

*ICT and e-Business in the*

# ***Food and Beverages Industry***

*ICT adoption and e-business activity in 2006*



*e-business*  
**w@tch**



## About e-Business W@tch and this report

The European Commission, Enterprise & Industry Directorate General, launched the *e-Business W@tch* to monitor the growing maturity of electronic business across different sectors of the economy in the enlarged European Union, EEA and Accession countries. Since January 2002, the *e-Business W@tch* has analysed e-business developments and impacts in manufacturing, construction, financial and service sectors. All results are available on the internet and can be accessed or ordered via the Europa server or directly at the *e-Business W@tch* website (<http://ec.europa.eu/comm/enterprise/ict/policy/watch/index.htm>, [www.ebusiness-watch.org](http://www.ebusiness-watch.org)).

This document is a sector study by *e-Business W@tch*, focusing on the Food and Beverage (F&B) industry. Its objective is to describe how companies in this industry use ICT for conducting business, to assess the impact of this development for firms and for the industry as a whole, and to indicate possible implications for policy. Analysis is based on literature, interviews, case studies and a survey among decision-makers in European enterprises from the F&B industry about the ICT use of their company.

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## Executive Summary

### Objectives and scope of the study

This is a sector study by *e-Business W@tch*, focusing on the **food and beverage** (F&B) industry. Its objective is to describe how companies in this industry use ICT for conducting business, to assess the impact of this development for firms and for the industry as a whole, and to indicate possible implications for policy. Analysis is based on literature, interviews, case studies and a survey among decision-makers in European enterprises from the F&B industry about the ICT use of their company.

The F&B industry as defined for this study's purpose covers the following sub-sectors of NACE Rev. 1.1 Division DA 15: DA 15.43; DA 15.5 (51, 52); DA 15.6 (61, 62); DA 15.8 (81, 82, 84, 85, 86, 87, 88, 89); DA 15.9 (91, 92, 94, 97, 98).<sup>1</sup> These sub-sectors deal with the production of processed food, rather than with the first transformation of agricultural products (see Section 2.1 for a detailed sector definition).

### Results of the e-Business Survey 2006

The e-Business Index 2006 places the F&B industry among the sectors with a comparatively low level of ICT and e-business adoption. This overall result, however, should be regarded cautiously, as it hides a varied picture; moreover, although a direct comparison of the survey results from 2005 and 2006 is not possible, some interesting trends have been recorded in this analysis.

The F&B industry has a relatively good level of development of internal process integration and supply chain-related activities. **Supply Chain Management** (SCM) systems, in particular, show the highest diffusion among the 10 sectors analysed, and a remarkable increase over the past years.

External pressure from distribution is increasingly driving F&B companies towards the adoption of e-business practices. The high diffusion of e-invoicing, inventory management, and linking of ICT systems with those of customers illustrate this. Medium-sized companies appear quite positive and active in their investment attitude, and are already well advanced in the adoption of solutions such as ERP (Enterprise Resource Planning), SCM and e-invoicing. While this aspect is of particular interest for future developments, it is equally important to note that the cost of software solutions still adversely affects smaller companies more than the larger ones.

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<sup>1</sup> NACE Rev. 1.1 is a 4-digit classification of business activities. It is a revision of the 'General Industrial Classification of Economic Activities within the European Communities', known by the acronym NACE and originally published by Eurostat in 1970.

- There is new evidence that the F&B sector is reducing the gap to other sectors in basic **ICT infrastructure** which was evident in the *e-Business W@tch* Survey of 2005. Positive signals can be seen in the remote network implementation data from the e-Business Survey 2006, with figures for F&B markedly above the 10 sectors average.
- The low importance apparently assigned to training and ICT **skills** in general within the F&B sector gives cause for concern: only 50% of large companies reported practicing regular ICT training. Outsourcing of ICT processes has grown slightly, particularly in medium-sized enterprises.
- Standards and **interoperability** are a “hot” topic in the F&B sector, due to regulatory impacts (such as traceability) that require improved communication among the different players of the value chain. Presently, the most diffused standard is EDI, notably among the sector’s large companies. The use of open source software clearly increases by firm size in this sector, as its lower price is balanced by the need of internal competences to develop and adapt it to the company's requirement
- Survey data reveal a good diffusion of **ERP** in F&B industry: ERP appears to be a stepping-stone towards further evolution of e-business, and often includes procedures common to SCM and CRM software solutions. Accounting systems have an even wider diffusion, extending widely within small and micro enterprises.
- **e-Procurement** use in the F&B industry still lags behind the 10-sectors average, probably due to the centralisation of purchasing activities in the large companies that dominate this sector. Where present, e-procurement does not seem a driver for systems evolution. SCM, on the other side, shows a remarkable growth, probably due both to regulatory constraints of food safety and traceability, as well as to the competitive advantages linked to a better management of the supply chain.
- **e-Marketing** and sales are focused mainly on the distribution chain and are, therefore, usually considered as part of the SCM or ERP systems. CRM systems are used mainly by large companies in a B2B environment, while a more B2C-oriented approach is typical of this sector’s micro-enterprises and SMEs.
- **Innovation** through ICT solutions is mainly perceived as a process innovation, with an interesting accent on customer services and on the creation of customer communities. Meeting customer expectations joins competitive advantage and regulatory constraints as the main drivers of ICT and e-business adoption in this industry.
- Company size and cost are the main **barriers** to e-business adoption reported in F&B. Companies that do not practice e-business said that they feel that they are "too small" for doing e-business, and/or that they cannot afford the required technologies. Other barriers (e.g. security concerns, the complexity of technology) are perceived as less relevant.

