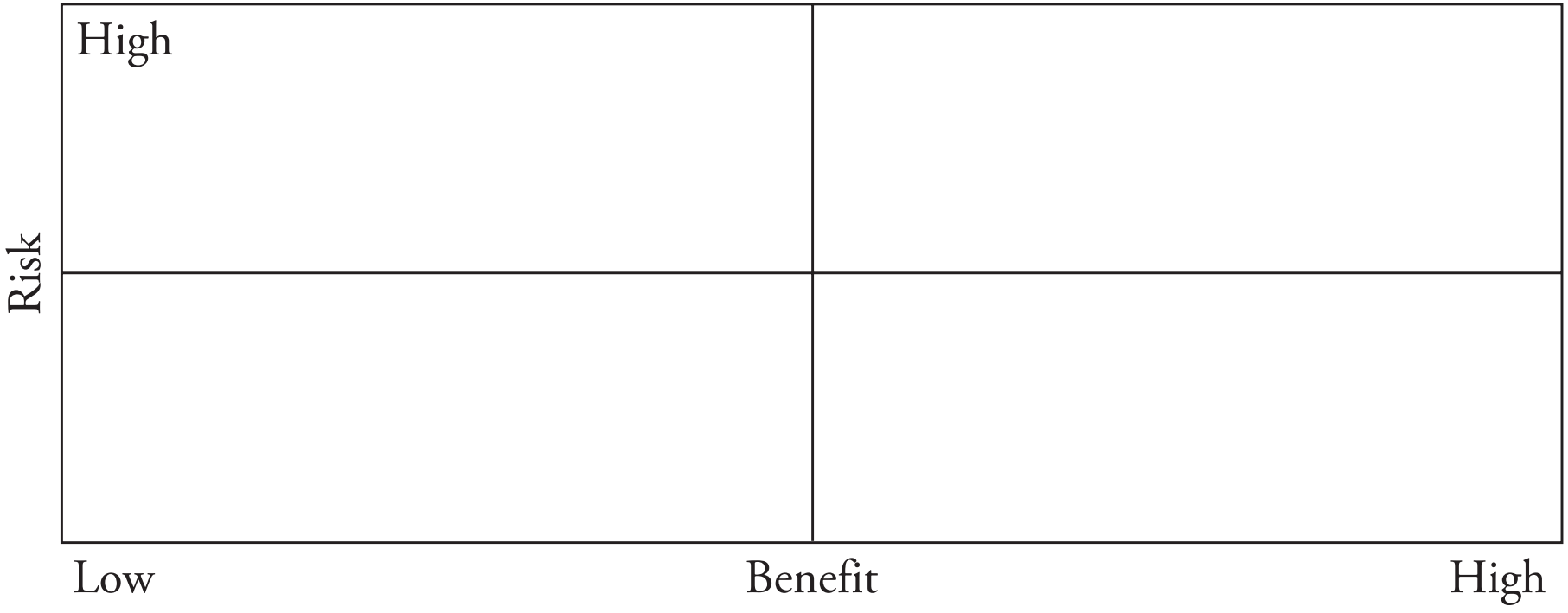


**Figure 8.1.** Generic Risk/Benefit Plotting

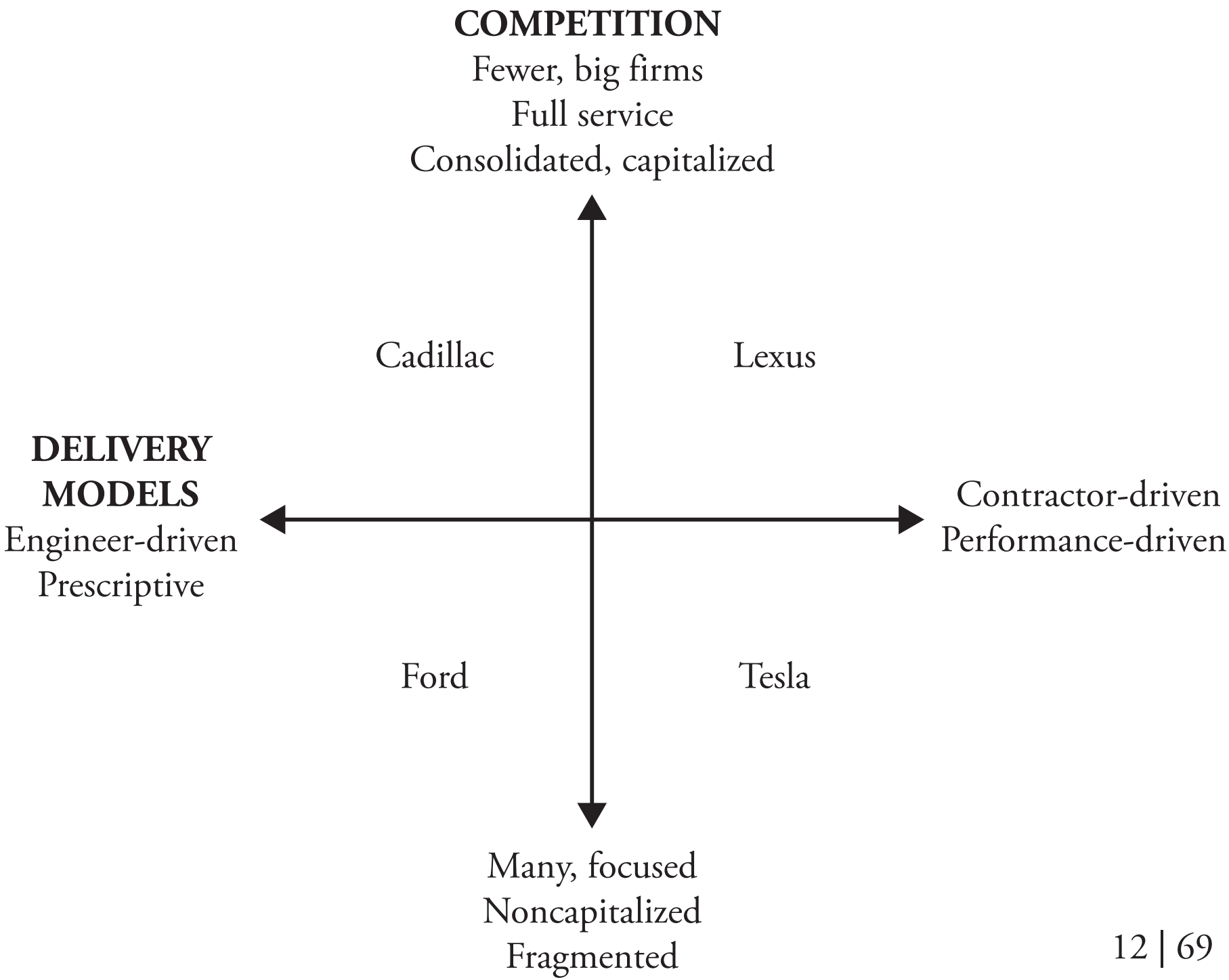




**Figure 8.2.** Environmental Firm's Scenario Matrix

| Option | Benefit | Risk |
|---|---|---|
| 1. Acquire a regional firm<br>Notes: | | |
| 2. National partner in Los Angeles<br>Notes: | | |
| 3. Local partner in Los Angeles<br>Notes: | | |
| 4. Open office in Los Angeles<br>Notes: | | |
| 5. Open office in San Francisco<br>Notes: | | |
| 6. National partner in San Francisco<br>Notes: | | |
| 7. Local partner in San Francisco<br>Notes: | | |
| 8. Open office in Sacramento<br>Notes: | | |
| 9. Open office in San Jose<br>Notes: | | |
| 10. IPD partnerships<br>Notes: | | |
| 11. Target client: California Water Service<br>Notes: | | |
| 12. Target client: Great Oaks<br>Notes: | | |
| 13. Target client: San Jose Water Co.<br>Notes: | | |
| 14. Target client: Twin Valley<br>Notes: | | |
| 15. Target client: Sierra City<br>Notes: | | |
| 16. Target client: Lewis Small Water Co.<br>Notes: | | |

