

Integrated Marketing Communications in Retailing

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Introduction

A computer scientist, Mark Weiser, envisioned over a decade ago that future environments would be saturated with computing and communication capability, but yet gracefully integrated with human users (Weiser 1991). His vision manifests itself in smart environments, where useful technologies disappear and “weave themselves into the fabric of everyday life until they are indistinguishable from it.” Retailing environments are poised to become such smart environments with modern technologies such as RFID (Radio Frequency Identification), wireless sensors, the ubiquitous Internet, and mobile computing. Communication is the central part of this smart retailing environment that proactively anticipates the consumer’s needs and makes recommendations to assist consumers’ decision-making process. The key challenge for retailers is to build strong brands by orchestrating in-store communications (e.g., Personal Shopping Assistant) with the usual out-of-store branding communications (e.g., print advertisement). To achieve this orchestration, retailers will find the concept of Integrated Marketing Communications (IMC) relevant for designing profitable marketing strategies.

We organize this chapter as follows. We first present the genesis and definition of IMC and review the standard multimedia model of communications. We next contrast this standard model with the IMC framework, highlighting how retailers should act *differently* to determine the amount and allocation of budgets in the presence of synergies that emerge within the IMC context. In addition, we discuss the effects of uncertainty on the profitability of IMC programs. Finally, we extend the IMC framework to futuristic retailing and identify new research avenues.

Genesis and Definition of IMC

The IMC concept originated at Northwestern University, where Professor Don Schultz introduced and developed it further over the last decade. Many companies embraced this concept in practice not only because of the mergers and acquisitions that led to consolidation of the advertising industry (which resulted in one-stop shopping of communications needs such as media and creative, consumer promotions and direct marketing, PR and product placement), but also because of synergies that emerged when various communications activities were integrated within the IMC framework. Consequently, several academic journals devoted space to investigate the deeper implications of IMC for budgeting and allocation; for example, see the special issues of *Journal of Advertising Research*, *Journal of Marketing Communications*, *Journal of Business Research*, and numerous textbooks (e.g., Schultz, Tannenbaum and Lauterborn 1993). The actual application and use of IMC has now spread from North America to Asia to Europe to the Pacific Rim and South America. A commonly used definition of IMC is as follows: IMC is a concept of marketing communication planning that recognizes the added value of the comprehensive plan that evaluates the strategic roles of a variety of communication disciplines—for example, general advertising, direct response, sales promotion, and public relations—and combines these disciplines to provide clarity, consistency, and public communication impact (Schultz et al. 1993, p. 6). For brevity, we propose a new succinct definition¹

An IMC program plans and executes various marketing activities with consistency so that its total impact exceeds the sum of each activity's impact.

Standard Model of Multimedia Communications

Here we review the standard model of communications so that we contrast not only its quintessential difference from the IMC framework, but also the resulting differences in managers' decisions and firm's profitability. In standard advertising models, the various modes of communications, for example, television, radio and newspapers, exert independent effects on consumers. Figure 1 depicts this communication process.

Given the lack of consideration of joint effects and cross-media complementarities, inconsistencies could arise between the messages carried by disparate communications media from the same organization. This potential for inconsistencies raised questions about how media advertising works. In addition, cognitive psychology shed new light on consumer information processing, suggesting that consumers absorb information about goods and services from a number of sources, not all of which are formal promotional messages. So, no longer can marketers

¹ We thank Prof. Scott Neslin for suggesting a variant of this definition.

