Portal Information Integration and Ownership misfits:
A Case Study in a Tourism Setting

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Abstract

Information portals are supposed to provide relevant and timely information to an intended target group. A challenge, however, is that the portal in it self does not have full information ownership, but relies on the content of its sub-domains. Poor information quality severely decreases the actual value of a portal, and the case described in this paper illustrates this problem. The Swedish Travel & Tourism Council provides an Internet portal that aims at being the easiest access point to the vast tourism offerings in Sweden. It could be seen as set of information services that tries to provide a simple taxonomy on top of several sub-sets of business-specific portals within tourism. The three-phase evolution of the site unmasks the core problem in portal information management, namely information ownership and clear business roles in the content provision process.

1. Introduction

Information portals has been on the agenda since the hay-days of the Internet era, and can as a concept originally be attributed to Yahoo! Inc., an Internet search service that has categorised web information into a predefined taxonomy since 1994 (see www.yahoo.com). However, the portal concept has during the last ten years emerged to encompass much more than merely a set of links to web pages. In the early 2000, industry trend-watchers forecasted the portal development in corporations to sky-rocket. Delphi Group reported that 55% of Fortune 500 companies already had corporate portal projects in progress and Gartner Group predicted that more than half of all major companies by the end of the year 2001 would have corporate portals as the primary method for organizing and discovering corporate

resources [6]. The hype can partly be attributed to highly over-toned statements found in management literature: "The corporate portal is the most important business information management project of the next decade" [5] or Information Week's speculation whether portals will become "the next generation of desktop computing [and…] do for global knowledge-work what the railroad did for the industrial revolution" [12].

However as Dias points out in her review of portal literature, although the corporate portal in theory allows users to access corporate information in an easier and customized way, resulting in reduced costs, increased productivity and competitiveness, these benefits are still to be seen [9]. Following her review, it is evident that there is still no scientifically sound proof and most of the claimed benefits are merely anecdotal. Dias concludes by calling for more real case studies of portal implementations in order to verify or falsify these claims [9]. Although a handful of years have gone since Dias' article, there is still not much empirical work on portals reported (Detlor [7, 8] being the obvious exception).

In this paper, we contribute by reporting from a case study of the Swedish Travel and Tourism Council's (STTC) information portal Visit-Sweden (www.visit-sweden.com), and in particular on the problems they experienced when trying to realize the benefits portrayed by the vendors, i.e., the vision of a single gateway to personalised information [18]. The paper is structured as follows; in section two we account for some previous work on portals and present a working definition of a portal. In section three, we explain our research setup. Section four describes the case data, which thereafter is analysed and discussed in section five. We conclude the paper in section six.

2. Background and related work

The tourist industry has already been recognised as highly fragmented and in need of various collaboration and coordination efforts. Research on tourism development has hence highlighted the importance of engaging all potential stakeholders, and to do so early in the development process [1]. However, in relation to this, Aas and colleagues have also pointed to a number of challenges; Stakeholder are difficult to identify, stakeholders coordination adds to the cost of the project, and the capacity of stakeholders to participate in practice may be low [1].

Stakeholder participation has also been emphasised in domains other than tourism. Wilson notes that in the US, stakeholder participation is becoming more common in all sorts of economic development efforts, on both federal, state and government level [21]. This trend, Wilson claims, is the result of an increasing interest in social capital as an alternative to traditional tangible results. Social capital increases a community's productivity by promoting networking, joint ventures, group learning, and quicker information flows [21].

When it comes to stakeholder participation and IT projects, Irani has showed a relationship between the level of involvement in the concept justification phase and their subsequent level of commitment towards project success [11], and Beecham et al. show that lack of stakeholder input in requirements engineering processes is a major problem and a cause of project failure [3]. Expanding the number of stakeholder involved is thus not merely a democratic issue but a strategy to insure a deepened understanding of the objective. The goal is to provide many perspectives rather than to create "group think" [4].

In our work we are particularly interested in portal implementations. Regarding portal design, researchers have acknowledged the need to involve stakeholders. To illustrate, Detlor advocates participatory design (PD), i.e., an approach which lets the users take active part in eliciting requirements and making decisions. According to Detlor, PD is a "robust and comprehensive method by which to secure a useful and well-utilized portal system" [7:78]. Three factors contribute to this. Firstly, without actual users it is difficult for developers to correctly identify how knowledge is being utilised across the organization. Secondly, portals span the entire organization and must thus be based on the input from all stakeholders. Thirdly, a portal changes the daily routines of the organization and to ensure the buy-in from as many users as possible, they should be involved early in the development process [7].

