International marketing via broadband networks
- Building the local network in a Norwegian region

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Abstract. To introduce the Tourism Information and Marketing system TIM in a geographical region, a number of steps have to be taken at the organizational and the technological level. Some strategic considerations and decisions are also necessary. This paper discusses these steps and decisions, based on our experiences from introducing TIM in the Norwegian region Troll Park, and on the strategic analyses we carry out nationally for further introduction of TIM in Norway.

1. Introduction - Information technology in tourism distribution

International network systems for marketing and selling tourism products are emerging in Europe, gradually introducing new parts of the tourism industry to the benefits of information technology. Up until now the area has been dominated by the large CRSs (Computerbased Reservation Systems) like Amadeus, SABRE and Gallileo (J.Olaisen, 1993, P.J.Sheldon 1993). The CRS service is a distribution tool mainly aiming at the business markets to which the large international companies sell standard products with high volume and high value. Information technology has so fare not been available in form of affordable, effective marketing and sales tools for the part of the industry consisting of medium and small service suppliers scattered around in rural areas, serving the rapidly growing leisure market. A leisure market which growth seems to be based on more specific needs and wants, and thus a demand for more differentiated products on every thinkable resource, activity and experience.

The TIM system (presented elsewhere) represents a further step in the development of advanced telecommunication services to the benefit of numerous small and differentiated service providers throughout the whole tourism industry in Europe

(and the world). Local providers of tourism products can use TIM to distribute multimedia information about their products to sales organizations throughout a European wide network. The products can be booked and sold directly via gateways to local and central reservation systems. A Norwegian regional tourism company, Olympia Utvikling - Troll Park, has participated in the TIM project since it started in 1992. Troll Park is now building the organizational and technical network for using TIM to market and sell the various products of the region. The paper is based on experiences from this process. It is also based on analyses performed by the NR, Norwegian Computing Center, as part of our work for the Norwegian Research Council in defining a strategy for using information technology within the tourism business in Norway. NR is also a technical partner in the TIM project.

2. Short description of Troll Park

The Troll Park region covers a large area of mountains and valleys (approx. 155.000 sq. kmts) with Lillehammer as a natural tourism center. There are about 12.000 commercial beds in the area producing some 2.2 million guestnights a year The Troll Park area provides activities such as cross country and alpine skiing in winter and hiking, rafting, tracking, canoeing, cycling, fishing and sightseeing in summer. There also a couple of attraction in the Lillehammer-area and facilities to host meetings and conferences mostly at the national level.

Today these offers are being *promoted* both individually by the single producers by means of traditional media, and through brochures created and published by the local and regional tourist boards. The *selling* is mainly taken care of by the service providers themselves on the national markets, and by traditional tour operators on the international markets. The local or regional tourist boards are not into actual selling of the products. Olympia Utvikling - Troll Park LTD is a company established by the tourism industry and the public interests in the region with the traditional functions of a regional tourist board, but partly due to the increased service to the industry that opens up through the TIM system, the company have decided to serve as a commercial intermediary for the industry in the region.

3. Technical and organizational requirements for a regional TIM network

The TIM system is a distributed multimedia database using ISDN network to transfer information throughout a European wide network. The overall requirement on the TIM architecture is: Multimedia marketing material produced locally, at PoO (Point of Offer) sites should be distributed at user determined times across Europe to user determined locations (PoS/PoI - Point of Sale/Point of Information sites). The multimedia information is stored locally at database servers at all PoO and PoS sites. A *global supervising node* organizes database updates and system use; it does not store the multimedia data. Booking is partly being provided by a *Gateway Server* in Rome. TIM has implemented gateways to some of the big CRSs in Europe (Galileo

and Amadeus) for booking of those products that are part of the inventory in these systems, and to one region booking system (Integra) which is also based as a wide area network. As most of the products in question are not on any CRS, booking of these products will take place through a booking facility in the TIM system directly to each PoO. All database servers are running Microsoft NT advanced Server with Microsoft SQL_Server database management system (DBMS). The terminals are running Microsoft Windows for Workgroups on top of MS DOS. Multimedia data as video and sound is central to TIM. The video standard under Microsoft Windows, with AVI video and standard software, is used both in the digitizing, editing and compression process.