**Figure 8.3.** Potential Risk/Benefit Ranking Sheet

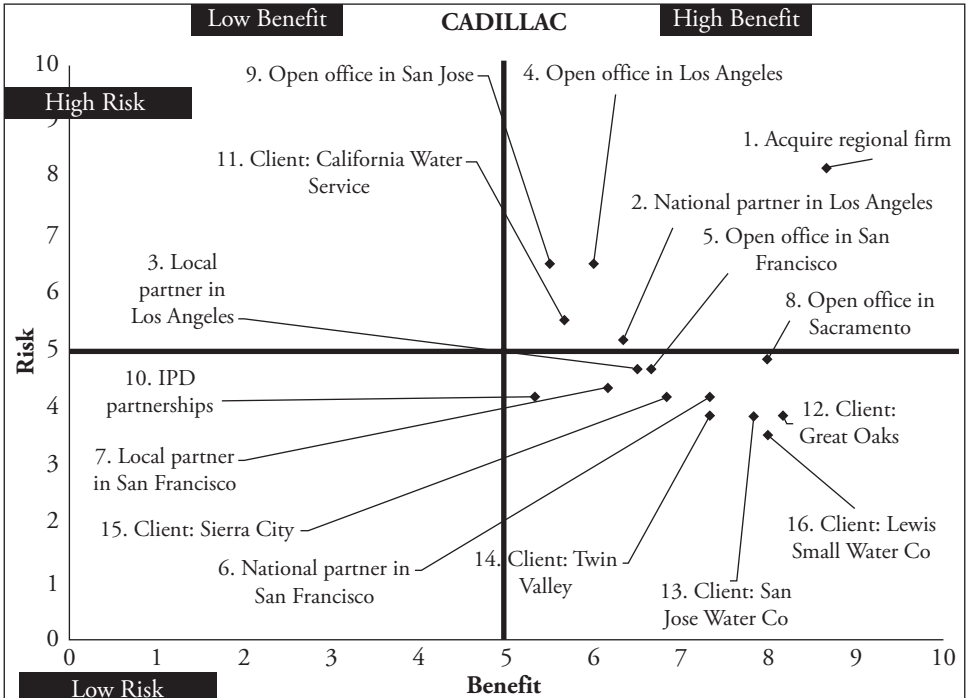


**Figure 8.4.** Environmental Firm's Potential Risk/Benefit Plot for the Cadillac Scenario

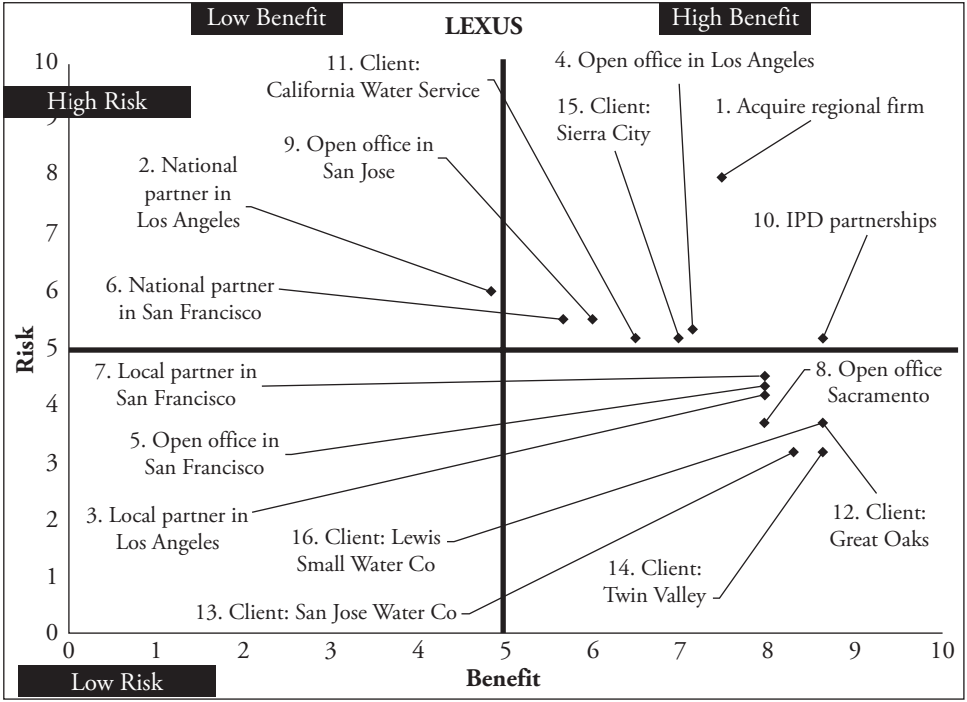


**Figure 8.5.** Environmental Firm's Potential Risk/Benefit Plot for the Lexus Scenario

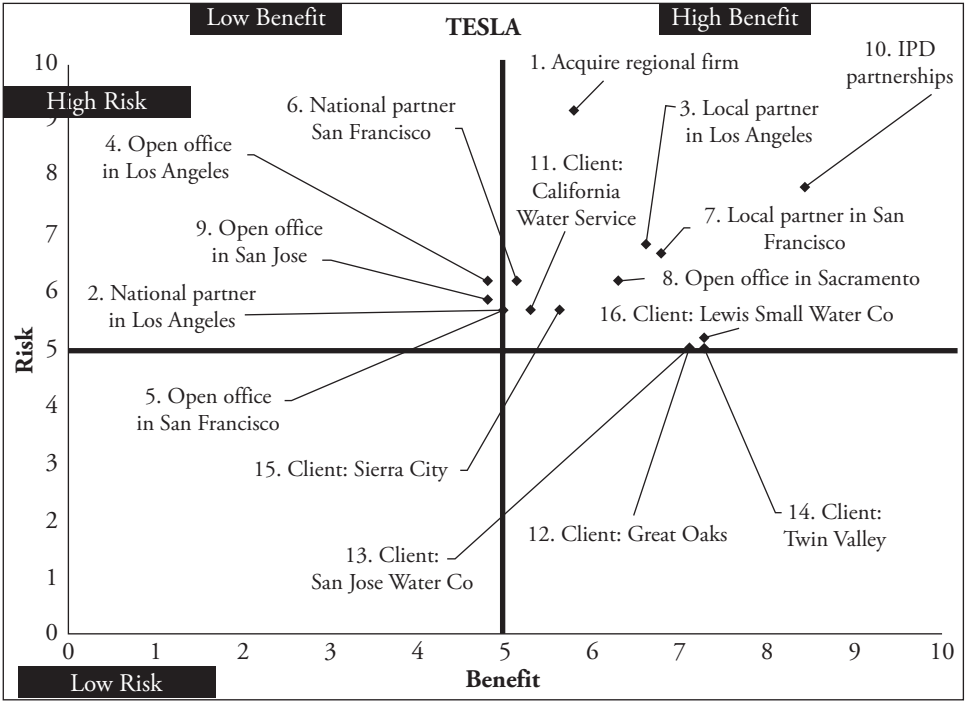


**Figure 8.6.** Environmental Firm's Potential Risk/Benefit Plot for the Tesla Scenario

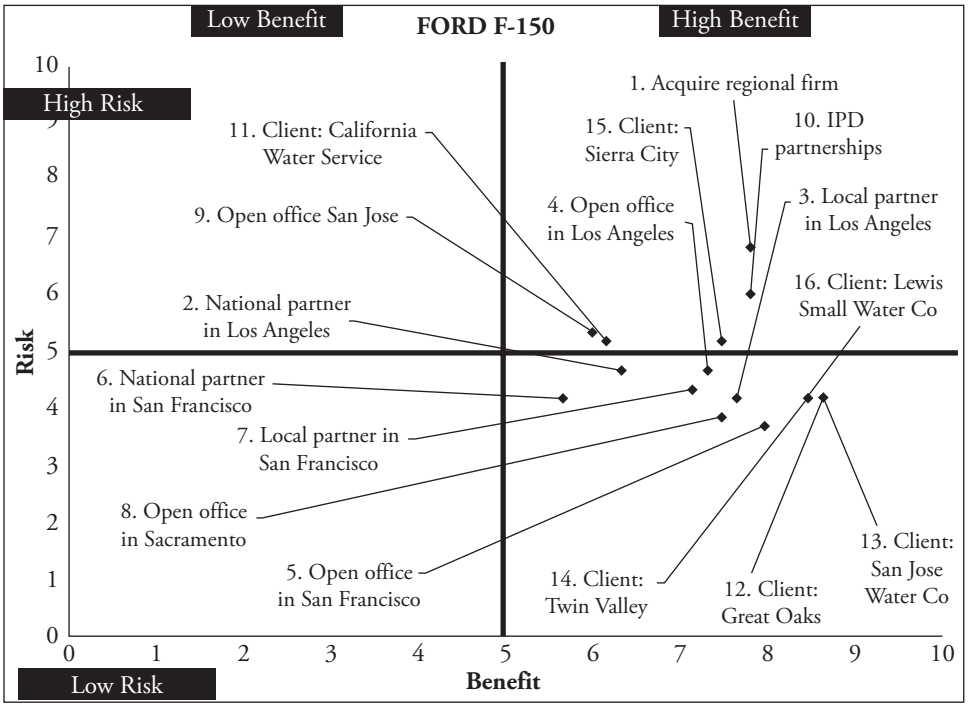


**Figure 8.7.** Environmental Firm's Potential Risk/Benefit Plot for the Ford F-150 Scenario

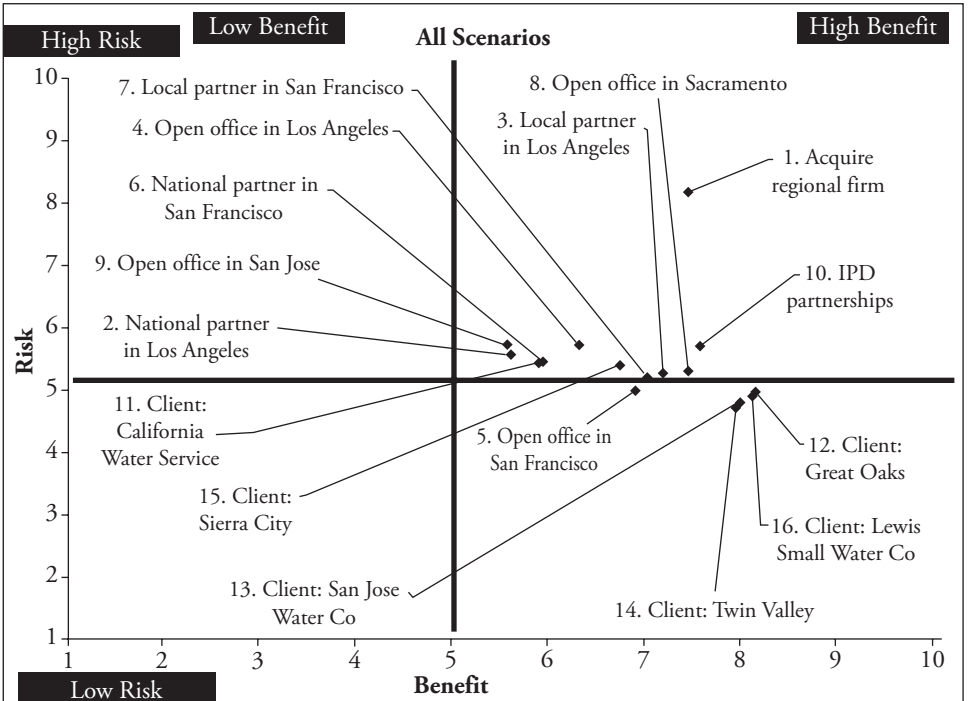


**Figure 8.8.** Environmental Firm's Potential Risk/Benefit Plot—All Scenarios

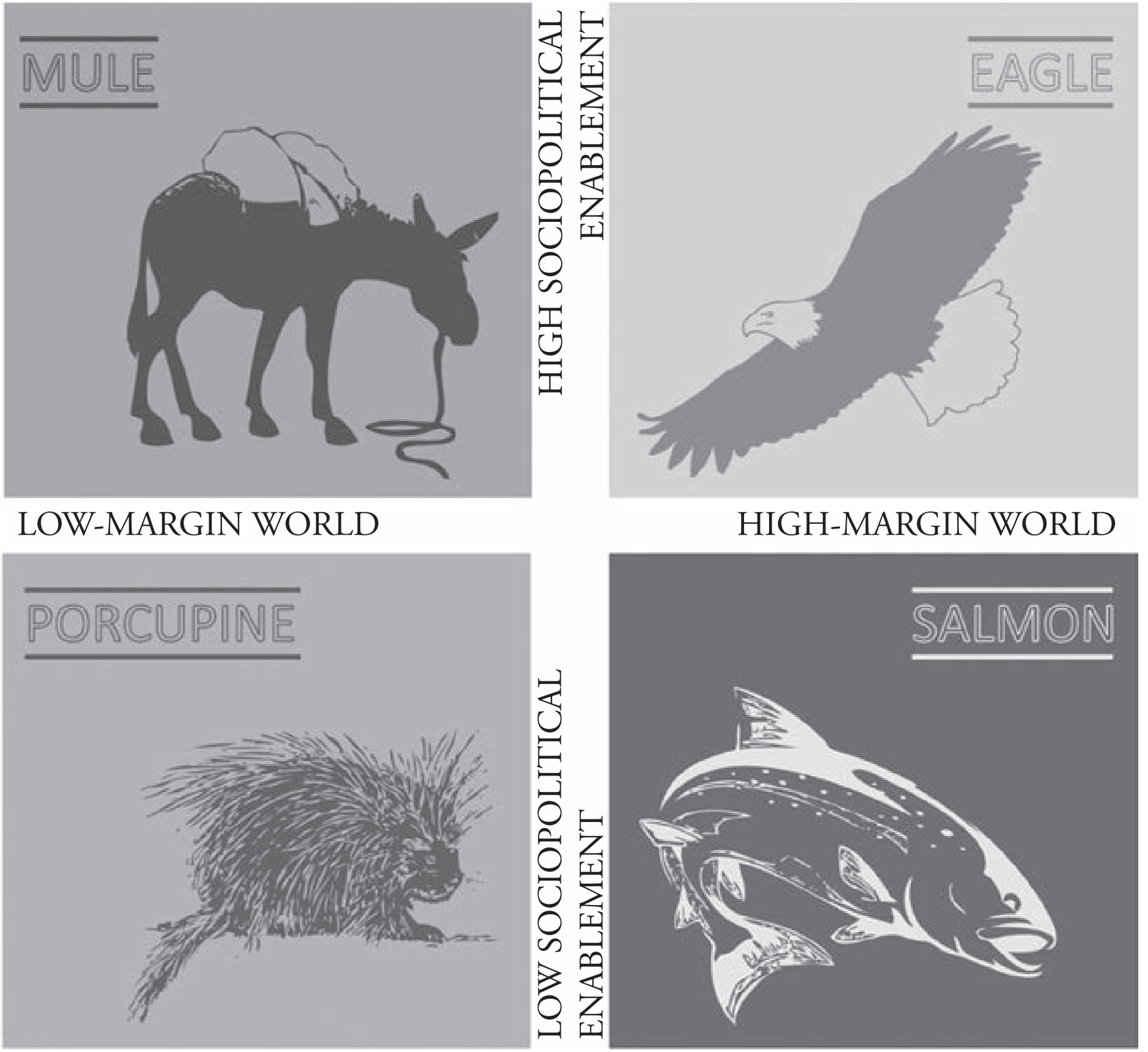


**Figure 8.9.** Scenario Matrix for Oil & Gas Company

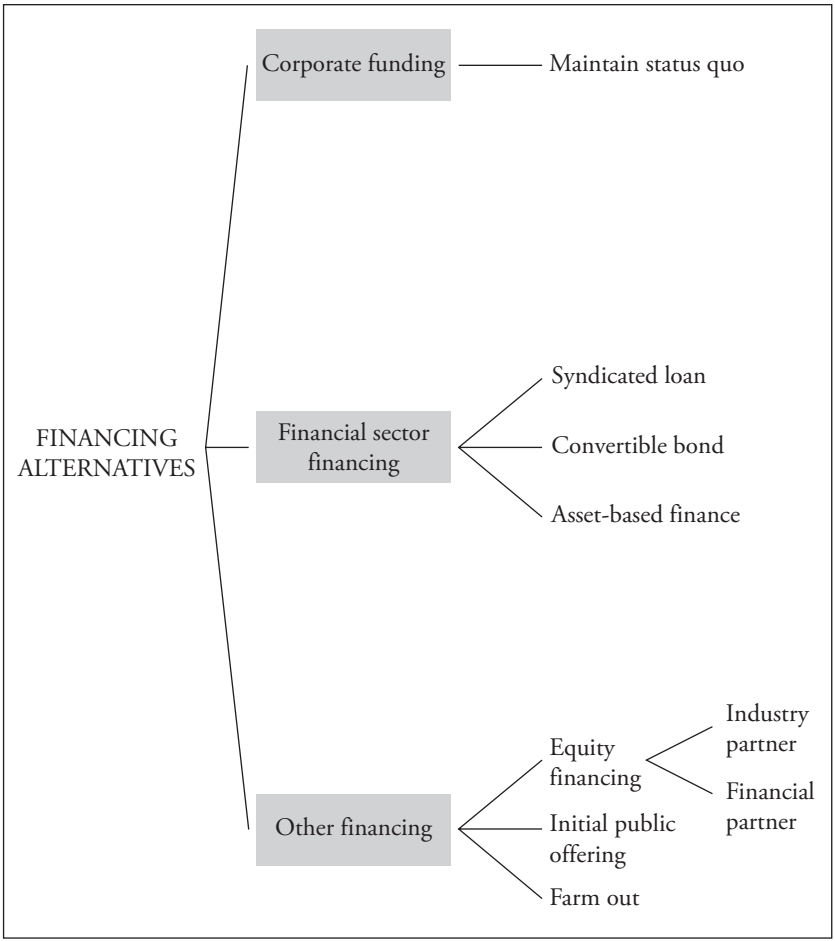


**Figure 8.10.** Financing Options for Oil & Gas Company

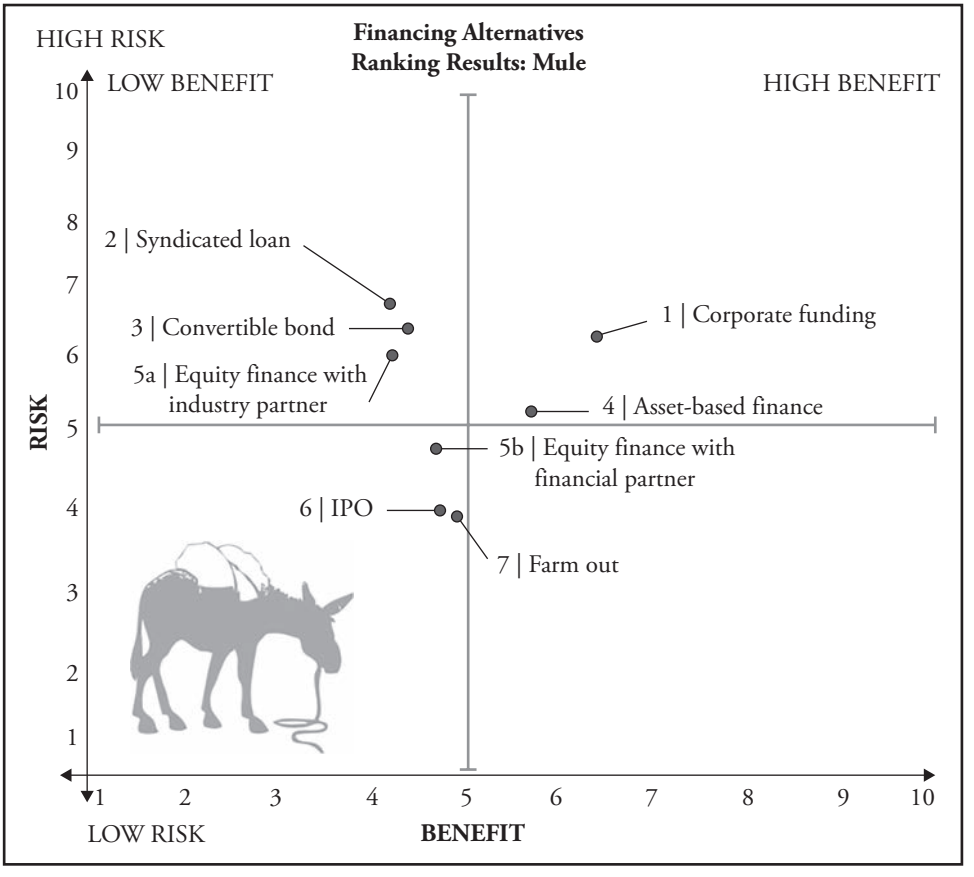


**Figure 8.11.** Oil & Gas Company's Potential Risk/Benefit Plot for the Mule Scenario

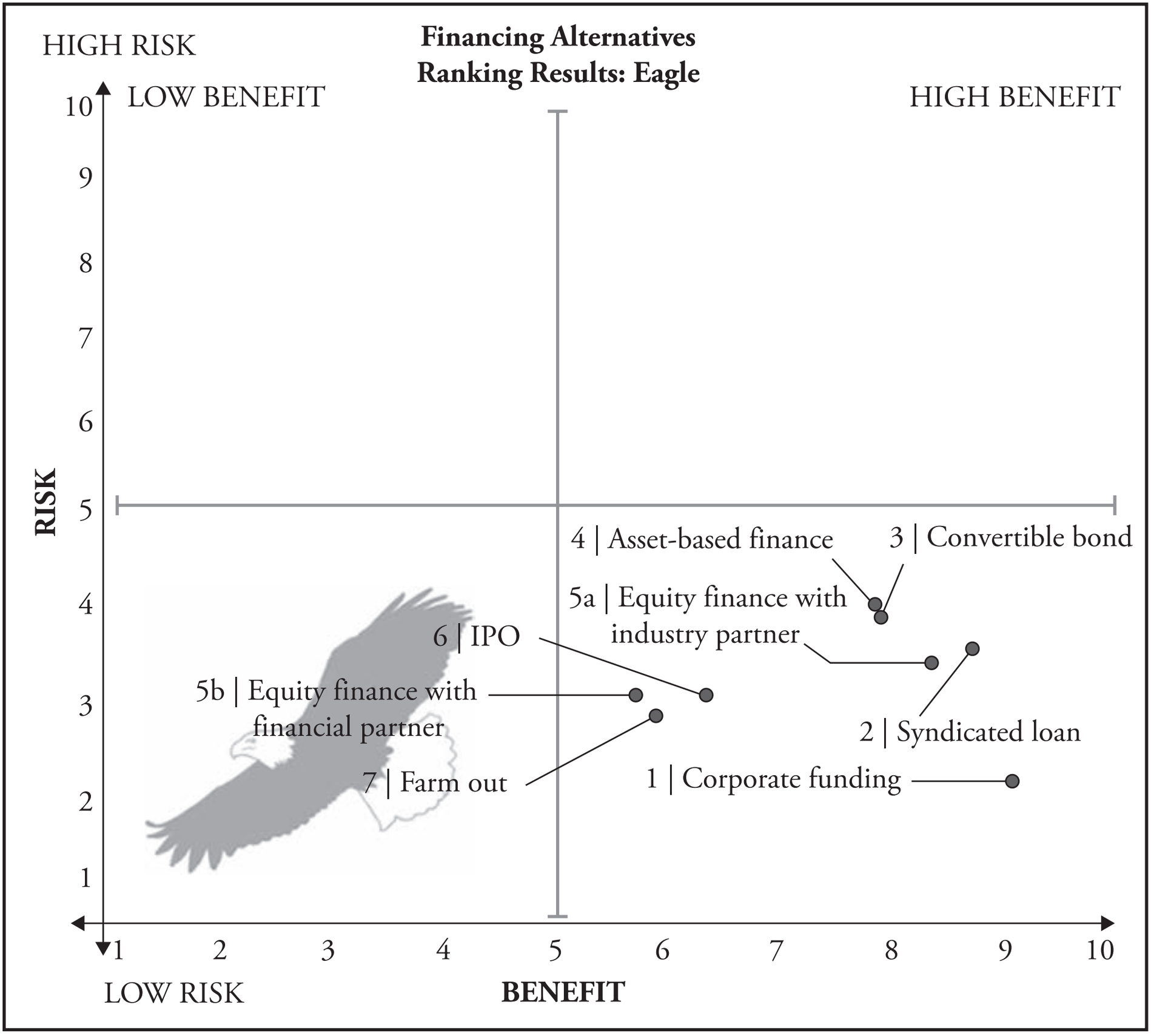


**Figure 8.12.** Oil & Gas Company's Potential Risk/Benefit Plot for the Eagle Scenario

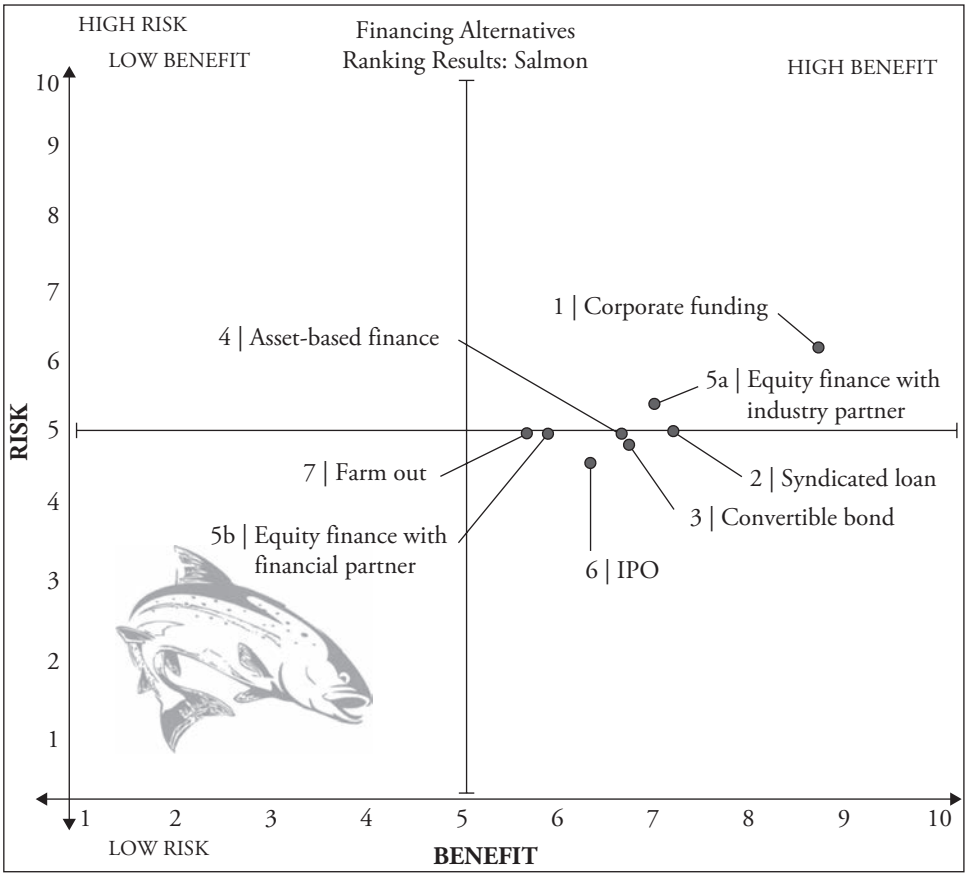


**Figure 8.13.** Oil & Gas Company's Potential Risk/Benefit Plot for the Salmon Scenario

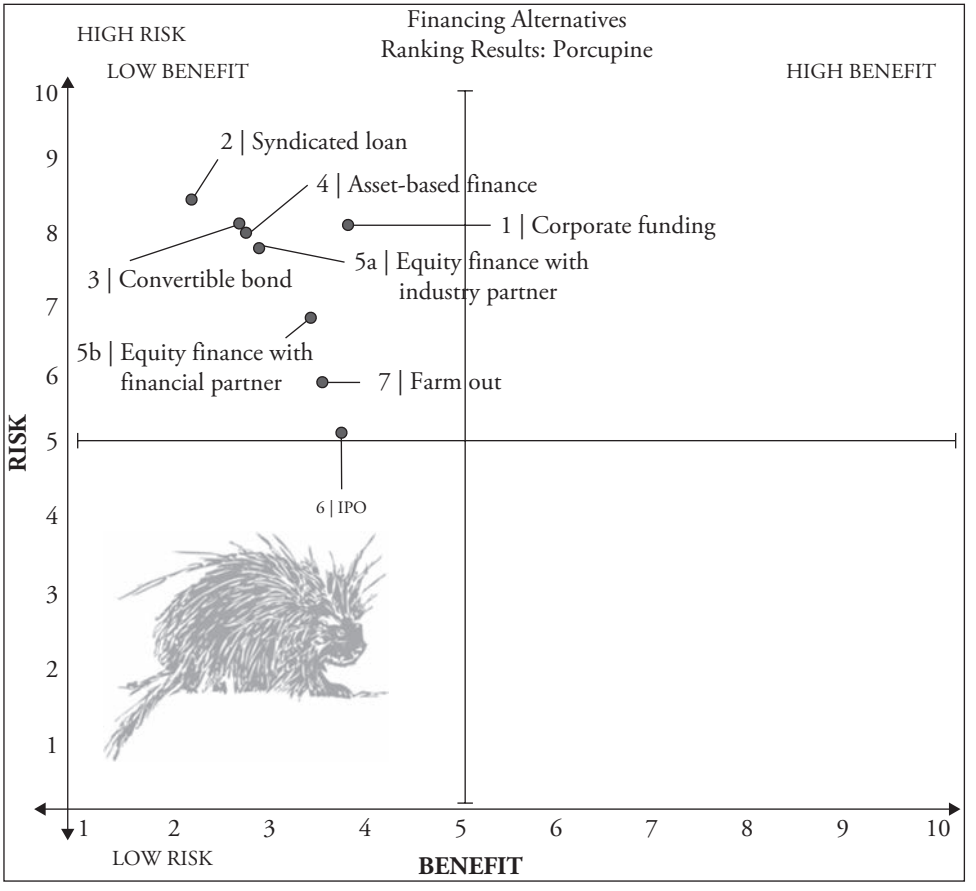


**Figure 8.14.** Oil & Gas Company's Potential Risk/Benefit Plot for the Porcupine Scenario

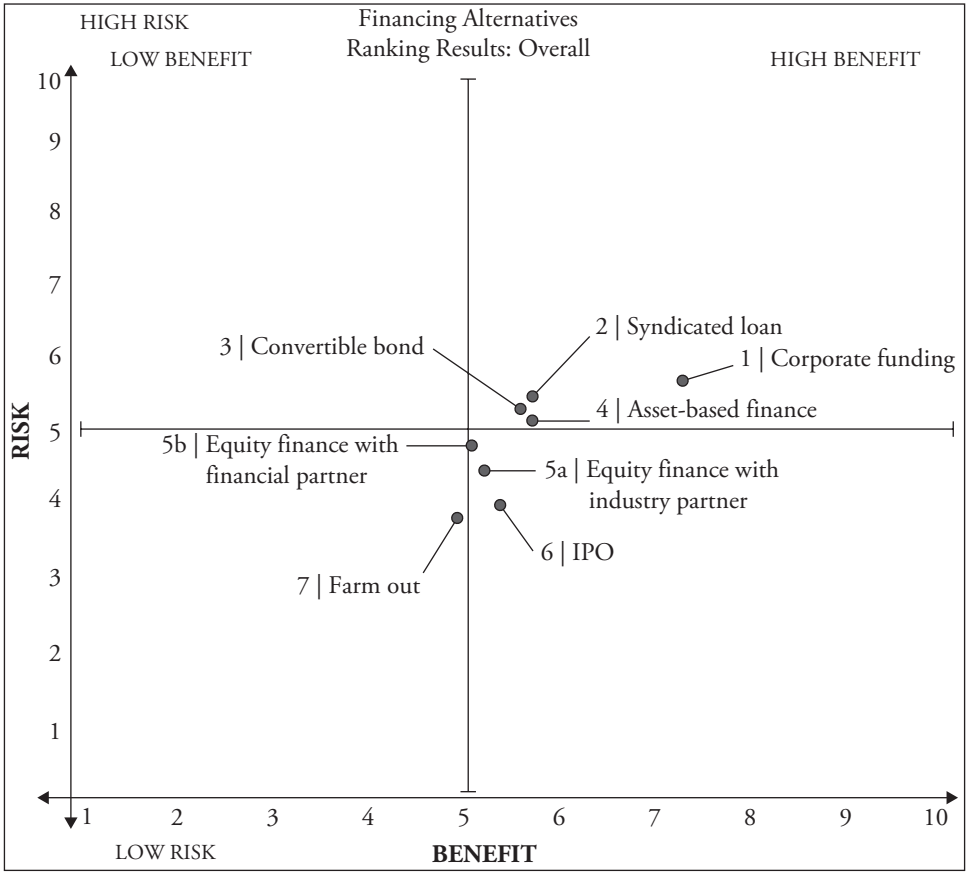


