

LONDON SCHOOL OF ECONOMICS AND POLITICAL SCIENCE
Houghton Street, London WC2A 2AE
DEPARTMENT OF OPERATIONAL RESEARCH

***The 'LSE Decision Analysis School of Thought' in Practice:
Creating a Vision for Puerto Rico 2025***

Speaker: Carlos Bana e Costa
Department of Operational Research, LSE

Date: Wednesday February 9, 2005
Time: 3.15pm - 4.15pm
Venue: Room H101, Connaught House

Abstract:

This seminar describes and reflects about the application, in 2003-04, of the socio-technical multicriteria approach for strategic decision-aiding, developed at the Department of Operational Research of LSE, to the participatory process aiming at creating a long term vision for Puerto Rico 2025. Our process-consultation intervention was done in collaboration with A.T. Kearney, the consulting company contracted by the Government of the island to develop the project. More than one hundred stakeholders were involved in a Decision Conferencing process in which the MACBETH and EQUITY methods were used to help thematic groups in strategy assessment and prioritization.

1

Presentation based on the process consultancy application
of Multi-criteria Decision Analysis and Decision
Conferencing in the project "Puerto Rico Visioning 2025"
(conducted by A.T.Kearney)

by Carlos A. Bana e Costa (LSE/IST) with the
collaboration of Emerson Correa
(Olympus Consulting, Madrid)

for the Government of Puerto Rico
2004



2

Puerto Rico 2025 was a project commissioned by the Government of the island

Background

- In December 2002 the Government of Puerto Rico invited consulting companies to bid for a project aiming at developing a long term vision and strategic plan
- A.T. Kearney won the bid by proposing a participative approach to long-range planning to enhance the chances of multi-stakeholder participation in strategy design and commitment to the implementation process
- MCDA was an important enabler of stakeholder participation, specially during the phase of strategy assessment and prioritization

3

PR 2025 is an initiative to create convergence on a plan for Puerto Rico's future

Stated Project Objectives

- Operationalize the PR 2025 initiative
- Engage community and private sector leaders
- Provide for the participation of local experts
- Create database for reference during project and future use
- Insure lifespan of the recommendations by anchoring project in the private sector to the greatest extent possible

4

Ultimate aim is not a report, but mobilizing civil leadership to overcome cynicism and short-term politics

PR2025 is NOT

- Another inert study-report
- An electoral platform
- An initiative tied to a specific administration or party
- Simply an economic development plan, ignoring social and environmental implications
- A nice set of ideas, with no roles, responsibilities and resources defined for their implementation
- Intended to address the status question

5

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PR2025 is



- A mobilizing vision and implementable plan for the future
- An initiative to create convergence on a plan for Puerto Rico's future
- An inclusive program for the benefit of Puerto Rico as a whole
- A holistic plan for balanced economic, social and environmental development
- A blue-print for action, identifying and establishing specific organizations to be responsible for implementation
- A plan to address Puerto Rico's fundamental needs, regardless of the political status