The TIM system requires extensive cooperation between partners at the different organizational levels. First of all the regional PoO, representing the product range of the region must establish a close and trustful relationship to the producers that want to be on the system with their product. The structure with one regional PoO will be needed for three main reasons. Firstly because most of the providers will be too small to invest in the technical equipment and human resources necessary to function as a separate PoO or a full TIM node. Secondly it will raise a number of commercial and legal problems if one and each of the service providers should establish his own business relationship to every possible PoS. Thirdly it will represent a crucial possibility for quality control of the products being offered by a specific region to have them presented by a regional company that is also responsible for handling market information, knowing international standards, meeting financial requirements, legal issues etc. These are all advantages for the region with respect to long term image and credibility building, as it is to represent a wide range of the regions diversified and specialized product to a number of target groups on the international markets. This paper focuses on the relationships on the regional level, but it must be noticed that it is left to the regional PoO, according to this structure, to establish business relations to European PoS that might be interested to sell tourism products from the region. This latest issue depends among other things on how the TIM system eventually will be set up internationally.

4. Steps to be taken at the organizational level

To create the network or infrastructure required for TIM, a number of steps have to be taken at the organizational level. We will here describe them as five different steps, but they are closely connected and should not be performed in a strictly sequential order. It will also be fruitful to go through some of them again as the network itself changes and improves.

Different models for the organizational network can be chosen depending on the size of the region, the kind of organizations and businesses involved, their ambitions in regard to international marketing and their access to information technology. (Kamfjord,93). Normally a organizational network for TIM will consist of one or more TIM-representatives which will act as a full TIM-node within the TIM-system

representing a number of providers in the region. The central elements forming the economical ties between the participants, will be provisions for booking and advertising costs.

Step 1 - Establish contact with a set of participants

The first step in creating a TIM network is to chose the participants. As a system for marketing leisure products for individual travelers, TIM will contain products from small providers. Involving them in the organizational network is therefore crucial. The role of the tourist boards is central, both in regard to this and because TIM will include general information and marketing material from a region. Since TIM will consist of products that can be booked on-line, an important question for defining their role in the TIM network is whether they can be involved in actual booking activities.

As the regional tourism company in the Troll Park area Olympia Utvikling - Troll Park LTD was the natural unit to take responsibility as the regional PoO. Due to the whole concept of TIM, the company must grow out of the role as a traditional tourist board and prepare for the role as a commercial intermediary in selling the regions tourist products through this new channel of distribution. The bookings will be carried out through an allotment system, but with close relationships to the suppliers involved. Some products like accommodation with capacity limits and individual wishes will obviously need closer follow up than standard products like lift tickets, bicycle rental and other products.

Step 2 - Establish marketing strategy

Regional tourism marketing has for many good reasons, conceptually, historically and financially, not been seen as a very sophisticated contributor to the art of marketing. The introduction of a multimedia distribution system will force the industry to develop knowledge and experience at a new and higher level. The new set of tools are in many senses much stronger, the message needs to be much more concentrated and targeted to build images and brands that are compatible in a marketplace with continuously stronger competition.

The market strategy that needs to be developed must consist of substrategies first of all for products and promotion (image). The product strategy must sort out the overall most profitable product categories, according to demand and product availability and quality, and it must be decided to which extent the products should be presented in the electronic folders as single products, product groups or prepacked products. The promotion strategy must deal with crucial question from the very top dealing with which generic profile if one, the region should tie all its products into, and down to more creative questions related to the communication that takes place in all its new forms. The more one relies on the single suppliers or local tourist boards to participate in the development of inserts (video-clips, pictures,

sound, texts and other images) to the electronic folders, the more one will need specific guidelines as help and quality control in the preparations.

Step 3 - Establish routines for cooperation and collaboration

The next step is to specify routines for collecting and producing the multimedia marketing material. The material is built from elements created with standard PC tools. It is therefore a number of ways for the providers and the representative to cooperate in creating the folders for TIM.

Participants without any computer support will have to produce their material the traditional way by filling in forms produced by the TIM representative. Images have to be sent to the representative as negatives or on paper. Videotapes can also be sent as part of their contribution. The TIM representative will then have to type inn the text, scan the images and digitize parts of the video tapes to create the inserts. Finally the representative will have to create the folders with its front cover, and include the inserts. Distribution of the folders to other TIM nodes in Europe will also be done by the representative in this setting.

Participants with standard PCs and basic administrative tools such as a text editor will be able to create the text insert themselves and send these on a disk to the TIM representative. Images and video will be handled the traditional way. The next level of technical support is when the providers have standard equipment for handling multimedia material, i.e. scanner for digitizing images, tools for modifying them and cards for digitizing video and creating AVI-files. With these tools a participant can create most of the material, i.e. all the inserts for a TIM folder. In this setting the representative will only have to create the folder and include the inserts. Text and images can be sent to the representative on disks, but video clips are normally too big. A network connection between them is therefore the next step.

Cooperation can be made much more effective if there are some sort of network connection between providers and representatives. Forms for specific information, text files, images and video clips can then easily be exchanged. Network connection opens for the use of tools such as sending fax directly from the PC, transferring files and using electronic mail. Video telephony can be introduced if the sites have ISDN connections.

