Tourism
in the Real-Time World:

An Opportunity to Enhance the Performance of the Tourism Industry in New Zealand

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MARTECH
Consulting Group

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Executive Summary

This document reports the findings and recommendations of a project that investigated opportunities for small and medium sized (SME) tourism businesses in New Zealand to benefit from e-commerce. In this document, we:

- outline the business issues found to be affecting SME operators and agents, and the problems experienced by tourists
- present inventory management in real-time as the best way to deal with these issues
- review the business case for the proposed solution
- present our recommendations and an implementation plan.

It has become clear that there are substantial benefits available for all participants in the industry, and there are risks for current intermediaries that choose not to take advantage of the opportunity to improve the value they provide to their customers:

Benefits Available	Tourists	Agents (VIN, etc)	Inter-mediaries	SME Operators	Large Operators
Dramatic reduction in time required for researching and booking	√	√			
Ability to do own itinerary management ('dynamic packaging')	√	√			
Improved quality of service		√	√	√	√
Better travel experience	√				
Greater spend on tourism product / utilisation	√			√	
Reduced IT investment cost, by: □ avoiding duplicate development □ reducing the risks of proprietary development		√	√	√	√
Far easier on-selling of other tourism product	√	√	√	√	√
Improved productivity / reduced operating cost			√	√	
Improved quality of life				√	
Opportunities for new, innovative services		√	√		

It should be noted that the large tourism operators (airlines, rental agencies, chains) do already, in most cases, manage their own inventory in real-time. However, they are not well placed to on-sell tourism product outside their own portfolio or to have their product sold by other agents because their technology does not use accepted standards (there currently are none in this area). The solution proposed here addresses their inter-operability issues.

First, **the context** in which this project has been run.

- The Tourism industry is one of the largest industries in New Zealand: it generates 15% of all export earnings, represents about 14% of GDP, and provides nearly 16% of all jobs. Demand for New Zealand tourism is projected to grow by an average of 5.7% per annum over the next ten years.

  The industry is unique in many ways:

  □ It provides perishable, time-specific inventory that cannot be shipped to the consumer.

- Consumers cannot try before buying – their buying decision is based only on information about the product. The internet has proven a valuable medium for this and is now widely used for travel research.
- Each supplier provides only one element of the consumer experience. Collaboration with other suppliers for service delivery can be difficult, and is rare for marketing or sales.
- The industry is highly fragmented—it consists of very diverse, mostly small businesses, and has a long, complex and often expensive distribution chain.

- The Project resulted from a tender let by the Foundation for Research, Science and Technology (FRST) in 2001, for research into the role that information technology might play in enhancing business capability within small and medium size enterprises (SMEs) in the Tourism sector.

  The brief required specific areas to be addressed, including:

  - The development of new technologies (including communication technologies) that would enhance linkages to markets within NZ and internationally and also enhance the experience of the customer
  - Improvement in the performance and profitability of businesses
  - The development of an understanding of how to encourage business managers to take up new information and technologies.

  Martech Consulting Group was commissioned by FRST in July 2001 to carry out this research over a two-year period. The project was planned with four phases:

  1. Define need and specifications. This phase included a survey of tourism operators and another of free and independent travellers (FIT), both done by interview in person (these surveys are documented in two attachments to this report, and have been published on the Martech website).
  2. Identify technology solutions and candidate providers
  3. Prepare a business case
  4. Determine a commercialisation process.

  Martech worked closely with the industry and potential technology providers, in an attempt to build support and ownership for the eventual solution.

The first phase of the project identified a range of issues to be addressed.

Issues Identified during the Project

- **Issues facing SME operators**

  Small tourism operators are typically unsophisticated users of technology. They manage their businesses using paper diaries and charts, and have 'brochure' websites hosted by various aggregators. The average operator is heavily reliant on the phone—calls may come at any time of the day, and all calls missed may mean business lost.

  The manual process also affects agents (including staff in Visitor Information Centres), who have to use the phone to check availability or make bookings, and may have to make several calls before finding an operator with a vacancy. In turn, this translates to poor service received by the traveller, who must spend an inordinate amount of time planning and managing a trip.

  For most SME operators, the booking process is entirely manual.

  They must be near a phone at all times.

- **Consumer demand**

  Consumers are increasingly frustrated with the lack of functionality currently available. They are demanding the ability to create, manage and update itineraries (**'dynamic packaging'**), expect to be able to do so, and until very recently have found that they are not able to do so.

  This functionality, if available, would enable agents, the Visitor Information Centres and other intermediaries to provide vastly improved service.

  Consumers must currently:
  - visit multiple independent websites to plan their trip
  - register their personal information multiple times
  - spend hours or days waiting for response or confirmation
  - make multiple payments by credit card

- **Use of the Internet**
  - The tourism industry appears to be ahead of most other New Zealand industries in its use of the internet, but participants are not prominent users of e-commerce.
  - For consumers the internet is now the principal source of travel information.
  - Consumer demand is forcing the industry from its product focus to a customer-centric environment, and new intermediaries are forming to satisfy this demand. Some of these early adopters are already very successful businesses (such as US-based Travelocity or Expedia).
  - New opportunities are emerging from other trends, such as the evolution of location-based services, coupled with changes in consumer behaviour as a result of the emergence of sophisticated communications technologies.

The SME operator with manual inventory management and the consumer and agent inability to do dynamic packaging are opposite ends of the same issue—availability can only be confirmed by personal interaction directly with operators. This makes the process extremely inefficient and time consuming.

Investigation into possible solutions to these issues resulted in one simple strategy to manage them – inventory should be managed in real time (and therefore online).

The Solution - Real-time inventory management

If inventory could be managed in real-time, many of the problems described would be eliminated, and all parties would benefit. A viable solution must, for the entire industry:

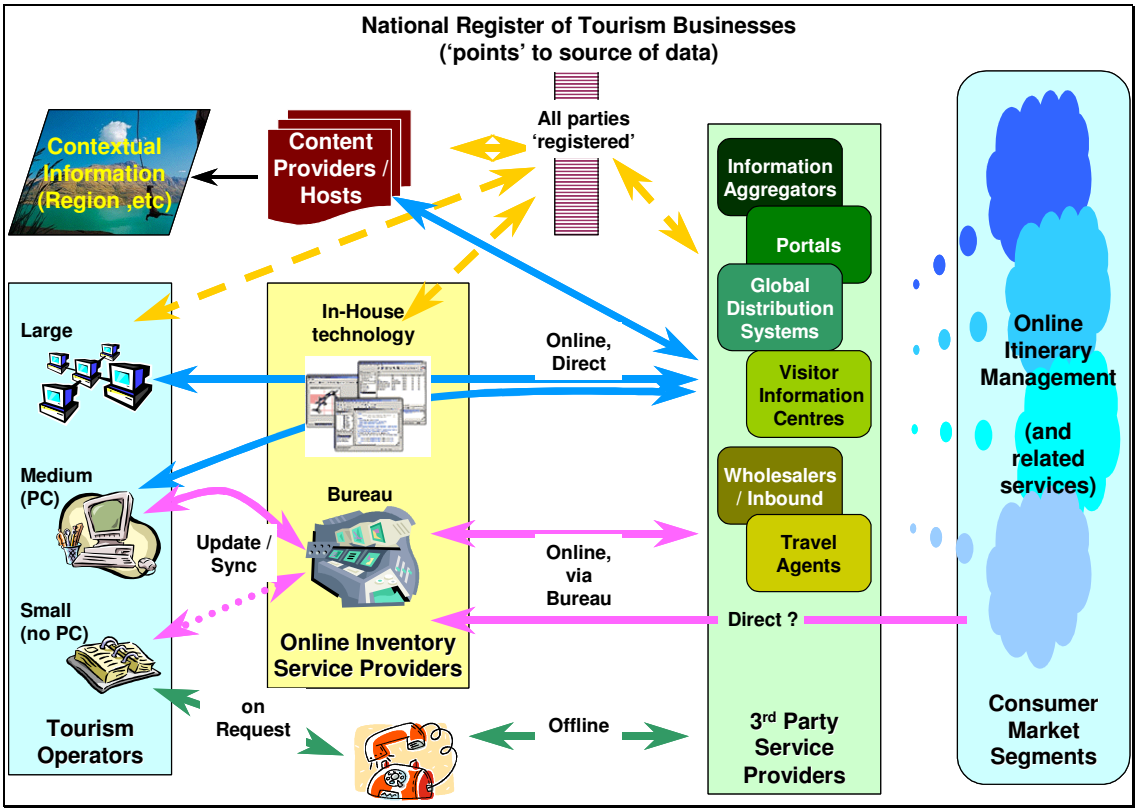
- Provide access to organisations providing real-time inventory management services on a 'bureau' basis, so that operators who prefer not to use technology in-house have viable options
- Enable operators to run in-house systems if they wish to do so
- Enable many service providers to operate in competition with each other, so as to preserve choice for tourism operators and encourage continued innovation
- Enable all enquiries to be handled automatically, in real-time, 24 hours a day and 365 days a year, for all operators who wish to participate
- Enable effective searching for available inventory
- Enable dynamic packaging (itinerary management) by consumers (with the functionality required provided by intermediaries as part of the value they add for their customers)
- Automate of the booking process, including the financial transactions involved
- Collect statistics for use in assessing relative performance.

While this is not a new idea, the technology needed to support real-time inventory management on the scale needed (and enabling SMEs to participate) has only appeared since the start of this decade.

In a real-time inventory management environment:

- **Providers** of real-time inventory management services would compete with each other for contracts with tourism operators
- **SME Operators** would choose which type of service to use (bureau service, in-house owner-operated systems, etc), or opt out altogether. Operators will continue to work with distribution agents and aggregators, who would provide online and printed content as appropriate.
- **Large Operators** would modify their own systems so as to inter-operate with other players, taking advantage of the opportunity to increase revenues by on-selling other product, enabling their product to be used in dynamic packaging by tourists, and extending distribution of their product
- **Agents** (including information centres) would acquire or develop enhanced front-office systems to provide real-time dynamic packaging services to travellers, enabling them to manage their itineraries while travelling.

The roles in this environment are shown in the diagram below. Organisations may play several roles, as many do now:



The 'Register' is a fundamental, essential element enabling all players to inter-operate effectively. It enables all players to locate operators, and identifies the locations where content and the contracted inventory management service provider can be found (online). Each player would then use this information to contact operators as required, automatically and in real-time, to carry out enquiries and transactions in real-time.

The Current Status of Real-time Inventory Management

There are now several providers of real-time inventory management services in New Zealand and overseas, using a variety of business models. The local companies are small, with limited resources in a developing market; the offshore players tend to be linked to global distribution systems, and are well financed. Tourism operators using these services are deriving significant benefits, but they are still very much a minority.

In this early stage of the rollout of real-time inventory management services, most of the technology providers are working in isolation. As a result, the industry suffers from **inter-operability** problems:

- An **operator** using one service to automate inventory management finds that staff must still be retained to handle phone and email enquiries from travellers or agents using different systems—operating costs are therefore considerably higher than they need to be
- **Agents** acting for travellers have unnecessarily high staff and communications costs, because most enquiries and bookings must be made manually and by phone (except in the Queenstown area, where a high proportion of agents and operators now use a common solution).

All service providers need to interact automatically and seamlessly, so as to optimise the services they provide to their customers and travellers.

This need will inevitably move the industry towards the adoption of common standards for online communication between all parties, and to widespread adoption of suitable business rules.

Some of the rapidly increasing investment in technology by operators is at considerable risk—when operators realise that they need to be able to inter-operate, but cannot, they will have to replace or modify their technology to use the emerging industry standards.

This represents a potentially very significant (but avoidable) cost to the industry. This is also the position in which most large tourism operators currently find themselves.

The Need for Standards

While there are various candidates for adoption as an industry standard, the vested interests at stake make it difficult to see one of these being acceptable to the industry. In practice, however, New Zealand tourism is part of a global industry, and any national standard must inevitably align with global standards. Global standards are, in fact, emerging for the tourism industry, through agencies such as the Open Travel Alliance (OTA).

The inter-operability problem affecting the tourism industry is one which global e-commerce faces, and pressure for solutions by other industries has forced rapid development in standards. For example, there is now a technology standard for business and service 'discovery' (**UDDI**[1]) which enables businesses to automate the process of working with other companies without needing to know the details of each other's information systems, and enables the development of 'web services', where companies work together in real-time via the internet to provide collaborative services to common customers.

UDDI, together with related standards, now enables businesses to interoperate seamlessly, and dramatically reduces the cost and time involved in collaboration.

UDDI is supported by a 'who's who' of the software industry (including Microsoft, IBM, Oracle, HP, SAP, etc). The main standards-setting body in global tourism, the OTA, recently declared its intention to adopt the standard. Given the weight behind UDDI and related

[1] UDDI - Universal Description, Discovery and Integration

standards, it seems clear that they will define a new collaborative environment for business. New Zealand industry as a whole will inevitably adopt these standards over time.

These standards are ideally suited for the travel industry, which already faces consumer demand for dynamic packaging and flexible service supply, is global by definition, and relies heavily on the use of information. Adoption of these standards by the industry will enable it to provide the fulfilment functionality needed for the dynamic packaging services already demanded by travellers.

There are two principal alternatives:

- Do nothing, and wait for all players to build interfaces with every other. This would be very high cost option for the industry, and would delay realisation of the benefits available for several more years. Standards are developed precisely to avoid this scenario.
- Develop local standards. Since tourism is a global industry, local players must inevitably interface with offshore players. Using local standards would only postpone the problem – eventually local industry would have to comply with global standards in order to continue participating competitively in the global market.

Governance and Delivery of the Register (UDDI)

UDDI is very similar to the function described earlier as a 'Register'. This Register would, like UDDI (and using the same standards and structure), be the single source of basic business data (tourism operators), with synchronised mirrors and local copies to ensure adequate performance. It would not contain descriptive information ('content') or inventory, but would provide 'pointers' to tell searchers where those services are to be found.

There are several aspects of the Register that should be considered further:

- **The Registry Operator**

  In practice the Register concept and this solution are likely to be adopted eventually by other industries, for the same reasons that tourism should adopt it. The Register would then become a national asset, a logical development of current business directory services, and would be operated by organisations specialising in those functions.

  The Register could be developed and operated by an existing business directory operator (such as Telecom Directories). The industry should prepare a business case to persuade these operators that this would be a viable strategy for them.

  An alternative would be to contract a suitable software house to provide the Register. This follows the approach used successfully by the New Zealand electricity industry in the establishment of the MARIA service to manage meter data (MARIA was developed and is operated by Jade Software Corporation under contract to a MARIA Governance Board, itself elected annually by the industry).

- **A Registry Authority**

  There are considerable vested interests at stake, and gaining acceptance of this concept is likely to be complex. This strategy would enable the development of a new, flexible, real-time environment for the industry, but one that is not suited to traditional single point top-down command and control.

  To implement either option, the tourism industry should create a new body (that nominally called TIRA, the Tourism Industry Register Authority), to be governed through elected representation of the entire industry.

- **Funding**

  Ongoing funding should come via revenues earned from real-time booking.

  Since the current, fledgling service providers do not have the resources at the disposal of Microsoft or IBM, we suggest that any establishment funding required should be sought from the Ministry of Tourism, Industry NZ or other sources.

- **Obtaining the Support of the Industry**

  Obtaining the support of the industry is a challenge, because there is no single body that adequately represents the entire industry. The organisation closest to this role is probably the Tourism Industry Association (TIANZ).

  Any leadership role in this area taken by TIANZ would need to be endorsed and supported by other groups such as the Regional Tourism Organisations, the Visitor Information Network and Tourism NZ

The Business Case

Real-time inventory management has not yet been around long enough to support a formal business case. However, our initial analysis suggests that, considering quantifiable benefits only:

- If only 30% of tourism operators moved to real-time inventory management, the annual benefit to them has been estimated to be about $27 million (using a variety of assumptions)
- The use of this technology would benefit *domestic* travellers by an estimated $13 million annually (using a nominal value for time saved). A larger benefit would be provided to visitors, but this would not benefit the local economy directly
- Agents (including the VIN) would benefit by productivity improvements estimated to be at least $4 million annually.

These benefits would be offset by annual costs from:

- Running the Register, estimated to be less than $0.5 million
- The cost to each SME operator and agent of the inventory management service itself. Since there are a variety of business models being used and the service is very recent, it has not been possible to provide a reliable estimate of this cost.

  Anecdotal evidence, however, indicates that this cost is considered to be insignificant by operators and agents already using *Ibis* or *Bookrite* services (several operators are actively purchasing software and installing it for selected agents in order to increase the proportion of their bookings made in real time).

Distributors and other intermediaries should take advantage of the new business opportunities available to them by developing innovative customer-focused services and technology to make best use of the availability of inventory in real-time (providing itinerary planners or 'dynamic packaging' functionality, for example). If they do not, they may find their current business at risk.

Larger operators with existing systems will have to incur a once-off charge to either replace their systems or modify them to gain inter-operability. This could be a substantial cost – but adoption of this strategy is a way to future-proof new systems and avoid their problem in the first place. These operators can offset these costs with increased commissions from on-selling other tourism product, and increased utilisation from sales via external agents.

Recommendations

In order to move the industry forward following this strategy, we recommend that:

- The Ministry of Tourism accepts the role of 'owner' of this strategy, and oversees implementation on behalf of the entire industry
- TIANZ, as the body closest to representing the entire industry, sponsor and support the establishment of TIRA, and also accept the liaison role required with the global standards development bodies
- The RTOs accept the task of maintaining operator data in the Register, and take the opportunity to provide related services to operators
- Tourism NZ and all aggregators, distributors and agents adopt the principles of this strategy and develop the tools needed to enable consumers to perform 'dynamic packaging'
- A coordinated communication programme be developed and rolled out to the industry to promote the benefits of this strategy.

In order to move the industry into this new world, readers should do the following:

If you are:	Then do this:
SME operator: Agent:	• If you have both a PC and a permanent connection to the internet, consider running suitable inventory management software in-house. If not, consider using a 'bureau' service • Contact the providers of suitable real-time inventory management services for information – their services should be standards-based • Check a reference site, find other operators/agents who have made the change and talk to them, and prepare your own business case • If the case is viable for your circumstances, contract a suitable service provider and modify your own processes to suit.
Large operator:	• Have your business analysts investigate the case for adopting global standards to achieve the benefits noted in this document • Make a decision accordingly.
Intermediary: (aggregators, distributors)	• Review your business strategy in light of the issues and conclusions reached in this document • Make a decision accordingly.
RTO:	• Modify your own systems to utilise the new environment • Modify the services you offer to operators to make use of the new opportunities available • Promote this strategy to your operators.
Industry representative:	• Promote the strategy and its benefits as much as possible • Co-ordinate with other national industry bodies to determine processes for New Zealand's involvement in the global standards-setting process • Participate in the establishment of TIRA and the Register.
Technology provider:	• Ensure that your systems conform to global standards and support inter-operability • Extend distribution for your client base by linking to the main global distribution systems.

Contents

Table of Figures

Appendix

Attachments (under separate cover)

1. Introduction

1.1 The Brief

In 2001 the Foundation for Research, Science and Technology (FRST) invited tenders for research into the role that information technology might play in enhancing business capability within small and medium size enterprises (SMEs) in the Tourism sector.

This research was intended to align with the Ministry of Research Science and Technology's **Blueprint for Change** policy document and the strategic objectives for Government's investment in Tourism as defined in the FRST Strategic Portfolio Outcomes (SPOs). Specific areas expected to be addressed included:

- The development of new technologies (including communication technologies) that would enhance linkages to markets within NZ and internationally and also enhance the experience of the customer
- Improvement in the performance and profitability of businesses
- The development of an understanding of how to encourage business managers to take up new information and technologies.

The Tourism sector SPO noted that '*fragmentation of the industry is addressed through better co-ordination and cohesiveness within the industry, facilitating better flows of information which, in turn, contribute to sustainability at all levels of the industry*'. This topic area was intended to address this issue.

1.2 Research Objectives

In its tender, Martech suggested that the industry (operators, travellers and their agents) would benefit considerably if there were a technology-based platform that enabled tourism providers to effectively communicate their vacancy information in real time to travellers and their agents.

This solution would:

- provide opportunities for the use of technology that will have a significant and positive impact on all types of tourism providers, particularly the smaller ones
- improve efficiencies and quality of service
- reduce costs for all parties by automating most or all of the booking process
- enable the development of new and innovative marketing or distribution services
- lead to an improved quality of experience for the visitor to NZ
- in the medium term, increase the attractiveness of NZ for tourists.

The tender was successful, and Martech Consulting Group was commissioned by FRST in June 2001 to carry out this research.

Martech proposed to work closely with tourism operators, their representatives and technology suppliers in order to develop wide support for the final solution.