6

The Puerto Rico 2025 project was structured around four phases of work

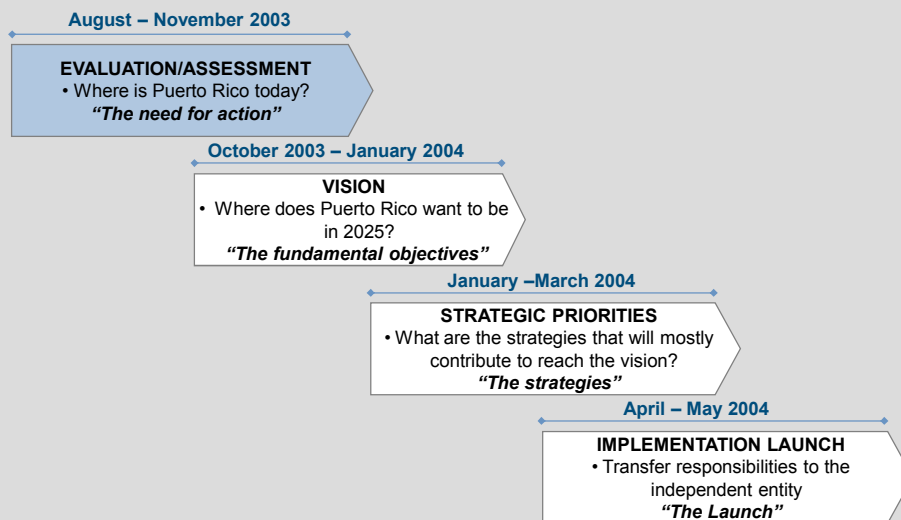
Project Phases



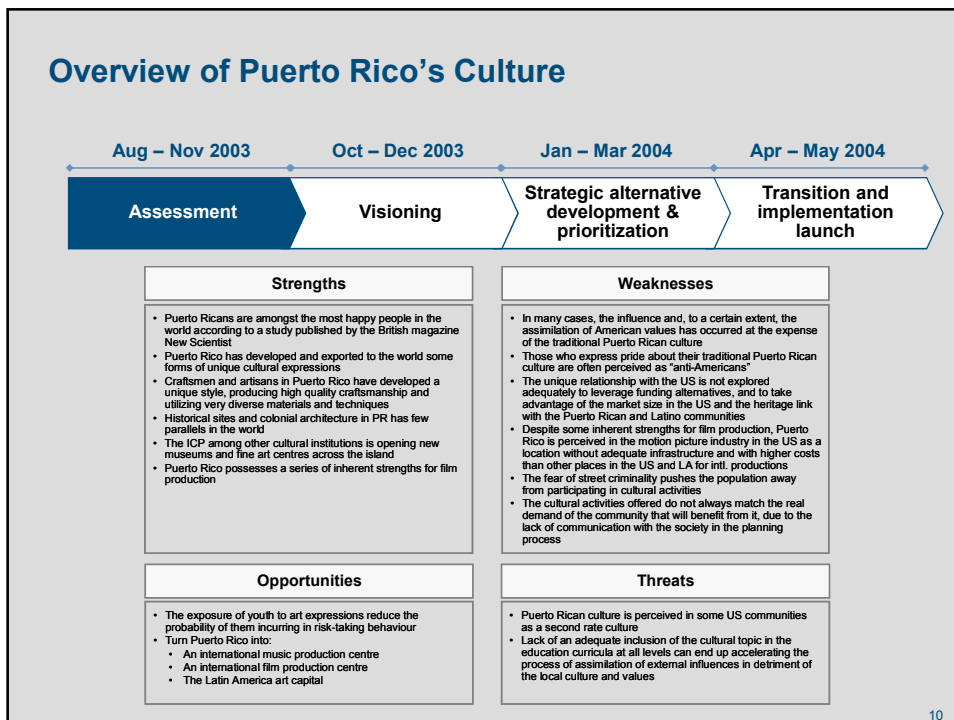
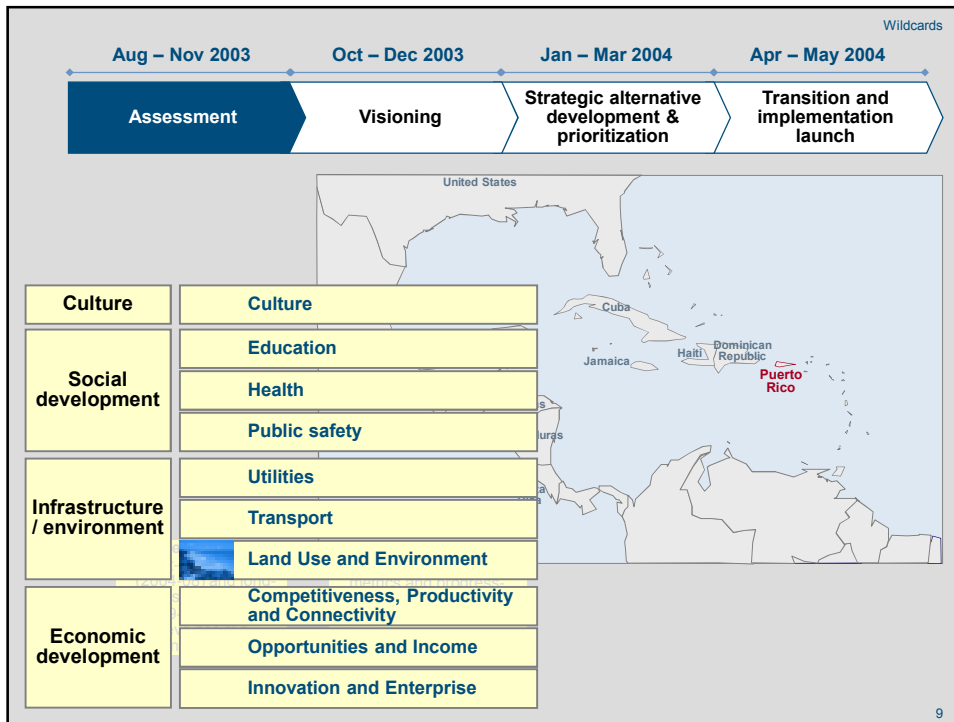
7

The Puerto Rico 2025 project was structured around four phases of work

Project Phases



8



Vision for Culture in 2025



We are a people that, regardless of where we may be, **appreciate those cultural values** that contribute to the development of solidarity, creativity, tolerance, and diversity.

We make the most of our **cultural heritage** and **talent** to become one of the main centers of production and distribution of cultural goods and services.

We all enjoy access to a wide range of **cultural assets and entertainment options** that make daily living more full, conscious, and satisfying.

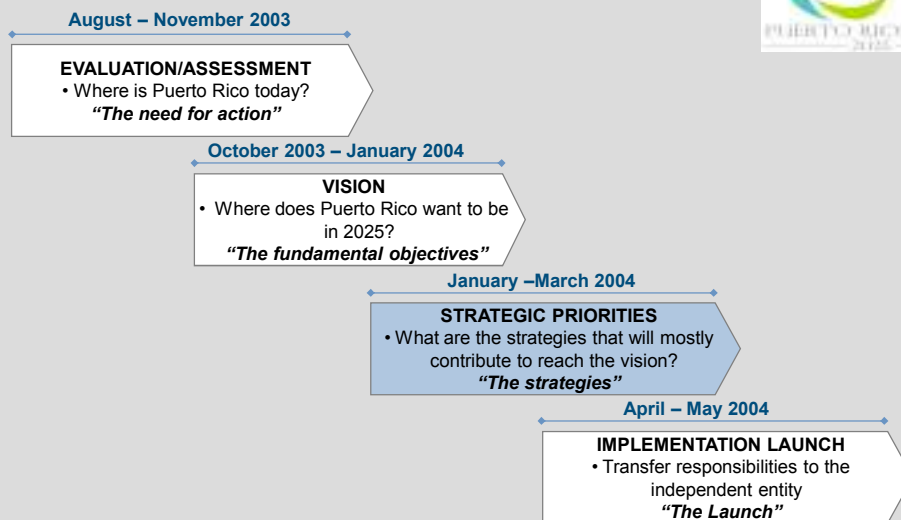
In 2025 ...

- **Cultural Heritage** – Puerto Rico values, maintains, guards, supports, and benefits spiritually and economically from its artistic, architectural, and environmental legacy.
- **Cultural Production** – The cultural production of Puerto Rico (theater, radio, cinema, television, music, literature, dance, crafts, plastic arts, among others) is recognized for its excellence and has effective local and distribution channels.
- **Communications** – We encourage the media to be socially responsible.
- **Entertainment** – There is a wide range of cultural activities and entertainment for all, using different programs and cultural institutions, mass communication, installations, and recreational areas.
- **Values** – We state and share values of inclusion, based on ethics, democracy, solidarity, respect for man's dignity and human rights that support the integrated development of the individual and the community for the enjoyment of life.
- **Beliefs and Traditions** – Individuals, families, and communities cherish, maintain, guard, promote, and benefit spiritually, socially, and economically from its festivals, traditions, customs, and beliefs.

