



Quantum Governance & Decision Intelligence Handbook

Building the Economic Operating System for the Quantum Age

Bionic Economy Research Series™ — Volume I

Institutional Edition v1.0

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PUBLICATION-READY RESEARCH MASTER • EXTERNAL RELEASE REQUIRES HUMAN DECISION GATE

Document Control

ITEM	POSITION
Version	v1.0
Audience	Boards, investors, banks, policymakers, technology leaders
Status	Final research master; release human-gated

BGAM™ institutional note: designed as a stand-alone board reference.

Governance Review

ITEM	POSITION
Orchestrator	Architecture and consistency
Red Team	Causality and overclaim
Quantum	Technical distinctions
Risk	Cyber, dual use, export control
Design	A4/mobile readability

BGAM™ institutional note: designed as a stand-alone board reference.

Evidence Labels

ITEM	POSITION
FACT	Externally supported
ESTIMATE	Approximation
SCENARIO	Conditional path
HYPOTHESIS	Testable proposition
BGAM VIEW	Interpretive judgment
BGAM FRAMEWORK	Original architecture

BGAM™ institutional note: designed as a stand-alone board reference.

Executive Thesis

ITEM	POSITION
Core	Quantum is becoming an institutional design problem.
Governance	Technology, cyber, law, capital and decisions must connect.
Benchmark	No quantum advantage without classical benchmark.
Accountability	Human Decision Gate remains explicit.

BGAM™ institutional note: designed as a stand-alone board reference.

2026 Evidence Update

ITEM	POSITION
PQC	NIST FIPS 203/204/205 finalized.
Policy	OECD documents national quantum strategies and anticipatory governance.
Controls	U.S. BIS and EU control specified quantum technologies.
Source	Springer 2026 integrates IP, cyber, export controls and international law.

BGAM™ institutional note: designed as a stand-alone board reference.

Research Integrity

ITEM	POSITION
1	Separate source claims from BGAM constructs.
2	No forecast disguised as fact.
3	No public score without calibration.
4	No material action without accountable owner.

BGAM™ institutional note: designed as a stand-alone board reference.

Bionic Economy Link

ITEM	POSITION
Compute	Enables AI and simulation
AI	Scans and orchestrates
Quantum	Accelerates selected tasks
Discovery	Creates new solutions
Governance	Converts capability into legitimate value

BGAM™ institutional note: designed as a stand-alone board reference.

Contents

ITEM	POSITION
I	Foundations 1-4
II	Control Domains 5-8
III	Economic Extension 9-12
IV	Sector Translation 13-16
V	Institutionalization 17-20
Appendices	Templates, risks, sources, release controls

BGAM™ institutional note: designed as a stand-alone board reference.

1. The Quantum Governance Problem

CHAPTER THESIS — Governance must evolve before capability becomes systemically important.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

1.1 Evidence Position

FACT — The 2026 Springer governance volume integrates law, IP, cybersecurity, export controls and international law.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

1.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
Data/Cyber	Security and provenance
Legal/Policy	Regulatory mapping
Economic	Capital discipline
Decision	Human Decision Gate

1.3 Economic Translation

- Revenue potential is not the same as economic rent.
- Bottlenecks can migrate across the stack.
- Policy can create or destroy option value.
- Standards and controls can alter terminal value.
- Company thesis must reconcile with ecosystem thesis.

1.4 Red-Team & Failure Modes

ITEM	POSITION
Quantum washing	Require classical benchmark
Timeline compression	Use scenario ranges
Policy blind spot	Jurisdiction map
Concentration	Diversify dependencies
Overconfidence	Confidence bands
Narrative capture	Devil's advocate review

1.5 Decision Worksheet

ITEM	POSITION
Decision question	_____
Evidence	High / Medium / Low
Classical baseline	_____
Quantum relevance	Demonstrated / Plausible / Unproven
Risk	_____
Scenario	Bear / Base / Bull
Human gate	Approve / Modify / Reject

1.6 Chapter Decision Gate

PASS — Evidence, owner, benchmark, risk limits and review date are explicit.

FAIL — Thesis depends on branding, qubit count or unsupported timelines.

- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

2. From Quantum Revolution to Decision Economy

CHAPTER THESIS — Economic significance begins when capability changes institutional decisions.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

2.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

2.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
Data/Cyber	Security and provenance
Legal/Policy	Regulatory mapping
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2.3 Economic Translation

- Revenue potential is not the same as economic rent.
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2.4 Red-Team & Failure Modes

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- Cost of acting early?
- Which dependency is uncontrollable?