1.3 Project Outline

The project was planned in three phases (objectives) spread over 24 months:

1. Define need and specifications

- Research and prepare documentation in preparation for discussion with SME tourism service providers and representative groups.
- Examine the proposed solutions from the SME suppliers' perspectives (through interviews and discussions with small representative sample)
- Research Free and Independent Travellers (FIT) to validate the definition of their needs as indicated by SME tourism suppliers.
- Identify the strongest candidate areas for effective use of information technology and e-business.
- Define the opportunity and develop initial specifications for solutions.

2. Identify technology solutions and candidate providers

- Review current and emerging technology that could deliver against the specifications.
- Review the application of this technology with technology providers, and Identify issues to be addressed
- Research solutions to issues identified.
- Develop a range of possible scenarios for the provision of technology that would meet all or part of the specification.
- Review and contrast these scenarios in consultation with technology providers and selected service providers.

3. Prepare a business case

- Identify possible barriers to adoption of the technology.
- Identify and review the risks involved in applying the technology.
- Identify a modest number of test sites.
- Model or pilot the proposed solutions, and determine the technological viability of proposed solutions.
- Review the outcome from the point of view of:
  - . FIT inquirers who wish to take action themselves
  - . intermediaries acting on behalf of clients, and who would normally use traditional booking processes.
- Quantify the benefits available to all parties.
- Estimate the costs and timescales likely to be involved.
- Prepare a business case.

4. Determine a commercialisation process

- Identify various scenarios for delivery of viable solutions.
- Contrast the scenarios and determine the most appropriate to pursue and promote.
- Determine mechanisms to implement the preferred scenarios.
- Identify roles and actions required, and obtain support from organisations best placed to carry out the roles.
- Prepare an action plan for commercialisation.
- Prepare documentation and present to SME users and technology providers in order to build support for the solution.

1.4 This Document

This document is the final report of the project. It includes:

- An overview of online and other developments in the global tourism industry that could have an impact on SME tourism operators in New Zealand
- Results from a survey of a sample of SME tourism operators and intermediaries (Attachment 1), which set out to:
  - identify and establish the significance of business issues facing the SMEs
  - determine the business processes now used
  - obtain suggestions from the operators as to how issues related to e-business might be resolved.
- Results from a large survey of FIT consumers in New Zealand (Attachment 2)
- An overview of possible solutions for issues raised, and an outline of a recommended workable strategy and solution
- A review of the current state of this solution, identifying prominent players and their roles in the sector
- A review of infrastructural implications and possible business models
- A business case prepared in relation to the proposed solution, built on:
  - An analysis of the benefits to all parties
  - An estimate of running costs and a proposed business model
  - The probable costs involved in implementing the solution
- A review of implementation issues and an implementation strategy designed to deal with these issues
- A final recommendation of solutions, implementation strategy, roles and responsibilities involved in carrying this project to completion.

2. The State of e-Business in Tourism

This section examines the current state of e-business in the Tourism industry, emphasising New Zealand, but including an overview of developments offshore. We start with an overview of the industry itself.

2.1 The Travel and Tourism Industry

Travel and tourism is one of the world's largest industries: [2],[3]

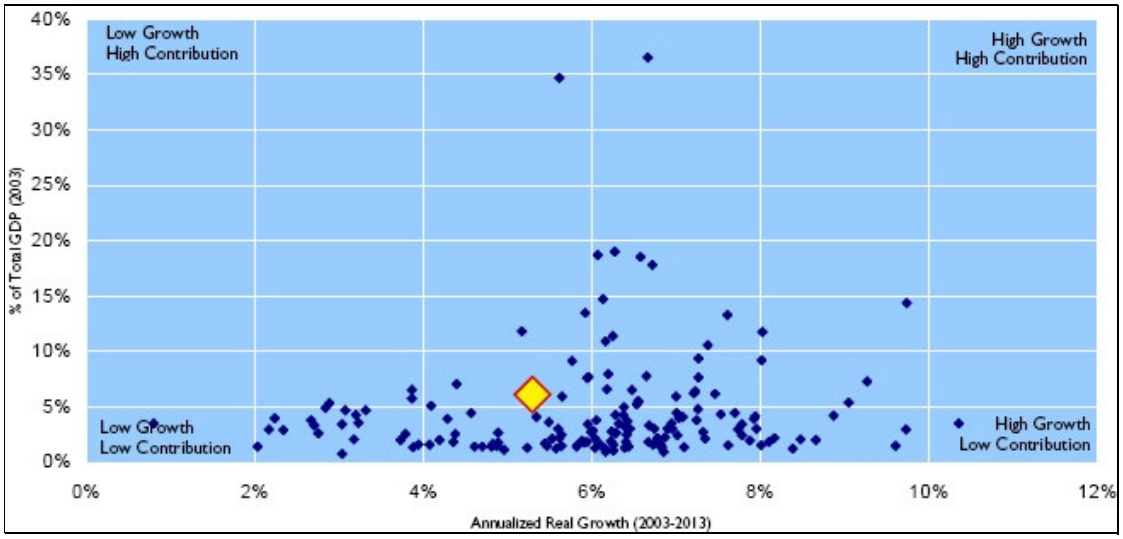
- In 2003, it is expected to generate direct and indirect economic activity worth more than 10% of global GDP, with growth expected to average 4.6% per annum between 2004 and 2013.
- In New Zealand, the industry is even more significant: it directly and indirectly contributes 15% of NZ's export earnings, and provides 290,000 jobs. Travel and tourism demand is expected to grow in NZ by an average of 5.7% per annum between 2004 and 2013, faster than the growth of the economy as a whole (Figure 1).

Figure 1: Tourism in NZ vs World

		World	NZ
Direct Impact			
GDP:	US$ (billion)	$1,280	$3.0
	% total	3.7%	6.1%
Jobs:	Number ('000)	67,441	129
	% total	2.6%	7.0%
Total Impact (Direct and Indirect)			
Economic Activity:	US$ (billion)	$4,544	$10
GDP:	US$ (billion)	$3,527	$6.9
	% total	10.2%	14.2%
Exports:	US$ (billion)	$1,010	$3
	% total	11.2%	15.2%
Jobs:	Number ('000)	194,562	292
	% total	7.6%	15.7%
Projected Growth in Total Demand, 2004-2013			
Rate:	%	4.6%	5.7%

Both the contribution the industry makes to GDP in New Zealand and the projected inflation-adjusted rate of growth are above the global average but below the median (refer to Figure 2 for all countries, with NZ shown as a yellow diamond).

Figure 2: Travel and Tourism Industry GDP Contribution and Growth



[2] *The 2003 Travel & Tourism Economic Research Reports*. May 2003. WTTC

[3] The *NZ Tourism Satellite Account (May 2003)* shows slightly different figures.

There are other characteristics of the global industry that are worth noting:

- The industry consists mainly of small businesses.

  In NZ, 95% of businesses classified as *'cultural / recreational'* and 83% of those classified as *'accommodation / cafes / restaurants'* employ less than 10 staff.[4]

  In the UK 94% of tourism businesses have less than 250 staff, and they account for only 52% of industry revenues.

  SMEs often run tourism businesses in conjunction with other businesses (such as farming) to supplement family income, provide lifestyle options for family members and to enable them to meet people.

  The majority of tourism businesses have a relatively low turnover, make a very small margin (if they are actually profitable at all) and have very little spare financial resources. Their operators have very little spare time, and business needs are not their highest priority.[5]

  The average farmstay in NZ contributes 35% of total on-farm income, and is run by a middle-aged woman (whose children are older or have left home).[6]

- The industry's product is unique:
  - It is perishable, time-specific inventory.
  - It cannot be shipped to the consumer – the consumer must come to it.
  - Each operator provides only one small part of the total consumer experience, and has little or no control or even influence over the rest.
  - The product cannot be tested by the consumer in advance, and cannot be returned if unacceptable.

    Consumers typically minimise their risk by researching the product as much as possible before purchasing.
  - The consumer makes buying decisions based only on information about the product, and because of the internet, increasingly does not need to use agents to obtain the information.

    The internet facilitates product discovery and research, which is why it is such a valuable resource for the tourism industry and its customers.
- The dominant feature of the industry is supply-side fragmentation.

  Tourism businesses are extremely diverse geographically, in focus, in quality of product and in sophistication.
- The industry has a long and expensive distribution chain and numerous intermediaries.

  There are many channels to market, making the industry a crowded, complex and confusing environment for both operators and consumers.

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4 Statistics NZ

5 English Tourism Council

6 *Supply Analysis of Farm Tourism – Results from a Farmstay Survey in New Zealand*. 2000. Shamim Shakur, Dept of Applied and International Economics, and John Holland, Institute of Natural Resources, Massey University.

Distribution costs can reach 25% of turnover, which makes the topic a sensitive one for operators of low margin businesses, and provides a strong incentive to try to go direct to their customers.

There is considerable pressure on commissions, fees and incentives – the larger operators (such as airlines, particularly the low-cost carriers) are eliminating travel agents commissions (refer to Sections 2.3 and 2.4).

The internet has made possible a new low cost distribution channel – another reason why it is such a valuable resource for the industry.

- Operators compete with each other in their sub sector and destination, and only collaborate to reach distant markets or to promote their destination. They are typically independent and self-sufficient.

2.2 Use of e-Business by SME Tourism Operators

The characteristics of the tourism industry suggest that it should be ideally suited and motivated to use the internet.

Several surveys seem to confirm this view, indicating that while the tourism industry appears to be more advanced than most sectors in terms of its use of the internet, operators have not integrated e-business into their business processes.

The ECAT Net Readiness Survey

The *ECAT Net Readiness Survey* (2001) indicated that tourism was ahead of all other NZ industries in both net readiness and website functionality (although the survey involved a small sample of businesses, and a comparison of survey respondents to industry structure suggests that the survey was skewed in favour of large operators).

Figure 3: Net Readiness[7]

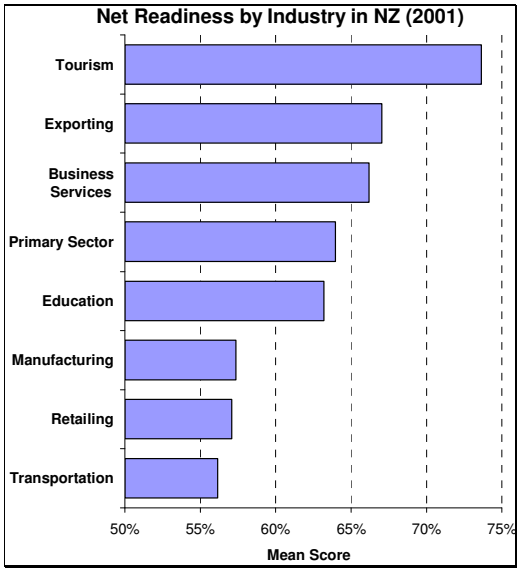
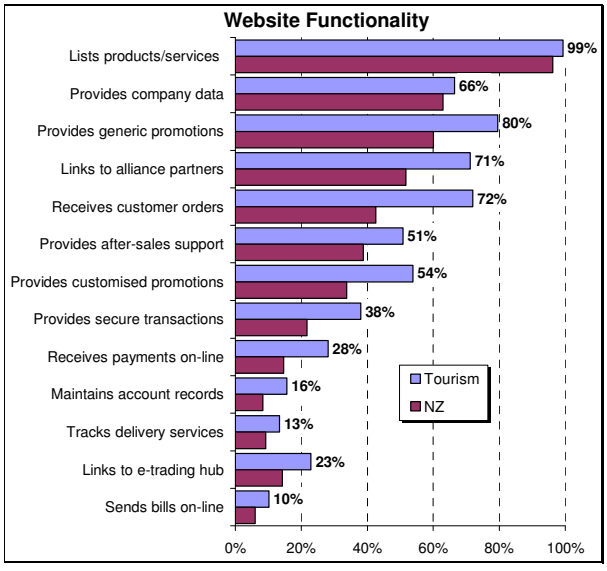


Figure 4: Website Functionality



Respondents also gave the tourism industry the highest mean ratings of all industries for 'Net Leadership' and 'Net Savvy' categories (Figures 3 and 4).

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[7] *Net Readiness in New Zealand Industries*. August 2001. Delwyn Clark, Dept of Strategic Management and Leadership, University of Waikato Management School.

The Net Readiness Survey indicates that e-business (across all industries) was adopted principally to increase efficiency and to enhance external promotion or develop new markets. Until very recently, the average SME tourism operator has not had an opportunity to increase efficiencies (and may not have been particularly motivated by that factor).

There were many inhibiting factors involved in the adoption of e-business. The most important was low customer use of e-commerce, followed by a number of factors that relate to uncertainty of the validity of the business case for e-commerce.

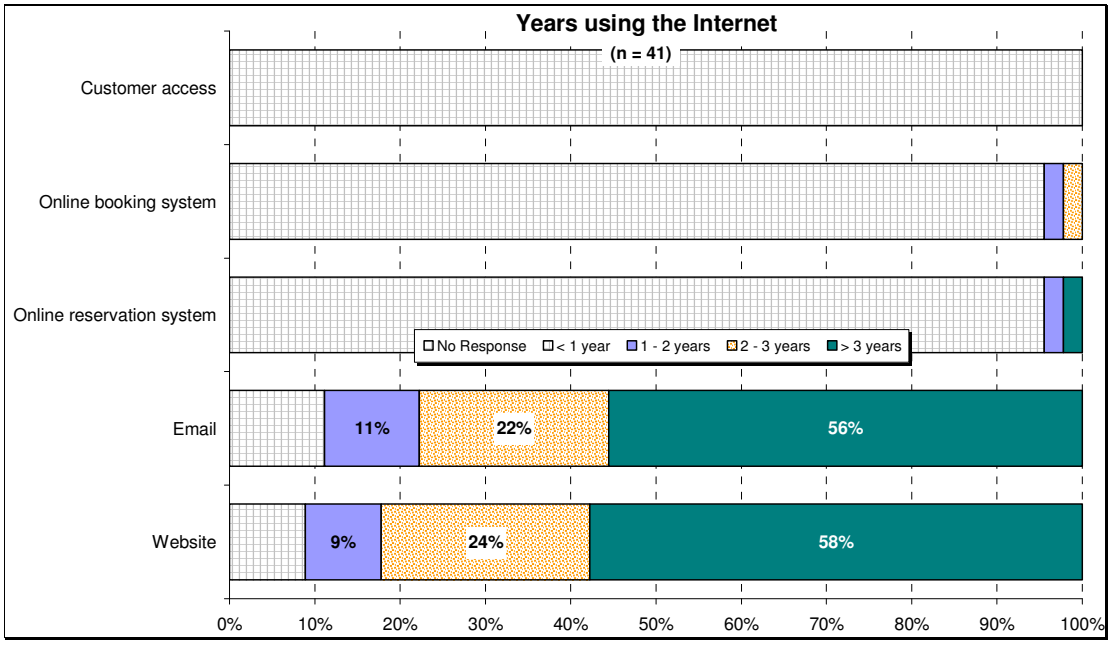
Since it is clear that travellers are high users of the internet, these factors should not apply in tourism. Inhibiting factors for tourism are likely to revolve around the benefits available in relation to implementation and operational costs and the industry's awareness of these.

The Martech survey of SME Tourism Operators[8]

Martech used a structured interview process to survey a sample of SME tourism operators and agents in order to identify business issues facing them. The sample was determined with the help of selected regional tourism organisations to be representative of the range of functions and locations of SME tourism operators. It was not intended to have statistical significance.

The survey indicated that the majority of respondents had been using email and a website for 3 years or longer. 96% had a website (usually hosted by a third party), and 93% use email, but only 4% use an online reservations or booking system (Figure 5). These results correspond well with other surveys.

Figure 5: Current Use of the Internet



[8] Attachment 1, '*Results of the Survey of SME Tourism Operators'.* 2001-2002. Martech

Respondents were asked to what extent they relied on various means of promoting their tourism business:

- 75% relied mainly on **brochures** (and all used them)
- 50% also relied on tour and accommodation **guides** (and all used them)
- 25% relied on their **website** as a major means of promotion (but another 25% found their website to be of little use).
- **Word-of-mouth** was a significant source of business, but transport / tour operators and offshore travel guides were also significant in obtaining customers.

A number of reasons were given for poor performance of the various channels used, including:

- a perceived inability to differentiate product
- a perception that the channel is not effective
- the fact that the VIN and other aggregators tend to recommend operators who they know directly and in whom they have confidence. Information Centres often have difficulty determining operator quality, and staff use their own knowledge when advising travellers. This affects distribution of an operator's product.

Other conclusions from the survey include:

- Planning and business development is generally 'seat-of-the-pants'—operators would benefit from having performance data for planning purposes.
- Utilisation and mix have a big impact on profitability - operators need to be able to adjust product mix at short notice to maintain utilisation (and currently do this on the fly, if at all).
- Operators often do not know which agents / channels to approach in order to promote themselves, or how to let agents / channels know they exist.
- Tourism business processes are not as efficient as they could be:
    - Profitability is generally low, so cost control is an absolute priority
    - Many SME businesses are time-intensive because they are run manually (managing contacts, bookings, accounting)—information technology is typically not used extensively
    - SME operators have difficulty maintaining communications when away from their base (they miss bookings, etc) and feel tied to the phone
    - SME operators don't have an easy and effective mechanism to provide and communicate specials (to help fill low utilisation periods)
    - Late changes and cancellations are poorly handled, particularly the financial consequences (commissions, etc)
    - SME operators use multiple services offering distribution, with very little awareness of how effectiveness these services are in raising utilisation.

Other Surveys

Surveys of NZ businesses already using the internet tend to show that they are not effectively integrated into business processes. *NetInsites*, for example, found that the major NZ travel websites ranked poorly in terms of usability, and comments that local travel websites will have to lift their game to remain competitive.

A study of Wellington businesses found that 36% had no preparation for being noticed and ranked by search engines and half had no means of interacting with visitors. The study concluded that business was in general not well served by web designers.[9]

Operators are increasingly trying to promote themselves with their own websites, but are not finding this particularly successful. This is likely to be for three principal reasons:

- Discovery of their product via search engines or aggregators is not easy
- Travellers want to book entire itineraries through one or a few interactions, not by one or more interactions per item on their proposed itinerary
- Reservations are still primarily made on request (and operators are in general not responding in a timely manner).

Larger Operators

Many larger operators (such as the hotel chains, THL, the YHA, etc) have in-house systems to sell their own product. These vary in sophistication, and there is currently considerable investment is enhancing or acquiring technology.

Most operators augment their revenues with commissions earned by on selling other tourism product. Even the large operators must, however, use the phone to do this, increasing staff costs and incurring considerable communications costs.

2.3 Use of e-Business by Travellers

The number of Americans using the Internet for actual travel planning has increased dramatically over the last five years, to about 64 million each year

42% now do all or most of their trip planning online, and other methods (such as calls or visits to travel agents or travel companies themselves) have declined steeply.

In 2002, over 39 million people (25% more than the previous year) actually booked travel using the internet, with 70% saying that they do at least half of their travel booking online, up from 56% the previous year (Figure 6).[10]

Figure 6: Online Booking

Item Booked Online	% of Online Travel Bookers
Airline tickets	77%
Accommodation	57%
Rental Cars	37%
Cultural Events	25%
Travel Packages	21%
More than US$2,500 p.a.	30%

Many analysts report similar results:

- *Pew* estimates that 61% of Americans (122 million) go online. 66% of those obtain information on travel, and 57% buy or make a reservation for travel.[11] 32% of 18-34 year old travellers primarily use online services to book travel,[12] and 87% of bookers describe themselves as 'extremely' or 'very' satisfied (because of price obtained, convenience and speed).[13]

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[9] *Readiness of Wellington Business for Web-Marketing*. April 2001. ICTs in NZ Research Symposium. Benland/Wilson & Assoc.

[10] Travel Industry Association of America

[11] Pew Research Centre Internet Project

[12] *Orbitz / Travel business Roundtable Survey of Business & Leisure Travellers*. August 2002.

[13] Forrester Research.

- *Jupiter Research* expects online hotel bookings to surge from US$5 billion in 2001 to US$14.8 billion in 2007, and notes that travel companies selling hotel products online gained an additional $5 of booking revenue in traditional channels for each $1 realised directly online, as a direct result of research that consumers did on the web.

  Most online travel buyers decide the duration of their trip, their travel dates and their destination before starting to research travel online, but only 41% had decided on their budget – this represents a significant opportunity for up-selling.

- *Jupiter* expects managed business travel booked online to increase by a factor of 5 by 2007, to US$27 billion, or 26% of the business travel market.

- *PhoCusWright* also predicts increased Web bookings, and expects traditional travel agencies to represent just 18% of hotel sales in 2005 (down from 21% in 2001) as hotel sales move online.

