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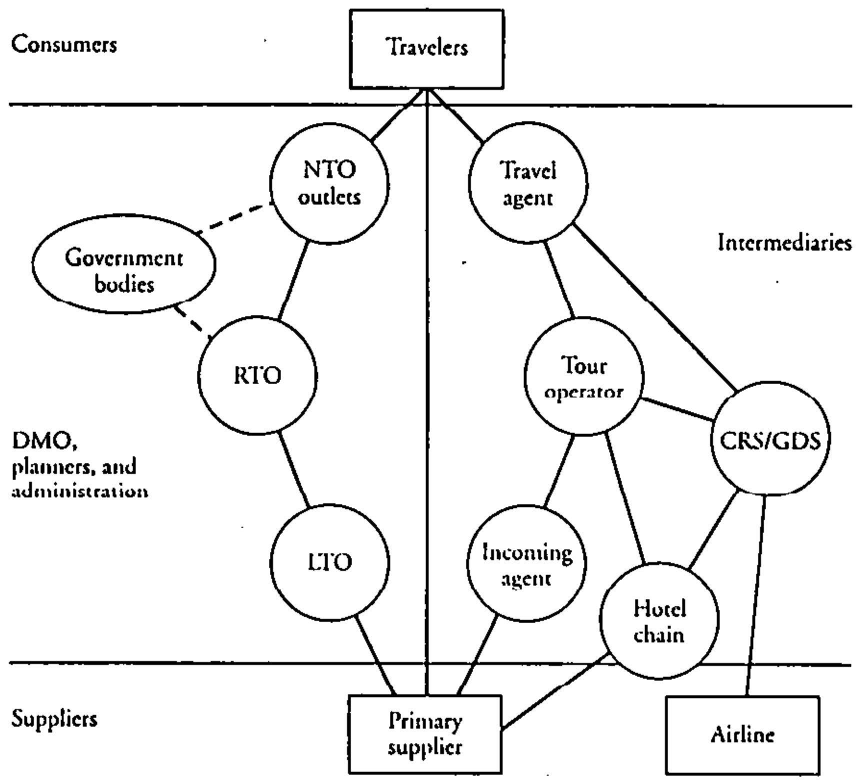
Web Impact on the Air Travel Industry

OVER THE PAST DECADES, the travel and tourism sector has emerged as one of the most important for developing as well as developed countries. It is estimated that the relative importance of tourism will grow to approximately 11 percent of global GDP in 2007.[1] Tourism incorporates many of the features of the information society such as globalization, mobility, and information richness. People from all nations, social ranks, professions, and different ways of life are potential tourists. Tourism, as a global industry, links a worldwide supplier community with consumers equally distributed worldwide. Its physical and virtual networks enable worldwide traveling, bringing together very distant cultures and habits. The tourism industry is diverse, partly fragmented, and the size of tourism principals varies from micro to global enterprises. Only special segments like the airlines are concentrated into an oligopoly of global alliances.

Figure 5-1 represents a stylized view of the travel and tourism market. It differentiates between the supply and demand side and the respective intermediaries. Links mark the relationships as well as the flow of information. The figure depicts only the most relevant links; the nodes indicate the relevant players in the field. On the supply side, we distinguish between primary suppliers (such as hotels, restaurants, cultural or sport event organiz-

1. WTTC (1997).

Figure 5-1. *The Travel and Tourism Market*



Source: Werthner and Klein (1999).

ers), airlines, and other transport providers (such as car rental companies, railroads, and ferry companies). Tour operators can be seen as product aggregators; that is, they produce a new product by combining basic products or components. Travel agents, on the other hand, can be viewed as information brokers, providing the consumer with the relevant information and booking facilities.

Computerized reservation systems (CRSs) and global distribution systems (GDSs) cover airline offerings as well as other tourism products such as packaged holidays and other means of transport. They provide the main links to tour operator systems and to travel agents.

