PART 2

EFFICIENCIES OF B2B ELECTRONIC MARKETPLACES

B2Bs have the potential to generate significant efficiencies, and even to make markets themselves more competitive. When businesses operate more efficiently and competitively, lower prices, improved quality and greater innovation may result for consumers.[1] Thus, B2Bs hold the promise of significant consumer benefits.

The full nature and extent of efficiencies that B2Bs will create has yet to be determined. Although some B2Bs are up and running and have so far created certain kinds of efficiencies, many more B2Bs are still in the planning stages, with the potential to realize more, fewer, or different kinds of efficiencies. Businesses are still assessing whether they need participation or ownership interests in a B2B to achieve the cost savings potentially available through Internet-based transactions, or whether a "private network" through which an individual firm transacted business over the Internet with its existing suppliers and customers might prove as effective in achieving cost savings and less burdensome in terms of investment, time, and effort than establishing or maintaining B2B ownership or participation. In the meantime, however, the following summarizes what workshop participants reported about the nature of efficiencies, actual and potential, that may be realized through B2Bs.

A. Actual and Potential Efficiencies

Whether or not a particular type of efficiency is realized is highly fact-dependent and can turn on any number of specifics, including the level of automation that characterizes the business, industry, and marketplace in question. A survey conducted by the National Association of Manufacturers in the Spring of 2000 found that "while 80 percent of manufacturers have Web sites, only 1 percent of companies are conducting e-commerce through them."[2] This is entirely consistent with the experience of workshop participants. One participant in the metals industry observed that 80% of business-to-business processes are still manual, and the "20% that we consider to be automated, really aren't automated."[3] In this latter category he placed the hundreds

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[1] *See, e.g.*, WorldWide Retail Exchange (Stmt) 2 ("Reducing procurement costs will necessarily translate into more and better goods – at lower prices – for consumers."), 3, 8; Teagarden 100 ("B2B e-commerce allows companies to do more with less. . . . [What that means for] consumers as a whole is a lower price for the end product."); Bloch and Perlman (Stmt) 13 ("[T]he creation and proliferation of B2B exchanges represents an important development that promises to bring increased competition and more and better products to consumers at lower prices in a broad variety of industries.").

[2] Jasinowski (Stmt) 3.

[3] Stewart 54.

of service centers that can receive an EDI transaction through PC software, but that must print out the order and then have it re-keyed to process the order through their system.[4]

Even if the technology is in place and accessible, there is still likely to be an "adjustment" period. One panelist noted that among her clients, typically small-sized businesses, more than 60 percent that completed their first transaction through her B2B did not do so online but, instead, called the toll-free number. However, she noted that 90% of these same businesses close the second transaction online.[5] The existence of a transition period applies to larger companies as well. "It's [relatively] easy to change legacy systems," a panelist explained, "it's very hard to change legacy behavior. And legacy behavior is what American and global industries are all about."[6]

In some instances, lack of automation could act as a bar to using these new technologies. A workshop participant discussing the electronic equipment industry stated that many suppliers within the industry "don't have . . . internal decision-making capabilities automated or integrated."[7] As such, if their main buyers were to require the suppliers to engage in a reverse auction, that would cause "tremendous fear."[8] A reverse auction requires the seller-participants to "know or be able to calculate very quickly, their walk-away price."[9] Such calculations would be hard when, for example, not only is the relevant information stored on many different spreadsheets, but it may also be contained "on Post-It notes on someone's desk."[10] The receptiveness of many industries to these newer technologies often varies considerably.

B. Administrative Costs

B2Bs may facilitate substantial savings of administrative costs, the costs of effecting the transaction itself. Administrative costs include the time and energy a firm expends for everything from placing an order to issuing a check when goods are received.[11] Currently, such transactions

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[4] *Id*.

[5] Kim 181-82.

[6] Walsh 407.

[7] Knight 290.

[8] *Id*.

[9] *Id*. *See infra* at Part 1.C.3.b (describing reverse auctions).

[10] *Id*.

