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Conference Paper

The regional economic effects of industrial tourism development

50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Otgaar, Alexander; Klijs, Jeroen (2010) : The regional economic effects of industrial tourism development, 50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/119053>

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The regional economic effects of industrial tourism development

A.H.J. Otgaar & J. Klijs

Paper to be presented at the 50th European Congress of the Regional Science Association International, 19-23 August 2010, Jönköping (Sweden).

Abstract

Already in the 1980s industrial tourism - people visiting operational companies - has been identified as a growing segment of regional tourism industries. Since then the pressure on companies to open their doors for other members of the society has only increased. Several scholars (e.g. Frew, 2000; Soyez, 1993; Mitchell & Orwig, 2002) have discussed the relevance of industrial tourism for regions and firms. There are several reasons to promote industrial tourism but also to keep doors closed. This article adds to this debate by discussing the regional economic effects of industrial tourism: What are the economic effects of industrial tourism development? What direct and indirect costs and benefits should be taken into account? First we analyse different typologies of effects, in the literature on tourism and industrial tourism. Second we illustrate these typologies with empirical insights from six case studies: Cologne, Pays de la Loire, Rotterdam, Shanghai, Turin and Wolfsburg.

1. Introduction

Industrial tourism has been recognised by many as an increasingly important niche of the tourism industry. It is one of the many new forms of tourism that has emerged in the last decades in response to the trend of individualisation and differentiation in tourism (Nylander & Hall, 2005; Robinson & Novelli, 2005). It all started with the 'heritage euphoria' among (European) regions in the 1980s (Soyez, 1986; Harris, 1989; Hospers, 2001; Mader, 2003). Gradually, however, regions also discovered the tourism potential of operational firms. The British campaign See Industry at Work is generally considered one of the first initiatives in this field, inspiring other regions and countries to develop similar programmes.

Regions and companies use actual and expected growth figures to legitimate their investments in this type of tourism (PSA, 2006; Menzies, 1989; English Tourism Board, 2000). But also several scholars observe a growing interest in IT, notably in visiting the manufacturing industries (Harris, 1989; Prentice, 1993). Swarbrooke (2002), for instance, reports an increase of visitors to industrial sites in France by more than 100 per cent between 1980 and 1993 (also see Stevens, 2000).

In the literature we find various explanations for the increasing appeal of industrial attractions. Mitchell & Orwig (2002) consider the transition to a service economy as one of the drivers behind the increasing interest in factory visits: it is the lack of knowledge among young people and a sense of nostalgia among older people that triggers them to visit manufacturing firms (Harris, 1989; Prentice, 1993). In his article on whiskey distilleries in Scotland, McBoyle (1996) argues that the increasing attention to IT fits well in the emerging trend of 'green tourism'. In his textbook on tourism McIntosh (1972) indicates that – already at that time – many tourists were “intellectually curious about the economy of any state or country” (p. 111). In their evaluation of a factory tour scheme in Sheffield, Speakman & Brawel (1992) arrive at the conclusion that IT responds to the need for authentic and real experiences: ‘a taste of the real thing’ (p. 2). Frew (2000) argue that IT becomes popular because of a shift in tourism demand from fun to learning: tourists want to be educated (also see Martin & Mason, 1993)

Industrial tourism is a relatively young and unexplored theme: different terms are used in Europe, and worldwide studies on this issue are absent (Morice, 2006; Frew, 2000). Many academic articles on industrial tourism (Plummera et al., 2005; C.M. Hall & Sharples, 2003; Joliffe, 2003; MacDonald & Deneault, 2001; Telfer & Hashimoto, 2002, McBoyle, 1994) actually focus on food and beverage tourism that can be seen as a specific type of industrial tourism. In the present article we define industrial tourism as ‘visits to sites that enable visitors to learn about economic activities in the past, the present and the future’ (Otgaar, 2010, forthcoming). This implies that industrial tourism not only comprehends factory visits – as Frew (2000) states – but also visits to company museums, industrial heritage sites and industrial theme parks. Our definition of industrial tourism is more in line with the ones of Soyez (1986) and Morice (2006). It also clearly relates to concepts such as industrial

experience worlds (Steinecke, 2001) and consumer experience tourism (Mitchell & Orwig, 2002).