Destination management organizations (DMOs) operate on a national, regional, or local level and focus on planning, marketing, and administrative tasks for destinations. In most cases, these entities have to act on behalf of all suppliers within a destination and are not involved in the booking process. The links to governmental bodies indicate that these destination marketing and management organizations are also often governmental organizations. LTO, RTO, and NTO refer to local, regional, and national tourist organizations such as tourist boards or visitor bureaus. The tourists and travelers represent the demand side.

Product Features of the Air Travel Industry

Travel and tourism products are services that require a high degree of customer participation during service fulfillment. Moreover, as consumption and decisionmaking are mostly decoupled, travel and tourism services can be seen as information products. Prospective customers need plenty of information to comprehend offerings, compare them, and make their choices. As a consequence, the travel industry—especially the air travel industry—is among the leading users of IT. The existing CRSs and GDSs give a good insight into the current market situation and are the basis for the airlines' yield management—that is, capacity planning and pricing.

Tickets for scheduled flights have unique properties. They represent nontransferable contracts between the customer and the airline. Scheduled flights operate with a high level of fixed cost (for aircraft, crew, fuel, fees, and so on) while passenger-related costs account for roughly 13 percent of the overall cost.[2] Scheduled flights are a prominent example of price differentiation, as up to twenty different booking classes are defined for a single flight in which only two (or three) service classes are differentiated. Table 5-1 gives a brief summary of a specific travel product on which we will focus during the remainder of this chapter, tickets for scheduled flights.

Consumer Behavior

Consumer behavior is changing overall. As part of this general trend, tourists and air travelers in general:

2. Pompl (1998).

Table 5-1. *Product Characteristics of Airline Tickets*

Characteristic	*Tickets for scheduled flight*
Initial production cost	High fixed costs (aircraft, crew, fuel, etc.)
Marginal cost for additional product	Less than 15 percent of overall costs related to number of passengers (ground service, catering, etc.) within a given group of seats
Individualization cost	Fixed cost for setting up yield management and booking systems; low variable cost for price discrimination based on service level and contractual features (right to return or change ticket, advance booking, restrictions on timing, etc.)
Shelf life	Defined by flight schedule: once gate has closed, overstocked seats are worthless

—ask for better service, becoming more critical and less loyal;

—want more specific offers with regard to content as well as to the complete travel arrangements;

—are becoming more mobile and travel more frequently;

—decide their travel arrangements later, leading to a decreased time span between booking and consumption;

—are more sensitive to price, comparing more and more offers.

As a consequence, the consumer market becomes more segmented and most potential customers fit into different market segments at the same time.

Salience of the Web

Air travel and tourism are among the most important application domains on the World Wide Web. Estimates state that approximately 33 percent of Internet transactions are tourism-based.[3] A Delphi study with forty participants from German-speaking countries estimates that within the next ten years 30 percent of the tourism business will be Internet-based.[4] According to Forrester Research, $64 billion in travel will be booked on the Internet by 2004.[5] While forecasts vary depending on the sources, the overall trend

3. Strassel (1997).
4. Schuster (1998).
5. Keith Regan, "European Airlines Form Net Travel Agency," *E-Commerce Times*, May 11, 2000 (available online at www.ecomercetimes.com/perl/story/?id=3307).

is hardly disputed. Reasons for the prominent position of travel revenues on the Internet include

—the sheer volume of overall revenues;

—the salience of rich and topical information for customers;

—tourism suppliers address a global audience, and almost every Internet user is a potential customer;

—intense competition on the web among incumbents and new players has led to the emergence of numerous leading websites that offer a wealth of multimedia information and efficient transaction support.

For airlines, online sales enable an extension of their yield management activities as it becomes easier to sell remaining capacity on a last-minute basis and to differentiate prices even further. Customers can benefit from easier access to a wealth of current information, efficient transactions, and increased market transparency.

Industrial Trends Triggered by the Web

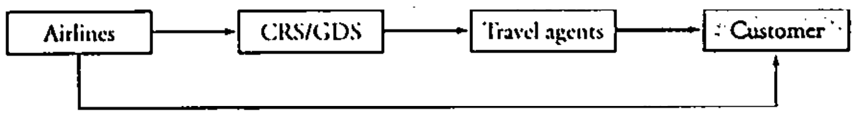
Figure 5-2 depicts the traditional scheduled flight ticket sales channels in tourism. Travel agents intermediate transactions between airlines and customers. CRSs and GDSs intermediate the relationship between tourism principals and customers with services based on the capabilities of data storage, information retrieval, and transaction processing (an early form of cybermediation between supplier and retailer developed in the 1970s). Some airlines, especially low-cost ones such as Southwest Airlines, focus on direct sales. We now reconstruct and illustrate the extension of this structure in four stages, using prominent industry examples.