[11] Fromer 45-47 (discussing administrative costs as pertains to the financial department of a business).

usually take place through some combination of phone and fax interactions. One panelist detailed the process of purchasing via the phone and fax: An employee would have to call his purchasing manager; the purchasing manager call her supervisor and then send the response back to the employee, who would fill out a purchase order manually (purchase orders can be extensive documents), fax that purchase order to the supplier, who would determine the right price and return an invoice which, itself, would have to be processed.[12] Regardless of industry, company size, or product involved,[13] the costs attendant to purchasing through these more traditional mechanisms are often described as substantial and subject to significant reduction through B2B marketplaces. For example, one workshop panelist stated that, within the chemical and pharmaceuticals industry, the cost of a "face-to-face sales call is about $575."[14] One of his dealers concluded, after some study, that the same transaction would cost about $10 through a B2B.[15] Another panelist, addressing small and medium-sized enterprises in particular, stated that what would otherwise be a paper transaction costing $100 could be reduced to $10 when conducted through a B2B.[16]

Administrative costs also encompass the cost of fixing an incorrectly processed transaction. The pervasiveness and, therefore, the expense of administrative mistakes in the procurement process appears to be high. One panelist said that one of his "major retailers" told him that "40 percent of all of their purchase orders have errors in them."[17] The panelist elaborated, "That means that 40 percent of [the time of] their accounting staff, their receiving staff, and their production staff is spent on doing nonvalue-added activities."[18] The result is that consumers face higher prices to "cover our inefficiencies."[19] This panelist opined that e-commerce over the Internet can "take a very large percentage of that and just make it

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[12] Tarkoff 32.

[13] The substantial prospect for increased efficiency appears to hold to true for highly-engineered products, such as automotive parts, as well as outright commodities and more modestly-engineered retail goods. Knoll 263.

[14] Bhatt 276.

[15] *Id*.

[16] Loevy 261. Other estimates are more modest. *See, e.g.*, Jasinowski (Stmt) 3 (reduction in transaction costs by 10% or more had been experienced).

[17] Verloop 394. *See also* Phillips 269 (“40 percent of the orders that are done manually have [require] some sort of rework after the fact [owing to inaccuracy]”).

[18] Verloop 394.

[19] *Id*.

disappear."[20] Likewise, a representative of a multinational drug company predicted that, in fact, it is through improvements in the "speed and accuracy" that "most of the value is going to be gained."[21]

Similarly, the "cost of exception handling goes way down online."[22] "Exception handling" refers to special ordering, which is facilitated when orders are properly configured and "everyone can see what . . . [was] agreed on."[23] Other orders that are complicated to fulfill include "backorders, partial shipments, returns, substitute products."[24] Fulfilling these orders is labor-intensive and, therefore, expensive. "Moving the fulfillment process online should lower the number of exceptions since the buyer or technology will be able to resolve many of the issues [in] real time."[25]

Addressing administrative costs from a more global perspective, one panelist observed that international sales are much more complex than sales within a single country. For example, buyers and sellers from different countries bring with them not only their own languages and currencies, but also their own "methods, business forms, product codes and descriptions and technical capabilities."[26] Electronic B2B maketplaces may make it possible to manage the complexities resulting from such differences in "rational, cost-reducing ways."[27] The same advantages that B2B e-marketplaces can provide to trade occurring between businesses located in different countries also would extend to single companies with branches that span many national boundaries.[28]

C. Search Costs

B2Bs may also significantly reduce search costs, the costs buyers incur in identifying suppliers and vice-versa. The ease with which businesses can identify one another depends on,

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[20] *Id*.

[21] Gray 156.

[22] Phillips 269-70.

[23] *Id*.

[24] Morgan Stanley Dean Witter (Stmt) 97.

[25] *Id*.

[26] WorldWide Retail Exchange (Stmt) 7.

[27] *Id*.

[28] van Breen 166.

among other things, how readily a firm can compare prices, find suppliers or buyers to meet its needs, and identify good substitutes for the product sought.[29] All other things being equal, as transparency along any or all of these dimensions increases, search costs generally decrease. Reducing search costs in any or all of these ways could enhance competition and result in lower prices for consumers.

