Capturing the Real Value of Offshoring in Asia

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Many US companies are pursuing offshoring initiatives in response to mounting pressure to deliver more operating savings. Most of these companies still view offshoring as a near-term opportunity to cut costs by moving low skill, low value jobs to locations in Asia with much lower wage rates. These companies are missing the real opportunity created by outsourcing. They don't realize that the real value of offshoring lies in the opportunity to accelerate and expand capability building initiatives, enhancing access to world-class performance. In fact, many of the horror stories regarding failed offshoring initiatives involve companies pursuing narrow and short-term cost cutting objectives, rather than longer-term capability building agendas. As more companies begin to realize where the real value of offshoring lies, they will need to sharpen their focus on a core strategic issue: where can they maintain significant differentiation relative to competitors? Most importantly, they need to approach offshoring choices with a dynamic, rather than a static perspective – comparative capabilities are rapidly evolving and the evolutionary path will in part be shaped by the decisions companies make.

Access distinctive resources to deliver superior performance

Contrary to popular perception, Asian offshoring locations, especially Greater China for manufacturing and India and parts of Southeast Asia for services, do not just offer lower cost operations. They also have become platforms for achieving higher performance on other dimensions as well.

Take the example of call center representatives. ETelecare, based in the Philippines, is one of the leading edge call center operators in Asia. It has won numerous awards for the quality of its customer service, including the Best Outsourcer Award at ICCM, the world's largest call center show for the three most recent years. ETelecare serves a blue chip array of U.S. clients, including one of the leading computer companies and one of the most prominent financial services companies, both known for world-class customer service. ETelecare has been able to reduce average handling time on inbound calls by 25% on average relative to the client's call center or the previous outsourcer used by the clients. It has done this while also delivering higher customer satisfaction. In an outbound marketing campaign for one client, eTelecare exceeded the sales performance of the client's in-house facility after only one week. By the fourth week, it was generating three times the weekly sales per hour and three times the conversion rate relative to the client's facility.

Performance levels are also high in offshore manufacturing operations. One large U.S. electronics manufacturer was able to triple manufacturing productivity (measured both in terms of units per lines and number of surface mount technology components placed per unit of placement equipment) by moving operations from North America to Mainland China. Cycle times were substantially reduced through process optimization and defect rates came down due to a more rigorous focus on quality.

Manufacturing costs can be further reduced through aggressive local sourcing initiatives that can yield 10 – 40% reductions in cost of goods sold, depending on the nature of the purchased goods, without sacrificing quality. For example, the purchased components for an industrial battery charger would cost about 52% less if sourced from local suppliers in China rather than the U.S. The purchased components for mechanical landscaping equipment would cost about 38% less and purchased components for industrial vehicles would cost 29% less than from comparable U.S. suppliers
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Moving product development offshore can also generate significant performance improvement beyond labor rate savings. In electronics hardware products, the time to market can be reduced by as much as 40% through offshore product development operations, especially when they are linked to offshore manufacturing operations. Software development projects can shave 15% or better off the schedule, without reduction in quality, by using experienced offshore teams in Asia.

What explains these performance improvements? Two factors are at work. First, these performance improvements come from distinctive resources available in Asian offshoring operations. Secondly, these distinctive resources enable unique approaches to accelerating capability building, so that the initial benefits can be multiplied over time. Some of these distinctive resources can also be accessed to varying degrees in other parts of the world, including Eastern Europe, Africa and Latin America, but this article will focus on the specific capabilities available in Asia. Executives need to understand that Asian offshoring capabilities are evolving rapidly, so any snapshot like this must take into account that new capabilities are emerging, while at the same time some of the current capabilities may become less distinctive. For example, the wage rate differentials in certain parts of Asia that are a significant driver of offshore migration today will likely erode over time. In essence, offshore business operations are betting that they can accelerate development of other capabilities to compensate for narrowing wage rate differentials. In the meantime, other offshore locations such as rural, inland areas of China with even lower wage rates are likely to compete more aggressively for lower skill business – a trend we are already seeing in the apparel industry, for example.

Wage rate differentials at different skill levels

Everyone knows about wage rate differentials. Labor is less expensive in these areas than in the U.S. although the differential can vary significantly depending on the location, even within a specific country. But most discussions of wage rate differentials tend to focus on low skill job categories, comparing minimum wage workers in the U.S. with entry-level factory workers in Asia. In fact, wage rate differentials are also compelling in more skilled job categories. For example, the ratio of wage rates between the US and Mainland China for product engineers is about 10:1. The ratio for a software developer in the US vs. India, meanwhile, is about 12:1. This means that companies can access higher skills in these offshore locations at significant savings as well. Another way of looking at this is to compare the absolute wage premium to hire a college graduate versus a high school graduate. In the United States, the premium could run between $5-15 per hour relative a comparable premium of $2-4 in the Philippines, making it much more compelling to hire a college graduate in the Philippines.

Distinctive skills

Of course, this assumes that the required skills are available in offshore locations. In many areas, basic skills are not sufficient for the business need. For example, only a few countries in Asia could supply call center representatives to deal with American customers because English-speaking skills are so limited. On the other hand, many other skills are available in even larger numbers than the U.S. and the disparity is growing rapidly with each passing year. For example, China today graduates 350,000 engineers per year versus 90,000 engineers graduating from U.S. engineering schools. Most of the leading Indian IT outsourcing firms operate at Level 5 – the highest level of expertise – of the Capability Maturity Model (CMM) while most internal IT departments in the U.S. are likely to operate at Level 2 or 3.