11

The Puerto Rico 2025 project was structured around four phases of work

Project Phases



12

Strategies were developed, validated and evaluated for 10 specific areas of concern

Areas of Concern for the Strategic Priorities Phase

Economic Development	Social Development	Culture	Infrastructure/Environment
1 Innovation and Enterprise	1 Health	1 Culture	1 Utilities
2 Competitiveness and Connectivity	2 Education		2 Land Use and Environment
3 Income and Opportunity	3 Public Safety		3 Transport

The process of developing and prioritizing the strategies for Puerto Rico mobilized more than 100 stakeholders

13

The evaluation of key strategies was done according to their doability and direct benefit to the specific sub-visions

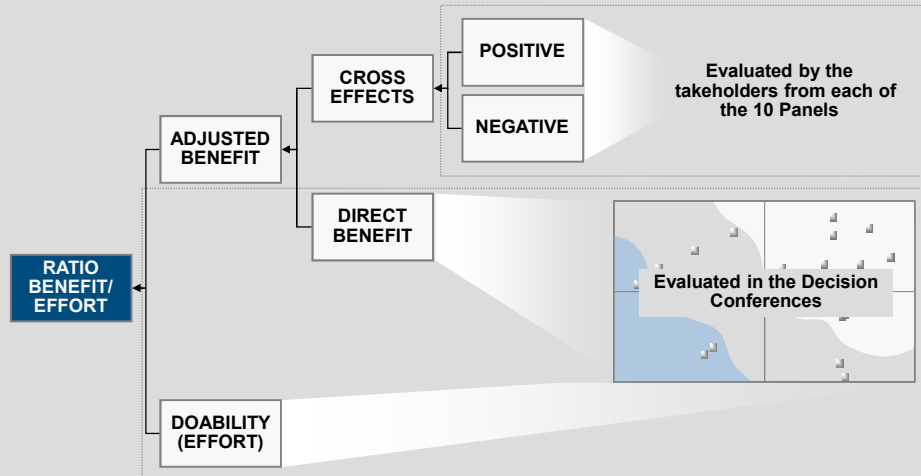
Example of the Output Obtained in Each of the 10 Decision Conferences



14

The incorporation of cross-effects to the outcome of the decision conferences allowed the calculation of a benefit/effort ratio for each strategy

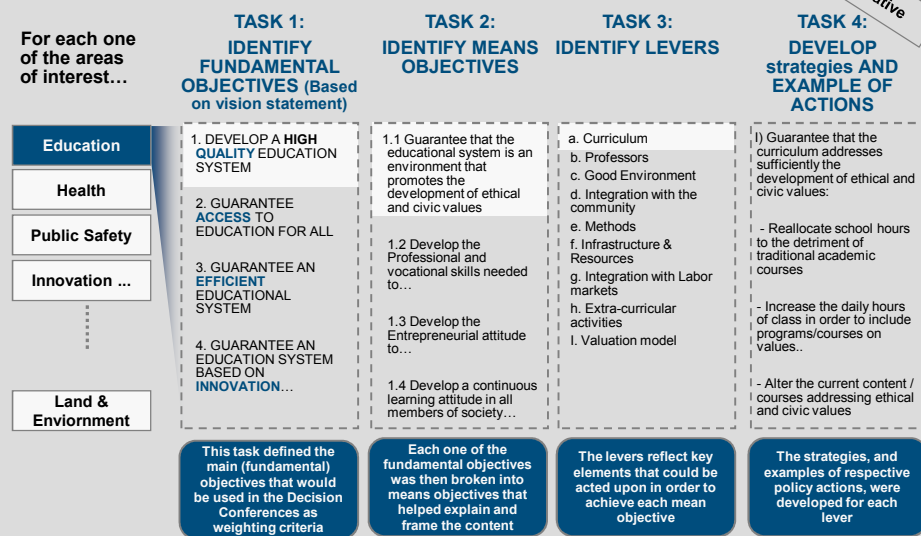
Generation of the Benefit/Effort Ratios



15

The strategies were generated through a structured approach

Process to generate the preliminary set of strategies



16

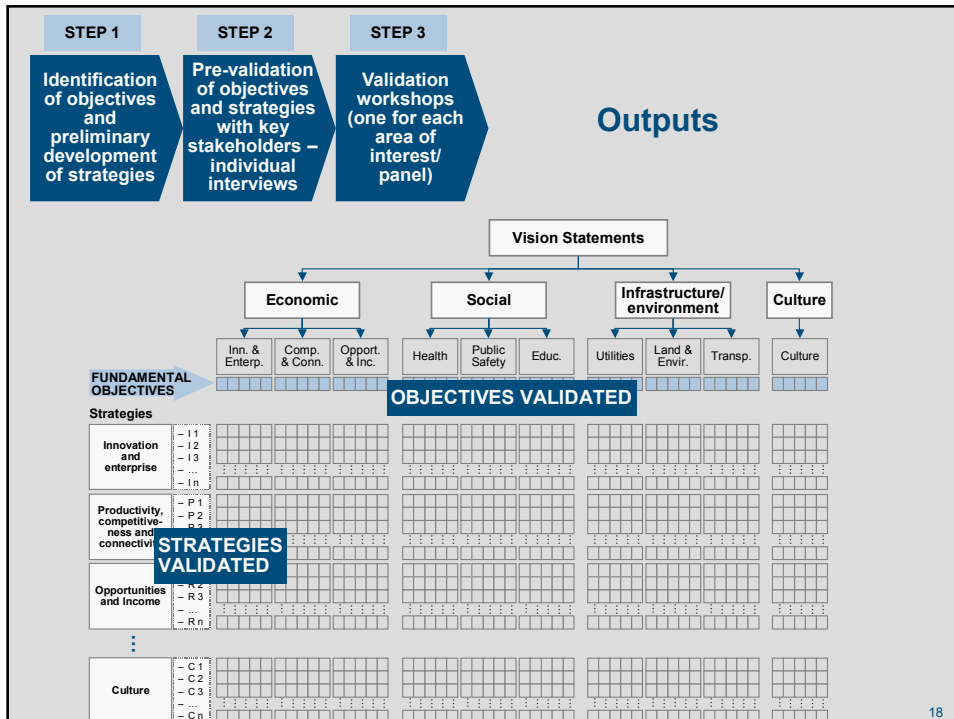
To improve the understanding of each policy measure's scope, some potential actions associated to each measure will also be provided during the validation workshop