B2Bs may make it easier for buyers to comparison shop. For example, one panelist described how her B2B standardizes and aggregates data that eases comparison shopping, especially for small buyers, through presenting the products of multiple suppliers and their different prices and terms. The practical implications of this were underscored by the following anecdote: Under the traditional procurement system, a 20-person manufacturing company would have to page through "really, really thick" paper catalogs in order to comparison shop for any purchase – even something as small as an electric screwdriver. Through a B2B, comparison shopping that used to take several hours (if it was done at all) is now taking a few minutes.[30]

Reduced search costs also can benefit suppliers. Small and large suppliers alike can make money by having greater and cheaper access to more potential customers. The CFO of a small steel company during February and March 2000 used a B2B e-marketplace in the metals industry to "hook[] up with more than 50 new customers, 90% of whom he had never heard of before."[31]

Large suppliers may also benefit. Those large suppliers that previously did not find it profitable to serve smaller buyers may now have "the ability to aggregate small customers in a central place and let them basically in a self-help model serve themselves."[32] This enables the larger companies to undertake transactions that previously were not efficient.[33] For example, the

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[29] Morgan Stanley Dean Witter (Stmt) 12 (discussing commerce transparency and identifying its primary dimensions).

[30] Kim 153-55. There were differing views regarding the impact of B2Bs on standardizing goods. *See, e.g.*, Knoll 281 (noting participation on B2Bs could be "scary" in that it could result in the increasing commodification of products); Enron (Stmt) 3 (noting exchanges could also attempt to "unreasonably influence nonprice factors, [such as] . . . compelling suppliers to adopt standards that only correspond to that exchange['s] . . . interests"); Sandhu 279 (noting that many products are already standardized and B2Bs will make it more difficult to conceal that fact from the consumer); Mann 456-58 (noting that in light of the current diversity in products and their buyers, she is skeptical that B2Bs will standardize them).

[31] Eryn Brown, *Is the Internet Stronger than Steel*?, Fortune, May 15, 2000, at 162; Morgan Stanley Dean Witter (Stmt) 35 (noting lower customer acquisition costs).

[32] Phillips 269.

[33] *Id.*

CFO of the same small steel company mentioned above stated that, whereas "[he] used to have to make 20 phone calls to get one coil of steel," through use of a B2B he now has purchasing relationships with large suppliers who previously would not have even "notice[d]" this small buyer.[34]

In highly fragmented industries, it is particularly important to be able to reach suppliers at a lower cost.[35] The examples above involve MROs and the metals industry, both of which have a highly fragmented supplier base. In MRO distribution, the "top 50 players make up 13 percent of the marketshare. The number one player has less than three percent of the market share."[36] Likewise, the metals industry is "highly, highly fragmented."[37] "[T]he largest metals company in the world only owns three and a half percent of the global market."[38] Reduced search costs may be particularly significant in this context.

Nonetheless, industries with more concentrated supplier bases – such as those manufacturing more complex products – also may benefit from heightened market transparency, for example, through reverse auctions. The lure of a reverse auction is that if competition in the marketplace is "relatively robust," if the good has "a lot of price flexibility," and if a contract for a sufficient amount of money is at stake, a buyer could have sellers from across the globe bidding against each other for its business. For example, in May 2000, the federal government held its first reverse auction.[39] The U.S. Navy sought a highly technical part with extensive specifications – the brains of an ejection seat used in Air Force aircraft. Three qualified sources which had previously provided such goods bid against one another. As the Navy Captain in charge of procurement summed it up, "[we] went online and we ended up achieving a savings of about 28 percent."[40] The success was such that the long-term vision of the Navy Inventory Control Point is to "do all of our competitive procurements that make sense in a reverse auction scenario."[41]

B2B reverse auctions also can facilitate competition between heterogeneous products by

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[34] Eryn Brown, *Is the Internet Stronger than Steel*?, Fortune, May 15, 2000, at 162.

[35] Kafka 169.

[36] Kim 154.

[37] Stewart 53.

[38] *Id*.

[39] B2G, business-to-government, is treated herein as a form of B2B wherein one of the businesses is the government.

[40] Huff 147-48.