- *The 2001 Travel Weekly Consumer Survey* showed large increases in the use of all types of internet booking sites (Figure 7). **78% of survey respondents made an online travel purchase** (versus 51% the year before).[14]

Figure 7: Booking Method

Typical Booking Method for Leisure Travel		
Booking Method	**2000**	**2001**
Travel Agent	36%	32%
Book directly	61%	59%
Travel club (AAA)	4%	5%
Corporate / Internet	1%	3%
Internet	27%	49%
Travel Portal (Travelocity, etc)	11%	24%
Operator site (Airline, hotel, etc)	15%	29%
Travel Agent internet site	3%	2%
Other Method	6%	4%

Source: 2001 travel Weekly Consumer Survey, travelers with an email address. Total adds to more than 100% because of multiple responses.

- Americans rate the internet as their most important source of information.[15]

- Online travel sales in Western Europe increased by 53% during 2002 to €7.3 billion (3.5% of total travel sales), and will increase by another 32% during 2003. The UK and Germany are the biggest online travel markets in Europe.[16]

- e-Businesses in retailing, travel, auctions and financial services now satisfy customers better than their off-line counterparts. The average score for e-commerce customer satisfaction was 77.6 in 2002, 3% higher than the score for traditional retailers.[17]

- In 2001 51% of people over 16 in NZ had access to the internet – and 44% of NZ internet users planned or booked travel online.[18]

Large operators also support these findings: the *Leading Hotels of the World* group reports that its volume of online sales in 2002 was more than double the previous year, and expects that internet bookings will outstrip phone bookings by the end of 2003.

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[14] *Findings on Impact of Changes in Airline Ticket Distribution systems on Agents and Consumers*. November 2002. National Commission to Ensure Consumer Information and Choice in the Airline Industry (NCECIC).

[15] *Surveying the Digital Future*. February 2003. Jeffery Cole et al, Center for Communication Policy, UCLA.

[16] Centre for Regional and Tourism Research.

[17] The American Customer Satisfaction Index (ACSI), 4th Quarter Scores (February 2003).

[18] Nielsen NetRatings, AC Nielsen.

Travellers in America are also using mobile devices for research and booking:

- According to a survey by *Avantgo*, an online provider of services to users of PDAs (mobile computers, connected to the internet by wireless), 33% of PDA users purchased all of their travel online during 2002 – 72% bought airline tickets, and 67% bought accommodation.[19] 65% wanted to receive travel discounts on their PDA, while 67% wanted flight delay notifications that way.
- *Travel Inc* and *Air2Web* announced the launch of the first wireless travel itinerary service ('m-Itinerary Plus') in March 2003, available on PDAs, web-enabled phones or via WAP, to provide up-to-the-minute travel information and itinerary management services for corporate travellers. This is the first of what is expected to be a slew of new services provided to mobile travellers.

Martech Survey of FIT in NZ[20]

As part of this project, Martech interviewed 576 individuals (representing travelling groups) intercepted at three tourist destinations within New Zealand (Rotorua, Wellington and Picton), during March and April 2002, to determine whether travellers obtain information and make bookings while travelling within NZ. The survey excluded tours and therefore under-represents some nationalities. Allowing for this skew, it broadly reflects current visitor patterns by country of origin and age.

The survey demonstrates that substantial information gathering and booking activity takes place **during** a trip. Telephones and the *Visitor Information Network* were widely used, but a surprisingly high proportion of travelers used computers to obtain information and make bookings. Among the findings:

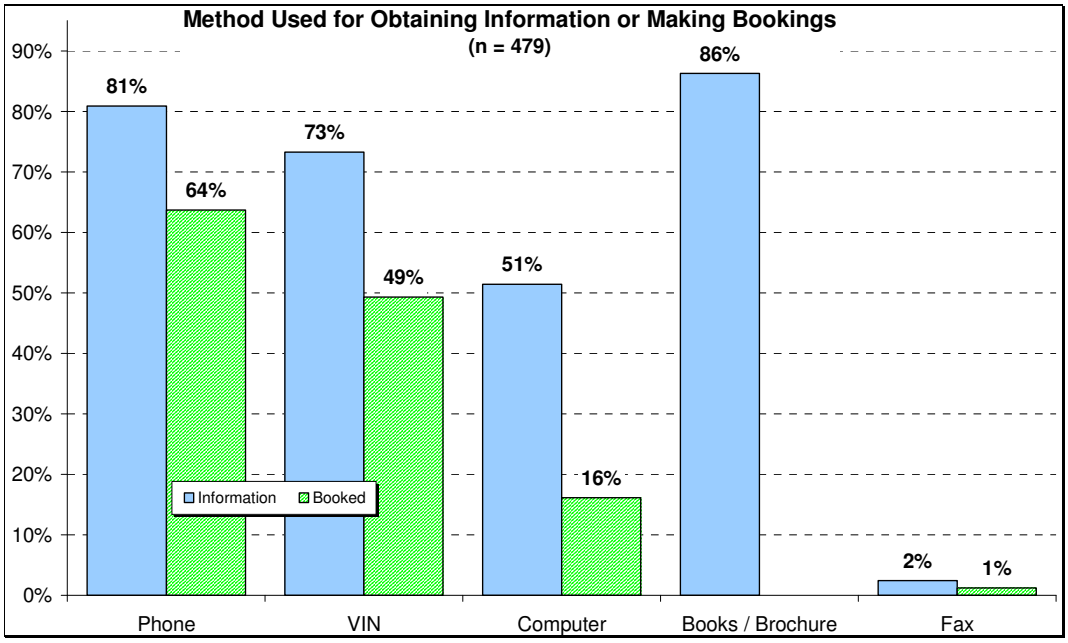
- Almost all respondents had obtained tourism-related information during the four days prior to the interview (Figure 8)
- 80% had made at least one booking during that period
- Bookings were most likely to be for accommodation (66%) or travel (63%)
- 60% would use a mobile device (PDA) to search for information, if one were available, and 49% would use such a device to make bookings
- Many respondents observed that they had either missed an opportunity to experience product because they hadn't booked ahead and tips were fully booked at the time they were there (such as the Whale Watch), or were concerned that they could miss out on key experiences without booking ahead.

Comments made by respondents suggest that a principal factor holding back booking online is the [current] difficulty in doing so.

[19] My Avantgo Travel Survey. March 2003.

[20] Attachment 2, 'Results of the Survey of *Free and Independent Travellers'*

Figure 8: Obtaining Information and Booking in NZ



Anite Online Travel Booking Survey[21]

In the Anite Online Travel Booking Survey, 84% of respondents said they would like to build mix-and-match packages from different components if such an option were available online. The survey shows a great appetite among consumers for online travel booking functionality, but that travel providers do not satisfy this demand.

The survey showed, among other things, that:

- web purchasing is not a one-off phenomenon – purchasers return and buy more after their first transaction
- 67% made their purchases in the evenings – the perfect time to make family-oriented travel purchasing decisions
- 59% said they bought full priced goods and services on the web – the web is not just a place to sell distressed inventory
- 66% believed that the internet will become the dominant tool for booking travel
- 34% would like to make all their travel arrangements on the web, but only 7% booked package holidays online, because the choice in Europe is very limited (Thomas Cook, Direct Holidays and Virgin Holidays)
- 76% thought that more than half of travel websites offered bookable product. Estimates suggest, however, that less than 10% of travel industry principals are bookable (in real-time), and a negligible proportion of SME operators.
- 65% thought it was possible to book tailor-made holidays online (referring to *Lastminute.com* and other providers). When told that it was not in fact possible to tailor-make holidays online, 84% agreed that this was a feature they wished to see.

[21] *Online Travel Booking Survey 2000*. Anite Travel Systems.

The term **'dynamic packaging'** has been used to describe what is needed to satisfy the consumer.[22] Dynamic packaging aims to provide the leisure traveler with three key features:

> "The holy grail of the everyday leisure traveler is the ability to find and book a holiday that suits him or her exactly (dates, times, places) and that provides choice with value for money."
> **Anite Travel Systems**

- access to a wide choice of supplier commodity products to choose from and compare (whether flights, accommodation, transport or activities)
- the ability to search for, aggregate and compare, availability and prices across a range of suppliers
- the booking engine toolset that provides a central record of the complex, multi-supplier itineraries consumers wish to assemble (the 'super PNR').

Current business models and the travel supply chain make this a difficult solution to deliver. The established tour operators can't provide flexibility without compromising the basic economics of mass-market package holidays. Dynamic packaging requires e-commerce technology, but also requires a significant change in the way the principal operators do business.

The functionality required is slowly evolving, despite vested interests and commercial baggage, because it is consumer driven, not technology led—dynamic packaging will inevitably become an increasingly important business model.

2.4 Use of e-Business by Service Providers and Intermediaries

There are various categories of service providers or intermediaries in the tourism industry—the complexity of this section of the industry makes it confusing for both operators and travellers. All of these tend to be active users of the internet. Any listing of service providers will inevitably be incomplete, so this section uses examples in each category in lieu of a comprehensive listing of organisations:

- **Agents**

  Travel agents have been severely impacted by the trend to eliminate airline commissions, the migration of travel purchasers to the internet and the airlines strategy of encouraging travellers to bypass agents. Agency numbers have declined by more than a third since 1994.

  This decline has coincided with an improvement in the position of consumers, however, who now have better access to travel information via the internet.[23] Agents do not receive preferential treatment at websites, and using the web is not as efficient for agents as using a GDS (they must log in as their customer on every site used in the itinerary, updates are not easy, etc).

  Many agents are allocated product to sell, and are therefore motivated to sell that particular product. They experience the same problems as consumers when trying to access other (non-allocated) product for the increasing proportion of clients who demand experiences outside the standard package offered.

  This increases the complexity of doing business for the operators, but is an option that is generally not viable for small to medium size operators (it is not practical for a small bed & breakfast to allocate 4 rooms among several agents or aggregators).

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[22] *Dynamic Packaging: The Consumer's Choice*. 2002. Anite Travel Systems.

[23] NCECIC.

- **Travel Portals (Online Travel Agencies):**

  Online spending on travel through the portals grew by 17% during 2001 to an estimated value of US$1.2 billion, and they stimulated another US$0.7 billion of offline sales:

  - *Travelocity* (owned by Sabre) is the largest player with 18% of the market and an estimated unique audience of 8.7 million. The company reported revenue growth of 11% in the last quarter of 2002 [*Nielsen/Netratings*], and operates as a brokerage service.
  - *Expedia* (owned by USA Networks and founded by Microsoft) relies on Worldspan, and operates as a fulfilment broker.
  - *Orbitz* (owned by five airlines) provides comprehensive booking facilities for large tourism operators. Orbitz announced a partnership with Aqua Software Products in May 2002, giving Navigant International and other travel agents that use the industry-leading Aqua desktop software seamless integration with Orbitz booking systems.

  There are a number of bid-based portals providing related services, generally using fee-based business models. For example:

  - *Priceline* (privately owned) is a 'submit a bid' site
  - *Hotwire* (owned by six airlines) operates an 'opaque' pricing system, which requires travellers to be flexible about where they stay but enables them to get the lowest available price for a specified time of stay.
  - *Lastminute.com, Wotif.com* and others enable operators to promote distressed inventory, and provide last minute deals for consumers.

  The portals provide consumers with access to the larger tourism operators only, because the small commissions available from smaller operators do not make it worthwhile including them.

- **Global Distribution Systems (GDSs):**

  The GDSs (Amadeus, Galileo, Sabre and Worldspan) were originally developed and operated by airlines but ownership changed following rule changes made by the Civil Aeronautics Board in 1984. The GDSs focus mainly on the large airline, rental and hotel operators.

  Amadeus and Galileo serve as useful examples of GDS activity:

  - *Amadeus* has an e-commerce business unit called *e-Travel*, which it describes as 'the leading global provider of online travel technology'. Using Planitgo, a fully customisable online booking engine, and Aergo, an online booking solution for the business travel market, *e-Travel* clients have seen their own online bookings grow as a result of customised solutions and services that consolidate internationalisation requirements within one single architecture.

    Amadeus has introduced *e-Travel Reporter*, a Web-based reporting application that uses the data now being collected to consolidate and report on online travel patterns and trends across leisure Web sites.

    Amadeus reported a 90% increase in online booking volumes over the year to June 2003.

- *Galileo* was acquired in 2001 by *Cendant*, which operates more than 2000 hotels (including Travelodge) and also owns Avis. Cendant owns other online bookings services, and is clearly establishing a significant online presence. Developments like this will inevitably make life more difficult for SME operators, unless they can participate in a similar service.

  GetThere, owned by Sabre, is a leading provider of Web-based travel reservation systems for corporations and airlines. GetThere:

  - provides web-based travel procurement systems including air, hotel, car and meeting planning for employees of leading corporations, including more than half of the Fortune 200.
  - provides web-based travel booking for airlines including Air New Zealand, British Airways, Cathay Pacific Airways and United Airlines.
  - draws content from the global distribution systems (GDSs) and takes bookable content from the Internet and individual travel providers, making travel options from all these sources available on a single screen, fully bookable within the GetThere system.

  GetThere DirectCorporate is claimed to be the leading Web-based travel procurement system for large corporations, aimed specifically at corporations with multiple vendor agreements, complex travel policies, and annual travel spend in excess of US$10 million. It streamlines and automates nearly every facet of corporate travel procurement, enabling corporations to reduce travel costs (by an average of 20%), increase procurement efficiencies, strengthen supplier relationships, and better enforce travel policies. GetThere's customer base represents an annual travel spend of more than US$15 billion, and has demonstrated an average adoption rate of GetThere services for 45% of that.

  Smaller organisations access GetThere via one of about 20 distributors.

  GetThere Travel Intelligence is the first comprehensive information service integrated into an online corporate travel reservation system. Real-time intelligence is provided by *iJET Travel Intelligence*, the world's largest intelligence agency dedicated solely to travel (providing travel intelligence on Security, Transportation, Health, Entry/Exit Requirements, Financial, Legal, Communications, Environment, Culture, etc).

- **Aggregators / distributors**

  There are many aggregators / distributors, including Tourism NZ (PureNZ, VIN Inc), the regional tourism organisations (RTOs) and several private operators (Yellowpages, AA, Jasons, TravelMedia, etc)—most also publish in print.

  - Tourism NZ does not provide fulfilment services, but the other players generally enable on-request enquiries and bookings via email or phone.
  - VIN Inc has been using a national database (NZ Host), but bookings are not real-time. Some Information Centres in the Queenstown area use *Ibis* technology, and do operate in real time for sales of local product.

- The RTOs have a number of issues that limit their effectiveness. They have a variety of structures (not all have Information Centres), have multiple repositories for storing similar information and multiple taxonomies for tourism product. They do not deal with travel enquiries efficiently, do not give their operators the ability to maintain their own product details and do not have direct control over their own websites.[24] The websites themselves (with one exception) do not offer consumers the ability to complete travel transactions online.[25]
- In Australia, the State tourism organisations combined forces to create the *Australian Tourism Data Warehouse* (ATDW), which is a database (not a consumer website) of tourism destination and product information. The ATDW was initially funded by the Federal Government, but this funding is due to be withdrawn over the next two years. Tourism Queensland has had limited success in enrolling local operators, who do not seem to find the benefit of being listed worth the cost involved. Plans are being developed to add booking functionality to the ATDW.
- *AA Travel* in NZ provides real-time booking via *Accommodata* (*SolarSystem*), and *TravelMedia* does the same via *LetsBookIt*.

- **Technology Providers**

  There are several examples of technology providers to the travel industry:

  - *World.Net* (based in Australia) appears to be establishing a significant presence. Their Travel.World.Net (TWN) product has won contracts for fully integrated solutions for several regional tourism destinations, notably including the Wales Tourism Council, which went live in April 2002.

    TWN has also won contracts for the five largest travel companies in Japan, has completed projects in South Africa, is working for large players in the USA and on other contracts in Europe.

    World.Net have a demonstration site at http://4seasons.travel.world.net/
  - *Tickets.com* (based in the US) announced the release of its Provenue suite of online ticketing products in January 2003. This suite is targeted at tourism operators as well as entertainment providers. Tickets.com has a formal partnership in place with Orbitz.
  - Real-time, online inventory management services are provided by a number of small organisations in New Zealand, but these have not yet made a significant impact in the local industry (refer Section 4).
  - There are a number of fee-based travel-specific search engines (such as *Agentware, FareChase, Qixo, Sidestep*, or *TRX*) that enable consumers (or agents) to search multiple operators simultaneously in real-time, make fare comparisons and bookings, and retain itinerary information. Many of these have become sophisticated in terms of functionality, and seem to be intent on providing customer-centric services.

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[24] *Information Management Review*. June 2003. Destination Planning Ltd, for RTONZ.

[25] *Use of the Web for Destination Marketing in Regional Tourism*. Doolin, Burgess & Cooper.

- Many technology providers are attempting to meet the consumer demand for itinerary management tools. Examples of different approaches are:
  - Amadeus (a GDS), which offers comprehensive itinerary management services via www.checkmytrip.com, including search facilities for current events through a partnership with London-based '*WhatsOnWhen'* (www.whatsonwhen.com). The service enables synchronisation of the itinerary with a traveller's Microsoft Outlook.
  - *Bookrite* (NZ-based), which provides tools to enable consumers to plan, book and maintain an itinerary for a trip.
  - *Two Peaks*, which provides itinerary scheduling and management software that integrates and synchronises with Microsoft Outlook on PCs and PDAs (handheld devices), and can be updated via the internet.

2.5 Driving Forces

There are several major drivers of change that will have an impact on the provision of travel. These include:

- **Changing Business Models**

  The dramatic reduction in the cost of moving information over the past few decades means that in most cases businesses no longer gain an advantage from being vertically integrated. Organisations are increasingly specialising on their 'core' business, outsourcing support functions or processes to specialists.

  This has changed the nature of business from a static, linear supply chain model to an organic, fluid web or business ecosystem, creating 'virtual enterprises'. The need for improved collaboration has in turn driven technology development, so that now collaborative commerce ('c-commerce') is leading to *web services.*

  Web services allow businesses to discover each other and do business with each other automatically, without having to know the detail of how each other's systems work. They speed up the process and reduce the cost of interaction between businesses, and enable new, often transitory, collaborative products and services to be developed and delivered.

  > Companies will begin with a customer value proposition … and parcel out the elements of value creation and delivery to an optimal collection of partners.[26]

  The larger corporates in the travel industry (the GDSs and travel portals) have started down this track already, since tourism by its nature suits this environment. The challenge is to include the SMEs of the industry, and to introduce or adopt the standards required for large-scale interoperability.

[26] *Digital Capital: Harnessing the Power of Business Webs*. May 2000. Don Tapscott et al.

- **The Shift in Market Power to the Consumer**

  In many industry sectors power is moving from the provider to the consumer. Many large corporates have recognised this, and have invested heavily in customer relationship management (CRM) systems.

  This shift is also occurring as a result of the use of information technology – easy access to information by consumers reduces their reliance on intermediaries, gives them much more choice than they have had before, and has the effect of turning products and services into commodities. The web enables markets to be better informed, smarter, and more demanding of suppliers – consumers can now get better information and support from each other than from suppliers.

  In this environment, companies must compete on service, and must therefore understand their customers and manage their relationship with them.

  Consumers must currently:

  - visit multiple independent websites to plan their trip
  - register their personal information multiple times
  - spend hours or days waiting for response or confirmation
  - make multiple payments by credit card
  - print many pages of information to keep track of what they're arranging
  - spend precious hours making or changing arrangements while traveling
  - spend valuable time waiting, because of poor coordination among suppliers.

  In the travel industry consumers make purchasing decisions based on information only, because they cannot experience before buying. They reduce the risk involved by researching prior to selection—the internet enables them to 'pull' rather than have information 'pushed' to them. Ease of use is clearly an important issue for travel portals, and surveys indicate that consumers value usability highly (refer to Section 2.3). Current travel websites do an abysmal job of looking after the complete requirements of travellers.

  Consumer frustration emerged in the Anite survey (Section 2.3), where the authors concluded "*as long as the mismatch between consumer expectation and service delivery persists, the industry's reputation can only be harmed*." That frustration is likely to result in lower purchasing of travel product than might otherwise be the case, and higher purchasing levels where better customer service is offered. Those organisations that focus on customer service are therefore more likely to be successful.

  The industry must therefore migrate from a *focus on suppliers* to a *customer-centric* environment.

  Customer relationship management (CRM) tools have been developed to enable ongoing relationships with customers based on information held about them, but 90% of tourism operators believe there is a poor understanding of CRM in the industry (it seems to be considered a new form of 'database marketing'), and 40% of travel agents without CRM do not intend to introduce it.[27]

  Travel consultancy DEST*i*CORP suggests that the large organisations that currently dominate the industry followed a rulebook that is now obsolete. A new one is needed for use in a collaborative, networked economy (Figure 9).[28]

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[27] *Customer Relationship Management in Travel*. 2002. Genesys.

