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Central Australian Tourism Futures:
Refining regional
development strategies
using a systems approach

Margaret Friedel
Vanessa Chewings

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Central Australian Tourism Futures Stage 2



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Acronyms

CATF1	Central Australian Tourism Futures – Stage 1
CATF2	Central Australian Tourism Futures – Stage 2
CATIA	Central Australian Tourism Industry Association
CGE	Computable general equilibrium (model)
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DVS	Destination visitor survey
DKCRC	Desert Knowledge Cooperative Research Centre
IPAT	Industry performance analysis tool
IVS	International Visitor Survey
JAL	Japan Air Lines
NVS	National Visitor Survey
STCRC	Sustainable Tourism Cooperative Research Centre
TRA	Tourism Research Australia

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Summary

This project is a case study of community involvement in industry and regional development through a whole-system approach to growing the tourist industry in central Australia. The report covers all stages of the project beginning with Stage 1, which deals with the initial creation of a systems model of the industry in collaboration with the tourism industry, government agencies, and the wider community. It summarises the process of engaging support for Stage 2 and details attempts to refine the components of the model and develop an information system in Stage 2.

Neither a refinement of the tourism simulator model nor a functional information system were achieved, although extensive information was gathered and interpreted as part of the process. The outcomes were constrained by institutional difficulties despite clear goodwill among the participants. Contrary to expectations, data that would help build the sub-models were not found. An events and attractions investment sub-model was developed as fully as possible to explore data constraints. Information provided by informants was synthesised as far as possible to develop relationships describing economic impacts, but different ways of estimating outcomes were not compatible, even within a single sub-model. A review of recent literature showed that effective modelling required much more sophisticated data gathering than was possible within this project to indicate sustainable yield from different investment strategies.

A benefit of this project has been the practical demonstration of the challenges involved in genuinely engaging the community in industry and regional development. A further benefit has been the identification of the particular activities in the project that elicited the greatest response from participants: the systems workshops, trialling the demonstration tourism simulator and one-on-one sharing of information. These should form the basis of future community involvement in regional development rather than any attempt to refine the modelling tools that might be used.

1. Introduction

Tourism is a key industry for Australia. It contributes more to the economy than agriculture, forestry and fisheries, delivering 4.5 per cent of Australia's gross domestic product in 2001–2002 (Australian Government Tourism White Paper 2003). Approximately one million people are employed directly or indirectly in tourism, and infrastructure is provided through tourism investment, generating economic and social benefits for the population at large. Most tourism businesses are small to medium enterprises, with 90 per cent employing less than 20 staff.

The tourism industry is especially important for regional communities, where it employs 7 per cent of the working population. Since more than 70 per cent of domestic and 23 per cent of international tourist visitor nights are spent in regional and rural Australia (Australian Government Tourism White Paper 2003), there are also opportunities to promote the unique environmental, social, and cultural features of the local community.

In the Northern Territory, tourism is a major industry and employment sector (Tourism NT 2007b), and a key contributor to regional development. Development of the industry revolves around increasing yield per visitor, rather than simply increasing visitor numbers, based on a series of strategies to increase the duration of visits, encourage more spending and extend the shoulder season (Tourism NT 2002; Tourism NT 2007a). To avoid the risk of competing with other destinations for all types of visitors, the 'spirited traveller' is being targeted to enjoy the natural and cultural experiences that the Northern Territory has to offer.

Attracting tourists to a particular region of the Northern Territory is the task of Tourism NT (formerly Northern Territory Tourist Commission) and regional tourism associations such as the Central Australian Tourism Industry Association (CATIA 2007). CATIA (renamed Tourism Central Australia subsequent to this project) is funded by both government and industry, and its goal is to ensure that tourism continues to grow and benefit all businesses in central Australia. Growth could potentially be achieved through diverse strategies, but the choice of which ones to promote may not be immediately obvious. Building connections with, rather than competing with, other regions to enhance visitor experience, is also likely to be beneficial (White 2004; National Centre for Studies in Travel and Tourism 2005).

This is an example of a complex system, where there are many potential factors to consider, many interrelationships and a likelihood of change occurring among them over time. What decisions and strategies will be most effective in achieving benefits for a region? Some of the earliest examples of a systematic approach to complex problems are provided by Holling (1978). He and his colleagues recommended a specific approach, involving a small core group and multiple workshops bringing together key cooperators for short periods of intense interaction, combined with systems techniques, including modelling. They recognised three key characteristics that help determine the specific technique to be used:

- (i) the number of variables, management actions and spatial elements
- (ii) the level and breadth of understanding of underlying processes
- (iii) the number and quality of data.

(Holling 1978, p. 14)

It was expected that data were available locally or that relationships could be inferred from other situations. Some understanding of how the system worked was also assumed and, when data were scarce, a knowledge of process could compensate. Significant engagement by

higher level decision makers and managers was required, as was time for serious data collection and evaluation.

Holling's (1978) methodologies were developed for environmental assessment. Senge (1992) advocated the 'fifth discipline' – systems thinking – as a key component of organisational learning, where the other four were 'personal mastery' or continuous personal learning, 'mental models', 'building shared vision' and 'team learning'. These 'disciplines' underpinned an investigation of future tourism opportunities in south-western Western Australia (Walker et al. 2005). While one of the outcomes of this activity was a systematic model of how change could occur, other outcomes were the stakeholder or community learning and shared vision arising from the model development.

In the words of Walker et al. (2005), a systematic approach to a complex problem involves:

- (i) defining problems
- (ii) understanding the drivers of change and potential leverage points
- (iii) developing potential strategies for solving the problems
- (iv) evaluating the potential consequences of the potential solution and comparing the solution outcomes
- (v) reflecting on the potential short- and long-term implications of the potential strategies
- (vi) refining the potential strategies to achieve a solution to the problem that is sustainable and does not lead to new problems in the system.

The goal was to develop a systems framework with the potential to be widely adopted by local planners, tourism operators and management agencies to chart and monitor tourism development pathways.

One of the products of that project was the Tapestry Tourism Futures Model, based on a Tourism Futures Simulator (Walker et al. 1999) that had been developed for the Douglas Shire in far north Queensland. Other outputs included a tourism database and data collection system.

This was the basis for the research reported here, in which these methodologies were tested in central Australia. Tourism NT, the Alice Springs Town Council, CATIA and the DKCRC supported CSIRO Sustainable Ecosystems in working with the industry and the community to develop tools and techniques that would enable them to weigh up the benefits of different investment options and help promote regional economic development. The proposed outcomes of the project were:

- the tourism industry is seen as part of a regional system
- options and strategies are identified for increasing the benefits of tourism and promoting regional development
- practical tools and techniques are in use
- regional capacity to respond to, and plan for, change is enhanced.

The project was not an attempt to model the central Australian tourism industry in the context of all the externalities that could influence it. Rather, it was intended to stimulate systems thinking in the community of interest and encourage participants to consider how they might contribute to promoting tourism and regional development through actions that they could take themselves.

2. Methodology

2.1 Central Australian Tourism Futures – Stage 1 (CATF1)

In 2002, initial steps were taken to examine the issues surrounding tourism in central Australia and to build a strategic approach to investing in tourism for the benefit of the region (Central Australian Tourism Futures, unpublished reports). The intention was to work with the community to create a systems view of tourism as part of the regional economy, and to develop options and strategies based on their own knowledge. By drawing a wide range of expertise into this ‘learning community’ – tourism operators from diverse sectors, representatives from Aboriginal organisations, media and the arts, retail, construction and local and Territory government agencies, educators and politicians – the knowledge base was expected to be broad.

In order to gain a preliminary understanding of the tourism industry in central Australia, a series of interviews were undertaken with industry and agency people. The questions asked during these interviews included: Where would they like to see regional tourism in 5–10 years? What actions could be taken to achieve their vision? What problems might be encountered? These interviews provided context and a starting set of issues and actions for workshop discussions.

Beginning with the starting set of issues, three community workshops independently identified their key issues and described the major driving forces, potential impacts and potential investment strategies for achieving change in the regional economy through tourism. Their perceptions were captured graphically through Vensim (Ventana Systems Inc. 1998), an object-oriented computer simulation package which also enabled the exploration of causal links.

A tourism investment model with five sub-models was developed, based on the outputs from the community workshops, and was incorporated into a systems management tool akin to a flight simulator that enabled exploration of management and policy options (Walker et al. 1999). There were nine ‘gaming’ variables associated with the sub-models that could be adjusted by users to trial different investment scenarios, with the outcome delivered as revenue or new visitors attracted. Existing data relating to the model variables were drawn from a number of sources, including the Australian Bureau of Statistics and Tourism NT. Where data were not readily available expert opinion was sought, for example, on the cost of running an Aboriginal tourism training course.

In a final workshop, participants used the tool to run a series of scenarios of their own choosing, guided by a framework (Table 1) that encouraged thinking about how to invest. Participants had a notional \$5 million to spend over 10 years.

