

Concept Symposium 2006 Principles of Governance for Major Investment Projects

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**Canada: Governance of Major Projects –
the case of Quebec**

Governance of Projects

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1. Introduction

- **Grounded research on projects**
 - 60 large engineering projects in the IMEC program
 - 15 public infrastructure projects in Canada

Complex engineering projects: main characteristics

- **Negotiated innovations:**
 - Birth difficulties
 - State partnerships
 - Environmental regulations
 - Economic regulations
- **Social experiments for:**
 - Creating value
 - Sharing value with affected parties
 - Respecting agreements
- **Slow clockspeed transactions:**
 - Fast pace: Internet banking
 - New products or movies: 24 to 36 months
 - Pharmaceutical research: 5 to 10 years
 - Large projects: 10 to 12 years
- **Irreversible commitments:**
 - Limited options
 - 7 years average for negotiation, 3 years for construction, and 2 years average for ramp-up
- **High stakes games**
 - Very expensive entry ticket
 - Limited potential gains (upside)

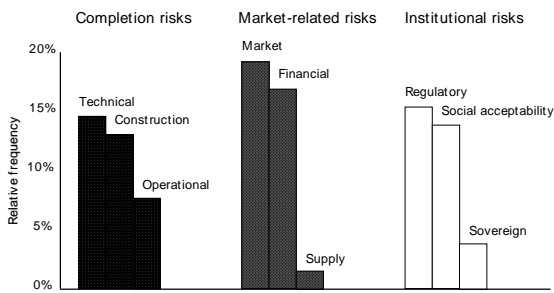
Attributes of large projects

Product of negotiated compromise:	
➢ Customized to meet client requirements	70.9%
➢ Integrated parts of networks	64.4%
Contested externalities :	
➢ Facing extensive community opposition	40.3%
➢ Facing international pressure groups	31.9%
Crafted over many years :	
➢ Average front-end period (search)	79 months
➢ Average EPC period (sprint)	49 months
Exposed to political risk:	
➢ Political considerations influenced initiation	43.8%
➢ Viewed as a vehicle for economic development	51.1%
➢ Facing bureaucracy with strong expertise	69.8%
Facing coherent regulatory frameworks :	
➢ Facing highly developed regulatory frameworks	61.8%
➢ Having to deal with multiple uncoordinated agencies	38.3%
Large, irreversible commitments :	
➢ Average cost	\$985 million
➢ Built ahead of demand	35.6%

Efficiency and effectiveness of projects

■ Performance of Public Infrastructure Projects	
➢ Cost and delay performance acceptable	
➢ Turbulence 100% of projects: politicians scramble	%
Efficiency indicators	
➢ meets cost targets	81.9
➢ meets schedule targets	71.9
Effectiveness indicators	
➢ meets most stated objectives	45.0
➢ below target but satisfactory and without crises	18.3
➢ restructured after experiencing crises	16.6
➢ Abandoned after high levels of development expenditure	6.6
➢ taken over by public authority after sponsor's bankruptcy	10.0
➢ abandoned white elephant	3.3

Risks observed in the IMEC projects



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2.2 Institutional Approach

The institutional framework to control risk:

- *By defining rules of interaction*
- *By defining rules of accountability*
- *By anchoring the project in its social environment*
- *By stabilizing long term revenues*
- *By establishing the project's legitimacy*
- *By enabling flexibility when turbulence arises*

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Characteristics of the three main types of institutional arrangements

