



OVERVIEW OF STEAM

I. INTRODUCTION

The Scarborough Tourism Economic Activity Monitor is derived from a model developed by David James and Frank Hart in the process of developing a ten-year tourism policy for the province of Saskatchewan, Canada, in 1981. In 1985, following the establishment of Canada's National Task Force on Tourism Data, Messrs. Hart and James were appointed co-Chairmen of the Working Party to consider Local Area Statistics. This work focused on the city of Edmonton, Alberta, Canada, and became the first attempt to develop the effective use of supply-side generated local area tourism statistics drawing on the model developed in Saskatchewan in 1981. Encouraged by the successful experiment in Edmonton, the outputs of which were accepted by Edmonton City Council and its Convention and Tourism Authority, a part experiment focused on the City of Toronto's convention business followed. This experiment provided much needed data for the Toronto Convention Bureau.

In 1988, David James was appointed Director of Tourism and Amenities for Scarborough Borough Council and it was in that context that the Local Area Tourism Statistics model was transferred to the UK. The model was first run on behalf of Scarborough Borough Council in 1990. In 1991, the North Yorkshire County Council, together with the District Councils in the County, embarked on a pilot programme to evaluate the now-named "Scarborough/Scottish Tourism Economic Activity Monitor" (STEAM). At the same time, STEAM was adopted by a number of Local Authorities in England, Scotland and Wales.

2. VALIDATION OF STEAM

The STEAM process has been validated within the context of a number of public and private initiatives which have taken place since 1987 in respect of tourism statistics.

In 1987, a Tourism Statistics Advisory Group (TSAG) was established by the Employment Department to establish a forum to create strategic oversight of statistics relevant to tourism and leisure. Very early in its work it identified the need to review present and future needs for national tourism statistics, and in order to do this needed to establish commercial user needs.

In 1990, The Tourism Society, with the support and involvement of the Employment Department, by means of a small working group, established a forum to be held on 18 April 1991, which assembled over seventy senior managers. The forum, chaired by Liam Strong, Director of Marketing and Operations at British Airways, and in the presence of Viscount Ullswater, then Minister for Tourism, unanimously established the Joint Industry Committee for Tourism Statistics (JICTOURS). The press release issued that day stated:

"The agreement reached at this meeting represents the best opportunity the commercial sector has had to improve UK tourism statistics for over a decade. JICTOURS will develop a costed package of development proposals for tourism statistics to be agreed, implemented and funded in partnership between Government (Employment Department), Commercial Users in the industry and Tourist Boards."

JICTOURS established sub-groups to consider the sector needs for Tourism Statistics, one sector being "Local Authorities". Its paper defined the sector, its needs, use of existing data, key terms/categories to be measured, willingness to pool data and model criteria. This last element stated the following:

“It is understood that, at least in the foreseeable future, national surveys will never be conducted on a scale (size of samples) which will make it possible to disaggregate data at District level. Accepting that as a fact of life, Districts wish to see the development of approved statistical models for estimating volume, value and expenditure and basic tourism characteristics. Such models, to be endorsed as suitable for tourist board and government purposes, would have to be relevant to the different types of authority noted in Section 1.

They would draw on available survey data, be used to produce estimates according to agreed statistical criteria and be adjusted to meet local circumstances.

Because such models could be capable of application in different authorities around Britain it is recommended that their construction should be part of the JICTOURS recommendations.”

Following meetings between Professor Victor Middleton, Chairman of JICTOURS, Brian Batty, Employment Department, and David James, it was agreed that a JICTOURS Local Statistics Tourism Group (LSTG) should be formed made up of representatives from the National Tourist Boards, Regional Tourist Boards, the Association of District Councils, the British Resorts Association, various Local Authorities and, initially, the Employment Department, subsequently, the Department of National Heritage. JICTOURS – LSTG commissioned an independent study of STEAM, which was carried out by Professor Stephen Wanhill of the University of Wales. The main objectives were:

