Electronic Consumer Interaction, Technology-Enabled Encroachment, and Channel Power:

The Changing Balance Between Manufacturers' Electronic Distribution And Established Retailers

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Abstract: In a wide range of industries alternative electronic distribution channels may permit disintermediation of wholesalers and of retailers. In some cases manufacturers or primary service deliverers may be able to deal directly with their customers, while in other industries existing intermediaries may be able to withstand attempts to bypass them. Two illustrative industries — consumer packaged goods and air travel — are compared. We conclude that consumer packaged goods producers may for a variety of reasons find it difficult to disintermediate major retailers; alternative competitive strategies for retailers are examined through simulation models.

1. Introduction

It is useful to extend the model of newly vulnerable markets [1] to include vertical integration in the distribution channel by existing players in the channel. The represents encroachment by primary suppliers such as airlines, consumer packaged goods manufacturers, or insurance companies upon the functions performed by other players in their distribution channels. We examined the balance between new entrants and industry incumbents by examining three factors:

- The ease with which a new entrant could attack
- The degree to which it was attractive to attack
- And the difficulty an incumbent had in defending against attack

The same model can be extended to examine old new entrants as well — industry participants attempting to extend their participation up or down the distribution channel through forward or backwards integration. The principal extension needed to treat channel power is that there are more complex power issues, since a either major retailer with large market share, or a critically important supplier frequently can discipline existing industry participants who attempt to increase their roles. More complex power issues between attacker and defender can increase the difficulty that an incumbent experiences when attempting to respond to new entrants’ attacks.

Our model is motivated by the desire to understand changes in industry structure and profitability that result from electronic commerce, and more specifically from the possibility of electronic retailing, electronic consumer interaction, and electronic distribution. Electronic distribution is emerging in a wide range of very different industries:

- Electronic consumer interaction and home shopping in retailing
- Agent-less insurance sales and service
- Electronic (virtual) ticketing and direct distribution of travel products and services
- Branchless and paperless banking

No doubt a large number of other examples are available.

In section 5 of this paper we will introduce a simplified and stylized model of competition between consumer packaged goods as attackers, attempting to encroach upon existing retailers in the distribution channel, and the retailers themselves, acting as defenders. We will consider the shift in power and profitability, and the relative ability of manufacturers to act, and retailers to block, based on factors such as brand loyalty and market share. Section 6 will examine extensions to this model, and section 7 will review use of the model in other industry settings such as travel, banking, and insurance.

2. The Extended Paradigm

Our model for examining the changing competitive balance between incumbents and new entrants needs only slight extensions to include the analysis of challengers seeking to increase their role through vertical integration in the channel and encroaching on the roles of other channel participants. Ease of attack remains critical, and now includes:
• The speed and expense of creating an alternative electronic distribution channel
• The lower costs that may result from this alternative channel
• The factors needed to make the new channel attractive to consumers and to encourage their adoption

The factors that make it attractive to attack have not changed, and continue to include simplistic pricing strategies by defenders, extreme variation among costs and revenues from serving different customers, the presence of customers high large profitability means that in essence are subsidizing others, and the possibility for opportunistic cream skimming that this creates.

The factors that make it difficult for the incumbent to defend against attackers' actions likewise remain critical, and now include:

• Speed of duplication by defender — If it is possible for the defender to duplicate the new channel, it may be difficult for an attacker to gain any advantage.

• Effectiveness of possible punitive moves — Retailers (stores, travel agencies, insurance agencies) whose market share is essential to the survival of a supplier frequently can discipline that supplier if it attempts to integrate down the channel and attempts to become an electronic retailer. If the existing (traditional) retailer has alternate suppliers of competing products, it can withhold shelf space, marketing and merchandizing efforts, or other support, to punish the supplier for attempting to move into its portion of the channel.

• Speed of consumer adoption of new alternative — If consumers are slow to adopt the new channel, then retailers with critically important market share may be able to discipline suppliers for their attempted moves further into the distribution channel.