Illustrative

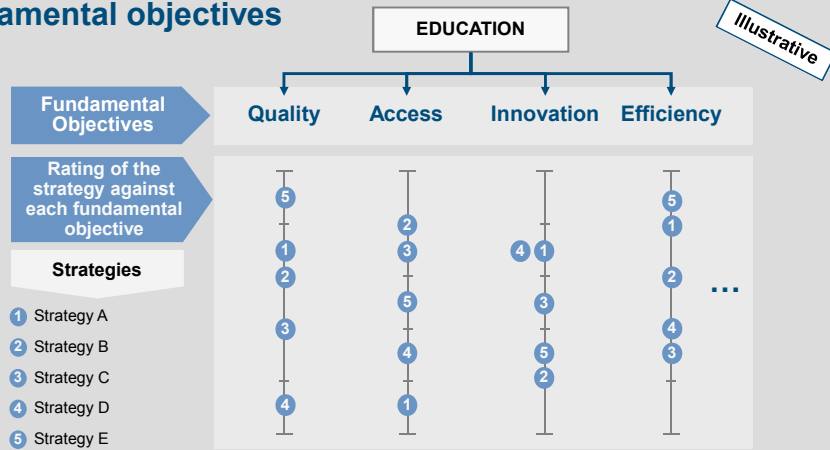
FUNDAMENTAL OBJECTIVE		MEANS OBJECTIVE	
1	Reach leadership in the use of renewable sources of energy and clean technologies	1.1	Increase large scale production of energy from renewable sources

DESCRIPTION OF POLICY MEASURE	EXAMPLES OF POTENTIAL POLICY ACTIONS
1.1.1 Plan to foster the large scale production of energy from renewable sources Obj: Increase the share of energy produced from renewable sources/clean technologies	A Implement new policy standards/targets (e.g. acts requiring energy producers and importers to ensure that a certain percentage of all electricity supplied to the national market comes from renewable sources by a specified date)
	B Provide direct incentives for potential suppliers of energy from renewable sources (grants, long-term loans at reduced interest rates, feed-in tariffs, tax credits, accelerated depreciation)
	C Implement CO₂/other environmental taxes to fossil fuels in order to make energy from renewable sources more competitive (objective is to reflect the environmental costs based on CO ₂ content of energy sources or on electricity consumption)
	D Increase use through government purchases (to supply government consumption needs from new generating capacity of energy from renewable sources)

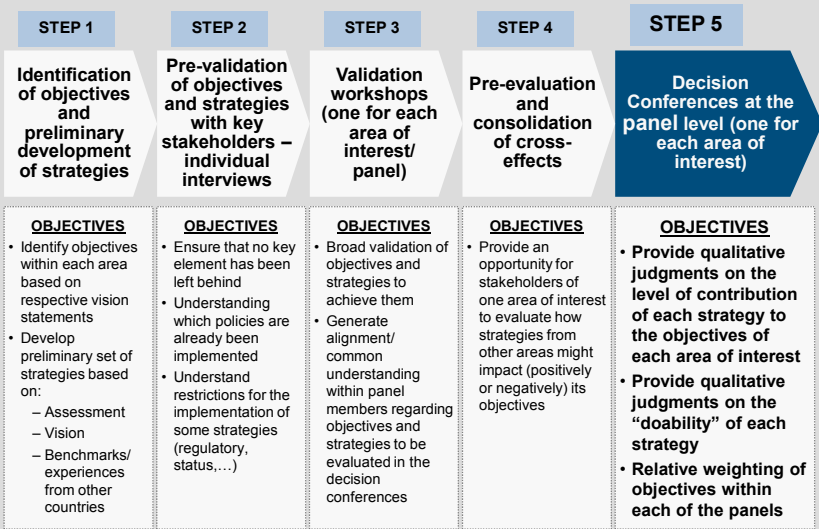
IMPACT ON CURRENT ENERGY ISSUES IN PUERTO RICO: reduce over dependency on imported oil and environmental impact of energy production



As a result, all strategies were scored in terms of their direct contribution to the achievement of each of the fundamental objectives



The doability of each strategy was evaluated in a similar process through a consolidated qualitative judgment that considered technical, political, institutional, financial and other issues



Decision Conferencing Process

Objectives and conditions

- Generate a shared understanding of questions/ issues under analysis (not necessarily build consensus)
- Develop a sense of common objective (but allowing individual opinion differences)
- Reach agreement on actions to follow

Characteristics

- 2-3 day workshop, or multiple workshops
- Participants must represent the diversity of perspectives on the problem being analyzed
- The workshop process is facilitated by a specialist supported by a decision analyst (to run the models)
- No fixed agendas
- No presentations

Conditions

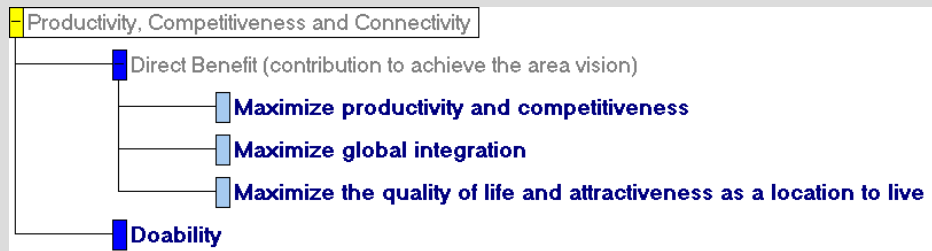
- Impartial facilitator
- Structured and methodologically sound modeling of judgments rejecting arbitrary decisions
- Extensive use of supporting technology to guarantee group interactivity and fact-based discussions


