Event Impact Assessment Instructor's Manual

3 Impact Assessment Process, Measures & Methods

This is the instructor's manual produced to accompany the book *Event Impact Assessment:: Theory and Methods for Events and Tourism*, by Donald Getz, 2018, published by Goodfellow Publishers.

This manual and the accompanying illustrations are provided by Prof. Getz for the private use of instructors. All the diagrams are copyright protected and should not be circulated beyond the classroom. The figures from the text are available for downloading as a PowerPoint file, but not the additional ones in this manual as they come from other published sources or are the personal works of the author.

I have attempted to draw upon the generic IA literature to provide advice suitable for IA in the events and tourism fields. Keep in mind that the pertinent literature for IA and events is very limited, being mostly post-event economic impact assessments, whereas much of the generic IA field is devoted to forecasting.

Lecture 5

3.2 The IA Planning Process: Four Models

Figure 3.1 compares Four IA Planning Processes, with the main steps being for the forecasting model (Type 1). Each of the four is then discussed in turn. Try to find examples, or at least suggest circumstances in which they all might be done.

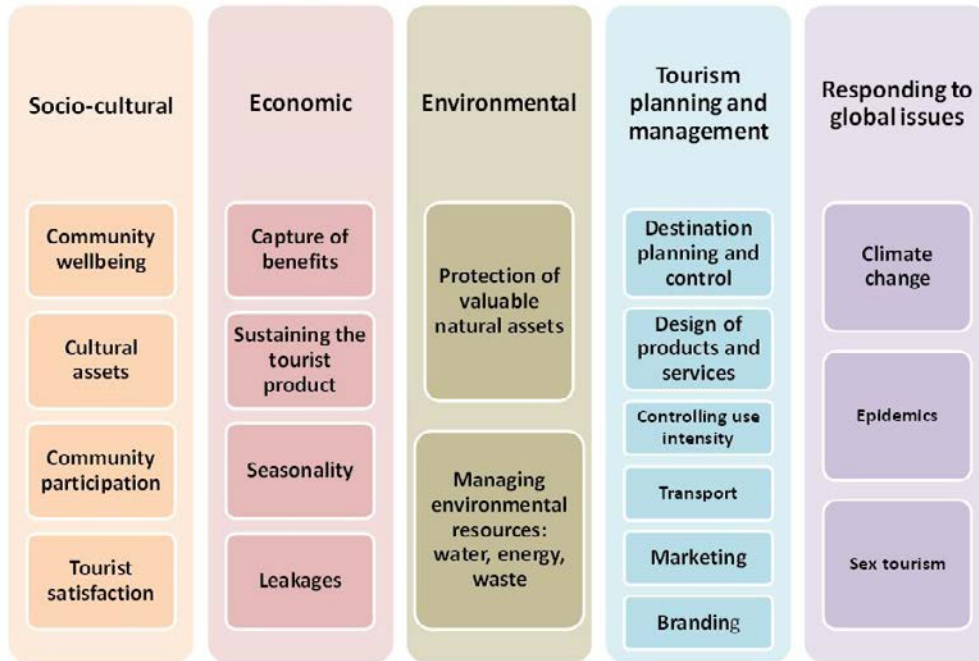| Type 1: FORECAST-ING	Type 2: STRATEGIC	Type 3: POST-EVENT	Type 4: RETRO-SPECTIVE
Pre-event or project; may be part of feasibility study	Evaluation of alternative policies, programmes or strategies by government agencies or private companies	Impacts assessed after the event (or project)	Evaluate how events/ tourism have changed the 'state' of the economy, environment or society

3.3 Measurement Issues & Metrics

The problem of incommensurability is raised, as it is a limiting factor in applying triple-bottom-line or balanced-scorecard evaluation. To overcome this problem the Event Compass was created, and it has been thoroughly discussed in the Event Evaluation book.

Exercise: Students should be familiar with the kinds of statistics reported in various types of impact assessments. Use the Edinburgh material to compare how economic impacts are measured with social and cultural or environmental. Later chapters provide more theory and methods.

