RISK MANAGEMENT AND INTERNET USE BY GAME-BASED TOURISM OPERATORS IN KWAZULU-NATAL, SOUTH AFRICA

By

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ABSTRACT

Principal decision makers in 29 game-based tourism operations in Northern Maputaland, South Africa, perceived that crime, the threat of a malaria outbreak, a decline in tourist demand (particularly from foreign tourists), the threat of land expropriation, and changes in labour costs, were currently their five key sources of risk. These businesses, therefore, need to work closely with public institutions to prevent crime and disease (thereby attracting tourists), and find appropriate ways for local communities to benefit from tourism. Internet users mainly derived income from game ranching and game-based tourism, and were less likely to offer hunting services. Younger operators, those with more formal education, larger operations, businesses with more managers, and firms that focus on middle-income groups, also tend to practice Internet marketing and offer on-line bookings. These results suggest business opportunities in developing Internet marketing plans to complement existing sources of competitive advantage for diversified game-based tourism operators.

Introduction

Lower meat import tariffs and higher chicken consumption have made beef farming relatively less profitable in the northern areas of KwaZulu-Natal Province (KZN) on the Eastern seaboard of South Africa. As a result, an increasing number of KZN cattle farmers are switching to game ranching and related game-based tourism. These farms produce game animals like impala, zebra and giraffe for sale, and offer hunting and photo-tourism services (such as viewing the 'Big 5' – lion, leopard, elephant, rhino, and cheetah – and visits to the Greater St Lucia Wetland Park). Little published research is available on the risks facing operators in this now rapidly growing sector - the number of tourist beds has tripled in Northern Maputaland since 1991 (World Bank, 2000) - nor on how these firms could benefit from using new information technologies like the Internet. Furthermore, Hanks (1996) contends that the managers of many game-related operations in Southern Africa need to become more business-orientated to stay viable. Research on these topics can help to identify risk and information strategies that they, and policy makers, could use to promote business growth and competitiveness.

This paper, therefore, identifies the main sources of risk facing game-based tourism operators in Northern Maputaland, KZN, and the risk management strategies they deploy. It also investigates why these operators may use the Internet for business purposes, and what factors influence this. With regard to sources of risk for game-based operations, Barnes and de Jager (1996) found that a 32% drop in tourist demand led to negative financial returns on typical game ranches in Namibia. Evans (1993) reported that typical game farms in Botswana only made a profit when occupancy rates were over 40%. As no similar results have been reported for South Africa, this paper fills a gap in local research by estimating 'break-even' levels of tourist demand for representative agri-tourist operations in Northern Maputaland.

Past local and international studies (Putler and Zilberman, 1988; Batte, *et al*, 1990; and Ortmann *et al*, 1993; Woodburn *et al*, 1994) show that a farmer's age and education level, farm size, financial leverage, and self-rating of production and financial management skills, can affect the decision to use a computer for farm business purposes. The unique contribution of this paper is that it *extends* these studies by analysing what factors may influence the *use of a computer-related technology* (the Internet) in an 'agri-tourism' context. Management consultants and information technology firms could use the results to design appropriate Internet marketing plans, and management information systems for agri-tourism businesses.

Section one discusses some key risk concepts and risk-management issues underlying the study. Section two presents a model of factors that may determine why game-based operators would

use the Internet to do business. Section three describes the study area and briefly discusses research methodology. Section four reports on what the operators perceive are their key sources of risk, their risk management methods, and factors influencing Internet use. The conclusion discusses the implications of these results for crafting and implementing risk and information strategies to improve business viability.

1. Risk concepts and risk management issues

Hardaker et al (1997) question the traditional view that defines risk as imperfect knowledge where the probabilities of the possible outcomes are known, and uncertainty as when these probabilities are not known. They contend that cases where probabilities are objectively 'known' are the exception rather than the rule in decision-making (since the decision maker must subjectively assess whether any objective information is appropriate in making a decision). They then define uncertainty as imperfect knowledge, and risk as uncertain consequences, particularly exposure to unfavourable consequences. This definition of risk is used in this paper, and implies that risk leads to potential variability in the returns, and hence the net worth, of game-based tourism businesses.