Application in the MCDA methodology

- Problem structuring phase – to establish the context for the problem and to exploit the fundamental issues; to identify benefit factors; to determine weight factors; and, to evaluate impact of policy options against benefit factors
- Option evaluation phase – to feed in value judgment models and to build numeric scales; to evaluate options per benefit component (partial and global aggregation)
- Recommendation phase – to explore the decision model; to execute sensitivity and robustness analysis; and, to develop final recommendations


21



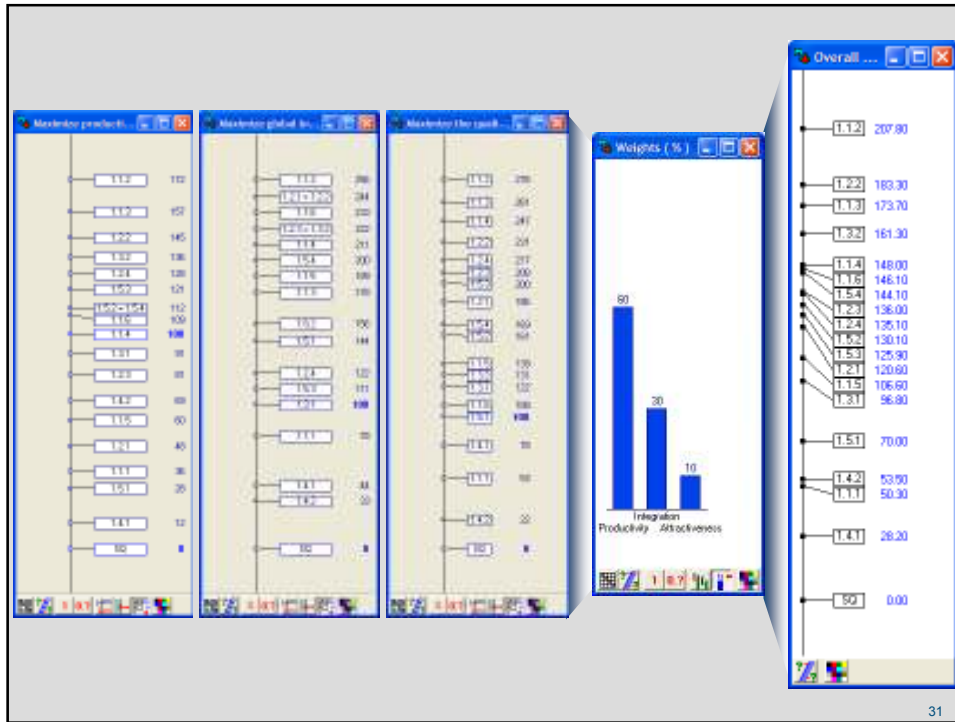



AREA: Productivity, Competitiveness & Connectivity		OBJETIVE 1: Maximize Productivity and Competitiveness													
		The contribution of the strategy to achieve the objective is...													
		Negative Contribution (-)							Positive Contribution (+)						
Strategies		Ranking													
		Extreme (-)	Very Strong (-)	Strong (-)	Moderate (-)	Weak (-)	Very weak (-)	NEUTRAL	Very weak (+)	Weak (+)	Moderate (+)	Strong (+)	Very Strong (+)	Extreme (+)	
1.1.2	Increase human productivity through education														7
1.1.3	Increase human productivity through tech														7
1.2.2	Improve infrastructure for information														7
1.2.4	Increase efficiency of local utilities														7
1.5.3	Overhaul system for investment promotion														7
1.3.2	Decrease regulatory burden													1	6
1.5.2	Overhaul system for national strategy												1		6
1.5.4	Overhaul system for export promotion												1		5
1.1.4	Attract global talent											2			5
1.3.1	Decrease financial cost of government											3			3
1.1.6	Provide multilingual abilities												5		2
1.2.3	Improve infrastructure for people												5		2
1.4.2	Rationalize unproductive subsidies												5		2
1.1.5	Deepen people linkages											1	4		2
1.2.1	Improve infrastructure for goods												6		1
1.1.1	Decrease cost of labor										1	1	4		1
1.5.1	Repositioning Puerto Rico											3	3		1
1.4.1	Decrease protections											3	4		