**Figure 8.15.** Oil & Gas Company's Potential Risk/Benefit Plot—All Scenarios

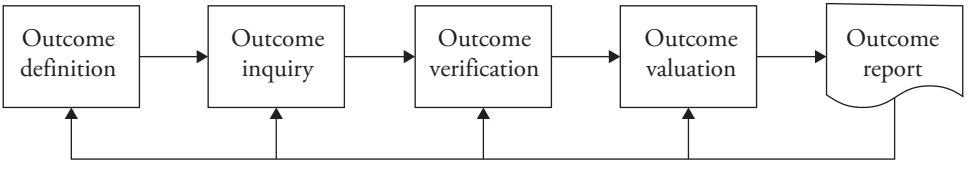


**Figure 9.1.** Model of the Critical Outcome Technique (COT)

| Company | |
|---|---|
| Program: | |
| Date: | |
| Participants: | |
| Program Purpose and Description: | |
| Evaluation Summary: | |
| Business Results: | Financial Results: |
| Approval: | |
| Distribution List: | |

**Figure 9.2.** Outcome Report Template

| Company: Propane Company | |
|---|---|
| Program: Scenario planning for firm acquisition | |
| Date: August 2017 | |
| Participants: Leadership team, finance team, strategy team | |
| Program Purpose and Description:<br>The goal of this scenario planning project was to develop scenarios for the future of the propane industry using a five-year timeline. Because of expansion opportunities, we specifically intended to use the scenarios to examine the possibility of acquiring a target firm. | |
| Evaluation Summary:<br>As a result of assessing the risks and benefits of acquiring a firm across a set of four scenarios, it was decided to proceed with acquiring the target firm. The perspective of the leadership is that the scenarios allowed us to see multiple positive circumstances under which acquiring the target firm would likely increase organizational revenues. Twelve months after the scenario project was concluded, and at the time of this report, the target firm has contributed $15 million to overall organizational revenues. | |