Many of these skills are quite distinctive. For example, product engineers in Greater China are much more focused on designing for manufacturability than their typical U.S. counterparts who tend to be more concerned with pushing the envelope in terms of features and product performance. In integrated circuit design, product engineers in Greater China have deep system integration experience and a mindset focused on integrating more functionality into a single chip using "system on a chip" methodologies. Their U.S. counterparts, on the other hand, tend to focus more on designing the next leading edge chip rather than better integrating existing functionality.

China's skills are not just in the generic areas of design for manufacturability and integration expertise. Greater China is developing world-class design expertise in specific technology arenas. For example, some of the world's best designers of semiconductors for consumer electronics (for example, chips for cellular telephones) are now based in Taiwan and Mainland China. In part, this is because Mainland China has emerged as one of the largest consumer electronics markets and its consumers are leading edge adopters of new features in product categories like cellular telephones. This helps to explain why all the major wireless device manufacturers are expanding operations in China.

More specifically, companies in Greater China are also demonstrating leading edge manufacturing process expertise in the production of key electronics components. As one illustration, Waffer in Taiwan has developed sophisticated thixomolding process technology to produce magnesium alloy casings for notebook computers with much higher yield rates of 90-95% in contrast to industry standards of 70-80%. Silitech, another company in Taiwan, has developed deep expertise in the sophisticated plastic and rubber composites now being deployed in the manufacture of advanced cellular handset keypads. Silitech started manufacturing handset keypads in 1988 and since then has rapidly evolved from basic rubber keypads to PC film and plastic and rubber composites. It has also expanded its capabilities in the cost effective design of keypads, requiring deep expertise in mechanical engineering, chemical process engineering, precision tooling for quality control and a broad array of manufacturing processes.

Cultural attributes

Beyond skills, distinctive cultural attributes help to support accelerated capability building. John Paul Ho, the Managing Director of Crimson, the leading private equity firm focused on advising and investing in the efforts of U.S. and other global companies

to build out their offshore capabilities, suggests, "cultural differences between the U.S. and Asia can undermine offshoring initiatives but, properly harnessed, they can deliver performance that simply would not be possible in the U.S." Social networks and personal relationships play a significant role in Asian cultures and can often be used to bridge across more formal functional and enterprise boundaries to ensure more effective knowledge sharing. For instance, Taiwanese companies are very effective in compressing product introduction lead-times because of the personal relationships that facilitate close collaboration between system component companies and their suppliers. These companies not only exchange staff, but they often have worked together in school or through prior work experience. In a more specific example of the importance of distinctive cultural attributes, many high performance call center operations are choosing the Philippines as their offshore base because they value the traditional Filipino culture of hospitality and service.

Tailor your approach to accelerate capability building

U.S. companies need to be careful about mechanically applying the same approach to high performance organizations that has worked so well in the U.S. Of course, elements of this approach will apply in any location, but the distinctive resources available offshore make it possible to employ other elements to accelerate capability building that simply would not be feasible in the U.S. By tailoring the approach to building a high performance organization, U.S. companies can accelerate capability building in offshore operations.

Hiring more qualified people

They begin by hiring at much lower wages significantly more educated and skilled people for equivalent positions in order to increase the potential for rapid performance improvement. In many cases, U.S. based operations would not be able to hire equivalent skill sets at almost any price. Even if these more-educated people could be hired in the U.S., most managers would refrain from doing so, for fear that the people are "over-qualified" and therefore would quickly leave. Many of these positions – call center operator and line assembly worker – are relatively low status in the U.S. In contrast, in many of the offshore locations, these jobs are viewed as attractive opportunities to improve position. The workers are therefore more motivated to perform and, if given the right advancement opportunities, to stay. ETelecare, the Philippines call center company mentioned earlier, recruits top graduates from the region's leading universities while equivalent graduates in the U.S. would simply not be willing to take on this kind of work. Competition for these jobs can be intense. As an illustration, eTelecare extends offers to only 2% of applicants and enjoys a 90% acceptance rate (compared with an average 50% acceptance rate in U.S. call centers).

Once again, because of lower wage rates, a company like eTelecare can also invest more heavily in the recruiting process, tightly screening applicants to ensure that they are getting the most qualified candidates. ETelecare maintains a recruiting staff of 30 (compared with perhaps 4 for an equivalent call center operation in the U.S.), allowing the company to put all applicants through a rigorous seven stage screening process versus the typical two stage (resume and short interview) process in the average U.S. call center.

Lower manager to staff ratios

This is just the beginning, though. Companies realize this higher potential for performance improvement by significantly shifting the ratio of managers to front line staff. ETelecare, for example, maintains a team lead (front line manager) to agent ratio of 1 to 8 vs. a comparable ratio of 1 to 20 or even higher in the United States. Similar low ratios prevail at higher management levels as well. This is much more economically feasible in the offshore locations because of the wage differentials at the management level as well as the agent level. Derek Holley, President of eTelecare, observes that "we pursue many of the best practices of high performing companies in the U.S., but the ability to cost effectively support higher ratios of managers to staff gives us a significant advantage relative to our U.S. counterparts in terms of accelerating performance improvement. When you couple this with a higher caliber of agent at the start, we have an unbeatable advantage in building a high performing organization."