[28] Modified from *Why Web Services and Grid Computing will Turn the Travel Industry on its Head – and Why that's a Good Thing!* 2002. Anna Pollock and Leon Benjamin, DEST*i*CORP.

Figure 9: The Travel Industry Corporate Rulebook

The Old Rulebook	A New Rulebook
▪ Big is better – size matters ▪ Use top-down 'command and control' systems and cultures with standardised policies and procedures to ensure consistency and stability ▪ Reduce transaction costs by owning as much of the supply chain as possible ▪ **Content** is King – acquire it as cheaply as possible ▪ Focus on making and selling as efficiently as possible ▪ Use market share and demand volumes to squeeze suppliers ▪ Use critical mass and buying power to dominate distribution channels and offer only the product you control or acquire at discounted rates ▪ Promote your brand through marketing and PR ▪ Invest heavily in technology in an attempt to create competitive advantage ▪ When in trouble, drop prices, lay off staff and outlast your competitors using your capital reserves or borrowing power (!)	▪ Small is beautiful – being fleet of foot is more important than being big ▪ Use flat structures with empowered staff (not top down, command and control structures) ▪ Focus on your core competency, and outsource the rest ▪ **Customer** is King – put the customer in the driver's seat, pulling towards them the goods and services they need ▪ Be agile and adaptive – a 'sense and respond' organisation (not 'make and sell') ▪ Define your companies by your services and processes, not by a specific set of products ▪ Create dynamic, fluid and temporary partnerships to provide complementary, integrated, seamless services ▪ Create the conditions for 'customer care' – overall direction and values, enabling staff to choose the best method of service delivery ▪ Extend time horizons – devise measures of customer value over longer than quarterly reporting timeframes.

Tourism operators have understood for a long time that they provide an experience, not just a product. The change to a customer-centric environment poses a particular challenge for them, because each supplier can only ever be one small part of the total customer travel experience.

The Anite survey found that internet intermediary *Lastminute.com* is the most visible travel booking website in Europe. The authors suggest that this should cause alarm in the industry—if this intermediary is allowed to become an Amazon.com, it might develop enough financial muscle to force industry providers to hand over content, wiping out their current advantage (Galileo has already gone down this road, via Cendant's ownership of Travelodge and Avis).

The authors suggest that the industry is slow to adopt e-commerce primarily because of a fear of its impact on existing work and business practices.

- **A Changing Market**

  The industry is in the midst of an increasing polarization between the package holiday market and the selling of leisure components individually or in combination, a new market that is growing spectacularly.

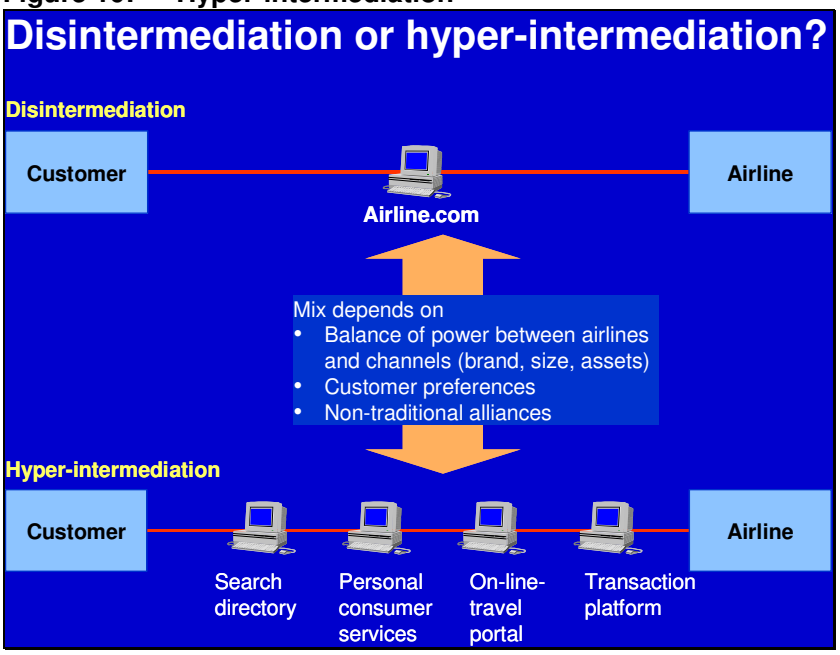
  Consumer frustration with current travel tools is driving the development of better tools for packaging product (dynamic packaging) into itineraries that can be updated while traveling. As these tools evolve closer to the functionality that consumers are looking for, they will either be adopted by incumbent customer-focused travel services or will take business from them.

  Technology developers pioneered this new market. Expedia, Travelocity and Lastminute.com have built successful businesses using e-commerce to ensure the widest distribution with the lowest cost base. These organisations are increasingly a threat to the specialist tour operators, who have traditionally relied on inventory allocations and dealt with a restricted range of suppliers to ensure quality of fulfillment and lowest cost. Wholesalers of product to these tour operators can now use these technologies to reach consumers directly, so that considerable overlap and competition is now occurring between these players.[29]

  The high level of service needed for this new market, involving fast access, content aggregation, flexibility and choice, can only be achieved through the use of e-commerce B2B technologies that are geared for dynamic packaging. All players will therefore have to adopt these technologies in order to survive.

  Analysts originally expected to see disintermediation in business-to-consumer (B2C) processes – it has now become clear that hyper-intermediation is occurring instead (Figure 10).[30]

Figure 10: Hyper-intermediation



[29] *The Role of the Travel Agent in the New Travel Marketplace*. 2003. Anite Travel Systems.

[30] *Business Benefits of B2C Travel Portals*. 2001. Lucio Pompeo, McKinsey & Co.

- **The Evolution of e-Business**

  Four categories of internet use were defined by VICS (shown renumbered):[31]

  Phase 1a: Publication*:* Share specifications, advertising, and other static information with trading partners (often referred to as '*brochureware*').

  Most SME tourism operators are in this category.

  Phase 1b: Interaction*:* Give trading partners person-system or system-system interactive access to product catalogs, shipment tracking, account balances, and other business information; collect data through online surveys and discussion boards.

  Phase 2: Transaction*:* Conduct business over the internet by taking orders, collecting payment, disbursing funds, submitting bids, or performing other business transactions using application servers ('*e-commerce*')

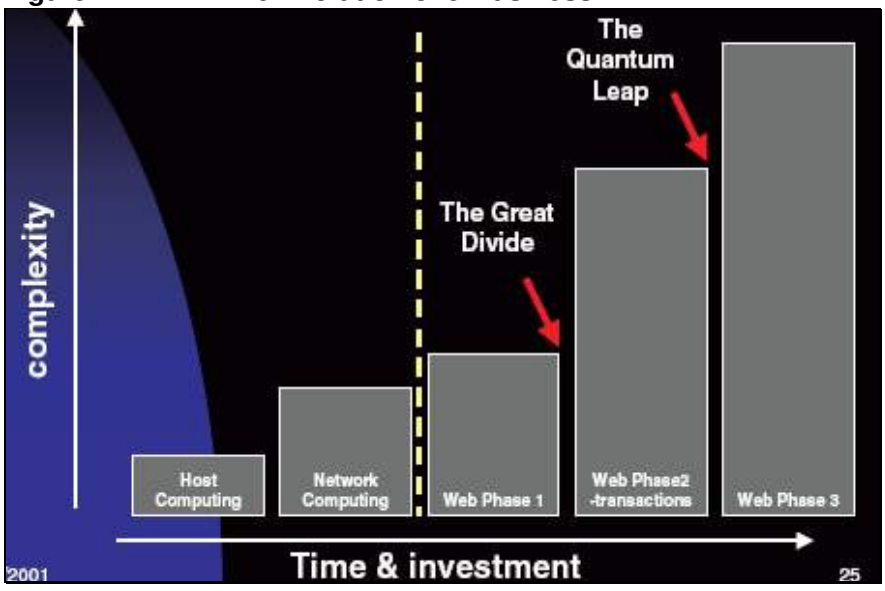
  The airlines and some other large operators are in this category.

  Phase 3: Collaboration*:* Extend business processes beyond transactional buying and selling to product design and development, joint marketing, forecasting and replenishment ('*c-commerce*').

  Most organisations are still grappling with the move to **Phase 2** (*e-commerce*), which requires a significant commitment of time and expense to integrate legacy systems into one corporate portal (the 'Great Divide' in Figure 11).[32]

  The leap to **Phase 3**, *c-commerce*, now being taken by the early adopters, is even more significant, requiring the development of *web services* and *grid computing* to take full advantage of the considerable benefits of collaboration.

Figure 11: The Evolution of e-Business



[31] *Internet Commerce Model*. 2001. Voluntary Interindustry Commerce Standards Association

[32] *Shifting Sands: The Tourism Ecosystem in Transformation*. April, 2001. Anna Pollock and Leon Benjamin, DEST*i*CORP Ltd

Following this model, one would expect collaborative commerce in the tourism industry to involve webs of all types of operators, supported by outsourced suppliers of services to them, with each web organised around customers and groups of customers (not around products or destinations).

Customers would provide the rationale and focus for operators and their suppliers to collaborate, and intermediaries would be formed around customers and market opportunities, not around product ownership.

> "*The scramble for market share among millions of online travel buying households will be the key event in the online travel space over the next five years. Suppliers, agencies and niche players will all race to gain competitive edges in technology, content, functionality, value, customer service, reach and brand recognition.*"
>
> Lodging Report. August 2002. **BearSterns**

In this view, the categories of operator (airlines, rentals, accommodation, etc) should be thought of as 'pools' of web services offering content and functionality that may be aggregated in a variety of permutations and for various periods of time, to meet a customer need or exploit a market opportunity.

The interoperability required depends on the acceptance and application of a range of standards and rules designed to enable seamless, automatic interoperability among all parties – these are enablers of *web services,* standards-based tools which enable businesses to locate each other and communicate data.

Market intelligence company *IDC* estimates that spending on web services projects will exceed US$1 billion in 2003, and increase to US$2.7 billion in 2004.

- **Search engines**

  The internet can provide great value, providing the right information or service can actually be found. The needle-in-a-haystack problem has been one of the drivers for adopting standards-based registry solutions, and has provided a way for the incumbents in any given industry to regain market position from their early adopter competitors – their 'real world' brands attract consumers to websites.

  The search engines have adopted a variety of strategies to improve their service, including the use of automatic tools for discovering ('trawling') web content, self-listing by providers of content, paid advancement of ranking in a search, editorial listing (to manage quality), etc.

  The continually increasing size of the haystack means, however, that search engines are less and less likely to find the right needle. This problem is one of the drivers for the development of *web services* (refer Section 4.4).

- **Location-based Services**

  The internet and the spread of increasingly sophisticated wireless mobile devices have sparked the development of a wide range of services using global positioning systems (GPS) to provide consumers with information relevant to their location.

  Qualcomm announced in February 2003 that **more than 10 million subscribers** in Japan, Korea and the US are now served by GPS-enabled handsets.

  These services are common in NZ already – users can locate restaurants or ATMs by proximity through their mobile phone (using location identified from the nearest cell tower, not via GPS).

  IDC predicts that 50% of European subscribers (**150 million users**) will be using location-based services by 2005.

There are a number of developments in this area that should be of particular interest to the tourism industry:

- *GeoNotes* are observations written by individuals about their experience or views about a location, whether an attraction or service received, which are tagged ('geocoded') with spatial coordinates (GPS)
- *GeoSearch* engines enable online or mobile users to locate GeoNotes and other geocoded information according to location or proximity
- *Blogging* has become a very popular way of making 'diary entries' on specialist websites. People are recording their views on anything as blogs (and these are easily geotagged to enable them to be located by physical location and viewed in a browser).

> The Command Post blog (www.command-post.com) became a hit because ordinary people used it to record what they experienced in Iraq during the 2003 war, when many people were suspicious that the media had been captured by the Coalition.

- New cars are increasingly equipped with GPS, which is used to provide route-finding information and related location-based services
- *IBM* initiated its '*WorldBoard'* project in 1999, as a proposed global infrastructure to associate information and services geographic positions (and ultimately to provide enhanced information perception capabilities).

  The WorldBoard enables **virtual messages and signs** to be associated with a place, to be discovered by 'looking' around that place, and to be found automatically when a suitable handset is within range (and looking for this type of information). It allows peoples views related to that place (blogs) to be found in the same way, and read on a suitable handset or PC.

> Japanese and Korean users of GPS-enabled handsets are able to read (and sometimes listen to) comments made by other people about the restaurant they're standing outside, before choosing to enter – and they do.

  The WorldBoard also enables **virtual objects**, **characters** and **programs** to be found and interacted with in association with places. This therefore allows interpretative information to be provided in association with a place or object, in any language and 'presented' by an appropriate (virtual) guide, including models of what the ruin used to look like, a pictorial overview of the local fauna or flora, local legends and stories, etc.

> ***Livingstone Guides*** provides interactive GPS-enabled maps for use on Pocket PCs (NZ, UK and other destinations). Their maps are stored on the device, but increasingly this kind of service is likely to be provided online as a location-based service.

- People are becoming more accustomed to relying on the experiences of others. Users of trading websites such as *eBay* or *TradeMe* actively request feedback on the quality of each trading experience from the other party. These sites keep and display a running total of favourable and unfavourable comments, which gives a view of trustworthiness and reliability, and can therefore have a strong impact on future trades.
- 3G and 4G phones are increasingly popular in Korea and Japan, and are being introduced in New Zealand, Europe, Australia and elsewhere. One of the drivers for early adopters appears to be the enhanced ability to send multimedia messages to friends (including photos taken with the handset).

  3G, linked with feature-rich instant messaging and blogging, will provide a new communications environment for consumers.

Location-based services should become highly attractive for the travel industry:

- Significant benefits are available for consumers and barriers to adoption (handsets, connectivity, user-friendliness) are rapidly disappearing
- Location-based services for mobile users offer intriguing opportunities for the provision of customer-centric services by intermediaries or operators
- Geocoding tourism product and the promotion of geosearch tools will enable itinerary management based on geography, which is an obvious and exciting development for all parties.

This list of current trends is by no means exhaustive—there will be others that have significance for the tourism industry.

The message from this review of trends is simple: the tourism industry has very significant opportunities to improve the service and experience it provides. The challenge is to find the will and the means to take advantage of them.

2.6 Summary of Issues

In summary, the issues are primarily that:

- SME tourism operators spend what seems to them to be an inordinate amount of time managing inventory (enquiries, reservations, bookings, cancellations, payments, settling commissions and other financial issues, etc)
- Utilisation suffers, and overall industry sales may suffer, because of missed calls and low levels of confidence among agents with respect to their ability to contact operators and operator reliability
- Long-term planning of any kind among SMEs is rare, which means that they must be missing opportunities for improvement
- Operators cannot collaborate effectively to provide comprehensive customer-centric services and manage the total customer experience—there needs to be a way to provide operators with information on their contribution to that total customer experience before they can optimise the customer service they offer in collaboration with other operators
- Agents (such as those working in Visitor Information Centres) also spend a great deal of time checking inventory availability for accommodation and activities
- Travellers suffer what they feel is inadequate service. They spend considerable time waiting for agents to source or confirm inventory on their behalf, find it difficult to do it themselves, and until very recently have not been able to book and manage itineraries (and even now can generally only do so with services linked to the GDS used by their agent).
- The rapid development of e-commerce is providing exciting opportunities for selling and enhancing the tourism experience
- The industry appears to be slow to adopt e-commerce because of a fear of its impact on existing work and business practices
- To meet these challenges, the fragmented tourism industry must learn to adapt and respond quickly, with the total traveller experience in mind. This will require '*a new, supporting, infrastructure, not central command and control*'.[33]

[33] *Shifting Sands: The Tourism Ecosystem in Transformation*. 2001. Anna Pollock, DEST*i*CORP

3. A Strategy to Benefit from e-Business

There are significant issues facing the industry. If these can be resolved, there is an opportunity to:

- achieve a step improvement in the efficiency of the industry, by reducing the time and cost currently involved for all parties in the inventory management process
- increase utilisation, by providing a wider range of bookable product to travellers via agents
- significantly improve the quality of service deliverable by agents (the VIN, etc)
- provide a greatly improved travel experience for travellers.

There are a variety of possible ways to deal with the issues identified. For example:

- Tourism-related data could be obtained and provided to operators (to assist in planning and business development)
- Operators could be provided with educational services or training to address specific issues
- Operators could be provided with business management tools (TIANZ delivered an excellent set of tools and templates to its members in November 2002, on a CD-ROM called '*Tourism Business Builder*')
- Many of the time consuming activities (such as accounting) could be automated or outsourced to a third party service provider (at a cost)
- Communications between aggregators and operators could be improved
- Quality standards exist (Qualmark) – an independent assessment of quality is vital where consumers must rely on information only for their decision-making. These could be promoted heavily or made mandatory.
- In some cases, casual labour needs could be met by new (local) service providers.

All of these options are feasible and most could be put into practice in one way or another. They do not, however, address what appears to be the most significant issue for SME operators – the fact that they are currently tied to their phones, and face a potential loss of business if they cannot answer the phone when it rings.

Any effective solution aimed at SME tourism operators must enable them to operate their businesses and manage inventory whilst away from their premises or busy at other tasks. The booking process must be improved.

3.1 Scenarios

There are three possible scenarios that may be considered as alternatives to the paper and phone based inventory management primarily used today by SME tourism operators:

1. No intervention

If no action is taken to improve the processes used by operators, it is likely that the status quo will continue for many years, or at least until affordable and acceptable tools become available that operators are prepared to use.

It is not feasible for individual SME operators to develop their own automation tools, and they are unlikely to be proactive about seeking them out. The industry will miss this opportunity to benefit from real-time inventory management.

2. Operators use tools at their own office to at least partly automate their booking process

This implies the use of personal computers in the back office, in an environment where the majority of operators still use paper-based inventory management systems and rely on the phone for communication.

This can be an expensive option, but more significantly, it may require substantial upskilling of operators or their staff, and is likely to be met with some resistance by operators.

It also presupposes good connection to the internet, which can still not be guaranteed in rural areas, especially for rural activity operators who may be out of reach of the telecommunications network. PCs still require maintenance and support, which may not be readily available locally in rural areas.

A variant of this scenario is to use handheld alternatives. While mobile phones and handheld computers are rapidly improving in capability, inventory management on mobile devices is not yet a viable alternative, and access to the phone network or the internet by mobile device in remote areas is likely to remain unreliable in the medium term.

Travellers are increasingly using handheld devices to manage their travel, especially in the US, but in practice they tend to be used for this purpose while the traveller is in a population centre (city) rather than in remote areas.

3. Essential processes such as bookings can be automated

If the entire inventory management process were carried out online in real time, with an agent representing the operator, most of the issues identified would be eliminated or much reduced in significance. This scenario would involve:

- each operator providing and updating at infrequent intervals essential information (such as stock available, rates, commission structures, etc) to a contracted agent
- that agent confirming availability and bookings in real time for all enquiries (with the operator having no direct involvement in the booking process, other than for specific circumstances where escalation to the operator has been specified)
- the agent advising the operator at pre-determined intervals of forward bookings, using an agreed mechanism (fax, email, etc)
- the agent taking care of all communication required during the booking process and completing all the financial transactions involved
- the agent recording essential customer statistics for periodic reporting to the operator, enabling effective market and business planning.

Services such as these have become available during the period of this project.

For these services to be viable, the cost involved must be balanced against:

- the time saved
- the improvement in working and living conditions for the operator
- the prospect of higher utilisation.

We note that some operators may resist this alternative through a fear of loss of control over their inventory—this issue will have to be addressed during implementation.

3.2 What is Real-time Inventory Management?

In our view, real time online inventory management using automated reservation systems offers the greatest promise for the bulk of the issues identified by operators and other parties. If bookings could be done online:

- The manual work currently required in the booking process and the associated financial transactions could be almost eliminated, operators freed from their phones, and agents empowered to provide much better levels of service
- Effective itinerary management by travellers and agents would become possible
- Product discovery and distribution would be much improved
- Customer and channel / distributor performance data could be collected and reported to each operator for planning purposes.