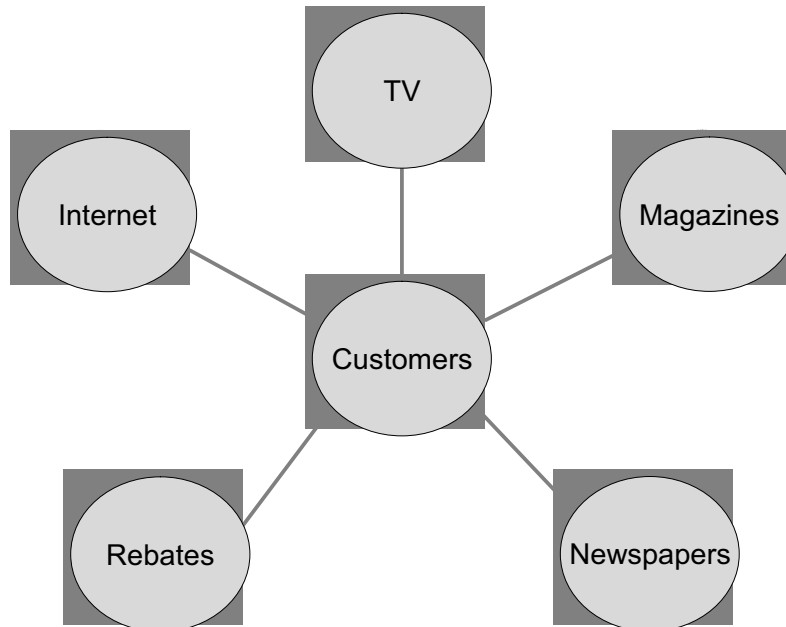


Fig. 1. Standard Multimedia Communications Model

assume that they control the way consumers think about brands via image-building media advertising. Despite these concerns, standard advertising theory offered deep insights by deducing fundamental principles of budgeting and allocation, which we explain in the next two propositions.

Multimedia Budgeting and Allocation

For the sake of clarity, suppose managers expend u_1 and u_2 dollars on two communications activities with effectiveness β_1 and β_2 , respectively; then the total budget is $(u_1 + u_2)$, and the budget allocation is u_1/u_2 . Based on Naik and Raman (2003), we state the normative result in the following proposition:

PROPOSITION 1: *In multimedia advertising, as the effectiveness of an activity increases, managers should increase the spending on that activity, thus increasing the total media budget. Furthermore, the total budget should be allocated to multiple activities in proportion to their relative effectiveness.*

This proposition informs managers that if an ad agency improves the creative copy, thereby increasing the effectiveness of television advertising (say β_1), then they should *increase* the expenditures on TV advertising (i.e., increase u_1). The force of this proposition lies in cautioning managers against the tempting — but

incorrect — intuition: “now that we have a better advertising campaign, we should be able to achieve greater impact with less (or the same) budget.”

Another insight from this proposition is revealed by the question²: Why should managers spend any dollars at all on the less effective medium? Because they should not continue to invest in the most effective activity after diminishing returns set in. Rather, they should shift the allocation to the less effective medium so as to locate the firm on the steep region of the response curve for the less effective medium rather than stay on its flatter portion for the more effective medium. Consequently, as in proposition 1, the eventual budget allocation results in the optimal proportion β_1/β_2 (and not 100% to the most effective activity and zero to the less effective ones).

The standard advertising theory also investigated the role of carryover effects, which capture the long-term effects of advertising. Naik and Raman (2003) showed that not only do managers need a larger total budget when carryover effects are large, but that they should increase spending on each of the communications activity proportionately so that the relative allocation remains *invariant* to the magnitude of the carryover effect. We summarize these findings as follows:

PROPOSITION 2: *In multimedia advertising, as the carryover effect increases, the total media budget increases; however, budget allocation does not depend on the carryover effect.*

To develop the intuition for this proposition, we observe that *the carryover effect enhances the long-term effectiveness of communications activities*. Specifically, if λ denotes the carryover effect, then the long-term effectiveness of each activity is given by $\beta_i/(1-\lambda)$, which exceeds the short-term effectiveness β_i (because λ is a positive fraction). Furthermore, the long-term effectiveness of each activity increases *proportionately* by the same factor, $(1-\lambda)^{-1}$. Hence the *relative* proportion β_1/β_2 must necessarily remain unchanged, keeping the budget allocation invariant to changes in the carryover effect.

