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# User interface integration in corporate travel management: the case of the CWT Connect portal

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## ABSTRACT

This paper argues that technical integration is not the only reasonable choice in situations where access to data and functionality from different sources is critical. Rather, user interface integration, an approach in which integration takes place primarily in the mind of the user, can be a more favorable option. In this paper, CWT Connect, a travel management portal developed by Carlson Wagonlit Travel, is taken as a case of user interface integration. The paper starts with outlining frequent problems in integrating information systems and discusses how the portal metaphor is related to integration. The case of CWT Connect and its application at electrical engineering provider Cegelec is then depicted in detail. The following discussion outlines how the approach contributed to the objectives of both companies, why more extensive technical integration was inappropriate in the particular scenario, and what limitations and shortcomings result from user interface integration in the particular case.

## Keywords

Integration, User Interface, Portal, Travel Management, Case Study

## INTRODUCTION

In the research arena of information systems, the term integration usually refers to technical integration: a number of isolate computer systems ought to be integrated in order to achieve advantages such as wider availability, less redundancy and more timeliness of data. Over the past decades, different approaches have been followed in order to obtain such an integration: the use of proprietary machine-to-machine interfaces and protocols, adapters and converters, centralized data processing and management, layered IT architectures and middleware concepts, and of course, integrated application software packages. Without doubt, there are many situations in which substantial advantages can be achieved using technical integration. Lately, “enterprise application integration” (EAI) has widely been used as an umbrella term for the various issues and approaches of making genuinely separated IT systems work seamlessly together (Lutz 2000; Linthicum 2001; Lee et al. 2003).

While those undertakings may without doubt bear considerable fruits, they are usually associated with high costs. Also, possible advantages of disintegration have been outlined: companies should limit the degree of integration in order to keep business units independent, stay flexible, keep opportunities for divestiture and avoid lock-in situations (Markus 2000).

Another common problem with technical integration is that compatibility is much harder to achieve on a semantic than on a syntactic level: Whereas the pure exchange of data between several computers is relatively easy to implement with the technology in place today, different interpretations and meanings of data items still prevent a seamless integration between organizational units or even companies. Substantial effort has been made in developing ontologies and common business “languages” in order to address those problems. However, the complexity and turbulence present in many business scenarios as well as the inherent richness and ambiguity of social interactions remain a huge challenge in the endeavour to entirely formalize and standardize communication.

Finally, technical integration can achieve its full cost savings potential only where processes are highly automated. In situations that require information processing and decision making by human agents, the relative advantage of having an integrated system is much lower. There, the key task for information management is to provide the agent with easy access to all information sources relevant for his task rather than to grant interoperability of the computer systems involved.

## USER INTERFACE INTEGRATION AND THE PORTAL CONCEPT

This paper argues that technical integration is not the only reasonable choice in situations where access to data from different sources is critical. Moreover, due to the problems outlined above, it is not always the most favorable option at hand. Under certain conditions, approaches that aim to unify access to and perception of diverse data items may be fully sufficient and much more cost effective than technical integration. The term “user interface integration” will be used to refer to integration that takes place in the mind of the user rather than in the computer systems involved.

In the era of web-based commerce, so-called “portals” probably constitute the most common example of user interface integration. The portal metaphor refers to the ancient and medieval gate to the city through which all traffic must pass. From a user point of view, it denotes the artifact through which access to a variety of opportunities is offered (the urban infrastructure respectively the information sources of the web). Common examples for such entry points to the web are search engines and catalogues (Watson and Fenner 2000). The metaphor is also meaningful to those seeking business opportunities: Naturally, the point of entry is associated with a lot of traffic and thus has often been said to offer many opportunities for meeting potential customers (Clarke 1999). As it is common in business lingo, the meaning of the term “portal” developed at least as quickly as the related technology. Originally referring to entry points to the internet which are of general interest, the word was soon applied also to web sites which gather information for specific audiences such as special interest groups, industries or customer segments. The term “enterprise portal”, denoting a portal site which is restricted to the employees of a company, reflects a further extension in meaning and at the same an alteration in business objective: The focus is not on attracting a wide and external audience, but rather on providing a range of applications and information sources to a given, internal audience. The enterprise portal organizes data and applications from multiple sources into a single, easy to use interface (Rose 2003). Thus it acts as an integrative mechanism for IT systems that are otherwise disintegrated. Taking also the notion of integration into account, the resulting wider interpretation of a portal would be an IT artifact through which a number of – potentially diverse – users may access a number of separate IT applications.