The project was overseen by a steering committee, representing Tourism NT, the Alice Springs Town Council, CATIA, the Regional Development Association and the Chief Minister’s Department. The steering committee was regarded as an essential link to community, industry and government stakeholders.

Table 1: Framework for considering timing and choice of investments (Stage 1 – CATF1)

	Diversified	Focused
Lumped	All investment at one time, but spread over many issues	All investment at one time, aimed at a single issue
Staged	Investment spread over time and over many issues	Investment spread over time, but aimed at a single issue

2.2 Central Australian Tourism Futures – Stage 2 (CATF2)

The DKCRC was interested in further developing the project as a working example of community involvement in industry and regional development that could be tested elsewhere. They funded a community workshop to review the outcomes of the initial project – Central Australian Tourism Futures, Stage 1 (CATF1) – and to chart a course for the development of Stage 2 (CATF2).

The workshop opted to develop a Tourism Information System targeted at the regional to local level to enable rapid response to changing circumstances and the refinement of the Stage 1 Tourism Investment Model, on the provision that the Northern Territory Government was supportive. Negotiations for funding support were lengthy but successful, with Tourism NT, the Alice Springs Town Council and the DKCRC all providing significant funding within their current funding cycles and foreshadowing funding which, however, could not be guaranteed in the next cycle. The previous steering committee continued to operate with the new project but with a change of personnel representing some groups; circulation of minutes and reports was widened to include more diverse interest groups.

2.2.1 Information system

In the Northern Territory, Tourism NT had been collecting broad industry performance data (visitor numbers, nights, and expenditure) through its Northern Territory Travel Monitor to support government planning and policy making. This necessitated an expensive and highly processed approach to data collection and analysis, and usually led to delays of at least three months for reporting of findings. Operators and government planners and policy makers wanted better and more timely information to enable benchmarking, forecasting and planning. The initial activity of CATF2 was an audit by Tourism NT of existing information sources at international, national, Northern Territory, regional, and subregional levels, to identify gaps and opportunities.

Following the information audit a telephone survey of tourist operators was undertaken and analysed by CSIRO, Tourism NT and CATIA to help build a picture of existing information needs across central Australia (unpublished report to Tourism NT). The survey sought information about customers, business operations and the competitive environment, how they sourced the information and at what level (international to local).

A workshop facilitated by CSIRO was dedicated to the design of Tourism NT's new data-gathering system. Participants included different potential providers/users of information: tours, attractions and events, accommodation and government.

Tourism NT subsequently undertook a protracted negotiation with the Sustainable Tourism Cooperative Research Centre (STCRC) and Charles Darwin University (CDU), (the developers of the Industry performance analysis tool (IPAT) (Sustainable Tourism Cooperative Research Centre 2007a, EC3 Global 2007)), Tourism Research Australia (TRA), and AC Nielsen regarding data gathering, prior to final design and operation of destination (visitor) surveys (DVS) and IPAT (operator) surveys. IPAT is an online technology that collects, stores, reports and analyses key tourism industry performance indicators and enables

operators to compare their own data with their sector's. Negotiations took approximately one year and were outside the sphere of this project.

The design of DVS was tested with potential users of the outputs in central Australia. CSIRO took some examples of survey modules from TRA to 18 informants, representing accommodation (hotels, bed and breakfasts, caravan parks), attractions, retail, restaurants, tours and transport, Northern Territory and local government and the local tourism association.

CSIRO's role with IPAT was to trial a demonstration version, starting with the accommodation sector, and seek feedback and engagement with a trial run. Up to six businesses were contacted in each accommodation segment: 3.5–5 star hotels, 1–3 star hotels, unrated – 3.5 star motels, unrated – 3 star serviced apartments, hostels/backpackers, caravan parks and guesthouses.

2.2.2 Investment model

At the end of CATF1 the tourism investment model contained five sub-models dealing with market research, Aboriginal hospitality industry training, Aboriginal tourism business development, a transport subsidy and a marketing campaign. The data for refining the model were sourced from interviews, Tourism NT, Tourism Research Australia, the Australian Bureau of Statistics and other hardcopy and electronic material. Nineteen people were interviewed to obtain information that would help define and quantify the relationships in each sub-model. Information being sought included:

- the cost of the particular investment strategy
- the resultant increase in visitors/visitor nights/dollars
- the cost of maintaining this strategy and the attrition rates
- how often renewal is necessary and what the cost is
- the shape of the 'response curve'
- the dependencies and/or feedbacks, if any.

We investigated the feasibility of recoding the CATF1 investment model to other platforms for several reasons. The model needed to be run using a web interface so it could be easily accessed by collaborators and end users. Discussions with Charles Darwin University School of Tourism and Hospitality had indicated that the model might be a useful tool for business students. Also, a more rigorous software platform with improved error checking was needed for the model development.

CATF1 sub-models were coded using Vensim Version 5.2a (Ventana Systems Inc. 2006). Vensim provides a graphical interface for development and is useful for visualising relationships between variables. However, Vensim models cannot readily be viewed using a web interface, so access to models is restricted.

Forio (2007) was investigated as a means of enabling simulations to be run using a web interface. Forio does not provide a graphical interface for development but was attractive as it had the ability to import Vensim code, and would allow continued model development in Vensim while the user interface used the Forio system.

3. Results

3.1 Central Australian Tourism Futures – Stage 1 (CATF1)

The key issues identified in initial interviews are outlined in Table 2. The key driving forces, potential impacts and potential investment strategies for one of the community workshops are depicted graphically in Figure 1. The tourism investment model (Figure 2), drawn from outputs of the three workshops, allowed users to explore the effects of investing in various combinations of five strategies, some with ‘sub-strategies’.

Participants concluded that long-term strategies were preferable, but some short-term outcomes were needed to retain stakeholder commitment. A broad perspective on the options in Table 1 is provided in Table 3, derived from Central Australian Tourism Futures (unpublished reports), and based on expert opinion and literature. The feedback to the approach was positive, responses indicating that it was a useful way to forward plan, generate discussion, and refine ideas but cautioning that assumptions needed to be tested and the model components might not be sufficiently comprehensive.

At the end of the project, some important points were made by the steering committee (unpublished final report), including:

- The approach provides a rare opportunity to step back and re-evaluate what the situation might be in 5–10 years’ time.
- Need to be clear who will use the model, who wants it and who might fund it. It needs to have a clear return on investment and a strong sense of ownership.
- Small business is not going to pay for it or even use it on a user-pays basis, even though they could benefit from it. The argument needs to be based on both community and government benefits.
- In the long term, once the necessary investment had been made in establishing a sustainable data collection system the servicing of this would most likely fall back to the research arm of Tourism NT.

The overall conclusion was that the model was useful as a learning tool but was not capable of reliable investment projections. It demonstrated how a similar methodology coupled with data collection and targeted at critical poorly-known relationships could be a useful tool when debating alternative investments. For example, every single workshop raised Aboriginal involvement in tourism as an important issue, but reliable data on outcomes were very hard to come by. Consequently the model needed refining, based on a better understanding of the component parts, and it needed to be underpinned with better information.

Table 2: Key issues and pathways identified in interviews (Stage 1 – CATF1)

Identified issue	Background	Identified pathway
Lack of Aboriginal involvement in tourism industry	Visitor surveys and anecdotal evidence show a strong desire for tourists to interact with, meet and learn from Aboriginal Australians.	Capacity building, mentoring, increase of business skills base, successful Aboriginal business models, and an educational program.
Competition between Uluru and Alice Springs	The completion of an airport at Uluru and continued strong iconic marketing of Uluru has the potential to decrease the number of tourists visiting other parts of the central Australian region.	Alliances, better networks, marketing partnerships. Making the competitive environment beneficial to both Uluru and the rest of the central Australian region.
Industry concerns regarding visitor perception of Alice Springs	Operators in the tourism industry and local residents are concerned that litter, anti-social behaviour in town, liquor restrictions and other issues are contributing to a negative visitor perception of Alice Springs.	Deploy Alice in Ten strategies and public education campaigns.
Changes in market mix	Recent changes to the market mix have placed different types of demands upon tourist product, particularly tourists seeking 'unique outback experiences'.	Encourage longer stay or higher turnover depending on market strategy and business conditions. Development of 'soft adventure' tourism and 'unique outback experience' products.
Focused branding	A marketing image for other parts of central Australia to compete with the strong imagery of Uluru, while retaining a concept of product diversity.	More inclusive marketing strategies for the whole central Australian region, focussing beyond the imagery of Uluru to the Western MacDonnell Ranges and Larapinta Trail, etc.
Permanent town residency levels	Retention of existing local residents and attraction of new permanent residents to change employment patterns in region (high attrition rates in most sectors, particularly hospitality and retail).	Cheaper housing, greater land availability for construction projects. More defined career paths for individuals working in hospitality or tourism.
Training availability and levels	Lack of trained staff to meet industry and client expectations.	Greater funding to training programs. Promotion of hospitality and retail as a career path in the secondary school system.
Land zoning, land release and native title	Encumbrance of land marked for development by native title and limited availability of land zoned for residential development.	Commitment from all concerned parties to expedite resolution of native title claims. Increase availability of land zoned for residential development.
Emergence and loss of smaller operators	Competition, limited marketing capacity and recent increases in operating costs (such as insurance) are restricting growth opportunities for, or destroying, smaller operators.	Assist with business plans and associated marketing strategies. Address public liability crisis.
Limited awareness in community of tourism economics	A perception that the residents and general community in Alice Springs are not aware of the critical economic role tourism provides in the region.	Public awareness campaigns about the systemic nature of tourism and the flow-on implications from its decline/absence.
Transport constraints	The collapse of Ansett has had a major effect on air capacity into Alice Springs and decreased the availability of cheap seats on flights. Lack of sealed roads and other infrastructure (bridges, etc) influences accessibility during the wet season.	Increase competition on the air routes into Alice Springs. Increase capacity. Plan road infrastructure to accommodate increased traffic and effects of seasonality.