- 1. To conduct a critical analysis of the working process of the model highlighting both its strengths and weaknesses.**
- 2. To comment on the quality of information (accommodation occupancy, stock levels, tariff rates, necessary for the model to be run on a reliable and consistent basis).**
- 3. To comment on the sensitivity analysis completed and to make suggestions for any further work on sensitivity analysis required.**
- 4. To comment on the methodology for estimating indirect expenditure and in particular the estimates produced by the model on tourism employment.**
- 5. To comment on the computer programmes used to generate the estimate produced by STEAM.**
- 6. To comment on the “adjustment processes” which take place with the tourism experts in the area once the provisional results are produced by the model.**
- 7. To make any other comments the researchers consider necessary. For example, definitions, future improvements and the need for additional national, regional and local benchmarks to further improve the output of the model.**

As much of the model, its formulae and its processes are commercially confidential, and are required to remain so, it was necessary that Professor Wanhill was given full access to the model, its workings and all background material. At the JICTOURS – LSTG meeting, 23 December 1993, his findings were presented in full, but where it involved the formulae of the model it was on the basis of strict confidentiality to the members of JICTOURS – LSTG. Subsequently the Department of National Heritage and the National Tourist Boards of England, Scotland and Wales each received the full text of his report. In brief, Professor Wanhill’s report can be summarised best by himself:

“The report’s overall conclusion is that STEAM is mathematically acceptable as a model of tourism flows, but never can be, and does not pretend to be, a statistically robust measurement of tourism in the manner of randomly drawn sample surveys of visitors. The thorough study is supportive of the model but also makes a number of recommendations to improve STEAM.”

At its next meeting, 23rd February 1994, following confirmation that the recommendations to improve STEAM had been adopted, it was agreed “no further testing needed to be initiated for the group’s purposes. David James sought and obtained the group’s endorsement of the STEAM model.”

During 1995, Professor Victor Middleton prepared a report for the British Resorts Association, “Measuring the Local Impact of Tourism”. The STEAM model and methodology was made available to the author. The report reviewed a variety of modelling approaches, their strengths and weaknesses, and, for STEAM, stated,

“It seems probable that supply side (bottom up) models, of which this is the leading example in the UK, will be needed to fulfil the management requirements of local authorities who have decided to play a significant role in managing tourism locally.”

Concurrently, in Denmark, an evaluation process was conducted on behalf of the Danish Ministry of Business and Industry by the Danish Tourist Board. STEAM is handled in Denmark, on behalf of GTS (UK) Ltd, by the Bornholm Research Centre.

In 1996, the Department for Culture, Media and Sport, in conjunction with the National Tourist Boards and the University of North London, set out to review the existing situation concerning local area statistics with a view to publishing guidance for Local Authorities. This evolved and was concluded by the DCMS publishing a set of Guidance Notes on Local Area Statistics which was published in 1998.

The development of STEAM in England since 1993 has been a period of steady sustained growth with, presently, nearly 200 clients, including East Midlands Tourism, the Northwest Regional Development Agency, One NorthEast, most National Parks, and numerous Local Authorities. These Local Authorities are of all sizes ranging from Rutland to Birmingham, and all types, whether urban, rural, resort or industrial.

In Scotland, during the three year period ending 1997, Scottish Enterprise Network (SEN), in conjunction with its thirteen Local Enterprise Companies, embarked on a practical evaluation of STEAM examining not only the capacity of the model, but the robustness of the local variable inputs. Considerable collateral primary research was commissioned by SEN concerning rates of daily expenditure, length of stay, and stays with friends and relatives. This led, subsequently, to a five-year contract on behalf of a partnership led by the Scottish Tourist Board, Scottish Enterprise, Highlands & Islands Enterprise, the Local Enterprise Companies and the Area Tourist Boards. Latterly, this contract has been renewed by VisitScotland until 2008 with an option for two more years.

In 1997, Tourism South and West Wales was licensed by GTS (UK) Ltd to operate STEAM throughout Wales and TSWW provided STEAM reports for nineteen Welsh Unitary Authorities for a four-year period. Since 2002, GTS (UK) Ltd now provides a continuing service for all 22 Welsh Unitary Authorities, two National Parks in Wales and the Statistical Directorate of the National Assembly for Wales. These programmes are co-ordinated in Wales by the company's Projects Manager (Wales).