	Entrepreneurial	Rational system	Governance
Institutions	Minimal regulation Exclusive rights or concession frameworks	Regulated monopoly (price or rate) Environmental regulation	BOT/concession Rules to foster competition and private ownership, environmental regulation
Economic context and trends	Space for expansion Cost-reducing and performance-enhancing innovations	Predictable cost reduction for output Room for system expansion	Urgent need for infrastructure (Third World) and room for new projects (West)
Technology	Emergent Local	Established dominant design Large-scale projects and systems	Stasis of core technology Information and environmental technologies
Main actors	Entrepreneurs Individual investors Investment banks	Network operators Regulators	Developers, entrepreneurs, EPC firms, banks, network operators, regulators
Risk allocation	Risks assumed by entrepreneurs	Risks internalized by large system	Risks allocated to participants
Project practices	Internal design Public stock issues Multiple construction contracts	Internal financing, planning, and design Multiple fixed-price contracts, bidding Detailed specifications	Partnerships/alliances Project financing Turnkey contracts Broad specifications
Ways to attain effectiveness and efficiency	Effectiveness: owner-performed design, control over construction Efficiency: competitive bidding	Effectiveness: rational centralized planning Efficiency: scale and network economies and competitive bidding	Effectiveness: diversity of competencies and risk allocation Efficiency: owner/contractor partnership
Organization forms	Small, dynamic	Hierarchical	Networks
Dominant ideology	Pragmatic	Modernism (rational planning, bureaucracy)	Deregulation, privatization, ecology

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Failures within institutional arrangements

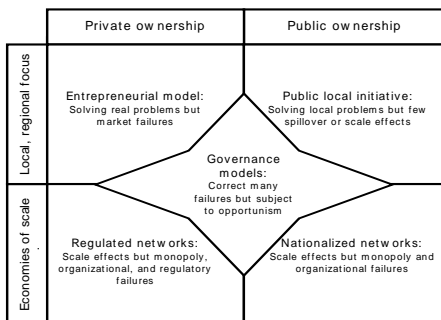
Entrepreneurial	Rational systems	Governance
<ul style="list-style-type: none"> • Duplicated investment and destructive competition • Small projects fail to capture economies of scale • Fragmented systems and markets not capturing network economies • Tendency to form monopolies in order to increase prices • Underinvestment in underpopulated areas • Rate discrimination between places where there is competition and places where firms enjoy monopoly, as well as between large and small clients • Financial speculation • Issues of probity, corruption, accountability, and conflict of interest 	<ul style="list-style-type: none"> • Network operators are symbols of national pride, tools of vested interests • Bureaucratization: specialization and formalism lead to slow decisions and high overhead costs • Arrogance, inability to deal with ecological groups and local opposition • Tendency to build expensive and unneeded projects • Over-reliance on internal planning and definition of projects precludes joint problem-solving and cost reduction with contractors and equipment suppliers • Incapacity to focus on small or marginal projects • The "capture" of regulators who are unable to impose efficient investment 	<ul style="list-style-type: none"> • Vulnerability to opportunism • Complexity of front-end negotiation processes, which increase transaction costs • Incapacity of contractual structures alone to protect from failure and opportunism • Predilection for simple and conservative solutions that reduce technical risks but produce technically sub-optimal projects • Underinvestment in projects due to increased selection hurdles • High cost of capital for private projects using project financing

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There is no optimal model



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2.3 Evolution and Complexity : Turbulence often lead to the disintegration of projects

Type	Example
Exogenous events	
Sociopolitical and macroeconomic	Financial crises (country or world) Major legislation (unexpected) Abrupt changes in input prices (oil, gas, etc.)
Unexpected natural events and discoveries	Bad weather, unforeseen geology Discovery of valuable natural resources
Direct opposition to project	Court challenges by pressure groups Organized community opposition International opposition
Sovereign behavior	Rule changes Refusal to grant permits Expropriation battles Granting of competing concessions

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Complexity and Turbulence often lead to the disintegration of projects

Endogenous events

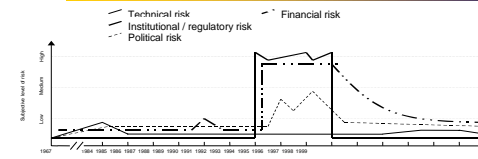
Coalition unraveling	Withdrawal or bankruptcy of major partners Opportunistic moves Difficulties experienced by one partner
Uncontrollable interactions	Unexpected consequences of strategies Social deadlocks
Ramp-up	Accidents, strikes Complementary work not ready Contractor bankruptcy Problems with new technology, site, etc.
	Forecasts proven wrong Expropriation