## CORPORATE TRAVEL MANAGEMENT

Before we outline and discuss a case of user interface integration in the area of corporate travel management, we will provide a short introduction into this domain.

The term travel management usually refers to the corporate function of managing the business travel activities of an organization's employees. This covers the definition of guidelines and rules to be followed when traveling (“travel policy”), the inquiry of appropriate providers and services for a given travel need, the booking of flights, hotels and other travel services as well as possible changes and cancellations. Furthermore, it comprises a scope of activities related to accounting and monitoring as well as strategic sourcing negotiations and decisions. Especially since the deregulation of air travel, choosing travel products and carrying out bookings have become demanding tasks which require a lot of industry specific expertise (Rosenbluth 1991). Companies need to undertake substantial effort for managing their employees' business travels. Usually these activities are hard to assess because they take place in different departments and locations. Centralization is often seen as a solution and thus many companies have installed a dedicated organizational unit for travel management. Also, in the attempt to focus on core competencies, parts of the travel management function are often outsourced to specialized service providers such as business travel agencies. However, because the traveler usually knows best about his travel needs and also has a vivid interest in keeping some control over the process, there are natural boundaries to centralization and outsourcing. Generally speaking, efficiency in travel management can only be achieved by balancing the two objectives of reducing primary travel expenses due to smart purchasing decisions and decreasing secondary travel expenses due to small administrative overhead.

Since the emergence of the internet, a large number of e-business solutions for travel management has been developed which aim to support one or both of these objectives. These applications provide services as diverse as information on regions and destinations (e.g. maps, guidebooks), information on single products (e.g. schedule, price), directories of providers (e.g. hotel guides), decision support systems (e.g. to compare prices or to find optimal schedules), reservation and booking systems of single travel providers or intermediaries. As there is no joint responsibility, these individual systems lack integration. Customers therefore have to compile their travel solution from a multitude of sources, which each require separate internet addresses, log-ins, passwords, and possibly also agreements and settlements.

## THE CASE STUDY

The following case description was compiled based on extensive interviews with various actors as well as some public sources. The original German version (Voss 2003) has been approved by both companies involved, Cegelec Germany and Carlson Wagonlit Travel.

### **Introduction to the company: Cegelec Germany**

Cegelec Germany is a large and diversified supplier of industrial services and solutions in the area of technical engineering. The company originally started out as AEG Anlagen- und Automatisierungstechnik. In the 1990s, it was acquired by ALSTOM and in 2001 finally became part of the France based Cegelec group, a global leader in industrial engineering. Within this group, Cegelec Germany is second in size. 2,800 employees work in 32 locations and create an annual turnover of approximately € 600 million. Services are provided in the fields of energy production and distribution, automation technology, ICT, climate control, mechanics and mechatronics. As it is characteristic for these kinds of activities, value is predominately created in a project like type of work, involving frequent presence at the customer's site and extensive travel activities. Competitive advantages rest on the company's worldwide presence, its proximity to customers, high quality standards and wide-ranging technical expertise.

One of the cornerstones of the corporate strategy is a diversified positioning which covers a wide range of technologies and opens up a broad customer base. The driving force for growth is the further expansion of the service business, which allows the company to react to the continuing trend towards outsourcing, the increasing demand in the areas of energy and facility management as well as maintenance and servicing. This strategy requires extreme proximity to customers not only with respect to sales, but also in terms of the availability of service experts. Also, cutting procurement costs is considered an important measure in order to improve competitiveness.

A very high proportion of employees at Cegelec are in charge of knowledge intensive work in either engineering or management. As a consequence, end user computing and connectivity are key elements of the IT landscape. In fact, most employees have a networked personal computer or laptop at their workplace. The corporate intranet can be accessed from all of those computers. The information services offered, such as job descriptions, further training possibilities and company addresses, enjoy a high level of acceptance. The majority of employees is also authorized to use internet and WWW.

### **Travel management at Cegelec Germany**

The travel management function belongs to the purchasing department and is responsible for the procurement of flights, train tickets, hotel accommodation, car rentals and other travel services. Operative tasks such as counseling, enquiries, bookings and issue of tickets have been outsourced to Carlson Wagonlit Travel (CWT), an agency specialized in business travel. The remaining travel management tasks mainly lie in the fields of contract management, coordination and monitoring. Regarding contracts, Cegelec has negotiated special conditions with numerous airlines, hotels and car rentals. In order to manage the individual contracts with various local hotels and several chains, the travel manager has set up a hotel database.