| Business Results:<br>– Decision to proceed with acquiring a firm<br>– 10% increase in new customers<br>– 87% of existing clients retained with new contracts having improved margin<br>– Total financial effect | Financial Results:<br><br><br>–$6 million<br>–$9 million<br><br><br>$15 million |
| Approval: [CEO] | |
| Distribution List: Leadership team and board of directors | |

**Figure 9.3.** Propane Company Outcome Report

| Company: Oil & Gas Company | |
|---|---|
| Program: Scenario planning for resource extraction in Venezuela | |
| Date: October 2018 | |
| Participants: Leadership team, finance team, strategy team | |
| Program Purpose and Description:<br>The goal of this scenario planning project was to create different scenarios for the future of Oil & Gas Company's operations in Venezuela and to determine an optimal financing strategy for extracting resources. We used the scenarios to test different financing options given the costs associated with the major project of resource extraction. The scenarios clearly showed that the most resilient financing strategy was corporate funding. All other options had, at minimum, higher costs across the scenarios, and most included significant risk of assets or reduced profit due to partnerships. | |
| Evaluation Summary:<br>Six months after proceeding with corporate financing, we compared the financial position we chose with all other options. | |
| Business Options:<br>1. Corporate funding<br>2. Syndicated loan<br>3. Convertible bond<br>4. Asset-based finance<br>5. Equity finance with industry partner<br>6. Equity finance with financial partner<br>7. IPO | Costs:<br>1. $25 billion over 10 years = $25 billion<br>2. Base + 7.2% interest over 10 years<br>3. Base + 8.1% interest over 10 years<br>4. Base + 10% interest over and risk of currently held assets<br>5. Base + 10% interest over and risk of currently held assets<br>6. Base + 10% interest and risk of currently held assets<br>7. Base + devaluation of company stock and assets |
| Total financial effect of the decision to use corporate funding (directly attributable to the scenario project) | The range of savings due to corporate financing is between $1.8 billion and $5.5 billion, with no assets or profits at risk. |
| Approval: [CEO] | |
| | |
| Distribution List: Leadership team and board of directors | |

**Figure 9.4.** Oil & Gas Company Outcome Report

| | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| Assets | | | | | | |
| Cash | | | | | | |
| Accounts receivable | | | | | | |
| Inventory | | | | | | |
| | | | | | | |
| Current assets | | | | | | |
| Property & equipment | | | | | | |
| Goodwill | | | | | | |
| | | | | | | |
| Total assets | | | | | | |
| | | | | | | |
| Liabilities | | | | | | |
| Short-term debt | | | | | | |
| Accounts payable | | | | | | |
| Current liabilities | | | | | | |
| Long-term debt | | | | | | |
| Total liabilities | | | | | | |
| | | | | | | |
| Shareholder's equity | | | | | | |
| Equity capital | | | | | | |
| Retained earnings | | | | | | |
| Shareholder's equity | | | | | | |
| Total liabilities & shareholder's equity | | | | | | |
| | | | | | | |
| **Net Profit** | | | | | | |

