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INNOVATION WITHOUT WALLS: ALLIANCE MANAGEMENT AT ELI LILLY AND COMPANY

Charles Dhanaraj, Marjorie Lyles and Yupeng Lai wrote this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

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The 2004 Thanksgiving holiday was just two weeks away. Gary Stach, the newly appointed executive director of the Office of Alliance Management (OAM) at Eli Lilly and Company (Lilly) was returning to his office after his first meeting with his supervisor, Dave Thompson, senior vice-president of Corporate Strategy and Business Development (CSBD). Stach had received the assignment just a week earlier, capping his 25-year career at Lilly, which included several leadership positions in product development, sales and marketing, and information technology, as well as direct line responsibility in some of Lilly's recent alliances. Thompson had just asked Stach to conduct a complete review of the OAM strategy.

Lilly, a pharmaceutical firm with headquarters in Indianapolis, Indiana, was developing a reputation for excellence in partnering within the industry. Since its formal creation in 1999, OAM had been instrumental in this endeavor. Given dramatic changes in the pharmaceutical industry, Lilly anticipated significant growth in its alliance activity and an increased complexity of such alliances. Thompson made it clear that it was fine to leave the strategy as it currently existed, or to change it radically if the situation warranted. The fundamental question was: What should Lilly do to build and maintain its leadership in alliance capability?

COMPETITIVE DYNAMICS IN THE PHARMACEUTICAL INDUSTRY

The pharmaceutical industry, once described by Professor Michael Porter of Harvard Business School as "a five-star industry" in the 1980s, had gone through a dramatic shift in the 1990s. It had been a time of rapid consolidation. For example, the 42 member firms of the Pharmaceutical Manufacturing Association (PMA) originally present in 1988 had consolidated to 16 firms by 2003 (see Exhibit 1). Global sales of prescription drugs were at $550 billion in 2004, and North America accounted for about 45 per cent of the global sales. The industry was expected to grow at seven per cent globally: eight per cent in North America and 5.7 per cent in the European Union.

As of 2004, the United States, the world leader in pharmaceutical development, was headquarters to six of the 10 largest drug companies; namely, Pfizer, Merck, Johnson & Johnson, Bristol-Myers Squibb, Wyeth,

and Abbott Laboratories (see Exhibit 2). Europe was home to the other four: GlaxoSmithKline, Aventis, AstraZeneca, and Novartis. Japan, the second largest market for pharmaceuticals in the world, was highly regulated and had been largely left out of the consolidations that swept through the United States and Europe. Leading the industry in Japan were Takeda Chemical Industries, Sankyo and Yamanouchi Pharmaceutical. The markets outside the United States, Europe and Japan accounted for only about 12 per cent of the world market, but rising living standards in many emerging markets, such as Brazil, Russia, India and China, were expected to dramatically change the overall industry structure within a decade.

Many analysts viewed consolidation as a search for efficiencies in research and marketing. The cost of developing a drug was estimated at more than US$800 million, and typically took 10 to 12 years from discovery to sales. Although the 20-year patent regime provided a potential monopolistic power to gain the returns the industry wanted, pharma companies were facing increasingly tougher scrutiny from the government and the media on its pricing. The rise of the health maintenance organizations (HMOs) and the generic drug industry were putting phenomenal pricing pressures on the pharma firms. There were not many new "blockbusters" (drugs with potential sales of more than US$1 billion per year). Critics lamented that although the industry's research and development (R&D) investments were growing, there were no significant improvements in R&D output even with the industry consolidation (see Exhibit 3). Adding to this burden, it was estimated that more than 80 per cent of the patented drugs in the market in 2000, would lose their patent protection by 2007.

Responding to these pressures, pharma companies were licensing late-stage products from outside firms and marketing them through a process termed "in-licensing." For example, Pfizer, the leading pharmaceutical company, had several blockbusters, such as Lipitor, Celebrex and Zyrtec — all developed by external parties. Exhibit 4 gives the relative proportion of in-licensed drugs compared to the total drugs in the research pipeline at several leading firms.

Pharmaceutical firms were also adopting a process known within the industry as "out-licensing." For example, if a molecule had been developed up to a certain stage by an internal research team but was deemed too expensive or inconsistent with the company's portfolio strategy for full development in-house, it could be licensed out to smaller research companies for further development. The lower cost structure in these entrepreneurial boutique research units made such arrangements cost-effective. Often the arrangements included cost plus funding support to the partnering firms. Typically, these plans would carry options for buying back the molecule if subsequent data suggest an enhanced promise. A scientist at Lilly explained (see Exhibit 5 for a description of drug discovery process):

> Theoretically, it is possible for each stage of the development of a molecule (drug) to be done by a different firm. The days are over when we used to think of pharmas as a vertically integrated business outfit. Now, efficiency and innovation dictates who does what and when. It literally expands the capability base here at Lilly, and increases our capacity. It is a new emerging business model of virtual size for the pharmas.

The influence of the biotechnology in drug discovery rose to a peak in the 1990s. Advances in molecular biology and genomics were opening up new opportunities, but the technical capabilities largely resided outside the big pharmas. Typically, the biotech firms were small and agile. Their coveted assets were their scientific personnel and the proprietary technology in the form of patents. The large-scale investment needed over a protracted period coupled with the high risk of product failure at any of the several stages was a barrier for these firms to advance on their own to commercialization of their discoveries. Alliances with pharmaceutical firms provided an effective bridge to overcome this barrier. Biotechs typically used the 10/50/40 formula, which suggested that of the several hundred million dollars a biotech required in its

first decade, 10 per cent came from venture capital, 50 per cent from pharmaceutical companies and 40 per cent from public equity markets. In addition to the financial support, pharmaceutical companies contributed to the partnership their expertise in regulatory, clinical, sales and marketing channels.

Over the years, the pharma-biotech deals had steadily increased in size and complexity. The largest deal in 1993 was SmithKline Beecham's $125 million deal with Human Genome Sciences; whereas, in 2001, the largest deal was $1.3 billion collaboration between Bayer and CuraGen. Approximately 30 per cent of drugs undergoing clinical trials in 2001 came directly from biotechs, up from seven per cent a decade earlier. Most alliances were non-equity based, but often pharmas took a small equity position in the biotechs they worked with. For example, in 2001, Lilly bought a minority stake in Isis Pharmaceuticals, licensing for further development a molecule discovered at ISIS to treat lung cancer. As the influence of biotech firms continued to grow, Lilly separately launched in early 2000, Lilly BioVentures, a venture fund aimed at private biotech startup companies.

Research alliances were typically classified into three groups — namely, early, clinical and advanced clinical — based on the development stage of the product considered for the alliance. Exhibit 6 provides an overview of the distribution mix of these alliances for selected firms within the industry. Some industry reports identified them as early, middle and late stage alliances, respectively. Within Lilly, they were referred to as project stage, program stage and product stage, respectively.