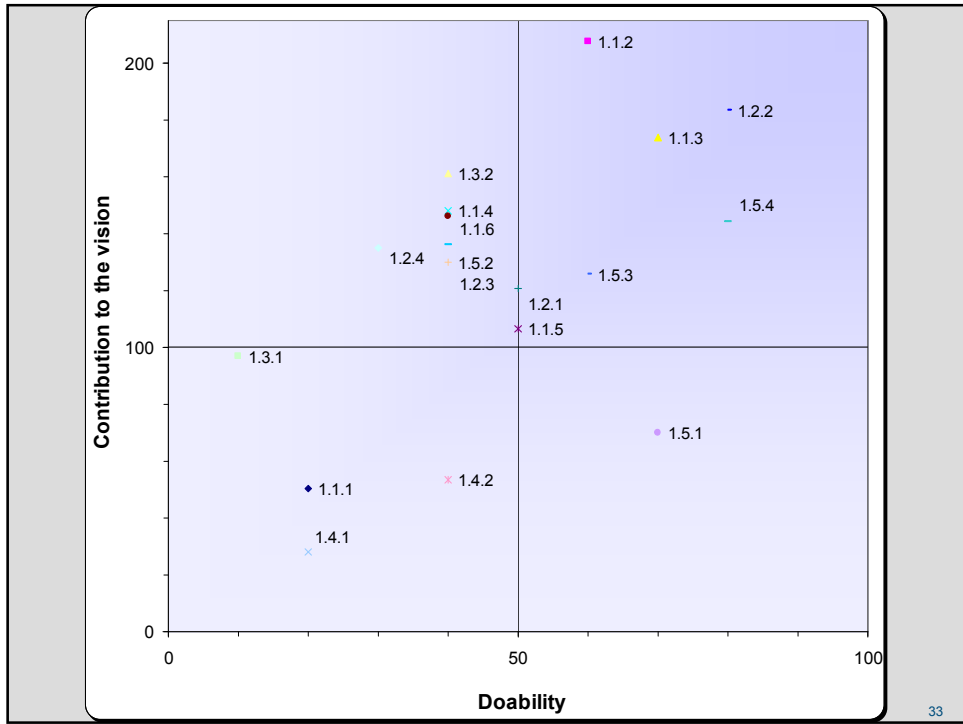
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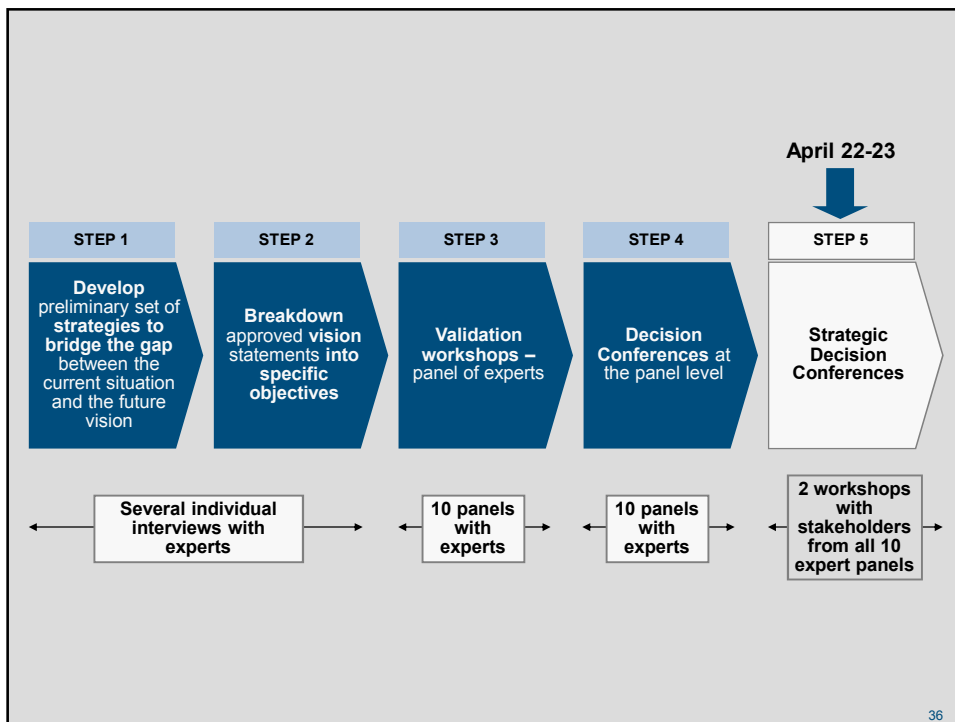
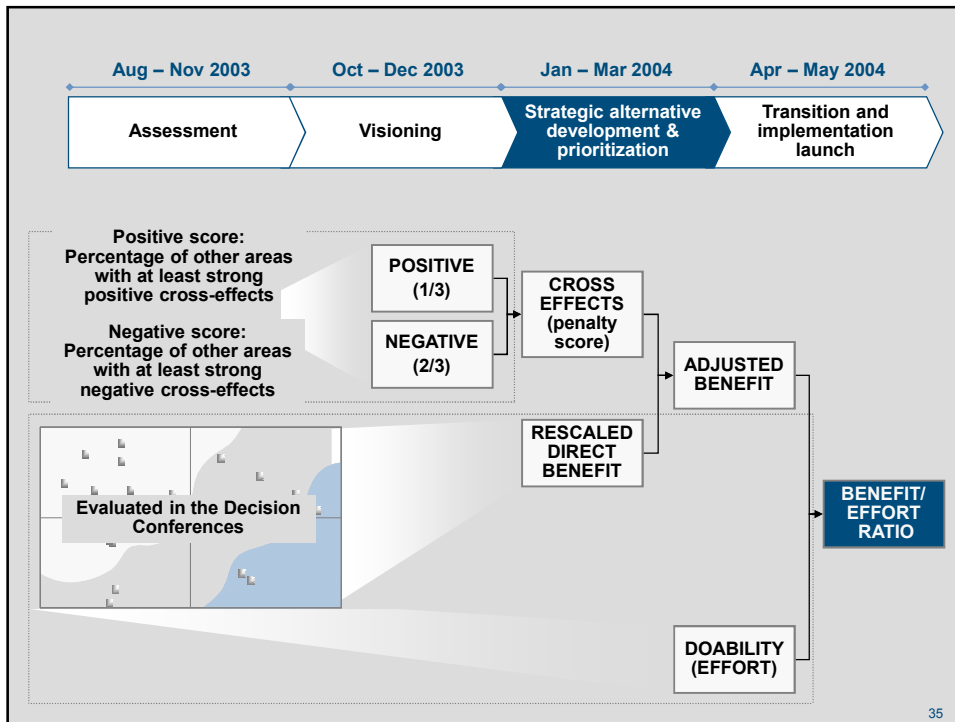
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 <p>PUERTO RICO 2025</p>			The contribution of the strategy to achieve the objective is...																							
			Negative Contribution (-)								Positive Contribution (+)															
			Extreme (-)	Very Strong (-)	Strong (-)	Moderate (-)	Weak (-)	Very weak (-)	NEUTRAL	Very weak (+)	Weak (+)	Moderate (+)	Strong (+)	Very Strong (+)	Extreme (+)											
			Strategies		Ranking																					
1.1.2	Increase human productivity through education	Extreme	Strong																						7	
1.1.3	Increase human productivity through tech.	Extreme	Moderate																							7
1.2.2	Improve infrastructure for information	Extreme	Weak-Moderate																							7
1.2.4	Increase efficiency of local utilities	Extreme	Weak																							7
1.5.3	Overhaul system for investment promotion	Extreme	Weak																							7
1.3.2	Decrease regulatory burden	Extreme	Weak																				1			6
1.5.2	Overhaul system for national strategy	Extreme	No																		1					6
1.5.4	Overhaul system for export promotion	Extreme	V. Weak																				1			5
1.1.4	Attract global talent	V. Strong-Extreme	Weak-Moderate																				2			5
1.3.1	Decrease financial cost of government	V. Strong	Weak																				3			3
1.1.6	Provide multilingual abilities	V. Strong	Moderate																					5		2
1.2.3	Improve infrastructure for people	V. Strong	Moderate																					5		2
1.4.2	Rationalize unproductive subsidies	V. Strong	Weak																					5		2
1.1.5	Deepen people linkages	V. Strong	Moderate-Strong																					1	4	2
1.2.1	Improve infrastructure for goods	V. Strong	Moderate																					6		1
1.1.1	Decrease cost of labor	V. Strong	Weak																				1	1	4	1
1.5.1	Repositioning Puerto Rico	V. Strong	Strong																				3	3		1
1.4.1	Decrease protections	Moderate-Strong																					3	4		