Travel expenses currently stand at about € 1.3 million annually. A company-wide cost cutting initiative also affects the procurement of travel services. As a consequence, the travel policy nowadays contains strict regulations regarding maximum prices for accommodation and restricts the use of business class tickets to few cases.

The choice of Carlson Wagonlit Travel goes back to the ALSTOM era of the company: In 1998, an effort was made to replace the sourcing relations with various travel agents by a single supplier. Resulting from a tender procedure, CWT was selected. By aggregating travel demand of all ALSTOM subsidiaries worldwide, substantial benefits in conditions could be negotiated with both the travel agent and also numerous travel providers (e.g. Air France, Lufthansa).

The business relation is based on a master agreement which grants CWT to be the exclusive travel service supplier for Cegelec. Cooperation is carried out according to a "dedicated staff model", in which a fixed team of 12 CWT agents is exclusively looking after the German Cegelec and ALSTOM employees. This way, a high quality of service can be achieved: By focusing on only one client company, the agents know much better about customers' individual travel policy and needs. Because the selection and booking of travel services are demanding activities which involve considerable degrees of freedom on the side of the agent, a personal and trust-based relationship with the client is generally of utmost importance. This is no different at Cegelec, where the quality and continuity of CWT's team are a primary criterion for evaluation. Remuneration is made up of annual management fees based on the size of the dedicated staff and transaction fees for each booking carried out. All commissions from service providers are passed onto Cegelec by CWT (known as "kickbacks") and are offset against the fees at the end of each year. At regular intervals, the purchasing department of Cegelec decides on the extension of the master agreement, based on the quality of service received and a comparison with offers of competing travel service suppliers.

Usually, requests and orders are placed with CWT either by the traveler's personal assistant or by the travel management office. Specifications of travel needs considerably vary in detail – sometimes travelers provide precise information and even flight number or hotel name, in other cases, substantial inquiries on routes, schedules and locations must be carried out by the agent. Because it is most time efficient and allows to sort out questions immediately, customers preferably use the telephone for communication, though fax or e-mail are also supported. After receiving a request, a CWT agent puts together a travel

offer which complies with specifications and travel policy and returns this to the traveler, usually by e-mail. The latter may arrange for the booking to be made or ask for alternative offers. Bookings and issue of tickets are carried out by the CWT agent, who will also act as contact for any other tasks connected with the journey (e.g. information, changes or cancellations).

### The CWT Connect Portal

CWT had been using a broad range of E-Business solutions to support the personal care of its customers already for some time, when, in 2000, the decision was made to develop the CWT Connect travel portal. This was driven by the aim to address two current and important customer needs:

- In view of the lower transaction costs, greater flexibility and improved supply of information, customers started to ask for convenient online self-service systems.
- Unsatisfied with the various log-ins, passwords, user surfaces, billing systems and contact persons they had to handle, many travel managers voiced the need for “one-stop shopping”, i.e. for the integration of various product or supplier specific information and booking systems under one roof.

By setting up an internet portal for their clients, CWT aimed to satisfy all kinds of travel information and self booking needs using only one integrated user interface. Of ultimate importance in developing this portal was the uncompromised compatibility with existing travel management processes. In order not to endanger customer satisfaction, the introduction of CWT Connect was not allowed to cause any disruptive changes to established practices. Rather, the portal should offer valuable supplements to the existing services of Carlson Wagonlit Travel and provide a smooth and voluntary transition path from the traditional methods of travel management to an internet-based system.

Electronic support for travel management activities can roughly be classified into three phases: pre-trip, on site and after trip (Werthner and Klein 1999). In a similar way, the functionality of the portal is grouped into four areas.

- Pre-trip services: Integrating a large range of tools for information provision, the portal offers employees to find out about accommodation, timetables, availability of services, visa regulations, city guides, weather data etc.
- Booking services: Depending on company policy, authorization and preferences, booking can be done either unassisted using an appropriate self booking tool or assisted by specifying a travel demand in a structured form. In the latter case, the form entries are forwarded to a member of the dedicated staff at CWT for review, compliance check and further action.
- On-trip services: At any time, users have access to information on their current travel bookings and allows for changes to be made. Because CWT Connect is provided via the internet, this functionality can also be used while en route.
- Post-trip services: Whereas the afore mentioned functions are useful to all employees involved in travel planning activities, post-trip services mainly target the purchasing department: the portal offers to view invoices online and obtain extensive data and reports for monitoring purposes.

Furthermore, the portal encompasses an easy to use content management system which allows the purchasing department to put company specific documents (e.g. regarding travel policy) online so that travelers may find them in the same context as they do with other travel related information. Also, personalization is supported, allowing e.g. to restrict access of self booking tools to certain user groups or to make content available depending on organizational unit.