Various regions have identified the development of industrial tourism as a strategic objective in their tourism and/or industrial policies. Among them are for instance Nagoya (Japan), Rhone-Alpes and Pays de la Loire (France), Turin (Italy), Rotterdam and Amsterdam (the Netherlands), Shanghai (China) and Pennsylvania (US). These and other regions apparently expect industrial tourism to generate (economic) impacts – also in terms of image and reputation – that accrue to the inhabitants (both households and local firms).

While several observers expect a growth in IT, they pay remarkably little attention to the impact of IT on regional spending and productivity. Frew (2000) is one of the few who does. She expects that IT potentially creates employment in the region: directly (for tour guides and shop attendants) and indirectly via the multiplier effect: if a region is endowed with an attractive supply of company visits this may stimulate visitors to stay longer and spend more. In addition, IT development may also influence the productivity of workers. Particularly in seasonal industries – such as within the agricultural sector – the reception of visitors can become a side activity that enables firms to hire employees all year long (Weaver & Fennel, 1997). In addition IT may also affect the productivity of workers who are not involved in the company tours. Frew (2000) expects that the interest of guests in the production process makes employees more confident about the importance of their jobs, thus improving the working moral.

In the present article we raise the question if and how the development of industrial tourism (IT) in regions can be justified by analysing the regional economic impacts. Several scholars have discussed arguments for both regions and individual firms to get involved in the development of this type of tourism. What are reasons to open doors for visitors and reasons to keep doors closed? Obviously such arguments can be used by regions to support their decision to promote IT development. However, what seems to be missing is a more systematic analysis of the regional *economic* impacts of IT. This is exactly the gap we want to address with this paper.

Through this article we aim to make a significant contribution to the relatively small body of literature on IT development. What is the economic relevance of IT? Is it only a small niche or a significant segment of the tourism industry? What are the direct and indirect costs and benefits? Such questions are highly relevant for those who are interested in IT, either from an academic or professional point of view. In addition our article can also be seen as a contribution to a broader debate on the economic impacts of tourism in general. Insight in the regional impacts of IT – and methods to analyse these impacts – also add to our understanding of the conditions under which tourism development overall has a positive influence on regional prosperity.

After this introduction (section one) we first review the literature on the regional economic impacts of tourism (section two) and the regional economic impacts of IT (section three). This literature review results in several typologies of effects. One of the most relevant distinctions is the one between effects on spending (direct and indirect) and other, non-monetary effects. In the empirical part of this paper we will illustrate this typology with evidence from six case studies that have been carried out as part of an international comparative study: Wolfsburg and Cologne (Germany), Pays de la Loire (France), Turin (Italy), Rotterdam (the Netherlands) and Shanghai (China) (Otgaar et al., 2010). We selected these six regions because they are relatively active in IT development. Data has been collected by means of semi-structured interviews and desk research. In section four we analyse the effects of IT development on spending in these regions while section five takes a closer look at the other effects. In section six we draw conclusions.

2. Regional-economic impacts of industrial tourism

In the present section we discuss the regional-economic impacts of tourism in general, and industrial tourism in particular. Through a review of the tourism literature we identify several subdivisions of effects that may also be relevant for industrial tourism.

Four reasons to analyse the economic impacts of tourism

In the tourism literature several scholars have discussed the impact of tourism development on the regional economy (e.g. Frechtling, 1994; Dwyer et al., 2004; Crompton et al., 2001; Stynes, 1997; Oldenboom, 2001; Gasparino et al., 2008). They give at least four strong arguments to analyse the economic effects.

First, some of them (e.g. Frechtling, 1994; Dwyer et al., 2004; Crompton et al., 2001) argue that *ex ante* insight in the expected economic effects of tourism is essential to make good choices between alternative resource allocations. What is the net benefit for society compared to other investments? Does it make sense to invest in tourist facilities or promotion? Such questions are also highly relevant for the development of industrial tourism; not only from the region's point of view, but also some from the viewpoint of individual firms.

Second, insight into the economic impacts of tourism may be needed to evaluate (*ex ante* or *ex post*) the economic effects of policies that are not directly related to tourism but do have an impact on this industry (Stynes, 1997). Investments in infrastructure improve the internal accessibility in a region, to the benefit of many users including tourists. This also applies to industrial tourism.