This is in stark contrast to high performing organizations in the U.S. where the tendency has been to strip out layers of middle management and to increase the operating span for remaining managers. In part, this can be traced back to the salary differentials. Highly paid middle managers need considerable leverage to make the economics work. This tends to shift middle managers into administrative and supervisory roles, often creating low value administrative overhead, rather than focusing them on much more time intensive skill building and process improvement activities.

Skill building. As a result of this heavier ratio of managers, eTelecare is able to focus its team leads on skill building and process innovation, rather than basic administration and coordination activities. In measuring the performance of team leads and other managers, eTelecare places heavy emphasis on their effectiveness in building capability and enhancing performance. In terms of skill building, eTelecare invests heavily in formal training programs, but the team leads ensure that these training programs have greater impact through a combination of apprenticeship, coaching and mentorship.

As an example, eTelecare agents who handle complex mutual fund advisory calls are required to take a 16 week training course leading to a test for NASD series 7 broker certification. ETelecare agents enjoy an average pass rate of 81% on these NASD tests (in recent test rounds the pass rate has been 100%) while the average pass rate for the U.S. is 59%

The coaching made possible by the heavier ratio of managers to staff also contributes to more rapid on the job performance improvement. For instance, eTelecare managers are able to provide more frequent and detailed performance reviews – at least one hour per rep per week for seasoned reps and more for newly hired reps. The result is that new reps are able to reach a 95 – 97% customer experience rating within one month, which is at least 4% better than the performance in the in-house U.S.-based call centers of their clients.
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This focus on skill building contributes to rapid rates of advancement. High performers at eTelecare can rise from entry-level customer service agent to shift manager responsible for running a 150-person program in 2 ½ years. Training programs supplemented by

apprenticeship and coaching at each level of management help to ensure continuing rapid development and advancement.

Process improvements. In addition to skill building, managers are able to spend more time searching for ways to improve service processes. At eTelecare, at least 10% of the team lead's time is spent on developing process improvements. The results are clearly evident when eTelecare takes over call center operations of one of its clients. In one case, the client had experienced average handling times of about 8 minutes in its own operations. Within six months, eTelecare had been able to reduce average handling times by more than 40%, to 4.5 minutes. This improvement came about through a series of refinements to the call handling process – for example, revising the order in which information was gathered and entered to minimize the impact on system performance and recommending changes to the screens to reduce the number of page changes required in most transactions.

This approach of using lower ratios of managers to staff also applies in manufacturing operations. In a Chinese manufacturing facility, assembly line managers working closely with staff helped to identify a novel way of using surface mount technology placement equipment to reduce the lead-time and cost of equipment set-up. Identifying and grouping products with similar attributes led to significant reductions in throughput times and manufacturing cost.

Performance impact. The focus on skill building and process improvements translates into superior performance for the client. In handling enterprise technical support for a major US electronics OEM known for its superior customer service, eTelecare was able to deliver a cost per resolution almost 40% less than the OEM had achieved in its own US-based call center operations. Cost per resolution covers the cost of call center operations handling the call (including subsequent calls for the same problem) as well as the cost of dispatches (including re-dispatch if the initial dispatch did not resolve the problem) related to the problem. ETelecare was even able to deliver a cost per resolution 30% less than outsourced U.S. vendors and 16% less than the OEM's offshore call center operation in India.

At the same time, customer satisfaction levels exceed expectations. In the Customer Satisfaction Survey for this OEM's customers, 99% of the customers indicated that they were either satisfied or well satisfied. This rating was well above the initial target of 90% established by the client, yet representative of the customer satisfaction ratings eTelecare's agents receive in other client relationships. In terms of rating the customer service agent's courtesy and professionalism, 75% of customers indicated they were very satisfied. For communication skills, 69% of the customers were very satisfied and for knowledge of the OEM's products and services, 68% were very satisfied. Holley indicates "our clients don't just come to us because of our cost advantage relative to their in-house U.S. operations, they want to be sure that we will deliver superior service to their customers. They stay with us because they simply can't replicate our service levels in their own operations."

Drawing on the best of both cultures

Managing across two cultures can be challenging – it requires managers who can understand and respect the cultural needs of both parties. At the same time, it can also create new opportunities to enhance performance by drawing on the best of both cultures. Take the example of call center operations in the Philippines. As indicated earlier, Filipino culture emphasizes hospitality and service, which helps Filipinos deliver superior customer service by quickly building rapport with customers and conveying true empathy. On the other hand, Philippine culture tends to be very hierarchical – managers make decisions and workers follow orders. This cultural attribute makes it difficult to build a high performing organization, since workers are reluctant to take initiative or to constructively challenge managers where necessary to avoid costly mistakes. ETelecare solves this problem by fostering a non-hierarchical, performance based culture and developing managers and leaders from within, rather than bringing them from the outside. By hiring recent college graduates with limited professional experience, eTelecare avoids the challenge of trying to foster a different culture for people who have developed habits based on experiences with other, more hierarchical Filipino companies while still retaining the cultural elements that contribute to superior customer service.