AREA: Productivity, Competitiveness & Connectivity		Doability of the strategy considering political, institutional, financial and technical dimensions								
 Strategies		Ranking	<table border="1"> <tr> <td>NEUTRAL</td> <td>Very weak (+)</td> <td>Weak (+)</td> <td>Moderate (+)</td> <td>Strong (+)</td> <td>Very Strong (+)</td> <td>Extreme (+)</td> </tr> </table>	NEUTRAL	Very weak (+)	Weak (+)	Moderate (+)	Strong (+)	Very Strong (+)	Extreme (+)
NEUTRAL	Very weak (+)	Weak (+)	Moderate (+)	Strong (+)	Very Strong (+)	Extreme (+)				
1.5.4	Overhaul system for export promotion	V. Strong				7				
1.2.2	Improve infrastructure for information	V. Strong			1	6				
1.1.3	Increase human productivity through tech	Strong-V Strong			3	4				
1.5.1	Reposition/Rebrand	Strong-V Strong			4	3				
1.1.2	Increase human productivity through education	Strong			7					
1.5.3	Overhaul system for investment promotion	Strong			7					
1.2.1	Improve infrastructure for goods	Moderate-Strong		3	3	1				
1.1.5	Deepen people linkages	Moderate-Strong		2	5					
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1.4.2	Decrease subsidies	Moderate		1	6					
1.2.3	Improve infrastructure for people	Moderate		2	5					
1.2.4	Increase efficiency of local utilities	Weak-Moderate		4	3					
1.1.1	Decrease cost of labor	Weak		5	2					
1.4.1	Decrease protections	Weak		7						
1.3.1	Decrease financial cost of government	V Weak-Weak		3	4					





The Puerto Rico 2025 project was now in the last stages of the Strategic Priorities phase

Project Phases



37

Puerto Rico 2025 Strategic Decision Conference

The primary objective was to consolidate
the results of the 10 area decision conferences
into a coherent and integrated strategic plan

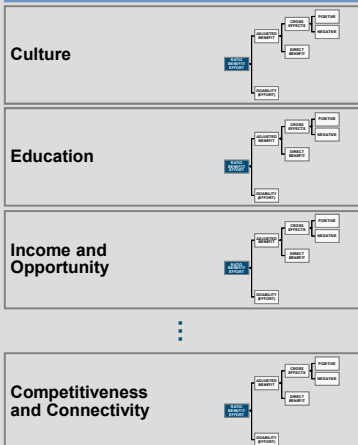


38

Puerto Rico 2025 Strategic Decision Conference



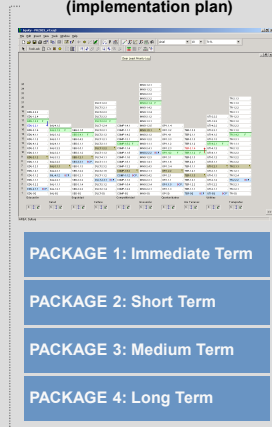
Benefit/effort ratios for each strategy in each area of concern



Strategic Decision Conferences
(April 22 and 24)

Group analysis across the ten areas of concern

Integrated Strategic Packages (implementation plan)



OUTPUT ON THE FIRST ROUND OF AREAS' WEIGHTING WITH MACBETH

OUTPUT ON THE SECOND WEIGHTING ROUND

	[Education]	[Health]	[Competitiveness]	[Innovation]	[Safety]	[Land Use]	[Income]	[Utilities]	[Transports]	[Culture]	[all low]	Current scale
[Education]	I	I	I	P	P	P	P	P	P	P	6	140,00
[Health]	I	I	I	P	P	P	P	P	P	P	6	140,00
[Competitiveness]	I	I	I	1	P	P	P	P	P	P	6	140,00
[Innovation]				I	I	I	P	P	P	P	5-6	120,00
[Safety]				I	I	I	P	P	P	P	5-6	120,00
[Land Use]				I	I	I	1	P	P	P	5-6	120,00
[Income]							I	I	P	P	5	100,00
[Utilities]							I	I	1	P	5	100,00
[Transports]									I	I	4-5	80,00
[Culture]									I	I	4-5	80,00
[all low]											1	0,00

	Costs	Benefits
	Esfuerzo	Beneficio
Educación	-	140
Salud	-	138
Seguridad	-	117
Cultura	-	89
Competitividad	-	144
Innovación	-	126
Oportunidades	-	104
Uso Tierras	-	122
Utilities	-	105
Transportes	-	87
Across Weights	100	100

Equity model that supported the discussion on the packages of strategies for implementation