Web-Based Disintermediation: Lufthansa

While airlines have a tradition of trying to exploit direct sales—for example, via call centers or control of travel agencies—the web has significantly extended their possibilities to do so. Almost all major airlines are operating a website with direct sales offerings. As they are the owner of the products, airlines in some instances have changed the rules for travel agencies either by reducing sales commissions or by exclusively offering products that are not available via travel agents, for example, ticket auctions.

Since August 1997, Lufthansa has been regularly auctioning off selected flight tickets via its website InfoFlyway. Once a month, auctions run for a

Figure 5-2. *Traditional Industry Structure in the Scheduled Airline Market*



full day from 10 a.m. till 10 p.m. Fifty separate auctions take place during an auction day. During one auction, which lasts for approximately ten minutes, one set of tickets is auctioned off. On average, there are 120 participants in the virtual auction room, of which about twenty are active bidders. An auctioneer tries to induce participants to continue the competitive bidding process. The Lufthansa auction has ascending prices, but the ticket list price is taken as an upper limit. Successful bidders are called after the auction to confirm the price and verify the credit card information. Typical bidders are participants in Lufthansa's frequent flyer program, Miles & More, and customers who use Lufthansa's website regularly. The tickets offered are for carefully selected seats on less frequented flights to attractive destinations. Auction tickets, which often are sold with a significant discount, are frequently used for an additional weekend trip or as presents. Lufthansa has included offerings from their partners, such as holiday packages, in the auctions and is exporting the auction to countries outside Germany.

The airlines have started to compete more openly with their traditional distribution partners, the travel agencies, and they have invested serious amounts of money into their web activities. Lufthansa, for example, has received awards for outstanding web quality. However, so far the overall success of these markets has been limited. Delta had to revoke its $2 fee for offline bookings after immediate massive protests from travel agents. In 1999 Lufthansa's combined direct sales activities—over all channels—accounted for 7–8 percent of their ticket sales; the target for 2003 is 14 percent.[6] While this ratio is in line with the expectations of other major airlines, U.S.-based Southwest Airlines is moving far more aggressively and successfully with 27 percent of all tickets purchased via the web in January 2000.[7]

6. Marcussen (1999a); Marcussen (1999b).

7. Paul A. Greenberg, "Southwest Projects $1B in Online Sales," *E-Commerce Times*, February 29, 2000 (available online at www.ecommercetimes.com/perl/story/?id=2610).

Web-Based New Roles for Intermediaries

It is not only the airlines trying to take advantage of the opportunities of the web. Traditional travel intermediaries, namely travel agents and the CRSs and GDSs, have entered the online market as well.

TRAVEL AGENTS: ROSENBLUTH. While travel agents account for 80–95 percent of all ticket sales, their margins have been reduced by the airlines, and they are quickly losing market share to competitors in the online market. Travel agencies appear to be especially vulnerable because they have operated for years in a fairly protected market, and because the concentration level in the travel agency market is still quite low, despite a recent phase of consolidation. Only a few travel agencies are using differential pricing to distinguish attractive from less attractive customers.

However, travel agents have started to use the web to develop differentiated value propositions and reinforce their market position. Rosenbluth Travel is a prominent example of a travel agency that is responding to the increasing (price) competition from airlines with innovative value propositions to customers. By being able to direct huge volumes of travel toward different airlines, it is trying to maintain its market position and influence over airlines. Rosenbluth is one of the largest U.S. travel agencies with a focus on the business traveler segment. It has a long tradition of providing a best-fare analysis and rebooking customers in order to secure the best deals. Moreover, it pursues a strategy of combining customer relationship management with innovative web applications "to be people-focused and technologically savvy."[8] Next to their corporate website, which can be seen as an online extension of their traditional services, Rosenbluth also owns a separate online brand, biztravel.com.