An early stage alliance was one that focused on a drug target that could possibly evolve into a drug. The attrition rate of targets, a measure of the investment risk, was large in the early stage. Typically one in 10,000 would make it through the process. The middle-stage deals, generally had molecules that had been developed to the point of the first human dose. Whether the molecules could pass the toxicology and efficacy requirements was still to be proven at this stage. Typically one in two would go through this stage successfully, but it was expensive to prove efficacy. The late-stage deals were for those molecules that were either on the market or in Phase 3 clinical trials. The cost of deals grew exponentially as the molecules moved from one stage to the next.

Apart from research and development, pharma companies were also entering into alliances for manufacturing and marketing activities. Given the diverse skill sets needed in manufacturing, including drug delivery systems, pharmaceutical firms were increasingly using specialized firms to manufacture and package the drugs. The 1990s also saw several marketing alliances. These alliances often took either the form of co-branding, in which competing pharma companies marketed the same brand, or co-marketing, where competing pharma companies marketed the same product in agreed territories, each under its own brand.

ALLIANCE STRATEGY AT ELI LILLY AND COMPANY

Colonel Eli Lilly started Eli Lilly and Company on May 10, 1876, with $1,400 and four employees, including his 14-year-old son. Right from its inception, Lilly was committed to scientific and managerial excellence. Lilly focused on discovery, development, manufacturing and sales of a broad line of human health and agricultural products. In recent years, Lilly had narrowed its focus to pharmaceuticals and had grown to be a global company. By 2004, Lilly was one of the top 20 global pharmaceutical firms, with 46,000 employees in 138 countries, and had a strong position in several therapeutic categories: neurosciences (Prozac, Zyprexa), diabetes care (Humalog, Humulin), and was rapidly expanding its portfolio in Oncology (Gemzar). Exhibit 7 provides an overview of the company's financials.

Lilly pursued an innovation-focused growth strategy, and research and development was viewed by the management as crucial to its long-term success. In 2004, Lilly employed more than 8,800 scientists and specialists. However, given an aggressive growth target in an increasingly competitive environment, compounded by rising development costs, management believed that internal discovery alone could not meet the growth goals. Along with increasing its R&D productivity, external partnerships were strategically seen as a growing source of research capabilities, biological targets, future products and drug-delivery technologies. As of 2004, the company had roughly 40 candidates in development, which was considered the best within the industry. Exhibit 8 presents a listing of some of Lilly's major alliances.

Early Start in Alliances

Lilly had a long history of partnering. The seeds of one of the industry's first major collaborations (perhaps the first) were sown in late 1921. George Clowes, Lilly's director of research at that time, read a paper by three University of Toronto researchers that described the benefits of insulin for patients with diabetes. Clowes initiated conversations with the university that led to an agreement under which Lilly developed a process for mass-producing high-quality insulin products and started marketing them. During the mid-1970s, to pursue the opportunity of applying recombinant DNA to produce human insulin, Lilly's research team began working with Genentech, then a small biotechnology firm based in California. This agreement eventually became a breakthrough alliance, a first between a pharmaceutical company and a biotech firm.

In 1982, Lilly was the first company to market a genetically engineering product with its launch of Humulin, a synthetic insulin developed with Genentech. Despite the prevalence of mergers and acquisitions (M&As) in the pharmaceutical industry, Lilly's management believed that its company could outgrow the industry by organic development and should not focus on major acquisitions or mergers, but rather leverage external capabilities through alliances. Sidney Taurel, Lilly's chairman and chief executive officer (CEO) stated in one of his briefings to the investment analysts:

> We have studied thoroughly the historical impact of corporate size and we continue to update that work. Our analyses to date have shown that sheer size achieved through merger or acquisition has not produced stronger growth. In fact companies that have remained independent have outgrown firms that have chosen to consolidate. Lilly's goal is to become the fastest growing company in the industry and maintain independence through a constant stream of innovation derived from our internal pipeline as well as external collaborations.

Lilly traditionally managed its alliances at the operational level. Therapeutic areas (e.g. Neuroscience or Oncology) managed the research alliances, product (marketing) departments managed the commercial alliances, and the procurement department was responsible for the manufacturing collaborations. Lilly's research and development activities were organized under Lilly Research Laboratories (LRL). An innovation sourcing group within LRL, headed by Dr. Alf Bingham, vice-president, played a key role in the realization of Lilly's alliance strategy. Its activities ranged from evaluating the existing product pipeline, identifying potential in-licensing and out-licensing candidates and partners, and negotiating an alliance contract. In 1996, Lilly lost to a competitor a potential partnership it had been courting for some time. Post-deal interviews with the decision makers triggered a serious review of the alliance management processes at Lilly. A casual discussion in one of the board meetings at Lilly led one of the directors to ask the question: "If partnerships have been and will be increasingly important to Lilly's future, what is the management doing to improve Lilly's partnering capabilities?"

Office of Alliance Management (OAM)

Following a protracted 18-month review both by internal experts and external consultants, in January 1999, Lilly established a separate organizational unit, the Office of Alliance Management (OAM), under the leadership of Nelson Sims as its executive director. This unit expanded Bingham's innovation sourcing group to three distinct groups, which could potentially work in concert to coordinate the external innovation processes in a seamless way: The Research Acquisitions group focusing on identifying potential candidates, the Corporate Business Development group focusing on the due diligence process and the negotiations, and the Office of Alliance Management supporting the successful implementation of the alliance. Sims, who had worked with Lilly for more than 27 years, including eight years in his last assignment as the president of Lilly's Canadian subsidiary, commented on the process:

> We reviewed existing procedures, best practices, and the needs of Lilly's alliance partners. We had consultants from Accenture, who had worked with firms such as IBM and Intel, work with our team. We also had the findings from an external survey conducted by PriceWaterhouse-Coopers. And the result was the development of a process, what we called Lilly Alliance Management Process (LAMP). While it may sound bureaucratic, it is simply a road map used to streamline and simplify alliance management.

Sidney Taurel, Lilly's CEO, heralded the transition as a move from "a transaction-driven era of deal-making to a relationship-driven era of partnership implementation." Nelson Sims described the alliance strategy:

> Initially, the OAM came in after the deal was completed, focused on making sure processes were thoroughly outlined following contract signatures. But the handoff from business development to alliance management proved to be too abrupt: Lilly's partners had to reorient themselves to an entire new group of individuals. We changed the process: an alliance manager now visits the potential partner during Lilly's due diligence, trying to understand the partner's organization and culture. And after the deal is signed, he/she coordinates the first interactions with the new members of the team and helps set the alliance's initial agenda.