2.1. Channel Encroachment in Grocery Retailing

Participants in the grocery distribution channel include:

• Manufacturers, such as Procter & Gamble and Lever Brothers, as well as smaller regional players and co-packers who prepare private label products sold under the name of major stores or chains.

• Wholesalers / Distributors, who buy from manufacturers, break bulk, and ship in quantities less than full truck loads, usually to smaller chains or smaller stores.

• Retailers, including small players, regional chains, and national and even international giants.

• And, of course, Consumers.

In a real sense, the first and last occupy the most critical roles. The manufacturer makes the detergent, and the consumer needs it to do laundry. Wholesalers and retailers greatly facilitate interaction between manufacturers and consumers, but their role is not primary, and may be disintermediated by appropriate technology2.

2.2. Channel Encroachment in Air Travel

Participants in the travel distribution channel include:

• Airlines, including major carriers who are major vendors of travel agent computer reservations systems (such as American and United), major carriers who are not major CRS players (increasingly rare), and minor regional carriers and niche players (increasing after deregulation).

• CRS Vendors, who in many ways occupy the same position in this channel that distributors occupy in grocery distribution. However, unlike the grocery industry, in which large chains order direct from manufacturers, bypassing distributors, in travel even the largest travel agencies deal with one or more CRS vendors to book flights, hotels, and rental cars.

• Travel agencies, including small players, regional companies, and national and even international mega-agencies. In addition to ticketing, travel agencies frequently provide information on travel alternatives (which carriers fly between different cities, at which times, and at which prices), and can offer significant advising services to leisure travelers. Increasingly, major travel agencies are now providing critical business
travel expense management services. While these are vitally important, they are outside the traditional distribution function that agencies historically served.

- **And, of course, Passengers**

  In a real sense, the first and last once again occupy the most critical roles. The passenger wants to fly, and the airline provides the flights that make it possible to do so. Technology exists that enables CRS vendors to be easily disintermediated or at least greatly diminished in importance, since almost all carriers and hotel chains maintain internal CRSs, and almost all major travel agencies are able to interact directly with these internal CRSs, bypassing travel agent CRS vendors if they choose. Bypassing travel agencies may be more difficult for some travelers, who require significant amounts of advising, but may be relatively straightforward for many business travelers.

3. **Prospects for Bypass in Air Travel**

Bypass in air travel can take either or both of two forms:

- Bypass of travel agencies
- Bypass of CRS Vendors

Both travelers and airlines will continue to play primary roles, and are not vulnerable to encroaching from other channel players. Electronic ticketing, while separate from bypass, possibly can greatly facilitate bypass.

Bypass represents forward integration by an existing player in the distribution channel and as such it can be analyzed in terms of our extended model of competition among incumbents and new entrants.

3.1. **Bypass as Forward Integration in Air Travel: Attractive to Attack**

Electronic distribution of travel services may well be less expensive than distribution based on human agents. Currently, airlines are paying commissions to travel agencies for serving all customers, those that require significant amounts of assistance as well as those that have already selected their destination, their airline, and their flights. Whether electronic agentless distribution is actually cheaper to implement for all customers than using a travel agency would have, it will certainly be less expensive for airlines to stop paying travel agent commissions for those travelers who can effectively be served without significant assistance. Once again, the distinction between love 'ems and kill yous is vitally important.

- **Love 'em business customers** — There is a limited number of the most attractive business travelers, and all airlines attempt to track them through their frequent flyer programs. These are experienced travelers, who need only limited advising, and have often selected, or even booked, their own flights. The have the technical experience and the installed technology base to use electronic consumer-oriented travel booking systems if they choose to do so.

- **Kill you retail customers** — There is a much larger number of retail travelers, many who travel only infrequently. This group has been described by airline executives as "broad and shallow", meaning that their
numbers are so large, and that each individual in the group travels so infrequent, that it may not be productive to attempt to track them. These travelers often need considerable coaching, and they are much less likely to select their own flights, or even their leisure destinations, without assistance. They have less comfort with technology, making it more difficult for them to use electronic consumer-oriented alternatives to support from human agents.