CWT Connect stands out due to its broad functional scope, worldwide applicability, platform independence, easy adjustability and simple integration. This requires CWT to operate a complex IT system with user and profile management, content management, integration of various data sources, interfaces to travel reservation systems and numerous other functional components. The system runs in an open source LAMP environment: a Linux operating system, an Apache server, a MySQL database and PHP and Perl programming are in use.

To link up with airlines, hotels and other travel service providers, the portal is connected to the industry dominating global distribution systems (GDS) SABRE, Galileo and Amadeus. With some providers, direct connections using proprietary interfaces have been set up in order to save GDS fees. Web services are used for some portal functions. This involves mainly XML-RPC and in some cases also SOAP, whereas service description and repository standards like WSDL and UDDI were not applied due to their insufficient maturity at the time of implementation. Although the system is complicated and elaborated from an implementation perspective, it is in fact very simple to use for people at Cegelec. Because the platform is centrally hosted and is made accessible via the internet, no changes had to be made to the customer's IT architecture.

## Launch and operation

Starting in 2001, Cegelec was among the first companies using the newly developed portal. Because all software is centrally operated at CWT and the whole functionality is provided via internet, the launch costs incurred by Cegelec were minimal. Approximately 50 team assistants and other employees who usually arrange travel through CWT were assigned personal user IDs and passwords for the platform (so called “known users”). All other employees were given non-personalized, restricted access (so called “default user”). Employees of Cegelec were notified about benefits and mode of access of the new portal and a hyperlink was placed in a prominent position of the corporate intranet. In the beginning, trainings for employees were conducted, but it soon turned out that they were unnecessary, because users were sufficiently computer literate to intuitively get along with the portal.

CWT Connect is used by the purchasing department as well as by travelers and their assistants. The various applications enjoy different levels of popularity. The portal is frequently used to obtain flight and train timetables, check for availability, retrieve maps and city guides and view weather forecasts. Although most of these details can also be found elsewhere on the internet, the compilation of information “under one roof” is regarded a useful feature that saves time and effort. Of special value is the hotel application: When searching for accommodation worldwide, special conditions that apply to Cegelec on the basis of standing master agreements are automatically taken into account.

Only “known users” may arrange the booking of travel services through the portal. In order to assure compliance with the travel policy and to avoid costly errors, Cegelec has chosen to generally conduct these bookings in assisted mode, meaning that all specifications are reviewed by a travel agent before the ultimate booking is carried out. However, the order form of the portal is not very popular, because most employees find it easier to discuss their travel plans on the phone. Also on-trip services are only rarely used. Obviously, the travel schedules sent out immediately after the booking are fully sufficient to most employees.

Especially valued by the purchasing department is the possibility to download booking histories and reports in the post-trip area of the portal. “Interact”, a complementary reporting software provided by CWT, makes it easy to import these data and carry out extensive analyses. The application, which is only available to the purchasing department, is used in a variety of ways. By breaking down the travel volume according to, e.g., flight routes, airlines and departments and by making comparisons with previous periods, valuable criteria can be gained for negotiating master agreements and adapting the travel policy as well as for internal accounting purposes. Also, information on potential and realized cost savings can be obtained from this data.

## DISCUSSION

Three important issues emerge from the case description: The question of how user interface integration can create value to users of the portal, the way the supplier company gets compensated for the integration effort, and shortcomings and limitations of the approach.

### Value creation for Cegelec

CWT charged a one time fee of € 2500 for making the portal available to Cegelec and for configuring it according to the company’s needs. Compared to the annual travel budget of Cegelec, this does not carry a lot of weight. The value that Cegelec receives in return results from a reduction of information collection efforts in the areas of travel planning and monitoring – information that without exception could also be obtained from other sources, e.g. from airline web sites, online travel agencies, destination web sites or, in the case of booking histories, simply by email from CWT. The benefits of integrating these information sources – though not technically, but through a common user interface – can actually not be quantified. However, decision makers at Cegelec are certain that the savings from reduced time spent for searching information, from fewer mistakes due to better availability of information and from easier monitoring of travel expenses sum up to an amount that clearly exceeds the small initial investment. Hence, from the point of view of Cegelec, the one time investment into CWT Connect seems to be a bargain buy.