Since 2007, STEAM has been expanding its development in Northern Ireland with, presently, two Tourism Partnership Areas and 15 Local Councils benefiting from STEAM reports.

3. A BRIEF OUTLINE OF STEAM

3.1 STEAM - The Model

STEAM is a spreadsheet model, which is more of a process in which the values of the relationships or equations defined on the spreadsheet are specified at each stage by the user. Thus, although the logic of the model is constant, the nature of data input will alter from area to area depending on the amount of survey material available and qualitative expert opinion concerning the structure of the tourism sector in the local economy. It is not a statistically estimated model in the manner of an input-output model of the local economy. The model is designed to provide a robust indicative base for monitoring trends based on monthly and annual outputs within acceptable statistical confidence levels. This statement forms the background to the objectives of the study and the methodological processes applied.

STEAM approaches the measurement of tourism at the local level from the supply side, which has the benefit of immediacy and relative inexpensiveness. The traditional measurement of tourism activity is from the demand side, but, as is well known, surveying visitors is both time-consuming and costly. This is further complicated when economic impact assessment is made, which requires surveys of businesses and the consumption patterns of local people. STEAM is not designed to provide a precise and accurate measurement of tourism in a local area, but rather to provide an indicative base for monitoring trends. The confidence level of the model is calculated to be within the ranges of plus or minus 10% in respect of the yearly outputs and plus or minus 5% in respect of trend.

STEAM reports are produced on behalf of clients by a technical team located at the GTS (UK) Ltd Data Processing Centre in New Holland and also in Swansea. A rigorous quality control regime is in place to ensure the highest standards are consistently maintained.

3.2 The STEAM Outputs

STEAM quantifies the local economic impact of tourism, from both stay and day visitors, by

- **Analysis of bed stock (by category month by month, year on year);**
- **Analysis of bed stock seasonal availability (by category of accommodation);**
- **Estimates of revenue generated by tourists (by category of accommodation and distribution by activity by month);**
- **Categories of serviced accommodation will be: under 10 rooms; 11-50 rooms; over 50 rooms; over 100 rooms;**
- **Categories of non-serviced accommodation: Camping and Caravanning (Touring); Caravanning (Static); Flats, Chalets and Cottages; Hostels; Schools and Colleges;**
- **Estimates of number of tourists and number of tourist days (by category of accommodation by month);**
- **Estimates of employment supported by tourism;**
- **Estimates of traffic implications of tourism (by month);**
- **Trend information annually for all output categories by zone.**

3.3 STEAM Inputs

At a minimum, the implementation of STEAM depends on:

- **Information on occupancy percentages each month for each type of accommodation;**
- **Bed stock for each type of accommodation within the areas to be surveyed;**
- **Attendance at attractions/major events by month;**
- **TIC visitor figures by month.**

The model is built up from the above basic information, by drawing on data from published or unpublished sources, local interviews and supplementary trade enquiries to define the economic parameters within which the local tourism sector operates. The specific information set out above is obtained from a variety of sources:

a) **Bed Stocks**

The STEAM model can accommodate up to nine sub-categories of Serviced Accommodation, and the same for Non-Serviced Accommodation. The type and number of such sub-categories of tourist accommodation are specified in conjunction with the client using definitions compatible with national definitions. The sources of information in building such a database are Local Authority Tourist Guides, Tourist Boards, Internet, Yellow Pages.

b) **Number of Establishments**

The same categories and sub-categories are used as for “Bed Stocks” and use the same sources of information.

c) **Use of Tourist Accommodation**

This information is primarily obtained from the Tourist Board occupancy surveys and, on occasion, augmented by information obtained from Local Authority occupancy surveys and information provided, in confidence, by groups of accommodation providers.

d) **Tourist Accommodation: Employment**

STEAM has developed a large array of data sets which provide core employment data by type and size of accommodation providers and the occupancy thresholds which trigger incremental levels of employment.

e) **Staying with Friends and Relatives**

Through primary research, STEAM has created an array of proxy variables which can be used in various types and sizes of destination. Wherever and whenever practicable these various proxy variables are benchmarked by additional local research in differing destination types.

f) Day Visitors

STEAM Tourist Day Visitors are regarded as those day visiting whose stay is three hours or more for a non-routine purpose originating outside the local area, whether from home or from a non-resident accommodation outside the object area. National and regional day visitor surveys present ongoing opportunities for benchmarking provided they are statistically valid in the context of the local area.