The mission of the OAM was to help Lilly develop the alignment, commitment and capabilities needed to achieve the alliance's vision, and to create an environment that would maximize the value of these alliances. OAM's responsibility in any particular alliance was to serve as the advocate for the collaboration itself. An image of ombudsmen was promoted for the organization. The OAM was also tasked with minimizing the possibility of alliance failure for reasons other than scientific ones, maximizing the value of the partnership, and obtaining more and better alliance opportunities to fuel Lilly's organic growth. The OAM carried the slogan: "We don't make alliances . . . we make them better." Patty Martin, who served as executive director of OAM before Stach, commented on the scope of OAM:

> There's life after the deal. And it's worth paying attention to. We can not do much about technical failures. Research is a risky proposition, and there are projects that are bound to fail. But if I have to go by published data, more than 60 per cent of the alliances fail due to non-technical reasons: conflicts generated from partners' cultural differences, unaligned objectives of the partners, poor alliance leadership and poor integration processes. So, we focus on that dimension of partnership.

OAM was also involved in vigorous promotion of the alliance management discipline within the company and promoted its expertise outside the company through industry wide forums such as Association of Strategic Alliance Professionals (ASAP) — an organization comprising a wide range of industry participants with a common interest in creating and disseminating knowledge on alliance management.

Managing Alliances: A Proprietary Process Development

The LAMP framework was the outcome of synthesizing best practices from various sources (see Exhibit 9). LAMP provided a proprietary framework for Lilly to identify common processes and tools to create value through alliances. Exhibit 9 also lists a sample of management frameworks and tools that were developed by OAM for use in alliance management. These processes, tools, frameworks and approaches were expected to support the alliances as they went through different stages.

For example, the three-dimensional fit analysis presented a structured way to assess strategic fit, cultural fit and operational fit between the partners. This tool was useful not only for initial analysis of partner fit, but also for monitoring the fit as the alliance evolved, since strategies and leaders often changed within the life of an alliance. Another tool used extensively was the strategic futures exercise, which allowed the partners to articulate what they saw as a future potential for opportunities and problems. It provided a framework for members of the team to present their ideas openly and talk about their concerns.

Another widely used tool was the alliance health survey, more commonly known within Lilly as the Voice of Alliance (VOA) survey. OAM used this tool extensively to monitor the health of alliances on a regular basis (typically once every year). The Web survey was sent to all employees working with the alliance from both companies. The questionnaire covered 14 distinct categories that had been identified as key indicators for alliance success. Exhibit 10 presents a visual display of the performance feedback from an alliance over two time periods. The response rate for such web surveys had been typically more than 50 per cent. This tool allowed the alliance manager to work with the key leaders from both partners to tangibly assess where the alliance was working well, and where it was not, and also allowed for taking necessary steps to steer the alliance to desired goals.

ALLIANCE MANAGER: A VITAL LINK FOR LILLY'S ALLIANCE COMPETENCE

OAM conceived of three responsibility centers for an alliance: an alliance champion, an alliance leader and an alliance manager. The alliance champion, usually a senior executive, was responsible for high-level support and oversight. Identifying a senior executive as a responsibility center allowed for breaking down the bureaucratic barriers, to facilitate a smooth working relationship. The alliance leader, usually a technical leader or a project manager, was responsible for the day-to-day management of the alliance and held the line and budget responsibility for the success of the alliance. The alliance manager represented the OAM and served as a business integrator between the two alliance partners. Since alliance managers had the opportunity of seeing through the full life cycle of the partnership, they were also instrumental in recommending improvements to the LAMP process.

The alliance manager's responsibilities were broadly in four areas: (1) To provide pre-deal assessment for potential alliances, (2) to facilitate the start-up of new alliances, (3) to support value creation efforts for ongoing and transitioning alliances and (4) to build Lilly's capacity and capability for alliances. When a potential alliance was proposed by the research acquisition department, alliance managers advised the deal-making team of the potential risks, issues and opportunities, recognizing the impact of the potential deal on

existing alliances. The alliance manager participated in the due diligence process, which often included site visits. If the potential alliance passed the due diligence, the alliance manager played an advisory role to the deal-making group, particularly in the area of designing the governance.

Early stage support for new alliances demanded intensive engagement of the alliance manager. In this stage, alliance managers were committed to facilitating alliance meetings whenever necessary, and setting up the governance structure and communication processes at various levels. They played a pivotal role in orchestrating kick-off meetings and engaging alliance personnel from both sides (both Lilly and the partner) in team-building exercises. In supporting ongoing and transitioning alliances, alliance mangers served to monitor governance and informal interactions, conducting annual VOA surveys and presenting the data analysis to the team members. Where needed, they also got involved in individual and team interventions to improve alliance health. If any alliance relationship needed to be restructured or terminated, alliance managers were responsible for ensuring the transition progressed as smoothly as possible by playing a catalytic role in the restructuring process.

Lilly's partnerships with Alpha Biotech Company, Beta Pharmaceuticals and Gamma Manufacturing provided typical cases of research alliance, commercial alliance and manufacturing alliance respectively. The following sections provide an overview of these three alliances, highlighting the role of the alliance managers in each.

Lilly-Alpha Partnership: A Research Alliance

Alpha Biotechnology Company (Alpha) was started in 1987 by two leading genomics scientists with a focus on cancer diagnostic technologies. Alpha had a leadership position in gene transcription technology, and had developed several mechanisms to regulate gene activity that enhanced the therapeutic and safety profiles of drugs. Through partnerships with pharmaceutical firms, Alpha was targeting several therapeutic areas. The company went public in 1992, and during its peak, had reached a market capitalization of US$1 billion.

In the late 1990s, Alpha and Lilly entered into a broad-based alliance for the discovery and development of products based upon Alpha's gene-splicing technology. The collaboration focused on products with applications in a broad range of diseases. Lilly invested $100 million in upfront payments, part of which included a minority investment in Alpha stock. It also provided for nearly $50 million in R&D payments over five years, and up to $75 million in milestone payments over several products. Alpha also received rights to market a Lilly specialty oncology product.

One year after signing the agreement, Scott Fishman, an endocrinology scientist with more than 24 years of experience at Lilly in several assignments, including sales, marketing and procurement, was assigned as the alliance manager for the Lilly-Alpha alliance. Fishman was instrumental in setting up the governance committees in the early stages, taking the committee members through team-building processes and continuing to serve as a point person for the team members from both companies. A senior scientist at Lilly, who was leading the collaboration, commented on Fishman's role:

> Scott did a very good job in putting together the oversight committees. He communicated to the scientists what the oversight committees' responsibilities were and how they could contact them in case of a problem. We, the scientists, run the teams. We know what to do. But if there is a problem, Scott is the first one we call. When Alpha has not been able to get answers they want from us, they know who to call.

Fishman joined the alliance team when it was hitting one of its lowest points. Within a few months of the launch of the alliance, a drug candidate intended for development failed in its Phase II clinical trials. Fishman recalled:

> This came shortly after the alliance was operational. The Alpha agreement was for two parallel activities: one was for the development of this late stage molecule and the other was for a five-year research agreement that covered a different area, which required Lilly to fund 40 scientists at Alpha. Given the failure of the late stage molecule, Lilly executives in the alliance wanted to cut the funding to the bare minimum what the contract would permit us to. And that was unacceptable to the Alpha team as they felt that it was being done unilaterally. I would say each company was very aggressive about wanting to control things. If they had a joint meeting they would try not to make any decisions — because if you didn't make any decisions each side could then go off and do whatever they wanted to do in the first place. So my role was to engage the different functions that made up the governance structure, get them to start talking.