Table 3: Evaluating investment strategies in the options framework (Stage 1 – CATF1)

	Diversified		Focused	
	Risks	Benefits	Risks	Benefits
Lumped	- Confused patterns of success may cloud individual investment performance - Rapid depletion of funds, low flexibility across time - Benefits not sustained - Entry timing - Weighting of funds across strategies must be appropriate - Higher transaction costs	- Low risk, spreading benefits across strategies - Possible rapid benefit delivery if lump sum invested early - Performance easily measured - May act on many leverage points across system - Pre-investment research not as critical due to spread risk - Failure leaves investor with alternative options	- High risk due to over-commitment - Rapid depletion of funds, low flexibility across time - Negative political impacts - Entry timing - Benefits not sustained - High level of pre-investment research required - Failure leaves investor with no alternative option	'Gravity' investment effects, other investors attracted to region - Performance easily measured - Positive political impacts - Lower transaction costs
Staged	- Slow, small injections of funding may not pass critical threshold preventing actions from making a real impact - Must be prepared for varied performance over time, and remain committed - Weighting of funds across strategies must be appropriate - Higher transaction costs	- Low risk, spreading benefits across strategies and time - Diversified returns across whole system - May act on many leverage points across system - High flexibility: opportunity for frequent reflections and adjustments - Failure leaves investor with alternative options	- Large scale projects (e.g. infrastructure) need large, upfront investment - Inflexible system may repeat erroneous actions of the past - Must be prepared for varied performance over time, and remain committed	- Can approach market at the most optimal time regarding external factors. - High flexibility: opportunity for frequent reflections and adjustments - Lower transaction costs

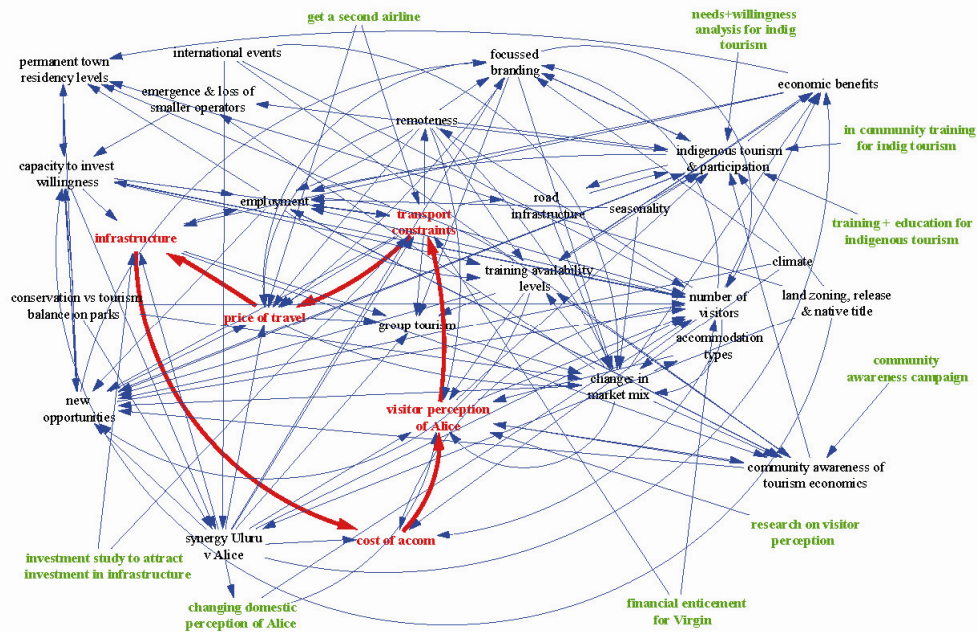


Figure 1: A systems view of interactions characterising tourism development and opportunities in central Australia, as perceived by one community group and generated using Vensim

Source: Ventana Systems Inc. 1998

Note: Items in black represent drivers in the regional system, blue lines and arrows represent the most important linkages, items in green represent potential investment strategies, red lines and arrows highlight a feedback loop.

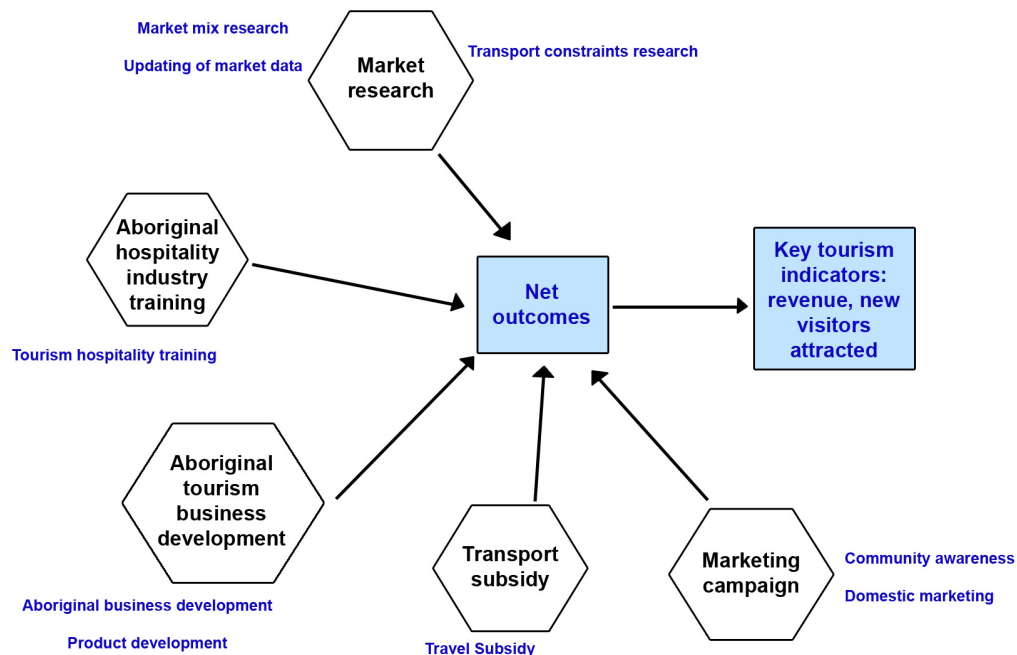


Figure 2: Model of central Australian investment options, derived from Figure 1 and similar workshop systems views

3.2 Central Australian Tourism Futures – Stage 2 (CATF2)

3.2.1 Information system

3.2.1.1 Information needs

The information audit showed that existing sources were targeted at national- or Territory-level needs, and the sample size was too small to identify real differences or trends at sub-regional levels, as required by local community and industry groups (Tourism NT internal document). Tourism NT decided to stop production of its *Travel Monitor* and develop alternatives for the entire Northern Territory that would provide rapid feedback at regional and sub-regional levels. The central Australian area was to be the test area, and rollout to other regions would follow.

When operators were surveyed about their information needs they said that the following types of information were important/very important to their business: visitor satisfaction (99%), information sources such as ‘where did you hear about us?’ (89%), place of residence (71%) and average length of stay (67%). Less important were: visitor expectations before trip (60%), tour type/package (60%), transport used within and/or to the Northern Territory (57%), demographics (56%), purpose of trip (54%) and number of customers travelling together (54%). On the other hand, Tourism NT considered the latter of substantial value for planning and policy.

Survey respondents felt that information on the competitive environment was more relevant to their business at a sub-regional (Alice Springs) level. To a lesser extent, information at a Northern Territory and regional level was also considered relevant to their business. Tourism NT was additionally interested in national and international level data.

Only about 25 per cent of respondents indicated they were happy with the information available from existing sources. They also expressed concerns about the currency, quality, and reliability of available information, and the need to ensure historical reference points were valid.