3.3. **Bypass as Forward Integration in Air Travel: Difficult to Defend**

When airlines eventually make the decision to confront travel agencies directly, it may be very difficult for agents to resist airlines' conversion of electronic ticketing into an effective launch of a bypass strategy:

- Rapid adoption of direct bookings can be encouraged through "payment" to the small group of critical *love 'em* business customers. This can be through discounts or rebates of commissions, which may violate agreements with travel agents. It can also be through extremely large allocations of frequent flyer bonus miles, perhaps an additional premium of 25,000 miles or more for direct booking and electronic ticketing.

- This greatly facilitates the stealth strategy in that *love 'em* business passengers can initially be encouraged to use electronic ticketing and at home systems for flight and seat selection, but to continue to use their travel agents; only when adoption by these critical passengers is high enough to preclude travel agencies using their power against the airlines would the airlines encourage direct electronic bookings and electronic bypass.

- Travel agencies will still be needed to serve *kill yous*, as they are unlikely to be able to receive the advising services they need electronically, and airlines would not find it cost effective to bypass travel agencies to serve these customers themselves.

We offer the following predictions for the future of travel agencies once electronic ticketing leads airlines to increase their efforts towards disintermediation of travel agencies:

- Agencies will lose much *love 'em* business to direct distribution and bypass by airlines if they continue to charge commissions to these customers.

- Agencies can respond by passing through much of commissions to *love 'ems*, and many are indeed already doing so to some extent.

- Agencies will find it difficult to survive on capped commissions available from serving the remaining *kill you* business.

There are strategies that will enable travel agencies to respond to the threats posed by airlines' attempts at bypass. Agencies will need to charge *love 'ems* a fee for services that are desired, to replace commission income. Agencies will also need to be paid for serving *kill yous*, either by the accounts or by the airlines themselves.

4. **Prospects for Bypass in Grocery Retailing**

Bypass in grocery retailing is most likely to entail the bypass of physical retail outlets, principally grocery stores and mass merchandisers like Wal-Mart or Kmart.

Manufacturers and consumers will continue to play primary roles, and are not vulnerable to encroaching from other channel players. That is, ultimately, someone must make detergent, soup, pasta, and salad dressing, and someone must do laundry, prepare meals, and eat. The balance among manufacturers can be affected by a variety of factors, as can the power relationships among manufacturers are retailers, but manufacturers will continue to be necessary. Electronic home shopping represents the most plausible form of bypass in consumer packaged goods retailing.

Once again, bypass represents forward integration by an existing player in the distribution channel and as such it once again can be analyzed in terms of our extended model of competition among incumbents and new entrants. As we shall see, however, this model suggests that it is less than certain that bypass
of grocery stores by traditional manufacturers is likely to succeed.

4.1. Bypass as Forward Integration in Grocery Retailing: Ease of Attack

It may not be easy for electronic home shopping systems to be launched by consumer packaged goods manufacturers. The complexity of grocery store shopping — the large number of alternative products, in a wide range of categories, selected on the basis of very different criteria, means that it may be costly and difficult to develop effective user-friendly computer systems for home shopping. Since consumers are unlikely to want a vegetable selection system, a paper goods selection system, a detergent and laundry product system, and numerous others, and since consumers are equally unlikely to want a Procter & Gamble system, a Campbell's system, a Kraft / General Foods system, and a Lever Brothers system, it will be difficult for manufacturers to achieve the scope needed to launch proprietary systems. An effective launch will require coverage of a broad scope of products, which in turn will require cooperation among very different manufacturers. This cooperation may be difficult to achieve, and will be impossible to achieve under conditions of stealth. Even with the scope needed to make eventual consumer acceptance plausible, experience with other consumer-oriented technical innovations suggests that adoption will be slow. During the period of limited consumer acceptance, with limited market share for alternative electronic distribution, it is expensive for manufacturers to break bulk and to distribute their products directly to consumers.