However, Detlor's suggestions relate to the design of the portal per se. Even though no single definition of what a portal is has emerged most commentators seem to agree that a portal should be understood as the integration of application software and information infrastructure, able to aggregate a selected subset of information to through a central location [18]. A portal's primary function is thus to provide easy access to information and service already available elsewhere and not itself act as such a source [6]. For this integration to work, the underlying information and services must be very precisely aligned, but it is unclear how this alignment is supposed to happen. This "back-end side" of the portal has not been covered by previous academic work nor is it described in the trade press or in the vendors' brochures. It seems that the integration is tacitly understood as trivial, but, as our case shall illustrate, this is far from the case. On the contrary, the work required to align information and services in such a way may exceed the benefits for the content providers.

In this paper we shall not focus on the portal itself but on the demands the portal makes on the underlying information sources and how stakeholder involvement affects the degree to which these demands are met.

3. Research Method and Data Collection

This work has been carried out in close collaboration with the Swedish Travel & Tourism Council (STTC). In 1999, STCC, The Swedish Tourist Authority and the Swedish Tourist and Travel Industry Federation started two inter-organizational development project; one that that aimed increase knowledge sharing within the tourist industry (TurKom) [13], and one intended to enhance the visibility of Sweden on internet (Visit-Sweden). This paper describes the latter.

Although some elements of intervention can be traced in our work as one of the authors has been involved in the development of the information portal under study, we think it is fair to describe it as an interpretive case study. Case study research is the most common qualitative method used in information systems [17,2], and a method well-suited to IS research, since our objective is to study information systems in organizations, rather than technical issues per se. Depending on the researchers underlying philosophical orientation, case studies can be carried out in a number of ways (e.g., positivist or critical) but our work follows the interpretative tradition as advocated by Walsham [20].

Table 1. Overview of data collection

Organization & Site	Informants	Data collection methods
Swedish Tourism & Travel Council (www.visit-sweden.com)	- CIO /Project Manager - CFO - Infomaster	- Development of site 1999-2005 - Two telephone interviews with CIO and the Project Manager, approx. 30 minutes to 1 hour - A one hour recorded and transcribed semi-structured interview with Infomaster - E-mail correspondence with CFO - Analysis of project documentation and documented usability reports

Visit-Sweden has undergone three major development changes during the last five years, and the first author has collected research data primarily by direct interviews, but also by telephone and e-mail interviews, on-sight observations, and documentation analysis. Amongst the documentation was an analysis of the search engine log files carried out by STTC. This analysis helped uncover end-user issues and set the priorities for the development of new features. Table 1 provides an overview of the data sources and the collection methods.

Being actively involved as an "insider" presents both opportunities and challenges. As a project member, the researcher is already familiar with hard to detect aspects such as corporate culture and tacitly agreed upon understandings, which shape the practice under study. Being a member of the group has given the first author access to inside knowledge that otherwise would have been out of reach, and the research has benefited from these insights.

This familiarity also presents some potential problems that must be addressed. One such problem is the danger of contaminated research due to the control the participator has over the production of research data [10]. Another challenge is to keep distance in order to be able to see the things normally taken for granted [14]. Researchers working in a familiar environment carry with them a large number of assumptions that direct their inquiry and may limit the range of things they see as worthwhile. To avoid these pitfalls we have tried to manufacture an analytic distance in two ways. Firstly, we have used theoretical (i.e. case-independent) themes to focus on, and, secondly, we have brought in a second researcher who had no *a priori* understanding of the case.

4. Visit-Sweden Information Portal

The Swedish Travel & Tourism Council (STTC) is a national organization, responsible for the promotion of Sweden as a business and leisure travel destination. STTC is owned equally by the Swedish Government and by Swedish tourism industry. The main focus is marketing, information, coordination and distribution to the travel trade, media and consumers. The business objectives are to ensure attractive and enriching experiences while travelling in Sweden, improve profitability for companies and co-operative organizations in Sweden, and increase income and enhance prosperity for Sweden as a nation.

In the raise of Internet as the main channel for communication and marketing within the tourism industry in the late 90's, STTC realized an urgent need to provide an Internet platform to help the industry and set easy access to the Swedish travel and tourism experience. This was the starting point for STTC's information portal, Visit-Sweden

The Swedish tourism industry as such is very entrepreneur driven, dominated by small and medium sized enterprises, geographically spread, and very branch specific. In addition, there are also some very large entities within the industry, e.g. hotel associations or strong Swedish tourism brands that stand out such as Glasriket (the Crystal Kingdom). The tourism industry also has political dimensions, since all regions and cities do their best to draw attention to their particular offerings.