While a variety of real-time inventory management systems are likely to emerge, using a variety of business models, there are likely to be a set of common characteristics. To be effective, real-time inventory management systems will:

- Provide operator data for aggregators and distributors of tourism product, including:
  - Identity and basic data including keywords, quality rating, etc
  - Descriptive data (content)
  - Stock availability (in real time)
  - Booking logic or criteria (for escalation to operator, etc)
- Automate the enquiry / booking process, including the financial transactions involved, as far as practicable, and provide forward booking information to the operator as required
- Provide searchable access to operator data for aggregators, distributors and agents, and potentially by the travelling public for:
  - advance bookings (often made before travel is initiated)
  - last minute bookings
  - changes to bookings (often made while travelling)
- Provide access to their data by operators and / or their agents, enabling them to manage inventory availability, rates and commissions in real time
- Collect and report statistics to operators and the tourism industry.

Real-time inventory management is likely to be implemented industry-wide with several service providers. With this in mind, it is useful to illustrate the concept by showing the roles played in the industry and how they relate to each other (Figure 2).

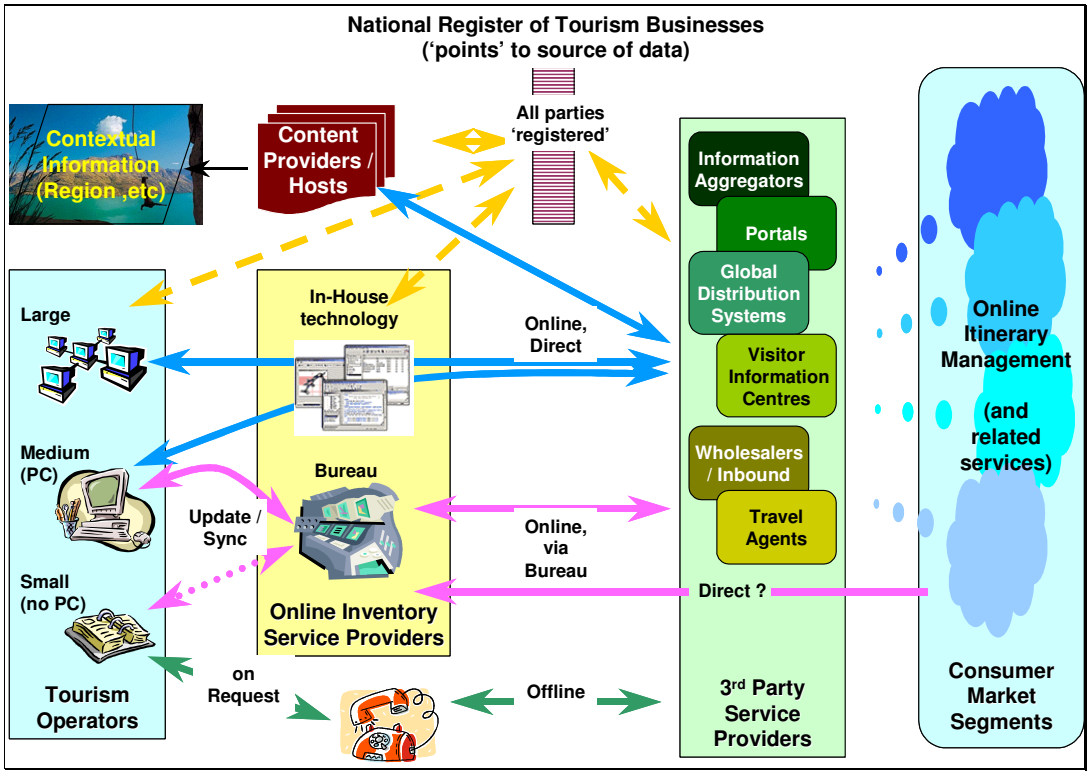
A particular operator may have several sources of content on his product, reflecting the marketing position taken by each distributor. On the other hand, to avoid the need for allocation or complex synchronisation issues, it is simplest and most effective if each operator contracts with only one inventory manager.

In an environment where there are several service providers and multiple aggregators / distributors, it is clearly in the interests of the operators for all aggregators to be able to provide access to their product. That requires either that all these players establish mutual access arrangements, or that a common operator identifier and data standard be used. The latter is the simplest and our preferred option.

Figure 12 therefore shows a 'national register' of operators, which contains the minimum data required about every operator, but includes 'pointers' to sources of content and inventory. In this environment:

- Individual operators would contract for real-time inventory management services with one of several providers, using the most suitable business model (or could choose to opt out entirely)
- Operators would also contract (as they do now) with aggregators / distributors, who may also provide appropriate content on that operator's product (but that content could be provided by a third party or by the operator directly)
- The marketing side of the industry would provide tools to enable agents (and potentially travellers) to locate product matching particular criteria
- The marketing side would use the 'national register' to locate the contracted inventory manager for the matching operators, send an enquiry to that service provider for inventory availability, and interact directly in real-time to complete the booking process for a traveller's itinerary.

Figure 12: Roles and Relationships in a Real-time Inventory Management Environment



3.3 Fit with National Strategies

The benefits that this solution provides the industry fit very well with the current industry strategy as described Objectives 3 and 4 of **Tourism Strategy 2010.**

This solution also delivers the essential fulfilment element underpinning Tourism New Zealand's current strategy, which involves the provision of branded itinerary creation and management tools for agents and travellers.

4. Real-Time Inventory Management

The previous section reviewed the business issues being faced by SME tourism operators, and concluded that real-time inventory management would resolve most of these issues. This section reviews the current state of real-time inventory management, examines options for the NZ industry, and highlights issues in relation to implementation of real-time inventory management that need to be resolved.

4.1 The Current State of Real-time Inventory Management in NZ

Real time inventory management services are currently provided in New Zealand by:

- *AA / Solarsystem (Accommodata),* which manages inventory on behalf of operators, with a mixture of on-request, by-allocation and on-inventory models. AA Travel also distributes and publishes product from those operators
- *Bookrite,* which provides technology to manage inventory as a 'bureau' service for operators. Bookrite has a substantial presence in Australia, and, although it is based in Auckland, has only recently established an operating presence in New Zealand with a number of RTOs.
- *Ibis Technology,* which provides software for:
  - mid-range tourism operators, providing them with front and back office systems for inventory management
  - visitor information centres, providing them with booking systems.

  All the Ibis modules interlink, so that all the information centres can book inventory from all tourism operators in real-time.
- *LetsBookIt* (TravelMedia), which also provides inventory as a 'bureau' service for operators, and distributes and publishes product via TravelMedia. LetsBookIt technology is being used by TIAS to provide a single consolidated database of NZ tourism product (called TravelBank).
- *TIAS* and other global distribution systems (Sabre, Galileo, etc), which provide real-time access to inventory for agents, primarily for hotels and rental services.
- Many of the large hotel operators and the vehicle rental agencies, which have their own in-house inventory management systems, usually linked to global distribution systems and the major travel websites. There is currently significant technology development in this section of the industry, and rumours of projects costing in the high six figures that have run out of control and are not delivering.

  These operators sell their own product, and can sell some external product allocated to them, but any on selling other than this requires manual intervention and incurs staff and communication costs (which can be significant).

  Informal arrangements between some hotel chains enable them to share information on stock availability at specific destinations (such as in Rotorua).

Most of the other players who provide inventory online take inventory by allocation or on request, not in real-time, and tend to sell only those operators with whom they have a business relationship.

In addition, there are many small operators who offer booking functionality on their own websites. These generally also operate 'on request', except where the service is provided by one of the companies named above.

4.2 Real-time Inventory Management Overseas

There are a number of organisations providing real-time inventory management overseas, on a large scale:

- *Travel.World.Net* seems to be developing a strong position in the global market for comprehensive, fully integrated regional tourism management systems (including marketing, distribution and fulfilment). TWN has implemented fully functional solutions in:
  - Australia (Gold Coast, Central Coast, and others)
  - Europe (Wales, Edinburgh and others)
  - Hawaii (and other tourism destinations in North America)
  - Japan (the five largest travel companies there)
  - Cape Town (and other destinations around the world).
- *Travelocity* and other travel portals based in the USA provide full itinerary management services, principally involving large tourism operators.
- The global distribution systems (GDSs) were originally developed and operated by airlines that focus on large tour and hotel operators. Galileo and Amadeus are rapidly growing their customer base for their web-based travel applications.
- *Orbitz* (based in the US) provides comprehensive booking facilities for large tourism operators.

  The industry-leading Aqua desktop software for travel agents (supplied by Aqua Software Products) is fully integrated with Orbitz booking systems.
- *GetThere* is the leading provider of web-based travel reservation systems for large corporates. GetThere draws bookable content from the GDSs and also from the Internet and the internal systems of individual travel providers, making travel options from all these sources available on a single screen and fully bookable within the GetThere system.

  GetThere DirectCorporate, the leading Web-based travel procurement system for large corporations, streamlines and automates nearly every facet of corporate travel procurement, enabling corporations to reduce travel costs (by an average of 20%), increase procurement efficiencies, strengthen supplier relationships, and better enforce travel policies. GetThere's customer base represents an annual travel spend of more than US$15 billion, and have demonstrated an adoption rate of GetThere services of an average of 45%.

  Smaller organisations can access GetThere through one of about 20 distributors.
- *Tickets.com* (based in the US) provides online ticketing products targeted at tourism operators as well as entertainment providers (and has a formal partnership in place with Orbitz).
- There are bid-based portals providing related services. Two examples are:
  - *Lastminute.com,* which enables operators to promote distressed inventory and provides last minute deals for consumers
  - *Hotwire,* which operates an 'opaque' pricing system that requires travellers to be flexible about where they stay but enables them to get the lowest available price for a specified time of stay.

4.3 Issues Affecting the Uptake of Real-time Inventory Management

There are several difficulties with real-time inventory management:

- **SME operators are averse to technology**

  Although operators appear to be heavy users of the internet relative to other industries (according to recent surveys), in practice the majority have websites hosted by service providers, and are not consistent in their use of email for communication with customers.

  AA Guides of NZ estimate that of email sent to operators:
  - 20% receives same day response
  - 40% are responded to within 2 or 3 days
  - **40% are never responded to.**

  A recent study[34] by the Royal Automobile Club of Queensland (RACQ) demonstrated that making bookings in real time (using Bookrite) took considerably less time than otherwise.

  The study also demonstrated that operators who required bookings to be made 'on request' (often because they had in-house management systems) were slow to confirm, and the RACQ agents often had to chase the operators, thereby increasing the time and cost involved, and preventing them from delivering adequate service to their customers. Error rates were high.

  SME operators are relatively unsophisticated in their use of technology (they tend to use paper-based management).

  The bureau model of real-time inventory management should suit these operators – the process does not require an operator's direct involvement.

- **Operators have been reluctant to adopt real-time inventory management as a strategy, fearing a loss of control**

  Even the hotel chains, which have had in-house systems for some time, have been reluctant to relinquish control of their inventory, and have tended to allot space instead. This attitude is changing as the main GDS's and the big travel portals are increasingly operating in real-time when providing booking services for the large suppliers in the industry.

  Red Boats adopted Ibis technology at the end of 2002. With no upselling, it saw an increase in bookings via **Ibis**-equipped agents averaging 300% within 3 months.

  This was not at the expense of competitors—because bookings could be made in real-time, the whole market grew.

  SME operators in regions that have adopted a complete integrated solution (such as the TWN implementations in Australia or Wales) have demonstrated an initial reluctance, but a rapid uptake once they've been able to see the benefits for themselves.

- **Providers of the technology tend to be operating in isolation - there is currently little interoperability between them**

  The regions that have adopted a single systems (such as TWN) do not suffer from this problem, of course, and that is a strong argument in favour of a complete and comprehensive solution such as that offered by TWN.

  Shotover Jet is able to manage inventory automatically in real-time (using **Ibis** technology).

  Shotover has to retain staff to handle the 40% of its business that currently comes by phone and email from agents that do not use **Ibis** technology.

[34] Private correspondence.

Interoperability involves both technical issues and business issues. The service providers involved must:

1. enable their IT systems to pass information between each other
2. be able to identify the operator involved
3. have business rules in place to cover the financial transactions involved (commissions, etc).

These three conditions are not currently being met in NZ.

- **Limited resources in the private sector**

  The providers of real-time inventory management systems currently operating in NZ are typically small, with limited resources that are focused on growing their business. In some cases, senior management may not be convinced that this is the way of the future, and may not be providing whole-hearted support during the formative (and often loss-making) stage of market development.

- **Distribution is complex, involving multiple industry databases**

  There are many organisations with databases of tourism operators, all containing different subsets of the industry, and none acknowledged as the 'authoritative and complete' list. Some distributors have teams of reps on the road contacting with operators, partly for sales purposes, but also to ensure that their databases remain current. Operators are unsure how effective the various distributors are in attracting business—some interviewed report changing distribution contracts frequently. Databases are often 'dirty' (not current), particularly where their owners do not put much effort into maintaining accuracy.

  It is not clear how operator details should be maintained on behalf of the industry, and there is currently no single process or point of responsibility for this.

- **Difficulty reaching and influencing SME operators**

  The industry is fragmented, with many vested interests at stake. No single organisation represents the entire industry, although with a membership of about 5,000 TIANZ comes closest to having that role.

  SME operators do not appear to be strongly influenced by their industry groups, so it is not clear how best to present strategies such as real-time inventory management to them. SME operators are often in the tourism industry for life-style reasons—they do not focus on making satisfactory returns on their investment, and are therefore difficult to motivate.

None of these issues should be 'show-stoppers'. The most significant of the issues, from a technical point of view, could be the lack of interoperability. This has three components:

- the recognition by service providers of the need for interoperability, and the will to achieve it
- the standards required, and the adoption of those standards
- the role of industry groups in this area.

The next section addresses the standards issue.

4.4 Standards for e-business

In the early stages of e-business, as in the early days of any significant cycle of innovation, there was a proliferation of new companies offering e-business products and services. Most of these companies have now either disappeared or been absorbed by the survivors.

Interoperability has now become key to the further development of e-business, and considerable effort is being expended by technology providers because their customers want to:

- reduce the cost of doing business by automating business-business interaction
- interact with other organisations for business purposes without needing to know the details of how the other party's in-house IT systems work
- reduce data redundancy and improve data accuracy
- obtain a more complete view of their customers
- defer the need to upgrade or replace existing systems to ensure compatibility
- reduce their dependence on a particular software company or consultancy.

Being able to interact with other companies so as to supply *web-based services* is becoming crucial for a company's survival.[35] XML, the standard used to describe data, has become widely accepted, although all the standards (XML, SOAP, WSDL, UDDI) are still works in progress.

Global standards development for e-business takes place in various arenas, but there are four in particular which affect the travel industry:

- *The Open Travel Alliance* (OTA, http://www.opentravel.org) is a widely supported body for standards development in the global travel industry.

  The OTA released Version 2003A of its Specification at the end of May 2003. Travel.World.Net, for example, is an active participant in OTA.

- *The Hotel Technology – Next Generation* group (HTNG, http://www.htng.org), which is a consortium of hotel industry technology experts intending to achieve greater interoperability and efficiencies for hotel operators.

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[35] According to the online dictionary Webopedia (http://www.webopedia.com/):

- a ***web service*** is '*a standardised way of integrating web-based applications using the XML, SOAP, WDSL and UDDI open standards, over an internet protocol backbone.*
- *XML is used to tag the data, SOAP is used to transfer the data, WSDL is used to describe the services available, and UDDI is used for listing what services are available.*
- *Used primarily as a means for businesses to communicate with each other and with clients, web services allow organisations to communicate data without intimate knowledge of each other's IT systems behind the firewall.*'

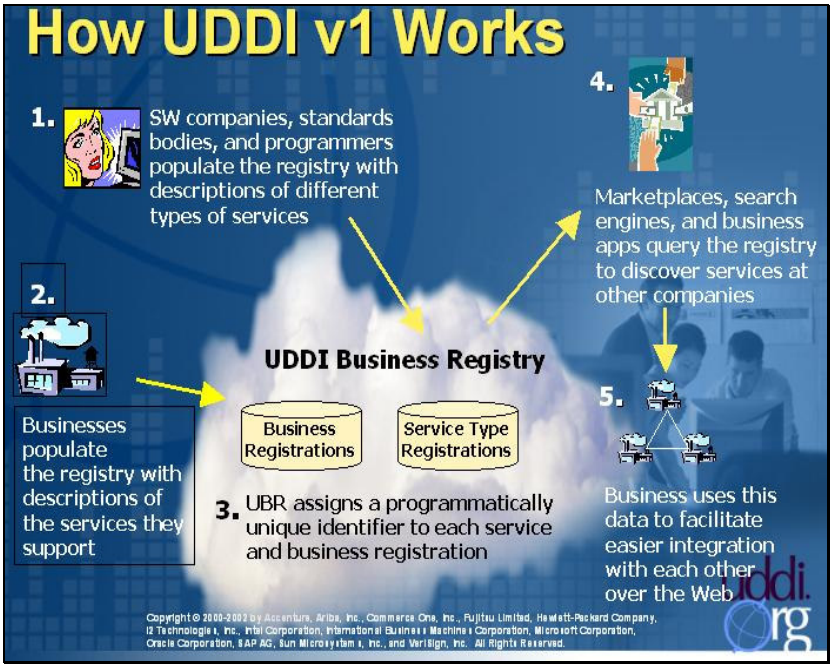
- *OASIS* (http://www.oasis-open.org), a not-for-profit global consortium developing e-commerce standards, which all the leading information technology companies either participate in or support.

  Associated with OASIS is another consortium called *UDDI* (Universal Description, Discovery and Integration, http://www.uddi.org), which is developing standards-based specifications for service description and discovery, and operates a business registry intended to facilitate business to business (B2B) processes.

  In the UDDI concept (Figure 13):

  - Businesses register using XML documents, and may have multiple service listings and multiple taxonomy listings
  - Consumers and businesses discover a match to a business requirement, find out how to do business with it, and bind to its services in order to carry out a business process
  - The registry consists of a number of synchronised peer nodes.

Figure 13: How UDDI Works



As far as we have been able to determine, no NZ-based organisation participates in or actively supports these standards development consortia, even though the standards being developed will be adopted globally by the travel industry in the medium term.

4.5 Options for the Implementation of Real-time Inventory Management in NZ

Real-time inventory management services already exist in the industry, although the services offered are not yet as sophisticated as we expect them to become.

There are three principal options available for consideration:

- The industry could take no action, leaving the emergence of real-time inventory management to market dynamics
- The industry could actively establish common standards to be used by all parties intending to promote or use inventory
- A single, all embracing solution could be adopted for the entire NZ industry.

Option 1: Take no action

The default position is that no action is taken by the industry as a whole, and real-time inventory management evolves according to the resources and skills of the new service providers. This has a number of outcomes:

- Several organisations will develop their services in parallel, in isolation, and eventually find that their customers want interoperability.

  The result is most likely to be that each player negotiates separately with every other, and develops its own interface with every other. For this to happen, all players will publish their own application program interface (API),[36] a process described as API-swapping.

  While this may in the end deliver a successful outcome, it will clearly take longer, involve false starts and failures, and require more resources than a coordinated approach. The resources used in getting to this point would be better utilised in product or market development.
- The final outcome may not be as effective a solution as one delivered by design.
- Each service provider will devote resources to marketing the concept as well as their own services. The industry itself would benefit most, however, by coordinated marketing of the benefits of real-time inventory management as a concept, while leaving competitive marketing to the service providers.
- The final solution will involve changes to modus operandi and industry relationships of many players, including, for example, the RTOs. These changes will be difficult for the new service producers to influence by themselves, and will therefore take longer to achieve than might otherwise be the case.
- Real-time inventory management is an example of a 'network effect', where the value delivered increases as the number of participants increases (the more effective the new itinerary management tools become, the more agents and travellers will rely on them, and the more product discovery and therefore bookings get made through the system).

  All participants would gain through quicker growth of this medium, and coordination of that growth is more likely to deliver a quicker result.

We feel that while the default could become the eventual outcome, it is worth pursuing an alternative with a view to optimising the benefit to the entire industry of real-time inventory management.

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[36] API: a set of routines, protocols, and tools for building software applications

Option 2: Adopt or Develop Industry Standards

The use of common standards will substantially improve the outcome for the industry. Standards are being developed or applied in many segments of e-business, in all cases because the promoters know that their segment would be better off with the standards than without.

The arguments used are similar to those used in favour of outsourcing – the operator is better able to focus on core business, rather than be distracted by having to look after services that would be better provided by a specialist.

> Mobile payments ('mPayments') was once deemed to be the future of payments, but it has failed to live up to expectations. The key factor suppressing the market is the lack of common standards.
>
> **DataMonitor, 2003**

The Hotel Technology—Next Generation (HTNG) consortium identifies profitability, customer service and technology management benefits for operators, owners and vendors from the use of standards (Figure 14).

For standards to be developed or adopted by the travel industry in NZ, there clearly needs to be a way of achieving a consensus among the major players that this is a desirable goal, and a commitment to achieve it.