If most individuals are risk-averse (Hardaker, et al, 1997), they would be prepared to accept lower expected returns for lower risk (the extent of the trade-off would obviously depend on how risk-averse each person is). This explains why, for example, operators might diversify their businesses to try and reduce potential income variability, keep cash reserves, or buy insurance to provide liquidity when contingencies like fire and theft occur. Producers may also postpone long-term investments in response to stricter environmental laws or higher expected real interest rates. Identifying the sources of risk that game-based tourism operators face will, therefore, help management consultants, input suppliers, and policy makers to better understand how risk and risk aversion affect the decisions that these operators make, and how they manage risk.

Using Gabriel and Baker's (1980) classification, game-based tourism operators are likely to face business risk and financial risk. Business risk is risk inherent in the firm, independent of the way in which it is financed. The study hypothesis is that their sources of business risk would include factors like a decline in tourist demand, variability in game sales prices and off-take, malaria (disease) outbreak, transfer of disease from game to cattle, land expropriation, crime, fire, floods, changes in input costs (particularly labour costs), and changes in government tax, interest rate, and environmental policies.

Financial risk refers to the added potential variability in returns arising from using debt capital. Greater fixed repayment obligations increase the potential for equity loss, increase variation in expected returns to equity, and reduce liquidity held in credit reserves. There is also greater exposure to unanticipated changes in interest rates and credit availability. Past experience shows that game-based tourism operators in the study area are likely to face these sources of financial risk. As financial leverage increases, the effects of business risks are magnified (Barry et al,

1995). Risk management, therefore, requires that each operator choose methods to counter business and financial risks in order to try and meet his or her risk-averting goal.

2. Internet concepts and model of Internet use for business purposes

According to Porter (2001), the Internet can improve operational effectiveness, since it eases and speeds the exchange of information, and requires much less investment than past information technology. This advantage is, however, difficult to sustain, as rivals also have ready access to the Internet. Porter thus recommends using the Internet to maintain strategic positioning by, for example, creating customized information and promoting unique products and services. In short, deploying the Internet to *complement* existing ways of competing. As de Kare-Silver (2001) points out, such web sites must be well laid out, provide appropriate information, engage and be interactive to attract clients.

Based on past studies of computer adoption, and knowledge of the structure of game-based tourism operators in Northern Maputaland, the study hypothesis is that the probability of these operators using the Internet is influenced by the 13 business and management characteristics defined in Table 1.

Table 1 Factors Affecting Internet Use for Business Purposes by Game-based Tourism Operators in Northern Maputaland, KwaZulu-Natal, South Africa, 2000

Characteristic	**Definition**	**Expected Effect**
Business characteristics		
Foreign client % (FOREIGN)	Foreigners as % of all clients	+
Target client income group UPMKT MIDMKT	 1 = upper-income, 0 otherwise 1= middle-income, 0 otherwise	 + +
Business size (SIZE)	Annual gross turnover (Rands)	+
Management size (MAN)	Number of management staff	+
Public or private operation (TYPE)	1 = public, 0 = private	+
Hunting service offered (HUNT)	1 = offered, 0 otherwise	-
Other non-farm income (OINC)	1 yes, 0 = no	-
Management characteristics		
Interpersonal skills (CLISKILL)	Self-ranking between 5 (high) and 1 (low)	+
Marketing skills (MSKILL)	Self-ranking between 5 (high) and 1 (low)	+
Operator's tourism experience (EXP)	Years	+
Operator's formal education level (EDU)	Years	+

Age of operator (AGE)	Years	-

Businesses with a greater focus on foreign tourists, and on upper- to middle-income client groups, are probably more likely to use the Internet as a relatively low cost way of communicating with, and serving, these international and niche markets. Upper- and middle-income groups are also potential web-site visitors as they may have more disposable income to spend on computers and Internet access. Larger businesses can spread the costs of more complex web-site development, and of learning to use the Internet, over a larger turnover, thereby justifying Internet use.

Operations with more managers could dedicate a manager to the marketing/communication function, and so be more likely to conduct business via the Internet. Public game-based tourism operations in Northern Maputaland are much larger than the private businesses, and they already have a central booking system for clients. This suggests a positive relationship between Internet use and PUBLIC. Operations that offer hunting (HUNT=1) are less likely to use the Internet compared to businesses that offer photo-tourism, as hunting services are typically out-sourced to professional hunters who deal directly with clients. Firms with non-farm sources of income (OINC=1) rely less on their tourism operations, and so may less readily use the Internet as their returns would be lower than on those operations where tourism is the main source of income.