The technically most sophisticated way of cooperating, can take place when the participant has a full TIM point-of-offer application with all the tools for handling multimedia and full ISDN network connections. The participant can then create the whole folder and use the TIM system to distribute this to any other TIM node.

Step 4 - Introduce suitable tools and technology for each participant

As described in step 3 the TIM environment is well suited for introducing a wide range of tools and technologies depending on the ambitions and economic abilities

of each participant. The tools used for creating marketing material and communication in TIM can also be used for other purposes, such as managing archives for digital images and performing ad hoc communication. The utilization of information technology varies greatly within the tourism business. Part of the business are using advanced systems and networks while many of the actors are using very simple or no technology at all. This is partly due to economical premises and partly due to lack of knowledge about available technology and how to chose the right systems.

As part of introducing TIM in a region, a program for introducing standard tools and technology, including basic network, should therefore be established. This would increase the effect of their marketing efforts within the TIM network and within the business in general. Such a program should include analyses of each participants requirements and specify a step-by-step investment and development plan. The plan should start with basic general tools and technology which can be used for a number of purposes in addition to TIM.

Step 5 - Organize training and support functions

Since many of the participants in the TIM network will be small providers with little experience from this kind of technology, training will be a critical factor for success when establishing the local network. Training will be needed both for using standard PC-tools and for using TIM specific tools. Designing and creating multimedia presentations require specific training where experts in graphical layout should be involved. Communication via networks also requires certain training. Finally establishing new routines for cooperation will require training or special attention for a period of time.

The establishment of support functions will be another critical factor. Small providers will seldom have computer experts within their company and will therefore depend on external arrangements. This can for instance be local vendors. For some of the participants it might be possible to establish support in cooperation with local public administrations centers.

5. Steps to be taken at the technical level

The following description is based on the technical solution in a commercial system, and not in the research phase in which the project is at the moment. The figure on the next page gives an overall idea of the architecture of the system.

Troll Park will typically be a PoO representative in their region in Norway. The PoO representative will normally have 486 DOS/Windows terminals connected to Windows NT server as their basic configuration. The terminal/server solution can alternatively be either 1) server and terminal in one machine or 2) running NT also on the TIM terminals in a LAN network. This solution will give better performance and solve the problems of integration between the DOS operating system and all the

other software and hardware. All DOS/Windows software can be run from NT. The Global Supervising Node will be distributed to National level as well as the Gateway Server.

Since small providers seldom have their own booking systems, each PoO representative can have a local booking system which is represented in the National Node as a gateway. The National Node also has a gateway to the big CRSs. The National Nodes play the "Routing" and the "National Booking Gateway" function, and only one machine is needed. Only the PoS nodes and PoO nodes will store multimedia information. The National Node keeps track of all "National folders"; from which PoO representative they "belong" and to which PoS/PoI nodes they are distributed. All the distribution of folders is going through the National Nodes. The PoS/PoI nodes store the folders together with the "Booking Information". When a folder is booked at a PoS a request is sent to the "National Node Booking Gateway" to which the folder belongs. A folder belongs to the PoO representative in the country where it is created.
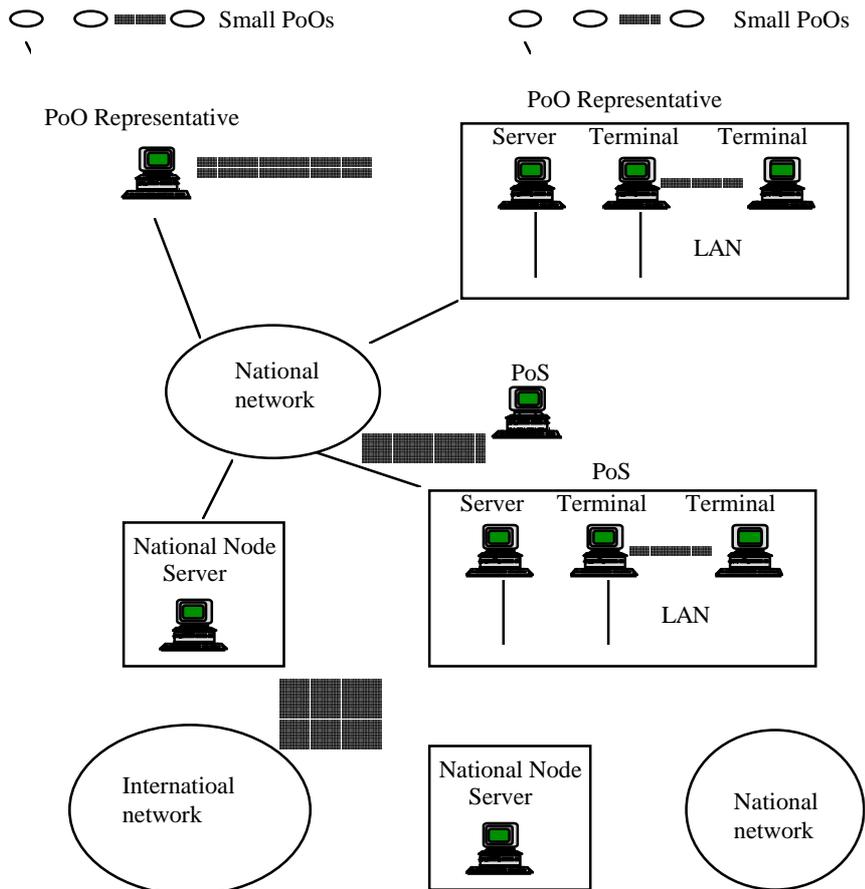
To become a PoO representative, the whole TIM configuration is needed. One or more PCs with at least 1 GB disc, an ISDN line connection (commercial available in most European countries), an ISDN router, NT advanced Server Software, Microsoft SQL-Server DBMS and of course the TIM database and application is minimum. In addition, external hardware and software is needed to make the folder inserts. A scanner is needed to digitize paper based pictures, and a video card is needed to digitize video. TIM uses the *Captivator digitising card.* To play the video and sound, TIM uses the *928 Movie card.* Video for Windows, which has become a standard on PCs today, is used to edit the video. Editing text and pictures for TIM can be done with standard PC software tools such as Microsoft WORD, Word Perfect, Paintbrush, Corel Draw etc.