3.2.1.2 Design for data gathering

The advice from the workshop assisting with the design of data-gathering procedures was that no single survey would meet all needs; there was a difference between the information an operator would want about their own and related enterprises for benchmarking, for example, and the information a visitor might provide about expectations, satisfaction, and spending patterns. Core information about enterprises – for example accommodation occupancy and room rate – would be needed monthly, whereas visitor information might be gathered less often, perhaps seasonally or annually. Consistency was as important as frequency.

Web-based information gathering was desirable, but other options such as questionnaires in newsletters and at attractions, events and accommodation, as well as phone surveys, were also likely to be useful. Opinions varied on the need for confidentiality. Some participants emphasised the need for multilingual surveys, to ensure that a wide range of visitor opinions was sampled. Incentives commonly used to encourage visitors to complete surveys were proposed, such as including respondents in a draw for a prize. The incentive for operators, especially small operators, would be the receipt of accurate and rapid feedback on their enterprise, especially if this allowed benchmarking among their peers and timely forecasting. Small operators emphasised the need to keep it simple and to eliminate multiple surveys, to minimise calls on their time.

3.2.1.3 Survey tests and trials

Responses by informants to the proposed DVS addressed preferred times for high and low season surveys, opinions on the value of questions and their priority, additional questions for consideration, willingness to assist, proposed intercept locations and a number of additional comments relating to survey content, survey delivery, survey outcomes and other issues (unpublished report to Tourism NT). Informants were keen to engage with the questions and offered valuable advice over an hour or more. Some provided their own surveys to supplement their comments.

All operators who agreed to be interviewed regarding IPAT (two or three businesses in each segment) agreed to participate in the trial or when IPAT was operational. All respondents already collected some form of data, either electronic or paper. A significant number of operators other than the major hotels had problems with the wording of some questions (unpublished report to Tourism NT).

Tourism NT trialled the surveys prior to formal rollout. The high season DVS began in July 2006, and the monthly IPAT survey was made available to accommodation operators for the first time in August, to capture July figures. It was intended that IPAT would be extended to other sectors by the end of the year. The low season DVS commenced in January 2007.

Once the outcomes of the high and low season DVS had been reviewed, Tourism NT concluded that data from smaller destinations were insufficient and that there was a bias towards long-stay visitors such as self drive and backpackers (J Vaughan [Manager, Insights and Strategy, Tourism NT] 2007, pers. comm.). No peak season 2007 data were collected while the methodology was reviewed.

IPAT struggled to attract the participation of operators across the Northern Territory and across sectors. The Alice Springs region was an exception due to a concerted effort at promoting the uptake of IPAT, and the attractions sector in that region in particular participated consistently. This may lead to increased uptake over time, as benefits become apparent.

Consequently, the Tourism Information System could not be developed during the life of the project. It had been conceived as holding or linking to all local tourism data and possibly accessed by users via a 'portal'. The data would have included DVS and IPAT data, reports (for example) on heritage tourism and on conferences and conventions, and the Tourism Investment Model. The DVS and IPAT data were the cornerstone of the proposed system, to be updated as new results became available, and without them the information system as proposed would have had little benefit.

3.2.2 Investment model

Of the 19 informants, several provided advice about more than one sub-model. Informal discussion ranged more widely than the set questions and provided important insights. After the first six interviews and discussions with tourism research colleagues, it was apparent that one gaming variable, transport constraints research, was of minor importance and not readily understood, and it was not considered further. There was little support for the transport subsidy sub-model, possibly as a consequence of the short-lived operation of Virgin Blue on the Alice Springs route despite a Northern Territory government subsidy. Investment in events, attractions and infrastructure was quickly identified as a major omission from the suite of investment strategies in the model. Other recommended changes to the model components are discussed in the sections below addressing individual sub-models.

In all, five sub-models were investigated: market research; Aboriginal tourism industry training; Aboriginal tourism business development; marketing; and events, attractions and

infrastructure. Data availability is discussed for each sub-model because model development could not proceed without data. Response curves describing relationships over time between investment strategies and new visitors attracted or revenue generated are reported where available. Commentary from informants is also used where available to suggest the relative economic importance of some investment strategies represented by the sub-models. Additional comments that enrich understanding of the strategies are also included.

3.2.2.1 Market research sub-model

Information linking expenditure on market research to revenue generated or new visitors attracted was not readily available. Overall expenditure by Tourism NT on strategic and business services, of which research activities was one component, was in the order of \$6.7 million (Tourism NT 2006c). An informant noted that \$150 000–200 000 had recently been spent on backpacker research but the return on investment was not known. Further information could not be located.

3.2.2.2 Aboriginal tourism industry training sub-model

This sub-model addressed Aboriginal hospitality industry training, as originally conceived. After a number of interviews, it was apparent that hospitality training alone was too narrow an option. All aspects of tourism industry training: food and beverage, cookery, frontline/front desk and desert guides, were therefore considered as areas for investment. There was no capacity to estimate the number of new visitors attracted or revenue generated by this strategy, but we attempted to describe the trajectory of trainee numbers over time.

Currently, food and beverage attracts 12 per cent Aboriginal trainees (a total of 16) to the Alice Springs campus of Charles Darwin University. There are no Aboriginal cookery trainees. Front desk Aboriginal trainees are very few, and desert guide trainees are less than two per year on average out of a total of four available positions. Three-year apprenticeships are generally not attractive to Aboriginal trainees and attrition rates are considerable. One informant estimated that the attrition rate of Aboriginal trainees in general was twice that of non-Aboriginal trainees. The limit to the number of trainees, both Aboriginal and non-Aboriginal, appears to be due to lack of people to train rather than a lack of investment. Small businesses are unwilling to take on apprentices due to cost and tend to train people on the job. A reasonable estimate of Northern Territory Department of Employment, Education and Training expenditure on tourism and hospitality training generally in the Alice Springs region was \$1.2 million in 2006/07. Attrition rates of employees were also high; one informant estimated a 40 per cent loss of employees in any year.

The experience of the Alice Springs Desert Park provides an example of the kind of effort required to engage with Aboriginal trainees, not specifically in tourism. People tended to want work without understanding that training was required. Exposure to work needed to start with pre-employment, through engagement with middle school students. They learned what is expected of the employee and the employer, and what happens in a day and a week, and they spent time in a variety of areas (e.g. zoology, botany) to avoid boredom. A successful outcome was achievable within a year, with the Park's commitment. Other informants also recommended flexible training, including basics like literacy where necessary, and working with students while they were in school. Education options in school needed to better match employer needs, and mentoring of students should be part of the process. Non-Aboriginal employers need mentoring too. In an Aboriginal horticultural enterprise, pre-employment to understand the nature of work – such as regular attendance, and working with others already employed – was similarly recommended. Individual case management was needed to get people work-ready for training on the job.

The resources to sustain a trained employee in tourism are high whether the trainee is Aboriginal or not. A turnover of \$250 000 and capital investment of the same amount were required to support one full-time employee at the Convention Centre. These figures may be high due to the variability of business through the year, high casual employment and remoteness, but a similar estimate was given for an employee in an Aboriginal horticultural enterprise. Several informants noted the importance of revenue returning to the region as a result of employing locals.

3.2.2.3 Aboriginal tourism business development sub-model

Both Aboriginal and non-Aboriginal informants recommended that the two gaming variables, Aboriginal business development and product development, be developed in tandem instead of separately as they were in CATF1.

The relationship between the establishment of a business and the number of visitors attracted was generally described by a slowly rising curve, followed by a steeper rise and then a flattening off as the business reached maturity – a ‘goal seeking’ curve. The timeline was in the order of 10 years and, in the absence of renewal, the curve fell away over the next five years. The comment was made that tourism business generally needed to be maintained for up to two years before achieving any sizeable domestic response and more like three years for international tourists. Despite the potential to define response curves relating business development and time, there was no capacity to estimate the number of visitors or revenue resulting from this strategy.

One informant suggested that investment in new product generally led to the ‘goal seeking’ curve, whereas with Aboriginal or jointly-owned product, the relationship could fall away rapidly, due to disillusion with an inconsistent product and competition. Success with new ventures came from identifying gaps and determining what was needed, rather than coming up with an idea based on what the operator would like to do and then trying to sell it.

In 2006/07 there were about 30 Aboriginal businesses in Alice Springs in various stages of development. About 10 were well established, 10 were at a point where they could be (e.g. having public liability insurance and product awareness) and 10 were ideas only. About \$700 000 was provided in 2006/07 by the Northern Territory government to support Aboriginal tourism development. While mentoring by government was important, mentoring by established Aboriginal businesses could also help develop business skills.

Joint ventures and partnerships were a key element of developing business in remote settlements. Aboriginal businessman Des Rogers (see Rogers 2007 for a biography) was clear that Aboriginal business development had to be part of the mainstream, based on partnerships. A successful example is that of Titjikala community and its partnership with private investment through Gunya Tourism (2006). For small Aboriginal businesses, items like small buses for transporting tourists were unattainable without partnerships. Back office support was also unlikely to be available in small local settlements. At the time of interviews, a trial of a tourism hub to provide business services such as bookkeeping, business activity statements and bookings was planned by Tourism NT to address this problem.