Indicators and their importance have already been introduced. In general they deal with effectiveness (goal attainment) and efficiency (how well we do with the resources we have). Examples from events should be easy to find. Also discuss criteria for good indicators, and variables such as magnitude and severity. It is all about what we need to measure in order to determine if goals are met, and to understand what is actually happening. To the extent possible, organisations have to establish a monitoring system to collect data on many indicators. See the Megan Jones book (2018) on sustainable events, WTO indicators (an example below) and the EventImpacts website for lots of examples.

ISSUES AND INDICATORS FOR SUSTAINABLE TOURISM

Socio-cultural	Economic	Environmental	Tourism planning and management	Responding to global issues
Community wellbeing	Capture of benefits	Protection of valuable natural assets	Destination planning and control	Climate change
Cultural assets	Sustaining the tourist product		Design of products and services	
Community participation	Seasonality	Managing environmental resources: water, energy, waste	Controlling use intensity	Epidemics
Tourist satisfaction	Leakages		Transport	
			Marketing	Sex tourism
			Branding	

Source: Adapted from UNTWO (2006)

Lecture 6

3.4 IA Methods

Figure 3.2 summarises Methods Discussed in This Book. Many are used both for routine evaluation and for impact assessment. They are drawn from the generic IA literature as well as what I have learned from the real world of event management.

The first to be discussed is the Leopold matrix, as it makes a good starting point for forecasting impacts or for summarizing what has actually happened. In Figure 3.2, Sample IA Matrix for Event Impact Forecasting, I have suggested optional categories of information that can be put into cells: probabilities; perceived direction of impact (from whose perspective has to be determined); magnitude or severity; risk or uncertainty; and any results of simulation models, which constitute predictions or estimates.

Components of the Event	Social Impacts	Cultural Impacts	Economic Impacts	Built Environment Impacts	Impacts on Nature & Ecological Processes
Tourism and vehicular traffic caused by the event	Probability: Traffic congestion in residential areas is: -Certain to occur -High probability -Low probability -Will not occur	Perceived direction of impact: positive or negative? on s scale of 1-10	Magnitude: The cost of amelioration is estimated to be…	Risk: Failure to ameliorate traffic could lead to serious accidents and injuries	Simulation: Carbon emissions to increase by (estimate)

> **Exercise:** Students should draw a matrix, then describe an event and break it down into components, as in Figure 3.2 - not too many, or the task gets out of hand quickly. For each component they can suggest possible impacts and place a checkmark or other information in the cells. The top row of cells has to be labelled according to the types of impacts expected or possible. I have used the five 'objects', but the exercise can be done for any one of them, or for one of the 'subjects' of IA such as 'residents' or 'tourism destinations'. Looking ahead, the exercise can be augmented when specific types of impact are discussed on the five 'objects' chapters.

Here is an example from an online source (https://www.slideshare.net/thurramvj/analysis-eia-report-on-oil-exploratory-block-in-block-2b-wajir-kenya) that indicates severity in three categories and positive or negative.

. POTENTIAL IMPACTS AND PROPOSED ENVIRONMENTAL MITIGATION MEASURES

Table showing Anticipated impacts at different phases of the development

Phase	Environmental Parameters									
	Biophysical							Social Economic & Cultural		
Planning		Soil	Water	Flora	Fauna	Noise	Dust	ECONOMY	HEALTH	EDUCATION
	Stake holders Consultants	+III	+III	+III	+III	+III	+III	+III	+III	+III
	EIA Report Preparation		+III	+III	+III	+III	+III	+III	+III	+III
Construction	Vegetation Clearing		-II	-II	-II	-II	-II		+III	
	Excavation	-I	-II	-II	-III		-I	-I	+III	
	Fencing the campsite		-II	-II	-I	-I	-I	-I	-I	
	Structure Setting		-III			-II	-II	-II	-II	
	Soil Movement	-II	-II	-II	-II	-II	-III		-II	
	Drilling the well	-I	-II	-I		-II				
Decommissioning	Decamping		-II	-I	-I	-I	-II	-II	-II	
	Waste Generation		-II	-III	-II	-I			-I	
	Traffic		-II		+I		-I		+I	
			+II	-III	+III	+II		+II		
Operation & Maintenance	occupation		+III	+II	+III	+II		+II		
	Waste Generation		-II	-I						
	Traffic		-II	-III						
	Campsite Area Maintenance		-II							

Key: Categorization of impacts (+) Positive (-) Negative: I low; II medium; III High

Figure 3.3 provides an Illustration of a Rapid Impact Assessment.