3. Technology Stack

CHAPTER THESIS — Governance should map to technical layers, not to quantum as one category.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

3.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

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3.2 Governance Architecture

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Technology	Validate capability
Data/Cyber	Security and provenance
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3.3 Economic Translation

- Revenue potential is not the same as economic rent.
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3.4 Red-Team & Failure Modes

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- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
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4. Law, Regulation & Governance Stack

CHAPTER THESIS — Layered governance is more adaptable than blanket regulation.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

4.1 Evidence Position

FACT — The 2026 Springer governance volume integrates law, IP, cybersecurity, export controls and international law.

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4.2 Governance Architecture

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Technology	Validate capability
Data/Cyber	Security and provenance
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4.3 Economic Translation

- Revenue potential is not the same as economic rent.
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4.4 Red-Team & Failure Modes

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Quantum washing	Require classical benchmark
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4.5 Decision Worksheet

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4.6 Chapter Decision Gate

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- What changed?
- What falsifies the thesis?
- Cost of waiting?
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5. Intellectual Property & Patent Strategy

CHAPTER THESIS — IP strategy in quantum is mixed and layer-specific.

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- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

5.1 Evidence Position

FACT — The 2026 Springer governance volume integrates law, IP, cybersecurity, export controls and international law.

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5.2 Governance Architecture

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- What changed?
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- Cost of waiting?
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6. Cybersecurity & PQC Migration

CHAPTER THESIS — Quantum cyber risk is a current migration agenda because transition takes time.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

6.1 Evidence Position

FACT — NIST FIPS 203, 204 and 205 are finalized; migration is actionable now.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

6.2 Governance Architecture

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6.3 Economic Translation

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6.4 Red-Team & Failure Modes

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6.6 Chapter Decision Gate

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- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

7. Export Controls & Dual Use

CHAPTER THESIS — Quantum is entering strategic trade architecture.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

7.1 Evidence Position

FACT — U.S. BIS and EU frameworks control specified quantum technologies and related components.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

7.2 Governance Architecture

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7.6 Chapter Decision Gate

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- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

8. International Law, Standards & Geopolitics

CHAPTER THESIS — Standards and coordination can shape markets before maturity.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

8.1 Evidence Position

FACT — The 2026 Springer governance volume integrates law, IP, cybersecurity, export controls and international law.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

8.2 Governance Architecture

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8.3 Economic Translation

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- What changed?
- What falsifies the thesis?
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9. The Missing Economic Layer

CHAPTER THESIS — Governance without economics cannot explain value capture or transition cost.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

9.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

9.2 Governance Architecture

ITEM	POSITION
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9.3 Economic Translation

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9.4 Red-Team & Failure Modes

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9.6 Chapter Decision Gate

PASS — Evidence, owner, benchmark, risk limits and review date are explicit.

FAIL — Thesis depends on branding, qubit count or unsupported timelines.

- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

10. BGAM™ Quantum Governance Stack

CHAPTER THESIS — Technical capability must connect to decision and capital architecture.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

10.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

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10.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
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10.3 Economic Translation

- Revenue potential is not the same as economic rent.
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10.4 Red-Team & Failure Modes

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Quantum washing	Require classical benchmark
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10.5 Decision Worksheet

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10.6 Chapter Decision Gate

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FAIL — Thesis depends on branding, qubit count or unsupported timelines.

- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

11. Quantum Decision Intelligence™

CHAPTER THESIS — Quantum belongs inside a governed decision process, not above it.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

11.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

11.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
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11.3 Economic Translation

- Revenue potential is not the same as economic rent.
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- Standards and controls can alter terminal value.
- Company thesis must reconcile with ecosystem thesis.

11.4 Red-Team & Failure Modes

ITEM	POSITION
Quantum washing	Require classical benchmark
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11.5 Decision Worksheet

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11.6 Chapter Decision Gate

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- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

12. Hybrid Intelligence™ & Human Decision Gates

CHAPTER THESIS — Human accountability is a design feature, not a fallback.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

12.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

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12.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
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12.3 Economic Translation

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12.4 Red-Team & Failure Modes

ITEM	POSITION
Quantum washing	Require classical benchmark
Timeline compression	Use scenario ranges
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12.5 Decision Worksheet

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12.6 Chapter Decision Gate

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- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

13. Quantum Finance, Banking & Asset Management

CHAPTER THESIS — Financial institutions must distinguish experimentation from production.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

13.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

13.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
Data/Cyber	Security and provenance
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13.3 Economic Translation

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- What changed?
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- Cost of waiting?
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14. Sector Applications

CHAPTER THESIS — Value will emerge unevenly across domains and timelines.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

14.1 Evidence Position

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14.2 Governance Architecture

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14.4 Red-Team & Failure Modes

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14.5 Decision Worksheet

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14.6 Chapter Decision Gate

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- What changed?
- What falsifies the thesis?
- Cost of waiting?
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- Which dependency is uncontrollable?