4.2. Bypass as Forward Integration in Grocery Retailing: Attractive to Attack

It may be difficult to find pricing mistakes in grocery distribution that make it attractive for manufacturers to attack retail operators:

- There may be little or no basis for manufacturer to distinguish high cost vs. low cost (love 'em and kill you) detergent users or pasta eating families. It does not presently cost retailers more to sell to some consumers than to others, they do not need to distinguish between consumers who require expensive services or who make unusual demands upon the system, nor do they systematically alter their prices for brand loyal or for opportunistic consumers.

- Consequently, there may be little or no basis for manufacturers to pursue targeted strategies based on retailer cross subsidies of love 'ems.

4.3. Bypass as Forward Integration in Grocery Retailing: Difficult to Defend

It may be quite easy for major retail chains to defend against attempts by manufacturers to capture a share of retailing with direct electronic distribution to consumers:

- Consumer adoption is expected to be quite slow. During the lengthy period in which major retailers retain significant market share, they will also enjoy considerable market power. Chains like Wal-Mart in the United States or Sainsbury in the U.K. will be able to discipline any manufacturer that they perceive as attempting to come between them and consumers, since the market share available through traditional store-based distribution will be critical to survival while alternative channels still have limited adoption. Pepsi's recent experience in the U.K. has made very clear the importance of retaining retailers' good will and cooperation.

- Unlike the situation in air travel, it will be difficult for manufacturers to target key consumers and to offer them premiums to speed their adoption.

- Again, unlike the situation in air travel, it will be difficult for manufacturers to create a stealth strategy whereby the introduce an electronic system that consumes initially use for home shopping through retailers, then convert this to a home shopping system for bypass of retailers.

- During the long and slow period of gradual consumer adoption, retailers will retain a considerable ability to punish the first manufacturer in each category to attempt bypass through development of home shopping systems.
4.4. Bypass as Forward Integration in Grocery Retailing: Predictions for the Industry

We offer the following predictions for the future of grocery retailing:

• Ultimately, traditional stores will be vulnerable to electronic home shopping. As a group, too many consumers find grocery shopping among the most unpleasant of their regular activities. Moreover, the cost of current distribution, including the costs associated with retail stores’ operations, are high enough to allow electronic distribution to create significant cost reductions as well as increased consumer convenience.

• However, successful electronic shopping developments are most likely to come from sources that cannot be easily punished by major retailers.

• Thus, the threat is most likely to come from new electronic intermediaries outside the channel, like Microsoft or America on Line.

• Alternatively, systems may be developed by retailers themselves.

5. A Simplified Model for Encroachment in Consumer Packaged Goods Retailing

A simplified model of competition between consumer packaged goods manufacturers and retailers can be used to develop qualitative insights about the implications of generic strategies that can be pursued by each player. The initial model of competition for this channel, which we will call the grocery channel, entails the following:

• **Two competing manufacturers**: These represent any two manufacturers of branded, advertised merchandise who compete directly in the same category or categories (e.g., Procter & Gamble and Lever Brothers in the detergent category, or Nabisco and Keebler in cookies, or Coke and Pepsi in soft drinks). The model, for simplification will treat each manufacturer (Manufacturer-1 and Manufacturer-2) as producing a single, directly competing product (the product).

• **Three alternative channels**: The model includes two channels with significant current market share, traditional grocery (such as A&P, Krogers, Giant, Ralph’s, or Wegman’s) and **mass merchandisers** (such as Wal-Mart, Kmart, or Target). For simplicity, the model will treat all mass merchandisers as following the same strategy with regard to manufacturers who attempt to bypass them through direct electronic consumer interaction and will likewise treat all traditional grocery operators as following the same strategy towards manufacturers who introduce alternative electronic distribution. This will enable us to simplify the model by treating each channel — traditional and mass merchandiser — as if it were a single entity. The third channel, **electronic consumer interaction** (ECI) has such limited current market share that we can treat it as initially zero, and as still open to competition over who will own and control it. We represent these as Channel-1, Channel-2, and Channel-3.

