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Who Will Profit From Auto-ID?

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Wal-Mart changed the game when it demanded that top suppliers ship products with Auto-ID tags. The result: A new crop of retail winners and losers. Here's how you can be a winner.

by Jonathan Byrnes

Is Auto-ID hype or is it for real? For several years, many top managers have asked this question about radio-frequency ID tags, called Auto-ID, under development by a global consortium of universities, companies, and organizations.

In the system envisioned by some consortium leaders, literally everything would be tagged with chips that "announce" identity when hit with a non-line-of-sight electromagnetic field. This system would have a common identification convention and set of standards. In theory, a store, warehouse, or factory with Auto-ID could be hit with an electromagnetic pulse, and the contents would be instantly known. To some, this view seemed sufficiently far-fetched that they wrote off the whole concept, and to others it raised serious privacy concerns.

The debate over hype versus reality shifted markedly a few months ago when Wal-Mart announced it will require its top 100 suppliers to ship their products with Auto-ID tags on all cases and pallets by 2005.

Now the question on the table is: Who will win, and who will lose? And, how can top managers determine their best course of action?

Over the past year, I have joined with John Wass, former Senior Vice President—Supply Chain Management of Staples and Yossi Sheffi, who heads MIT's Center for Transportation and Logistics, to look at the likely impact of Auto-ID on retailers and distributors, and their suppliers. I gratefully acknowledge their co-development of the material in this column.

Who wins? Who loses?

The quick answer is that Auto-ID will produce some big winners and a lot of losers. Even for the winners, Auto-ID requires so much capital and change that the risk is very great. Successful transition management requires insight, finesse, and careful planning.

Exhibit 1 shows the impact of Auto-ID on a typical $10 billion retailer and manufacturer in each of the grocery, fashion, and electronics industries, as well as on a distributor of low-value products and its supplier. The exhibit has three Auto-ID rollout scenarios: (1) Cases: Only cases are tagged, with a five-year phase-in. (2) Blended: Initially, only cases are tagged, with a five-year phase-in, but items are tagged starting in year three with a five-year phase-in. (3) Items: Only items are tagged, with a five-year phase-in. In all scenarios, a seven-year net present value (NPV) and capital requirement are calculated.

The early adopters will spend a lot of money on new technologies and see their profits decline, but get a big increase in market share.

This exhibit paints a startling picture. In nearly all industries and scenarios, manufacturers lose money, especially those that produce low-value grocery-like products. This occurs because they have to carry the cost of tagging the products. The exception is electronics, where products have high value relative to the cost of tags. For manufacturers, losses increase as the scenarios shift from cases to blended to items, again with the exception of electronics, where the manufacturers actually increase their gains.

Retailers, on the other hand, have a very different picture. In almost all situations, large retailers are winners. As the scenarios shift from cases to blended to items, retailers gain more and more. However, the retailers experience a lot of risk, as the required capital expenditure of the blended and items scenarios approaches a half-billion dollars for the $10 billion retailer model. Big distributors experience sizable gains, which are greatest in the items scenario, but their suppliers experience even greater losses.

Whether the net gain to both retailers and their manufacturers combined is positive depends on the industry.

Overall, Auto-ID is marginal in the grocery industry, while it produces high net gains in fashion and electronics. Distributors and their suppliers see a combined loss of significant proportions. The sources of benefits vary considerably by industry and scenario, and include factors such as labor, out-of-stocks, markdowns, inventory, shrinkage, and returns management.

Exhibit 2 shows the effect of a one-year delay in benefits, which might occur if implementation is slow. Here, gains are generally reduced by about one-third, and losses increase by about one-third. However, net gains for both players are reduced to between one-half and one-third of Exhibit 1. Longer delays would be devastating.

Exhibit 3 shows the same set of calculations for typical smaller, $100 million retailers and manufacturers in the same industries, along with a typical $100 million distributor and supplier. Here, the picture is grim. All of these companies lose money on Auto-ID. Clearly, Auto-ID has profound strategic implications for retailers, distributors, and manufacturers.

The haves and have-nots

The mosaic that emerges is that the major retailers have prospective gains so large and buying power so compelling that they probably will make their suppliers participate in the Auto-ID system. Conversations with major industry participants confirm this view. Wal-Mart and other mega-retailers are an order of magnitude larger than the $10 billion firms shown in Exhibits 1 and 2, so they have much more incentive to drive change, and they have much more capital exposure as well.