Over several weeks of facilitating negotiations between the Lilly and the Alpha team, Fishman was instrumental in helping the alliance team to arrive at a solution that was mutually acceptable. He had to play a critical role when the alliance was re-evaluating the work flow distribution. Fishman recalled:

> We had biology-oriented work in which Alpha was strong and chemistry oriented work in which Lilly was strong. However, every aspect of the project was handled by a Lilly scientist and an Alpha scientist — doing everything together. This was creating bottlenecks everywhere. We wanted to keep everyone happy but we also wanted to make sure that we were going to take the best of each team's capabilities and exploit them as best we can. And when we did that, all of a sudden we started to have clinical candidates and we now have more drugs in the clinic.

Fishman was perceived by the partner firm as a "neutral" person. A senior scientist at Alpha commented on Fishman's role in the alliance:

> Scott has been a terrific influence in the alliance. Scott and I spent a lot of time on the phone. Scott is a voice of reason and process. It helps to balance the style of others at the Lilly team. Scott is the kind of person who I could call up and say, "Look, we've got a situation, in chemistry or maybe wherever. We need to talk through this and see how we're going to sort this out." In any alliance, you got to have someone who is diplomatic and uses really good judgment. Scott has a very good understanding, because he's involved in many other alliances.

While there was a sense of appreciation of the role of alliance manager, some executives had reservations about OAM and the alliance manager's role. A senior executive commented:

> They emphasize so much the health of the alliance. What does it benefit to have a healthy alliance that does not pay back to the company? The bottom line is equally important.

By 2004, the Lilly-Alpha alliance had been instrumental in identifying several drug candidates. Lilly had significantly gained in understanding the gene technology. Alpha had benefited financially, and it expected royalties in the future to flow from the drugs discovered using their technology. The executive sponsor of the Alpha alliance at Lilly commented:

> Our collaboration with Alpha has produced an innovative research and drug development platform built on highly validated drug targets. I have the deepest respect for the nuclear receptor expertise of our Alpha colleagues and have no doubt that as a team with Lilly's drug hunters, we will discover and develop important new treatments for patients with unmet medical needs.

Fishman recalled:

> There's the contractual governance, which is what you can read in the contract. But what really brought the collaboration to life was the non-contractual governance. It was those small extra things. It was adding score cards; it was additional venues for research discussions and for coordination of activities. It was a lot of non-contractual things that didn't rewrite the contractual governance but enhanced it.

Lilly-Beta: A Marketing Alliance

Beta Pharmaceuticals was one of the largest pharmaceutical companies in Japan and among the top 15 global pharmaceutical firms, with an array of drugs for ulcers, prostate cancer, hypertension and diabetes. Its U.S. operations were controlled through a wholly owned subsidiary, Beta Pharmaceuticals of North America. Beta had worked with several overseas partners the past few years.

In 1998, Lilly and Beta signed an agreement to co-promote a novel drug for diabetes treatment. Pioneered by Beta, this drug represented a new class of treatment for patients with Type 2 diabetes. Beta wanted to establish a presence in the United States for its diabetes business. Lilly wanted to be in the oral diabetes market to complete its portfolio but had no immediate product in that segment. Lilly had the regulatory and marketing capabilities that Beta lacked in the United States at the time. For Lilly, the alliance promised a positive cash flow, apart from enabling the company to size up the oral diabetes market. The co-promotion agreement to market this drug in the United States with no upfront funding requirement was the first of its kind for Lilly, and was to last for seven years. Lilly and Beta would share the costs and revenues in an agreed manner over the life of the contract. As a part of the agreement, Beta's new U.S. company would co-promote one of Lilly's products until the new product was approved for U.S. marketing by the Food and Drug Administration (FDA).

Michael Ransom, an organic chemist by training and a sales manager at Lilly, was appointed alliance manager for the project. Ransom had worked with Lilly for more than 10 years out of his 23 years in the health care industry and had served in several functional areas, such as diagnostics, health care advertising, business development, and sales and marketing. Seven weeks into the job, after consulting with several senior executives responsible for the alliance at Lilly, Ransom presented to the alliance leaders his recommendations on the governance structure. Ransom, recalled his early involvement:

> The deal wasn't signed until December 1998 in Japan. But for several weeks in August and September of 1998, I spent my time with three Japanese colleagues, who were renting an office space on the north side of Chicago, trying to work out the details of operationalizing the partnership. My job during that period was to put together the basic framework on how we were going to set up our communication network, how we were going to organize our marketing groups, our sales groups and our medical groups. Basically, the four of us were orchestrating all the things needed to get the partnership off the ground.

To everyone's surprise, the drug received rapid review, and was approved and launched within nine months of the date of signing the agreement. However, as the pace of progress picked up, the team soon got into serious differences. While the strategic fit was obvious to both sides, there were real difficulties in operationalizing the alliance. For example, whereas Beta was intent on building its organization, Lilly's team wanted to maximize the sales of the new product. While the former was keen on strategic investments to grow for the long term, the latter was driven by tactical approach to raise immediate revenue prospects. The problem became more acute as the contract demanded expenses to be shared between the two. Also, as the sales picked up, a realization emerged that the revenue projections were underestimated. The budgeting process had to be reworked to allow Beta to pursue its long-term goals without any financial burden to Lilly. Revisions to the contract were needed to get things back on track. A senior executive with Beta who was leading the alliance team remarked on the role of alliance manager:

> Mike is important to the alliance. What is the biggest benefit he brings to table? He provides a one-stop shopping, which is nice, but that is not all. He is very willing to take an objective stance and present both sides of the story no matter who he's talking with. He's certainly a Lilly employee but comes across as what's best for the alliance and not necessarily what's best for Lilly or for Beta. He's provided continuity. We have had three major changes in the leadership here. Continuity is important. He has the history.

Another member of the Beta team commented:

> The whole concept of alliance manager was new to me. Here's this guy from Lilly who kept calling me and sending me stuff. Early on it was a lot, it really was, a guy dedicated to the success of the alliance and I don't think I knew how to leverage him. As the alliance grew and we got our first Voice of Alliance survey results, we had a tangible feedback. Mike helped us to know how we were doing and where we needed to focus for improvement.

Not everyone in the alliance team would agree with the specific contribution of the alliance manager. One executive commented:

> People on line management are responsible for managing the alliance and an alliance manager is someone outside the day-to-day operations. Often he or she comes in without a sense of the cadence (what was going on) and was just not able to represent either side.