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Risks emerge during projects



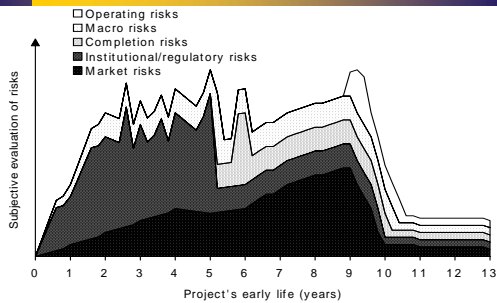
1967:	Concession awarded
1984:	Exploratory technical studies
1987:	Economic and technical viability of project tested
1988:	Basic design finished
	Detailed design started
1989:	Construction bidding for civil works
	Contract awarded
1991:	Development of new strategy: search for industrial partners
1992:	Preliminary protocol between joint-venture (JV) partners
1993:	Enactment of decree permitting joint ventures with industrial partners
	Memorandum of understanding signed between JV partners
1994:	Formal JV contract
1995:	Concession transferred to the JV
	Cost of civil works reduced from \$350 million to \$240 million
	Construction restarted
1996:	Equipment purchased on barter trade e.g. turbines
1999:	Target completion date

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Evolving risks: an illustration



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2.4 Games of Innovation

	Value creation and capture exchanges around self-contained modules	Value creation and capture exchanges with tightly integrated closed systems	Value creation and capture exchanges in modular open systems
Market-creation processes	Patent-driven discovery	RD&E tool making	Battles of architectures
Market-maintenance processes	Asset optimizing and innovating in packs	Systems engineering and consulting	Customizing and mass production
Examples of products	Medications, video films, batteries, industrial gases, aluminum, steel	Formula 1 racing, nuclear reactors, PLM systems, ERP, SCM, CRM	Internet platform, auction, personal computers, VCR, video console, automobiles

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2.5 Shaping and structuring project

- Construction of a logistical model predicting success and failure in 87% of cases (chi-square 43.45 with 0.0205 degree of significance)
- Factors affecting the probabilities of success are, in order:
 - The institutional framework
 - The sponsor's competencies
 - Risk analysis efforts
 - The shaping of projects
 - Construction of a strategic system
 - The capacity of governance and self-regulation

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2.5.1 Sponsors' competencies

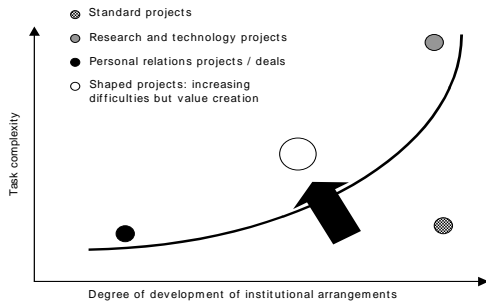
- Sponsors' competencies increase the probability of success:
 - Network operators and agents showed together higher competencies to ad-hoc alliances
 - Deep pockets: up to 33% of the project cost has to be invested prior to a final decision
 - Capacity to invest over many years to support negotiation of all agreements
 - Political negotiation competencies
- What are the required competencies?
 - Ownership competencies: arbitrage for major decisions to ensure the flow of revenues
 - Competencies for evaluating complex systems
 - Rapid decisions to stop non viable projects
 - Relational competencies
 - Coalition building competencies
 - Survival competencies: a portfolio large enough to survive temporary turbulence

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The competent sponsor looks for difficult but manageable projects