While suggesting that the success rate of Aboriginal small business (not just in tourism) was ‘miniscule’, an experienced informant emphasised that success should not be judged simply on economic criteria; another key outcome was trainees completing training and getting a job.

There was an inherent assumption that increased exposure to trained Aboriginal employees in the tourism industry and increased access to Aboriginal tourism businesses would bring more visitors, or encourage them to stay longer and/or spend more, as evidenced by the proposed strategies being developed in this project. Some informants believed that 70–80 per cent of international visitors wanted an Aboriginal cultural experience but that a large proportion of

them did not achieve it. It was inferred that the inability to achieve the experience was due to lack of product availability.

3.2.2.4 Marketing sub-model

There appeared to be no reliable way of relating expenditure on marketing campaigns to the numbers of new visitors attracted or revenue generated. While tactical (short-term) and branding (long-term) components of marketing might have been differentiated in the sub-model, no workshop participants or informants suggested separating these activities. Given the lack of reliable data relating marketing to the outcomes, this distinction is unlikely to have made a difference. One informant suggested that responses to marketing could be rapid, in the order of a few months, due to almost universal availability of information on the internet and an increasing trend to short holidays and spontaneous decisions to go.

Informants proposed that the impact of marketing could be assessed by comparing visitor numbers before and after a marketing campaign. Tourism NT advises that visitor estimates are based on International Visitor Survey (IVS) and National Visitor Survey (NVS) surveys and may vary from the results that could be obtained through a census of all visitors in Australia (Tourism NT 2006a). The confidence interval for the Northern Territory's international holiday visitors in 2005 was ± 8 per cent, and interstate holiday visitors was ± 22 per cent, so that the latter could vary by over 100 000 around a mean value of 310 000. At a regional level reliability will be less, rendering estimates of visitor numbers unusable. Furthermore, numbers will be influenced by factors other than marketing, such as competing activities, strikes, epidemics, and world security threats. A suggestion to predict what might have happened in the absence of marketing was also limited by lack of usable data.

Since the assessment of success in terms of visitor numbers was inherently difficult, Tourism NT regarded brand recognition as the best estimator of the impact of a marketing campaign. Key performance indicators used or proposed by Tourism NT included the number of bookings on a variety of websites, bookings or passengers achieved through wholesalers, vouchers redeemed, competition entrants and increases in Northern Territory share of sales. A meaningful relationship between Tourism NT's contribution to marketing campaigns and target visitor numbers was not achievable because other contributions were not quantified. We found no information to help relate indicators to new visitors attracted or revenue generated.

Tourism NT spends \$20 million annually on marketing (Tourism NT 2006a), about half of which is spent promoting central Australia. In addition, there is significant but undefined private expenditure, particularly by large accommodation and tour companies.

The costs of domestic awareness campaigns were modest: CATIA provided \$10 000 for a campaign that also required a \$20 000 (in-kind) investment from the local television station to deliver. A further \$5 000 was paid for airtime. No information about outcomes was available.

It was suggested that individual small businesses might spend 20 per cent of their budget on marketing for the first five years, reducing to 5–6 per cent for the next five years. Renewal might not require as much as 20 per cent the next time around.

3.2.2.5 Events, attractions and infrastructure sub-model

Six enterprises are presented as examples of responses to questions on costs, visitor numbers, renewal, feedback and timeframes (Table 4a and Table 4b). Not all cells of the table could be filled, but sufficient information was gathered to indicate that not all investment led to increased visitor numbers or revenue, and that estimates of direct and indirect effects varied in the way they were calculated and so could not be used consistently to model outcomes. We were advised that other events such as the Camel Cup, Henley-on-Todd, and the Alice

Festival appeared not to motivate additional people to visit; rather, people attended if they were already in the town.

Visitor numbers over time for the Alice Springs Convention Centre (Figure 3) appeared from interviews to be generally true for establishing events, attractions and infrastructure, although the time frame may vary. The number of visitors attending the Finke Desert Race cannot be determined, since spectators along the route and their origins are not recorded. In 2006, race organisers used the number of competitors, including locals, (Figure 4a for available annual data) to estimate the number of visitors generated by support crew and family for bike riders (4:1) and car drivers (3:1), but these relationships cannot be assumed to apply in other years. The number of competitors, including locals, in the biennial Alice Springs Masters Games since their inception in 1986 rose rapidly compared with that for the Finke Desert Race (Figures 4a and 4b). The former receives a greater degree of government support than the latter, which may explain the more rapid rise in competitor numbers in the Masters Games, although both enjoy extensive in-kind support from government (Table 4b).

It was suggested that the previous 25 years of visitor data might indicate an upswing in visitor numbers at times of major hotel developments, but Tourism NT and Tourism Research Australia advised that data records of that length were not available, and data at a regional level are in any case not reliable (Section 3.2.2.4).

We undertook an extensive literature review of visitors attracted or revenue generated by events. Results were not reported consistently enough to determine a general relationship, especially in the estimation of economic impact.

A number of useful insights were gained from informants. One example, regarding dependencies and feedback, was that the business of the Convention Centre was limited by the number of hotel rooms available in the peak season when in-bound contract businesses also had their greatest requirements for rooms. While the Convention Centre could use 200 new hotel rooms at peak times, they operated at a loss in low season and could not sustain the demand year round. A whole-of-industry response would be necessary to build greater demand, perhaps through lengthening the shoulder season. A further example of feedback is the growth in the number of hotels in a discrete area following the establishment of the Sheraton Hotel and Lasseters' Casino there in the 1980s. On the other hand, the limit to the numbers of competitors at the Alice Springs Masters Games was not imposed by accommodation but by the capacity of the individual sports on offer.

Anticipation of flow-on effects from investment was not always met. The establishment of the Convention Centre did not translate into more people taking tours, although there was some flow-on beyond the accommodation sector to restaurants and transport. The initiative to establish JAL charter flights into Alice Springs (Table 4a) was likewise expected to provide flow-on benefits to local businesses but has had less impact than anticipated due to the tight schedules of visitors.

Outcomes of events were not simply economic. The Finke Desert Race evolved from a 'blokey' event to a family and community event, to the extent that it drew second generation supporters and was beneficial to community cohesiveness. Organisers were keenly aware of their responsibility for environmental and safety issues and worked with schools prior to each race to raise awareness, but they had no means of measuring the impact of this initiative.

The effect of 'shocks' was illustrated by visitor numbers to the Alice Springs Desert Park. The Park opened in March 1996 and numbers built from zero to 95 000 in three years. Numbers fell by 40 per cent in 2001 following the September 11 attack on the World Trade Centre and the collapse of Ansett, but returned to 95 000 and were basically flat thereafter in 2005 and 2006.

Informants proposed that new visitors attracted could be determined from looking at visitor numbers at the time of major events, especially in the case of a biennial event such as the Alice Springs Masters Games. Monthly visitor estimates from IVS and NVS data are not usable, as explained in Section 3.2.2.4. Instead, we attempted to use the monthly occupancy rates for hotels, motels, guest houses and serviced apartments from the Australian Bureau of Statistics Survey of Tourist Accommodation (Australian Bureau of Statistics 2004) as a proxy for visitor numbers. Data were available from 1998 to 2006 and response rates, as provided for 2004, were in the order of 90 per cent. The Alice Springs Masters Games occurred in even years in October, coinciding with higher peaks in occupancy rates than in off years (Figure 5), although a smaller peak was still present in off years that could be attributed to school holiday visitors. Nevertheless the data varied greatly from year to year and could not be expected to provide a reliable means of estimating the number of new visitors attracted by events.

Tourism NT considered existing data on occupancy rates unreliable and was looking forward to IPAT providing better quality information. Focus groups were suggested as a way of determining new visitors attracted since there was no ready means of determining them otherwise, but such groups were beyond the resources of this project and they may not have achieved a useful outcome. Other indicators proposed were the extent of visitor satisfaction and new visitors attracted by word of mouth. The DVS was intended to collect data for both of these but was on hold at the time of writing this report.