Achieving a consensus involves:

- identifying a representative body to manage the adoption of standards
- ensuring appropriate governance for all stakeholders to be confident that their needs are being represented and taken into account
- allocating the resources needed
- promoting the concept to the local industry
- establishing appropriate liaison and representation at the relevant global standards development consortia (including OTA, OASIS and UDDI).

> Today's branch bank or retail store manager worries no more about technology than about electricity, water or telephone—they pay the utility bill each month, and the technology arrives …
>
> **General managers [of hotels] should be responsible for filling beds, satisfying guests and controlling costs.**
>
> It is naïve to believe that they are capable of making valid purchasing decisions for complex systems or of managing their technology operation effectively
>
> **HTNG, 2002**

Option 3: Acquire or Develop a One-Stop Shop

The third option considered here is that of contracting a fully comprehensive integrated solution, such as that offered by TWN.

This has clear advantages in that:

- all the required standards are automatically provided
- the technology already exists
- links are automatically provided into the GDSs and other global aggregators
- current service providers would be subsumed into or replaced by the new solution, simplifying the industry and its procedures considerably
- operators would have a single, relatively simple interface to deal with
- NZ would benefit from technology development done by the provider of the one-stop shop for its other customers.

There are significant disadvantages, however:

- vested interests of existing distributors and other stakeholders are likely to be a significant disincentive for their participation

- the industry is fragmented – there is no industry body with a clear mandate to establish a contract such as this on behalf of the industry
- the solution would clearly come at a cost, which may be significant
- the solution may reduce or eliminate the innovation currently going on in this area in NZ – further development would rely on the priorities of the provider of the one-stop shop, and would no longer be under direct industry control.

The balance between these advantages and disadvantages is difficult to make without at least some idea of the cost likely to be involved. Our view at this stage, however, is that the politics would be difficult to overcome, and it would be extremely difficult to have this option implemented in NZ.

4.6 The Preferred Solution

On review of the arguments available, and considering the advantages and disadvantages of the options, our conclusions are:

- The best outcome for operators may well be the one-stop shop solution, but vested interests and the fragmented nature of the industry make this an extremely difficult option to achieve and therefore to recommend.

  For a one-stop-shop option to be viable, the industry would need to obtain a significant majority consensus in support of this option and provide a mandate for an industry body to represent it in negotiation with potential service providers.

  In our judgement, this is an unlikely outcome, and therefore we do not recommend this option.

- A variation on the one-stop-shop option is for Tourism NZ to take this position.

  We do not see this as a viable option, for several reasons:

  - Tourism NZ operates a large database representing the industry, but unlike the other large database owners (such as Yellow Pages, AA Guides, Jasons, Travelmedia or the RTOs), Tourism NZ is not resourced to maintain data accuracy, and its database is widely assumed to be 'dirty'.
  - Tourism NZ is fundamentally a marketing organisation, focussed outwards on international travellers, and does an outstanding job in this area. Effective fulfilment processes are an essential prerequisite for the service it wishes to provide to travellers, but provision of fulfilment functionality is not within Tourism NZ's area of responsibility (and does not need to be).
  - Tourism NZ is not in a position to represent the industry in terms of the adoption and use of industry or global technology standards.
  - To be of greatest value to travellers, the Register would inevitably include peripheral businesses to the industry such as restaurants and organised entertainment.

    The Register is a universal concept, applicable to all other industry sectors as well as tourism. The concept applies as much to, say, the real estate industry or the primary sector, and will eventually be applied there.

    In this wider context, although Tourism NZ might see itself as the initial operator of the tourism Register, it could never be the appropriate supplier of that service to other sectors, and should therefore not be considered as an option in the first place.

- The last option is to do nothing.

  If no action is taken, change will continue to occur slowly. The result will be that:

  - the considerable benefits available to the industry will be deferred
  - technology development will continue down multiple paths using various proprietary systems (as is the case currently).

    Most if not all of these development paths will eventually either have to be redeveloped to accommodate new standards or will become obsolete.

    The considerable investment in this parallel development represents resource that could have been put to much better use and used to create greater value for the industry (refer to Figure 14 for a summary of the benefits of using standards)
  - the cost to the industry of eventually migrating to real-time inventory management will be significant
  - the current demand among travellers for dynamic packaging will be satisfied by other destinations, to New Zealand's detriment
  - a very significant opportunity to improve the performance of the New Zealand tourism industry and therefore the New Zealand economy will have been deferred or lost.

- The best option for the industry is to develop a 'Register' as described in this document, using global standards where possible. This will:

  - enable operators and the entire industry to obtain the benefits available
  - allow current stakeholders to remain
  - allow new service providers to enter the industry, thereby enhancing competition and ongoing innovation.

  This option requires cooperation among stakeholders, to achieve agreement on the standards to be used and to provide effective governance for the registry manager.

  It would be difficult for the stakeholders to see this as a threat to their livelihood, although they would eventually have to modify their systems and processes. There are benefits available for all stakeholders in this strategy, which should outweigh the modification cost.

  In our view, the chances of the stakeholders choosing to support this option are considerably better than getting them to accept a one-stop shop solution which may remove their livelihood.

  We therefore recommend this option.

5. Benefits of Real-Time Inventory Management

This section describes the benefits to each of the stakeholder groups of moving to real-time inventory management.

5.1 Travellers

Real-time inventory management is the fundamental enabler of the 'dynamic packaging' concept described in Section 2.3. Surveys indicate that dynamic packaging functionality is strongly desired by travellers, who would benefit through:

- **dramatic reductions in the time it takes them to research and build itineraries, and considerably reduced levels of frustration**

  Planning and booking for a trip usually takes place over an extended period of time, as options are identified and assessed and alternative itineraries assembled and compared. During this process, an FIT makes many interactions with potential tourism product suppliers, using phone or email (and directly with online reservations systems for airlines, rental cars and many large hotel chains).

  AA Guides and the RACQ (Section 4.3) found that only about 20% of email enquiries are responded to within 24 hours, let alone immediately. Anite (Section 2.3) found that travellers expect to be able to book in real-time – the inability to do so in practice must lead to frustration.

  The process of developing itineraries rapidly becomes time-consuming. Travellers can be forgiven for feeling that the process is too hard.

- **a substantial improvement in the quality of service received from agents**

  Observation and feedback from Visitor Information Centres demonstrated that travellers often spend an hour or more at each Centre, researching and making bookings for the next leg of their trip. This occurs during the trip, when one would expect time to be limited and therefore valuable.

- **improved management of travel while travelling**

  80% of the FIT surveyed by Martech made at least one booking while travelling. The phone is currently the method of choice, followed by Visitor Information Centres: 81% used a *phone* to obtain information and 64% for making a booking, but 61% used a *computer* for research and 16% made a booking online. There is clearly demand for management of itineraries while travelling.

- **being able to experience tourism product that might otherwise have been missed because of a lack of capacity available for last minute booking.**

  Anecdotal evidence suggests that some travellers miss activities or experiences because they were unable to or chose not to book in advance.

  The reverse can also be seen – the dramatic increase in patronage for Red Boats (Section 4.3) appears to have occurred only when travellers and agents found that they were able to book in real time.

  For example, some of the travellers surveyed by Martech referred to being unable to take a Whale Watch tour because there were no vacancies on the day they were in Kaikoura – some had travelled South from Blenheim specifically for a tour (but had not booked in advance).

The lack of real-time inventory management can clearly impose considerable inconvenience on travellers.

5.2 Visitor Information Centres and Agents (acting for travellers)

Agents acting on behalf of travellers experience much the same set of difficulties as travellers themselves. While many offshore agents work with a contracted range of operators using allocated inventory, the consumer demand for dynamic packaging is increasingly forcing them to work outside that group, removing the competitive advantage the agents used to derive from those contracts (Section 2.5).

Real-time inventory management offers considerable benefits to agents including:

- **a dramatic reduction in the time and cost involved in researching and assembling itineraries**

  Agents spend most of their working time assembling itineraries for clients, unlike travellers, who, prior to travelling, do most of their research and booking activity in the evenings, in their own free time (as reported by Anite). Automation of the booking process saves time and eliminates most errors.

  A reduction in the time involved is therefore a reduction in the cost of sales – **real-time inventory management offers a significant, sustainable improvement in productivity**, at a time when the large operators are driving down agents' commissions.

- **an opportunity to improve the service they offer to their customers**

  The current inability to book in real-time (for other than allocated inventory or large operators such as airlines, rental cars or hotel chains) means that agents must keep their customers waiting (if they are present) or have multiple interactions with their customers as availability information comes to hand and informed choices can be made.

  Agents are now able to do much of their research online, and are able to provide useful advice to their customers, but the process cannot currently be completed (fulfilled) satisfactorily. They are therefore forced by the 'system' into providing inadequate service to their customers.

  The ability to determine availability and book all product in real-time enables agents to greatly improve the quality of their service, and provides them with an opportunity to add value, helping to justify the fees many must now charge to replace disappearing commissions.

- **the opportunity to avoid parallel, duplicated development activity**

  Many large agencies are investing themselves in improvements in their office systems. Many others are acquiring technology developed by third parties to provide better functionality.

  The parallel development going on results in increased technology costs throughout the industry, a proportion of which is avoidable if the industry adopts common standards sooner rather than later (refer to Section 5.6).

5.3 SME Tourism Operators

Most large tourism operators have already implemented some form of real-time inventory management in-house, and many are beginning to provide access to these systems from the web.

The SMEs, however, who are the bulk of the industry, do not in general have the resources to implement these systems themselves, and many may prefer to avoid bringing these systems in-house. For this group, real-time inventory management run as a bureau service (by a third party on their behalf) offers very significant advantages.

For SME operators, real-time inventory management will provide:

- **a considerable improvement in productivity**

  The time required for each booking, including all the associated financial activities, can be almost entirely eliminated. The RACQ found that the average time spent managing a booking manually was about 10 minutes (without including the time required by all the financial transactions required).

  A SME with a capacity of 20 units, an occupancy of 60%[37] and (for example) an enquiry to book ratio of 3:1, could therefore spend at least **6 hours a day** managing enquiries and bookings (without including the time spent doing and checking financial transactions).

  In a real-time inventory management environment, using a bureau service such as *Bookrite's*, this would be replaced by the time taken to receive a daily fax or email and update the local (possibly paper-based) management system – perhaps **0.5 hours a day** at most.

  For most operators, 5.5 hours per day plus the time currently spent doing and checking financial transactions, would be freed and available for other activities.

  For larger operators with staff currently manage bookings, the major part of their cost represents savings available for the operator, or an opportunity to extend the business in other ways.

- **increased utilisation**

  The Red Boats experience with *Ibis* (Section 4.3) shows that simply being available for booking by agents in real-time can achieve a step change in utilisation, and grow market size.

  Utilisation would be expected to improve simply by eliminating opportunities lost because phones were engaged or unanswered.

  The development of smarter dynamic packaging tools by distributors will provide travellers and agents with better access to SME tourism operators, relying on the availability in real-time of bookable product. This will allow more SME operators to be 'found', and will lead to increased utilisation.

- **an improved quality of life**

  SME operators are currently not far from their phones for perhaps 15 hours every day, fearing a loss of business if they miss a call. Many operators see this as a major (but necessary) constraint on their lives.

  Real-time inventory management offers the only realistic opportunity to remove this constraint, and will therefore have an extremely positive impact on the quality of life enjoyed by many SME tourism operators. This strategy offers operators the opportunity to automate and remove much of the clerical activity associated with running their businesses.

  This also allows operators to focus on customer service and quality of service.

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[37] The current trend for accommodation, excluding camping, as reported in the July 2003 Tourism Leading Indicators Monitor released by TRCNZ.

- **support for improved business planning and development**

  Access to comprehensive industry data derived from inventory management service providers will enable operators to assess their relative performance, identify and target their customers better, and develop plans to manage product mix and utilisation. Better strategies and business plans will eventually lead to better performance.

5.4 Distributors / Aggregators

The introduction of standards-based real-time inventory management provides two principal advantages for distributors and aggregators:

- **higher accuracy and easier data maintenance**

  The Register concept (and the principles underlying UDDI) involve maintenance of key operator details at a single point, either by the operator directly or by an agent on the operator's behalf. This single point data maintenance will enable **all** distributors and aggregators to stop checking and updating this data (in practice, it is likely that copies of the central Register will be kept by those organisations using the data—but synchronisation can be entirely automatic).

- **opportunities to improve revenues through the provision of new and better service to users (travellers)**

  Implementation of real-time inventory management as described in this document will provide distributors and aggregators of tourism product with the opportunity to add value for their users by enhance the services they are able to offer. A variety of innovative tools become possible in this environment, providing new opportunities for service differentiation and quality improvement.

  This strategy is the fundamental required enabler for dynamic packaging. Use of geocoding will enable new location-based services to be developed and offered to travellers, all potentially enabling new revenue streams for those organisations focused on providing services directly to travellers.

5.5 Regional Tourism Organisations and Industry Groups

The regional tourism organisations (RTOs) currently vary considerably in the roles and functions they carry out, and in the extent to which they represent or are involved with local tourism operators.

Real-time inventory management will provide productivity benefits for those RTOs that have visitor information centres, as noted above. The new environment will provide comparative performance data for tourism operators, which will enable RTOs and industry groups to add value for operators in new ways. They could, for example:

- supplement their normal marketing role by introducing new mentoring or performance improvement services for operators, using data collected and reported by the inventory management service providers
- maintain data on the Register on behalf of SME operators who are unable or do not wish to do that task themselves.

The RTOs currently have multiple separate databases covering tourism product. The strategy described in this document provides them with a vehicle and standards to rationalise those databases and strengthen their role in the local tourism industry.

5.6 The Use of Standards

Real-time inventory management described in this document relies on the use of global standards. These have wider benefits for all stakeholders in terms of minimising ongoing development costs. The cost of a development path that eventually becomes obsolete can be considerable—hence the need for 'future-proofing' in relation to technology. The development and use of industry standards enables all stakeholders to minimise the risk of obsolescence, therefore optimising:

- development costs for technology suppliers
- the investment by users in technology (purchase, training, etc)
- the cost of achieving inter-operability between users.

The benefits from the use of industry standards for operators, owners and technology or service providers are presented in Figure 14.

Figure 14: Benefits to Stakeholders from the Use of Standards[38]

Benefit	Operator	Owner	Service Providers
Improved profitability	✓	✓	✓
Reduction or elimination of capital spending in favor of pay-as-you-go funding	✓	✓	✓
Lower technology costs, through economies of scale from large service providers	✓	✓	
Budgeting of infrastructure independently of applications, ensuring continual infrastructure refresh, and avoiding burdening new applications with the entire cost of new infrastructure	✓	✓	✓
Fewer vendors to manage within hotels; less finger-pointing for support and integration	✓		
Managed, ongoing technology refresh without disruptive, discontinuous system replacement	✓	✓	✓
More intra-vendor cooperation to create full-suite offerings	✓		✓
Easier assessment of new products for interoperability with legacy systems	✓		
Less technology knowledge needed to operate successfully; ability to concentrate on product and service delivery and guest satisfaction	✓	✓	
Better interoperability of systems and data sharing across multiple flags or operators; easier consolidation of data	✓	✓	
More complete view of customer, accessible at more touch points within the hotel	✓	✓	
Less redundancy of data entry and resulting inconsistent data, unnecessary costs, and guest disservice	✓	✓	
Consistency of guest experience and hotel operation across multi-unit groups	✓	✓	
Less technology risk from incorrect or inflexible infrastructure choices	✓	✓	✓
Improved ability to sell into compatible vendors' /partners' customer base			✓
Ability to achieve large, recurring revenue bases from a single sale with a clear decision maker			✓
Greater attraction of large players to industry, as exit strategy for existing vendors			✓

[38] Adapted from "*A Path to Achieving Next-Generation Technology for the Hotel Industry*", htng.org, June 2002

6. Implementation Issues

This section reviews implementation of the recommended strategy, identifying issues involved and solutions for those issues.

The strategy recommended involves the creation of a standards-based national register of tourism operators, to be accessible by all distributors, and assumes that a significant proportion of operators will migrate to real-time inventory management.

6.1 Obtaining Industry Agreement on Standards

The tourism industry is currently heavily fragmented, in the sense that there are a relatively large number of public and private organisations providing services online, all with a subset of local operators in their databases. Although most do at least use XML as a standard to describe their data, very few will be identifying or describing tourism operators and their services in exactly the same way (even though many aggregators, for example, will have separate business relationships with a particular operator).

With the scale of investment already applied in the industry, resistance to moving away from current proprietary standards must be expected – all players (or at best, all but one) would have to modify their systems if the industry were to adopt a single standard. All participants are of course expected to benefit by doing so, as their customers (the operators) will benefit, but the initial reluctance and resistance to change will require managing.

In our view, there are several steps, which, if taken together, may persuade the industry to adopt common standards:

- The benefits that the common standard would bring to operators and service providers should be made clear.

  The service providers in particular stand to avoid misapplied investment, save time getting their technology into use, and find their products and services more attractive to their customers because they are based on industry standards (refer to Figure 4) and therefore more 'future-proof'.

- The standard being promoted should carry some weight in its own right – it should not be based on methods currently used by one local player.

  The prospect of adopting standards supported by the major global players should serve this purpose – all service providers would gain both locally and in the global market by improving interoperability with the industry's global players.

  The 'network effect' applies here – as more players adopt common standards the greater the value of the standards and their benefit to the whole industry. In practice implementation will be a matter of persuading a small number of leading organisations to make the change – the rest will follow their lead.

- The local industry should at least support, if not participate in, the ongoing development of the global industry standards.

- The local industry should be encouraged to participate in the governance of the Registry and retain an overview of (if not direct participation in) the liaison with global standards development bodies.

  This will provide a sense of ownership and camaraderie, and help to ensure that the industry is able to put local issues and developments into the global context.

6.2 Structure of the Registry

We have not attempted to be specific about the structure of the Registry, because we believe that detailed specifications are best made by those organisations that will use it and will have a much better view on how best to use it.

In line with our view that NZ should adopt global standards where possible and practicable, we suggest that the Registry should be modelled on the UDDI definitions.

The initial implementation of the UDDI Business Registry uses XML, HTTP and SOAP protocols, is free on the internet, is data schema and platform agnostic, and contains programmatic descriptions of web services, businesses and the services they support.

Businesses register public information about themselves (or use agents to do so), and standards bodies and businesses register information about their service types in four sections of the Registry:

1. White pages:

- Business Name
- Text Description (list of multi-language text strings)
- Contact information (names, phone numbers, fax numbers, web sites)
- Known Identifiers (list of identifiers that a business may be known by - DUNS, Thomas, other)

2. Yellow pages:

- Business categories (implemented as name-value pairs to allow any valid taxonomy identifier to be attached to the business white page).

  3 standard taxonomies in V1 of UDDI:

  - Industry: NAICS (Industry codes - US Govt.)
  - Product/Services: UN/SPSC (ECMA)
  - Location: Geographical taxonomy

3. Green pages:

New set of information that businesses use to describe how to "do e-commerce" with them (programming / platform agnostic):

- Nested model:
  - Business processes
  - Service descriptions
  - Binding information
- Services can also be categorised

4. Service type registrations

- Pointer to the namespace where service type is described (what programmers read to understand how to use the service)
- Identifier for who published the service
- Identifier for the service type registration (called a tModelKey, used as a signature by web sites that implement those services)

Business registration is an XML document, created by the end user company (or by an agent on their behalf). It may involve multiple service listings and multiple taxonomy listings (Figure 15).

An example of a business registration is shown in Figure 15. The travel industry is a subset of UDDI, of course, so the registered businesses and services will use a taxonomy specific to the industry.

The contracted real-time inventory management provider will be an example of a *businessService* identified in the registration of a tourism operator (Figure 16). The operator's *geocode* would be part of the registration.