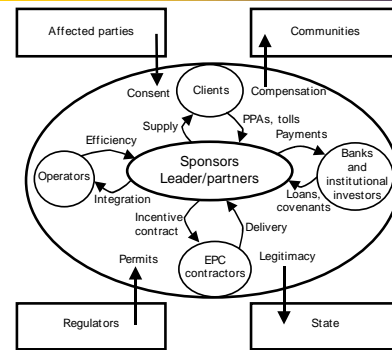


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2.5.2 Project shaping

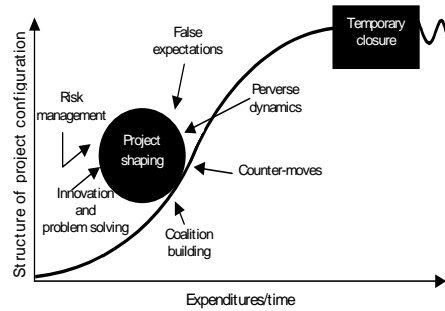


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The shaping episode

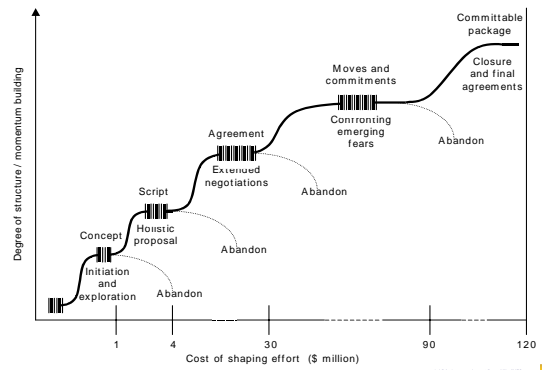


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Succeeding episodes in building agreements



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Episodes of succeeding shaping efforts

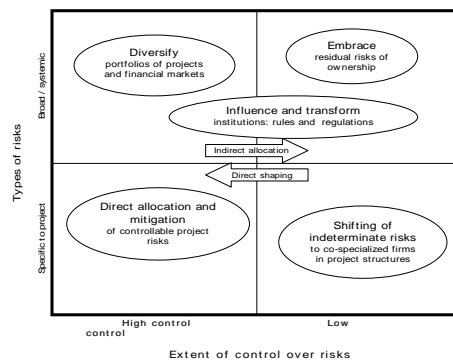
Episode	Coalition building	Dominant risk	Configuration and conceptual closure	Leadership/ sponsorship
Initiation and exploration	Narrow coalition led by a champion	Is there a sponsor able to carry risks and finance development effort? Is project holistically feasible: economically, politically, socially, technically?	Sketchy definition of initial hypothesis: multidimensional concept, memorandum of understanding	Entrepreneur, developer, or government group promotes initial hypothesis
Development of holistic proposal	Initial coalition plus developers ready to sponsor project	Do early estimates still leave the project holistically feasible?	Proposal containing "horseback" estimates	Leadership shared between client and developers or bidders
Extended negotiation	Core coalition includes leader, developers, bankers, and government agencies	Working details to ensure viability, identify risks, assign responsibilities, and provide guarantees	Volume of contracts detailing all dimensions of project configurations	Leadership shared between client and chosen developer
Confronting emerging fears	Sponsorship coalition extends to gain consent from social and environmental groups.	Is the feasible project able to carry real social/environmental costs that arise?	Viable concepts expanded to include social benefits, compensation, environmental plan, and symbolic aspects	Leadership is the sponsorship coalition with affected parties as autonomous decision makers
Closure on a committable package	Sponsorship coalition may include government agencies	Formal agreements lock projects into decisions allowing execution	Complex project documents detailing formal agreement	Leadership is passed to developers/owners interacting with engineering contractor and suppliers

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2.5.3 Scope of actions to mitigate risks

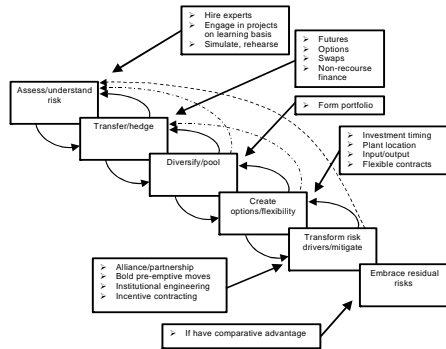


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Shaping strategy to mitigate risks: a dynamic description