[41] *Id*. at 149.

making it possible to compare "apples and oranges" in real time. In a so-called "transformation auction," for example, heterogeneous products from suppliers are meaningfully compared by B2B software so that the buyer hosting the auction can make intelligent choices about what to buy.[42] This would be particularly useful where fast calculations are required to present different options in comparable terms – such as buy versus lease, or when there are multiple sources of a single commodity (*i.e.,* coal) but each one has different characteristics (*i.e.,* sulphur content).[43]

D. New Markets

Search costs could be reduced to such an extent that sales channels become viable that previously were not viable. As one analyst stated, electronic B2Bs have led to "[n]ew [m]arket [c]reation."[44]

One example discussed by workshop panelists involved idle or business surplus.[45] Capital goods, such as a forklift, may have significant value even though the current owner no longer puts it to productive use. Prior to the Internet, significant revenue went unrealized in the absence of a viable market for such products.[46] That is because it was often not cost effective for the owner to disseminate information about its product and to gather relevant information regarding potential buyers. The "aggregating power" of the Internet can overcome circumstances where otherwise "the cost of information gathering outweighs the value of the surplus."[47]

Another example of "new markets" relates to goods that are subject to "expiration."[48] Just as perishable describes how physical goods such as fruit might spoil, "digital goods and services" are said to be "susceptible to expiration."[49] Time is the critical factor. For example, the bandwidth industry runs at about 20% utilization. As one industry member said, the issue is pretty clear, "whatever you haven't sold depreciates to zero."[50] Bandwidth that would otherwise

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[42] Kinney 77-79.

[43] *Id*. 86-87.

[44] Salomon Smith Barney (Stmt) 16.

[45] *Id*. *See also* Kinney 79.

[46] Salomon Smith Barney (Stmt) 16.

[47] *Id*. at 16, 47.

[48] *Id*. at 19.

[49] *Id*.

[50] Mashinsky 257-58.

have gone unused is now being standardized and traded over the Internet through an exchange mechanism. Another example, the National Transportation Exchange (NTE), is a B2B focusing on the billions of dollars of trucking capacity that goes unused each year.[51] Through the NTE, shippers are able to post their excess trucking capacity. These postings are then matched with businesses who have goods to transport.

E. Maverick Purchasing

Maverick purchasing – buying that occurs outside the normal channels – is a substantial problem for businesses. The National Association of Purchasing Managers estimates that maverick purchasing constitutes approximately thirty percent of company purchases.[52] B2Bs may enable businesses to reduce maverick spending and thereby reduce excess costs.

One significant example involves the volume contracts that buyers and suppliers frequently establish through processes such as annual negotiations. Under these negotiated contracts, individual orders are placed as the need arises. Maverick purchasing by buyers unaware of prior negotiations could result in the failure of a business to channel its purchases through its negotiated volume contracts.[53] Centralization of purchasing information could address that problem and also help prevent buying that reflects who the purchasing agent plays golf with rather than the volume discounts that have been negotiated.[54]

Electronic B2Bs are being designed to reduce the amount of unauthorized spending in numerous ways, including the imposition of spending limits for employees, and the preselection of specific suppliers and or specific products that can be purchased with no additional approval. B2Bs can also streamline the process of receiving approval if the purchaser seeks to diverge from the parameters of his or her purchasing authority. This means fewer delays and fewer unauthorized purchases.[55]

F. Joint Purchasing

B2Bs also may afford efficiencies through increased joint purchasing. Joint purchasing

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[51] Salomon Smith Barney (Stmt) 17.

[52] Shridharani 157. *See also* Tarkoff 33.

[53] Gray 160-61.

[54] Clark at 404.

[55] Salomon Smith Barney (Stmt) 23.

can help reduce transaction costs through scale economies in purchasing, reduce manufacturing costs, and produce other efficiencies as well.

The following example illustrates the benefits of volume discounts for a single business with multiple buyers. Appleby's is a chain restaurant with approximately 400 company-owned stores. Through the services of a B2B, Instill, Appleby's was able to know exactly who was buying what and when. If each store goes through different distributors, it is extremely difficult to aggregate that data. But, once aggregated through a B2B, the chain could go to its suppliers and ask for a volume discount.[56]