Also compared to the substantial effort on the side of CWT, the price charged for portal access is surprisingly low. Even though the portal was not exclusively developed for Cegelec but is offered to various corporate users, it is easy to estimate that a one time payment of € 2500 per customer is hardly enough to cover individual set up and maintenance, and clearly not sufficient to make up for several months of software development, the acquisition of various applications, and the establishment of connectivity to a number of travel providers (development costs of CWT Connect are not made public by the company). Obviously, CWT itself sees the portal as an investment that pays off rather through sustained or extended

gains from its traditional business than through usage fees. Such an expectation can be based on three rationales: increased operational efficiency, creation of a selling proposition and generation of a lock-in situation.

### **Business rationale of CWT**

In order to analyze the business case of CWT Connect, we will briefly explore each of these three rationales.

Regarding operational efficiency, it can be argued that a better information supply leads to reduced effort among the CWT agents. If users voice their travel needs by using the booking services incorporated into the portal, travel needs become specified more precisely, less assistance is required and errors and misunderstandings can be avoided. However, since most users still prefer the telephone channel and the purchasing department does not allow for unassisted self bookings, it appears unlikely that operational improvements will result in a substantial benefit.

The existence of a travel management portal can also serve as an argument in the attempt to acquire new or to keep existing customers: Corporations like Cegelec are regularly assessing their travel management suppliers and compare them to competing players. Without doubt, the amenities of a travel management portal will be valued in such an assessment – either as a unique selling proposition that competitors can not offer or to meet a competitive necessity that reflects the de facto standard in the industry. In fact, also competitors such as American Express offer travel management portals. However, while the added value of such an IT supplement may score some points in an assessment, it does not seem plausible that it ranks among the key criteria.

A lock-in situation occurs if barriers to switch to another provider are heightened for the customer. In the case of CWT Connect, switching becomes less favorable due to “learning costs” (Klemperer 1987): because employees get used to the look and feel of the portal, client companies have incentives to stay with CWT. Thus, in addition to the attention that Cegelec pays to the continuity of the agents who carry out the bookings, continuity in the human computer interface forms a strong reason for a prolongation of the business relation. This argument is in line with the prior hypothesis of user interface integration actually creating value to the customer even though most information could as well be retrieved from other sources: as much as users dislike the use of different interfaces in order to collect the information they require, they do not want a change in the interface that has once become familiar to them.

### **Drawbacks and limitations**

Though the portal in general is seen as a success, some shortcomings need to be mentioned. From the perspective of CWT the current level of acceptance of the booking services is not satisfying. Whereas CWT had expectations that the introduction of “assisted” online booking would pave the way for self booking and thus help to increase operational efficiency, the current user behavior clearly demonstrates that travelers do not want to abandon direct and personal contact with their agent – at least not unless they are offered a compensation. Indeed, such a compensation is not unusual in the domain of online travel (e.g. “web fares”, reduction in fees), but has not yet been introduced in our case.

Another limitation is certainly to be seen in the comparatively low level of integration: the user interface approach followed by CWT Connect is certainly less costly and easier to achieve, but of course can not grant the same level of “smoothness” and user comfort as an IT architecture in which also data and application logic are integrated. Surprisingly, users at CWT were barely concerned about the fact that bookings for hotels, trains, flights etc. still need to be done in separate “functional silos” of the portal. Still, one user criticized that “the single travel products can not be put into a virtual shopping cart” – an integration mechanism that users are familiar with from other online buying experiences.

### **CONCLUSIONS**

Obviously, a single case can not provide more than anecdotal evidence and stimulation for a deeper investigation of the issues tackled. Still, there is a number of conclusions that can be drawn at least for the particular scenario. First, user interface integration seems to be a feasible approach: the popularity of the portal among the employees of Cegelec proofs that consolidating information in one place does create value to users even when all single parts can easily be found elsewhere on the internet. In other words: value creation is grounded in putting information into context rather than by making it available. Second, aiming at a higher degree of technical integration is questionable. As long as travelers – for good reasons – rely on the expertise of human agents to select and combine from the multitude of available travel products, integration needs to take place in the minds of people rather than in IT systems. Third, although the customer benefits a lot from the portal, this is not reflected by immediate financial compensation of the supplying company. Rather, the lion’s share of this compensation must be achieved as a combination of efficiency gains, a positive impact on the attractiveness of the traditional business and an

increase in customer retention. Though we could not investigate these factors in detail, we expect that the creation of “lock-in” is of particular importance within this bundle.

Further work needs to be done in order to identify and analyze cases of user interface integration, their value and impact also in other industries. Moreover, we are particularly interested in whether patterns and standards (such as the shopping cart metaphor) emerge that lower learning costs and thus make the adoption of a particular interface especially favorable to users.

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