**Figure 10.1.** Generic Balance Sheet

| | Current Model | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
|---|---|---|---|---|---|
| **Revenues** | | | | | |
| Core revenue sources | | | | | |
| Other | | | | | |
| Total revenues | | | | | |
| | | | | | |
| **Cost of Sales** | | | | | |
| Cost of core sales | | | | | |
| Other | | | | | |
| | | | | | |
| **Gross Profit** | | | | | |
| | | | | | |
| **Operating Expenses** | | | | | |
| Depreciation and amortization expense | | | | | |
| General and administrative expense | | | | | |
| Operating expense - lease expense | | | | | |
| Loss on asset sales and divestitures | | | | | |
| | | | | | |
| **Operating Income** | | | | | |
| | | | | | |
| Interest expense | | | | | |
| Loss on extinguishment of debt | | | | | |
| Other income | | | | | |
| | | | | | |
| Income tax expense (benefit) | | | | | |
| | | | | | |
| **Net Profit** | | | | | |

**Figure 10.2.** Scenario Financial Model Template

| | | Current Model | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
|---|---|---|---|---|---|---|
| **Revenues** | | | | | | |
| | Core revenue sources | $918,000 | $735,800 | $983,500 | $893,000 | $1,210,300 |
| | Other | $52,000 | $43,000 | $64,500 | $52,000 | $52,000 |
| | Total revenues | $970,000 | $778,000 | $1,048,000 | $945,000 | $1,262,300 |
| | | | | | | |
| **Cost of Sales** | | | | | | |
| | Cost of core sales | $315,000 | $325,000 | $357,000 | $318,000 | $368,000 |
| | Other | $18,000 | $18,000 | $18,000 | $18,000 | $18,000 |
| | | | | | | |
| **Gross Profit** | | $636,200 | $435,000 | $673,000 | $609,000 | $876,300 |
| | | | | | | |
| **Operating Expenses** | | | | | | |
| Depreciation and amortization expense | | $110,000 | $110,000 | $110,000 | $110,000 | $110,000 |
| General and administrative expense | | $21,000 | $21,000 | $36,400 | $18,800 | $21,000 |
| Operating expense - lease expense | | $8,200 | $8,200 | $8,200 | $8,200 | $8,200 |
| Loss on asset sales and divestitures | | $8,200 | $8,200 | $8,200 | $15,800 | $8,200 |
| | | | | | | |
| **Operating Income** | | $486,500 | $287,600 | $510,200 | $456,200 | $728,900 |
| | | | | | | |
| Interest expense | | $3,000 | $3,000 | $3,000 | $3,000 | $3,000 |
| Loss on extinguishment of debt | | $ | | | | |
| Other income | | $ | | | | |
| | | | | | | |
| Income tax expense (benefit) | | $100 | $100 | $100 | $100 | $100 |
| | | | | | | |
| **Net Profit** | | $483,400 | $283,900 | $507,100 | $453,100 | $725,000 |

**Figure 10.3.** Modeling Healthcare Organization's Financials with Scenarios

| | | | Overall Scenario Planning Impact |
|---|---|---|---|
| **Revenues** | | | |
| | Core revenue sources | $ 918,000.00 | Increased revenue owing to new customers, increased sales at current customers, higher prices on current products and services |
| | Other | $ 52,000.00 | New sources of revenue directly attributable to scenario-related initiatives |
| | Total revenues | $ 970,000.00 | |
| | | | |
| **Cost of Sales** | | | |
| | Cost of core sales | $ 315,800 | Automation, efficiency, process improvement, raw material savings, contract efficiency |
| | Other | $ 18,000 | New cost of sales directly attributable to scenario-related initiatives |
| | | | |
| **Gross Profit** | | $ 636,200 | |
| | | | |
| **Operating Expenses** | | $ 110,800 | |
| Depreciation and amortization expense | | $ 21,000 | Asset utilization |
| General and administrative expense | | $ 8,200 | Corporate back-office entities would be accounted for here |
| Operating expense - lease expense | | $ 8,200 | Asset lease expense |
| Loss on asset sales and divestitures | | $ 1,500 | |
| | | | |
| **Operating Income** | | $ 486,500 | |
| | | | |
| Interest expense | | $ 3,000 | Interest expense on debt |
| Loss on extinguishment of debt | | $ - | |
| Other income | | $ - | |
| | | | |
| Income tax expense (benefit) | | $ 100 | Tax |
| | | | |
| **Net Profit** | | $ 483,400 | |

**Figure 10.4.** Overall Scenario Financial Model for Healthcare Organization

| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario x |
|---|---|---|---|---|
| Year 1 signals | List 3–5 signals here | . . . | . . . | . . . |
| Year 2 signals | List 3–5 signals here | . . . | . . . | . . . |
| Year 3 signals | List 3–5 signals here | . . . | . . . | . . . |
| Year 4 signals | List 3–5 signals here | . . . | . . . | . . . |
| Year 5 signals | List 3–5 signals here | . . . | . . . | . . . |

**Figure 11.1.** Scenario Signals

| | Salmon Scenario | Mule Scenario | Eagle Scenario | Porcupine Scenario |
|---|---|---|---|---|
| Year 1 signals | • "Tariff tensions with China escalate"<br>• "Steel strain hits Rust Belt"<br>• "The rise of the carnivores" | • "The rise and demise of Amazon"<br>• "Trump wins 2020"<br>• "Trump vs. Bezos—the real election" | • "3 years after the great crash, America slowly on the road to recovery"<br>• "Horizontal investment across America"<br>• "Feds hope cutting interest rates will spark growth" | • "What does the Amazon attack mean for your family?"<br>• "Cases in identity theft on the rise"<br>• "Amazon workers strike continues to day 8" |
| Year 2 signals | • "Too big to fail? Too heavy to use!"<br>• "Steel alternative start-ups on the rise"<br>• "Is 'veganism' over?" | • "SEC approves Google's takeover of Amazon"<br>• "Can Chi-tah play with Alibaba?"<br>• "Trump's EPA pick loosens HAZMAT regulation" | • "Department of Transportation hosts mass hiring events"<br>• "Hurricane Mike pummels Georgia and South Carolina"<br>• "Non-essential spending at all-time low" | • "Walmart eyeing Amazon acquisition"<br>• "eBay looking to win former Amazon customers"<br>• "The rise of small business" |
| Year 3 signals | • "Millennials, Gen Z, and the on-demand economy"<br>• "A portrait of America's empty main streets" | • "The unlikely partnership of Bezos and Ma"<br>• "Chi-tah promises delivery in 30 minutes or less" | • "U.S. government buys steel futures"<br>• "The new survival tech you need—propane!" | • "Consumer spending up as prices fall"<br>• "Bezos's Balkanized business model" |

| | | | | |
|---|---|---|---|---|
| | • "Bread consumption linked to cancer risk" | • "How to identify a self-driving car on the highway" | • "3D printing steel replacements on the rise" | • "After taking over the Midwest, BITE sets sights on the South" |
| Year 4 signals | • "Temperatures set to break heat records again this summer"<br>• "Why your doctor is telling you to eat steak"<br>• "Understanding Steelite, the renewable steel" | • "Millennials are killing big brands"<br>• "Chi-tah can predict your next order better than you can"<br>• "Millennials and Gen Z prefer cooking at home" | • "Companies using technology to lure back customers"<br>• "Meeting consumers where they are, one company's journey"<br>• "Recession statistics—American's dine out less" | • "BITE, the app you've never heard of and need to download"<br>• "Direct to consumer delivery on the rise"<br>• "Will Americans embrace Alibaba?" |
| Year 5 signals | • "Scientists turn compost into steel alternative"<br>• "Are carbs killing Americans?"<br>• "Amazon selling 3D printers direct to consumers" | • "Influencers getting into the cooking game"<br>• "Your house knows when you're out of milk" | • "FEMA will stay in Georgia and South Carolina for 2 more years"<br>• "Solar and extractive—how to integrate power"<br>• "Did IoT save this family from Hurricane Mike's destruction?" | • "Subscription addiction—have you tried a subscription box yet?"<br>• "BITE-mobiles coming to a town near you" |

**Figure 11.2.** Natural Gas Company Signals

| Scenario 1 | | Scenario 2 | | Scenario 3 | | Scenario 4 | |
|---|---|---|---|---|---|---|---|
| Signals | Generic Strategies | Signals | Generic Strategies | Signals | Generic Strategies | Signals | Generic Strategies |
| • Signal 1 | • Strategy 1 | • Signal 1 | • Strategy 1 | • Signal 1 | • Strategy 1 | • Signal 1 | • Strategy 1 |
| • Signal 2 | • Strategy 2 | • Signal 2 | • Strategy 2 | • Signal 2 | • Strategy 2 | • Signal 2 | • Strategy 2 |
| • Signal 3 | • Strategy 3 | • Signal 3 | • Strategy 3 | • Signal 3 | • Strategy 3 | • Signal 3 | • Strategy 3 |
| Etc. | Etc. | Etc. | Etc. | Etc. | Etc. | Etc. | Etc. |