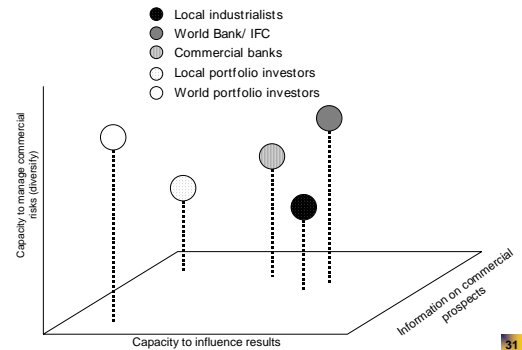


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Comparative advantages in risk mitigation



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2.5.4 Devices to build strategic and management systems

Information search	Research and studies Expert judgments Debates, scenarios, risk seminars Multidisciplinary strategy teams
Network building and co-optation	Early involvement of financiers, operators, and others Public-private partnerships Alliance of owners sharing equity Partnerships with suppliers/contractors Coalitions with affected parties
Structures of incentives, and contracts	Risks/decision rights allocation Type and number of contracts Incentives/penalties Frame agreements Methods of contractor selection
Project/design configuration	Select geographical location/site Complementary investments and linkages Contract flexibility, ability to restructure Flexible/modular technical solutions Flexible contracts/contractual options
Influence and bold actions	Educate regulator, rating agencies, and others Side payments: compensation, add-ons Preemptive action, signals Climate of optimism Windows of opportunity Signal probity (e.g., bidding) Seek and improve on legal requirements Change laws and regulations

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Templates

Financial	Non-recourse project financing Public placement of bonds Credit grading by rating agencies Risk-analysis seminars
Ownership	Alliances of partners PPA/BOT/concession Repowering Entrepreneurial projects/PPPs
Contract	Turnkey contracting Round-table decisions Design-finance-build-contract Frame supply agreement
Organizational	Participatory engineering Continuous commissioning Partnering with contractors/suppliers Co-engineering in design with suppliers
Legitimacy	Co-definition with regulator Public-private partnerships Mutual-gains approach State agreements

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2.5.5 Devices used by sponsors to instill governability

<p>Relationships between sponsors and owners</p> <ul style="list-style-type: none"> -alliance of equity owners -diversity of competencies -leadership of major investor -business linkages (prior) <p>Relationships with affected parties</p> <ul style="list-style-type: none"> -negotiation/compensation -sustained engagement <p>Relationships with clients/markets</p> <ul style="list-style-type: none"> -power-purchase agreements -tolls/public support -revenue guarantees -client is owner <p>Relationship with the state</p> <ul style="list-style-type: none"> -founding contract -agreement with state -involvement of multilateral agencies -state participation 	<p>Relationships with banks and institutional investors</p> <ul style="list-style-type: none"> -strong equity position -financial architecture/covenants -selection of responsible leaders -government guarantees -adaptability protocols <p>Relationships with contractors</p> <ul style="list-style-type: none"> -number of work packages -consortium -EPC firms involved in ownership -owner's involvement -incentives in engineering -incentives in construction -owner-contractor collaboration <p>Relationships between owner and operator</p> <ul style="list-style-type: none"> -owner(s) operate -contract operator
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Making sure that projects have governance mechanisms that trigger appropriate re-actions

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3. Developing a Governance Framework for the Treasury Board of Quebec

- The situation as revealed by a study of 15 public infrastructure projects
- The strategic challenge: building discipline and innovation over time
- Five types of organizational frameworks
- Building a Governance System

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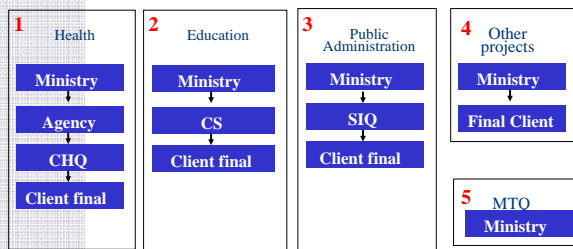
3.1 The situation as revealed by a study of 15 public infrastructure projects