Equity Model : First Output

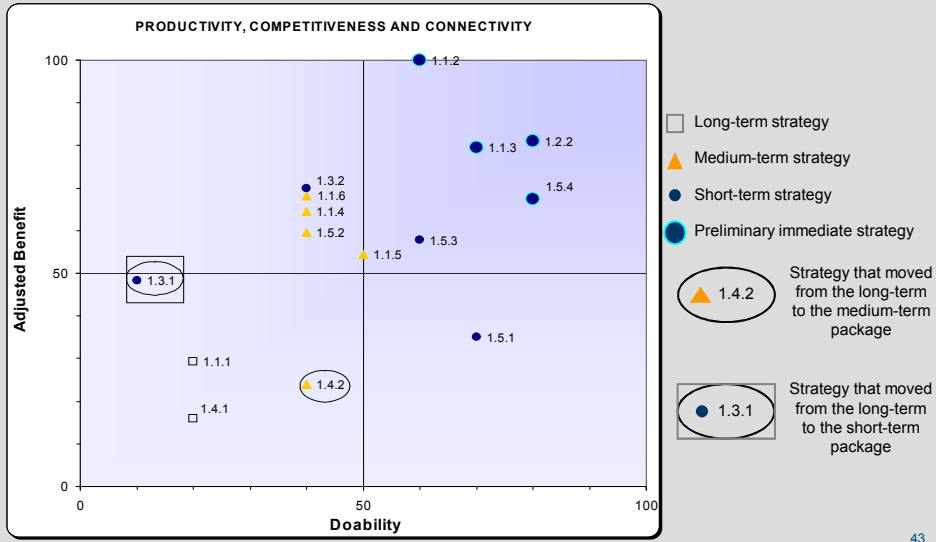
- Four prioritization packages were created:
 - immediate** (included those strategies to be pursued if only 10% of the total effort is to be put forth),
 - short-term** (included those strategies to be pursued if only 30% of the total effort is to be put forth),
 - medium-term** (included those strategies to be pursued if only 70% of the total effort is to be put forth)
 - and long-term** (included those strategies to be pursued if 100% of the total effort is to be put forth).

The screenshot shows a complex spreadsheet with multiple columns and rows. Three specific packages are highlighted with colored boxes and arrows:

- Immediate package** (blue box): Points to a group of strategies in the lower-left quadrant.
- Short-term package** (yellow box): Points to a group of strategies in the upper-middle quadrant.
- Medium-term package** (green box): Points to a group of strategies in the upper-right quadrant.

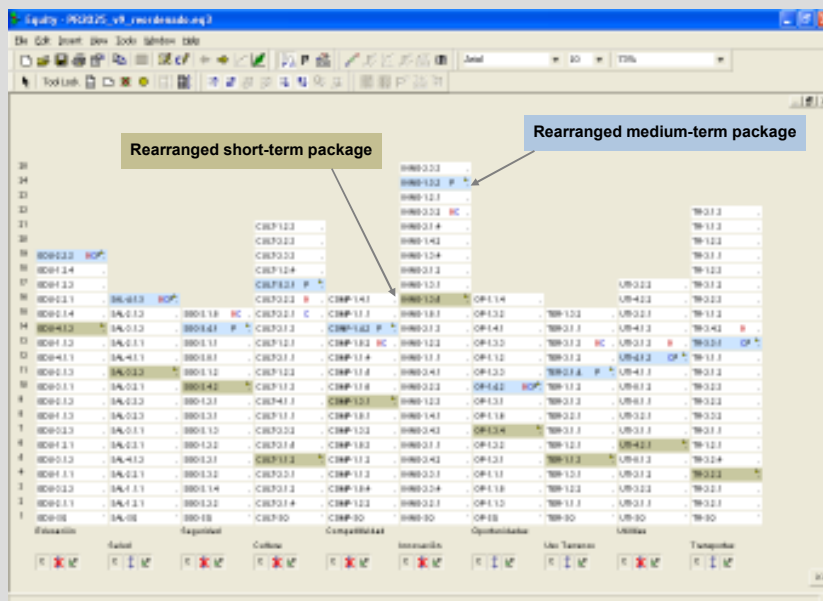
Adjusted-benefit / doability charts

- In order to check the strategic panel's consistency with that of the expert panels an adjusted-benefit doability chart was shown for each area.



43

Fine-tuning prioritization packages (continued)



44

Strategic Decision Conference

2nd day agenda: Identify from the short-term package the immediate strategies

Saturday, April 24th

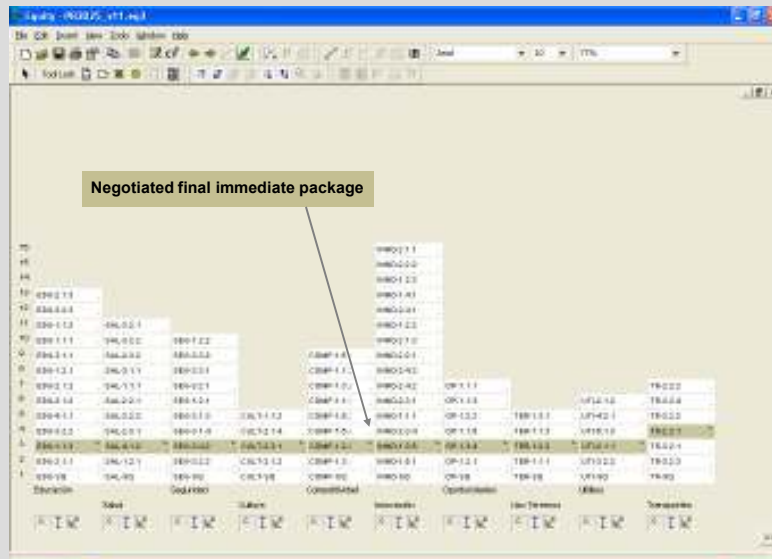


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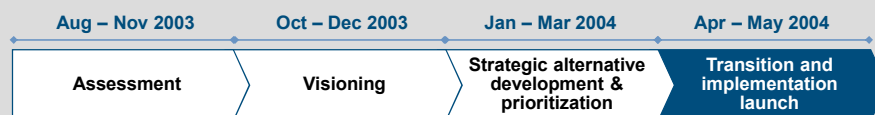


46

Immediate package



47



Culture	Culture
Social development	Education
	Health
	Public safety
Infrastructure / environment	Utilities
	Transport
	Land Use and Environment
Economic development	Competitiveness, Productivity and Connectivity
	Opportunities and Income
	Innovation and Enterprise

48