This participation will be costly for the manufacturers. Nevertheless, they will have to adopt Auto-ID. Large manufacturers may see a decrease in profitability, but many smaller manufacturers will not have the resources to remain involved at all. At the same time, many smaller retailers will not have the incentive or resources to adopt Auto-ID. This may well accelerate the split in the retail sector between "haves" and "have-nots."

As larger retailers pull ahead using the Auto-ID gains, they will widen the distance between themselves and the smaller retailers. As larger manufacturers absorb the cost of providing Auto-ID-tagged products to the major retailers, they probably will try to make up their profits in two ways. First, they will seek to increase market share in the major retailers, pushing aside the smaller suppliers who do not have the resources to participate in the system. Second, they will raise prices or decrease service to the smaller retailers, who have significantly less buying power. The same dynamic will take place to a lesser degree between larger and smaller distributors and their respective suppliers.

In last month's column, "Supply Chain Management in a Wal-Mart World," I explained how suppliers could use service differentiation to develop appropriate policies for different groups of customers. Auto-ID is an essential element in a differentiated set of service offerings. Strategic accounts (large, innovative, high-growth retailers) and strategic suppliers will use Auto-ID to drive great retailer gains in a highly-integrated fashion. Integrated accounts (large, slow-growing retailers) and their major suppliers will employ Auto-ID, but the gains will not be as great. Emerging accounts (smaller, fast-growing, highly-innovative retailers) will experience the benefits of Auto-ID, and pioneer new applications. Stable accounts (smaller, low-growth retailers) will be increasingly marginalized.

Walking the tightrope

Auto-ID offers great benefits and great risks. Major retailers will have to make major capital investments before the greatest benefits flow, and the timing of the benefits depends on the suppliers as well as themselves. For some benefits, such as replacing cashiers, there will need to be a critical mass of tag compliance and reading accuracy. This will greatly increase their dependence on the large, reliable suppliers.

The full introduction of barcodes took over ten years, and many companies still do not use EDI. It takes about two years to develop and install a warehouse management system. Wal-Mart was wise to start at the case level where there is less risk. But the economics are compelling for a rapid move to the blended or items scenario, which will introduce major new difficulties.

Large manufacturers may see a decrease in profitability, but many smaller manufacturers will not have the resources to remain involved at all.

Manufacturers face a very difficult choice: They must decide whether they will be early adopters, aggressive followers, or "wait-and-see" late adopters. Judging from past experience, the early adopters will spend a lot of money on new technologies and see their profits decline, but get a big increase in market share. The aggressive followers will spend less

as technology costs decline, experience serious profitability losses, and keep a stable market share. The late adopters will increasingly fall behind and will likely be marginalized surprisingly quickly.

There is a very strong case for major manufacturers to move early in order to cement their major customer relationships and to position themselves for significant growth. But this will be a very risky and costly proposition, and it will have a negative impact on near-term profitability. In this situation, manufacturers, as well as retailers and distributors, will either win big or lose big.

What can a smaller retailer or manufacturer do to stay competitive? The answer is to be an early, aggressive innovator, positioning strongly as an “emerging” company on the service differentiation matrix. This will require a certain amount of capital. But much more than that, especially in the early stages, it will require clear management vision, willingness to innovate and partner, and absolutely reliable follow-through.

Auto-ID, like service differentiation, offers opportunities for all companies to choose their destinies, providing that they can back their intentions with the right set of committed actions. In this era of change, farsighted managers of both larger and small firms can catapult their companies onto high-growth trajectories. Or, they can wait and watch, biding their time, while more innovative competitors pass them by.

Managing early adoption
A manager choosing to move early must create a sound tactical plan that will maximize gains while controlling as much risk as possible. Here is a six-step process that will guide you in developing a plan.

Get familiar with the technology. Create a cross-functional team, and start a showcase project with a major customer. Understand and take seriously the privacy issues raised by some consumer advocates.

Choose the right scenario. Analyze the cases, blended, and items systems. Determine what information is critical, e.g., serial numbers, expiration dates, and batch numbers.

Secure Auto-ID resources. Begin the negotiation process for tag production and attachment. Do the same for the hardware to read the tags and the software to read, track, and communicate with the Auto-ID tags. Identify the managers in your company capable of managing this complex extended supply chain project.

Prepare financially. Quantify the operational and capital costs. Review the pricing of all products and accounts. Create metrics to monitor the changes to the business.

Evaluate your organization's structure. Rewrite job descriptions at the lowest levels. Eliminate newly redundant positions, if any. Modify the management structure to fit the new tasks.

Create a customer rollout plan. Identify your early-adopting accounts. Develop appropriate plans for different sets of accounts. Create account teams to implement the new relationships. Build an explicit joint plan to resolve legitimate privacy issues.