Manufacturing operations in China are reaping the rewards of combining elements of American and Chinese approaches to process management. U.S. companies tend to be more systematic and structured in their manufacturing processes, ensuring consistency even with turnover in people. This approach, though, lacks flexibility. Chinese managers, on the other hand, tend to prefer looser job descriptions, permitting more flexible allocation of work among available people based on relevant skill sets. By effectively integrating these two approaches, Chinese manufacturing operations are creating more effective operational processes with discipline and the ability to respond to unanticipated events, for example disruptions in the supply chain caused by sudden shifts in customer demand or supply availability.

Effectively merging the best attributes of both cultures will in large part hinge on recruiting and developing talented middle management from the offshore country. Most U.S. companies do not do this well. They often bring in expatriate senior executives to their offshore operations and recruit middle management from other companies. John Paul Ho from Crimson comments that "Too often these expatriate executives will hire local managers according to Western views of leadership and judgments drawn from Western experience in terms of management skills. The managers hired may not be expatriates themselves, but they often come from the same offshore universities and often have lived their whole lives outside the country. The result is that managers are often not effective in providing leadership in the local cultural context."

Ideally, candidates for middle management should be developed from within the organization after being recruited directly out of local universities so that they can be integrated into a distinctive professional culture from the outset. As an interim solution, the company should recruit senior executives or retain advisors with extensive experience in managing local operations to interview and qualify local middle management candidates. As part of their development process, these candidates should be brought into U.S. operations on rotation to better understand the broader corporate culture and to

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develop insights regarding effective ways to integrate distinctive elements of their own culture with elements of the high performance work culture they encounter in the U.S. operations. Senior executives in the U.S. company must serve as active sponsors of the offshore management candidates to ensure that they are effectively integrated into the U.S. operations, rather than sidelined and misunderstood.

Compressing work cycles

Offshoring operations can often compress work cycles in ways that would not be economically feasible for U.S. operations. For example, exploiting the differential in wage rates for product engineers, a major computer notebook manufacturer shaved 30% off the lead-time required to get a new notebook model to market. The ODM serving this manufacturer doubled the engineers working on the product development team to compress design and testing cycles – yet still delivered the product at one fifth of the engineering cost that a similar staff would have incurred in the U.S. Similar techniques can be used to accelerate entry into multiple national markets by configuring parallel development teams to work on different national versions simultaneously.

Time zone differences can also be leveraged to compress work cycles. The same computer notebook manufacturer developed a motherboard "around the clock". Chinese engineers did component placement and circuit layout of the board, then forward the design to a U.S. engineering team to perform signal integrity checking and simulation while the Chinese team slept. By the time the Chinese team had come to work the next morning, they could resume their design efforts with the testing feedback provided by the U.S. team. In this case, the manufacturer reduced the product design cycle by more than 60%.

Fostering competition among more and smaller work units

We are all familiar with team-based competition in high performance companies. In offshore locations, it becomes feasible to create more teams to compete on a particular project. The labor-intensive economics of these operations also makes it feasible to hive off new operations relative to more capital-intensive U.S. operations.

In countries like China, individuals tend to avoid overt conflict and competition with other individuals. On the other hand, from their schooling and work experience, Chinese workers tend to be extremely competitive. The desire to excel is intense. The challenge is how to harness this drive and intensity without creating cultural problems. One way to allow confrontation and competition to occur more comfortably is to focus competition at the group level. By creating more groups competing with each other, offshore operations can intensify competition.

The right incentives and career paths can also shape competition. American employees tend to be more individualistic, measuring success in objective terms like cash compensation. Chinese employees tend to place more value on reputation and status within groups and broader social networks. Thus, focusing recognition programs on group performance and individual contributions to the group can have a significant impact on work efforts.

In one offshore software development operation, as soon as one office exceeds thirty programmers, a new office is established to accommodate the next wave of growth. Factories in China often remain sub-scale relative to comparable U.S. operations so that additional factories can be opened in other cities. This not only helps to foster competition across factories, it also helps to negotiate better agreements with the local governments who fear that the new factories will move to other areas. This same effort to intensify competition leads to more diversification of supplier bases than is typical in the U.S.

Creating more flexible supplier relationships

As we move beyond the boundaries of the individual enterprise, high performance organizations in offshore locations tend to create broader and much more flexible supplier relationships than are typical in the U.S. In part, this is driven by the desire to encourage more competition among suppliers and to take advantage of rapidly evolving specialization among suppliers. In part, it also reflects the need to cope with more dynamic and uncertain business environments – it makes good business sense to diversify risk and avoid excessive dependence on a few suppliers.

As a result, offshore manufacturing and product development operations in particular are becoming more skilled at managing pools of suppliers, often organized into process networks with each supplier performing a highly specialized role. These pools or process networks also help to overcome the disadvantages that come with shifting suppliers on a transaction-by-transaction basis. They create long-term relationships with a broad range of suppliers with the understanding that specific suppliers will be mobilized for each product or project but that a continuing flow of business will accrue to each supplier over time. This gives suppliers an incentive to get to know the customer (and each other) better so that they can become more effective over time as part of the pool or process network.