15. Bionic Economy™ Integration

CHAPTER THESIS — AI, quantum, robotics, biotech, energy and compute form interacting layers.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

15.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

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15.2 Governance Architecture

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- Cost of waiting?
- Cost of acting early?
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16. Ecosystem Investing™ & Discovery Capital Theory™

CHAPTER THESIS — Frontier value is distributed across experiments and ecosystem layers.

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- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

16.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

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16.2 Governance Architecture

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16.3 Economic Translation

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- Company thesis must reconcile with ecosystem thesis.

16.4 Red-Team & Failure Modes

ITEM	POSITION
Quantum washing	Require classical benchmark
Timeline compression	Use scenario ranges
Policy blind spot	Jurisdiction map
Concentration	Diversify dependencies
Overconfidence	Confidence bands
Narrative capture	Devil's advocate review

16.5 Decision Worksheet

ITEM	POSITION
Decision question	_____
Evidence	High / Medium / Low
Classical baseline	_____
Quantum relevance	Demonstrated / Plausible / Unproven
Risk	_____
Scenario	Bear / Base / Bull
Human gate	Approve / Modify / Reject

16.6 Chapter Decision Gate

PASS — Evidence, owner, benchmark, risk limits and review date are explicit.

FAIL — Thesis depends on branding, qubit count or unsupported timelines.

- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

17. BGAM™ Quantum Readiness Index

CHAPTER THESIS — Readiness should measure institutions, not just machines.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

17.1 Evidence Position

FACT — OECD documents national quantum strategies, policy instruments and governance mechanisms.

BGAM PROPOSAL — The 1,000-point index is provisional and requires calibration.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

17.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
Data/Cyber	Security and provenance
Legal/Policy	Regulatory mapping
Economic	Capital discipline
Decision	Human Decision Gate

17.3 Economic Translation

- Revenue potential is not the same as economic rent.
- Bottlenecks can migrate across the stack.
- Policy can create or destroy option value.
- Standards and controls can alter terminal value.
- Company thesis must reconcile with ecosystem thesis.

17.4 Red-Team & Failure Modes

ITEM	POSITION
Quantum washing	Require classical benchmark
Timeline compression	Use scenario ranges
Policy blind spot	Jurisdiction map
Concentration	Diversify dependencies
Overconfidence	Confidence bands
Narrative capture	Devil's advocate review

17.5 Decision Worksheet

ITEM	POSITION
Decision question	_____
Evidence	High / Medium / Low
Classical baseline	_____
Quantum relevance	Demonstrated / Plausible / Unproven
Risk	_____
Scenario	Bear / Base / Bull
Human gate	Approve / Modify / Reject

17.6 Chapter Decision Gate

PASS — Evidence, owner, benchmark, risk limits and review date are explicit.

FAIL — Thesis depends on branding, qubit count or unsupported timelines.

- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

18. 2030 / 2035 / 2045 Scenario Architecture

CHAPTER THESIS — Scenarios are superior to point forecasts under deep uncertainty.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

18.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

18.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
Data/Cyber	Security and provenance
Legal/Policy	Regulatory mapping
Economic	Capital discipline
Decision	Human Decision Gate

18.3 Economic Translation

- Revenue potential is not the same as economic rent.
- Bottlenecks can migrate across the stack.
- Policy can create or destroy option value.
- Standards and controls can alter terminal value.
- Company thesis must reconcile with ecosystem thesis.

18.4 Red-Team & Failure Modes

ITEM	POSITION
Quantum washing	Require classical benchmark
Timeline compression	Use scenario ranges
Policy blind spot	Jurisdiction map
Concentration	Diversify dependencies
Overconfidence	Confidence bands
Narrative capture	Devil's advocate review

18.5 Decision Worksheet

ITEM	POSITION
Decision question	_____
Evidence	High / Medium / Low
Classical baseline	_____
Quantum relevance	Demonstrated / Plausible / Unproven
Risk	_____
Scenario	Bear / Base / Bull
Human gate	Approve / Modify / Reject

18.6 Chapter Decision Gate

PASS — Evidence, owner, benchmark, risk limits and review date are explicit.