Key Questions & Indicators	Relevance	Types of Available Evidence	Judgment on Potential Impact	Mitigation
What will be the tourism impact? -projected demand by tourists -estimated direct economic contribution	Attracting tourists is one goal; it is highly likely that special-interest visitors will make the trip	Obtain data on other events in the same area from impact studies and tourism statistics.	Economic impacts will be modest, but important, as the event will be in the slow-demand season; image benefits should be realized	Grow the economic benefits by a targeted marketing campaign and providing all-inclusive weekend packages.

Limitations of time and money, or expertise, might require a short-cut IA and this section suggests how to do it while still being professional. We need Key Impact Questions to answer, and in fact there might only be one. It is easy to imagine a project where the evaluators and IA professionals are told to answer one of these questions: (a) did we help create social capital? or (b) what was our economic impact? Determining what evidence is needed and available is a key part of the RIA, as it is unlikely original research can be done. Probably there will be less analysis, and more expert judgment about potential impacts and mitigation.

Scenarios

Of the other generic methods being discussed, *Scenarios* are always of particular interest. Note that a future scenario describes a possible future condition, or several that can be compared, but this is not a forecast of impacts - it is a way to consider impacts in decision making.

Exercise: Ask students to compare two possible future scenarios, such as illustrated in Figure 3.4 which looks at two options for a new arena. Perhaps consider an event with or without a certain programme element, or large and small attendance (assuming there will be limits). What are the most important elements to describe and how will they be compared? Is it all a matter of opinion, or can some other evidence be made available? How will this exercise in scenario making help the decision makers?

SCENARIO 1:	SCENARIO 2:
Build a large indoor arena (20,000 seating capacity) to replace the existing small facility (10,000 seats), on the same site	Build a smaller venue (10,000 seat capacity) on a new, greenfield site in the far suburbs

Exercise: If you want a really BIG discussion, present some of the available climate-change scenarios that have been prepared for all parts of the world (e.g., future temperatures and impacts on water, agriculture or ocean levels) and get students to consider implications for events and tourism. This map depicts best and worst-case scenarios for temperature and precipitation changes for the world, and of course these depend on certain assumptions and algorithms. But the prospects are grim, and we will all have to learn to adapt. Today's students will experience the growing crisis first hand and should be able to relate what they are studying now, and their future careers, to the big picture. Climate change also can be used to examine feedback, cumulative and synergistic impacts, capacity and the need for limits or standards.

PREDICTING CHANGES IN TEMPERATURE

Global temperatures are likely to rise by 0.3 to 4.8 degrees C by the end of the century, depending on how much governments control carbon emissions, the Intergovernmental Panel on Climate Change says. It put out two maps on the change in average surface temperature – the best-case and worst-case scenarios to the year 2100. Both maps show the change from 1986.

Best-case scenario   Worst-case scenario

-2C   -1.5   -1   -.5   0   0.5   1   1.5   2   3   4   5   7   9   11
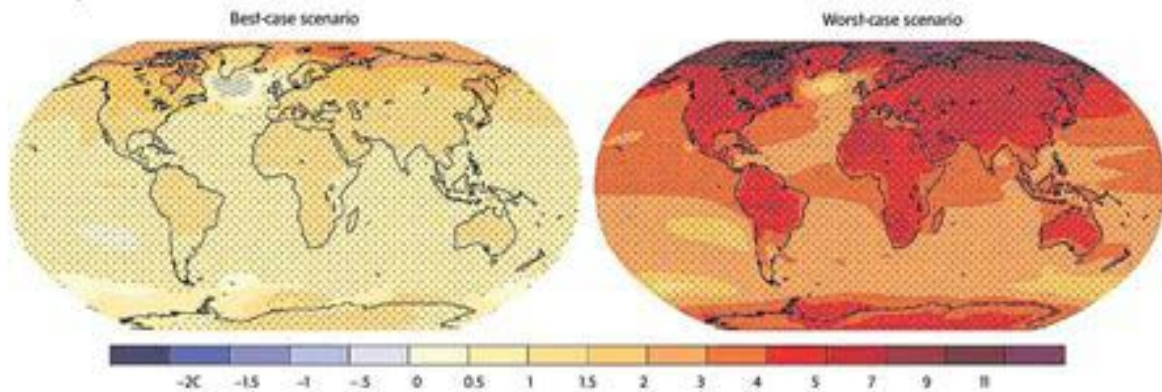
PREDICTING CHANGES IN PRECIPITATION

The change in annual average precipitation, by percentage, from 1986 to 2100.