Table 4: Summary of income, expenditure and outcomes as estimated in 2006/07

Note: Indirect effects have been estimated by the informant and consistent methodology cannot be assumed. Blank cells or n/s indicate information not supplied/requested

(a) Alice Springs infrastructure

Attraction	Date	Government/ private initial investment	Annual operating expenditure 2006/07	Total visitors in 2006/07; may include locals	On-going government support	Direct effects (income)	Indirect effects	Renewal and cost if available	Total visitors/year incl. locals
Alice Springs Desert Park	Opened March 1996	Government \$20m	\$5m	95 000	\$2m	\$3m	'Loss leader' to attract visitors to central Australia	On going 're- packaging' as part of operating – no cost	No change in short term
Convention Centre	Opened May 2002	Government \$7m Lasseters \$7m	\$2.3m (loses money in off season)	12 000 Maximum 20 000 for mature market	\$1m		'Loss leader' for whole property. Estimated \$18- \$20m benefit to town from events	On going as part of operating	See Figure 3
Alice Springs Airport	(1) New passenger terminal 1991	Original construction by Government \$22m+, assets privatised in 1998	\$2m + operating	600 000, down from 1m prior to Ansett collapse and expansion of Ayers Rock	\$0	\$21.2m for 2002/03 (ACIL Tasman 2004)	\$41.4m for 2002/03 (ACIL Tasman 2004)	Bag screening including check- in counter refurbishment \$8.5m	Renewal is Fed Government requirement – no new visitors attracted
	(2) JAL and other charters	Regional grants from Fed & NT Governmt to CATIA	\$400k + private expenditure by JAL and ASAC	4000	\$0		e.g. support crew & crew bed nights	\$800k proposed including in-kind	Growth is constrained by aircraft availability
	(3) Upgrade to international standard	NT Government 'Moving Alice Ahead' initiative, in planning stage	n/s					\$10m proposed	

(b) Alice Springs events and attractions

Attraction	Date	Government/ private initial investment	Annual operating expenditure	Total visitors in 2006/07; may include locals	Ongoing government support	Direct effects (income)	Indirect effects	Renewal and cost if available	Total visitors/year incl. locals
Road Transport Hall of Fame	Started 1996	Private \$30k. In the red at end of off-season first 3 years	\$120k	48 000	e.g. \$64k in-kind for service provision	\$150k fee income \$100k paid sponsorship \$100k in-kind (non- government)	e.g. community services	Ongoing as part of operating	
Truckies' reunion	(1) annual			1200–1500			n/s		
	(2) 5-yearly			7500			Estimate \$10– \$15m		
Finke Desert Race	Annual; began 1976 as a local event	Volunteer support	\$400k	Estimated 1662 non-locals from survey in 2006	\$200k, largely in- kind	\$400k, incl. \$70k paid sponsorship \$80k in-kind (non-govt)	Estimate \$2.3m	Evolution from 'blokey' to family event	See Figure 4a for numbers of competitors/year including locals
Alice Springs Masters Games	Biennial; began in 1986		\$250k in 'off- year' \$850k in 'on- year'	3000 non-locals	Portion of \$700k in-kind	Estimated \$270k fee income Portion of \$700k in-kind	Estimated \$8m in 2002	Shift to higher end of market	See Figure 4b for numbers of competitors/year including locals

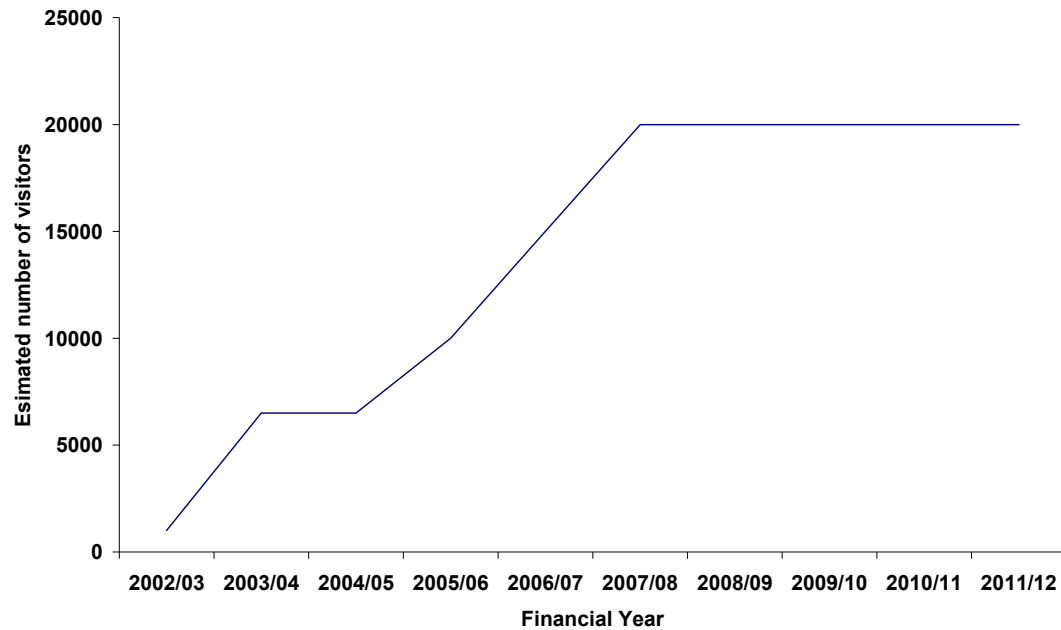


Figure 3: Indicative visitor numbers for the Alice Springs Convention Centre for 2002/03 – 2006/07 and estimates for 2007/08 – 2011/12 in the absence of significant innovation

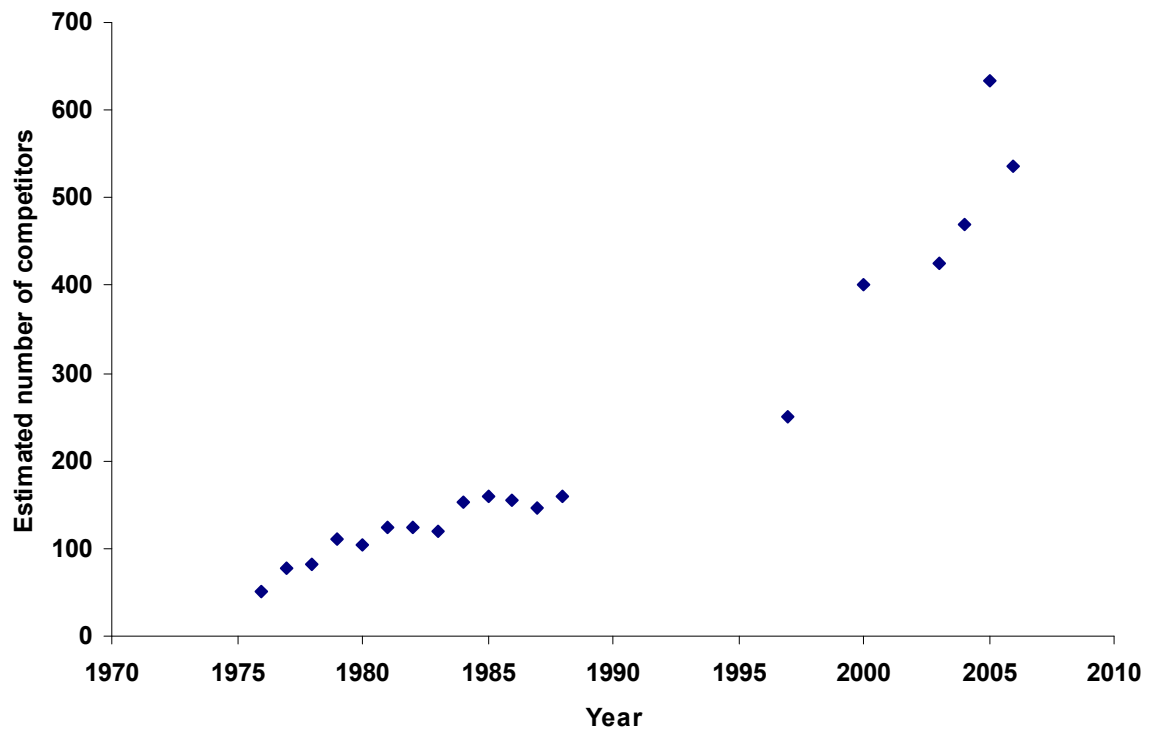


Figure 4a: Number of competitors, including locals, for the Finke Desert Race

Note: 1997 and 2000 figures are indicative and 1976 – 1998 and 2003 – 2006 figures are actual.