A third argument to make the impact of tourism development explicit relates to community support. Frechtling (1994) and Stynes (1997) both state that the development of tourism affects and depends on the support of local communities. Data on the economic relevance can help to gain appreciation among the population, and hence also among politicians. Also for policies that promote industrial tourism development support from public and private decision-makers is needed.

Fourth, an economic impact analysis can help to gain understanding of the interdependencies between different segments of the tourist industry (their size and structure) and the linkages with other industries and branches (Stynes, 1997). This knowledge can assist entrepreneurs as well as policy makers in identifying possible partners to cooperate with. Industrial tourism is a typical example of a tourism segment within which clear links are established between industries (e.g. between segments of the traditional tourism industry and the industries that open their doors).

Spending impacts

Most articles on the economic effects of tourism focus on the impact on spending. Several researchers have used e.g. export base, input-output or general equilibrium models to calculate the economic impacts of tourism (e.g. Wagner, 1997; Fletcher, 1989, Dwyer et al, 2004; etc.). When using these kinds of techniques the (implicit) assumption is often that tourism as an export industry that generates an inflow of (foreign) currency into the economy of the host region (Mathieson and Wall, 1982; Archer et al., 1998; Gasparino et al., 2008). Also if we apply this to industrial tourism, visitors from abroad buy services and goods from companies located in the region. It must be said, however, that industrial tourism as we define it also comprehends 'residential tourism' (recreation). The economic impacts of recreation are however of a different nature: If residents attend a company tour the net impact on regional spending is zero, because they can only spend their money once.

If (industrial) tourists visit a region two types of economic impacts can be distinguished: 1) impacts (through spending) on the volume of demand and supply and 2) impacts (through spending) on the prices and qualities of goods and services.

When tourists arrive, the demand for goods and services will increase enabling producers to raise their production and sales volume. In the case of industrial tourism they will not only buy a ticket to enter the firm, but they will also spend money in restaurants and hotels. Also firms outside the tourism industry (e.g. transportation and retail) will be able to benefit. Increases in production and sales volumes can lead to increases in local income, employment and tax income. In short: industrial tourism can be a source of income and employment, two highly relevant indicators of economic performance (Gasparino et al., 2008; Frechtling, 1994). This is the first type of economic impact.

When tourists spend their money they not only influence demand and supply quantitatively but also qualitatively. If the number of (industrial) tourists is substantial they may be able to influence price levels but also the quality of goods and services, either in a positive or negative way. Local people may take advantage or disadvantage of this impact. In general an increasing demand will raise prices for products, semi-

products and production factors (Dwyer et al., 2004). Also real property values and returns on capital invested in tourist facilities can be affected (Frechtling, 1994). This is the second type of economic impact.

Direct and indirect effects

Within the category of 'spending impacts' another subdivision can be made between the direct, the indirect and induced effects of tourism.

The direct effects are the changes in sales, production, prices, (tax) income and employment that manifest themselves as a direct result of tourist spending (Gasparino et al., 2008; Stynes, 1997; Frechtling, 1994). Companies that benefit directly are to be found in the tourism industry (hotels, tourist attractions) but also in supporting industries such as retail and restaurants. If we consider the direct effects of *industrial* tourism, only changes in sales, production and prices at firms that do business with industrial tourists should be taken into account. They may spend money at the host firm, but also at other tourist attractions, local tourism agencies, hotels, shops and restaurants.

Indirect and induced effects are economic impacts that result from the re-spending of the initial tourist spending. Indirect effects emerge when tourism and related industries use the (additional) revenues from tourists to buy intermediary goods and factors of production. In rounds of re-spending industries that serve tourists directly cause changes in production, employment and income in other sectors, including the government (Gasparino et al., 2008). Induced effects occur if an increase in employment caused by direct and indirect effects results in an increase of income to be spent by households. This implies that also other sectors of the economy take advantage because of an increased demand for goods and services.