Top managers in a number of industries are watching the retail experience very closely, trying to glean lessons for their own situations. If an industry has a major player who will gain significantly, it is likely that major change will occur. The key question is who will win, and who will lose? By adapting the analysis I outlined above, top managers can define a management pathway to success.

By the way, is Auto-ID hype or is it for real? It's coming faster than many may want, so it's best to be very well prepared.

See you next month. wK

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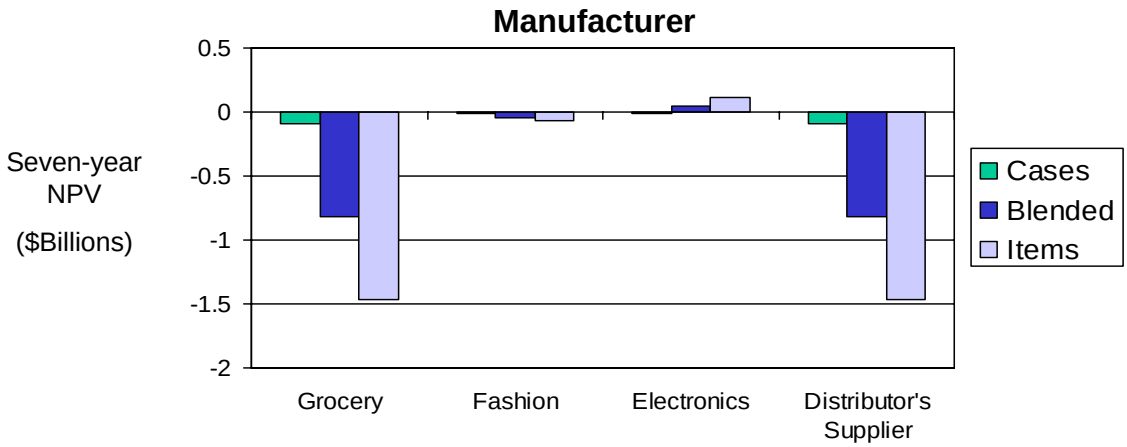
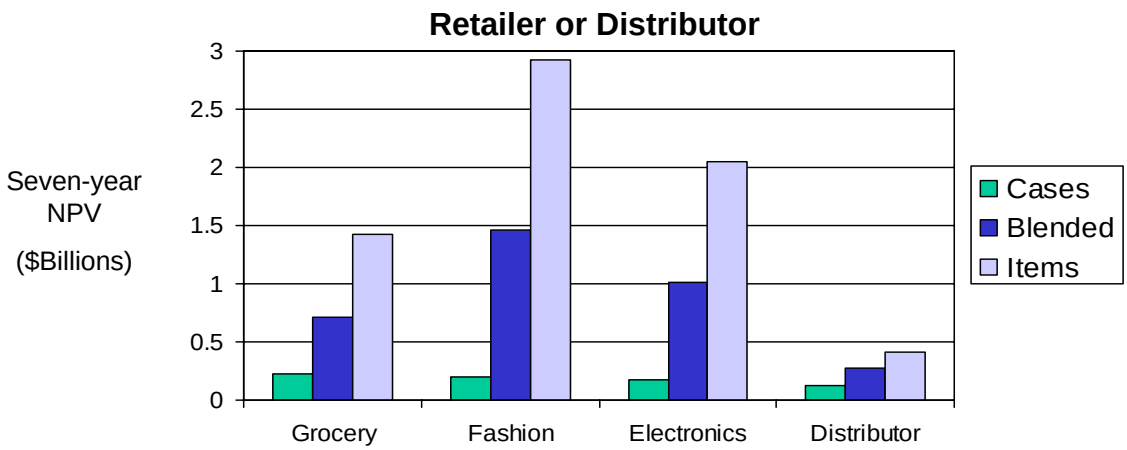
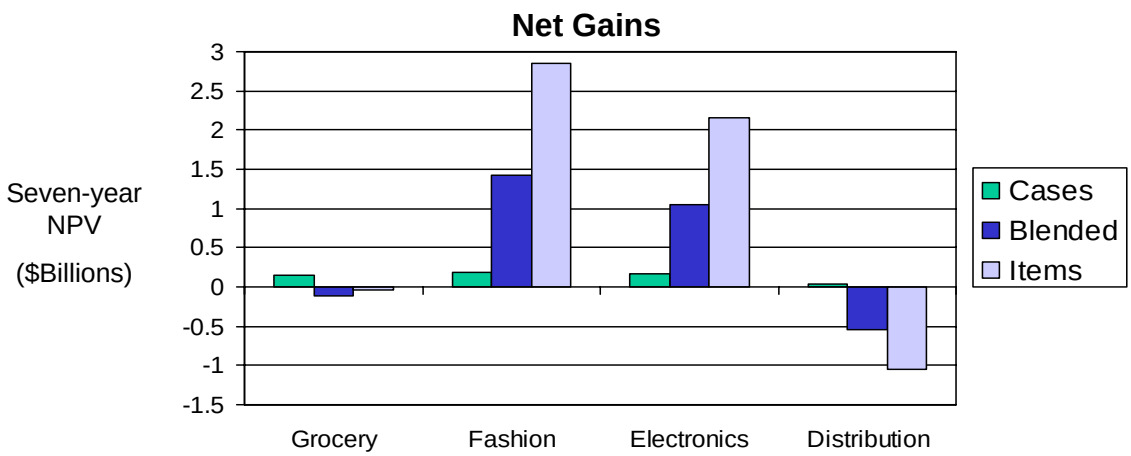
Exhibit 1