- Project are developed only by one
 - Cumulative learning
 - Links to strategic government goal
- Highly decentralized approach of governance
 - Variation between ministries
 - No coherent framework
- Front-end planning is limited
 - Rational analysis
- Lack of understanding of interest groups
 - Socio-political studies left to politicians

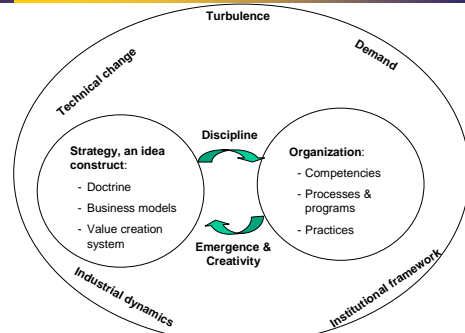
The situation as revealed by a study of 15 public infrastructure projects

- Practices favor traditional design and contractors
 - Few PPP's
 - Fast track preferred
- Absence of studies trigger political interactions
- 100% of projects meet turbulence
- Approval by cabinet based on inadequate studies
- Absence of structure for
 - Socio-political studies
 - Risk analysis and mitigation
 - Assessing alternatives

Five types of organizational frameworks



3.2 The strategic challenge: building discipline and innovation over time



Building on discipline and creativity, the firm builds its future and survive

3.3 Building a Governance System

- Project Office
 - Decentralized vs. Centralized
 - Independent vs. Embedded with TB
 - Project one by one vs. Accumulation of knowledge and practices
 - Training ministers vs. Autonomy

Building a Governance System

- What is a good Project Concept
 - What value is created ?
 - What is market ?
 - Is the scenario acceptable to opponents ?
 - How will it be financed ?
 - What are major risks ?
 - How will forgotten costs be allocated ?
 - What are world class cost estimates ?
 - What are strategic shaping costs ?

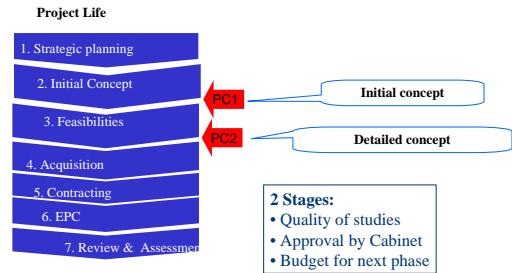
Building a Governance System

■ Mandatory studies prior to presentation to Cabinet

- Needs and markets
- Alternatives
- Contracting models
- Cost estimates
- Risk analysis and management
- Socio-political risk analysis and management

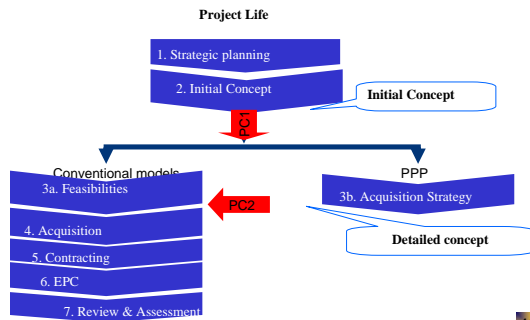
Building a Governance System

Stage Gate System



Building a Governance System

...alternatives are studied



Building a Governance System

■ Cumulative learning

- Governance requires cumulative learning
- Project management competence
- Processes of Learning and Teaching

4. Conclusion: project dilemma and strategic principles

Project dilemma	Strategic principle
The forecasting dilemma	Planning for the journey rather than planning the journey
Strategic interdependency	Embracing interdependency and shared governance
Irreversible, indivisible exposure	Avoid locking in too early or too late
Dormant innovations	Unlocking latent solutions through trust-based relationships
Underinvestment in worthy projects	Tailoring public-private partnerships to internalize benefits
The dilemma of time	Stretching the front end and squeezing the back end
External effects	Seeking win-win solutions to accommodate stakeholders' interests