Starting with a position of no independent office in 1998, Beta had grown to more than 1,800 employees by 2004, and the drug had reached annual sales of near US$2billion, representing 52 per cent of the U.S. market in its category, far exceeding the initial expectations. It provided a much-needed boost for Lilly to engage its marketing resources at a time when it was recovering from its loss of Prozac patent. Further to the original agreement, Lilly and Beta expanded their co-promotion agreement in 1999 to cover more than 70 countries. In 2003, the two companies also started a co-development agreement to develop and launch one of Lilly's molecules for diabetes complications in Japan. The chair of Beta Pharmaceuticals of North America commented:

> Co-promotions are hard work. I've been through a lot of them. They require a great deal of respect for your partner. We have invested a significant amount of time in building a strong relationship, and in defining a vision and setting values that will guide the alliance. I think that's going to go a long way toward making this a world-class partnership.

In early 2003, Ransom was moved to a new alliance Lilly had with another biotech firm, Delta Inc., to develop another new diabetes drug. Ransom recounted:

> I have seen Beta go from a concept to reality. Lilly and Beta shared a similar vision and commitment to innovation and globalization. My own role has gone through an evolution from business development person to a business-to-business coordinator to alliance manager. Overall, the alliance has served both the partners extremely well. I think it will be a model for future alliances of this kind.

Lilly-Gamma: A Manufacturing Alliance

Gamma Manufacturing was founded as Zycro Products Inc. on August 1, 1955, and by 1999, it had become one of the largest employee-owned companies in the United States. Gamma had operations in 66 separate businesses across 18 countries. Gamma's core business was to design, manufacture and supply plastic parts for corporate customers, such as Dell, Nokia and Lilly. Gamma's top 20 customers made up 85 per cent of its revenue — US$625 million in 2004.

Within Lilly, the Pharmaceutical Delivery Systems (PDS) group focused on the devices needed to deliver the drugs, such as insulin pens used by diabetes patients. PDS did not manufacture its own products, but worked with external vendors, such as Gamma, to develop the drug delivery systems by providing project management, quality oversight and regulatory support. A tight time schedule, stringent FDA regulations and the cost pressure made this a challenging assignment. Gamma had been a supplier to Lilly for more than 20 years, during which time, the deals had grown steadily in size and complexity. In 2000, Lilly and Gamma signed a formal agreement under which multiple product development projects were brought together within the purview of a single strategic alliance. By 2004, there were seven projects underway within this alliance, including one that was located in France.

The design and development was jointly done by the Lilly and Gamma team, and the final production and packaging was done by Gamma at its facilities under close supervision by Lilly. The relationship provided Lilly an avenue to enhance its manufacturing capability, leveraging Gamma's product development expertise on fusing emerging electronics technologies in its design for next-generation drug delivery devices. Increasingly, convenience of use was becoming a key factor in the market, as competitors, such as Novo Nordisk from Denmark, were introducing state-of-the-art electronics in the insulin delivery systems. Dave Haase, a manager at PDS with more than 20 years of experience at Lilly in dealing with vendor relationship management, was appointed as the alliance manager for Gamma. Haase commented:

> By far, PDS is the most heavily leveraged group at Lilly in the manufacturing side, in terms of working through alliances. The other unusual thing about the device business is that the timelines are much shorter than the drug development timelines. From concept to launch it could be 18 to 24 months in the PDS world contrasted to eight years or longer in the pharmaceutical world. So there is a lot of pressure to get to market quickly. Also, these devices typically have shorter product life cycles. We are not working necessarily in a patented environment with 17 years' product life. So, the business is very competitive. It's a whole different world.

When OAM was formed in 1999, Haase was also a founding member of the team, and was assigned the overseeing responsibility for all manufacturing alliances. There were more than 100 manufacturing alliances identified by the OAM, among several hundred vendor relationships that manufacturing worked

with for bulk manufacturing of drugs, pilot set-ups and several other supplier relationships. Haase reported to the director of manufacturing functionally, and to the head of OAM for alliance management related activities. Haase was also instrumental in providing alliance management training to several manufacturing units within Lilly. Given the large number of projects with Gamma, each project had its own manager carrying out part of the alliance manager's function. Haase's role was to provide a central point of contact between Lilly and Gamma. Haase was instrumental in putting together a steering committee, which comprised the leaders of all the projects from both sides and was a part of the governance structure for the alliance. He also had to ensure that broad goals, metrics for measuring achievement of these goals and a framework for periodic review were agreed upon. A senior Lilly executive, who was leading two of the Gamma projects recalled:

> The initial role of the alliance manager was to help us go through the due diligence and set up the contacts and to make sure we were establishing the alliance appropriately. Again working to make sure we've got the organization. After that they backed off a lot and focused more on the high level. Our alliance manager pretty much checked in but left us alone on the project and focused energies more on the steering team, which tried to coordinate the activities of all the Gamma projects. Right now, the only thing the alliance manager does now is get the VOA survey out and try to make us respond to the data that comes back from the voice of the alliance survey.

Given the diversity of the projects with a single client, Haase was instrumental in initiating coordination within the project teams to ensure the relationship delivered results for Lilly and Gamma. A senior executive with responsibility for customer relationships with Lilly at Gamma remarked on Haase's role in the alliance:

> Dave participates in key meetings, but not in every meeting. Actually, he has to be invited to a meeting. Technically, Dave is not the person I go to for a specific issue. He is not the one with the details, and he does not interact on the day-to-day level. For example, sometimes the resin costs may go up and we may have to adjust the price. Dave is not the one we deal with for the contractual issue. But he is the one who pulls people together, makes sure that he gets involved when there is something like this that can be challenging for the relationship. His involvement in a meeting may be very subtle, but he is quite influential in shaping the outcome. He is the champion for us within Lilly.

Although some Gamma executives felt that Lilly had a rigid system that was hindering the alliance team from acting quickly and responding to the needs in a more effective manner, they strongly believed that Haase understood Gamma's positioning and would be helpful to bring their perspective to Lilly's decision makers. They felt that OAM, and Haase in particular, had helped to create an environment of openness, so that issues, when they arose, could be discussed openly and resolved quickly. As of 2004, all the Gamma projects were progressing satisfactorily, and PDS was expected to expand the scope of the alliance in the near future. The relationship with Gamma was significant for Lilly's manufacturing team to bring some of the work flow techniques. Since OAM initially started with a focus on research and commercial alliances, manufacturing alliances were not expected to follow the OAM model completely. There was a general feeling that manufacturing did not adopt alliance management with the same fervor as the research and commercial functions. Some even felt that there was not that much endorsement from the leadership on the manufacturing side. Haase commented:

> PDS has a culture that holds alliances as being important. If you think about how they are structured, they can not afford to ignore their manufacturing partners, so that group has

held a little different attitude toward working with their partners than the other manufacturing groups. PDS is clearly one that endorsed alliances long before we started an alliance group here. So there was less of a need to force the OAM structure into that one. It was just the way they did business.