Once again, U.S. high performing companies have tended to move in the opposite direction. They generally have moved to narrow the number of suppliers and to tighten relationships with them. Why have they taken this opposite tack? Many U.S. companies are moving in this direction because of concerns about the administrative overhead involved in coordinating activities and sharing knowledge across a broader range of suppliers. More suppliers means more people involved in managing relationships across suppliers. In the offshore locations, lower relative wages make this less costly. U.S. companies have tried to squeeze further cost out of supply chain management by automating connections across suppliers. But this has a catch. Until recently, this involved deploying point to point technology like EDI that was costly to implement and increased exponentially in cost as the number of participants grew. Since offshore operations tend to have less automation in general, this penalty has been less relevant.

New technology is now being deployed to reduce this penalty, creating an opportunity for offshore operations that have mastered the techniques of managing loosely coupled pools or process networks. They can now automate many of the underlying administrative activities and focus their efforts on building capability more rapidly across the pools or

process networks. Companies like Timogen, a privately held company based in Silicon Valley, are beginning to draw on the experience of offshore operations. In fact, one of the co-founders of Timogen, Cliff Chen, had previously led an operations team at Lite-On, a leading Asian-based ODM, serving such leading electronics companies as Dell and Toshiba. He had direct experience with the challenges of automating highly distributed supply chain operations. Frustrated with the centralized architectures of traditional supply chain management software, Chen and his colleagues at Timogen have helped to design a dynamic process engine architecture with breakthroughs in distributed process management and peer-to-peer agent technology. This architecture helps companies flexibly configure connections across evolving supply chains and to quickly identify and respond to unanticipated changes in closed loop replenishment, vendor managed inventory and demand fulfillment.

As companies move operations offshore, this is an opportunity to improve the design of business processes more broadly and to strengthen the capabilities of IT systems in the home company to work more effectively with the operations offshore. Especially in supply chain operations, if customer demand signals and customer requirements are not effectively coordinated with offshore manufacturing and logistics activities, much of the potential value of moving these operations offshore in the first place will be lost. This is especially true given the physical distance and time delays that offshore operations confront. Without effective coordination, whiplash effects magnify the impact of unexpected shifts in demand and supply across the entire supply chain – precisely one of the business challenges that the Timogen platform helps to address. Sophisticated IT platforms and business process innovation offshore must be accompanied by complementary innovation at home.

Expand the scope of capability building

Once U.S. companies have developed the right tailored approach to building high performance organizations offshore, they can reap even greater rewards by expanding the scope of offshore activity. Of course, efforts to expand operations with a narrow cost saving mindset or by using traditional approaches that have worked in the U.S. will deliver much less, if any, benefit. Generally, US companies tend to think too narrowly about the range of activities that might be candidates for offshoring. Once again, the "low cost, low skill" mindset diverts attention from many of the real opportunities. High skill, high value add activities can often be coupled with lower skill activities to amplify performance impact. In thinking more expansively about offshoring choices, executives should also be wary of stopping at the boundaries of their own enterprise. Some of the most significant performance improvement can come from reconfiguring supply chains to move more supplier activity offshore as well.

Move up the skill ladder within specific operations

To take our example of call center operations, many US companies continue to believe offshoring is only viable for very low skill customer support activities. A few companies are aggressively moving up the skill ladder as they gain more experience with offshoring. One of eTelecare's clients, a leading financial services firm in the U.S., started with eTelecare on providing customer support for stored value cards, requiring relatively

modest call center skills. As this client became more convinced of the superior performance of eTelecare in this area, it expanded the scope of call support activity to include its traveler's checks. This product area demanded much greater skills – customers usually call during high stress times (e.g., when they have lost their traveler's checks in a foreign country) and effective response requires significant discretionary judgment by the agent (for example, wiring up to $50,000 in funds to a customer or initiating arrest procedures with local police for fraudulent use of checks). More recently, this client has transferred its call center work for its mutual fund product line that requires sophisticated financial skills. Agents handling financial transactions of this type and providing financial advice must receive their NASD 7 and 63 certification after extensive training programs. This broad range of call center work offers an additional opportunity for capability building. ETelecare is more able to attract and retain highly qualified candidates for its call center operations because it can offer a career path with diverse opportunities spanning a variety of skill levels and product areas.

Expand into adjacent activities

Companies can also realize more value from offshoring operations by expanding their offshoring initiatives into adjacent, higher value activities. This is particularly true in product businesses with high manufacturing value added. Look at the experience of the computer industry, one of the first businesses to aggressively take advantage of offshore manufacturing opportunities.

American computer OEM's began by moving relatively unskilled assembly operations offshore, often through outsourcing to electronics manufacturing services (EMS) like Solectron, Flextronics or Celestica. More recently, these OEM's have increasingly relied on offshore operations to provide related services in the areas of product design, sourcing decisions and inventory management. This movement has given rise to an entirely new category of offshore operations called Original Design Manufacturers (ODM's), primarily based in Taiwan, that take over the design function as well as the manufacturing operations for major computer OEM's. These companies – the top five are Hon Hai, Quanta, Compal, Asustek and BenQ – are far less well known than their EMS counterparts.