FAIL — Thesis depends on branding, qubit count or unsupported timelines.

- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

19. Institutional Implementation Playbook

CHAPTER THESIS — Governance and capability mapping should precede procurement.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

19.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

19.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
Data/Cyber	Security and provenance
Legal/Policy	Regulatory mapping
Economic	Capital discipline
Decision	Human Decision Gate

19.3 Economic Translation

- Revenue potential is not the same as economic rent.
- Bottlenecks can migrate across the stack.
- Policy can create or destroy option value.
- Standards and controls can alter terminal value.
- Company thesis must reconcile with ecosystem thesis.

19.4 Red-Team & Failure Modes

ITEM	POSITION
Quantum washing	Require classical benchmark
Timeline compression	Use scenario ranges
Policy blind spot	Jurisdiction map
Concentration	Diversify dependencies
Overconfidence	Confidence bands
Narrative capture	Devil's advocate review

19.5 Decision Worksheet

ITEM	POSITION
Decision question	_____
Evidence	High / Medium / Low
Classical baseline	_____
Quantum relevance	Demonstrated / Plausible / Unproven
Risk	_____
Scenario	Bear / Base / Bull
Human gate	Approve / Modify / Reject

19.6 Chapter Decision Gate

PASS — Evidence, owner, benchmark, risk limits and review date are explicit.

FAIL — Thesis depends on branding, qubit count or unsupported timelines.

- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

20. Research Governance & Publication Standard

CHAPTER THESIS — Institutional credibility depends on traceability and disciplined claims.

- Define the governed object.
- Identify accountable owner.
- Map cross-layer dependencies.
- Specify falsifying evidence.
- Set Human Decision Gate.

20.1 Evidence Position

BGAM VIEW — This chapter extends established governance themes into economics and decision architecture.

Evidence rule: absence of commercial proof cannot be converted into a positive assumption.

20.2 Governance Architecture

ITEM	POSITION
Technology	Validate capability
Data/Cyber	Security and provenance
Legal/Policy	Regulatory mapping
Economic	Capital discipline
Decision	Human Decision Gate

20.3 Economic Translation

- Revenue potential is not the same as economic rent.
- Bottlenecks can migrate across the stack.
- Policy can create or destroy option value.
- Standards and controls can alter terminal value.
- Company thesis must reconcile with ecosystem thesis.

20.4 Red-Team & Failure Modes

ITEM	POSITION
Quantum washing	Require classical benchmark
Timeline compression	Use scenario ranges
Policy blind spot	Jurisdiction map
Concentration	Diversify dependencies
Overconfidence	Confidence bands
Narrative capture	Devil's advocate review

20.5 Decision Worksheet

ITEM	POSITION
Decision question	_____
Evidence	High / Medium / Low
Classical baseline	_____
Quantum relevance	Demonstrated / Plausible / Unproven
Risk	_____
Scenario	Bear / Base / Bull
Human gate	Approve / Modify / Reject

20.6 Chapter Decision Gate

PASS — Evidence, owner, benchmark, risk limits and review date are explicit.

FAIL — Thesis depends on branding, qubit count or unsupported timelines.

- What changed?
- What falsifies the thesis?
- Cost of waiting?
- Cost of acting early?
- Which dependency is uncontrollable?

Appendix A — BGAM™ Quantum Governance Stack

ITEM	POSITION
1 Hardware	Safety, supply chain, export controls
2 Compute & Access	Cloud access, concentration
3 Software & Algorithms	IP, benchmarking
4 AI Orchestration	Model governance
5 Applications	Sector regulation
6 Decision Intelligence	Risk limits, human gate
7 Capital Architecture	Allocation, systemic risk
8 Sovereign / Global	Standards, trade, security

Owner: _____ Review date: _____ Status: Draft / Reviewed / Approved

Appendix B — Provisional Quantum Readiness Index

ITEM	POSITION
Technology capability	120
Compute & infrastructure	100
Cyber / PQC	120
Governance	110
IP	90
Talent	90
Capital	90
Commercial ecosystem	100
Standards	90
Decision intelligence	90