The current price strategy reflects an overall strategic reorientation. In order to underscore the notion of comprehensive travel management and long-term customer benefits, Rosenbluth is charging its customers the net ticket price (without the travel agent's commission) and adding a service fee.[9] By this means the customer gains better insights into the cost structure and how he or she can influence costs.[10] While this strategy is not restricted to an online channel, service fees reflect the underlying cost structure and are lower for online transactions. Customers are offered several features

8. www.rosenbluth.com/content/tm/why.htm.

9. Rosenbluth and McFerrin Peters (1998).

10. For a comparison of German travel agents' strategies, see H.-J. Klesse, "Reine Sinnestäuschung." *Wirtschaftswoche* 26 (June 24, 1999): 96–100.

online, which enable them to monitor their accounts and have Rosenbluth apply the customers' internal business rules (travel budgets, reimbursements, and so on) when arranging travel. Biztravel.com drew headlines when it introduced compensations for delayed flights on selected airlines.[11] The compensations clearly underscore Rosenbluth's innovative customer service and customer value strategy. However, Rosenbluth's strategy is not an option for the huge number of smaller travel agencies that are operating in the consumer segment.

WEB-BASED INCUMBENT INTERMEDIARIES—GDS-EMPOWERED ONLINE TRAVEL SUPERMARKETS: TRAVELOCITY. Computerized reservation systems (CRSs) and later global distribution systems (GDSs) were developed in the 1960s by airlines to make internal booking information available to travel agents. Global distribution systems operate as industry platforms, are usually owned by several airlines, and handle the bulk of booking transactions for scheduled flights, car rentals, and international hotel chains.

Sabre, American Airlines' CRS, launched EaasySabre in the late 1980s in an attempt to make its offerings available to consumers—with limited success. In the past, CRSs and GDSs have built so-called "online travel supermarkets" for consumers using web technology. Since the October 1999 merger with Preview Travel, Travelocity, 70 percent owned by Sabre, has attracted over 17 million registered users and has become one the most successful online players, with over $1 billion sales in 1999. Travelocity is offering on the one side a one-stop shopping site for travel and tourism products, with a wealth of travel-related online content, and on the other side a highly efficient transaction mechanism based on advanced technology, customer profiles, and superior interaction design. As Travelocity has become an equivalent of the automatic teller machine (ATM) for the travel industry, it is striving to increase customer retention and margins.

Travelocity's marketing alliance with Priceline.com and America Online (AOL) illustrates two trends, the first toward multiple alliances (even with companies that are perceived as competitors), and the second toward combining multiple trading and pricing mechanisms on one platform.[12] Travelocity and the second largest representative online supermarket, the Microsoft spinoff Expedia, have emerged as winners of a fierce shakeout

11. Paul A. Greenberg, "Online Travel Site Offers Guarantee," *E-Commerce Times*, May 24, 2000 (www.ecommercetimes.com/perl/story/?id+3399).

12. Kambil, Nunes, and Wilson (1999).

among the first generation of online travel sites, while ITN has joined American Express Travel online.

Web-Based New Intermediaries—Cybermediaries

While industry incumbents have developed different business models and (re)positioned themselves in the online market, new players, so-called cybermediaries, have entered the market and positioned themselves prominently as consumers' advocates with innovative pricing models (demand collection, demand aggregation, reverse auction).[13] TravelBids and Priceline are two outstanding examples of these new entrants. (As of December 2000, TravelBids was not operational, and no date had been set for resumption of service.)

TRAVELBIDS. Van Heck and Vervest distinguish between sales and procurement auctions.[14] While the Lufthansa auction is a typical case of a sales auction, calls for tenders are traditional examples of procurement auctions. Customers advertise specifications of their needs and ask potential suppliers to submit competing bids. So far, procurement auctions, also referred to as reverse auctions, have mainly been limited to business markets. The economic reasons are the high cost of advertising the call for tender and of selecting the best bid for the customer and the costs of submitting bids for the (potential) supplier. Reverse auctions for consumer goods are a rather new pricing model that has become operational as a result of the Internet.