Figure 15: Business Registration in UDDI

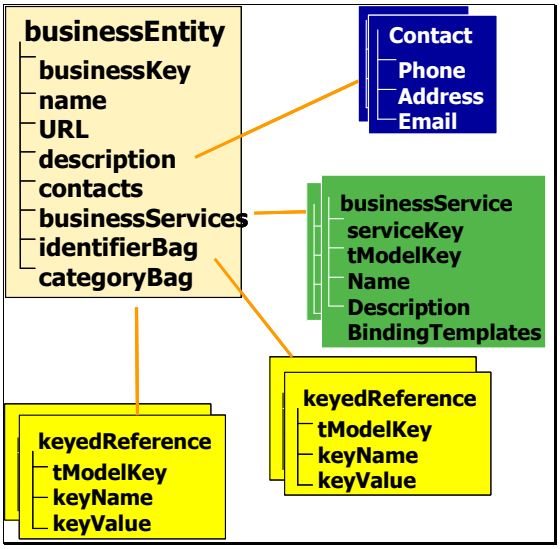
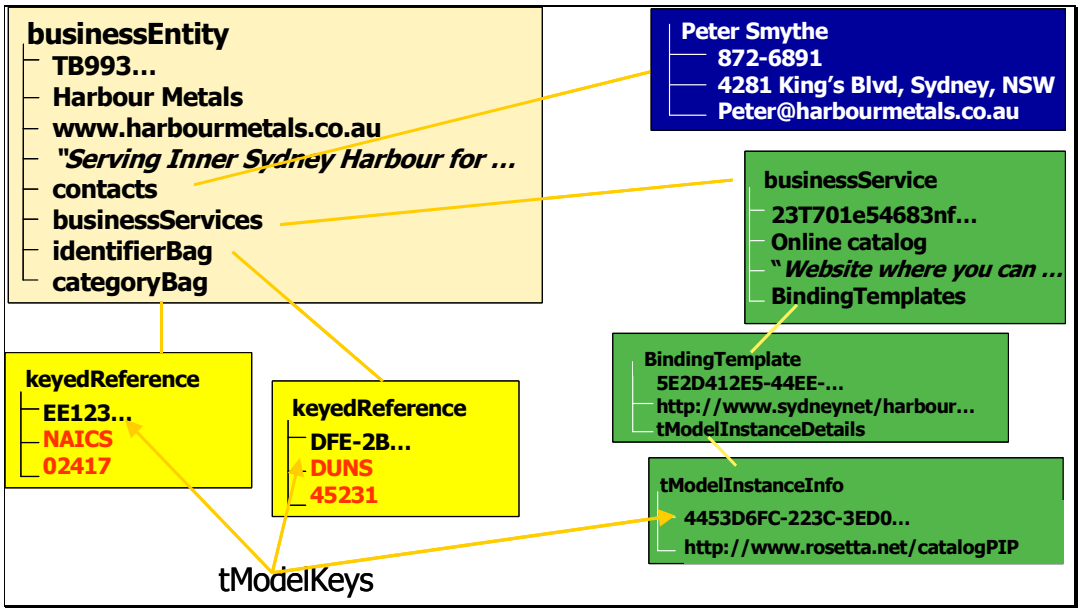


Figure 16: Example of a Business Registration in UDDI

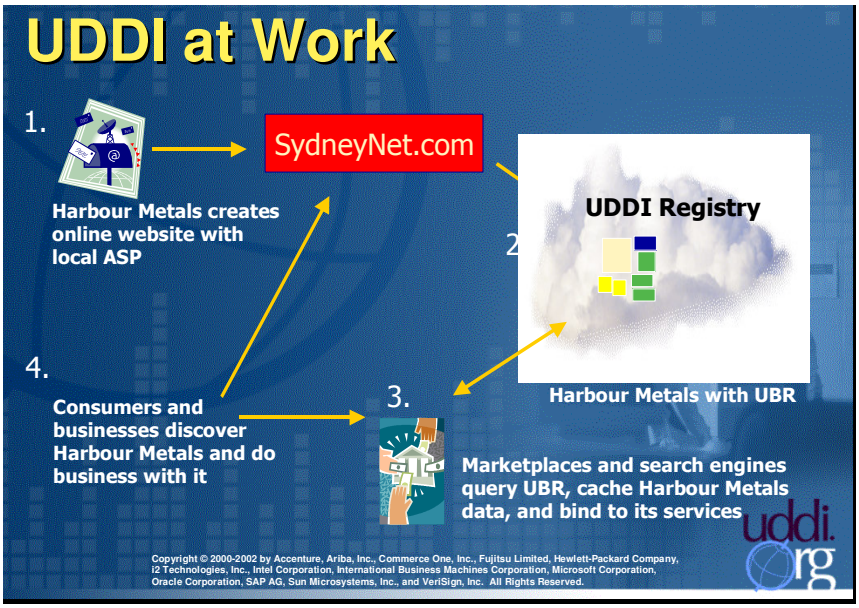


Once the Registry has been established, use of it is straightforward. Businesses register themselves (or by using an agent if they wish) with the Register (described in Figure 17 as 'UBR').

Marketplaces and search engines automatically find the newly listed business, enabling consumers and/or other businesses to discover the newly business and how to do business with it.

They are then able to proceed with their web-enabled business processes (Figure 17).

Figure 17: UDDI at Work



The NZ Registry of tourism operators would operate in exactly the same way. We anticipate that the tourism registry would eventually become a subset of a Registry of all NZ businesses, as they also adopt these standards over time.

6.3 Delivering the Registry

There are many examples where a registry (or database) of organisations has been developed. Of these, three could be considered useful possible models for the NZ tourism industry:

- A consortium of principally technology suppliers is delivering UDDI.

  These organisations recognised the enormous benefits available to their clients (and themselves) of the service, and have been funding and supporting the development of UDDI from their own very considerable resources, with the intention of turning management of the service over to a contracted, independent third party in due course.

  The equivalent technology providers in NZ, however, are mainly small organisations still strongly in startup mode, which do not have the resources of Microsoft, IBM or Oracle. It is therefore unrealistic to expect them to fund the local tourism Registry, although they should clearly be closely involved in its development.

  The Registry could (and should) serve all sectors, not just tourism. There are at least two organisations outside tourism that could provide Register functionality:

  - Telecom NZ operate online Directory (white and yellow pages) services, and may choose to develop these services along the lines described here
  - UBD (and others) operates a Directory service for business, and may choose to develop that service along these lines.

  While these organisations are viable alternatives, the tourism industry is unlikely to be able to exert a great deal of control over them, or perhaps even to influence them.

- The national and regional tourism organisations of Australia created the Australian Tourism Data Warehouse (ATDW).

  The ATDW is not a registry in the sense being used here – it is in practice a database of operators, assembled to facilitate product discovery via national websites and other aggregators (it does not enable web services to be provided).

  This is widely seen as a white elephant, and participation by operators has been poor, because it does very little for them, at some participation cost. Attempts are now being made to modify the ATDW to support booking processes, but the top-down approach taken has clearly not been a success.

- The lines companies and retailers in the electricity industry in NZ combined forces to develop **MARIA**, an online database used to hold and manage data relating to meters on behalf of the industry (initially to improve processes used to enable consumers to switch energy suppliers after deregulation).

  MARIA is used in support of business-to-business processes: it holds meter ownership and location data for all consumers in the country, and identifies the current service providers. Data is maintained by each lines company or retailer (updating the record when there is a change).

  MARIA was developed and is provided by a contracted technology provider (Jade Software Systems), supervised by the MARIA Governance Board, which is elected at a special meeting every year of the lines companies and retailers. The contract is funded by all member organisations according to the number of meters for which they are responsible. There was no establishment funding from outside the industry.

  MARIA now appears to be expanding its functionality, as the industry finds other useful functions for it to carry out which would benefit the industry as a whole.

Of these three examples, MARIA seems most apt as a model for the NZ tourism industry. The positive aspects of MARIA include:

- The governance arrangements (a Board elected annually be the industry)
- The funding arrangements (an operating budget funded according to meters serviced, which for the tourism industry might be the value of bookings made)
- The service provision by a specialist technology provider under contract
- The liaison and communication between the service provider and all parties, initially to develop specifications, but also to support data management and business-to-business processes in the industry.

In contrast, there are two aspects of MARIA which we do not feel should be followed:

- The arrangements for establishment funding:

  The organisations currently involved in real-time bookings in the tourism industry do not currently have the resources needed to fund the establishment of the proposed Register.

- MARIA was not developed using the standards referred to in this document

  MARIA was conceived before UDDI came into existence, but it is likely that if MARIA were to be developed now, UDDI and related standards would be used.

The Registry as described will improve the performance of the entire tourism industry, which will benefit New Zealand as a whole—the tourism industry contributes 14% of NZ's GDP, 15% of NZ's export earnings, and provides 16% of all employment.[39]

We therefore consider that there are grounds for the development of the Register to be treated as a public good issue, and for development funding to be requested from public sources (such as Technology NZ).

6.4 Obtaining Co-operation among Stakeholders

There are several groups of stakeholders in the tourism industry—each group will ideally be represented and participate in the change to a real-time environment.

In general there is not strong unanimity among the organisations in each group at this point in time. This clearly becomes a significant issue in adopting and implementing a real-time inventory management environment. Conversely, the prospect of this new environment offers opportunities to bring the organisations in each group together.

Taking each main stakeholder group in turn:

- **Operators:**

  Operators have several representative groups, including, for example, the Tourism Industry Association (TIANZ), a pan-industry body, the Motel Association (MANZ), which provides services specifically for and on behalf of motel operators, or the local Regional Tourism Organisation (RTO).

  Not all operators are members of these organisations, and the Martech survey of SME operators indicates that operators tend to use other sources of influence in support of their decision-making rather than their industry bodies.

  This will clearly make it difficult to provide adequate representation for operators. There are, however, opportunities for these representative groups to provide additional and potentially high value services to their members that may help redress the current situation.

  We have noted, for example, that in a real-time environment, statistics will be available based on data that are not feasible to collect now. Comparative performance information on operators could be used as the basis for:

  - generic performance improvement programs aimed at operators
  - targeted advice and support on business operation, marketing, planning, joint product development and supply, etc.

  The opportunity to receive services such as these may encourage operators to cooperate among themselves and make more use of their representative bodies.

- **Regional Tourism Organisations:**

  The RTOs appear to have had mixed results in their relationships with operators in their region, and they seem to vary in terms of their structures, their governance and their operational activities. In particular, there is no single, unified approach to the technology they use to underpin their services to travellers (although some attention is being paid to that now).

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[39] WTTC. The Provisional Tourism Satellite Account 2000 – 2002 provides slightly different figures, but we have chosen to use WTTC estimates to enable benchmarking internationally.

In our view, the RTOs have a lot to contribute and much to gain from the introduction of a real-time inventory management, in terms of the service they provide to travellers, the marketability of product in their region, and particularly the role they could adopt in relation to operators in their region.

The RTOs have sponsored a review of these issues. If they act on the recommendations of this review, they will go a long way to improving their position and value to the industry.[40]

- **Providers of real-time inventory management services:**

  This group were brought together for the first time under the auspices of this project (in November 2002). During this inaugural meeting, the group acknowledged their common issues, and expressed the desire to continue as a group to help resolve these issues. They are committed to moving the industry towards large-scale adoption of real-time inventory management, and understand the inter-operability problem.

  The adoption of UDDI and related standards will simplify development of their technology and improve the service they provide to their clients. They will, of course, be better off collectively if they also make use of the evolving OTA standards used to describe tourism product using XML—that would simplify the 'green pages' section of the UDDI.

- **Aggregators and distributors of tourism product:**

  This is a diverse group of generally well-established organisations, which have been vocal in airing their concerns and have some influence in the industry. They do not represent themselves as a stand-alone group, but tend to be active participants in TIANZ.

  This group have the opportunity to benefit from more cost-effective access to operators, the ability to provide better service to their patrons by enabling them to book and manage itineraries in real-time, better interoperability and from wider distribution of their product. They have a substantial investment in online services already, and may therefore resist having to modify their systems.

  We anticipate that this group will understand the rationale of adopting global standards and the proposed Registry, and that they will take up an appropriate role to preserve and enhance the value of their existing investment.

- **Tourism NZ and the Visitor Information Network (VIN):**

  Both of these organisations have a key role in the industry. Tourism NZ has a marketing role and is focused on attracting international travellers—it expects that appropriate fulfilment processes will in place as needed to satisfy the market demand it is developing. Its current strategies involve the ability to discover product and book itineraries online, and therefore require real-time inventory management (or a close approximation of that) to be in place.

  The VIN is a major player in the provision of advice and services to travellers in the country, and it is perhaps the single greatest beneficiary of real-time inventory management.

  Both of these organisations have expressed their support in principle for this strategy.

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[40] *Review of Issues Affecting the RTOs*. July 2003. Rob Macintyre and Mark Simpson.

- **TIANZ:**

  TIANZ is currently the only national body able to represent the entire industry. Unless another is created, TIANZ must have a key role in the communication and facilitation required for adoption and implementation of this strategy.

  TIANZ also appears to be the most appropriate organisation to undertaken or sponsor the liaison required with offshore standards development bodies, and this role could be considered to be within its mandate.

- **The Ministry of Tourism:**

  A potentially significant issue is the 'ownership' of this strategy. In our view, the owner can only be TIANZ or the Ministry, since only these two organisations can claim to have a vital interest in the **entire** industry (Tourism NZ's brief does not include domestic tourism).

  Since TIANZ will be actively involved in implementation, we suggest that the Ministry is the most appropriate owner, with responsibility for maintaining an overview on implementation via a suitably appointed steering group.

6.5 Selling Real-time Inventory Management to SME Operators

The current, fledgling, providers of real-time inventory management services all face a common problem: how to persuade operators to adopt their services. Because this is a new environment, success stories are still relatively rare, and the number of operators currently involved is still too small for effective selling via word-of-mouth.

Because this strategy has benefits for all stakeholders, we suggest that they should all play a part in promoting the benefits of real-time inventory management to operators:

- Current (and new) providers of real-time inventory management services will promote their own offering to operators
- RTO's, the industry representative groups and the aggregators should promote the strategy to raise awareness, by:
  - Promoting the concept during every interaction with operators
  - Providing case studies from early adopters
  - Using comparative statistics to illustrate the benefits available to operators
  - Using road-shows to reach operators, as done now for other purposes
  - Identifying 'champions' in all regions to lead the way and demonstrate real-time inventory management in practice.

Effective change management requires a reason and an emotional connection for behavioural changes, supported by appropriate skills, structures and role models.

Word of mouth is working. The success of real-time inventory management in the Queenstown area has operators clamouring to join in, and installing the technology for agents at their own cost. Operators in other areas, particularly those affiliated to Queenstown companies, want to jump onto the bandwagon, but are frustrated to find that their local agents and information centres are slow to move (the majority of activity product is sold locally).[41]

On the other hand, many operators are considering development of their own systems—and will discover the hard way the need for inter-operability.

[41] Informal interviews.

6.6 Obtaining Development Funding

The view expressed here is that those organisations providing real-time inventory management services are best positioned to fund the ongoing cost of Registry management (assuming that that cost is linked to the level of bookings being made).

They are not, however, in a position to fund development of the Registry because they are effectively in startup—their limited resources are required to develop their own products and services.

While it is possible that other organisations in the industry may have the resources needed for Registry development, we believe that it would be difficult in practice for the RTOs, the VIN or TIANZ (as the most likely alternatives) to find the necessary funds.

If a specialist business directory operator (such as Telecom Directories or UBD) chooses or can be persuaded to enhance their current services to include UDDI functionality, then the tourism industry may not be required to fund development.

A fall back position must be considered. We consider that the industry as a whole will eventually gain from the introduction of real-time inventory management, and that substantial benefits will accrue to NZ as a whole. We consider that a viable argument can be made that the development of this Registry is an infrastructural issue, and is in the public good.

We therefore suggest that, in the event that industry funding is required, an application be made by TIANZ on behalf of the industry to either the Ministry of Tourism or Technology NZ (or both) for funding for the establishment of the Register, based on estimates drawn up by an inaugural Tourism Industry Register Authority (TIRA). TIRA itself would be supported by TIANZ and those organisations participating or represented in the Authority.

Should public funding for establishment of the Register not be available, other sources of funding will clearly need to be found. The alternatives are:

- the RTOs, since the Registry would reduce their operational costs
- TIANZ, via a levy of members (which would unfairly benefit operators who are not members of TIANZ)
- A combination of all these.

7. The Business Case

This section derives indicative benefits and costs of this strategy, drawing out areas of risk, and concludes with a business case for the recommended strategy. The costs include:

- costs associated with TIRA, treated here as a 'public good' concept, which do not have revenue attached to them and will therefore rely on funding from the industry through some suitable mechanism
- costs incurred by organisations in the industry, that will be balanced by the reduction of costs in other areas or by increased revenues.

  These will be assessed in this section on a net basis in order to derive an approximate net total impact of this strategy on the industry as a whole.

The costs and revenues referred to here rely on assumptions of business arrangements that may not be in place yet, and in some cases may not even be under negotiation. All assumptions are identified explicitly, and the impact on the conclusion of variations in those assumptions is stated.

7.1 Costs

If the Register were to be provided by a current business directory operator, the development costs would be funded by that operator and recovered from operating revenues. The tourism industry would therefore not have to fund development.

Otherwise, implementation costs will occur primarily in relation to the formation and operations of TIRA, and in the development and initial operations of the Register.

- **TIRA**

  We anticipate that TIANZ will be able to offer a meeting venue and administrative support for TIRA, and that initial nominees for TIRA will be able to donate their time. Costs incurred for the establishment and initial activities of TIRA should therefore be minimal, but funds will be required for the development of the Register prior to that contract being let.

  There will need to be initial liaison with global standards setting bodies (UDDI, OTA and OASIS), which we anticipate will be arranged by TIANZ. If this involves a cost, then funds will need to be made available to TIANZ for that purpose.

- **The Register**

  It is difficult to estimate the development costs of the Register without having firm specifications and a more definitive view of how it will be delivered. If Telecom decided to develop its Directory Services along UDDI lines, the tourism industry could avoid any development costs.

  An initial worst-case estimate may be made by examining the MARIA project and extrapolating from that to the tourism Register.

  According to Jade Software Corporation, which has the contract to provide MARIA, the project cost about $0.5 million to develop, and costs approximately $0.4 million a year to run. Jade's view is that the hardware component would now cost about 30% less than it did when MARIA was first developed.

  MARIA manages data for approximately 1.8 million electricity meters. In comparison, it is thought that there are about 16,000 tourism operators in NZ. The Register would therefore be less than 1% of MARIA's size.

The development costs of the Register should be significantly less than MARIA cost, but for this analysis we assume an upper limit of 50% of MARIA's cost.

The Register might, however, be expected to support a higher number of transactions than MARIA, but in practice aggregators and distributors are likely to synchronise their own databases with the Register at frequent intervals, so the majority of transactions may not involve the Register directly. For the purpose of this analysis, we assume that the operational costs of the Register will be similar to those of MARIA.

The Register might therefore cost $0.25 million to establish, and $0.4 million a year to operate (in 2003 dollars).

7.2 Bookings Made by International Travellers while in New Zealand

TRCNZ forecasts 2.15 million international visitor arrivals in 2003, taking total visitor nights to 101 million (including 54 million due to domestic tourism).

International visitor characteristics reported by TRCNZ (refer Figure 18) suggest that there will be at least 1 million buyers or travelling units among FIT and SIT travellers[42] (representing 66% of all visitors).

International visitors are therefore creating and using at least 1 million itineraries each year (most of which are currently not available online).

Figure 18: Travelling Units

Traveller Category	% Total Visitors	Travelling Unit: Alone	Couples	Family Group[1]	Total Travelling Units
FIT	55%	44%	27%	13%	
SIT	24%	29%	38%	14%	
Total Included	79%				66%
Travelling Units (millions, 2003)					
FIT	1.18	0.52	0.16	0.04	0.72
SIT	0.52	0.15	0.10	0.02	0.27
Other	0.45				
Total Visitors	2.15				0.98

Note: 1. Family group assumed to be 4 people.

TRCNZ data shows that the average length of stay is currently 23 days for FIT and 21 days for SIT, and that all categories of visitor stay an average of 2 nights in any one accommodation (excluding rented, student, private home, timeshare and boat). This suggests that **an *average* FIT or SIT itinerary will involve 11 bookings for accommodation**.

TRCNZ data indicates that SIT are greater users of *bookable* activities or attractions than FIT (Figure 19).

We note that the difference between the two categories is primarily in relation to booking activity *before arrival*—until the Martech FIT survey, not much was known about booking activity *while travelling*.

Figure 19: Activity/Attraction Experienced

Activity / Attraction (Bookable)	Total	FIT	SIT	Package Traveller	Tour Group
Any (Total)	100%	55%	23%	15%	7%
Sightseeing Tour	27%	20%	25%	51%	37%
Scenic Cruise	20%	13%	23%	32%	33%
Gondola	14%	8%	18%	22%	27%
Glacier Walk/Heli	9%	7%	14%	9%	10%
Jet Boating	11%	6%	14%	19%	18%
Maori Performance	17%	11%	14%	36%	44%
Bungy Jumping	5%	5%	7%	6%	4%
Dolphin Swim/see	4%	5%	6%	2%	2%
Farm Show	10%	5%	6%	25%	32%
Milford Sound	5%	3%	6%	7%	14%
Whale Watching	4%	4%	6%	2%	1%
Rafting - White	3%	3%	4%	3%	1%
Horse Trek/Ride	3%	2%	3%	3%	3%
Kayaking Sea	2%	2%	3%	1%	1%
Scenic Heli Ride	2%	1%	3%	4%	4%
Scenic Plane	2%	1%	3%	4%	3%
Cycling	2%	2%	2%	1%	1%
Heli Ski/ Board	1%	1%	2%	2%	2%
Kayaking River	1%	1%	2%	1%	0%
Sailing	2%	2%	2%	2%	2%
Train/Trans-Alpine	1%	1%	2%	2%	3%

Note: Colour indicates % in category greater than Total

[42] Fully Independent and Semi Independent Travellers (refer http://www.trcnz.govt.nz for definitions).