Net Benefit and Capital Profiles -
$10 Billion Manufacturer and $10 Billion Retailer or Distributor, by Industry



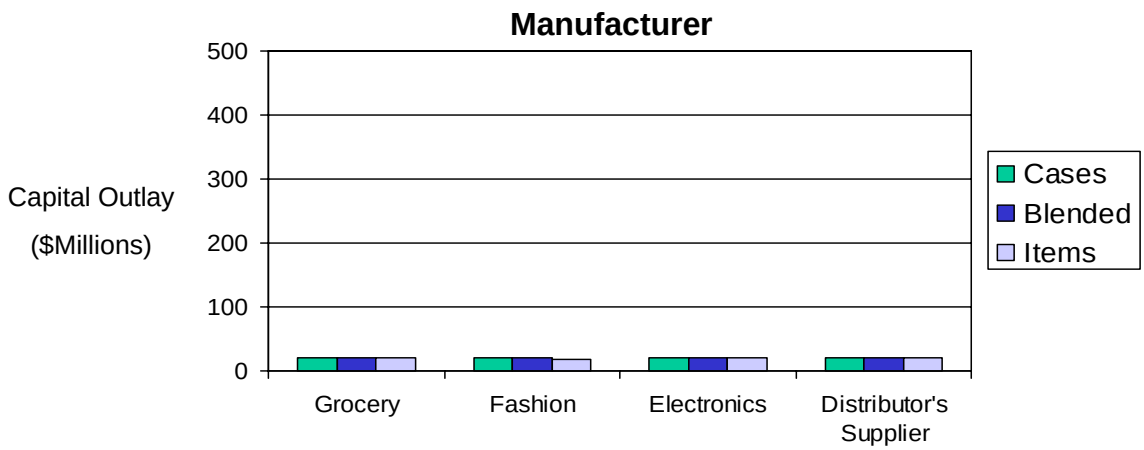


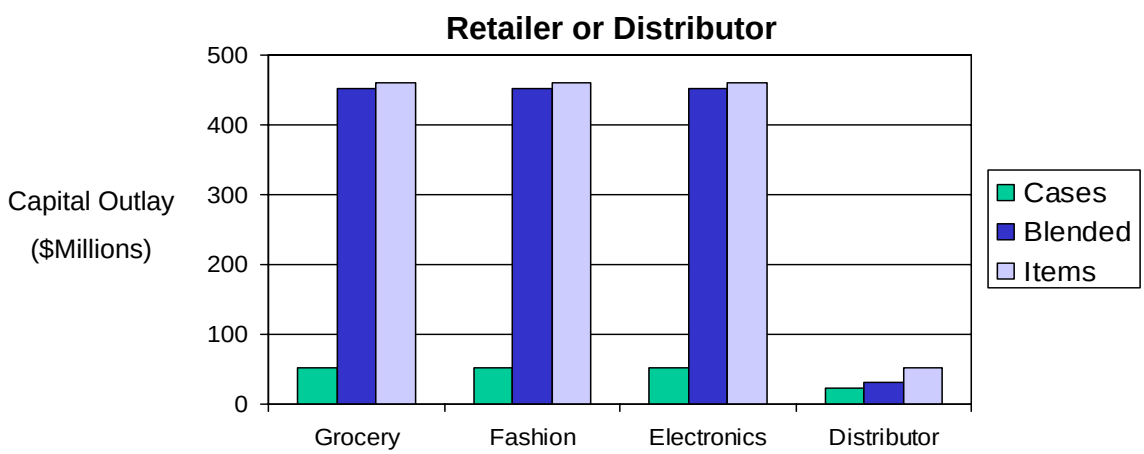


Source: Wass-Byrnes proprietary models

Exhibit 1, continued

Net Benefit and Capital Profiles -
$10 Billion Manufacturer and $10 Billion Retailer or Distributor, by Industry