TravelBids is an example of such a reverse auction. Customers' requests are posted on TravelBids, which is a specialized electronic market. While in the Lufthansa auction (potential) customers submit bids for flights, in reverse auctions travel agents submit bids for customer orders. In contrast to the Lufthansa auction, customers using TravelBids have a wide range of attributes that they can specify or intentionally leave open. They take an active role by specifying their preferences for tourist offerings.

In this market, all bids are visible for everyone to see; hence prospective customers can view other listings and see the results. The bidding period can be set up to seventy-two hours; unsuccessful bids can be repeated. TravelBids's fee of $10 for successful bids is split between the travel agent and the customer. On the supplier side, travel agents bid to fulfill the demand. They use their knowledge to identify flights that fit the customers' preferences and use part of their commission to gain additional orders.

13. See Klein and Loebbecke (2000).
14. Van Heck and Vervest (1998).

PRICELINE. In most markets, consumers have little opportunity to signal the amount of money they are willing to pay before they actually make a purchase. This leads either to consumers' surplus, when the actual price is below the customers' willingness to pay, or to deadweight loss, when it is above their willingness to pay.[15] The web makes feasible pricing strategies that combine personalization and versioning. So-called demand collection systems facilitate a platform for consumers to signal their price preferences for a class of products using certain specification criteria. Those signals are forwarded to suppliers, which can decide individually whether they can and want to fulfill those limited purchase requests.

Based on the assumption that supplier-side fixed prices do not always lead to an optimal allocation of products and services, Priceline set up a market platform, initially for airline tickets. The product range is continually being expanded and now includes, for example, hotel rooms, new cars, and mortgages. Customers can specify their preferences—including the price. Priceline then advertises these offers to airlines, car companies, or financial services companies, which can decide whether they want to fulfill this additional demand at the listed price. Airline customers, however, do not give a detailed specification; they specify only day, place of departure and place of arrival, and request a flight operated by a major airline. In this way, airlines have sufficient scope to fulfill the demand, if they wish. Chances are increased that the offers will be met. Priceline typically earns a commission of $10 for every ticket sold.

The specified offers are forwarded sequentially in a highly efficient and patented process to potential suppliers. Customers' offers are binding and have been substantiated by a credit card authorization. Airlines then decide whether they want to take additional customers at the listed price depending on their current load factor and price policy. Feedback is given to the customers within hours.

In contrast to auctions, Priceline has set up a private market. The demand is actively advertised to airlines, but neither the offers nor the deals are made public. Suppliers can decide based on internal policies; they do not risk any kind of signaling effect, which a flexible price strategy otherwise might send to the market. Priceline is called a demand collection system because it functions as an intermediary that collects customers' requests for products and services at a price different from that advertised. This demand

15. Bakos and Brynjolfsson (1998).

typically is not articulated and thus could not be fulfilled. Priceline was granted a U.S. patent for their business model.

At first glance, Priceline does not appear to be like the typical model for value-based pricing, because it does not reflect an active seller's pricing strategy. However, considering that individual customers specify their price preference for a basic service or product (without overall control of the specific product features), this explicit preference can be taken as an expression of the customer's individual valuation of the product or service. By differentiating prices based on the customers' explicit price preferences, Priceline achieves a high level of allocation efficiency. The customers, however, face the risk of receiving products or services whose features (except for the price) do not exactly meet their expectations.

While Priceline has been admired for its innovative business model, its share price suffered severely during 2000. Airlines with very low spare capacity were hesitant to acknowledge customer prices and therefore most customers showed stronger preferences for convenience and choice in a tight market situation.