Best-case scenario   Worst-case scenario

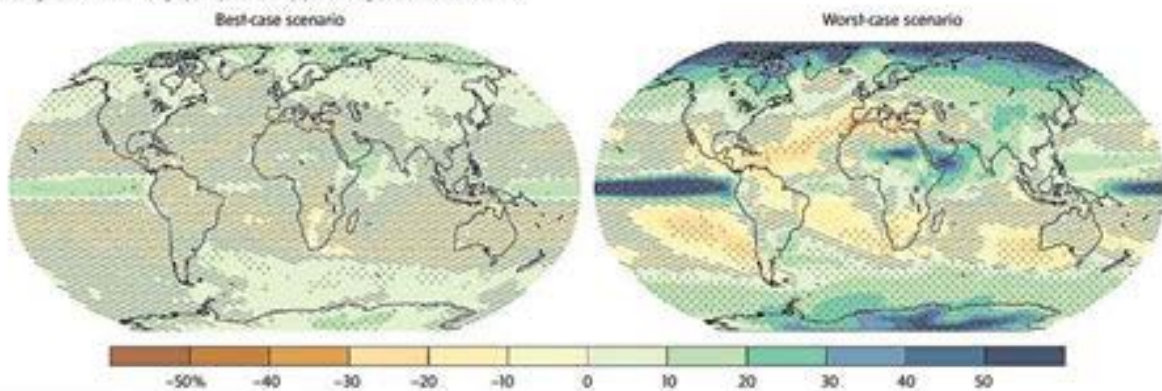-50%   -40   -30   -20   -10   0   10   20   30   40   50

IMAGE: THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE / THE GLOBE AND MAIL

Check out this paper on scenario-making, pertaining to the future of aviation/travel and carbon emissions. The prospect for alternative fuels, even electric airplanes, is, well, up in the air. The diagram depicts a preferred scenario, that of 'green lantern'.

Shaun Vorster, Marius Ungerer and Jako Volschenk (2013). 2050 Scenarios for Long-Haul Tourism in the Evolving Global Climate Change Regime. *Sustainability, 5*(1), 1-51.
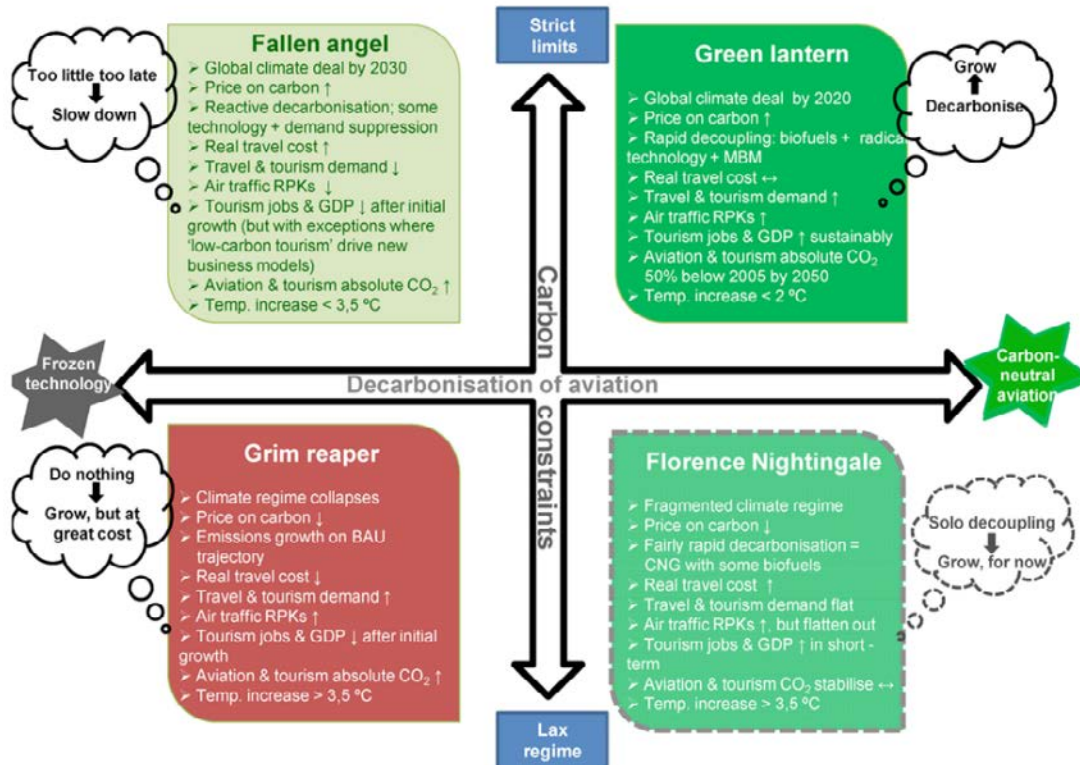