Owner: _____ Review date: _____ Status: Draft / Reviewed / Approved

Appendix C — Core Risk Register

ITEM	POSITION
Cryptographic disruption	PQC migration
Vendor concentration	Multi-vendor architecture
Export restrictions	Scenario planning
IP lock-in	Portfolio IP strategy
Talent scarcity	Capability pipeline
Quantum washing	Classical benchmark
Model risk	Validation + human gate
Standards fragmentation	Standards participation
Geopolitical bifurcation	Regional diversification

Owner: _____ Review date: _____ Status: Draft / Reviewed / Approved

Appendix D — PQC Board Checklist

ITEM	POSITION
Inventory	Cryptographic assets mapped
Data life	Long-lived confidentiality classified
Priority	Migration tiers approved
Third parties	Dependencies mapped
Testing	Interoperability tested
Governance	Executive owner named
Reporting	Board cadence established

Owner: _____ Review date: _____ Status: Draft / Reviewed / Approved

Appendix E — Export-Control Checklist

ITEM	POSITION
Jurisdiction	U.S. / EU / other
Classification	Control entry documented
Threshold	Performance criterion checked
Technology transfer	Know-how exposure reviewed
Cloud access	Remote access reviewed
Talent	Access controls reviewed
License	Requirement documented

Owner: _____ Review date: _____ Status: Draft / Reviewed / Approved

Appendix F — Investment Research Checklist

ITEM	POSITION
Technology	Evidence of capability
Benchmark	Classical comparator
Economics	Value-capture logic
Capital	Funding runway
Ecosystem	Dependencies and partners
Policy	Controls and standards
Risk	Failure modes
Decision	Human gate

Owner: _____ Review date: _____ Status: Draft / Reviewed / Approved

Appendix G — Scenario Matrix

ITEM	POSITION
Constrained Progress	Specialized use; limited economic spillover
Selective Advantage	Material wins in selected domains
Systemic Breakthrough	Quantum embedded in strategic infrastructure

Owner: _____ Review date: _____ Status: Draft / Reviewed / Approved

Appendix H — Publication Release Gate

ITEM	POSITION
Sources	Traceable and current
Labels	Fact/estimate/scenario/hypothesis separated
Legal	No unsupported legal conclusion
Investment	No uncalibrated recommendation
Design	Render QA passed
Human	Named approver signs off

Owner: _____ Review date: _____ Status: Draft / Reviewed / Approved

Appendix I — Working Glossary

ITEM	POSITION
Quantum Technology Governance	Institutional mechanisms shaping quantum development and use.
Governance Stack	Layered mapping of governance tools to technical layers.
Quantum Decision Intelligence™	BGAM framework for governed AI/quantum-assisted decisions.
Hybrid Intelligence™	Human judgment + AI agents + risk framework + feedback.
Human Decision Gate	Explicit accountable approval before material action.
Bionic Economy™	BGAM framework linking AI, quantum, robotics, biotech, energy, compute and natural systems.
Ecosystem Investing™	Investment analysis across connected value-chain layers.
Discovery Capital Theory™	BGAM hypothesis on asymmetric value from portfolios of frontier experimentation.
Quantum Washing	Use of quantum branding without demonstrated task-level advantage.
Crypto Agility	Ability to replace cryptographic primitives without rebuilding the entire system.

Appendix J — Source Map & Selected References

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- U.S. Bureau of Industry and Security (2024). Controls on quantum computing and other advanced technologies.
- European Union Dual-Use Regulation framework, including 2025 amendments covering specified quantum computers and related components.
- BGAM™ institutional thesis materials: Bionic AI Economics™, Quantum Intelligence Economy™, Economic Butterfly Effect™, Infrastructure Before Profit™, Discovery Capital Theory™, Ecosystem Investing™, Macro Dashboard, Risk Radar, Opportunity Radar and Prediction Ledger.

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Web-verified regulatory and policy references were checked against authoritative primary sources including NIST, OECD, U.S. BIS and EUR-Lex as of 28 August 2026.

Final Governance Sign-Off

ITEM	POSITION
Orchestrator	PASS — architecture coherent
Test Fly Economist / Red Team	PASS WITH CONDITIONS — scenarios remain conditional
Quantum Review	PASS WITH CONDITIONS — no claim of broad quantum advantage
Risk & Governance	PASS — PQC/export-control caveats included
Investment Research	PASS WITH CONDITIONS — readiness index not yet calibrated
Design	PENDING RENDER QA
Human Decision Gate	REQUIRED BEFORE PUBLIC WEB RELEASE

FINAL STATUS — Institutional research master v1.0. Suitable for internal circulation and website staging after render QA and human release approval.