The total impact on spending (direct, indirect and induced) depends on the number of (industrial) tourists and the money they spend. Other relevant determinants are the capture rate and the multiplier. The capture rate can be defined as the share of initial tourist spending that actually accrues to the host region. For many goods sold to (industrial) tourist it is only the retail margin that accrues to the region, while most of

the income flows to actors outside the region (e.g. wholesalers, distributors and manufacturers). This part of tourist spending never produces any economic effects (neither directly nor indirectly) (Gasparino et al., 2008; Acher and Fletcher, 1996; Stynes, 1997). The multiplier expresses the ratio between the total effects (including direct, indirect and induced effects) and the direct effects¹. This ratio depends on inter-industry linkages (more supplier-buyer relations will raise the multiplier) and leakages (Gasparino et al., 2008). Leakages take place if additional income does not result in additional regional production due to the fact that people spend part of their extra income on paying taxes, saving money and buying imported products. Leakages reduce the multiplier.

Intangible and non-monetary effects

Apart from impacts that are directly related to tourist spending several other effects can be distinguished. These effects tend to be intangible and more difficult to quantify in monetary terms. Oldeboom (2001) distinguishes two sub-types of intangible, non-monetary effects not related to spending: general and specific.

General effects of tourism not related to spending are those effects from which nobody can be excluded: positive and negative externalities. A possible general effect of industrial tourism is the improved promotion of the region: a better image that not only attracts visitors but business and residents as well. Possible negative effects of (industrial) tourism are nuisance and congestion, resulting in a lower quality of the living environment and possibly even an exodus of businesses and residents (the so-called crowding-out effect). Although these effects are difficult to quantify they do have monetary consequences (Frechtling, 1994): taxes to cover the costs of public services may for example increase in the presence of tourism activity and a higher quality of the living environment could lead to increasing real estate values.

Specific effects of tourism not related to spending are externalities of which a group of people or companies profit or feel the burden. IT could for instance enhance the

¹ A multiplier of 1.5 indicates that, besides the original impact of 1 there is an additional secondary effect of 0.5.

image of a specific branch or supply chain or cause nuisance for neighbouring citizens. Mitchel & Orwig (2002) make clear that consumer experience tourism may assist regions and their industries to establish trust and understanding within supply chains (Mitchell & Orwig, 2002). They also hypothesise that the involvement of consumers in the production process leads to an improvement of brand loyalty (also see McBoyle, 1994). This so-called 'involvement theory' implies that IT can become an instrument of public relations and branding for individual firms, clusters of firms and supply chains to the benefit of regions as well.

According to Frew (2000), IT development can be used to display a more realistic image of modern industries and the regions in which they are located (becoming an instrument of place marketing). Not only towards consumers but also towards other stakeholders such as suppliers, business customers, the government, the media, etc. Essentially each visitor may become an ambassador for the region's industries (Rudd & Davis, 1998). The non-monetary reputation effects of IT presumably depend on the characteristics of companies: for non-consumer oriented firms it is probably less beneficial to receive ordinary tourists (How, 1994).

The non-monetary reputation effects can be positive but negative as well. Several scholars (e.g. Fontanari & Weid, 1999; Schmidt, 1988) report resistance among regions to use IT for marketing purposes. Regions with a negative industry profile may consider IT development conflictive with objectives to promote the region as an attractive place to live or to visit. This may either concern the use of the term 'industrial tourism' in general, or the association with particular industries. IT development is in fact an instrument of co-branding as the image of an industry influences the image of a region and vice versa (Kavaratzis & Ashworth, 2005; Azevedo, 2004). It can thus be expected that regions favour IT development in sectors that project similar images or values as the region (Pechlaner, Fischer & Go, 2006).

The costs of tourism

Insight in the economic benefits of tourism – direct and indirect effects on spending, but also non-monetary impacts – is necessary but not sufficient to evaluate policies. We also need to consider the costs of tourism. Obviously this also applies to IT. Frew

(2000) emphasises that the development of IT not only brings benefits to regions and their industries: there are also some costs and risks to be taken into consideration. For many companies the costs and risks such as theft and industrial espionage provide arguments not to develop IT (Frew, 2000). On the other hand the costs of infrastructure and facilities are relatively low (for most forms of IT): IT can be seen as a form of tourism that enables regions to use land and buildings for both tourism and other (economic) functions (Mader, 2003; Baumann, 1999).