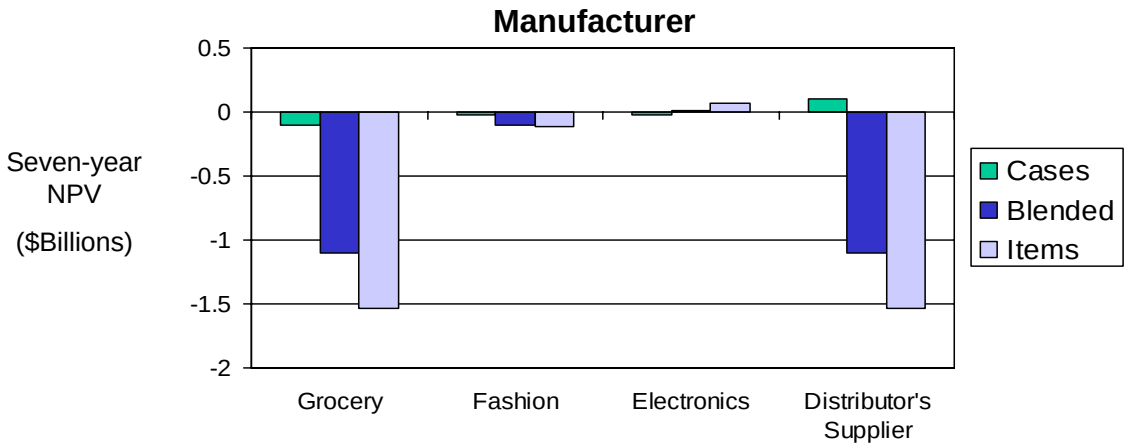


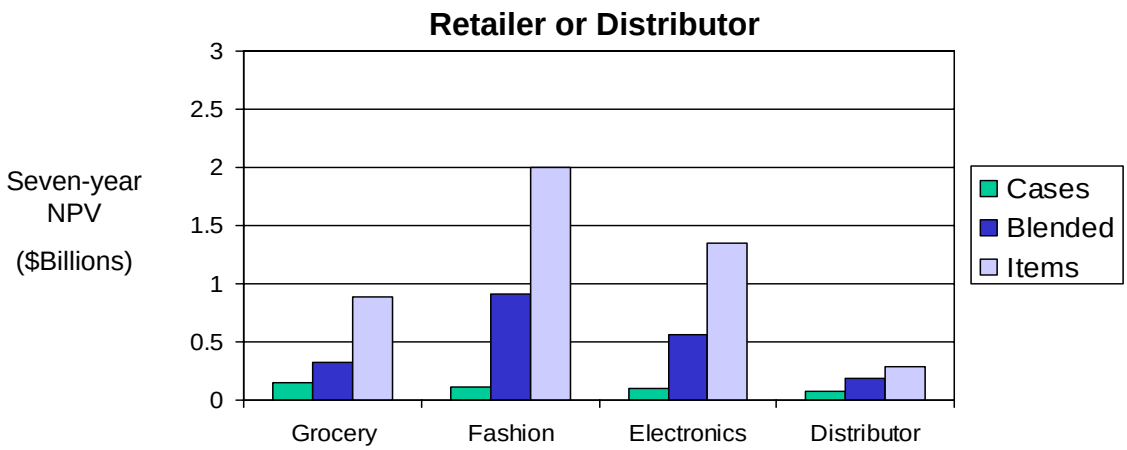


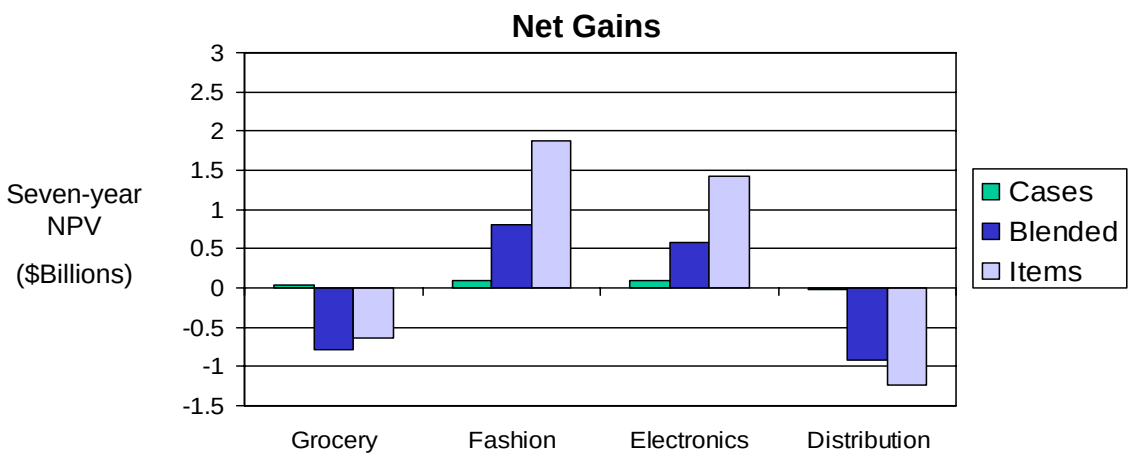
Source: Wass-Byrnes proprietary models

Exhibit 2

Net Benefit and Capital Profiles – One-Year Benefit Delay
$10 Billion Manufacturer and $10 Billion Retailer or Distributor, by Industry