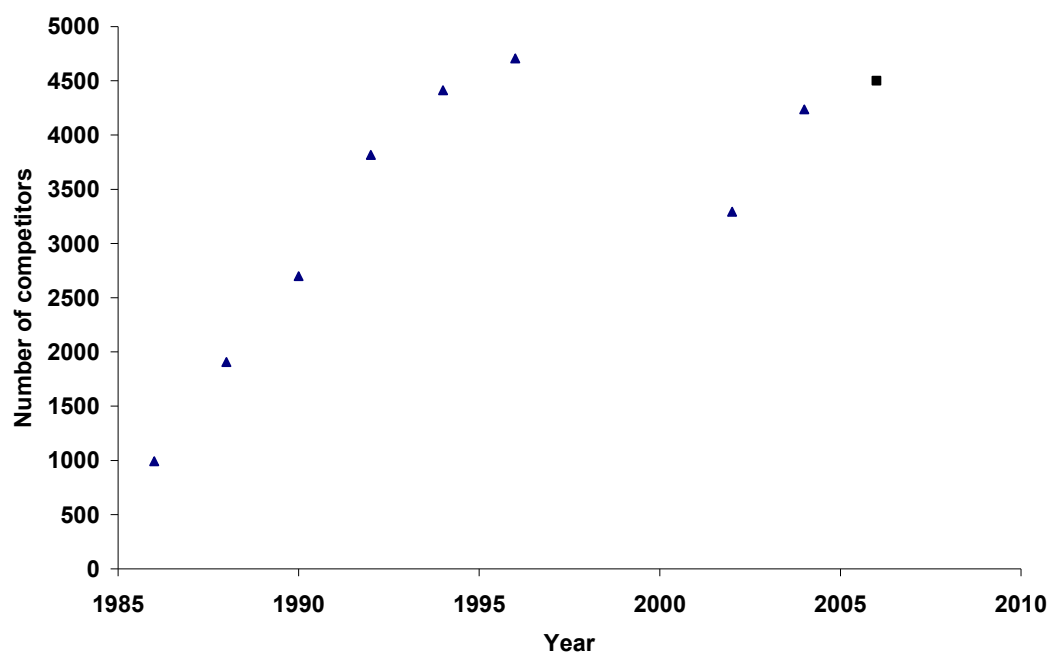


Figure 4b: Number of competitors, including locals, for the Alice Springs Masters Games from 1986 to 2006

Note: Data for 1998 and 2000 are missing and the value for 2006 is an estimate; 2002 coincided with the World Masters Games in Melbourne

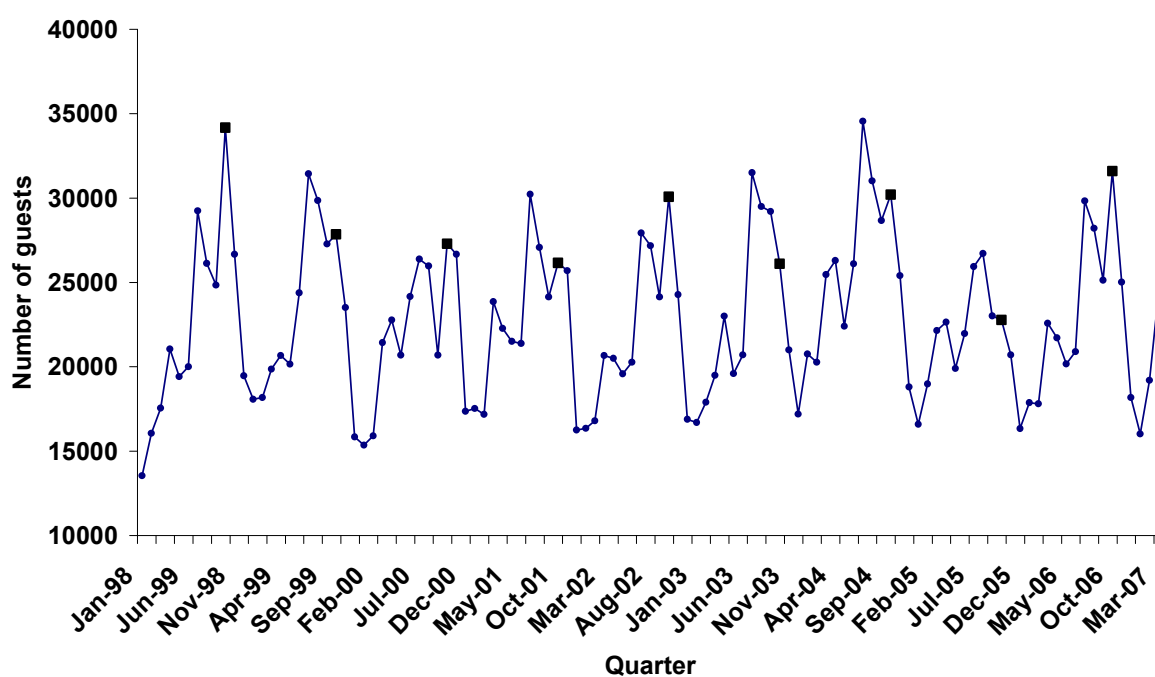


Figure 5: Monthly occupancy rates for Alice Springs hotels, motels and guesthouses, and serviced apartments 1998–2007

Note: ■ = rates for October.

3.2.2.6 Simulation software

A number of errors were encountered when Vensim code was imported into Forio due to differences in syntax, and some of these were resolved with the assistance of Forio staff. Subsequently a subset of the original model was imported in order to get a working system. This work was discontinued when it became apparent that the information required for model development was not readily available.

4. Discussion and reflections

The outcomes of the project were mixed. The expectation had been that the project would help stakeholders in the tourism industry, and in the region generally, to develop the industry and deal with change. A systems-thinking approach would enable stakeholders to see which options and strategies for development would be of greatest benefit to the industry and to the region as a whole. Tools and techniques would be devised to assist this process.

Community workshops in CATF1 stimulated considerable interest in systems thinking, to the extent that industry, community and government were keen to see further development. During the development and implementation of CATF2, many stakeholders continued to engage willingly in activities and express interest in the concept of the project and its progress. One of the highlights of the project was the cooperation of industry, government and community stakeholders in providing advice and information through many one-on-one discussions.

The proposed CATF Tourism Information System did not eventuate during the life of the project, but the associated project interviews contributed to the refinement and trialling of Tourism NT surveys in the Northern Territory. Tourism NT is continuing to investigate suitable methods for obtaining reliable visitation data for Northern Territory regions. However, as the outcomes from this project demonstrate, this is a challenge due to a range of complex factors, including competing stakeholders' needs and limited financial resources. Numbers of other tourism organisations have difficulties obtaining reliable, timely and ongoing regional data (Hunt and Prosser 1998, Covec Ltd 2003) and they also report problems with methodologies and costs. Ritchie and Ritchie (2002) described the collaborative establishment of a comprehensive destination marketing information system by an industry organisation (the equivalent of a state level CATIA) and tourism operators in Alberta, Canada. They faced some similar challenges (differing expectations, lack of appropriate data), but with a population of about 3.5 million the scale and available resources were very different to those of central Australia or indeed the Northern Territory.

4.1 Assessing the impact of investing in tourism

The Tourism Investment Model remained incomplete at the end of the project and our research indicated that there were unresolvable problems with it. The assumption that the strategies represented in the sub-models could produce measurable outcomes proved to be incorrect. There were no data of sufficient reliability to determine the number of new visitors attracted or revenue generated by any strategy. Whether the measures should be new visitors attracted or additional visitor nights created was debated by informants, but the fact remained that these data were unavailable.

Sub-models proposed in 2002 (Figure 2) reflected concerns of the day; for example, travel subsidy. The lack of interest subsequently in a transport subsidy may have been unwise, despite the failure of Virgin to maintain its services to Alice Springs. Such a subsidy may offset start-up costs and lead to sustained demand, particularly if it is complemented by other strategies in the longer term. The systems view of tourism would need to be regularly updated

by tourism stakeholders exposed to good quality information if it was to remain current and the value of a systems perspective was to be demonstrated to newcomers.

Researching information for the various sub-models raised a number of issues. Investment in tourism and hospitality training for Aboriginal people may be a constructive strategy despite the current lack of trainees (Section 3.2.2.2). Culturally appropriate approaches involving pre-employment experience, mentoring and direct engagement with schools are features of successful employment programs. In addition, while there is no available evidence to link increased revenue or visitor numbers to more Aboriginal training, there are other valid reasons for investing in training relating to economic, social and cultural well being of Aboriginal people.

Assertions about the high proportion of visitors wishing to have an Aboriginal cultural experience and the low proportion achieving it (Section 3.2.2.3) have been examined by Tremblay (2006). Most research suggests that ‘interest in Aboriginal products is a secondary driver and that interest ... is rarely matched by actual uptake.’

He warned of the potential to encourage unwise investment in Aboriginal tourism if demand was overestimated. On the other hand, surveys suggesting that demand was low may not be reliable either (Tremblay 2006). The potential for Aboriginal tourism needs clarification. Tourism Australia (2007) reviewed the range of activities undertaken by international visitors during the March quarter of 2006. The most popular activity was visiting an Aboriginal art/craft or cultural display and the second was visiting an Aboriginal gallery. During 2006 almost 830 000 international visitors were reported to have had an Aboriginal cultural experience in Australia, which was 15 per cent of all international visitors. It is not clear how relevant these figures are to regional small businesses since it was not stated whether these experiences were gained in mainstream city centres or through local regional enterprises.

