



This article is the result of research into the Logistics of Internet Product Distribution, carried out by Professor Frederic Sabrià at the CILL - Centro Internacional de Investigación Logística (International Logistics Research Center) / IESE – Mecallux Initiative

# Logistics and B2C

The physical world, the world of the combustion engine, staircases, mailboxes, kilograms and volum is not a good match for the new economy

## EXECUTIVE SUMMARY

The author analyses the problems of B2C, where "optimism abounds and knowledge is in short supply". He first makes observations regarding three fundamental aspects of the current business world. He then presents three problems that arise from B2C. Finally, he makes a more detailed analysis of two of these three problems: picking and delivery. He concludes by stating that a potential solution to B2C problems is "a resurgence in proximity trading".

## RESUMEN DEL ARTÍCULO

El autor analiza los problemas que tiene el B2C, pues "abunda el optimismo y escasea el conocimiento". En primer lugar, el autor comenta tres aspectos fundamentales del mundo empresarial actual. A continuación, desarrolla tres problemas que genera el B2C. Finalmente, analiza con más detalle dos de los tres problemas: el *picking* y la entrega. Concluye diciendo que la posible solución a los problemas del B2C es el "resurgimiento del comercio de proximidad".



Many people believe that it was Montgomery who stopped Rommel at el Alamein. The truth was somewhat different and rather less heroic, having more to do with trucks, supply lines, and stocks of fuel, munitions and water. A few relatively unsophisticated calculations (a duty that rested with the German High Command before launching its campaign) would have shown that the circle could not be squared, that the German army didn't have enough trucks to supply its divisions and ride victorious into Alexandria. It was, quite simply, impossible. Nevertheless, with all this information to hand, Rommel continued forward, assuming that his logistical problems would sort themselves out as they went along.

A group of professors and researchers at the CIIL has recently analyzed the logistical solutions required and pursued by B2C and, after a number of months' work, they have gained the impression that there is more than just one "Rommel" in this sector. In short, optimism abounds, knowledge is in



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short supply and miracle solutions are still awaited for problems that are highly complex.

I can say from the outset that I am convinced that B2C will have a fundamental impact on trade and that, in that oft-used phrase, "things will never be the same again". But to what extent will marketing chains be affected? Will the bookshops replaced by Amazon, BOL and other portals just disappear? Will we no longer make trips to the hypermarket? Will the icebox be connected directly to a virtual supermarket so that our fish (leave the heads on mine please, I want to make a bouillabaisse!) vegetables and ravioli can be delivered rapidly to the door?

The first and most attractive aspect, at least for me, is the possibility of gaining access to a range of options that was until now unthinkable (a simple illustration of this is that you can buy the Van Creveld book from Amazon in a few minutes; I hardly dare think how long my local bookseller would take to get me the same book). Secondly, it would seem that B2C brings with it a removal of the middleman (at least, I read the acronym as meaning "Business to Consumer without passing through intermediaries who earn their living at our expense"). Thirdly, the great attraction of B2C is its immediacy, its convenience, its freedom (we will shortly be able to buy a book via mobile phone).

The fact is that this revolution sounds really attractive and, while we remain on the information plane, where the challenge lies in managing bytes, in seeking information or in transmitting orders, I would venture to say that things are working, or at least should end up working. However, if we step down onto the physical plane, where we have to move boxes and rely on a distribution truck, where a forklift has to move a pallet or a warehouseman has to pick an order, here things begin to slide. My view is that the physical world, the word of the combustion engine, the empire of congestion, staircases, mailboxes, kilograms, volume and temperature is a reality that adjusts badly to the concept of immediacy and persistently gets worse (and never better), a reality which, in short, is not a good match for the new economy.

At present, B2C gives rise to three main logistical problems: the e-store, the picking and the delivery to the consumer

Before analyzing the difficulties to be overcome by the champions of the new economy, we should acknowledge three fundamentals:

A) Our current chains don't work at all badly. Working together (manufacturers, wholesalers, retailers and consumers) we manage to get salad, salmon and strawberries to our iceboxes at an extremely low cost. It is true that many still suffer from low levels of coordination, meaning that they react slowly and badly to changes in the market. Nevertheless, the competition that prevails in the majority of sectors guarantees that few are allowed to be inefficient. Initiatives such as the ECR (Efficient Consumer Response), so fashionable in the mass consumption sectors, or the classical collaborative schemes used in the motor industry and consumer electronics are just two examples.

B) In many cases, the fact that the chain functions well is due, in part, to the fundamental role played by the consumer. I may be stating the obvious, but we should remember that in the pre-Internet age we went into a shop, looked for a book and all but had to wrap it ourselves. Then we took it away and put it in our bookcase. In other words, the consumer completed an important series of logistical operations (picking and transport) which B2C will have to replace.

C) The operative systems used by each participant in the chain are designed to operate in conditions similar to those faced at present. We want to implement B2C, but a large publishing house cannot sell books to an individual. Its warehouses are prepared to ship pallets, its information systems are designed to process hundreds of invoices from booksellers or distributors, not tens of thousands of orders from readers. The inertia against change is tremendous.

At present, B2C gives rise to three main logistical problems.