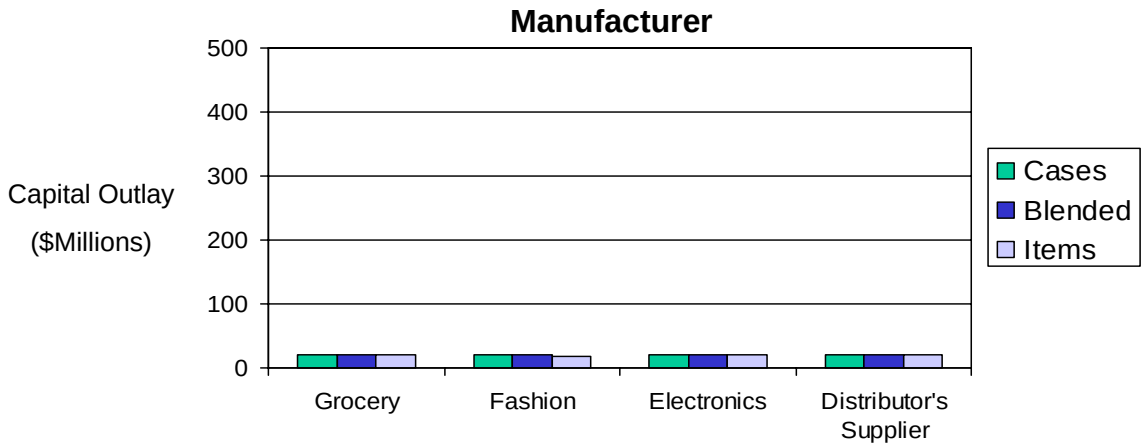


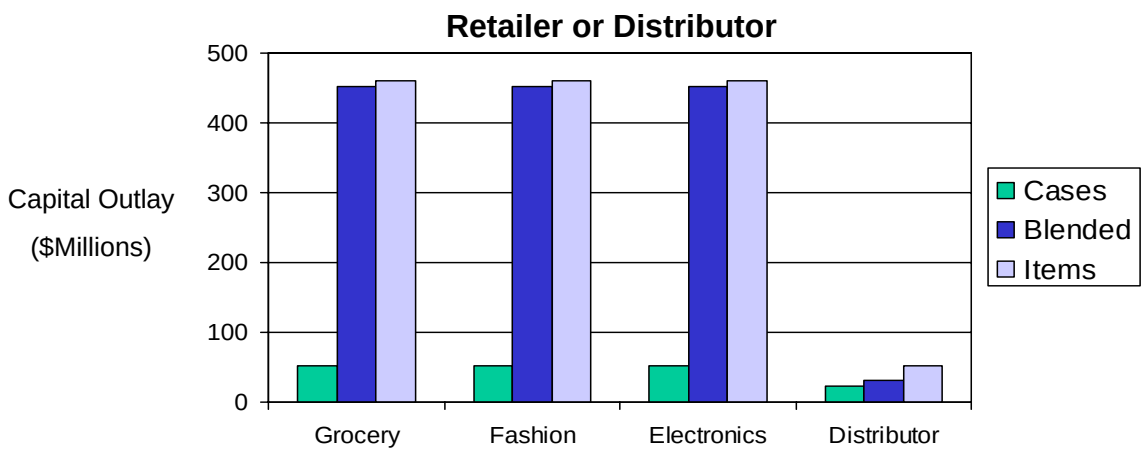
Source: Wass-Byrnes proprietary models

Exhibit 2, continued

Net Benefit and Capital Profiles – One-Year Benefit Delay

$10 Billion Manufacturer and $10 Billion Retailer or Distributor, by Industry