While ODM's will design products based on specifications supplied by computer OEM's, the majority of their sales are based on products they design completely on their own, leveraging growing investments in their own R&D capability. Initially targeting low end, commodity products, these ODM's have been steadily upgrading their technology capabilities and expanding their operations in more sophisticated computer product categories. These ODM's are attractive because they offer a package of sophisticated services extending well beyond manufacturing assembly and they assume key elements of business risk, including product development risk and inventory risk, at a much lower cost than onshore U.S. operations could ever replicate.

ODM's have been rapidly taking share from more narrowly focused EMS suppliers and they are generating higher levels of profitability at the same time. In the current year, the top five computer ODM companies are expected to grow by 34% on average, compared with an average 3% growth rate for the five leading EMS companies. In terms of

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profitability, the same top five ODM companies are projected to have an average return on equity of 18%, compared with a negative average return on equity of 26% for the top five EMS vendors.

ODM's are gaining share by offering more compelling value resulting from bringing together higher value add activities with offshore manufacturing assembly operations. This value is not just from greater savings in terms of labor cost, but includes compression of cycle times, savings in component costs and tighter inventory management and more adaptive supply chains, especially in terms of handling smoother new product introductions.

To deliver this value, product engineering needs to closely coordinate with manufacturing operations. Superior skills in design for manufacturability and specialized manufacturing processes can contribute to significant reductions in manufacturing cost through more effective product design. The distinctive skills in "system on a chip" integrated circuit design in Greater China mentioned earlier are playing a major role in reducing both component costs and manufacturing costs while at the same time increasing product reliability in a broad range of electronics products. Combining LAN and modem connectivity in a single chip and CD and DVD read and read-write functionality in a single chip help personal computer ODM's to aggressively deliver savings and product performance improvement to their customers.

If product design can often be done more effectively in offshore locations, it also makes sense to transfer responsibility for component specification and sourcing decisions. In addition to quality and cost, one of the key factors in evaluating suppliers is availability and responsiveness. Staff in the offshore manufacturing operations is often in a better position to evaluate these qualities, especially with regard to local supplier options. This is especially true as offshore locations like Taiwan become significant sources of technology innovation through the growth of robust local ecosystems of technology. For example, Taiwanese companies are aggressively investing in next generation LCD technology and have the potential to become leading edge suppliers of this technology, not only in terms of cost, but also performance.

As component specification and sourcing decisions migrate to offshore locations, it often makes sense to shift responsibility for supply chain management for these offshore locations as well. The ability to compress cycle times, optimize manufacturing operations and deliver significant savings in inventory investment hinges on effective coordination of activities across the supply chain. Salomon Smith Barney estimates that the top five computer ODM's achieve 35% faster inventory turns relative to the top five EMS vendors because of their full responsibility for sourcing and supply chain management. In industries like the computer industry, where prices are rapidly declining and frequent new product introductions increase obsolescence risk, this capability of tight inventory management can be especially valuable.

The electronics industry and the apparel industry are perhaps most advanced in terms of a widespread and systematic movement of manufacturing operations and related activities offshore. The same compelling economics and capability building opportunities are

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beginning to drive similar movements in a broad range of other product manufacturing businesses, ranging from medical equipment and cellular handsets to automotive products and a variety of industrial products.

Expand backward into the supply chain

This movement to bring together business activities offshore should not stop at the boundaries of the enterprise. Many of the benefits achieved by bringing together activities within the enterprise can be further amplified by reconfiguring the supply chain to ensure that key suppliers also join the offshore move. Clearly, it will be hard to compress cycle times and reduce inventory investments if major suppliers to offshore manufacturing operations remain in the U.S. Improvements in product design through more effective collaboration with suppliers will also become more challenging. The opportunities to accelerate capability building that accrue to companies establishing offshore locations can also be enjoyed by suppliers, compounding the benefits already enjoyed by the companies leading the move to offshore operations. John Paul Ho of Crimson observes "U.S. companies really limit the potential of offshoring by focusing only on their own enterprise. The real value of offshoring comes from dynamic optimization of the entire supply chain."

It's not just about sourcing components or raw materials for products. One of the most neglected opportunities for additional cost savings involves local sourcing of capital equipment tooling and spare parts. Often spare parts and tools and dies represent a significant expense item in manufacturing operations. Local suppliers may either already exist or can be developed to deliver significant savings over traditional U.S. sourcing options, in addition to potential tax and currency benefits.

Companies making a significant commitment to offshore manufacturing operations need to reassess their supply chain from the perspective of efficiency and effectiveness. Often, viable local suppliers can offer higher quality and lower cost options relative to U.S. suppliers. In other cases, it may make sense to work with existing U.S. suppliers and persuade them to move relevant operations offshore. As one example, General Electric has launched a systematic program across its major business units to target key suppliers and assist them with developing offshoring programs of their own. Large industrial parks are emerging in Mainland China anchored by a major product manufacturer with an array of supplier operations in the same park.

The growth of offshore business ecosystems can be rapid. For example, China has rapidly built a diverse ecosystem in integrated circuit manufacturing. Fifty-six integrated circuit fabs are now in full production, about 400 integrated circuit design companies now operate in China and there are 10 major wafer manufacturers. China is now the third largest integrated circuit manufacturer after the U.S. and Japan. With integrated circuit manufacturing growing at a rate of 42% per year, China is expected become the second largest global manufacturer of integrated circuits by 2005.