- In the first place, it obliges the e-store to be connected to its main supply sources, something which is by no means easy given that current trading volumes are very low, while quality demands are very high. All of this means that the cutting-out of the middleman is, almost always, an illusion (the e-store buys from the same wholesaler that sells to everybody else), and that costs and levels of service are not always as expected (in order to meet the demands of internet customers, supplies should be much quicker and more reliable than are actually provided by current suppliers).

- Secondly, the picking carried out by the customer in a shop has to be replaced by industrial picking.

- Lastly, the product has to reach the customer (and the fact is that it is very difficult to find the customer at the right time, in the right place and at the right price).

Let's analyze the problems of picking and delivery (which the specialists have succinctly named after the title of an epic film: "The Last Mile") in more detail.

Picking facilities have been the subject of much study since the 1970s. These are industrial facilities in which new hardware and software elements appear year after year, and in which it is possible to achieve extremely high levels of productivity. WebVan, an American e-supermarket, organizes its operations from a series of centers capable of serving 8,000 customers per day, in which its employees can prepare 450 order lines per hour, which translates into a cost of between 7% to 10% on sales (some \$7 to \$10 per order). The problem is that, as in any highly automated facility, this type of center reacts badly to trading volumes other than those for which it was designed. Theoretical studies show that selling to 400 customers per day (20 times lower than optimum levels) would multiply costs tenfold. WebVan is currently serving 1,200 customers per day.

There are companies that have opted for less drastic solutions. Several supermarkets (**TESCO, El Corte Inglés, Caprabo, Condis**, etc.) prepare orders in their own outlets. In these cases, it is clear that the productivity achieved is very low: calculated at around 2.5 orders (from 40 lines) per hour per operator. Supporters of this initiative maintain that costs are covered by using idle personnel during periods of low activity. An additional problem is

that levels of service are difficult to guarantee, since orders have to be accepted without knowing what the actual state of the lines will be when the order is prepared.

In the case of a general portal (35,000 articles from books to consumer electronics), picking is a highly complicated process. The portal receives orders from its customers. At this point it entrusts its logistical operator with processing purchase orders from its suppliers. The products start to arrive at the operator's warehouse and the operator places them on shelves, providing the portal with a status report. The portal confirms which orders are to be delivered (at times calling the customer to propose partial delivery) and sends the order to deliver. The operator must then pick the order (an operation which is none too easy when one considers that the articles are never in the same place on the shelves).

Distribution costs depend, basically, on the density of distribution points

In short, the problem of picking in B2C is far from being resolved.

Let's move on to the "Last Mile". Distribution costs depend, basically, on the density of distribution points. It is here that we see the main weakness of B2C.

In some cases, (a typical one would be an e-supermarket), the e-retailer has to organize its own distribution. Since the number of people using this type of service is still small, and these people are, furthermore, extremely demanding as regards delivery timetables (e-retailers normally undertake to deliver within time windows of between 30 minutes and 2 hours), trips made are highly unproductive (for supermarkets, 2.5 per hour).

In other cases, the e-retailer uses the services of parcel transport companies. Here the problems are different, given that parcel companies are organized to provide a service to their main market: companies. Delivery to an end-consumer is slow and expensive (on a purely B2C route, an urgent transport van makes three times fewer deliveries). In addition, the effects of delivering to consumers are much more important than those arising from delivering to companies. If we work on the basis that the delivery of a package to a company costs 700 pesetas, one would imagine that internet shoppers are not paying anything like the amount they should be paying for delivery of their 3,000 peseta CD.

In short, B2C is expensive. Picking and transport could cost up to 1,800 pesetas for an order made from a supermarket that has its workers preparing

orders during slow periods. Would the consumer be willing to pay this? It is possible that many would (they would only have to value their own time at just over 1,000 pesetas per hour) although, and this would be the subject of an article on its own, I suspect that we would only be talking about 10-20%.

To put the icing on the cake, we should review the problems of transport within cities.

Since the beginning of the 1970s, the municipal authorities in Europe, the Americas and even some Asian countries (Singapore is a case in point) have tried to find a solution to urban transport. Private traffic has been penalized with tolls, timetables, parking restrictions, etc. and distribution in urban areas has been subject to similar measures (loading areas, restricted unloading times, timetables agreed with local councils, obligatory routes, prohibited streets, etc.).

This is probably the principal weakness of B2C. (Would I allow a van to deliver a CD to my neighbor's house on a day on which I was prohibited from driving to work?). The solution will probably be a compromise: the use of "dropping points", the renaissance of the role of the postman and, indeed why not, a resurgence of integrated proximity trading in B2C-based distribution chains.

#### REFERENCES:

- 1 For a detailed historical study of the logistical bases of this and many other military campaigns, I recommend Martin L. Van Creveld's classic *Supplying War. Logistics from Wallenstein to Patton*, Cambridge University Press, December 1979, ISBN: 0521297931.
- 2 Investment would be in the order of 35 million dollars per center.
- 3 With 35,000 products it is impossible to hold them all in stock. As a result, placement follows a "chaotic" system (the product is placed in the first vacant slot), monitored by computer. Articles are never stored in the same place, a fact which subsequently impedes efficient preparation (all the 'A' products close to the person preparing the order in order to minimize distance traveled, etc.).
- 4 Supermarkets do not currently charge for delivery if purchases exceed between 12,000 and 14,000 pesetas. Some portals charge around 500 pesetas for home delivery of a CD or book. Can this commercial strategy be maintained?