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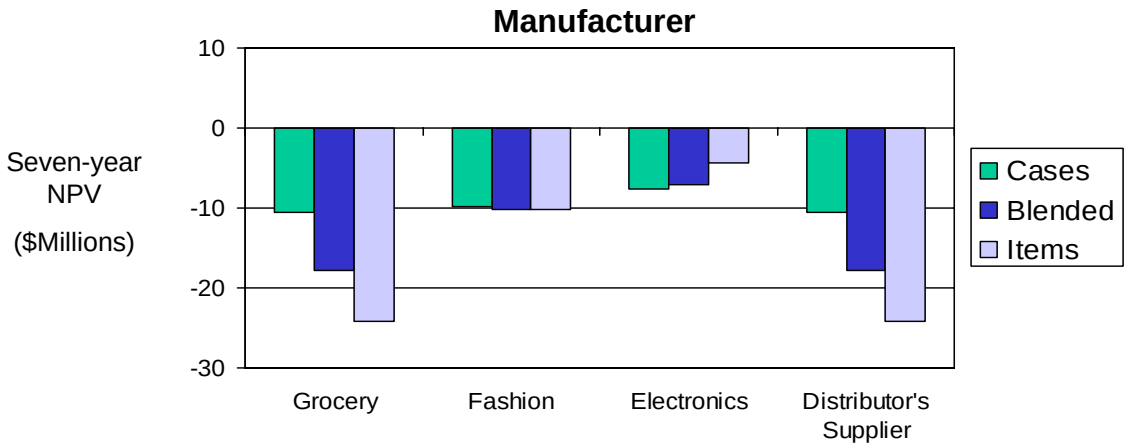
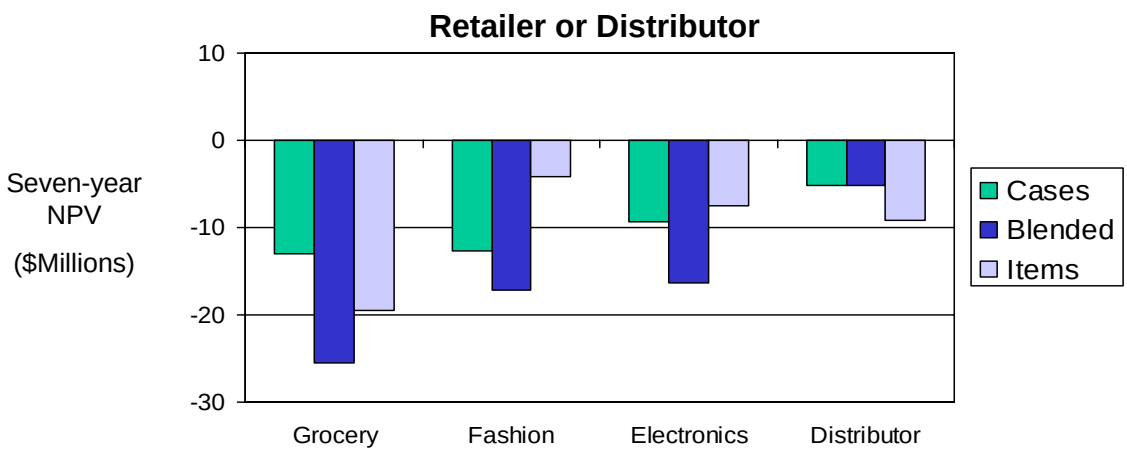
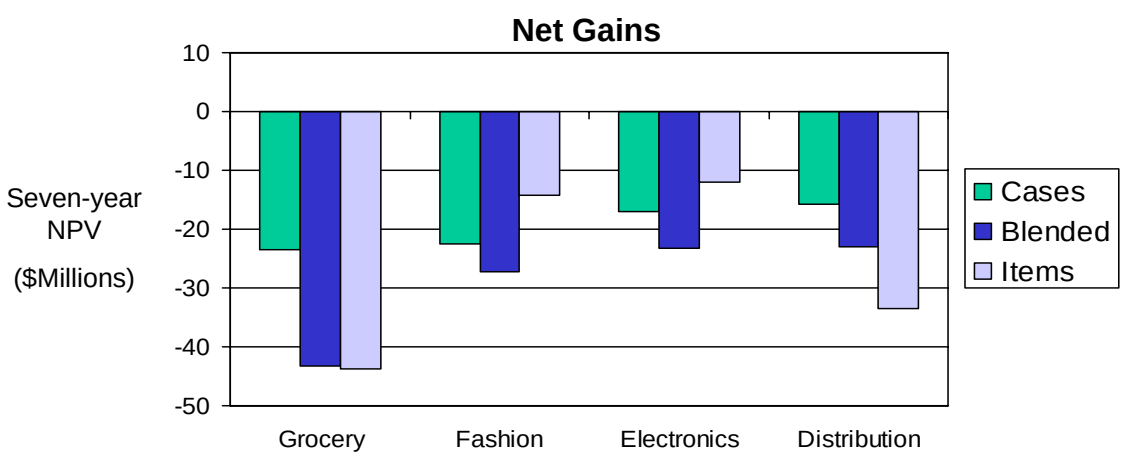
Net Benefit and Capital Profiles -
$100 Million Manufacturer and $100 Million Retailer or Distributor, by Industry