Operators that have relatively strong interpersonal and marketing skills (higher CLISKILL and MSKILL rankings), and more years of tourism experience, may better appreciate the potential of an Internet web-site to provide specific, quick, user-friendly information about products and services, and convenient booking facilities. Operators with more formal education (EDU) have likely had more exposure to computers and how to use the Internet, and more computer skills training. Finally, older operators have probably had less exposure to computers and the Internet, and have smaller time horizons to recoup investments in learning costs.

3. Study area and research methods

Northern Maputaland is situated in the north-east of KwaZulu-Natal Province on the eastern seaboard of South Africa. Due to highly seasonal rainfall and high mean annual temperatures (over 25^{o}C), the region's vegetation is classified mostly as savanna veld (Acocks, 1988). This veld ('grass country') type is characterized by two distinct components – grasses and shrubs – that exist in a delicate balance. Correct stocking rates are, therefore, critical to prevent bush encroachment problems. Savannas provide some of the best game ranching regions, since the large diversity of vegetation can support a large diversity of grazers and browsers (Du P. Bothma, 1996). During September 2000, a representative sample of 29 principal decision makers in game ranching and related game-based tourism operations in the region – four public and 25 private businesses - was asked to complete a survey questionnaire to obtain data on:

- Business and management characteristics, including those defined in Table 1

- Game-based tourism products and services offered
- Business marketing methods (tourism and publicity associations, Internet, videos, print media, etc.)
- Sources of risk, and methods used to manage risk
- Competitive strategies used (low-cost, differentiation, best cost provider, etc.)
- Information sources and costs, and
- Information technologies (Internet, e-mail, fax, cell-phone, etc.) used for business purposes.

The respondents had to rank various sources of risk identified in section one (and any others that they perceived as relevant) in order of decreasing importance. Business sensitivity to falling tourist demand was then estimated using break-even analysis. Finally, the Internet adoption model specified in section two was estimated using logit analysis. The dependent variable for this analysis, ADOPTION, = 1 if the operation did use the Internet for business purposes, and 0 if not.

The logit model (Gujarati, 1995) was estimated as:

$$L_i = \ln[P_i/(1-P_i)] = Z_i \qquad (1)$$

where Li = the logit, or log of the odds ratio in favour of using the Internet, and $Z_i = \$_1 + \$_2$FOREIGN + $\$_3$UPMKT +……+ $\$_{13}$AGE.

Many of the business and management characteristics defined in Table 1 were highly correlated, particularly FOREIGN with UPMKT and MIDMKT, EXP with CLISKILL and MSKILL, and SIZE with PUBLIC. This made it difficult to isolate the individual effects of the variables on the probability of Internet use. The problem was remedied by applying principal component analysis to transform the variables using the correlation matrix and standardized variable values, as the untransformed variables were measured in widely differing units (Manly, 1986).

4. Results

4.1 Risk sources and risk management methods

The 29 respondents perceived that crime, the threat of a malaria disease outbreak, a decline in tourist demand (particularly from foreign tourists), the threat of land expropriation, and changes in labour costs, were currently their five key sources of risk in descending order of importance. These business risks were considered relatively more important than relatively high nominal interest rates during the survey. Rising crime levels (vehicle hi-jackings, theft, and armed robberies) and a malaria outbreak would make these destinations less attractive, particularly to foreign tourists that are a major source of foreign exchange earnings in the region. These tourists travel mainly from the United Kingdom, Germany, Holland, the United States of America, and Japan. Given that the South African Rand has fallen markedly against all of the currencies of

these countries, fewer tourist bed-nights mean a considerable loss in Rand revenues. Depending upon the domestic:foreign client ratio and the fixed cost structure of the business, the study operations will incur losses if foreign tourist occupancy rates fall by 24-59% from present levels. Barnes and de Jager's estimate of losses at a 32% occupancy rate fall for typical game ranches in Namibia lies in this range.

Land expropriation fears are also expected, as many of the businesses are situated on land from which the surrounding rural communities were forcibly removed by the previous government. The fairly labour-intensive nature of game-based tourism services obviously makes these operations sensitive to changes in labour costs. The respondents mainly used conventional risk management methods, like keeping cash and credit reserves, off-farm investment, diversification of farm enterprises and tourist products/services, and liability insurance.