Integrated Marketing Communications Framework

Managers should recognize that consumers combine the information they receive from various media whether or not the firm itself integrates those messages across media. To prevent consumers from integrating them inconsistently, they should take charge of this process, and this *proactive* view of IMC represents the new approach to media planning (see Schultz and Pilotta 2004 for further details). The overriding purpose of IMC is to manage all marketing activities that impact sales, profits, and brand equity.

² We thank Prof. Kusum Ailawadi for leading us to this inquiry.

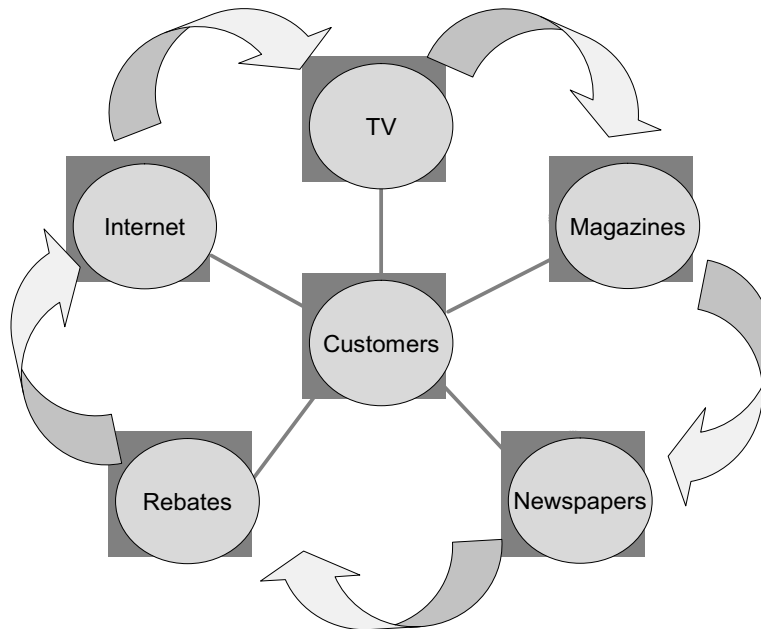


Fig. 2. Integrated Marketing Communications Model

Figure 2 presents the IMC model that emphasizes the role of joint effects or *synergies* (shown by the curved arrows) generated due to the orchestration of multiple activities. In comparison to Figure 1, the concept of IMC is much more than simply using multiple media concurrently as in the standard multimedia model, where the effectiveness of each activity does *not* depend upon any other activity. In contrast, the major difference in the IMC model is that the effectiveness of *each* activity depends upon *all other* communications activities used by the firm.

Another difference between the IMC model and standard models is as follows. Traditional marketing employs a “push” strategy, where communications between a firm and its consumers are designed to promote goods that the firm created and desired to sell. IMC employs both the push and pull approaches. Retailers like Macy’s or Nordstrom are examples of companies that attempt to apply the IMC approach by incorporating feedback so that their products and communications can be adjusted to meet consumers’ needs. Given this IMC framework, a number of fundamental questions arise:

- Do synergies between media (e.g., television and print advertising) exist in the marketplace?
- How should synergies be estimated using readily available market data?
- How should synergy affect managers’ decision about the size of media budget?

- If synergy increases or decreases, how should managers alter the budget allocation?
- How does synergy moderate the effects of advertising carryover on the budget and its allocation?
- Are there catalytic effects of synergy?
- How can managers create synergies and reduce wearout?
- Is there an alternative perspective to investigate the IMC phenomenon?

We address all these issues in turn.

Measurement of Synergy

One of the earliest studies measuring media synergy was conducted by a consortium of radio network companies, who sampled 500 adults, ages 20-44, across 10 locations in the United Kingdom. The main findings indicated that 73% of the participants remembered prime visual elements of TV ads upon hearing radio commercials. In addition, 57% re-lived the TV ads while listening to the radio advertisement. Thus, radio ads reinforced the imagery created by TV commercials, resulting in synergy between television and radio advertising (for further details, see Radio Advertising Bureau at www.rab.co.uk).