Price discounts because of volume can also be achieved by aggregating the purchasing needs of wholly-separate businesses. One B2B, equalFooting, enables small business buyers to achieve some volume discounts through a "virtual" aggregation of purchases.[57] The founder of this B2B noted that as a logistical matter, the B2B would be unable to pool discrete orders as the need for them arises because in the MRO context, there are "over two million SKUs of items," and it is unlikely that sufficient buyers will need the same item around the same time. Instead, this B2B successfully requested that suppliers treat it as a large national account entitled to volume discounts. Frequently, this B2B received discounts not only from the suppliers, but also from shippers and other related services. Small businesses receive discounts on their purchases, discounts that would have otherwise been unavailable. XML integration between the B2B and the suppliers is integral to keeping such arrangements cost efficient for suppliers.[58]

G. Systems Integration

Not only can B2Bs increase efficiency through the many mechanisms discussed thus far, but B2Bs can also be integrated with a firm's legacy computer systems so as to continue to reap, and expand upon the benefits of the earlier systems.[59]

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[56] Clark 403.

[57] One analyst viewed such a system as the virtual equivalent of an offline distributor. Kafka 228-29.

[58] *See* Kim 227-28; Morgan Stanley Dean Witter (Stmt) 81. *See also* Cogan 107-08 (Another B2B, GoCo-op, works with companies where there is "an opportunity for competitors to get together and either leverage certain services or have a division of labor where each of the members provides a different service or a different portion of the services to each other, and they gain economies of scale that way."). *See infra* at Part 1.B.2 for a discussion of the role of XML in facilitating the rise of B2Bs.

[59] *See, e.g.*, Sullivan 252 (A "compelling reason" to join a B2B is to "leverag[e] the web technologies and ERP technologies out there to integrate into their back ends and improve their bottom lines."); Mirek 145 (Important to participation in B2Bs is their ability to provide "increased

As a practical matter, integrating B2Bs with back-offices or back-ends means that the B2B can receive necessary information, such as purchasing requirements, as it has been assembled by the legacy systems rather than requiring input into new B2B order screens.[60] The process may also work in reverse, with the B2B sending information directly into a legacy system. That way, if a B2B sends e-mails to panelists regarding orders, those business will not have to "re-key" that information into their legacy systems in order to process it.[61] For example, an ERP system may provide many items of information, including a determination of what is needed and when, notification of relevant departments (*e.g.*, receiving department) that a delivery is due, and verification of an invoice for the accounts payable department. "Because these internal notifications are so important, a web site that merely accepted orders could not serve industrial buyers. The receiving dock would not have authority to receive the goods, nor would the accounts payable department have authority to pay the invoice."[62]

H. Supply Chain Management

Heightened interaction between buyers and suppliers may facilitate supply chain management. B2Bs could enable suppliers all along the supply chain, potentially reaching multiple tiers of suppliers, to more quickly and more accurately learn what the buyers want and when they want it.[63] In the absence of such information, "buyers and sellers must make assumptions about each other's needs."[64] Unfortunately, as a practical matter, such efforts to predict needs are typically ill-fated. One workshop panelist stated that a steel company CEO had told him that in "the last 91 years they've never got a forecast [right]."[65] Consequently, "when evaluated along the entire length of a supply chain, the amount of inventory being held for contingencies is quite large, and collectively adds much inventory carrying cost, obsolescence, spoilage, or overstocks [or shortfalls]."[66] Supply chain management is particularly important for

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operational efficiencies, such as back-office integration.")

[60] Kinney (Stmt) 5.

[61] Morgan Stanley Dean Witter (Stmt) 81.

[62] Kinney (Stmt) 5-6.

[63] Sculley & Woods (Stmt) 1 ("[T]hese net markets have the capability to tie together the manufacturer with its suppliers (Tier 1) and its suppliers' suppliers (Tiers 2 & 3). This can lead to greater efficiencies . . . that dramatically reduce manufacturing time, inventory levels and distribution costs.").

[64] Kinney (Stmt) 10.

[65] Stewart 65.

[66] Kinney (Stmt) 10.