**Figure 11.3.** Combining Signals and Strategies

| Salmon Scenario | |
|---|---|
| Signals | Strategies |
| Over time, if we see events or "headlines:" like these . . . | . . . We should consider these strategies |
| • "Tariff tensions with China escalate"<br>• "Steel strain hits Rust Belt?"<br>• "The rise of the carnivores"<br>• Too big to fail? Too heavy to use!"<br>• "Steel alternative start-ups on the rise"<br>• "Is 'veganism' over?"<br>• "Millennials, Gen-Z, and the on-demand economy"<br>• "A portrait of America's empty main streets"<br>• "Bread consumption linked to cancer risk"<br>• Temperatures set to break heat records again this summer"<br>• "Why your doctor is telling you to eat steak"<br>• "Understanding Steelite, the renewable steel"<br>• "Scientists turn compost into steel alternative"<br>• "Are carbs killing American?"<br>• "Amazon selling 3D printers direct to consumers" | • Tank innovation drives down the cost of product<br>• Tank innovation for multiple uses<br>• Tank innovation to remove dependency on raw materials<br>• Consumer awareness marketing campaign for delivery options<br>• Acquisition growth in areas lacking coverage<br>• Production innovation to support new tank design<br>• Production innovation to support speed and lower cost<br>• Delivery driver assistance<br>• Vehicle innovation for efficient delivery<br>• IoT for tank<br>• Smart self-serve options (vending)<br>• Direct to consumer distribution<br>• Partner-based distribution<br>• International expansion |

**Figure 11.4.** Signal and Strategies for Natural Gas Company

| Critical Uncertainty | Trend | Data |
|---|---|---|
| Critical uncertainty 1 | | |
| Critical uncertainty 2 | | |
| Critical uncertainty 3 | | |
| Critical uncertainty 4 | | |
| Etc. | | |

**Figure 11.5.** Critical Uncertainty Dashboard Template

| Uncertainty | Trend | Data |
|---|---|---|
| Availability and recording of testing | 2.5% to 28.4% | Between 808K and 9.4M of 330M people in the United States have been tested. Test availability is increasing. |
| Timeline for pandemic resolution | 6 to 12 months | Declining infection rates in most states, increasing antibody test availability, and a phased reopening. |
| Successful vaccine development | Human trials | More than 90 vaccines are in development and 6 have moved into human trials. Testing is inconclusive. |
| Availability and cost of proximity tracking devices | Widely available | Many reasonably priced solutions are capable of outdoor and indoor movement tracking. Fewer are able to account for rooms/walls. |
| Antibody testing | Accuracy unproven | Test accuracy is inconclusive and availability is scattered. Test validation is under way. |
| COVID-19-related bankruptcy | In development | Cities and counties are projected to lose billions in tax revenue. Private sector profits are decreasing. Impacts are coming to fruition. |
| Rise/decline in cases | Moderate | Overall U.S. daily infection rates are plateauing. Some states that reopened early are seeing a rise in infections. |
| Unemployment | Sharply increasing | Unemployment filings are sharply increasing and projected to grow. |

No concern  Moderate concern  Significant concern

**Figure 11.6.** Critical Uncertainty Dashboard for Medical Device Company

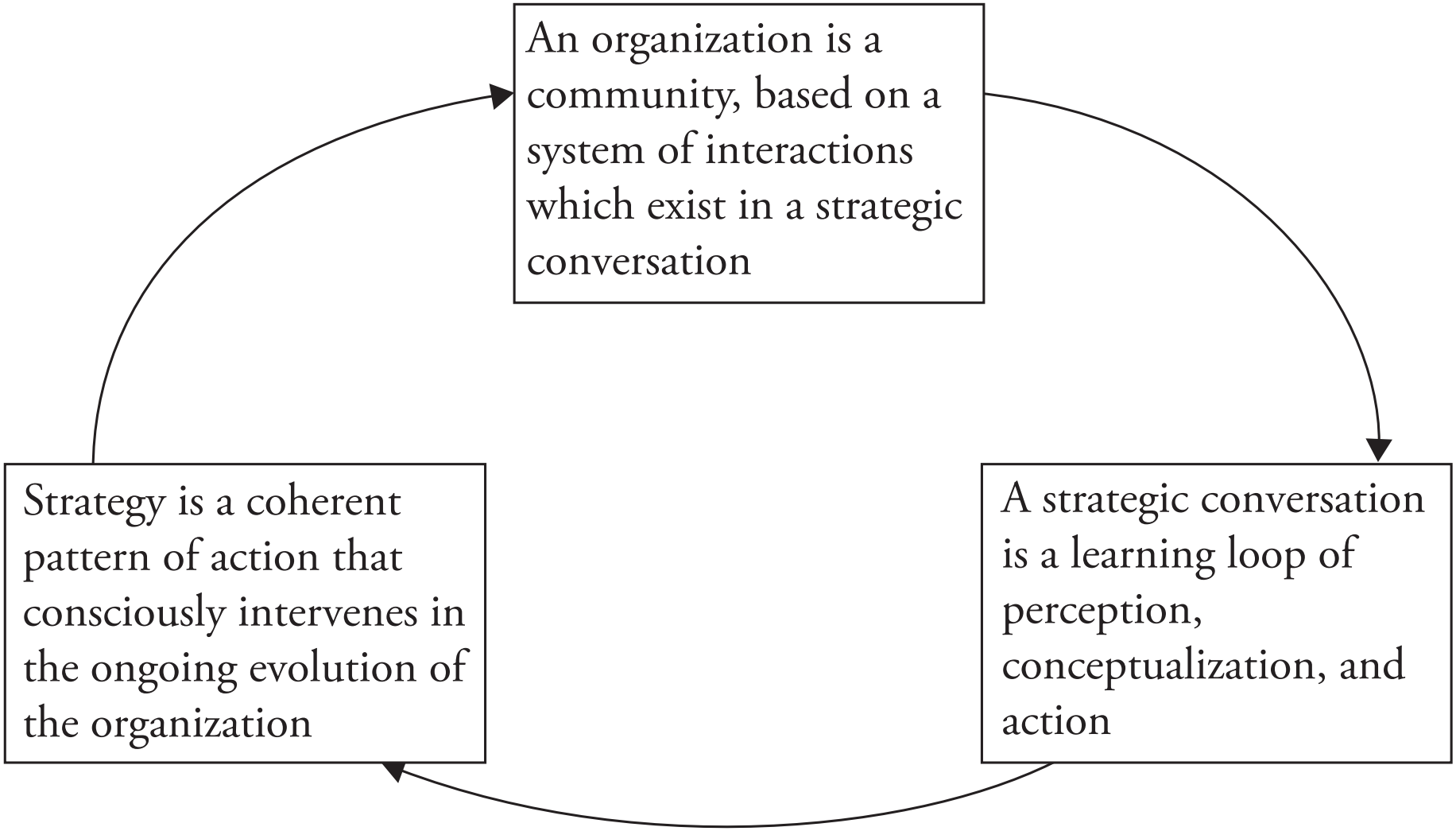


**Figure 12.1.** The Art of Strategic Conversation (van der Heijden, 1996, p. 274)

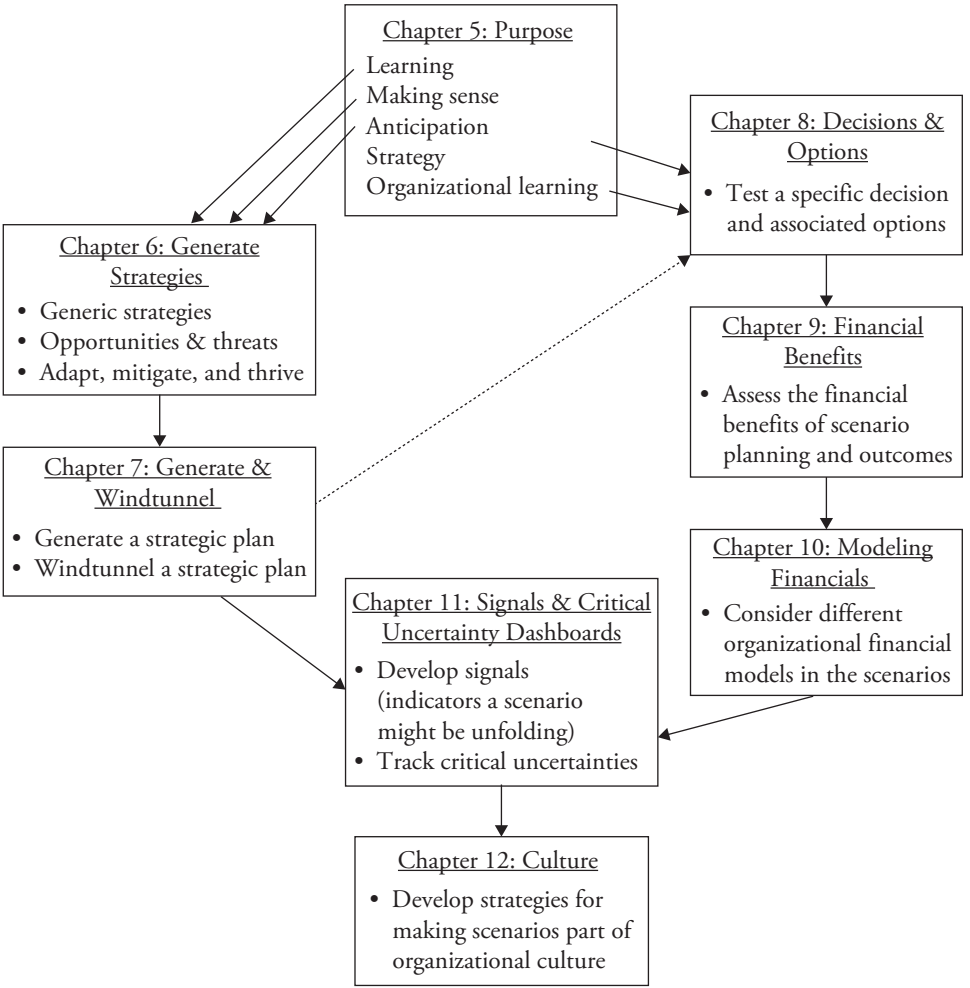


**Figure 13.1.** Overall Process for Using Scenarios

# Appendix

## PhD Programs

| Country | University | Department | Program |
|---|---|---|---|
| **Australia** | University of Technology Sydney | Institute for Sustainable Futures | Doctor of Philosophy in futures studies |
| **Colombia** | Universidad Externado de Colombia (Externado University of Colombia) | Business Administration | Doctorate in Administration |
| **Denmark** | Aarhus University | School of Business and Social Sciences | Doctor of Philosophy in organizational future orientation or corporate foresight |
| **Finland** | Turun yliopisto (University of Turku) | Turku School of Economics: Finland Futures Research Centre | Doctor of Science in economics and business administration or Doctor of Philosophy—futures studies as a major |