Although the estimation of cross-media synergy remained elusive, standard advertising models attempted it by specifying brand sales a *response function* of managers' current actions and past outcomes; for example, $S_t = \beta_0 + \beta_1 u_{1t} + \beta_2 u_{2t} + \lambda S_{t-1} + \varepsilon_t$. Gatignon and Hanssens (1987) pioneered the distinction between a response function and *process functions*, which explain how effectiveness parameters themselves depend on managers' actions. In other words, managerial actions affect not only market outcomes (e.g., sales, share), but also the *effectiveness* of marketing activities. For example, suppose that radio and TV advertising enhance each other's effectiveness. Such effects are captured in the process function (say), $\beta_1 = \beta'_1 + \kappa u_2$, which suggests that the spending u_2 increases the effectiveness β_1 in the presence of positive synergy ($\kappa > 0$). When we substitute this process function into the above response function, we obtain the overall model, $S_t = \beta_0 + \beta'_1 u_{1t} + \beta_2 u_{2t} + \kappa u_{1t} \times u_{2t} + \lambda S_{t-1} + \varepsilon_t$, thus introducing an interaction term that captures synergy.

We note that this notion of process function is deterministic and static (i.e., without the error terms or lagged β s). Even so, many challenges arise in applying the ordinary least squares (OLS) or related statistical approaches to estimate the parameter for synergy, κ . These challenges arise because OLS and related statistical approaches ignore inter-temporal dependence and non-stationarity in the observed sales process, thereby resulting in biased parameter estimates and incorrect budget determination.

Advanced estimation techniques overcame these challenges and facilitated the *joint* estimation of both response and process functions. Specifically, applying Wiener-Kalman filtering theory, Naik and Raman (2003) developed an appropriate method and demonstrated its application by analyzing the sales and advertising data for Dockers® brand of Khaki trousers in the fashion apparels market. They furnished strong evidence for the presence of synergy between television and print advertising. Furthermore, they generalized this approach to estimate a general nonlinear, non-stationary, dynamic and stochastic process functions (for details, see Naik and Raman 2003, p. 384). Thus, managers can now implement this Kalman filter-based approach to estimate and infer the existence of synergy by using data on retail sales and multimedia advertising (see Schultz 2004).

Multimedia Budgeting in the Presence of Synergy

After managers establish the existence of synergy in their markets, how should they determine the multimedia budget? Applying optimal control theory, Naik and Raman (2003) showed that, in dynamic equilibrium, the total budget should be increased to capitalize media synergies. We present this normative result as,

PROPOSITION 3: As synergy increases, managers should increase the total media budget.

This proposition addresses the age-old issue of whether or not managers overspend, i.e., actual expenditure exceeds the optimal budget. Specifically, they show that the literature seems to be over-stating this assertion within the context of IMC. Because previous response models have ignored synergy, the optimal budget is actually understated. Hence, what *appears* to be overspending would represent an appropriate spending level once we account for synergy among multiple media. Thus, overspending is likely to be smaller when the total budget reflects the objectives of orchestrating the communications mix.

It is important to recognize that managers should not simply spend additional money to “do more of the same thing.” Rather, the increased budget should be utilized to create synergies between activities (see section 4.6 for a suggestion). The resulting synergies then enhance both short- and long-term effectiveness of marketing activities.

