

Regional Distribution Centres

3 June 2005

1. How many?

There seems to be no computerised list of RDCs. The nearest list that is available is in printed form, and is the directory that is used by the drivers:

<http://www.kogan-page.co.uk/bookdetails.aspx?ISBN=0749441763>

The Directory of UK Food Transport and Logistics 2004: A Transport Manager's and Operator's Handbook Publication

Author: Minto Gordon, ISBN: 0749441763, Price: £80.00

“This unique new resource for the food and refrigerated transport industry provides drivers with a set of precise directions to 4000 key ‘food’ and food-related destinations and support service facilities across the UK. Contents include: company directory, main index, town index, index of locations by category, list of service companies.”

Not even the food retailers have lists of RDCs on their sites. See the Tibbet & Britten list in the case studies section below.

2. What drives their use of integrated information technologies?

In effect the driver is the aim to overcome the expense and inefficiency of the human beings: Manual systems of product picking resulted in:

- incorrectly completed pick-lists
- wrongly picked items
- transcription errors
- delays in generating and receiving data, resulting in delays in re-stocking

Advantages:

- reliable inventory numbers
- improving order fulfilment
- reducing in-transit theft
- accurately tracking goods

In the USA the drug wholesaler, McKessonHBOC found:

“8 percent gain in productivity, an 80 percent drop in incorrect items shipped, and a 50 percent drop in product shortages. The company no longer does physical counts of stock and has increased its inventory accuracy to 99.5 percent.”

<http://www.business2.com/b2/web/articles/0,17863,528736,00.html> (The Wearable Warehouse).

3. What types of wearable devices are being used?

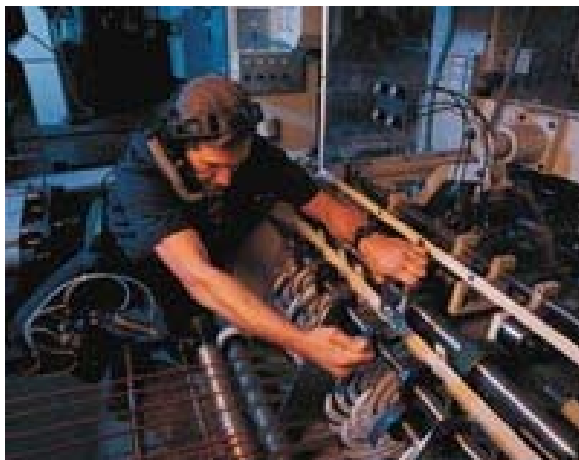


http://www.symbol.com/products/barcode_scanners/barcode_wearable_srs1.html

SRS_1 Wearable Ring Scanner

“Worn on the index finger, the SRS-1 is the perfect blend of form and function. With a low profile of under 0.5 in./1.3 cm and weighing just about 1 oz./20 gm, it offers unparalleled freedom of movement, allowing users to comfortably pick, scan and pack even in the tightest

spaces. The ergonomic design of the SRS-1 maximizes user comfort, with trigger placement equally suited for right or left-handed use.”





<http://www.vocollect.com/us/products/wearablecomputers.php>

Vocollect Wearable Computers

“Talkman® is the world's leading wearable computer for Voice-Directed Work™. When used in a warehouse or distribution center environment, the Talkman opens a two-way dialogue between your teams on the floor and your WMS or inventory management system, making it possible for your people to talk with your warehouse management system as they perform their assignments. The end result is better productivity, improved accuracy and lower operating costs.” Includes “Speaker-dependent speech recognition”.

<http://www.xybernaut.com/itemDetail.asp?categoryID=28&itemID=1462>

“Mobile Assistant V (MA V) wearable computer boosts on-the-job productivity and quality of service. This powerful, rugged, fully functional, super lightweight wearable computer goes anywhere to achieve the task-at-hand.”

4. Case Studies

http://www.symbol.com/uk/Solutions/case_study_peacocks_re.html

“At Nantgarw, in Wales, the Peacock Retail Group is operating a fully automated distribution centre with the help of a bar code-based wireless put away and picking system that is both hands-free and real-time. Based around a combination of 28 wearable and 6 truck mounted terminals and a wireless local area network (LAN) supplied by Symbol Technologies, the system has dramatically improved Peacock's distribution operation.”

“Each member of the picking team wears a WSS 1040 terminal. The wrist-mounted terminal receives picking instructions via the wireless LAN from Peacock's host system. As empty trolleys arrive in the pick area, a picker scans its bar code and the terminal's LCD screen tells the picker which aisle to go to, which location to pick from and which items to pick. When a picker arrives at the pick face, firstly he scans the bar code mounted at the end of the aisle. This verifies that he is in the correct aisle. He then scans another bar code at the product location to verify he is at the correct place. Finally, he scans each item as it is picked into the trolley.”