STRATEGIC ISSUES FOR THE FUTURE

By end of 2004, OAM had grown into a mature organization of 15 members; most of them were experienced alliance managers overseeing most of Lilly's strategic alliances. More than 1,500 employees in Lilly had been trained in the art and science of alliance management. As of December 2004, Lilly had more than 200 strategic alliances in several functional areas. The OAM had been instrumental in establishing a set of procedures and tools to support, monitor and steer alliance strategy at Lilly.

Over the six years since the formation of OAM, Lilly had emerged from being a marginal player to becoming a well-recognized leader in alliance practice. In 2003, Lilly received the Quality Award for alliance management from the Association of Strategic Alliance Professionals (ASAP), an industry association of alliance management professionals in the United States. In 2004, a survey of pharmaceutical companies by Pricewaterhouse-Coopers identified Lilly as one of the top-ranked strategic alliance partners; in the same year, *Forbes* magazine recognized Lilly as one of the top two pharmaceutical partners. Another independent survey of alliance practice by IBM's consulting group judged Lilly to be number one in partnering capability within the pharma biotech community. Lilly's executives were also sought by various industry associations as speakers on alliance-related topics. Despite the leadership position that Lilly played within the industry, there were several issues, three in particular, which were pressing the attention of the senior management within Lilly.

1. Expanding Alliance Scope in Geography and Function

The growing international presence of Lilly was expanding the alliance frontier for Lilly both globally and across the value chain. Lilly had recently entered into alliances with Sankyo, the number-two Japanese pharma, as well as Boehringer Ingelheim, from Germany. Both these alliances required collaboration across the globe in multiple areas of the value chain: research, manufacturing and commercial functions. These developments were creating new demands for OAM capabilities. How could OAM equip the organization for the intercultural skills that were demanded by an increasing number of international alliances? How could it equip the teams to work with organizations from countries that did not have a strong intellectual property regime?

In addition, the rise of dedicated clinical research organizations (CROs) in countries such as India and China was raising the possibility of enhanced offshoring of some of the research services overseas, particularly for pre-clinical trials. Given the corporate expectation of more outsourcing, and the expanding scope of the alliances, there was the question of the role of procurement, with their supplier relationship model (SRM), vis-à-vis the role of OAM. How could procurement take advantage of the tools and processes developed by OAM and avoid overlap and duplication? What role should each play in the management of relationships negotiated by procurement?

Increasingly, overseas subsidiaries were entering into alliance with local players. For example, Lilly Japan had more than 30 alliances in discovery and development and with prospects for more. Lilly India was

managing several partnerships in manufacturing and clinical research. How can OAM disseminate or replicate its expert knowledge base at the affiliates, and what should be its relationship to OAM?

2. Focus: Relationship, Operations or Capability?

OAM had been very successful in creating a strong alliance-oriented culture at the functional level within Lilly. Many within Lilly felt that the company had moved away from a "transaction" era, which emphasized writing good contracts, to a "relational" era, which emphasized alliance health and invested time and attention on managing the relationships. Some were skeptical of the emphasis on alliance health and questioned whether the focus of alliance management should be in collaboration management as opposed to operations management. The "relationship" role by some was seen to be "soft" and not as value-added as "operations" management, which focused on the details of resolving alliance issues (much more project-management-oriented). In truth, the alliance managers operated on a continuum, some days focused more on the relationship side of the continuum, and some days focused more on the operations side. The question was: Should OAM push even more toward the operations end, where some saw more value?

There was also a growing awareness that alliance management was increasingly shifting from relational focus to capability focus, making organizational learning a central issue for alliance management. For example, some had suggested that alliance leaders needed to look beyond the immediate milestone achievement to enhance Lilly's organizational capabilities. Also, given the phenomenal learning about alliance governance that was being gleaned in the implementation, funnelling the experience to the negotiating stage was becoming a topic of interest. It was felt that by providing feedback loops between planning and implementation of the alliance, both areas could be improved. Other than some meetings between the business development and the OAM, there were not many opportunities for such cross-pollination. OAM had been successful in instituting periodic learning reviews for alliance practice, and this could be extended to enhance this learning dimension.

3. Selection, Training and Promotion of Alliance Managers

The final concern was staffing the OAM for the future. It was clear that successful alliance managers needed the skill set of a general manager. They needed cross-functional knowledge with prior operational experience, interpersonal skills, problem-solving skills, active listening skills and the ability to be very good at participatory leadership. It was a challenge to identify and train such people and provide them an attractive career option after their stint with OAM. In a related matter, increasing concern suggested that many of the skill sets of the OAM staff needed to be diffused to the alliance leaders who were directly involved in the alliance. Thus, the human resource dimension of alliance practice also needed to be strengthened.

As Stach reviewed OAM's accomplishments and the strategic issues that needed consideration, it was obvious that the corporation had created a substantive intellectual asset in OAM, which needed both to be kept current and to be exploited to the fullest. The continuing pressure within the pharma/biotechnology industry for innovation with efficiency pointed to the continued proliferation of alliances. Corporate strategists at Lilly expected that the revenue generated through external partnerships, estimated at 11 per cent in 2003, would increase significantly by the end of the decade. Although it was well-accepted within Lilly that alliances were expected to grow in number and in complexity, the issue for OAM was to define

the next frontier for alliance management and be an innovative leader in alliance practice. Stach commented:

> We need to help Lilly to become more flexible and easier to work with for our partners, so that we can extract the highest value from these alliances. We have been successful in helping the alliances anticipate issues and mitigate them. We need to be even more proactive. As we get more opportunities to learn from these alliances, we also have to figure out how to enhance our shared learning capability. Of course, we should be careful not to lose the basics of alliance management: those tools, processes, and people that earned us the favorable reputation that we have.

Exhibit 1

PHARMACEUTICAL MANUFACTURING ASSOCIATION MEMBERSHIP
THE 16 SURVIVING MEMBERS (IN 2003), FROM THE ORIGINAL 42 MEMBERS IN 1988

- Abbott Laboratories
- American Cyanamid
- A.H. Robins (*Wyeth*)
- Astra *(Astra-Zenecca)*
- BASF
- Beecham Laboratories
- Boehringer Ingelheim
- Boots Pharmaceuticals
- Bristol-Myers (*Bristol-Myers Squibb)*
- Carter-Wallace
- Ciba Geigy (*Novartis)*
- Connaught Laboratories
- DuPont Pharmaceuticals
- Fisons Corporations
- G.D. Searle
- Glaxo (*GlaxoSmithKline*)
- Hoechst (*Aventis)*
- Hoffman-LaRoche (*Roche*)
- ICI
- Johnson & Johnson
- Knoll
- Lilly
- Marion Laboratories
- Merck
- Merrell Dow
- Monsanto
- Pfizer
- Pharmacia
- Procter & Gamble
- Rhone Poulenc
- Rorer
- R.P. Scherer
- Roussel
- Sandoz
- Schering-Plough
- SmithKline Beecham
- Squibb
- Sterling Drug
- Upjohn Company
- Warner-Lambert
- Wellcome
- Zeneca

Note 1: Names highlighted correspond to the 16 firms that continued to exist in 2003. Where mergers have created a new name, it is shown in italics. Where two firms in the 1988 list have merged, the surviving company is identified with the alphabetically first appearing company in the list.