• **Consumers**: There are a large number of consumers who shop for the product. Their shopping preferences are determined by a complex, interacting set of loyalties. Some consumers are loyal to M1, other are loyal to M2, and still others are indifferent. All consumers’ choices are influenced by relative prices; thus, indifferent consumers are readily switched between brands by small price differences, while loyal consumers will require greater price differences. Initially, consumers have a preference either for Channel-1 or 2; no consumers initially have a preference for Channel-3. However, as with product loyalties, channel loyalties can be influenced by price differences. Moreover, once consumers have been driven to try Channel-3 (by deep discounting by the operators of the electronic channel, or by price increases in other channels) many will like it, preferences will shift, and trial of the new channel may lead to repeated adoption and switching of loyalties.

We use the model to examine three cases:

• **Base Case**: The base case is used to calibrate the levels of profitability that can be derived from our approximations of consumer loyalties for product and channel.

• **Attack by a Single Manufacturer**: The case of attack by a single manufacturer
approximates what happens when an individual manufacturer, perhaps fearing the potential shift in power if the operator of Channel-2 were to launch an effective electronic channel, decides preemptively and unilaterally to attempt to create this channel.

- **Coordinated Attack by Both Manufacturers:**
  The case of coordinated attack by both manufacturers examines what happens when both manufacturers, perhaps fearing the potential shift in power if the operator of Channel-2 were to launch an effective electronic channel, decide preemptively to attempt to create this channel.

5.1. **Base Case**
This base case is profitable for both manufacturers. It is also profitable for both distribution channels.

5.2. **Unilateral Attack**
In this case Manufacturer-1, fearing eventual disintermediation by the operators of Channel-2 or a third party, if either should decide to launch an electronic channel, decides preemptively to launch an ECI venture alone. The operators of the traditional grocery channel, Channel-1, are largely unconcerned; they perceive, rightly, that for the category of the product the principal source of share for Channel-3 will be defections from Channel-2. However, the operators of Channel-2 are concerned, and they decide to punish Manufacturer-1. They can either drop Manufacturer-1 or significantly increase their markup on M1's product. Modeling results show that the later is more effective since it retains some loyal customers, and at substantially better margins for themselves, while still causing dramatic loss of sales for M1.

In order to encourage adoption of Channel-3, its prices to consumers must be no worse than for Channel-2, but its operating expenses are initially far higher. Utilization of Channel-3 starts from very low levels, but as more consumers try it, and as more consumers return, its share begins to grow and its costs decline. The subsidies required to match the prices of Channel-2 decline as well.

The case of unilateral attack is profitable for the mass merchandiser (the operator of Channel-2) and for the manufacturer who did not initiate an attack (Manufacturer-2). Manufacturer-1, who did initiate the attack, was successfully punished, earning substantially less in Channel-2 and suffering unsustainable losses while attempting to launch Channel-3.

We duplicated the runs of the unilateral attack scenario under conditions that attributed much more brand loyalty to consumers. More consumers were loyal to their brands, and their degree of loyalty was stronger, meaning that even greater price differences were required to change their behavior. Even until these conditions, unilateral attack was not a successful strategy.

5.3 **Coordinated Attack**
Our third model involved coordinated moves by both manufacturers, introducing a shared electronic distribution channel to carry both of their products. In this instance it was uneconomic for the operator of Channel-2 to attempt to punish both manufacturers, since this merely hastened the rate at which consumers tried and adopted electronic distribution, switching from the mass merchandising channel to ECI. Experimentation suggests that it is better for manufacturers to subsidize their ECI channel early, to encourage adoption, which reduces distribution costs as the channel captures customers and thus reduces the need for future subsidies. This is true even in the presence of limited brand loyalty.

The ECI channel is operating profitably and manufacturers' total profits are higher than they were before opening the alternative channel.