Multimedia Allocation in the Presence of Synergy

Next we note the important finding that budget allocation is *qualitatively* different in the presence of synergy, requiring managers to act *differently* when implementing IMC. Based on Naik and Raman (2003), we state how synergy alters the budget allocation:

PROPOSITION 4: *As synergy increases, managers should decrease (increase) the proportion of media budget allocated to the more (less) effective communications activity. If the various activities are equally effective, managers should allocate the media budget equally among them regardless of the magnitude of synergy.*

The counter-intuitive nature of this result is its striking feature. To understand the gist of this result, suppose that two activities have unequal effectiveness (say, $\beta_1 > \beta_2$). Then, in the absence of synergy ($\kappa = 0$), the optimal spending on an activity depends only on its own effectiveness; hence, a larger amount is allocated to the more effective activity (see proposition 1). However, in the presence of synergy ($\kappa \neq 0$), optimal spending depends not only on its own effectiveness, but also on the spending level for the *other* activity. Consequently, as synergy increases, marginal spending on an activity increases at a rate proportional to the spending level for the other activity. Hence, optimal spending on the more effective activity increases slowly, relative to the increase in the optimal spending on the less effective activity. Thus, the proportion of budget allocated to the *more* effective activity *decreases* as synergy increases.

If the two activities are equally effective, then the optimal spending levels on both of them are equal. Furthermore, as synergy increases, marginal spending on each of them increases at the *same* rate. Hence, the optimal allocation ratio remains constant at fifty percent, regardless of the increase or decrease in synergy.

Advertising Carryover Effect in the Presence of Synergy

We describe how synergy moderates the carryover effect in the next two propositions:

PROPOSITION 5 (BUDGET): *As the carryover effect increases, managers should increase the media budget; the rate of increase in media budget increases as synergy increases.*

PROPOSITION 6 (ALLOCATION): *In contrast to proposition 2, budget allocation depends on the carryover effect in the presence of synergy. Furthermore, as carryover increases (decreases), managers should decrease (increase) the proportion of budget allocated to the more (less) effective activity.*

Based on propositions 2 and 6, managers should act differently: absent synergy, they should allocate the budget to a variety of activities in simple proportion to the relative effectiveness and regardless of the carryover effect; when synergy is present, the allocation should incorporate the information on the magnitude of the carryover effect.

Catalytic Effects of Synergy

Does synergy introduce any fundamentally new advertising effect? Yes, since all media are not alike, managers can capitalize on the “catalytic effects” of ancillary activities. For example, BMW used product placement in James Bond movies, which may not have increased sales of BMW, but made its TV and print advertising more effective. Or Mini Cooper used the real movie, *The Italian Job*, to build its brand image. In other words, managers should use activities such as event sponsorship, free-samples and collaterals, in-transit advertising or merchandising because these ancillary activities enhance the effectiveness of primary activities through synergistic interactions.

This new effect — the *catalytic effect of ancillary activities* — can be defined as follows: a marketing activity is a catalyst if it has negligible direct effect on sales, but exhibits substantial synergies with other activities. For catalytic activities, Raman and Naik (2004) prove the

PROPOSITION 7: Managers should allocate a non-zero budget to the catalytic activity even if it is completely ineffective.

We note that, based on proposition 1, managers should allocate the total budget to various media in proportion to their relative effectiveness, and so the completely ineffective activity should not even be considered in the communications mix. In contrast to this traditional way of thinking, managers who seek to orchestrate an IMC program benefit from not only the direct effects, but also the indirect effects of various activities. Therefore, they should *not* eliminate spending on an ineffective activity when it enhances the effectiveness of other activities due to its catalytic properties. Thus, managers should consider the catalytic role of various activities to fully benefit from the synergies generated within IMC contexts.

How Can Managers Create Synergies?

Keller (2003, p. 325) suggests “mixing and matching” communications such that weaknesses in one medium can be compensated by the strengths of another medium. This idea is reinforced by Edell and Keller (1999), who show that a coordinated television and print media strategy led to greater processing and improved memory performance than either television or print media alone. The limited amount of information in TV ads is complemented by the elaboration in a print advertisement, while the limited attention-getting nature of the print medium is complemented via the interest aroused by the television. Thus, by mixing and matching modalities, managers can create synergies among various activities in the communications mix. We encourage further research to discover other mechanisms for building synergies.