## Current e-business trends and implications

*e-Business W@tch* looks at how ICT and e-business can support F&B firms in dealing with relevant competitive challenges in this industry, such as integration with business partners and quality assurance. This study focuses on the following topics:

- **Internal processes automation** in the F&B industry. Compliance with food safety regulations, together with increased competition and the request for cost-efficiency drive the trend toward integration of internal processes in the F&B industry. The integration of production line control, administration, sales and logistics helps companies to manage food safety risks, to increase asset efficiency, and to improve their margins, while achieving continuous product and service innovation, and better corporate accountability. The introduction of systems for internal process automation is also fostered by the possibility of better exploitation of internal assets, which, in the case of the F&B industry, are often represented by recipes or by particular production processes.
- **Supply Chain Management (SCM) and Customer Relationship Management (CRM)**. Through the application of SCM, food manufacturers and grocery retailers are trying to radically reduce costs and inventory levels. SCM facilitates the development of integrated relationships, real-time information transfers and moving towards a 'pull' rather than 'push' distribution system. The focus is on increasing the flexibility amongst upstream suppliers, in response to the strategic power of the dominant supermarket chains, through the closer integration of external enterprise relations. Inter-enterprise integration, represented by SCM, is strongly related with, and dependent upon, the effective implementation of intra-enterprise integration (mainly represented by ERP). These software systems represent complementary approaches for addressing related strategic challenges.
- **Mobile applications and RFID**. Mobile applications and Wi-Fi systems<sup>2</sup>, together with RFID<sup>3</sup> applications, are inextricably connected with supply chain management and quality assurance issues. Currently, these systems are mostly used by large enterprises. SMEs, on the other hand, use strategies such as sales force decentralisation (e.g. working from mobile/home offices) to increase their flexibility and to shorten supply chain processes. The usage of RFID is limited to only 1% of the F&B firms. This figure does not reflect the high emphasis that media and ICT suppliers are placing on RFID usage and its potential benefits. Nevertheless, the experiences analysed in the *e-Business W@tch* case studies illustrate that potential benefits are remarkable and that the pioneering adoption of RFID may lead to relevant competitive advantages.

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<sup>2</sup> "Wi-Fi" is short for wireless fidelity, a popular term for a high-frequency wireless local area network (W-LAN). Wi-Fi technology is rapidly gaining acceptance as an alternative or complementary infrastructure to a wired LAN.

<sup>3</sup> "RFID" is short for Radio Frequency Identification. RFID is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders.

## Business impact

The use of ICT and e-business in the F&B industry has its **main impact** in areas related to **production** and **logistics**. As regards marketing and sales, the potential of e-business is not fully exploited for the benefit of manufacturers. Large retailers exert their power in this area and tend to maximise the advantage of their direct control over customers.

In general, the powerful ICT systems and e-business solutions of **large companies** enable more advanced practices, which can yield greater achievements in terms of **savings and efficiency**. Nevertheless, there are areas – traceability being the most important among them – where SMEs are adopting ICT and e-business on a relatively large scale, and where a significant impact can already be observed.

## Policy implications

At a general level, policies to promote ICT adoption among F&B companies, notably the smaller ones, should aim at improving the **development of infrastructure** (including skills and standards) and the **legal and regulatory environment**, as well as at creating a **favourable business environment**. The analysis of findings from the survey, the case studies and desk research conducted for this report point at the following issues which could be relevant for policy-making:

- **Improve e-skills, especially among SMEs.** ICT and e-business are changing the way business is conducted in the F&B industry. There is evidence that many small companies face difficulties in coping with these changes. A lack of e-skills, i.e. a proper understanding of e-business, is one of the reasons.<sup>4</sup> Measures in this area could aim at promoting **entrepreneurial and managerial understanding of e-business** applications. Providing more information about e-business in a way which is adequate for small firms could support their decision-making. The development of skills in change management, for example how reorganise work processes with support of e-technologies, could be encouraged.
- **Facilitate F&B compliance with quality and safety criteria.** An important application area for ICT in the F&B industry is to ensure compliance with quality and safety regulations. Therefore, firms could be supported by measures such as the provision of relevant information and training in how to use ICT in this field.
- **Promote a favourable environment for innovation.** F&B firms need to continuously innovate. e-Business policies aiming at a favourable environment for innovation could include the promotion of value chain co-operation, the sharing of good practices among F&B firms and the participation of SMEs in business networks.
- **Standardisation.** Policy measures in the area of standardisation should focus both at the sector and at the cross-sector level. They could include supportive actions to stimulate increased participation of SMEs in standardisation initiatives.

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<sup>4</sup> See *e-Business W@tch* Sector Study on the F&B, Industry, July 2005, page 27. Available at [www.ebusiness-watch.org](http://www.ebusiness-watch.org) ('resources') and case study La Bella Easo in Section 3.3 of this Report.