Van der Borg (1991) distinguishes direct costs and indirect costs. In his view there are two types of direct costs: 1) the investments and operational costs needed to run the tourist firms and 2) the expenses of regional authorities laid out for the express purpose of reinforcing tourism such as promotion, the maintenance of tourist information office and public attractions. Comparing Van der Borg and Frechtling, all direct costs are private costs, but not all private costs are direct. Public expenditure on facilities, attractions and other infrastructure not directly destined to the tourist market are private though indirect costs. Two other types of other indirect costs are the induced costs that incur because of excessive pressure on tourist attractions (e.g. congestion and pollution) and the long-term influence on other economic functions (the so-called crowding out effect). Van der Borg argues that excessive pressure on tourism destinations' infrastructure can cause damage, particularly if the number of visitors surpasses the maximum carrying capacity (also see A.P. Russo, 2002).

In summary: a frame of analysis

From our literature review we arrive at the conclusion that in theory industrial tourism can generate economic benefits for the region via impacts on spending and via non-monetary effects such as an improved image for the region and its industries. The added value of industrial tourism for a region depends on the balance between direct, indirect, induced and intangible benefits and the direct and indirect costs.

4. Effects of industrial tourism development on spending

In the present section we review the effects of industrial tourism development on spending in the six case studies we analysed. As we do not have any data on the total

spending of industrial tourists, we choose to analyse some indicators of income generated by IT attractions: visitor numbers, entrance fees and onsite sales. Second we review the impact of industrial tourism on visitor spending at other suppliers of tourism products (e.g. hotels, restaurants, shops, other tourism attractions, travel agencies, etc.).

Visitor numbers

Different definitions of IT complicate international comparisons between regions when it comes to visitor numbers. More importantly, however, we found that only two of the six regions are actually able to provide up-to-date statistics on visits to industrial sites. In Pays de la Loire members of the organisation Visit Our Companies are obliged to keep track of visitor numbers. The same applies to firms listed in the Annual Ticket Book of the Shanghai Industrial Tourism Promotion Centre. In the four other regions we can only give a rough estimate of the share of IT in the total number of visits to tourism sites.

In Pays de la Loire company visits take a share of about 11 per cent in the total number of 9 million entries to tourism sites (Regional Observatory of Tourism, 2007). With an absolute number of almost one million visitors a year the direct and indirect monetary impacts are substantial. Important attractions are Terre de Sel (55,000 visitors a year), STX Europe (32,500), Airbus (25,000), Cointreau (22,000), the port (10,000) and the event Made in Angers (17,000).

The Shanghai Industrial Tourism Promotion Centre reported an impressive visitor number of more than 6.15 million in 2006. The share in the total number of visits to tourism sites is 6.4 per cent (SITPC, 2007a). The total figure not only includes visits to individual factories, but also to industry parks, museums and even industrial landmarks such as the Maglev train and the Jinmao Tower. As we indicated above this makes it difficult to compare Pays de la Loire and Shanghai. Some main attractions are Baosteel (80,000 visitors a year), Shanghai Volkswagen (100,000), M50 Creative Park (12,000) and Yakult (70,000).

In Wolfsburg, Autostadt (about 2 million visitors annually) and the Volkswagen factory (185,000) – two separate IT attractions that reinforce one another – are by far the most popular IT attractions in the region. About 90 per cent of all package trips to Wolfsburg include a visit to Autostadt. The share of IT in Cologne is much smaller due to the strong presence of other tourist attractions. Some of the most visited companies are Bayer (120,000), Magic Media Company (10,000), RheinEnergie (7,200), the ports of HGK (11,000). The open door event Expedition Colonia attracts approximately 7,500 people every year. In terms of visitor numbers the relevance of IT in the region of Turin is limited. The main crowd puller is Fiat, but with only 23,000 visitors this car manufacturer receives few visitors in comparison with competitors such as Volkswagen. The high-profile event Made in Torino – a joint initiative of the Chamber of Commerce and the Tourism Office – only generates 1,500 visits. Rotterdam's main IT attraction is its port, with a total number of visitors of about 67,000 (arriving through various organisations and events). In 2009 the port and the city opened a new attraction – the World Port Experience – with an expected audience of 200,000 a year.

Limited availability and comparability of data make it difficult to draw conclusions on the total number of industrial tourists in three of the six regions we analysed (Rotterdam, Cologne and Turin). If we look at the two regions that do provide data (Shanghai and Pays de la Loire) the conclusion must be that IT is a substantial segment of the tourism industry with a share in the total number of visits to tourist attractions of 6 and 11 per cent respectively. Wolfsburg is an exceptional case with the dominance of Autostadt and Wolfsburg, resulting in an estimated share of at least 50 per cent. The question is of course if all these visitors also bring benefits to the region in terms of spending and otherwise. The total spending of industrial tourist not only depends on the number of visitors but also on their spending pattern. To gain some insight in actual spending we need additional information about other indicators of (industrial) tourism impact.