Information is also obtained on a monthly basis from attractions and events in an area which, together with Tourist Information Centre visitors, provides additional local benchmarking information concerning seasonality and monthly changes, year on year.

g) Rates of Daily Expenditure

Following primary research commissioned by Scottish Enterprise in 1996 from System Three (now TNS), a series of subsequent tourism expenditure surveys have been commissioned over the years by local authorities in conjunction with GTS structured specifically for the STEAM input demands. Whilst commissioned for specific areas, the consistency and frequency of these surveys has allowed the development of proxy values for other areas not able to afford such surveys.

h) Economic Multipliers

Multipliers, in respect of both tourist economic impacts and employment generated indirectly, are calculated using multipliers created by the Surrey Group for an array of destination types.

i) Indexing

STEAM Reports are all indexed so that year on year real comparisons can be made rather than inflation affected. Within each report, Appendices 1 and 2 provide non-indexed outputs so that tourism economic impacts for both the present and past years can be compared in actual values.

j) Benchmarking

STEAM takes advantage of all available benchmarking sources, including the United Kingdom Tourist Statistics, the International Passenger Survey, the United Kingdom Leisure Day Visitor Survey, the National Online Manpower Information Service, Local Surveys and those prepared commercially from time to time.

4. STEAM REPORT FORMAT

4.1 Introduction

Each STEAM Report consists of four main sections:

- Numeric Executive Summary
- Comparison Tables
- Appendices
- Charts

4.2 Numeric Executive Summary (NES)

This page provides an annual headline summary for the reporting year which consists of five segments. Each segment makes comparisons between the current year and the previous year concerning each of the main topics which are summarised below:

a) Analysis by Sector of Expenditure

This segment of the NES identifies the distribution of visitor spending into the local economy. The year on year comparison eliminates inflationary effects by use of the Retail Price Index (RPI).

b) Revenue by Category of Expenditure

This segment illustrates the revenue generated in the local economy by the four main categories of visitor. (The RPI is also used).

c) Tourist Days

This segment identifies, by category of visitor, the annual number of Visitor Days spent in the local (study) area. Visitor Days are calculated by multiplying the staying visitors by average length of stay and adding the Day Visitors.

d) Tourist Numbers

The count of all visitors annually, regardless of their length of stay.

e) Sectors in which Employment is Supported

This information is provided in the form of full time equivalents (FTE's) by category of employment. The employment indicated in STEAM reporting is only that generated by estimated visitor spending. There are employment generators other than STEAM; for example, residents' spend.

4.3 Comparison Tables (CT Pages)

This section of the report provides the monthly STEAM present and previous year outputs which form the basis for the previous section (NES). In addition, it provides monthly estimates of vehicle numbers and the days they spent in the study area.

4.4 Appendices

Appendix 1 (This Year) and **Appendix 2 (Last Year)** contain the full details by month and by year of:

- Economic Impact
- Population
- Employment
- Tourist Days/Tourist Numbers
- Vehicle Days/Vehicle Numbers
- Bed Stock

Appendix 3

Provides a glossary of terms which is self-explanatory.

Appendix 4

Considers the relationship of direct and indirect effects of tourism.

Appendix 5

Sources some of the data available by which the employment generated by visitor expenditure can be estimated.

Appendix 6

Reviews Day Visitors and their impacts.

Appendix 7

Report on statistical confidence levels in STEAM.

4.5 Charts

Provides an indicative group of charts. These charts illustrate the capacity of the Excel spreadsheet to generate them. Appendices 1 and 2 of the electronic report are the basis for their generation.

5. Contact:

David J. James, TD, FTS, FRSA
Managing Director
Global Tourism Solutions (UK) Ltd
Grove House
9D Throxenby Lane
Scarborough
North Yorkshire
YO12 5HN

Tel: 01723 506310
Email: gtsuk.djj@btconnect.com