Web-Based Airline Strategies: Orbitz, Otopenia, and Hotwire

The success of Travelocity and other online travel supermarkets is attributed to the ease of booking combined with comparison shopping features. Faced with this success, major airlines have formed alliances that mimic the supermarket business model and attempt to compete aggressively with them. In January 2000 a major travel alliance was formed among twenty-seven U.S. airlines, including the five largest carriers—American Airlines, United Airlines, Northwest Airlines, Continental Airlines, and Delta—in order to build a travel website or portal, code-named Orbitz, to offer discounted fares and ticketing directly to travelers. Joint investments are expected to exceed $100 million.[16]

Mirroring the efforts of their U.S. competitors, eleven European airlines, among them Air France, British Airways, and Lufthansa, announced plans to launch an online travel agency, code-named Otopenia, to attract a significant proportion of total online travel sales in Europe.

Backed by six of the largest U.S. airlines, Hotwire.com was launched in late October 2000 as an online discount travel site, focusing on the sale of empty airlines seats. With rebates of up to 40 percent but at fixed prices,

16. *Business Week Online*, November 15, 1999.

the airlines involved attempt to sell at the last minute those seats that otherwise would have led to unused inventory without affecting their establish price schema.[17] The business model mimics Priceline's business model; it is, however, based on a fixed price strategy.

Although neither Orbitz nor Otopenia was operational at the end of 2000, they have already been the subject of legal scrutiny; the American Society of Travel Agents (ASTA) and the German travel agents' association Deutscher Reisebüro- und Reiseveranstalter-Verband have asked the respective antitrust agencies to check the announced alliances.

Analysis

The examples illustrate to what degree the opportunities created by the web have contributed to the transformation and the development of the distribution systems in the air travel industry. Figure 5-3 outlines the current structure leveraged by the potential of the Internet and the web. Shaded shapes indicate online players; ovals indicate new players.

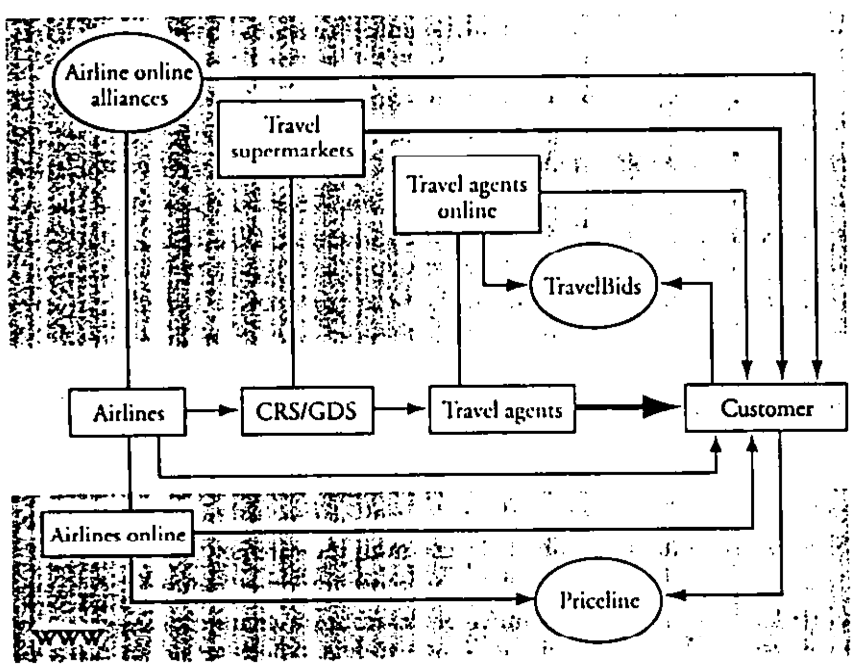
The air travel industry today, like almost any other industry, is characterized by an increasing number of distribution channels. Triggered by increased information and communication possibilities combined with lower costs, there is a mixed-mode structure that represents a continuum of combinations of traditional channels: dis-, re-, and cybermediation, as illustrated by the sequence of developments described above. On balance, two trends have to be distinguished: (1) the rise of new intermediaries, mainly successful on a large scale in the role of online travel supermarkets, parallel to the push of airlines into various forms of direct selling; and (2) decreasing market transparency and increasing concentration against the prevailing electronic market rhetoric.

The Rise of New Intermediaries

The new information and communication means have allowed niche players such as the Lufthansa auction system, Priceline, or TravelBids to become established on the market. However, it has become obvious that these business models are limited to comparatively low sales volume.