Synergy Versus Wearout

The phenomenon of wearout refers to the decline in ad effectiveness (i.e., drop in β s). The marketing literature identifies two types of ad wearout: copy wearout and repetition wearout (see Naik, Mantrala and Sawyer 1998). The former captures the decline in ad effectiveness over time, while the latter describes its decline due to repetitive exposure. Repeated exposure in the same medium produces wearout; to forestall it, an appropriate pulsing strategy needs to be discovered (for details, see Naik, Mantrala and Sawyer 1998). In contrast, *varied* exposures across *different* media can create synergies. A behavioral explanation, based on encoding variability hypothesis, suggests that consumers retrieve brand information more effectively when they encode such information via multiple cues from different media rather than the same cues from a single medium (see Unnava and Burnkrant 1991 for details). We encourage further research to find appropriate “media pulsation” strategies for generating synergies.

Hierarchical IMC?

Another perspective of IMC is that various communication activities move customers through distinct stages of decision process.³ More specifically, let the decision process be as follows: need recognition $\Rightarrow$ brand awareness $\Rightarrow$ brand attitude $\Rightarrow$ purchase intent $\Rightarrow$ purchase $\Rightarrow$ post-purchase evaluation. Then, consumers may be impacted such that activity A enhances need recognition; activity B builds awareness; activity C generates positive attitudes; and so on. The kernel of the idea is to determine whether and which activities facilitate consumers’ movement across these hierarchical stages. Note that a “hierarchy” emerges because the later stages require consumers to transit through the earlier stages. To capture consumers’ transition across these unobservable (i.e., hidden) stages, we need to apply hidden Markov modeling to formulate, solve, and estimate the resulting hierarchical IMC model. We can incorporate the central essence of this hierarchical notion in a dynamic IMC model by specifying an *upper triangular* transition probability matrix, which ensures the unidirectional flow across stages (e.g., a consumer cannot become “unaware” after having formed brand attitudes). To calibrate such hierarchical IMC models, Smith, Naik and Tsai (2005) have developed a new method that enables the joint estimation of the specific stages to be retained and the specific communications activities that would influence a consumer’s transition. We encourage researchers to investigate this perspective of hierarchical IMC empirically.

While the above propositions and discussions advanced our understanding of synergy, we maintained a tacit assumption that the impact of marketing effort on sales is deterministic. When this assumption is untenable, for instance, in turbu-

³ We thank Prof. Scott Neslin for this novel perspective.

lent, volatile markets where uncontrollable factors also may affect sales, we need to incorporate the role of uncertainty in the analyses. To this end, Raman and Naik (2004) generalized the deterministic IMC model by using the Wiener process to represent uncertainty in their continuous-time dynamic model.

Extending IMC to Uncertain Environments

Applying stochastic optimal control theory, Raman and Naik (2004) derived the optimal IMC program for uncertain markets. Below we present their main propositions and discuss the substantive implications.

PROPOSITION 8: *In uncertain markets, the total media budget increases as synergy increases. Furthermore, the proportion of budget allocated to the more (less) effective medium decreases (increases) as synergy increases.*

It is intriguing to find that propositions 3 and 4 in the absence of uncertainty are identical to the above one, seemingly implying that uncertainty plays no role! But jumping to such a conclusion is inaccurate because uncertainty directly affects sales evolution, thereby making the level and growth of sales less predictable in the future. In addition, uncertainty affects the variability in long-term profit, thereby increasing the downside risks of losses and bankruptcies. Thus, uncertainty has serious consequences on both sales and profit.

The proper interpretation of proposition 8, therefore, is that managers should *not alter* their decisions by increasing or decreasing budget in response to the effects of uncertainty on sales and profit. This finding clarifies the conflicting views prevalent in the existing practice. Specifically, advertising agencies advocate that managers should *increase* the media spending in response to demand shocks such as recessions. Whereas an empirical analysis of the national media spending data indicates that managers are likely to *decrease* their media budget during recessions. Resolving these conflicting views, Proposition 8 recommends *neither increasing nor decreasing the media spending, but sticking to the course of action in uncertain times.*

In sum, this proposition highlights the fact that “no action” on budget changes does not imply managerial “inaction,” the former requiring knowledge of optimal decision-making under uncertainty, the discipline not to tinker with marketing budgets in the short term, and the commitment to building brands over the long term.