Decision Trees

Figure 3.6 illustrates a simple Decision Tree, but keep in mind there is software available online. Again, this is not about predicting impacts, but using forecasts of impacts to aid in decision making. Three options are compared (like scenarios) but probabilities are assigned to the likelihood of attaining goals, or alternatively to specific impacts occurring. The aim is to provide a rational basis for choosing one option. Unfortunately, politics usually intervenes which can easily result in irrational decisions.
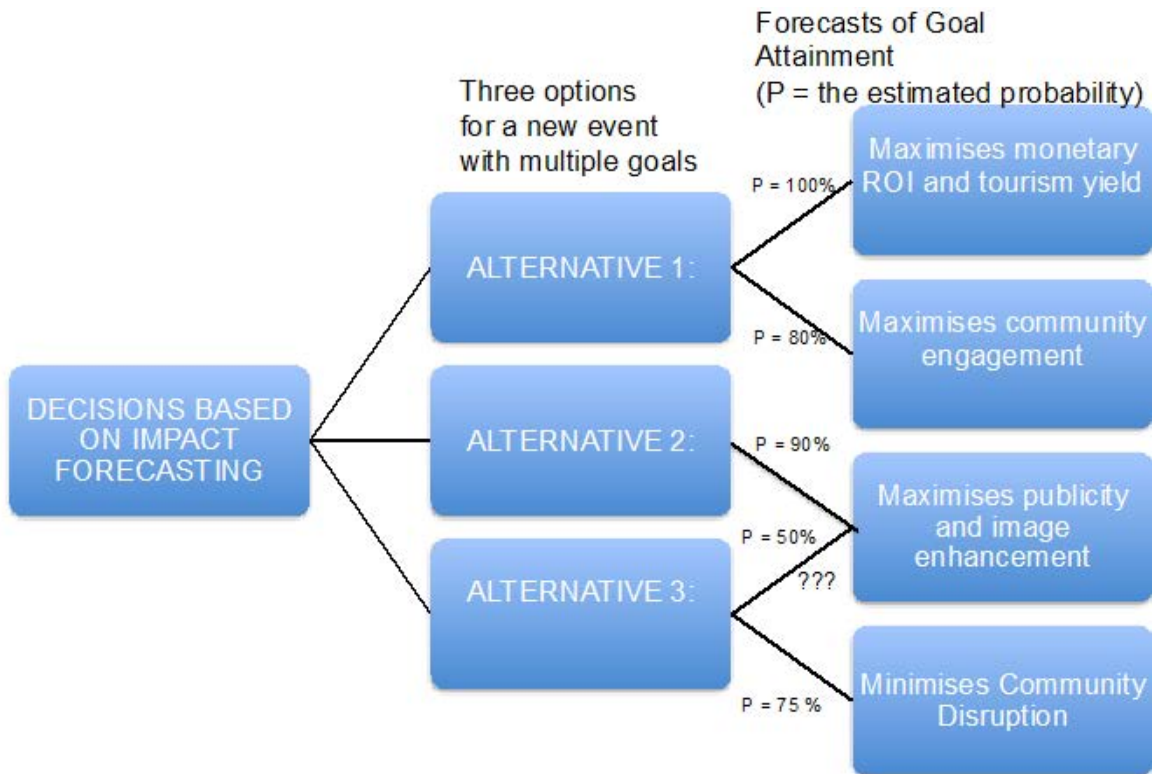
Commercial software is available for doing decision trees on Excel spreadsheets, see the diagram below from: https://www.palisade.com/precisiontree/
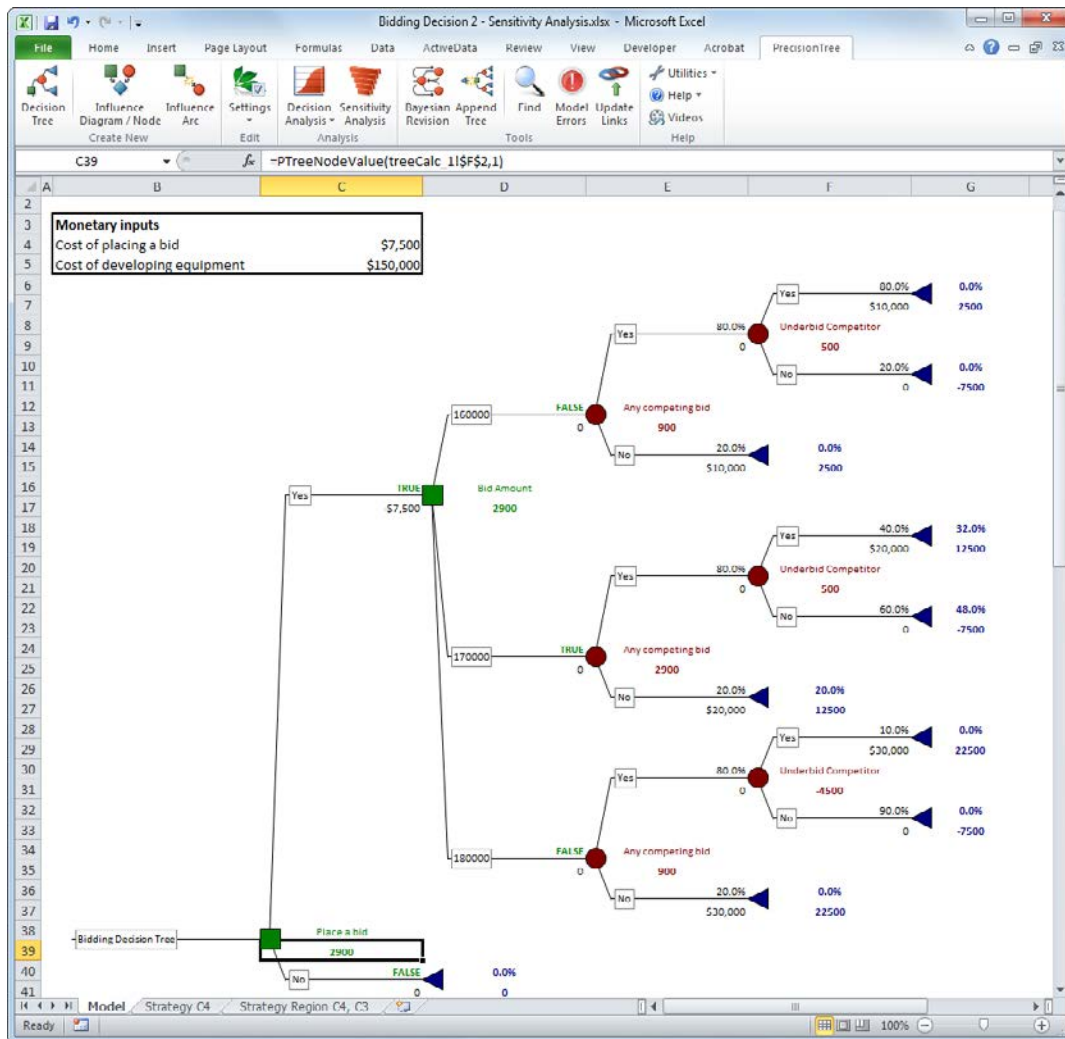
3.5 Forecasting