As described in chapter 2, the small PoOs can be connected to TIM in many ways. One way is not to be "technically" connected at all (not even have a stand alone machine) and let the PoO representative do all the work.

One possible technical solution is to use a stand-alone PC, and make some of the folder-inserts. The first step is to create text based information and simple images. The minimum technical requirement is then standard software for text and image processing. To be able to create multimedia information, the video card and the sound card must be added to the configuration. The economic investment is not more than 1000 ECU. But often, a more powerful processor and larger disc (especially when working with video) is needed. If the PoO wants to have good quality images from paper, a scanner is needed.

One step further is to have an ISDN communication line. Using ISDN, it will take 5-10 minutes to transfer a holiday-product (a *folder* in TIM- terminology) from one site to another, depending on the folder size. The price for the ISDN connection will vary from country to country, but in most cases it is comparable with the cost of the telephone (both connection and use). In addition, an ISDN router or an ISDN adapter card is needed, and will cost approximately 2000 ECU. With this communication line the PoO is able to send inserts to the PoO representative. Other basic network services such as e-mail, file transfer and access to general common information will also be available.

The last step is to invest in the full TIM configuration (as described above), and become a "professional folder maker". To become a PoO representative is now a short step technologically.

6. Strategic challenges

Most of the questions that one will face by entering in to the age of information technology in overall tourism marketing has been pointed at in the paper. A couple of key issues should though be focused on in the end. They are all dealing with economy. First of all one will need a close follow up with business case studies and

cost-benefit analysis. One needs to know as accurate as possible where the costs and savings occur at the business level and at the industry level. This has to do with how the regional tourism industry most effectively should be organized to run the system and how it should be financed. This is also touching the question about monitoring the reactions to the new system from the traditional distribution system as a whole, and how it should be responded to this.

The final question is dealing with how one can get the maximum cost effectiveness out of the resources that are being put in to technology and human resources in systems like this, and where the resources often tends to be a mix of private and public money. Even if the prices of the single components are dropping, one will be seeing a steady and rapid development in this area so that there will be a continuos need for new investments and a danger of an almost as continuos stream of new projects. So at least from the public sector one must hope for a critical awareness of not wasting money on too many parallel running project. One last point on this issue is working towards standardization in hardware and software so that the information in all different categories can play together and be used for different purposes.

In the Troll Park area this is being done between TIM and a regional information and booking system (Info-box). The regional information system has been developed so that the TIM database can be activated for both user ends. Even if some of the software is different between TIM and Info-box, and the screendumps and the profile has not yet been adjusted to a common standard, one see that the degree of integration which has been achieved in this case, means that the Troll Park area through Olympia Utvikling - Troll Park LTD, has already developed their own PoI -system (point of information) corresponding with TIM. The PoI-element also is also meant to be part of the TIM system, but has so fare been postponed to a later release of the system. Through a focus on system integration we in this case see how both system can benefit.

Acknowledgments

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