With this complex setting, both as an internal fragmented and very heterogeneous industry as well as having demanding tourists with individual preferences, STTC wanted to develop an easy access information portal that would promote Sweden and increase the traffic to the tourist industry.

To be able to grasp the complex environment that Visit-Sweden was supposed to handle, a set of responsible stakeholders from the tourism industry was allocated and tightly involved in the identification of the requirements as well as in the incremental site construction as such. A market analysis was also carried out to illuminate the end-user demands on a tourism portal of Visit-Sweden's magnitude. Throughout all the different development phases described, STTC used end-user involvement through usability testing in test-labs. This was combined with industry stakeholder involvement to set the priorities corresponding to end-users needs.

The industry stakeholder had a broad representation of the industry as such, but very few of them were also owners of the central information resources that needed to be aggregated into the portal setting,

4.1 First appearance, pilot (1999)

The STTC driver behind the first pilot of Visit-Sweden was to allow visitors to find the Swedish tourism experience. This vision led into the domain of search portals, i.e. a search engine-driven web site. Mainly all development of the first appearance focused on the search engine (Ultraseek). STTC had early on noted that the visitors on the site had problems finding relevant information items. One of the main problems in the early days was the lack of content.

Even though different sites were available, they were hard to track down in the input processes, since the awareness of search-ability was not present in the mind-set of most site owners. The fine tuning of the different spiders were cumbersome and very manually intense. Another problem was that the information quality from the information providers was so low. Indexed sites contained both test data and outdated information that cluttered the index and hid the more useful pieces.

Many of the end-users (i.e., tourists) searching for travelling experiences in Sweden did not have enough knowledge about Sweden to construct precise search queries and Boolean expressions that would narrow down the result lists into something useful. They rarely constructed any complex search queries, and they did not use the advanced search form at all. A majority only entered a single keyword. According to the CIO the analysis of the search log showed that the end-users did not know how to manage the search engine. Most of the end-users left after a couple of unfinished search scenarios, seemingly without finding anything relevant, the STTC analysts concluded. The end-users seldom followed the links in the result listings, or if they did, they got back and did maybe one or two further tests before leaving and never to return.

The negative feedback received from the end-users and the tourism and travel industry indicated the need to help the end-user in the navigation. STTC's interpretation was that putting the content into an understandable context rather than letting the end-user do all the information drilling would be a solution. After a couple of end-user tests, STTC decided to further develop Visit-Sweden to better help the end-user in the complex task of navigate.

4.2 Second coming, and re-launch (2000-2002)

The business vision that STTC had for the second version of the portal was to be able to provide a contextualization of the underlying information resources and to develop ease of use access for the end-users. STTC also wanted to customize the information according to well-known targets-groups, and in some sense personalize the appearance to further improve the end-user experience and the perceived information quality.

As the CIO recalls:

"*We wanted to drill down into the unexploited and unexplored information resources that represented tourism in Sweden, and refine the information into usable fuel for the end-users travel planning, both when the end-user was in pre-travel mode, and while being in Sweden. The vision encompassed the mobility of a traveller and so the portal had that dimension as well. We wanted to provide a usable meta-model to improve the quality of the chaotic information environment. The individual traveller would be given personalized alerts on the road. Lastly the back-end administration of Visit-Sweden was hoped to be semi-automatic, since the Swedish Travel and Tourism Council is a very small organization with limited personnel resources. There also was and still is a great need to help the industry to better package of their offerings. To help in this process we wanted to use end-user profiles and their search behaviour as a platform for development of new tourism offerings.*"

Since the experience from having relied solely on a search engine in the first pilot version had uncovered many problems, STTC wanted to improve the end-user experience. Based on the problems in the pilot, STTC acquired a new search engine that would also help out in the information management and automatic categorization domains. The vision was to help the end-user with a personalised Yahoo-like navigation. The technical platform was Autonomy, a software vendor in the knowledge management systems arena (see www.autonomy.com).

In addition, two other dimensions were also included; spatial information and time-related information.

For the spatial information, STTC acquired a Geographical Information System (GIS) to provide dynamic maps and positions. To be able to actually get good information into this system and the related producer/product database, STTC asked the information owners to codify all their offerings and geographical positions according to STTC's standards.

The time-related information was meant to enable the search for events, and this complicated things

even more. Many information owners already had their own-developed calendar applications to market different local events, but they were incompatible with one another. STTC therefore started a standardisation process together with several different important industry players, in order to develop an XML scheme that would expand the Calendar objects with Event specific data.