This is another important topic that should follow from knowledge of generic research methods. Note that scenarios are not forecasts, and neither is trend analysis, but they can assist. Most forecasting is done through models, the most frequent being economic impact forecasts for which calculators are available. Compare qualitative and quantitative methods. You might want to construct a slide, like this downloaded picture.
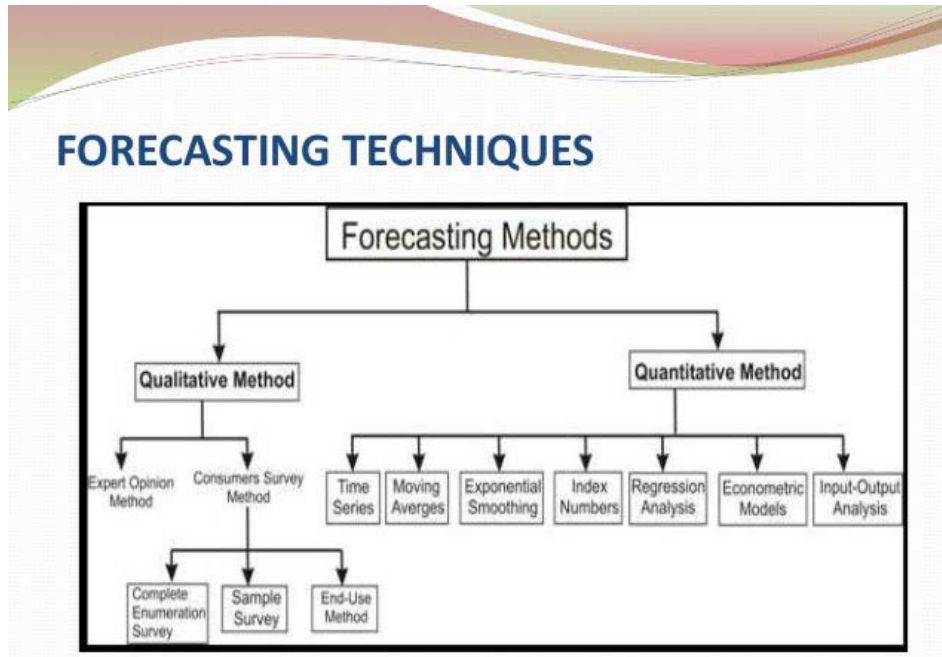
Assessment Lectures 5 and 6

♦   **Learning Objective**: Know how to plan and implement an impact assessment

Q: Describe the steps in the IA forecasting process.

A: You could permit point form, or require a diagram. An answer must include the 10 main steps from Figure 3.1. This question could be expanded by asking for examples.

♦   **LO**: Understand the uses and difference between the four process models: forecasting impacts, strategic, retrospective and post-event

Q: Compare the four types of IA processes with regard to the research needed by each.

A: The reference point is the forecasting model, against which the others can be compared. Consultation features in all of them. A baseline of some sort is needed in all four, as impacts get forecast as changes to existing states, or measured retroactively against a starting point/baseline. Trend extrapolation can be used in forecasting and strategic IA, whereas analysis of established trends is inherent in retrospective IAs. Post-event IAs generally obtain data from visitor surveys to analyse.

♦   **LO**: Be able to select and use appropriate impact methods and measures, and determine key impact questions and indicators for different IA applications

Q: Specify two key impact questions and two related indicators for an IA that has the mandate to measure the economic impacts of an event (OR: the mandate to evaluate social-capital formation by an event).

A: The question can be framed in many ways, the idea being to have students demonstrate their ability to develop questions and indicators appropriate to particular IA tasks. The social and economic chapters provide specific guidance on the two questions above.

♦   **LO**: Learn the variables that influence impact measurement: magnitude or severity; duration; spatial patterns; direct or indirect effects

Q: Give examples of direct and indirect economic/social/cultural/environmental impacts of events.

A: The question could be focused on any object or subject of IA. For example, people who attend events are directly affected, whereas the impacts of economic development through tourism will have indirect impacts on local taxpayers.

Q: How might the magnitude or severity of the impacts of event tourism be modified by time and geography?

A: The idea is for students to appreciate how events and tourism are part of a dynamic system (see the FPSIR model again), and impacts are not always confined to one are or point in time. The noise generated by an event, for example, can be mapped, with decreasing noise levels as distance increases. The concentration of tourists in a heritage area has immediate, direct impacts, but getting people into such areas has more dispersed and less obvious effects.