(*continued*)

| Country | University | Department | Program |
|---|---|---|---|
| **France** | Conservatoire national des arts et métiers (CNAM) (National Conservatory of Arts and Crafts) | EPN Innovation | Doctor of Management Sciences (PhD) in foresight (prospective) management, innovation, strategy, organization |
| **Hungary** | Budapesti Corvinus Egyetem (Corvinus University of Budapest) | Doctoral School of Economic Informatics: Department of Futures Studies | Doctor of Philosophy in future research |
| **India** | University of Kerala | Faculty of Applied Science and Technology: Department of Futures Studies | Doctor of Philosophy in future studies |
| **Iran** | University of Isfahan | Department of Futures Studies | Master of Futures Studies |
| **South Africa** | University of Stellenbosch Business School (USB) | Institute of Futures Research (IFR) | Doctor of Philosophy in futures studies |
| **UK** | University of Strathclyde | Strathclyde Business School: Department of Strategy & Organisation | Doctor of Philosophy or Doctor of Business Administration in scenario thinking and scenario planning |
| **USA** | University of Hawaii at Manoa | College of Social Sciences | Doctor of Philosophy in political science with a focus on alternative futures |
| **USA** | Regent University | School of Business & Leadership | Doctor of Strategic Leadership in strategic foresight |

## Master's Programs

| Country | University | Department | Program |
|---|---|---|---|
| **Argentina** | Universidad de Ciencias Empresariales y Sociales (UCES) (University of Business and Social Sciences) | Postgraduate Department | Specialization in strategic foresight |
| **Canada** | Ontario College of Art and Design University (OCAD U) | n/a | Master of Design in strategic foresight and innovation |
| **Colombia** | Institución Universitaria de Envigado (University Institution of Envigado) | Faculty of Social Sciences | Master of Psychology with a specialization in technological foresight (Prospectiva Tecnológica) |
| **Colombia** | Universidad Externado de Colombia (Externado University of Colombia) | Business Administration | Master's in strategic thinking and foresight (prospectiva) |
| **Colombia** | Universidad Pontificia Bolivariana (Pontifical Bolivarian University) | n/a | Specialization in management strategy and foresight (prospectiva) |
| **Colombia** | Universidad Tecnológica de Bolívar (Technological University of Bolivar) | n/a | Specialization in strategic planning and foresight (prospectiva) |

(*continued*)

| Country | University | Department | Program |
|---|---|---|---|
| **Finland** | Turun yliopisto (University of Turku) | Turku School of Economics: Finland Futures Research Centre | Master of Arts in futures studies |
| **France** | Conservatoire national des arts et métiers (CNAM) (National Conservatory of Arts and Crafts) | EPN Innovation | Master of Law, Economics and Management in foresight (prospective), innovation and public management (Master of Public Innovation) |
| **France** | Conservatoire national des arts et métiers (CNAM) (National Conservatory of Arts and Crafts) | EPN Innovation | Master of Law, Economics and Management in foresight (prospective), innovation and transformation of organizations |
| **France** | University of Angers | n/a | Master of Science in foresight and innovation |
| **Germany** | Freie Universität Berlin (Free University of Berlin) | Department of Education and Psychology: Institut Futur | Master of Arts in futures studies |
| **Germany** | Fachhochschule Potsdam University of Applied Sciences | Institute for Applied Research Urban Future | Master's in Urban Futures |

| Country | University | Department | Program |
|---|---|---|---|
| **Hungary** | Budapesti Corvinus Egyetem (Corvinus University of Budapest) | School of Information Economics: Economic Geography, Geoeconomics and Sustainable Development Institute: Department of Futures Studies | Master of Science in economics, regional, and environmental economics |
| **India** | University of Kerala | Faculty of Applied Science and Technology: Department of Futures Studies | Master of Philosophy in futures studies |
| **Italy** | Università di Trento (University of Trento) | Department of Sociology and Social Research | Master of Social Foresight |
| **Mexico** | CENTRO | n/a | Specialization in design of tomorrow: scenarios and solutions |
| **Mexico** | Instituto Tecnológico y de Estudios Superiores de Monterrey (Monterrey Institute of Technology and Higher Education) | School of Government and Public Transformation | Master's in strategic foresight (prospectiva) |

(*continued*)

| Country | University | Department | Program |
|---|---|---|---|
| **Peru** | Center for Higher National Studies | n/a | Master's in strategic foresight (prospectiva) |
| **South Africa** | University of Stellenbosch Business School (USB) | Institute of Futures Research | Master of Philosophy in futures studies |
| **Taiwan** | Tamkang University | College of Education: Graduate Institute of Futures Studies | Master of Education in futures studies |
| **UK** | University of Strathclyde | Strathclyde Business School: Department of Strategy & Organisation | Master of Philosophy in scenario thinking and scenario planning |
| **USA** | University of Hawaii at Manoa | College of Social Sciences | Master of Arts in alternative futures |
| **USA** | University of Houston | College of Technology | Master of Science in foresight |

## Undergraduate Programs

| Country | University | Department | Program |
|---|---|---|---|
| **Hungary** | Budapesti Corvinus Egyetem (Corvinus University of Budapest) | School of Information Economics: Economic Geography, Geoeconomics and Sustainable Development Institute: Department of Futures Studies | Bachelor of Arts in future research |
| **USA** | San Diego City College | n/a | Associates in futures studies |
| **USA** | University of Hawaii at Manoa | College of Social Sciences | Bachelor of Arts in interdisciplinary studies |

## Short Courses

| Country | University | Department | Program |
|---|---|---|---|
| **Australia** | Swinburne University of Technology | n/a | Graduate Certificate of Design Strategy and Innovation |
| **Australia** | University of Melbourne | Melbourne Business School | Futures Thinking and Strategy Development Program |
| **Denmark** | Aarhus University | School of Business and Social Sciences | Strategic Foresight |

(*continued*)

| Country | University | Department | Program |
|---|---|---|---|
| **France** | Conservatoire national des arts et métiers (CNAM) (National Conservatory of Arts and Crafts) | EPN Innovation | Certificate of Competence in foresight (prospective) and strategic management |
| **France** | Conservatoire national des arts et métiers (CNAM) (National Conservatory of Arts and Crafts) | EPN Innovation | Certificate of Competence in organization strategy and applied foresight |
| **Germany** | European Business School (EBS) | n/a | Module on Strategy, Corporate Foresight & Business Model Innovation in the Mobility Sector |
| **Germany** | European Business School (EBS) | n/a | Module on Strategic Foresight |
| **Portugal** | Instituto para o Desenvolvimento e Estudos Económicos, Financeiros e Empresariais (IDEFE) (Institute for Development and Economical, Financial, and Entrepreneurial Studies) | n/a | Executive Education Program: Futures, Strategic Design & Innovation |

| Country | University | Department | Program |
|---|---|---|---|
| **Sweden** | International Certified Future Strategist (ICFS) | n/a | Certified Future Strategists |
| **UK** | Oxford University | Department of Continuing Education | Certificate of Attendance for strategic planning and foresight: Learning from and managing for the future |
| **UK** | Oxford University | Saïd Business School | Oxford Scenarios Program |
| **UK** | University of Manchester | Manchester Institute of Innovation Research | The ART of Foresight & Sustainable Futures: Anticipating, Recommending and Transforming Research and Innovation Futures |
| **USA** | University of Houston | College of Technology | Professional Certificate in foresight |

*Source*: Ross Dawson, *University futures and foresight degrees and programs*, accessed September 29, 2020, https://rossdawson.com/futurist/university-foresight-programs/

*Note*: The PhD program in organizational learning, performance, and change at my institution, Colorado State University, is not included here. For 10 years, we have offered a full-semester (three months) course dedicated to scenario planning that is open to anyone (degree enrollment is not required). As far as I am aware, it is the only full-semester course dedicated entirely to scenario planning. In it, we recruit companies and deliver scenario planning for them; students are arranged in groups and allocated to the companies we serve. While Dawson's efforts should be commended, it is probably impossible to put together an entirely comprehensive list.