It is difficult to determine from the data how many activities or attractions are experienced by the average travelling unit. For example, while 20% of FIT report having taken a sightseeing tour, we do not know how many tours they actually took.

We therefore assume, conservatively, that the average FIT or SIT travelling unit will experience 1 bookable activity or attraction every 3 days while travelling, or a total of 7 during their trip.

The average FIT or SIT travelling unit could therefore make 18 bookings while in the country (most of these not currently made in advance). This implies that 18 million bookings are made each year, after appropriate research and investigation, by the 1 million travelling units identified.

7.3 The Value of Benefits

Benefits have been identified to all parties in the tourism industry:

- **Domestic Travellers:**

  The benefits to travellers are in terms of the time and difficulty in researching and booking travel, both prior to and during a trip. While these may be significant, the benefits will not accrue to the New Zealand tourism industry except insofar as they position New Zealand as a more attractive destination than others and therefore increase tourism numbers.

  Domestic travellers will derive similar benefits, but again these will not directly affect the industry. Domestic tourism has averaged 16.8 million overnight trips involving 52.6 million visitor nights per annum over the last three years.[43] If planning time could be reduced for 50% of these domestic travellers by 0.5 hours per trip as a result of the availability of inventory in real-time, the community would be saved the equivalent of nearly 500 person years per annum.

  Trip planning is generally carried out in personal time, which may not be considered to have monetary value. If it were, **the time saved would be worth about $13 million per annum to the community**.[44]

- **Agents and Visitor Information Centres:**

  In the Martech FIT Survey, 73% of the travelling units surveyed used a Visitor Information Centre (at least once) to obtain information and 49% to make a booking (64% did some bookings themselves by phone and 16% did so online).

  If we assumed that 50% of the 1 million FIT and SIT travelling units use an agent or Information Centres 4 times while travelling (at each main destination), and make 2 bookings in each visit (making the remainder of their bookings themselves using a phone or by simply turning up), then the agents would collectively be facilitating 4 million bookings each year.

  RACQ experience was that agents making bookings online took about half the time required for manual bookings, saving at least 5 minutes each booking (the time needed for the back office financial transactions involved in manual bookings was not measured).

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[43] *Tourism Leading Indicators Monitor*. July 2003. Ministry of Tourism.

[44] Calculated using the currently reported average weekly income of $518 (Statistics New Zealand)

Using these figures, the agents could collectively save something like 160 person years of time if real-time inventory management were available. **This increase in productivity would be worth in excess of $4 million per annum** to their employers (at average weekly income)—although in practice the time freed is more likely to be used to improve or enhance existing services.

Since most transactions involve the phone, the agents rack up significant communications expenses. In a real-time environment, these transactions would use a permanent internet link (which most agents already have).

In addition to the productivity improvement and much lower communications costs, agents and Information Centres are likely to experience higher levels of sales with inventory available in real-time (as found in the Queenstown area following the implementation of *Ibis* systems there). An increase in sales implies more commissions, the value of which would be reduced by any increase in operational costs of new or enhanced technology.

Upgrading agent and Information Centre technology to take full advantage of real-time inventory management involves a capital cost, depreciation of which would further offset the increase in commissions.

The business case and financial outturn for any agent or Information Centre depends on the extent of the technology changes needed, the basis for earning revenue and a range of other factors, and will therefore be highly variable. It has not been possible to develop a generic business case.

- **SME Tourism Operators:**

  Tourism operators are expected gain *financial* benefits through:

  - **productivity improvements** via the freeing up of administrative time associated with enquiries and bookings, including financial administration

    The review of the impact of real-time inventory management on SME tourism operator (Section 5.3) concluded that the average operator could have 5.5 hours of work time freed up every working day. A portion of this time will be spent multi-tasking, but for this analysis we assume that about 50% of this time (say 3 hours) represents an opportunity to do other work.

    In the US, FedEx has estimated that tracking a package for a customer costs **$2.40** when the enquiry comes by phone – but only **4c** for one that comes via the company's website.

    If a member of staff were being paid for this time, earning the average wage (ignoring other labour costs, for the purpose of this analysis), **this time freed would be valued at more than $10,000 per annum.**

    Larger operators with dedicated staff would benefit even more if their booking process were completed automated.

    In practice, for many operators, some of the time freed up would be devoted to other tasks, but since paid staff would otherwise have performed these, the potential saving can be regarded as cost avoided.

- **increased utilisation** from real-time, automated, round the clock processing of enquiries and bookings, and wider exposure to the market

  The potential increase in utilisation can only be guessed at. Anecdotal evidence, such as that from Red Boats (Section 4.3), suggests that the increase can be very significant. Increased utilisation improves profitability (overheads will not increase in proportion with revenues, so increased contribution due to higher revenues goes straight to the bottom line).

- **improved performance** as a result of better business management, based on the use of comprehensive information on customers and performance.

These benefits will be offset by the cost of the inventory management service, which applies to successful transactions only (bookings made, not enquiries). This cost is difficult to assess because there are various possible business models. Contractual arrangements involving current service providers are generally confidential, but they include commission-based models, flat fee models, annual fee (lease) models, and combinations of these. Large organisations with in-house technology treat the cost of inventory management as part of their operational costs.

Bookrite, offering a bureau service, appears to be very successful (in Australia) partly because the cost of the service (spread across many operators) is perceived to be low by operators. *Ibis*, using a combination of annual fee and small transaction fee, also seems to be perceived as excellent value by local operators (see box).

Operators in the Queenstown area are providing *Ibis* systems to selected agents at no charge to the agent, which suggests a high degree of confidence in the benefits of real-time inventory management to both parties.

For these operators, the benefits clearly exceed the increase in transaction costs by a considerable margin.

An operator with 20 units, average rate of $100 per unit per use / night and utilisation of 60%, would have revenues of about $440,000 from a maximum of 4,400 bookings (some bookings would be for more than 1 unit or for more than 1 use / night). A flat fee charged per booking of $1 (for example), or a fee of 1% of booked value, would introduce a cost of $4,400 (offsetting the potential cost reduction of $10,000 referred to on the previous page). Using this as an example only, the benefit to each operator would then be $5,600 per annum.

If only 30% of the estimated 16,000 operators adopted real-time inventory management, the total benefit would be the equivalent of $27 million.

The cost of real-time inventory management pays for a service that:

- delivers a considerable improvement in working conditions
- handles all enquiries, as well as the bookings
- reduces operating costs by completely automating the enquiry and booking process, including the often complex financial transactions
- improves utilisation
- provides customer and relative performance statistics.

- **Aggregators / Distributors:**

  The aggregators and distributors benefit by:

  - a reduction in some communications costs (such as fax traffic)
  - being able to provide better service to their customers (dynamic packaging functionality; interoperability with other distributors and all real-time inventory management services).

    This better service will enable the early adopters to establish a compelling competitive advantage and therefore increase market share and revenues.
  - reducing the cost involved in maintaining operator data
  - the opportunity to promote and sell a wider range of tourism product
  - reducing the medium to long term cost of technology (through use of industry and global standards).

  These benefits would be offset by the initial cost of modifying the aggregators' existing technology to make best use of the Register.

- **Technology Providers:**

  Technology providers are expected to develop successful businesses by delivering products and services in support of real-time inventory management. They will benefit primarily through the widespread adoption of industry standards, enabling them to include interoperability as a feature of their products and services, and enabling them to reduce the risk of developing

7.4 The Business Case

The analysis above can only be regarded as a possible scenario, since there is very little reliable evidence to support the assumptions. **Because hard data is very limited, any business case can only be indicative, drawing out order-of-magnitude implications at best.**

A business case for real-time inventory management, based on the many assumptions presented and discussed in this Section, shows a large potential return on investment for the industry (Figure 20).

Figure 20: Quantifiable Benefits and Costs - One Scenario

Quantifiable Costs and Benefits for Real-time Inventory Management ($ million)	Benefit (annual)	
Quantifiable benefits accruing to New Zealand (net):		
Domestic Travellers	$13.0	
Agents / Visitor Information Centres - cost saving	$4.0	
SME Tourism Operators (30% of 16,000 @ $5,600 ea)	$26.9	
	Costs	
	Development	**Operational**
Industry Cost:		
Development under contract (as per MARIA):	$0.3	$0.4 [1]

[1] If Telecom Directories provided the service, a different business model would apply.

The quantifiable benefits are supported by the many non-quantifiable benefits discussed in this Section, accruing to all players in the industry. The scenario used for Figure 20 is intended to show only that there are substantial gains available.

A better picture would be obtained via a study of operators and service providers currently engaged in real-time inventory management, but it is too soon to undertake such a study at this point in time. It is clear, however, that those operators who have made the change are enthusiastic, and many seem to be actively extending its reach.

8. Recommendations

Based on the findings of this research project, we recommend:

1. THAT the tourism industry adopt the concept of online, real-time management of bookings as a strategy
2. THAT industry leaders actively promote the concept and its benefits to all operators
3. THAT a Register (as described in this document) be developed and maintained on behalf of the industry, to minimise the costs to the industry of managing inventory online in real-time
4. THAT the Register contain the absolute minimum of data about operators required for it to be effective, but notably including pointers to:
   - online sources of content relating to the operator
   - the operator's contracted automated reservations service provider
5. THAT the RTOs accept responsibility for liaising with operators in their area and maintaining their data on the Register
6. THAT the Register be based on international standards relevant to the tourism industry being developed by UDDI, OTA and OASIS
7. THAT the industry take an active part in the development of international standards relevant to the global tourism industry (particularly via the OTA)
8. THAT the industry as a whole adopts and remains aligned with those standards
9. THAT a Tourism Industry Register Authority (TIRA) be established under the auspices of TIANZ to maintain oversight of the Register on behalf of the entire industry, with a governance structure designed to reflect the role of the Register as a fundamental building block of the entire tourism industry
10. THAT the Register be developed and maintained by a suitable business directory operator, or alternatively by a software house under contract to TIRA
11. THAT TIANZ approach the Ministry of Tourism and/or Technology NZ for a grant to cover the development costs of the Register (if any), based on its role as proposed as an industry-wide 'public good' facility
12. THAT the ongoing cost of the Register be funded on a not-for-profit basis via automated reservation service providers, based on a percentage of the value of bookings made online
13. THAT current and prospective providers of automated reservations services be encouraged to use the standards and the Register
14. THAT Tourism NZ, the RTOs, the VIN and the independent information centres modify their business and information technology strategies to make best use of automated reservations systems in delivering their services to their customers
15. THAT aggregators and distributors of tourism product be encouraged to develop innovative itinerary management and other tools and services, leveraging real-time inventory management and location-based technologies to provide better service to their customers.

9. Implementation

Implementation of this strategy will require all stakeholders in the tourism industry to play some part, reflecting the role of real-time inventory management as a fundamental building block of the industry. In this section, we suggest the roles and responsibilities that would, in our view, be most appropriate for implementation of our recommendations, and provide an estimate of costs and timetables.

9.1 Roles and Responsibility

Organisation	Role / Responsibility
The Ministry of Tourism	❑ To take the role of 'owner' of this strategy on behalf of the industry ❑ To assemble and lead a steering committee charged with overseeing the formation of the Tourism Industry Register Authority (TIRA) and the Register, on behalf of the industry.
TIANZ	❑ To negotiate and liaise with business directory services ❑ To sponsor and facilitate the creation of the TIRA ❑ To obtain development funding for TIRA ❑ To accept responsibility for ensuring that the interests of the NZ tourism industry are represented at the relevant standards-setting bodies (UDDI / OTA / OASIS) ❑ To facilitate liaison between UDDI / OTA / OASIS and TIRA, so that the latter is kept up-to-date with tourism industry related developments in those standards creation arenas ❑ To promote real-time inventory management to its members ❑ To continue to assist its members upskill their business processes and adopt the disciplines necessary for their participation in the real-time environment.
Tourism Industry Register Authority (TIRA)	❑ To confirm or find an alternative to the proposed source of operational funding, and make the necessary arrangements to establish that funding regime ❑ To prepare detailed specifications for the Register, in consultation with the major stakeholders ❑ To let a contract for the development and ongoing provision of the Register and related services ❑ To oversee the development and provision of the Register ❑ To coordinate and facilitate discussions between the contracted Registry Manager and the industry stakeholders in order to establish the Register and its modus operandi ❑ To prepare a budget, and institute an audit regime for its funding processes in the interests of fairness and accountability ❑ To assist all parties with the development of suitable, standard service contracts covering real-time inventory management.

Organisation	Role / Responsibility
The Registry Manager	❑ To consult with all major stakeholders so as to obtain agreement on the structure and data schema / standards to be used by the Register ❑ To develop the Register and the tools needed to populate and maintain the database ❑ To host the Register online ❑ To provide documentation and training (if necessary) to enable stakeholders to use the Register effectively ❑ To liaise with stakeholders to facilitate the population and ongoing use of the Register ❑ To report on progress and performance to TIRA as required.
Tourism operators	❑ To enable inventory management online in real-time: • either through standards compliant in-house systems • or by outsourcing under contract to a suitable provider of real-time inventory management services ❑ To understand and comply with the operating rules of all contracts established, particularly with regard to the integrity of inventory ❑ To ensure that their local RTO has current data on their business ❑ To participate in TIRA as a major stakeholder, via elected representation ❑ To focus on the delivery of their product or service (as opposed to administration) ❑ To make effective use of the performance data made available by online inventory management systems in optimise their service to their customers.
Providers of real-time inventory management systems	❑ To increase their customer base as rapidly as possible ❑ To modify their products and systems so as to make effective use of the Register and the standards adopted by the tourism industry ❑ To publish APIs online so that other organisations can interconnect with their systems ❑ To establish the business arrangements needed so that other organisations can interconnect with their systems ❑ To allocate funding for TIRA based on an agreed percentage of the value of bookings made through their service ❑ To provide statistics to their customers, to TIRA, TRCNZ and other organisations subject to contracts established with those organisations.

Organisation	Role / Responsibility
Tourism NZ	❑ To participate in TIRA as a major stakeholder in the industry ❑ To make effective use of the Register and the availability of inventory in real-time in its role as marketer and brand manager for the industry.
RTOs	❑ To participate in the establishment and ongoing activities of TIRA ❑ To obtain and maintain data on their operators on the Register ❑ To implement systems to ensure that their I Sites make effective use of the availability of inventory in real-time ❑ To promote real-time inventory management to their operators ❑ To use the performance data produced by automated reservation service providers in advising operators in their region on methods and opportunities to enhance their products and services.
Aggregators, distributors and wholesalers	❑ To market and sell NZ tourism product ❑ To modify their systems and processes to make effective use of the availability of inventory in real-time ❑ To participate in TIRA as stakeholders in the industry.
TRCNZ	❑ To negotiate with the providers of real-time inventory management systems for the supply of statistics, and provide information based on these to the industry.
Qualmark	❑ To be the primary source of quality standards for products and services offered by the industry ❑ To modify its systems and processes to make effective use of the Register in its provision of information on quality ratings for the industry.

9.2 Resources Needed

Resources will be needed for establishment of TIRA and for the Register if it needs to be developed under contract. Once established, we envisage that TIRA will be funded through a levy on bookings made online, and that no further external support will be required.

Establishment of TIRA itself should not require significant funding. We anticipate that TIANZ will be able to offer a meeting venue and administrative support for TIRA, and that initial nominees for TIRA will be able to donate their time. Costs incurred for the establishment of TIRA should therefore be minimal.

If a software house is used to develop and operate the Register (rather than a current business directory operator), funds will be required to enable TIRA to let a contract for the development of the Register and cover operational costs until the proposed funding regime can be initiated.

The MARIA project required $0.5 million to build the application, although Jade considers that alternatives available now would considerably reduce the cost of the hardware required. The Register proposed here is likely to be simpler than MARIA, hold less data, and require less maintenance, and could therefore cost perhaps $0.3 million or less to build.

As a rule-of-thumb, then, TIRA should have access to around $0.3 million in order to initiate the Register. Since this is an industry-wide asset, and will improve the tourism experience for all travellers, the Register could be considered a public good item. On this basis, it would be worth an application being made to Industry NZ for a grant to cover establishment of the Register. In our recommendations, we therefore suggest that TIANZ be asked to apply for this funding on behalf of the industry.

9.3 Timetable

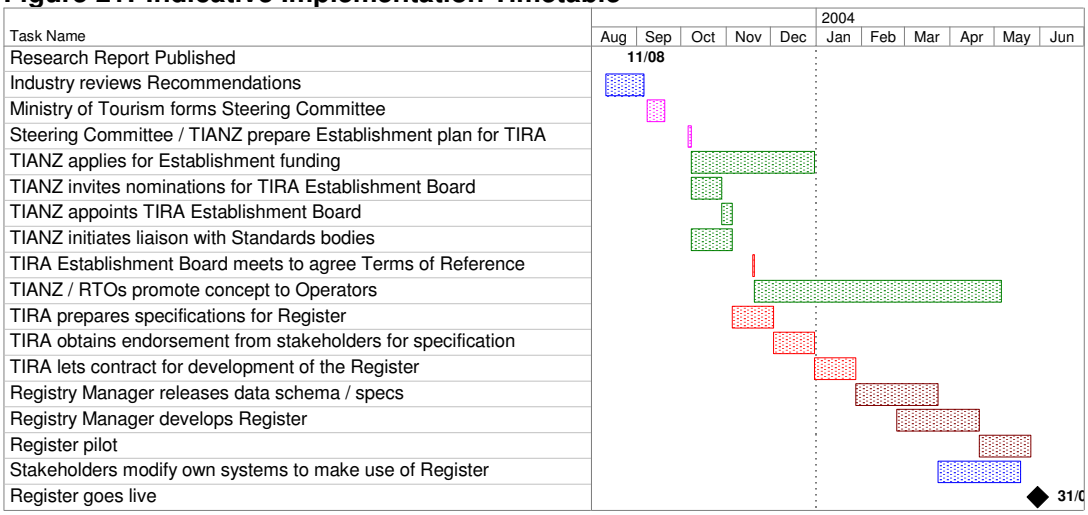
The Register could potentially become available commercially from June 2004 (Figure 21), subject to:

- The degree of urgency which the industry accords the project
- The responsiveness of a business directory operator persuaded to enhance its service to provide Register functionality

  or

  The time required to obtain establishment funding
- The complexity of the development project.

Figure 21: Indicative Implementation Timetable



10. Conclusion

This project was intended to identify opportunities for SME operators to improve their business performance using e-commerce.

The findings are that very considerable benefits are available for operators, travellers and all other players in the industry, but not from the use of e-commerce on an individual basis. The solution recommended here is in fact an industry-wide strategy, one that will align the local industry with key global trends and which should foreshadow or parallel similar developments in other industries in New Zealand.

This solution turns out to rely on what is, in our view, a 'public good' element – the Register, which seems appropriate given that this project was publicly funded via the Foundation for Research, Science and Technology. The Register is not something that any single player in the local industry would develop by themselves, and given the fragmented nature of the tourism industry, the Register may not even have been identified as a need until some time in the future when the concepts involved have become mainstream in other industries.

The fact that this solution has not been identified by the domestic private sector does not necessarily suggest market failure—it is more a result of the fragmentation of the industry and the rapid development in this area.

We feel that this project has been a good example of the use of public research funds—it has identified public good elements with significant benefits to the industry and, because of the extent of the tourism industry, significant benefits to the economy of New Zealand.

While the strategy described has substantial benefits, it is by no means certain that it will be implemented by design, or in the near future. There are strong vested interests, as we note in this report, and the lack of an effective forum for the industry to review and establish a consensus on issues affecting the entire industry means that there is a high risk that these recommendations will be shelved.

In that event, New Zealand will lag behind as the rest of the world goes down this route, incur unnecessary costs and delays achieving improved performance, and lose any opportunity to influence the future in this area.

We have some confidence, however, that rapidly increasing demand by operators, pressure for effective real-time fulfilment functionality from Tourism NZ and others, and the fact that all the current providers of real-time inventory management services are aware of the interoperability problem, will drive the industry towards the adoption of this or a similar solution.

We wish to thank profusely the large numbers of people and organisations that have given up their time to work with us on aspects of this project. Many of them believe that these recommendations should be followed by the industry, as we do, and hope that the will and energy to implement them will be found.

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