

# IT SUPPORT FOR INFORMED DECISION-MAKING

## INFORMED DECISION MAKING

We all know that sound decision-making must be based on some rationale, and that the availability of supporting information ensures that the decisions will be reliable. In recent years, Bus Éireann recognised that it had a difficulty – in essence there was very little operational information available to support and assist corporate decision-making.

This case study looks at how Bus Éireann is working to solve this issue as well as improving customer service. The solution involves the development of an integrated strategy for capturing and using information. Making it available to the people who need it, when they need it, will help to improve decision-making within the company.

## BUS ÉIREANN – BACKGROUND INFORMATION

Bus Éireann was formed in 1987 as a subsidiary of CIÉ (Coras Iompair Éireann). Its role is to provide bus services in all parts of Ireland with the exception of Dublin City. The company aims to provide friendly, reliable and fast service to its customers. This aim is reflected in its use of the Irish red setter dog for its logo. The company offers a wide range of services catering for different customer groups and market sectors -

- ▶ Expressway inter-urban coach services
- ▶ Eurolines coach services to Britain and Europe
- ▶ City bus services in Cork, Galway, Limerick and Waterford
- ▶ Town services in Athlone, Drogheda, Dundalk, Navan and Sligo
- ▶ Commuter bus services radiating from Dublin, Cork, Limerick, Galway and Waterford
- ▶ Local bus services throughout Ireland
- ▶ School bus services - on behalf of the Department of Education & Science
- ▶ Ancillary services - coach and bus hire, vehicle testing, contract maintenance, parcels delivery, etc.

The company employ almost 2,500 people directly, with a further 1,700 sub-contracted into the School Transport Scheme. Its business activities also create employment for people in many other sectors, supplying it with services and materials such as fuel, tyres, spare parts etc.

Bus Éireann operates a total fleet of over 1,300 coaches and buses as well as utilising approximately 2000 contractors. 700 buses are allocated to school transport services. The buses are continually upgraded to ensure that Bus Éireann's is one of the safest and most modern fleets in the world.

## WHEN WILL THE NEXT BUS BE HERE?

It seems like a very straightforward question, and no doubt it's a question that we have asked many times. Yet getting an accurate answer to this question proves difficult, if not impossible. Of course there are many understandable reasons why the bus might be delayed. It may be caught in traffic or broken down. Road conditions might require a slower than normal journey.



Unless the person knows where the bus is, and what progress it is making the question cannot be answered. That leads to frustration for waiting passengers.

For Bus Éireann management, if the bus is going to be late, then arrangements must be made to find an alternative vehicle and driver for the next scheduled journey. In many cases this actually involves hiring in a vehicle from another bus operator, at an obvious expense to Bus Éireann. It often happens that a replacement bus is hired in, only for it to be later discovered that the original bus was running slightly late.

## THE INFORMATION PROBLEM

Not knowing when the next bus will arrive, and still having to decide on whether to hire a replacement vehicle is one example of decisions being made without the required supporting information.

Bus Éireann was faced with many similar problems. This is hardly surprising when you consider that it consists of over 1,300 vehicles travelling throughout the length and breadth of the country. Its customers are buying tickets on the buses, at bus stations and from travel agents. These same customers make all different types of journeys – long and short.

They even make multiple journeys, changing from one bus to another along the way. On top of all that there are more than 2,500 employees carrying out all kinds of duties – again spread throughout the country.

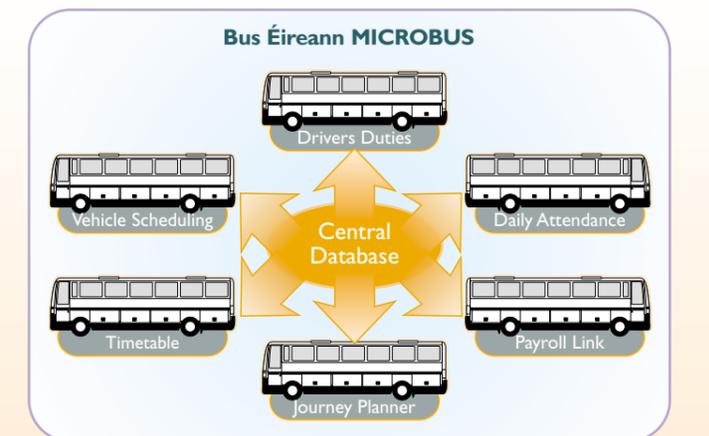
A way had to be found to gather the relevant information efficiently from all these sources, and to enable it to be used in support of business decisions.