These business ecosystems are also beginning to specialize at a local or regional level. For example, Shenzhen is emerging as a center for light industry and light assembly, with a focus on such activities as plastic molding. Shanghai, on the other hand, is developing

a specialization around electronics design and manufacturing. Heavy industries have tended to concentrate in the northern provinces of Mainland China. In each of these areas, robust ecosystems are coalescing. Unlike local ecosystems like Silicon Valley, consisting largely of smaller enterprises, these areas have a much higher concentration of larger enterprises coming together to share common infrastructure and to ensure closer collaboration across complementary businesses.

Expand into adjacent markets

The consumer electronics industry provides an interesting example of another opportunity created by offshoring operations. So far, the focus has been on using offshore operations defensively, to improve economic performance and capability building in existing markets or businesses. Offshoring also provides an opportunity to think more aggressively about attacker strategies in adjacent markets.

We are just now seeing the first forays by traditional computer manufacturers into an array of consumer electronics markets. Gateway, in a very short period of time, has established a leadership position in the U.S. plasma TV market. Hewlett Packard has entered the digital camera market and, in a few years, carved out a 6% market share relative to market leaders like Nikon and Canon. Dell is targeting televisions and smart phones.

All of these companies have relied heavily on their experience with offshore ODM suppliers in their core businesses to accelerate their entry into the consumer electronics market. Having used these suppliers to strengthen their performance in their core business, these computer companies are now relying on similar relationships to target new sources of revenue. HP provides an interesting example of a U.S. company working with Taiwanese ODM's to help strengthen their capability in competing with large, established Japanese camera companies who hold a significant technology advantage in key camera components such as lenses and CCD sensors. HP has expanded its digital camera ODM relationships in Taiwan, collaborating with companies like Tekom to build on Tekom's early position in PC cameras and deepen capability in higher performance digital cameras. Taiwanese ODM's are still strongest in the lower end, commodity digital cameras, but they have been steadily moving up the performance curve in terms of designing and manufacturing higher performance cameras (moving from 1 mega pixel cameras to 4+ mega pixel models). A rich ecosystem of component suppliers is strengthening capability in key camera components like optics (Asia Optical), LCD displays (AU Optronics), and CMOS sensors (ICMedia and Pixart).

These early movements by U.S. computer manufacturers suggest the potential of a broader strategy to challenge the leading Japanese consumer electronics manufacturers by leveraging distinctive offshore capabilities in Greater China. Japanese consumer electronics companies have started to move some manufacturing assembly operations to Mainland China, but they have generally held on tightly to higher value add activities like product design. They have also tended to source heavily through traditional keiretsu relationships from other Japanese suppliers, rather than exploiting the growing capability of Chinese suppliers.

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While the Japanese companies continue to hold on to significant technology leadership in certain components, the technology capability landscape is shifting, especially as consumer electronics products move from analog to "system on a chip" digital components. In some consumer product categories like DVD players, where 75 – 85% of the units are now assembled in China, this process is already well under way. Apex Digital is one of the leading companies driving this shift of DVD production to China. Based in the U.S., Apex started producing DVD's in China in 1998. It now generates over $1 billion in revenue and is now branching into other consumer electronics products like flat panel LCD televisions. The growth of DVD assembly in China has been assisted in part by greater Japanese willingness to license key optical technology but also by the growth of a diverse local merchant integrated circuit ecosystem, providing access to a broad range of specialized integrated circuits required for the manufacture of DVD players.

Make appropriate strategic choices

The opportunity to accelerate and expand capability building through offshore initiatives creates a dynamic situation that ultimately poses significant strategic issues. Companies cannot afford to make these choices purely on operational terms. Strategic choices are involved that will ultimately put on the table the most basic question of all: what business are we really in?

Understand the dynamic nature of the offshore landscape

The rich opportunities to accelerate and expand capability building create a virtuous cycle for the winners and a vicious cycle for the losers. Capability and performance differentials will widen rapidly over time. The winners who master the approaches required to build capability rapidly will be in a better position to recruit the most promising employees and to retain the highest potential employees.

ETelecare in the Philippines has an overall turnover rate in its call center operations of 24% per year, which compares very favorably with the average U.S. call center operation where turnover rates exceed 100%. Other offshore call center operations still experience a 60 – 80% average turnover rate. ETelecare is able to beat these averages because it offers very attractive accelerated career paths for its highest potential employees. In fact, its turnover for mid-level managers is much lower – 11% - and turnover among high performers is less than 5% per year. By focusing so heavily on capability building, eTelecare becomes an attractive employer that is able to attract and retain the best and the brightest in the local labor market. This in turn reinforces its capability building efforts, leads to rapidly improving performance, attracts more and better clients with more challenging work and makes it even more attractive as an employer.

As offshore locations become more developed, turnover and escalating wage rates make it more challenging to deliver increasing amounts of business value. For example, in Bangalore, which has become a center for offshore software development, intensifying competition for skilled programmers by offshore companies clustered together in this one area has led to a fierce bidding war for talent, sharply increasing turnover rates and raising prevailing wage rates. Salaries have been rising at the rate of 20% per year and a

skilled programmer can increase their salary by 35% when they switch employers. If offshore companies are not careful, this intensifying competition can lead to a vicious cycle where talent is lured away, performance drops, business erodes and the remaining talent becomes even more vulnerable to recruiting raids by other companies. The companies most vulnerable to this vicious cycle are those who focus purely on wage rate arbitrage and ignore the need to accelerate capability building in order to provide attractive career paths for its employees.