5.4. **The Nightmare Scenario**
The base case scenario is profitable for all channel participants and one might wonder what would motivate any player to disturb its profitability. To understand, it is necessary only to envision a fourth scenario, an extension of the third, where the successful ECI channel is not controlled by the manufacturers. The ECI operator can be expected, by tracking consumer purchases, to develop an accurate model of the strengths of consumers' brand loyalties. The ECI operator can also "reconfigure the "electronic shelf"
space" for each consumer to reflect these loyalties. The simplest possible means of exploitation would be to charge all brand-loyal consumers the same price, but to threaten each manufacturer with withholding "shelf space" to show their product to consumers without brand preferences unless the manufacturer offered a promotional rebate. This would be far more effective than today's untargeted couponing, more effective even than programs like Catalina and APT, and would enable the operator of Channel-3 to recapture virtually all of the manufacturers' profits earned from consumers without brand loyalty. Other pricing schemes can be developed that are even more damaging to the manufacturers. Thus, in this scenario the manufacturers avoid the initial expenses that come from launching Channel-3, but as a result they also forfeit most of their future opportunities for profit. This argues strongly in favor of the manufacturers' launching a shared distribution channel, and against their accepting any system offered them by Wal-Mart, Catalina, or Microsoft.

6. Extensions to the Consumer Packaged Goods Model

The following extensions are being considered to the model of competition for the consumer packaged goods channel:

- Multiple products and purchases of product "baskets," so that consumer adoption will depend upon multiple manufacturers in different categories rather than both manufacturers in a single category
- More sophisticated models of consumer behavior
- More sophisticated models of corporate strategies

7. Extensions to Other Industries

Extensions are being considered to the model to allow modeling of competition of encroachment in other, dramatically different industries:

- A strong "customer profitability gradient" — industries like air travel where some passengers may be 20%, 50%, or even 80% less for the same tickets
- Clear market segmentation, where a limited number of customers account for a larger proportion of sales, allowing more effective targeting and more effective encouragement of rapid adoption of alternative distribution channels, through well designed incentives — industries like hotels / hospitality
- A rigid regulatory structure, as in insurance or local telecommunications

8. Conclusions

Considerable uncertainty remains concerning prospects for vertical integration within the channel. Experiences differ in different industries, and are likely to continue to diverge. Where love 'ems and kill yous are clearly different, this creates an opportunity for new channel entrants. Where consumer adoption will be slow and retailers have the ability to punish supplier during periods of limited consumer acceptance of new alternatives, the attacker is unlikely to be any one of industries' primary suppliers acting alone. Experience with our simplified model of the grocery industry, and with similar distribution systems in other industries, suggests that the manufacturers' best alternative may be a coordinated preemptive attack.

9. References

Endnotes

1. The Wharton School, University of Pennsylvania

2. If it were possible not only for the consumer to fax a request to Lever Brothers for Lever 2000 soap, but also for Lever to fax the soap back to the consumer, it is not clear what role would be left either for wholesalers or for retailers!

3. Perhaps equally importantly, they are outside the distribution function that airlines intended to have agencies serve in exchange for their commissions. The 10% that airlines paid to agencies was in a real sense compensation for the fact that airlines did not have to advise travelers or write tickets.

4. Electronic ticketing is a recent innovation, initially introduced by United Airlines and duplicated by other domestic carriers. Under electronic ticketing, passengers book their flights much as they do now, through travel agents, by calling the airline directly, or by home computer; at the time that reservations are made, the consumer provides a credit card for payment. However, no ticket is sent, though passengers can receive confirmation by fax if they wish. At the airport, the passenger goes directly to the gate, the gate agents have a list of passengers and their seat assignments, and when a passenger shows a valid ID he or she is given a boarding card and a receipt.

5. The analogy with airlines’ travel agent computer reservation systems (CRSS) appears obvious. The opportunities to gain acceptance by subsidizing development costs, and to earn enormous profits in subsequent years, appear quite similar.