We next describe the effects of uncertainty on the profitability of IMC programs:

PROPOSITION 9: *In uncertain markets, the expected value of long-term profitability of the optimal IMC program increases as synergy increases.*

PROPOSITION 10: *In uncertain markets, the variability of long-term profitability of the optimal IMC program is unaffected by the magnitude of synergy.*

According to these propositions, managers should adopt an IMC perspective to increase the brand's profitability. That is, they should think of marketing communications activities not as a set of independent variables, but rather as a set of interconnected activities with potential synergies. By generating synergies, they not only increase the expected profitability in the long run, but they also keep profit variability unaltered. In other words, synergy imposes no tradeoff between profitability and variability. Thus, an IMC perspective raises profit but leaves its variability unaffected, and so it is prudent to build synergies by orchestrating the communications mix.

IMC and Smart Retailing

Multiplicity of media is a fact of life for modern consumers. They tend to multi-task, to browse the Internet while watching the television, or to read a magazine while listening to the radio. Hence a firm's messages from print, radio, television or the Internet should not conflict mutually. Consistency across multiple media requires managing everything involved in the process of communication, from strategic analysis through database management. However, in the realm of retailing, the role of IMC has received little attention. We believe a better understanding of IMC in the retailing context would benefit both retailers and researchers. To this end, we suggest research avenues to investigate the role of multiple channels of communications to be found in futuristic retailing context.

In existing retailing environments, a consumer visits the retail store to buy a basket of goods and, once inside the selected store, she encounters several competing brands in a product category to choose from. Inside the store, each brand in a product category has limited avenues to provide additional information to consumers to influence their purchase intention or willingness to pay (for more on consumer shopping behaviors see Uncles chapter in this book.). Consequently, branded goods advertise outside the store in mass media via television, print, radio, billboards or in-transit advertising. In such environments, the manufacturer follows the pull strategy (i.e., via mass advertising to build brand image) and the retailer follows the push strategy (e.g., point-of-sale support, coupons, promotions).

In future retailing environments, however, retailers have access to fascinating possibilities for communicating with consumers. For example, consider a personal shopping assistant (PSA), which is a touch-screen Tablet PC mounted on shopping carts. Think of it as "smart carts." It provides information to a consumer *while she shops in the store*. This information includes not just price, promotion, coupon availability, or in-store location of the item, but also inventory at home and preferences for any brands bought on previous shopping occasions. Indeed, the next generation PSA would include an intelligent guidance system for generating recommendation that's personalized for (and by) an individual shopper. If so, what customer-specific messages should the retailer offer to influence a consumer's intention to buy or willingness to pay? Do the retailer's messaging decisions amplify