Entrance fees

Through our case studies we gained some insight in the entrance fees of industrial tourism attractions. Because aggregated information on a regional level is not

available, we look at the entrance fees and pricing strategies of some host firms in the six case studies. It appears that several pricing strategies can be distinguished. In various cases of individual firms (e.g. Bayer and Rheinenergie in Leverkusen/Cologne, the Volkswagen factory in Wolfsburg, the Fiat factory in Turin and most companies in Shanghai) the entrance is free. This suggests that IT is considered an investment that generates non-spending effects (e.g. branding and reputation).

Discussion partners who represent host firms give two reasons to introduce a (small) fee for company visits: one is to communicate the value of the tour (it is not cheap!), the other is to keep away visitors who only enter the firm *because* it is free. On the other hand, the introduction of fees also incurs (administrative) costs that may even not compensate the revenues. In many individual cases the entrance fee does not cover the costs. A good example is Autostadt where the tickets (about €15 for adults) only cover 70 per cent of the operational costs. At the neighbouring Volkswagen factory tours are offered for free. In 2006 Visitor Services experimented with a small fee of €5 to cover part of the costs per visitor estimated at €8.70. The main reason was not to earn money but to avoid sending the message 'if it is free, it must be worth nothing'. After only a few months the fee was abolished because of the administrative costs and the amount of time that needed to be spent on the transaction, not only by the staff but by visitors as well. At Cointreau they made another decision: they radically changed their industrial tourism strategy by raising the price from €5.50 to €9.50; not to make a profit on tours to the distillery but to use price as a selection mechanism for visitors who are actually interesting for the firm (young people who fit in the renewed marketing strategy of the brand). At the other end of the continuum there are firms that actually earn money with the organisation of company tours. One is example is the Magic Media Company – film and TV studio operator – for which industrial tourism is a (moderate) source of additional income. Studio tours are offered at prices that vary between €5.40 (pupils, disabled, groups) to €17.50 (deluxe).

Between the two extremes we find companies that offer tours at break-even prices, covering the costs of guides and visitor management. They have in common with companies with free entrance that non-monetary effects are needed to justify the

‘open-door policy’. For example, pen producer Aurora (Turin) charges entrance fees that cover costs only and vary between €10 and €20. The firm concerns industrial tourism as a tool to manage stakeholder relations with society.

Other companies in our sample have outsourced the organisation of tours to other firms, foundations or public bodies. They often argue that the organisation of company tours is not their core business, although they do recognise the non-spending benefits of receiving guests. By outsourcing the organisation of industrial tourism not the host firm but the organiser collects the entrance fees, while also covering (most of) the costs. Also these organisers may use several pricing strategies. In Turin, for instance, Turismo Torino has been invited by the Chamber of Commerce to organise company tours as part of the event Made in Torino. Visitors pay €8 to €10 for a company visit, which is by far not enough to cover the costs: more than €90 per visitor according to our estimations. In St Nazaire (Pays de la Loire) three large firms – Airbus, STX Europe and the Autonomous Port of Nantes-St Nazaire – have hired the public-private tourism organisation Escal’Atlantic to organise tours for regular visitors at cost-covering prices. For a visit to the shipyard of STX Europe people pay €7 of which a small part is transferred to the host firm as compensation. This results in a very small additional income for the firm of about €4,000.

The case studies demonstrate that IT attractions are in many cases subsidised by the host firms that open their doors or regional organisations such as the Chamber of Commerce or Tourism Office. The entrance is often free or offered at a price that does not cover the costs. It is also questionable if visitors would actually be willing to pay the full price. This all implies that the spending effects generated directly by IT attractions are relatively small compared to other (more commercial) tourism attractions.

Onsite sales

A third indicator of spending effects generated by IT directly at the host firm is the volume of onsite sales. Since regional data on this indicator are not available, we can only look at examples of individual firms. Are host firms or other actors investing in

visitor facilities such as restaurants and shops? And what can we say about the volume of sales at these facilities?