4.2 Factors influencing Internet use for business purposes

Although the respondents ranked their marketing skills the lowest, 60% of the businesses currently used the Internet for business reasons. They did so mainly to (1) market their agri-tourism products and services; (2) receive and confirm tour and accommodation bookings via e-mail; and (3) make, confirm, and receive payment for reservations on-line. Site use costs differed widely, from about R100-R300 per month (about US$12.50-US$37.50 at an exchange rate of R8 = US$1) for a full e-commerce web site including hosting charges, up to R100 000 (US$12 500) for initial site development plus monthly fees. The Internet was used to complement current ways of competing, as all users also marketed their products and services via other channels, including tourism and publicity associations and the print media (travel magazines and brochures).

The logit model of factors influencing current Internet use was estimated by the maximum likelihood method as (t statistics in parentheses):

$$\ln[P_i/(1-P_i)] = \underset{(1.120)}{0.5478} + \underset{(2.007)^{**}}{1.0824}PCOM \qquad (2)$$

where PCOM is the first principal component derived from the thirteen explanatory variables, and ** indicates statistical significance at the 5% level. The model correctly classified 86% of Internet users, and 78% of non-users, giving an overall predictive accuracy of 83%. These results are biased upward, as the same cases were used to estimate the model and to test its classification accuracy.

Only PCOM is used in the logit model, as the other estimated components could not be meaningfully interpreted. The coefficients estimated for the variables in PCOM were:

$$PCOM = -0.124FOREIGN + 0.122UPMKT + 0.299\,MIDMKT + 0.277SIZE + 0.324MAN + 0.287TYPE - 0.650HUNT - 0.821OINC + 0.130CLISKILL +$$

0.053MSKILL + 0.059EXP + 0.423EDU - 0.220AGE.

Given the relatively higher negative coefficients for OINC and HUNT, Internet users, as expected, mainly derived income from game ranching and game-based tourism, and were less likely to offer hunting services. Diversified game-based tourism products and services would attract clients seeking an 'agri-tourism' experience, and be a selling feature if engagingly presented on web-sites. The other coefficients that are not close to zero - EDU, MAN, MIDMKT, TYPE, SIZE and AGE - suggest that younger operators, and those with more formal education (possibly more computer literate) are more likely to deal with clients over the Internet. In addition, larger operations (particularly the public game reserves), those with more managers, and those that focus on middle-income groups, tend to practice Internet marketing and offer on-line bookings. The weak link between Internet use and FOREIGN may be explained by the current tendency for foreign tourists to book package tours of South Africa through travel agents.

5. Conclusions

The study respondents clearly must consider a wider range of risk and information strategies to promote business growth and competitiveness. At business level, product differentiation to raise margins is important if hunting services are not offered. In addition, respondents need to make the benefits of tourism more accessible to local communities. Strategies here include job creation, potential equity-share schemes, and the marketing of products and services such as curios and cultural events. At regional and provincial level, they must convince local policy makers and government institutions to implement more effective crime and disease prevention strategies, and work closely with tourism authorities to promote the region as a premier tourist destination. These steps, like the February 2001 Lubombo spatial development initiative, will develop an enabling environment to attract domestic and foreign tourists and sustain business growth.

The Internet can help farmers to profitably switch from a commodity focus (like beef) to a more service-oriented business (like game-based tourism). They need to weigh up the potential costs and benefits of adopting this new technology that makes it easier to communicate, and deal directly, with potential clients. The surveyed operators used the Internet as a complement to their current ways of trying to build competitive advantage, by promoting their game-based tourism products and services, and offering convenient on-line bookings. The surveyed businesses that focus on hunting typically outsource this service to professional hunters and so are less likely to use Internet marketing than are firms whose own personnel deliver photo-tourism products.

Local and global consultants in South and Southern Africa can now better understand the main concerns of operators in the rapidly growing game ranching and game-related tourism sector. There are opportunities to design and promote unique South African tourism experiences and Internet-based ways to communicate with, and provide improved services to, potential clients.

Professional hunters, for example, may be a new niche market for web site developers. Innovative business structures that give local communities the incentive to participate in game-based tourism also need to be considered.

The study results also provide a useful starting point for developing agri-tourism modules in formal education and executive development programmes – like the popular new Agribusiness (Wildlife) and MBA degree options offered at the University of Natal, Pietermaritzburg, KZN. A focus on key sources of risk within and external to the operator's control can help to develop skills in crafting strategy for this new growth market. These programmes must also discuss the potential benefits and limitations of using the Internet to create competitive advantage for agri-tourism ventures.

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