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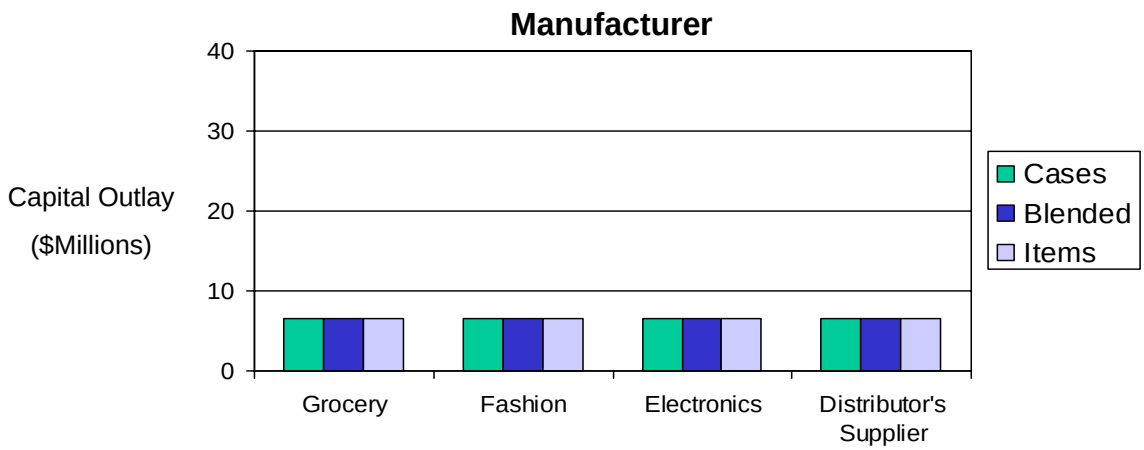

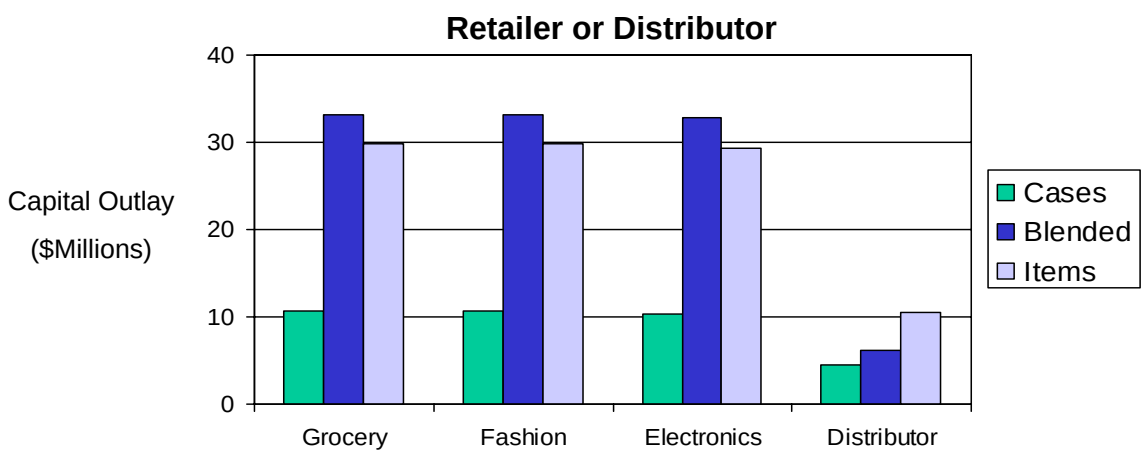

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