♦ **LO**: Know what methods are available for IA, and when to use them. In particular: Leopold matrix, rapid impact assessment, network diagrams, field and quasi experiments, trend analysis, scenarios, mapping, decision trees, simulation models, calculators, and visualizations

Any of these methods could be questioned, with students asked to define and explain them, plus describe an application. Here are two examples, with the matrix being the most adaptable of the methods.

Q: What kinds of information could you put into the cells in a Leopold Matrix when the task is to forecast event impacts?

A: The purpose of the matrix is to indicate what elements of an event or development project link to specific types of impacts. For example, in forecasting the impacts of an event we could anticipate that it will generate impacts through the generation of traffic, noise, and consumption of food and beverages, and these will affect nearby residents directly, and the local ecosystem if management fails to control waste. The probability or severity of likely impacts can be indicated, the risks or uncertainty associated with the forecast, or specific estimates derived from simulations (such as the amount of waste the event might create). Another option is to indicate the anticipated direction of the impacts, being positive or negative (from different perspectives).

Q: Under what conditions would you do a field experiment as part of IA? What would be the 'control'?

A: A field experiment takes place in the real world and this does not allow all the controls of a laboratory experiment, nor does it necessarily allow for random assignment of subjects. An example would be to compare the learning or satisfaction levels of conference attendees who received one mode of presentation (e.g., speeches) with another mode, such as seminars with mentors. Results can be compared to see which delivery mode had the best results. This method does not control for all possible influences on the results, but can be quite useful for event designers.

Long Answers

1) Compare the four IA planning-process models with regard to the steps to be taken and appropriate methods. Give examples of how and where each might be applied to events and tourism.

A: A table of comparison will help, but the answer should be fully written in sentences and paragraphs. The starting point is identification of the four applications (forecasting, strategic, post event and retrospective, as I have called them). The steps in the forecasting model are a good baseline for comparisons, as it is the most generic of the models.

2) Discuss the critical role of indicators in impact assessment. How are they determined and used? What variables have to be considered?

A: Students should define indicators, and might very well reference the Duignan model on controllable and other indicators. Essentially, some things can be measured directly (e.g., volumes, weights, quantities, money) and others cannot. Sometimes we use surrogate measures, such as money being used in the triple-impact-assessment approach to quantifying social or ecological impacts. And indicators are always needed when complex phenomena or constructs like social capital are in question.

3) Illustrate how to use a matrix in IA, with the example of a proposed major event venue.

A: The Leopold Matrix is easy to construct, but there are two major challenges. First, the event or project has to be broken down into components that are likely to generate various kinds of impacts. This requires knowledge of what is proposed, or already exists, and can be informed by stakeholder and expert consultations. Obviously a mega-event proposal will be much more complicated than a small, one-day event. The matrix can try to cover all subjects of IA, or just one - like a typical economic impact assessment. The second major challenge is to decide what information to put into each cell, as simple as an X to indicate a possible link, or the various other options discussed in Fig. 3.3.

4) Why are true experiments so difficult for impact assessment in events and tourism? What are the possible alternatives to provide convincing 'evidence'?

A: The true experiment requires random assignment of subjects and a control group to make sure results are explained by the experimental treatment. This is not usually possible in real event and tourism situations (nor is it usually desirable, as research impinges on experiences). A field experiment is a quasi experiment because full controls are not possible, and random assignment often impossible. But systematic comparisons can be done, as with the field experiment described above and in the text. By asking about evidence, this question requires a discussion not only of experimental research but the nature of evidence that might result in either proof or at least acceptance of findings among the clients or stakeholders of an IA or evaluation project. A good answer would also consider other forms of comparisons and benchmarking, and would discuss how the weight given to voices and other forms of evidence has to be agreed upon, as a social contract.

5) Outline two future scenarios that can be useful in forecasting the impacts of alternative policies for developing an event portfolio? What visualizations would you use?

A: This question pertains to 'strategic' IA, so the two scenarios should examine potential impacts of different policies or strategies. An example would be a comparison of a portfolio in which festivals and community events are preferred over one in which bidding on international sport events and conferences is the priority. Each scenario will have to describe the implications of the contrasting portfolios for the main objects of IA (or the Q could be limited to just one object, such as economic or social impacts).

The answer should explain the uses and development process for scenarios. The addition of visualisations to this question brings in other material, and the answer will have to link recommended visualizations to the ways in which the scenarios will be used. If they are pubic input, concept and mind maps might be appropriate.