## THE SOLUTION – INFORMATION AS A STRATEGIC ASSET

Bus Éireann's approach to solving the information problem has been to review its processes and to computerise wherever possible. In many cases, leading European industry specific systems were installed to support particular tasks such as ticketing, timetabling, vehicle scheduling, and staff rostering. In addition, these systems have been installed in such a way that the data generated can be fed back to a **centralised data warehouse**. Here the data is structured into information that can be used to support the decision-making.

A number of different systems feed information back to this data warehouse. These include:

- ▶ Microbus
- ▶ Automatic Vehicle Location System
- ▶ Ticketing
- ▶ E-commerce



## MICROBUS

'Microbus' is a widely used European IT system for planning, control and verification of daily operating procedures for transport companies. Installing this proven system allows Bus Éireann to computerise functions such as:

- ▶ Trip scheduling
- ▶ Duty scheduling and rostering
- ▶ Vehicle assignment
- ▶ Route and passenger information



By inputting all the information relevant to its operation such as the locations of all its bus stops and the distances between these stops, Bus Éireann has been able to use Microbus to generate and publish its timetables straight from the system as well as provide an extensive Journey Planner on the Internet covering all locations serviced. Details of the vehicles are also on the system, allowing it to be used for vehicle scheduling. Future plans will involve the use of Microbus for driver rostering and daily allocation of vehicles and staff as well as direct input to the payroll.

### AUTOMATIC VEHICLE LOCATION SYSTEM

The power of Microbus becomes even more apparent when its scheduling capabilities are combined with Bus Éireann's pilot AVL project. **GPS (Global Positioning System)** units use the signals from a number of satellites to determine a bus's exact position. Bus Éireann is installing GPS units on a number of its buses. Using mobile telephony (using GPRS from O<sub>2</sub>) these units provide updates regarding the position of the vehicle. This information can be compared with the schedule and any delay identified and quantified, and an alternative vehicle arranged if required.



### WAYFARER – COMPUTERISED TICKETING

One of the key features of Bus Éireann's Expressway network is the wide range of connections between routes at major interchange points. As a result of the extent of the services it offers, Bus Éireann had to think carefully about the features that were required from any attempt at computerised ticketing. One such specification is the use of an electronic date/time stamp on each ticket machine for cancelling and registering multi-journey and return tickets.

The Wayfarer system has been tailored to meet the special needs of the system and has been installed in depots and buses throughout the country. All the depots will communicate with the central office in Dublin using Bus Éireann's own dedicated telecommunications network.

#### Bus Éireann's Managing Director, Bill Lilley said:

*"The Wayfarer system offers wide ranging benefits to customers, drivers and management. Our customers benefit from clear information on tickets. Drivers no longer need to carry bulky fares manuals and ticket equipment boxes around while on duty. The range of statistical reports available from Wayfarer enables us to monitor our business in a way which was not possible with the previous generation of ticket systems, but which is essential to managing a bus business in today's competitive environment."*

### E-COMMERCE

Bus Éireann customers can now purchase tickets online using the Internet. While some companies validate online payments overnight and the tickets cannot be used until they have been delivered through the postal system, a special feature of Bus Éireann's online ticketing facility is that the payment is immediately validated and the ticket can be used straight away. This validation of Internet tickets by the driver using the Wayfarer Ticketing machine is a first in Europe. The Internet site also includes timetable and journey planning information supporting the ongoing developments discussed above.



### SUMMARY

In this study we have considered the importance of information in supporting decision making within any organisation. We saw the particular challenges faced by Bus Éireann in this regard, and how a lack of information was leading to ineffective decision-making and inefficiencies. The study then looked at a number of initiatives taken by Bus Éireann to resolve its difficulties. These happened only because the company recognised that information is a strategic asset.