Note 2: Mergers for the 1988 PMA List:

1. *American Cyanamid — spun off to American Home Products (1989) later to become Wyeth (1994).*
2. *A.H. Robins later became Wyeth.*
3. *Astra & Zenecca merge to create Astra-Zenecca (1998).*
4. *Beecham merged with Glaxo to become GSK (2000).*
5. *Boots merged with Alliance Unichem to form Alliance Boots (2005) to focus on pharmacy retail.*
6. *Bristol-Myers and Squibb merged to create BMS (1989).*
7. *Carter-Wallace moved out of pharmacy manufacturing.*
8. *Ciba Geigy merged with Sandoz to create Novartis (1996).*
9. *Connaught Laboratories acquired by Aventis (1999).*
10. *DuPont pharma acquired by BMS (2001).*
11. *Fisons acquired by Rhone-Poulenc Rorer which later merged to form Aventis.*
12. *Searle acquired by Monsanto (1985) and later became a part of Pfizer through Pharmacia (2002).*
13. *Hoechst merged with Rhone to create Aventis (1999).*
14. *Hoffman-LaRoche became Roche.*
15. *ICI moved out of pharmaceuticals — spinning off Zenecca (1993), which later merged with Astra.*
16. *Knoll acquired by Abbott (2001).*
17. *Marion acquired by Dow (1989) later merged with BMS.*
18. *Merrell Dow acquired by Hoechst (1995) which later became Aventis.*
19. *Pharmacia acquired by Pfizer (2002).*
20. *R. P.Sherer. amd Rorer, and Roussel merged with Aventis.*
21. *Sterling Drug merged with Eastman Kodak and moved out of Pharmaceuticals.*
22. *Upjohn merged with Pharmacia (1995) and later with Pfizer.*
23. *Warner-Lambert acquired by Pfizer (2000).*
24. *Wellcome merged with Glaxo (2000) and later became GSK.*

Source: Industry Documents.