These dynamic virtuous cycles are playing out at the level of local business ecosystems as well as in individual companies. Greater China and India in particular are rapidly developing specialized ecosystems designed to attract offshore operations. These ecosystems are developing at a very rapid pace and make certain areas increasingly attractive as a base for offshore operations.

In understanding the dynamic nature of these offshore landscapes, business executives can also develop a sharper understanding of the role they can play in accelerating capability building in certain areas through focused investment strategies and programs to expand the range of activities moved offshore. Large U.S. companies can make a significant difference in enhancing the attractiveness of certain locations by staging their moves to drive broader capability building initiatives.

By harnessing the power of dynamic virtuous cycles in offshoring locations, companies have strategic opportunities not only to improve company performance, but also to shift the structure of entire industries. Dell, Gateway and HP are examples of companies that are using offshoring as a competitive weapon to change the rules defining success and to challenge traditional boundaries across industries as illustrated by their forays into the consumer electronics industry.

Choose carefully between in-house and outsourcing options

As they move operations offshore, companies will also need to assess the choice of building their own operations vs. outsourcing these operations. This choice needs to be evaluated explicitly in terms of the relative potential to accelerate capability building. Given the dynamic environment, the key question is not a comparison of capabilities today, but a perspective on who is in the best position to build and maintain world-class capabilities over time. A number of factors may weigh against the natural instinct to try to keep capabilities in-house.

Few companies possess the scale required to support world-class operations offshore. Scale is essential to accelerated capability building both because of the greater opportunity for specialization and the need to offer attractive development and career paths for high potential employees (for example, scale enhances the ability to offer employees a broad range of experiences within compressed periods of time).

The spotty record of many early U.S. offshoring initiatives is an indication that too many U.S. companies lack management talent with relevant experience in building these operations. They under-estimate the significant execution challenges that must be addressed to make these initiatives pay off. Quickly bringing together a core of

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experienced managers to focus the initiative will be essential to long-term success. In many cases, these operations, because of their status within their companies will not be able to get the best managers or attract high performing outside managers.

In areas like call center operations, U.S. companies have a hard time building world class capabilities because the skill set is so specialized and so different from the skills required in other parts of the business. Often these employees are viewed, or at least perceive themselves, as "second class citizens". Moving these operations offshore can often compound the problem by adding geographic remoteness to the feeling of isolation already experienced. In contrast, specialized outsourcing businesses provide the focus and commitment required to accelerate capability building because this is their primary business.

If outsourcing relationships are required to access world-class offshore capabilities, these relationships must be structured in ways designed to facilitate accelerated capability building. Rather than negotiating and managing these relationships as short-term vendor relationships designed to get the lowest possible cost, executives of U.S. companies must view these outsourcing providers as long-term business partners and assist in any way they can in building appropriate capabilities. Dell's approach to its relationships with Taiwanese ODM's illustrates its long-term capability building focus. Dell works closely with its ODM suppliers, sharing knowledge through a series of formal meetings occurring throughout the product life cycle. Dell designs these interactions to systematically integrate the best of Dell's expertise with the expertise of its suppliers and, in the process, build new capability.

Of course, strategic considerations may make outsourcing options less attractive. Protection of critical intellectual property, concerns about loss of core skills or other issues may make companies reluctant to outsource their offshore operations. In these circumstances, executives should carefully and objectively assess whether they can build and maintain world-class capabilities in their own offshore operations and, if so, then commit fully to an aggressive offshore capability-building program. If they cannot build these capabilities internally, they will become increasingly vulnerable to companies that choose to access these world-class capabilities from specialized outsourcing operations.

Focus on accelerating internal capability building where it counts

As companies move operations offshore and increase reliance on specialized outsourcers in these offshore areas, they need to reassess their own strategies in terms of where they can build distinctive world-class capabilities of their own. Outsourcing in Asian offshore locations helps to level the playing field in global markets by giving smaller companies access to world-class capabilities in areas of their business that they could never develop internally. Shedding activities where the company has no reasonable prospect of achieving world-class capabilities is an opportunity to focus management resources elsewhere. U.S. companies need to take this opportunity to sharpen their understanding of where they have, or can build, truly distinctive capabilities of their own. By moving more aggressively in this area, U.S. companies can continue to create distinctive value for their customers and growing development and employment opportunities for their

domestic labor force. In a world of intensifying global competition, this focus is not merely required for success, but for survival.

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To compete effectively, companies need to ensure that they are accessing world-class capabilities in all areas of operations and, given the dynamic nature of capability building, that this access is maintained over time. Offshoring provides a significant vehicle for ensuring this, but the open question is whether this opportunity is best realized through in-house facilities or through outsourcing relationships. Offshoring will force senior management to become much sharper in understanding where their companies can remain truly distinctive and to reinforce their commitment to access world-class capabilities wherever they reside. Choices made today will determine whether offshoring ultimately represents more of an opportunity or a challenge. In the process, offshoring can become an opportunity not only to restructure the operations of a company but also to restructure entire industries.

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