Having installed test systems, Bus Éireann uses its Data Warehouse to gather and centralise the data from the different areas. This raw data is then organised and presented as information to be used to make informed business decisions. Using the company's Intranet the information is accessible to everyone who needs it, wherever and whenever they need it.



## KNOWLEDGE MANAGEMENT AND THE DATA WAREHOUSE

In simple terms, knowledge management is based on the belief that who and what you know are assets of the organisation. So just like any other assets - the factory, the machinery, the people who operate the machines, the products they build and the cash you put in the bank - the knowledge assets need to be managed for the greatest possible return on investment.

The knowledge assets can be extensive, including transaction data on all of your processes, projects, customers and vendors. Add to that all of the research logs, patents, trademarks, marketing strategies and business plans. Competitive insights accumulated by every employee daily, and the competitive intelligence available through the Internet and other information sources also contribute to this accumulation of knowledge. Then add in the knowledge contained in every e-mail, every document and every spreadsheet.

Recognising that knowledge is an asset, and that there is a lot of knowledge involved, leads to the requirement for information to be gathered, organised and stored so that it can be retrieved and used when required. Many companies, like Bus Éireann, have recognised this and have installed Management Information Systems. Many of these systems are based on the concept of the Data Warehouse.

### THE DATA WAREHOUSE

We now understand that knowledge is an asset and should be used to improve the organisation's decision making. Until recently, the tools to manage knowledge were unavailable or prohibitively expensive. However, greater access to computing power; the ability to gather information from remote locations using networking technologies, and availability of high capacity data storage devices have driven down the cost of these tools.

Knowledge management involves the manipulation of data, information and knowledge. This is because knowledge is not the same thing as information, which is not the same thing as data. When data is organised into a usable structure it becomes information. Information becomes knowledge when it is placed in an actionable context.

In the modern computer world, many businesses have plenty of data, but have never organised the data into information. They are often said to be "data rich and information poor". Modern Information Management Systems are based on the concept of the data warehouse. A data warehouse is not just an archive or data storage facility. It is intelligently designed to enable the important data and information to be used to support active problem solving.

The data warehouse helps to solve the decision-making challenges facing organisations like Bus Éireann:

- ▶ increased volume and sophistication of data
- ▶ the need to rapidly convert these huge volumes of data into a form readily usable by the company's management and staff
- ▶ the requirement to deliver high quality, reliable information results to the decision makers wherever they are located, using networks such as the Internet.

Bus Éireann has spent significant resources getting the design of its data warehouse right. This effort is essential to ensure that the data warehouse can address the present and future challenges involved with the management and analysis of data and the translation of data into information, then to knowledge, and finally into action.

The reward for developing a successful data warehouse is that its value and usefulness will immediately be recognised. Users will adopt the system and as they do they will want more and more capabilities. For this reason the initial design must also ensure that the system has the scalability and flexibility to grow with the demands of an increasing number of increasingly sophisticated users.

### TASKS AND ACTIVITIES

1. Using this case to evaluate the reasons for long term business planning.
2. List the challenges faced by Bus Éireann management with regard to making informed decisions. What steps were taken toward finding solutions to these challenges?
3. Explain the following terms;
  - a) Knowledge Management
  - b) Strategic Asset
  - c) Information Management
4. Role Play Activity: Select a management team. Each member should be assigned a management role e.g. Managing Director; Human Resource Manager; Operations Manager; IT Manager; Marketing Manager; Financial Controller. Using the issues raised in the above case discuss the current challenges facing management and possible solutions to these challenges. Ensure that you list these on a blackboard as you progress.
  - a) Assess the impact your decisions will have on each function represented at the table.
  - b) From your reading of the case study what do you think the concerns are for each manager?
  - c) As the IT Manager, make a presentation to the rest of the management team outlining the approach you will be taking to deal with the challenges facing the organisation.



[www.buseireann.ie](http://www.buseireann.ie)