Assessing benefits of events and attractions is a complex exercise. The economic impact of an event is usually calculated by modelling visitor expenditure data obtained from visitor surveys. Common models used are input-output and computable general equilibrium (CGE) (Jago and Dwyer 2006), who advise that the use of multipliers for output, income (the component of value that goes to wage earners), value added and employment can produce inflated results, particularly if activity is counted at each stage of production. As well, inputs required for CGE modelling may not be available at the sub-regional level so approximations will be necessary. In regional events, there can be significant leakage of economic benefits out of the region (Janeczko et al. 2002), so that a simple measure like revenue generated, if it were measurable, would misrepresent actual regional benefit. To truly assess benefit would need targeted surveys, with all the associated challenges of survey design.

The Sustainable Tourism Cooperative Research Centre (2007b) produced the ‘Encore festival and evaluation kit’ to enable organisers to assess the impact of new funds that are attracted to a host region. Tremblay et al. (2006) used Encore to assess the value of the Darwin Festival held in 2004, and drew the distinction between the need of festival organisers to assess economic impact on the community and the need of agencies to assess net economic impact of visitors from outside the region. In our attempt to identify impact of events, attractions and infrastructure (Table 4 and Section 3.2.2.5) consistent and comparable information was not readily available, due to the different ways impact was assessed. In a far more comprehensive review, Jago and Dwyer (2006) made a similar observation.

Expectations of the injection of ‘new’ money into regions as a result of events and attractions should be tempered by reality. In Section 3.2.2.5 we reported the observation that a number of long-established events appeared not to motivate attendees from outside the region to visit, although people would participate if they were in the area. Tremblay et al. (2006) found this to be the case for the Darwin Festival in 2004, and moreover the expenditure by out-of-state

respondents was low. The expenditure of outside visitors at Aboriginal community festivals did not translate to a significant economic injection either (Haydon 2007), although she attributed this to limited opportunities to spend. While these visitors were not specifically attracted to the region by the festivals, Haydon perceived indirect benefits to tourism of word-of-mouth promotion of the destination.

Benefits beyond the economic are less commonly assessed (Jago and Dwyer 2006). They strongly recommended that events should be evaluated in a holistic fashion using techniques such as cost-benefit analysis to determine social and environmental as well as economic costs and benefits, although they acknowledged that the analysis was difficult. Dwyer et al. (2006) provide a detailed critique of the concepts of yield, comparing the simplistic use of visitor numbers as compared with triple bottom line assessments of sustainable yield. Insight Economics (2006) undertook such an assessment of the 2006 Commonwealth Games. Social impacts included volunteering, increased interest in attending future cultural and art events, increased willingness to participate in community events, an education program and increased participation in sport. Environmental impacts included the planting of trees, infrastructure for water collection and transport initiatives. Fredline et al. (2006) examined the social impacts of three case study events, where impacts were any that affected the quality of life of local residents.

A number of social and environmental outcomes of investment in tourism were identified by the project's interviewees. Social and cultural benefits were likely to flow from training and employment initiatives for both Aboriginal and non-Aboriginal people (Sections 3.2.2.2 and 3.2.2.3). The Finke Desert Race organisers had made a conscious effort to minimise environmental costs and provide environmental and social benefits (Section 3.2.2.5). ACIL Tasman's (2004) analysis of the economic significance of the Alice Springs Airport (Table 4) also noted social benefits derived from providing facilities for the local aero club and the Royal Flying Doctor Service and playing a role in sustaining remote settlements. Clearly, our investment model was not designed to allow for these complexities and should be seen as a tool to help people define and discuss problems and solutions.

4.2 Stakeholder engagement

Not unreasonably, key stakeholders had different priorities for particular project outcomes, and these priorities became more apparent over time. Tourism NT supported the development of both the information system and the investment model initially, but the major imperative for Tourism NT was the development of the DVS and IPAT because of their pressing need for a better information system to replace the Northern Territory Travel Monitor. The Alice Springs Town Council also had an interest in both aspects but subsequently wished to see the development of the model as an economic model. The DKCRC was interested in both aspects but also in the broader outcome of understanding the process required to engage the community in industry and regional development. Changing priorities for agencies meant that some indicative funding was not forthcoming in later years.

Several features of the project stand out as major issues for an activity such as this with multiple dimensions and stakeholders. Transaction costs were high, and the time needed to negotiate various stages along the way by different organisations meant that the project was effectively inactive for months at a time. Not surprisingly, the momentum was lost at times, and participants were diverted by other demands. Turnover in personnel in key agencies led to a loss of knowledge of the project and hence commitment to it; one informant suggested that three years in a job was about average. The passage of time also saw changes in institutional priorities at higher levels. None of these issues are unique to the tourism industry, which means that any program of regional development that depends on community engagement and multiple institutions has to be robust enough to withstand instability within its constituencies.

With hindsight practical implementation was hindered by unachievable goals. Refining the investment model was not possible because there were insufficient data for generating meaningful outputs. Expectations of an economic model were inappropriate. The commitment of time by key agencies and the many informants was high and would be unrealistic if systems-based activities were to be implemented in a routine planning process.

What aspects of this project activity then, if any, would be worth retaining or refining for this or other communities and regions? Information systems are critical for any enterprise, and their development scarcely needs debating, even if the process is not straightforward. The element that needs closer examination is the systems approach and whether the practical experience of implementing it can suggest a way forward.

When Holling (1978) proposed systems approaches to environmental monitoring and assessment, he envisaged a core group of analysts committing one manyear to achieving one major assessment, with workshops, data collections and up to six preliminary rough approximations. He perceived the limitation to be expertise rather than money, but this was in the setting of a major environmental issue that would galvanise the community, including government. Clearly, the situation for tourism and regional development in our context is different, and the goal of producing a computational model is not realistic.

Discussing systems dynamics modelling for the analysis of policy and strategy in the business and public policy arena, Sterman (2000) said, ‘... what is learned from the process of modelling may feed back to alter our basic understanding of the problem and the purpose of our effort.’

The response of participants indicated that the greatest benefit to them was probably in the initial collegiate activity of developing their models, options and strategies with a diverse group beyond their everyday networks. They also enjoyed using the simulation demonstrator in teams, exploring potential tradeoffs among the options.

Hence, the most useful action will be to build on this activity and embed it in the local community. Systems thinking needs to become ‘institutionalised’ so that it is second nature to any stakeholders seeking better outcomes for their region. A systems thinking ‘day’ could be set aside on a regular basis – annually, biennially – when a diverse group of industry stakeholders defines the current problems or issues facing the industry and the region and follows through a structured process to identify options for managing the issues and strategies for applying them. It will be critical to include diverse views in order to challenge the mental models of the usual decision-making group.

Developing a computational model will not be within the scope of this activity, but it may be desirable to encourage participants to trial the existing simulation demonstrator or an equivalent as a way of experiencing first hand the complexities of trading off among strategies. It should be made clear that this demonstrator provides only broad approximations to reality, since most response functions in it were linear, whereas our experience suggested that response functions were ‘goal seeking’ or possible growth and decay (Figure 3 and Figure 4, Sections 3.2.2.2 and 3.2.2.3).

Further activities with industry stakeholders could benefit from a review of the issues outlined by Beesley (2004) in her assessment of how creation, diffusion and use of knowledge occurs among collaborating industry, government and research partners, and how that translates into management practice. She pointed out that the majority of endusers of research outputs will be small- to medium-size enterprises which have difficulty engaging in strategic planning. Her recommendations included a series of brief workshops allowing time to digest and discuss information, rather than one intense workshop.

‘Relationship building and trust, essential elements in an effective knowledge network, result from individuals gradually exposing more of their values and beliefs through words and actions that are shared over time.’

(Beesley 2004, p. 25)

Stokes’ (2003) analysis of inter-organisational relationships that underpin the development of strategies for events tourism is relevant to the project as it highlights the challenges of engaging all stakeholder perspectives in decision making while attempting to achieve consensus-based outcomes. In our case the point was not to achieve consensus but to develop a shared mental model of tourism as part of a regional system, and develop useful options and strategies for the industry. A greater focus on the interrelationships among partners and sharing knowledge through structured processes may have achieved the purpose more effectively than a focus on the development of tools.

At the end of CATF2, it is worth revisiting the feedback provided at the end of CATF1 (the fourth point related to a home for the information system and has been resolved). Points made were:

- The approach provides a rare opportunity to step back and re-evaluate what the situation might be in 5–10 years’ time.
- Need to be clear who will use the model, who wants it and who might fund it. Needs to have a clear return on investment and a strong sense of ownership.
- Small business is not going to pay for it or even use it on a user-pays basis, even though they could benefit from it. The argument needs to be based on both community and government benefits.

Reflecting on these points, the systems dynamic approach continues to provide an opportunity for review and looking ahead. Participants in systems activities should be a wide cross-section of stakeholders affected by or impacting on tourism, and not simply the ‘inner circle’ of planners. The activity should be championed by one or more key agencies, possibly Tourism NT, CATIA or Desert Knowledge Australia. Funding for workshops would be modest and should be resourced by key agencies. A clear return on investment will not be demonstrable, as this project has found. The success of activities around systems thinking will be gauged by continuing interest and engagement of stakeholders.

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