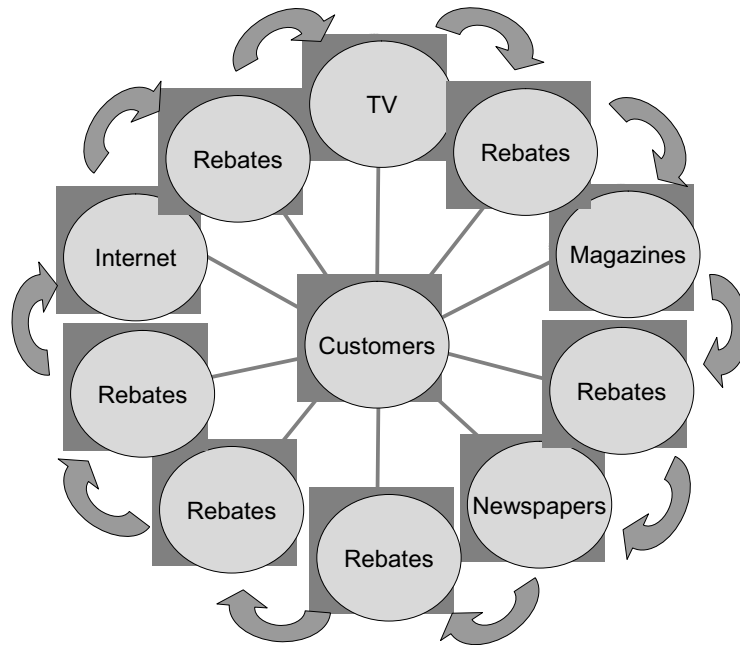


Fig. 3. IMC in Smart Retailing Environments

Legend: TV = Television advertising
 PSA = Personal shopping assistant
 EAD = Electronic advertising displays
 IT = Information terminals
 ESL = Electronic shelf labels
 RR = RFID-equipped refrigerators
 Mags = Magazine advertising
 News = Newspaper advertising

or attenuate the effectiveness of in-store individualized promotions (see, e.g., chapter by Gedenk, Neslin and Ailawadi in this book)? (Are there synergies with the out-of-store traffic or brand-building advertising? Does the retailer's ability to provide timely information to consumers inside the store increase brand-switching, thereby increasing the power of retailers relative to manufacturers (who employ out-of-store brand-building strategies)?

To address such issues and related implications for resource allocations, Figure 3 sketches a conceptual model that reveals potential synergies a retailer can build between various in-store communications channels — personal shopping assistant (PSA), electronic advertising displays (EAD), information terminals (IT), electronic shelf labels (ESL), RFID-equipped refrigerators (RR) — for sending messages to its customer franchise (see also Kalyanam, Lal and Wolfram in this book). The activities North-West of the 45° diagonal represent existing communi-

cation channels, which essentially build store traffic and mitigate competitive pressure from other retailers in town. In contrast, the activities on the South-East of the 45° diagonal represent new communication channels, which potentially identifies an individual customer and targets personalized communication packets. Thus, synergies can exist at two levels: those between in-store and out-of-store activities, and those within various in-store activities and within various out-of-store activities. We encourage further research to investigate these novel issues.

In conclusion, we predict that retailers of the 21st century will not only embrace emerging technologies like PSA, EAD, IT, ESL and RR, but also employ innovations based on more advanced technologies (e.g., nanotechnology) in the next decade. Such technologies cost substantial investment; the change of technology from the old to the new invokes the well-known biases of sunk costs; the psychological desire to hold on familiar technologies retards the adoption rate; and the painful tradeoffs implicit in replacing part of the workforce with automation is the hardest of all. Yet, every retailer will inevitably adopt new technologies, albeit some sooner than the others. For example, in the United States, the retailing giant Wal-Mart expects every carton and palette it receives to carry a radio identification tag (Feder 2003). Its top hundred suppliers are expected to adopt this technology soon, and the rest of its suppliers to do so by 2005. Indeed, the U.S. Department of Defense now requires its major suppliers to use RFID tags. As large buyers stipulate such requirements, manufacturers will comply, driving the real costs of technology down due to augmented scale and experience effects, thereby inviting additional retailers to embrace such technologies.

This adoption of computing and communications technology marks the dawn of smart retailing environments, thus realizing Weiser's (1991) vision of ubiquitous computing in marketing. A futuristic retailer, such as Metro's Future Store, would therefore possess an expanded repertoire of communications modalities for better understanding its consumers. More advanced sensing and recognition devices would fuel an explosive growth of interactive and highly distributed communications. Consequently, retailers' real challenges will be to orchestrate the resulting marketing communications across multiple modalities without overwhelming consumers' limited attention spans. We hope this literature review and the proposed IMC framework provide an impetus for both retailers and researchers to implement managerially relevant experiments and establish the existence of synergies in retail markets.

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