NOTE the claim: “Another benefit is the positive impact on team morale. Everyone likes the wearables because they are comfortable to wear and easy to use. The result is that the team finds it easier to do the job. This in turn leads directly to efficiency improvements.”

<http://www.tbg.co.uk/ukire.php>

Tibbett & Britten

RETAIL:

“State-of-the-art centres at Thurrock, Daventry and East Kilbride handle products ranging from ambient grocery to temperature-controlled food, confectionery, beers, wines & spirits, plus non-food ranges.

Other dedicated contract depots are located at Allington (Maidstone), Bellshill, Brackmills, Livingston, Northfleet, Northampton (Park Farm), Preston Brook (Runcorn), Radlett, Scunthorpe, Strood, Swindon and Wellingborough. Operations also include a national distribution contract for Carphone Warehouse based on the retailer's Wednesbury depot. Other major customers within this sector include B&Q, Big Food Group, Boots, Homebase, Marks & Spencer, Sainsbury's and Tesco.”

MANUFACTURING:

“The unit operates from main distribution centres at Bicester, Birstall (Leeds), Bristol, Darnley (Glasgow), Dublin, Earlestown, East Kilbride, Hemel Hempstead, Leicester, Lutterworth (two), Milton Keynes, Neasden, Northampton, Reading, Slough, Telford, Warrington and Whitwood (Wakefield). In addition, there are rapid-response Field Stock Rooms for electronic parts, etc., at Aberdeen, Barming (Maidstone), Basingstoke, Birmingham, Birstall, Brentford, Bristol, Edinburgh, Glasgow, Long Eaton (Nottingham) and Salford.

The Tibbett & Britten Darnley operation (formerly known as Scotfrost) is a specialist multi-user chilled and frozen food distribution centre.

Major customers in this sector include Black & Decker, Colgate Palmolive, Gillette, Hewlett-Packard Services Division, Masterfoods, O2, Remington, Sara Lee and Sony.”

http://www.tibbett_britten.com//cs/testh_uk.php

The Tibbett & Britten TESCO application

“Thurrock, near Purfleet, Essex, where a 46,000 sq metre (495,000 sq ft) state-of-the-art ambient food RDC.”

“Picking directions are issued to assemblers from 'traffic island' stations on the goods-out bays, from where data is downloaded to forearm-mounted RF terminals. Intelligent product layout techniques were employed to reduce travel distances within the warehouse.”

“The transport fleet is controlled through an Isotrak GPS-based vehicle management system, fully integrated with the order capture and delivery planning software. Store orders are downloaded into the Paragon route planner, and from there into the Isotrak handheld terminals in the vehicle cabs - giving drivers full route and job details.”

http://news.thomasnet.com/IMT/archives/2003/02/wearable_comput.html

February 13, 2003. Wearable Computers: The New Warehouse-Wear. By Katrina C. Arabe
“In a typical rollout of this technology, warehouse workers are given headsets to wear, which allow them to receive oral instructions from a voice technology system. The voice technology system usually works with an order management or warehouse management system (WMS), taking data from these systems and synthesizing it into the speech that is heard through the headsets. The workers then act on these instructions and verify task completion through the microphone attached to the headset.

Such wearable devices free workers' hands and increase their productivity and accuracy—improving such operations as parts inspection, putaway and order selection. Companies that have implemented the technology have enjoyed cost savings, bolstered customer service and secured a rapid return on investment.”

5. What are the implications for human employees?

The current situation could be regarded as a stage along a process towards full automation. If automated picking machines can be produced that have the sophistication and flexibility of human fine motor control, then one human advantage is removed. The use of headsets, voice-recognition, arm-mounted wearable computers in effect make the humans become an extension of the information systems that drive the supply-chain. The human is no longer given a list of products to find, and then be expected to use initiative and knowledge to find the products. Instead, the information system plans the best route for the human to take, and in effect pre-optimises the human being's itinerary. Since the specific location of all products are known the system can be programmed to estimate the amount of time the human takes to obtain the products, and can build the item-by-item information into an asset-tracking process (the human is another machine asset in this type of business) that provides continuous and comprehensive performance information for managers (in much the same way that check-out operators can be profiled by the minute in supermarkets).

Researchers active in this area include:

Martin Dodge, Centre for Advanced Spatial Analysis, University College London, 1-19 Torrington Place, London, WC1E 6BT. m.dodge@ucl.ac.uk

Martin is looking at “pervasive computing” in society and the workplace. One point made by researchers is that these devices mark the total “disappearance of disappearance”, where the employee is unable to do anything without the machine knowing and monitoring.

Professor Stephen Graham, <http://www.dur.ac.uk/geography/staff/?mode=staff&id=934>
Telephone: +44 (0) 191 33 41857 Fax: +44 (0)191 33 41801
(email at s.d.n.graham@durham.ac.uk)

Steve is looking at what he calls new exclusions in society that are produced by complex software. In particular he is interested in urban surveillance.