The infomaster recalls the evolution and problem areas:

"*The complexity of the underlying information environment was and still is overwhelming. The information resources could either be a simple home-page for a one-man-company out in the bushes, a portal with several context-specific features and applications, e.g., a hotel booking systems, or a regional content intensive site. The diversity and chaotic nature of the information sources made the application development extremely intricate. We spent all the way too much resources to get all different applications to work together, instead on the real information management issues, such as a good navigation structure, good information ownership and resource quality issues. We totally underestimated the information management domain. In the usability-lab test with real end-users, they totally demolished Visit-Sweden, since they didn't find what they wanted. The poor information quality of the underlying information resources diminished the business value of the portal.*"

The infomaster further elaborates on the information management obstacles:

"*To rescue the project we decided to kill our darlings. First we escaped from the route of implementing a GIS, since almost all information owners were reluctant to fill in the intended quality material into both the GIS and the complementing producer/product database. Secondly the effort on being a driver for the standardization on the XML-scheme for events failed since only one major site changed their calendar objects according to the standard. The rest of the information owners didn't want to spend money and resources aligning to an unresolved standard. The maturity of XML, and the actual knowledge on how to use it was also really low. The only information owner who aligned totally misunderstood how to extract their content into the XML-scheme. Lastly since we never got the information management issues in place and because of this never got into the development of the more visionary customization and personalization features, we instead relocated all our resources into a content management pursuit. We built our own content management system, and spent lots of effort into an editorial process. We realized that we needed to*

provide a marketing packaging of Sweden in a good editorial process before re-directing the end-user into the chaotic information environment outside the portal where we had absolutely no control."

4.3 Third time around, present portal experience (2003-present)

To improve the information quality in Visit-Sweden, STTC continued their journey by entering the Content Management (CM) realm. STTC ended their search-driven approach and instead acquired a CM-system. STTC also bought a producer/ product database with structured content. This pre-filled database was previously developed by a set of sub-portals in the different regions in Sweden. To search in structured data improved in some sense the recall in the information retrieval, but since STTC excluded most parts of the existing content on the internet, they now lack the opportunity to connect the end-user with the industry, that resides outside the bought producer/ product database. The Visit-Sweden portal still relied on the information from other resources and other information owners. Even with a structured approach the quality of the information the producer/product database is poor, since the providers have in-built resistance do someone else's job. The majority of entries in the database are provided by entrepreneurs who see this as a "free marketing" channel, and have the time to spend filling in all forms, to codify the information. Many others, such as the large tourism brands, start to rely on public Internet search engines since that is where they get their web traffic from. To "google" a travel plan has more or less become the standard way to pursuit a journey plan for any tourist. Visit-Sweden still is the most used entry point of all market channels that STTC administrate, but is now more seen as a good editorial starting point to further dwell into the quest of finding travel information elsewhere.

The infomaster concludes:

"*We underestimated how much effort and resources it would take to build a good and working index even if we know our domain well. There ought to be a market for our type of channel and portal in the future, since we want to refine and add value to improve the ease of use with our domain expertise. Technology will in the best of worlds take away all laborious activities, but our experience is that our over-confidence in IT put blinkers on us and made us lose our focus. This lead us into unsolved information management issues related to more human natures. Why do people contribute and engage? Usually they don't if they don't see a direct value proposition. To*

build a portal, one has to know the content environment as well as the audience".

5. Discussion

Intranets differ from the public web in several aspects [19] and there are two obvious differences between the Visit-Sweden portal and a typical intranet portal; firstly, the level of homogeneity of the end-user community and, secondly, the coherency of the content. The higher homogeneity of an intranet makes it easier for the intranet-portal to provide targeted information, since the content providers can be assumed to know their audience. This is not the case for Visit-Sweden. Visit-Sweden can only use cookies and dynamic end-user profiling to see the end-user information behaviours and in retrospect align accordingly. The second aspect – the content being coherent and business-aligned – makes the information management process easier to set-up for an intranet portal, since the business (to some extent) owns the underlying information resources.

These differences aside, there are also many organizational problems that are shared between the Visit-Sweden's portal case and an intranet portal implementation. Therefore, although the Visit-Sweden site is a public site, we believe that the lessons learned from our case have a general interest. Firstly, Visit-Sweden is a non-commercial site servicing the tourists with information in just about the same way corporate internal portals feed their employees. Secondly, a large corporate group has several companies with varying degrees of autonomy just as STTC has its semi-independent content contributors. Thirdly, a corporate portal is often governed by a central function trying to establish a common ground for harmonisation just as the administrators of Visit-Sweden wants their site to develop. Lessons learned from our study can therefore be generalised and applied to intranet-based portal implementations.

We shall now discuss a few of the themes that surfaced during our work with the STTC portal.