A general observation is that many firms do not provide such facilities. An illustrative example is the Rotterdam Car Centre operated by Broekman Automotive. In contrast with Volkswagen this centre is not consumer-oriented, possibly explaining why there are no special facilities for visitors. The canteen is used as reception, but visitors do not spend any money here.

Possibilities for onsite sales highly depend on the characteristics of firms that open their door. The case studies confirm that companies in the (agri)food industry and producers of chocolate, beer, wine and other (alcoholic) drinks are more inclined to develop visitor centres where people can enjoy the production process and buy or taste the products. In Pays de la Loire, for instance, one of the most popular IT attractions is Terre de Sel: the visitor centre of Les Salines de Guèrande, a cooperative of salt workers. The visitor centre is not only the starting point for various tours to the salt marshes and the storehouse (with ticket prices between €4 and €12), but also contains a shop that sells approximately 50 tons of salt (at discount prices) every year. The relevance of the shop should not be overestimated however: it only generates 0.7% of the total sales. The case of Shanghai shows that also non-consumer oriented firms may earn some additional income from onsite sales. Steel manufacturer Baosteel operates a souvenir shop with an annual turnover of €30,000; a very small amount, however, compared to the total earnings.

Impact of IT spending at other suppliers of tourism products

Our review of the three indicators makes clear that in general IT generates limited direct impact at the host firms. At several firms we interviewed (e.g. Baosteel, Airbus, Cointreau, Bayer, Volkswagen Shanghai, Fiat, STX Europe) visitor numbers are substantial while the total spending on entrance tickets and onsite facilities is relatively low. Autostadt and Terre de Sel are two exceptional examples of IT attractions with significant impacts on spending at the site itself. It is, however, much more likely that industrial tourists also benefit other suppliers of tourism products

such as hotels, restaurants and non-industrial tourist attractions. The case studies provide some evidence supporting this hypothesis.

In the case of Wolfsburg, Autostadt is by far the most important attraction being responsible for an increase in hotel capacity between 1999 and 2006 by 70 per cent. One of the new hotels is the five-star Ritz Carlton Hotel, which is located in the Autostadt area in the midst of an industrial area. In the same period the number of overnight stays increased by 45 per cent. Most people visit Wolfsburg because of Volkswagen and/or Autostadt. The industrial area has become an island in the city with its own tourism infrastructure including a hotel and restaurants. Most Autostadt visitors never get a glimpse on the city centre, which is located at the other side of the train station. In recent years the city has tried to take more advantage of IT by developing other tourist attractions (e.g. Phaeno Science Centre and Designer Outlet Centre) near Autostadt.

Another supporting example is Cologne where the annual event Expedition Colonia (Cologne) – which targets the German market – has been invented to enlarge hotel occupancy rates during the Easter period (April). This event enables people to ‘discover the city’, *inter alia* by making tours to companies. The tourism office uses the event to attract families and lengthen their stay in the city during this holiday period.

Conclusions

Regional data and examples of company tours offered at individual firms have helped us to review the spending impacts of IT. A general conclusion is that these spending impacts are often limited if we restrict our analysis to the initial spending at the host firm. High visitor numbers do not necessarily result in benefits for the regional economy. For a more in-depth analysis of the regional-economic effects of IT we need to gain more insight in the spending pattern of industrial tourists. How long they stay in the region? Do they also visit other tourist attractions? How much do they spend on average? Our case studies provide only very limited and anecdotal evidence that IT actually generates such effects: additional research is needed.

The case studies also do not give any information about the indirect and induced effects (re-spending by firms and households) of IT. It is obvious that other research methods are needed to measure such effects. It would be interesting to see if these effects of IT differ significantly from other segments of the tourism industry.

5. Other effects of industrial tourism development

Since the effects of IT on spending are often limited other effects not directly related to spending need to compensate this. There are (at least) two other effects of IT development that deserve some attention: 1) its impact on the image of the region and its industries; 2) its impact on the quality of the urban environment.