"very complex products," such as many direct products, because efficiencies are more closely tied to capacity planning.[67] Some speculate that B2Bs will enable companies to move from "push marketing" to "pull marketing."[68] In a push model, business produces first and then tries to sell. In a pull model, "the consumer – stimulated, of course, by smart advertising and promotion – will pull product through the supply chain."[69]

B2Bs are equipped to improve inventory management. "[Supply chain] optimization techniques require a near-constant level of analysis and refinement of production plans as conditions change, the volume of interaction that might occur between a buyer and a supplier attempting to jointly optimize is huge. The Internet can help solve the integration challenge by providing a low-cost conduit for requests and acknowledgments, as well as by defining standards for how requests and acknowledgments are formatted and shared."[70]

With regard to inventory management, a purchase order may have several hundred line items on it. And companies may not pay the order until all of those line items are adequately reconciled. That is, it is only when someone signs off that they have received all the proper items in proper form and condition that the purchase order moves from accounts payable to the treasury for actual payment.[71] The result of this protracted process is that the supplier ends up bearing the financial burden of "a lot of inventory financing" resulting in "a lot of cost to capital."[72] Increased automation, "getting the items standardized and getting that invoice flowing electronically and the reconciliation of that invoice electronic," will save considerable money.[73]

I. Collaborations

Enhanced efficiencies may also arise from other forms of collaboration.[74] Outsourcing

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[67] Kafka 169.

[68] Jay Akasie, *Ford's Model E,* Forbes, July 17, 2000, at 30, 31.

[69] *Id.*

[70] Kinney (Stmt) 28.

[71] Gray 156. *See also* WorldWide Retail Exchange (Stmt) 8 (noting potential for "improved payment terms").

[72] WorldWide Retail Exchange (Stmt) 8.

[73] Gray 156.

[74] Kafka 146.

specific tasks through collaborations may enable a business to better focus upon its core competencies.[75] One panelist noted that some suppliers do not view the direct sales process as a core competency. For such suppliers, B2B e-marketplaces add value because they facilitate outsourcing or adding on of another channel of distribution.[76]

B2Bs also may facilitate collaborative conduct such as joint product design. "Increased collaboration between supplier, buyer and customer reduces the time to develop, produce and distribute new products. Improved communications enable stronger and more beneficial relationships between parties. . . . [For example, n]ew product specifications can then be transmitted over the Internet and sent to the factory floor for specialized production runs."[77]

J. Middlemen

Middlemen can play a significant role in generating efficiencies within the B2B context.[78] For example, as noted above, B2Bs may result in higher price transparency. The opportunity and the quandary for small businesses or less well-known brands is that buyers on a B2B must have sufficient confidence in order to be willing to do business with small businesses or less well-known brands that may seem untested to the buyer. Third-parties, or middlemen, have entered this void and are providing services that better enable B2B panelists to determine whether or not the entity with which they are dealing is a viable buyer, seller, or – for that matter – B2B.[79]

Middlemen have historically played the role of taking title to materials and acting as a distributor. One workshop panelist noted, "[t]here will always be a need for physical delivery."[80]

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[75] Jasinowski (Stmt) 2.

[76] Sandhu 277-78. *See also* Lucking-Reiley 453 ("[I]f, in fact, electronic commerce is successful at reducing transaction costs the way everyone thinks it's going to be, we may see a lot more outsourcing by firms, and a lot less vertical integration.").

[77] Jasinowski (Stmt) 4. *See also* Morgan Stanley Dean Witter (Stmt) 46 (referring to "joint design processes, advanced part change notification" as "product life cycle collaboration"); Sculley & Woods (Stmt) 1 (noting that B2Bs can "lead to greater efficiencies in the design of products").

[78] *See, e.g.*, Cooney 328-29; Spradlin 330-31.

[79] *See, e.g.*, Arnold 192; Chen 167-68; Libicki 251; Loevy (Stmt) 2-4; Kafka 194-95 (referring to such middlemen as "trust brokers").

[80] Shridharani 175.

Accordingly, the more seamlessly the B2B is able to incorporate logistics services,[81] the better for its participants. But when a middleman is inefficient or fails to provide any value-added services, disintermediation may also be an avenue for increased efficiencies.[82]

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There is no clear division between the differing efficiencies detailed. When efficiency is promoted in one area, other efficiencies are often concurrently promoted. What is more, it is not clear to what extent these efficiencies will be realized and which, if any, will not. Part 3 will discuss the role of efficiencies within antitrust analysis.

[81] *See, e.g.*, Libicki (Stmt) (weights and measures are an example of possible logistics services).

[82] *See, e.g.*, Allgaier 175-76; Loevy 327.