17. Clare Saliba, "Hotwire.com Leaps into Net Travel Fray," *E-Commerce Times*, October 25, 2000 (www.ecommercetimes.com/perl/story/?id=4637).

Figure 5-3. *Cybermediated Industry Structure in Air Travel*



Further, they are rather dependent on sales difficulties from the perspective of the airlines—for instance, only when airlines have a significant number of unsold seats do they offer them to companies such as Priceline. On the intermediary side, currently with a more promising proven market success, are online travel supermarkets such as Travelocity. Importing a very well-established concept from physical goods, Travelocity not only sells products from all major airlines ("brands") but also employs a number of distribution systems, from fixed price tickets to Priceline's name-your-price model. Travelocity's current market success coupled with the consistency of its strategy with proven retail concepts leads us to see a flourishing future for companies of this sort.

The main competition to the online supermarkets will come not from niche players such as Priceline that have gained short-term attention in the press and partially on the stock market but from airlines that are forming alliances in their efforts to increase direct online sales. Because of their privileged access to their own product, their behavior has been criticized as predatory disintermediation.[18] The pros and cons of intermediary versus direct selling seem rather obvious: intermediaries are dependent on having tickets to sell, but once procurement is secured, clear decision structures are coupled with a proven, very high degree of domain-specific technical experience and expertise. Airlines have guaranteed access to the products to be sold—the flight seats—but whether efficient and effective coordination among competing airlines can be successfully managed remains to be seen.

Decreasing Price Transparency and Increasing Concentration: Market Failure?

Economics provides numerous reasons for a move toward electronic markets characterized by low transaction costs, high transparency, and low concentration.[19] However, players like Priceline, TravelBids, and the Lufthansa auction system obviously exploit the fact of limited transparency to consumers either by directly increasing the transparency (Lufthansa auction) or by letting the customer believe that the service provider benefits from high transparency leading to access to the best offer. However, as stated above, the sales figures for all those models are low. Currently, a few players have a high degree of market share. Those players are the online supermarkets, Travelocity, and Expedia. Looking at sales figures, not at number of players, concentration has clearly increased. Further, for the vast majority of bookings, customers still get a number of different price quotes for the same flight depending on the sales channel they choose. Market transparency is clearly limited. It has been low for a long time, whether because the back-end matching operations are so complex or because the companies in power have good business reasons not to offer too much actual transparency. Maintaining the belief in transparency has been demonstrated to be a good strategy!

Conclusions and Policy Implications

Our analysis of the recent transformation in the travel industry can be summarized in three major effects of the web. First, the web facilitates a

18. Berghel (2000).
19. Malone, Yates, and Benjamin (1987).

convergence of globally dominant strategies. More than before, successful or plausible business models are subject to almost immediate imitation.

Second, the web has emerged as a realm for numerous alliances that are crisscrossing the boundaries of existing alliances and industries. Even in an industry that is characterized by a tradition of alliances, such as United Airlines–led STAR alliance, the extent of new alliances is surprisingly high.[20] The web can be used and is used to reduce price transparency as the degree of price differentiation and the number of potential outlets is rising.

And third, the web drives concentration despite the sketched emergence of a multitude of online travel sites, which are estimated to be in a range of 1,000 worldwide. In most segments of the travel industry, the web effectively has become a "winner takes all" game: razor-thin margins on one side (the typical commission for online agents is $10 per booked flight) and high set-up costs for advanced websites as well as significant marketing expenses require a high transaction volume. Furthermore, since the first quarter of 2000, the capital market favors companies that can show solid earnings, and only the big players will be able to negotiate favorable deals with the airlines.

These conclusions send a clear message to policymakers: strong signals have to be sent to the market regarding which level of concentration and, even more important, which types of monopolistic behavior will be accepted and which not. Given the dynamics of business models, types of alliances, and creativity of managers, the market has to be monitored carefully. Complaints by industry players and customers have to be taken seriously, and quick response mechanisms have to be designed. Only then will policymakers be able to allow the forces of the market to work and limit unintended consequences of monopolistic or predatory behavior.[21]

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21. [illegible]

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