Impacts of IT on the image of the region and its industries

For most of the regions we analysed, IT is not (only) a source of income and employment, but (also) an instrument of reputation and stakeholder management. This can be observed in the case of Turin where the Chamber of Commerce and the Turismo Torino have jointly developed the event 'Made in Torino; Tour the Excellent' to promote the image of the city as business location and tourist destination. One specific aim of the event is to improve civic pride among the local population. In St Nazaire (Pays de la Loire) IT is an interesting niche for the tourism organisation Escal' Atlantic, but also a tool to improve the city's image. Angers considers IT as a bridge-builder between business and society. Shanghai invests in the development of IT to enrich people's perceptions of the city and to attract investors from abroad. Also in Rotterdam several organisations (the City, the Port, Industrial Tourism, Rotterdam Marketing) see IT as a tool to improve the image of the city and its (port-related) industries. The attraction Rotterdam Port Experience has not only been developed to attract tourists, but also to promote the port as employer and good citizen.

IT can be an instrument of reputation management, but it often remains unclear if company visits actually improve the image of a region and its industries. Volkswagen is one of the few companies that have actually measured the impact of IT. A marketing study carried out by the University of Mainz demonstrates that the factory

tour (not a visit to Autostadt!) has a positive influence on various aspects of the corporate image: quality, dynamism, modernism, design, safety and reliability. Moreover the study shows that company tours improve customer loyalty: they have raised the share of visitors that intends to buy a Volkswagen from 58 to 65 per cent. According to Volkswagen company visits are a cost-efficient and effective tool for customer retention, especially if compared to other marketing tools such as advertising. Other consumer-oriented firms have similar strategies: Yakult (producer of probiotic drinks) spends around €100,000 a year on the organisation of company visits, simply because it is an effective tool to reach customers. The company is convinced that company visits lead to an increase of sales, although they have not done any research that supports this assumption.

Impacts of IT on the quality of the urban environment

Our empirical study also shows that IT possibly influences the quality of the urban environment. In the case of Rotterdam, for instance, IT development is considered a potential catalyst for investments in the accessibility and attractiveness of the port areas (the distance between the city and the edge of the port area is 45 km).

Another example is the Shanghai Industrial Tourism Promotion Centre, which considers IT as an instrument to make areas in the city more attractive and lively. They expect industrial tourists to combine company visits with visits to other tourist attractions and supporting facilities (shops, restaurants, etc.). This impact on attractiveness results in increased spending at other suppliers of tourism products, at least in theory. If this strategy is actually successful remains unclear however.

Conclusions

In conclusion: our explorative study shows that many regions and companies regard IT as a tool of reputation and brand management. Companies that invest in IT – such as the Volkswagen Group and Cointreau – also try to measure the effect of company visits on image. While several regional organisations invest in IT as well, they seem to make fewer efforts to measure the effect on image. Additional research – e.g. by

means of surveys – could provide more knowledge on this aspect. In the end an improved image of the region and its industries may also result in increased spending.

The impact of IT on the quality of the urban environment is another issue that has drawn our attention. Rotterdam and Shanghai both see opportunities but additional research would be needed to find out under what conditions IT actually contributes to a more attractive city (district). In such a study IT development has to be seen as an integral part of urban (re)development.

6. Summary and conclusions

We expect that many regions and their industries are interested in the economic potential of industrial tourism (IT). The literature on IT provides several arguments for companies to open their doors and for regions to facilitate IT, for instance by promotional activities. The question, however, is if IT actually benefits the economy. A systematic analysis of the regional economic impacts can provide answers to that question.

By means of literature review we developed a typology of effects making a distinction between the impacts of IT on spending and other, non-monetary effects such as an enhanced image and improvements in the quality of the urban environment. Within the first type of effects we made a subdivision into direct, indirect and induced effects. We also briefly discussed the costs of industrial tourism.

Case studies of six regions with experience in the development of IT have helped us to gain some more insight in the regional-economic effects. We revealed that the direct impacts on spending generated by the host firm are often limited; not because visitor numbers are low, but because entrance is in many cases either free or offered at low prices and due to the lack of visitor facilities where people can spend their money (souvenir shops, restaurants, etc.). More significant impacts can be expected if we also consider the money visitors spend elsewhere in the region. Additional research would be needed to measure this impact.

In addition we observed that for many regional organisations and individual firms industrial tourism is not (only) a source of income, but (rather) an instrument of reputation management. They expect IT to generate an improved image of the region and its industries. If an adequate regional supply of company visits actually changes perceptions has remained less clear however. Also the impact of IT on the quality of the urban environment is an issue that deserves more attention of researchers and policy makers.

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