5.1 Information ownership

The owners of the sub-domains and intranet sites underneath an enterprise portal typically already have well-defined end-user communities and can focus on the content provision to fulfil the local business demands. Information owners might therefore be less willing to invest in the extra effort required to share their content base with the enterprise portal. This problem is very visual in the context of Visit-Sweden, where most of the small and local information owners

already thought they knew their target audience and had no incentives to codify their information to fit someone else's portal.

However, they may not have been correct in their assumptions. The tourist industry is global and not limited to their geographical proximity. The increased visibility that comes from contributing to the STTC portal may have generated profit that well exceeded the work invested. This leaves us with the question whether this problem is pedagogical rather than technical or organizational.

Information ownership also relates to the power relations that may exist amongst different business units. The portal directs attention to the top of the organization and local information owners may fear that all resources will be redirected to the portal instead of to their specific businesses. Adding also systems integration to the portal is likely to increase the power tension related to information management. Although this has not been the focus of this study, we can sense such tensions. On the one hand, the tourism industry (partly) owns STTC and expects them to deliver useful tools to improve the market for all tourism industry parts in Sweden. On the other hand, all actors have their own business agendas, and in many cases they compete to get both travellers and government funding. This may be the growing ground for the reluctance to participate.

5.2 Information integration

The time and effort the information owners have to put in to make their information resources integrated with the portal clearly affects their willingness to participate. Even in the simplest case, when the portal uses a search engine spider to index the different sites, the information owners need to adjust their web site or information resource to maximize the spidering process. This typically means adding metadata, setting up as a robot.txt file, removing obsolete data or building specific spider entrances. Although these activities may seem simple (and they may be easier still on an intranet), our case study shows that this is complicated since it requires the cooperation of the information owners.

In the case of having more sophisticated underlying information systems that need to be integrated, even more complexity is added since such work requires that each and every information systems owner must start an integration project at both a high risk and cost. The complexity is inherited to the domain of governance of the underlying information model in the specific information system or sub-system. Any information system within a corporate setting has already a predefined agenda,

which not always aligns easily with the more enterprise-wide integration view on the actual content.

5.3 Information management

The great balancing act when it comes to enterprise portals and information ownership and integration, relates to the tension between central and decentralized information management practices within the business. Central management means the ability to accumulate resources so that not all local actors need to invest in technology such as content management systems or search engines. Clearly, local content providers benefit from such synergies. However, central information management decrees, e.g., mandatory meta-data tagging and codification of content, can also be seen as nothing but additional work. When there are no visible short-term gains, local content owners may ignore these tasks although they are necessary for the benefits to be realized.

It is also only the local information owners who know their information in detail but only the portal manager who sees the greater picture and how every little piece can contribute to the enterprise view. To strike a balance, the enterprise means towards the local information owners need to be highly motivational. Managing the different levels of information integration and ownership issues, can thus be the difference between success or failure for portal implementations.

5.4 Future research

As Newell *et al.* pointed out, technology does not make cultural and business boundaries disappear simply because it exists [6]. STTC still aims at realizing a good set of contextualized information services embedded into their information portal Visit-Sweden. They have since a year ago started a more offensive role spreading the word on why information sharing is the centre piece for the success of the Swedish tourism industry. In our future research we will further investigate how the tourism industry stakeholders will progress in their change processes. Oliver's determinants for interorganizational relationships [16] may offer a good starting point for analysis of how to set up a successful information management process for the Visit-Sweden portal.

Another issue that will be further investigated is the issues related to enterprise-wide information architecture on top of the refined sub-sets of information resources. The agenda for STTC as for many other portal owners is one single point of entry to all day-to-day activities and information needs.

How STTC will continue their journey towards this goal remains to be seen.

6. Conclusions

Enterprise portals continue to gather interest from companies and organization despite the fact that there are few solid case descriptions of where the business expectation has actually been reached. As shown in Visit-Sweden, the organizations underestimate the political undertows that more often than technical issues are the reason for these failures.

Information integration may be less problematic when the level of homogeneity and the coherency of the content are high. When they are not – as in our case study – the integration required to enable a useful portal becomes non-trivial, to the surprise of the developers.

In settings where information is distributed amongst several independent content providers, which it was in our case, and/or when there is a power relationship between the information provider and the portal owner, one can expect providers to be less interested in sharing information. Particularly so if sharing means that additional work is required.

The portal market is young and not much academic work has been devoted to this field. Our case study makes a contribution by reporting from an ongoing development of an information portal that has experienced a number of practical problems. Obviously, more studies of portals are needed and we hope that new and interesting research questions shall emerge from our work.

7. Acknowledgement

8. References

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