Exhibit 2

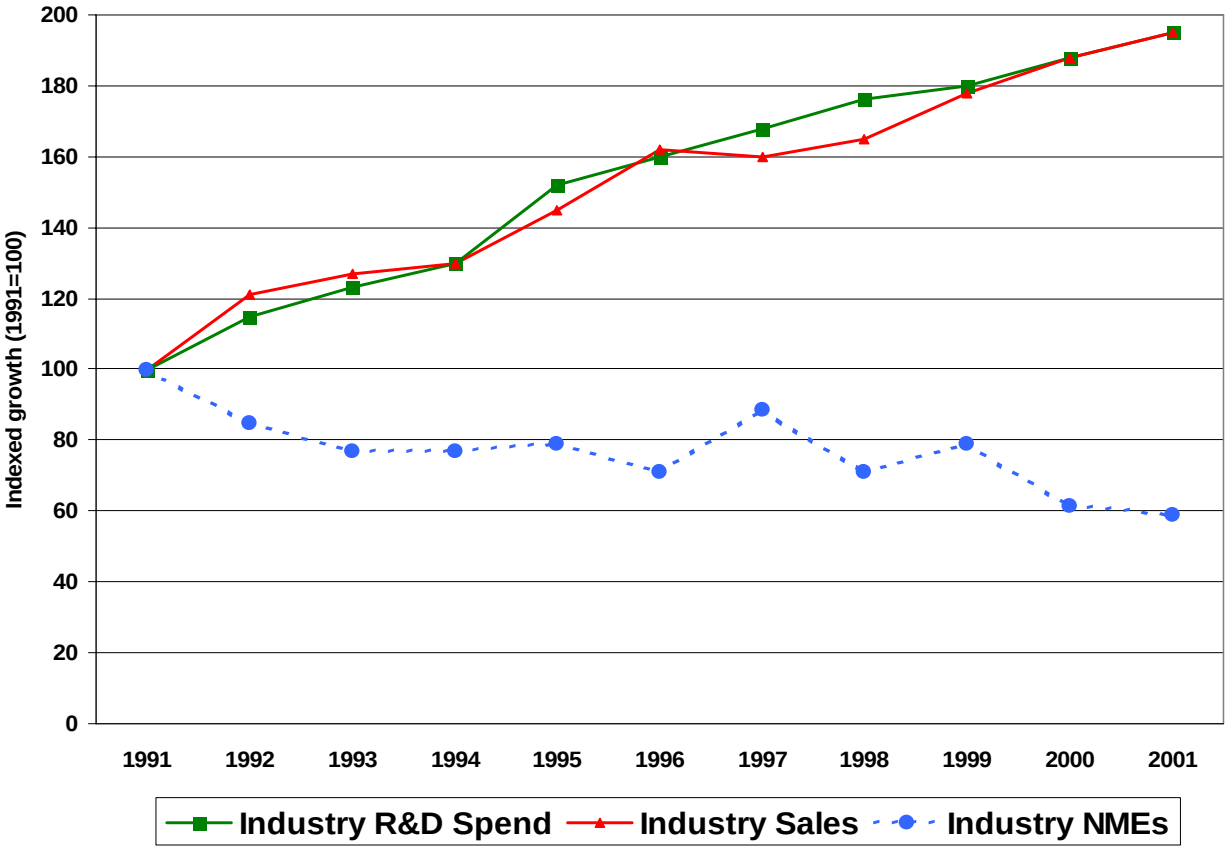
THE WORLD'S TOP 15 PHARMACEUTICAL COMPANIES AND THEIR TOP-SELLING DRUGS

Rank '04 ['03 Rank]	Company & Headquarters	2004 Global Sales [change from 2003]	R&D Expenses (in $billions)	2004 Top Selling Drugs
1[1]	**Pfizer** New York, NY	**$46.133 B** [+16%]	**$7.52 B**	Lipitor $10.862 billion Norvasc $4.463 billion Zoloft $3.361 billion
2[2]	**GlaxoSmithKline** London, England	**$31.377 B** [+5%]	**$5.195 B**	Seretide/Advair $4.503 billion Avandia $2.042 billion Seroxat/Paxil $1.945 billion
3[17/5]	**Sanofi-Aventis** Paris, France	**$30.919 B** [+12%]	**$9.31 B**	Lovenox $2.38 billion Plavix $2.17 billion Allegra $1.87 billion
4[4]	**Johnson & Johnson** New Brunswick, NJ	**$22.128 B** [+13%]	**$5.203 B**	Procrit/Eprex $3.589 billion Risperdal $3.050 billion Remicade $2.145 billion
5[3]	**Merck** Whitehouse Station, NJ	**$21.493 B** [-4%]	**$4.01 B**	Zocor $5.2 billion Fosamax $3.2 billion Cozaar/Hyzaar $2.8 billion
6[6]	**AstraZeneca** London, England	**$21.426 B** [+13.5%]	**3.803 B**	Nexium $3.8 billion Seroquel $2.02 billion Losec/Prilosec $1.94 billion
7[7]	**Novartis** Basel, Switzerland	**$18.497 B** [+2.5%]	**$3.480 B**	Diovan $3.09 billion Gleevec/Glivec $1.634 billion Zometa $1.07 billion
8[8]	**Bristol-Myers Squibb** New York, NY	**$15.482 B** [+4%]	**$2.5 B**	Plavix $3.3 billion Pravachol $2.6 billion Taxol $991 million
9[9]	**Wyeth** Madison, NJ	**$13.964 B** [+10.5%]	**$2.46 B**	Effexor $3.34 billion Protonix $1.59 billion Prevnar $1.05 billion
10[11]	**Abbott Labs** Abbott Park, IL	**$13.756 B** [+11.6%]	**$1.69 B**	Prevacid $1.3 billion [TAP] Biaxin $1.18 billion
11[10]	**Lilly** Indianapolis, IN	**$13.059 B** [+4%]	**$2.69 B**	Zyprexa $4.4 billion
12[12]	**Roche** Basel, Switzerland	**$17.322 B** [+41.5%]	**$5.40 B**	MabThera/Rituxan $4.18 billion
13[15]	**Amgen** Thousand Oaks, CA	**$10.6 B** [+35%]	**$1.996 B**	Epogen $2.6 billion
14[14]	**Boehringer-Ingelheim** Ingelheim, Germany	**$8.698 B** [+8%]	**$1.527 B**	Flomax $912.6 million
15[16]	**Takeda** Osaka, Japan	**$8.274 B** [+12%]	**$1.223 B**	Actos $1.676 billion

Source: Pharmaceutical Executive, www.pharmexec.com, accessed November 30, 2006.

Exhibit 3

TRENDS IN RESEARCH AND DEVELOPMENT SPENDING, SALES AND NEW MOLECULAR ENTITIES (NMEs), 1991–2001



Source: Company documents.

Exhibit 4

IN-LICENSING OF DRUGS BY LARGE PHARMA

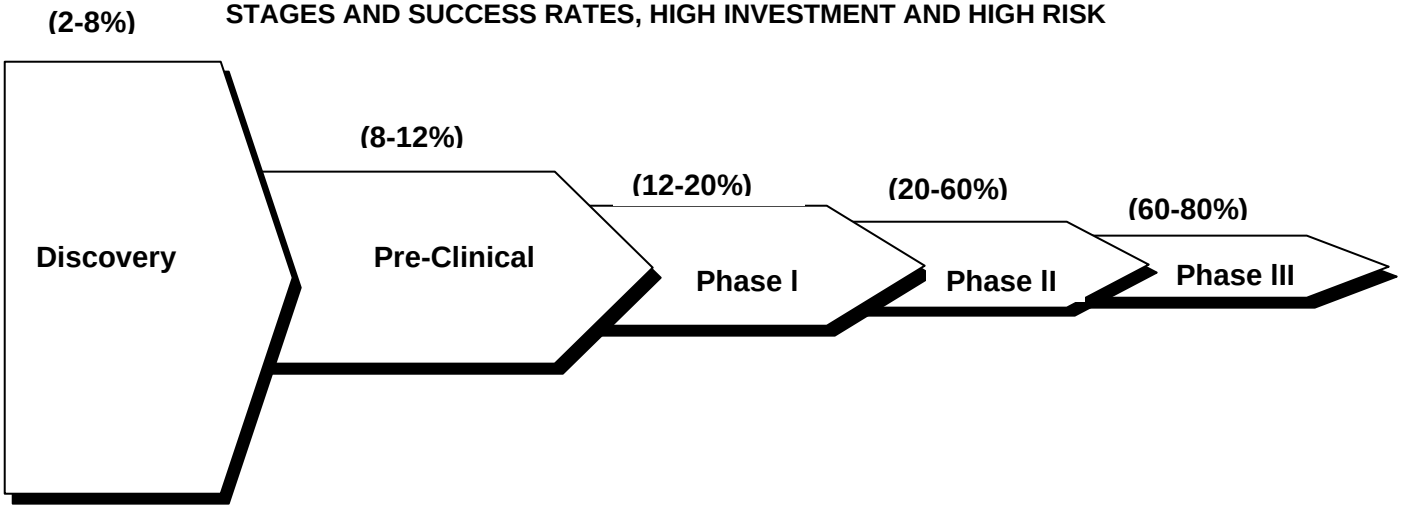
	Total R&D Drugs	Own Drugs	In-Licensing
1 Sanofi-Aventis	221	151	70
2 GlaxoSmithKline	172	105	67
3 Hoffmann-La Roche	140	72	68
4 Johnson & Johnson	117	68	49
5 Merck & Co.	112	71	41
6 Pfizer	112	61	51
7 Novartis	110	61	49
8 AstraZeneca	104	80	24
9 Wyeth	90	62	28
10 Bristol-Myers Squibb	82	38	44
11 Lilly	75	45	30
12 Abbott	66	36	30
13 Schering AG	61	35	26
14 Genzyme	56	37	19
15 Lexicon Genetics	49	49	0
16 Sankyo	48	29	19
17 Takeda	47	21	26
18 Chiron	45	26	19
19 Amgen	45	33	12
20 Akzo Nobel	43	16	17

Notes: "Total R&D Drugs" refers to the total number of active Research and Development (R&D) projects (excluding suspended products), as of February 2005.
"Own Drugs" refers to the number of drugs originating from each company's own research.
"In-Licensing" refers to the number of drugs each company has licensed-in.

Source: http://www.pharmaprojects.com, accessed October 11, 2005.

Exhibit 5

THE TYPICAL PROCESS OF DEVELOPING A DRUG IN THE UNITED STATES: STAGES AND SUCCESS RATES, HIGH INVESTMENT AND HIGH RISK



In general development consists of five main stages. The following illustrate the regulations in the United States, though it is largely a common framework in most countries. More than 75 per cent of the cost of producing new drugs has been attributed to previous development failures.

Discovery: At the discovery stage, disease targets are chosen, lead compounds are identified, and their pharmacological activities and chemical properties are investigated. Optimization of the compound's structure for efficacy, safety, pharmacokinetics and bioavailability is also a large part of the research stage.

Preclinical Drug Discovery: Once a compound has been selected for its positive pharmacological activity, tests of safety, efficacy and metabolism must be performed so there is a better understanding of the final disposition of the drug in humans.

Phase I: An important first stage of clinical trials, Phase I is the first point at which a drug is tested in humans. Phase I clinical trials ascertain the safety of the drug in healthy human volunteers. Administration of the drug — first at very low doses and gradually increasing to doses much greater than the expected therapeutic dose — will help determine its safety profile. The studies take place at medical facilities, with volunteers closely monitored for adverse reactions. If, at the termination of Phase I clinical trials, the drug proves to be well tolerated, the company can move to Phase II clinical testing.

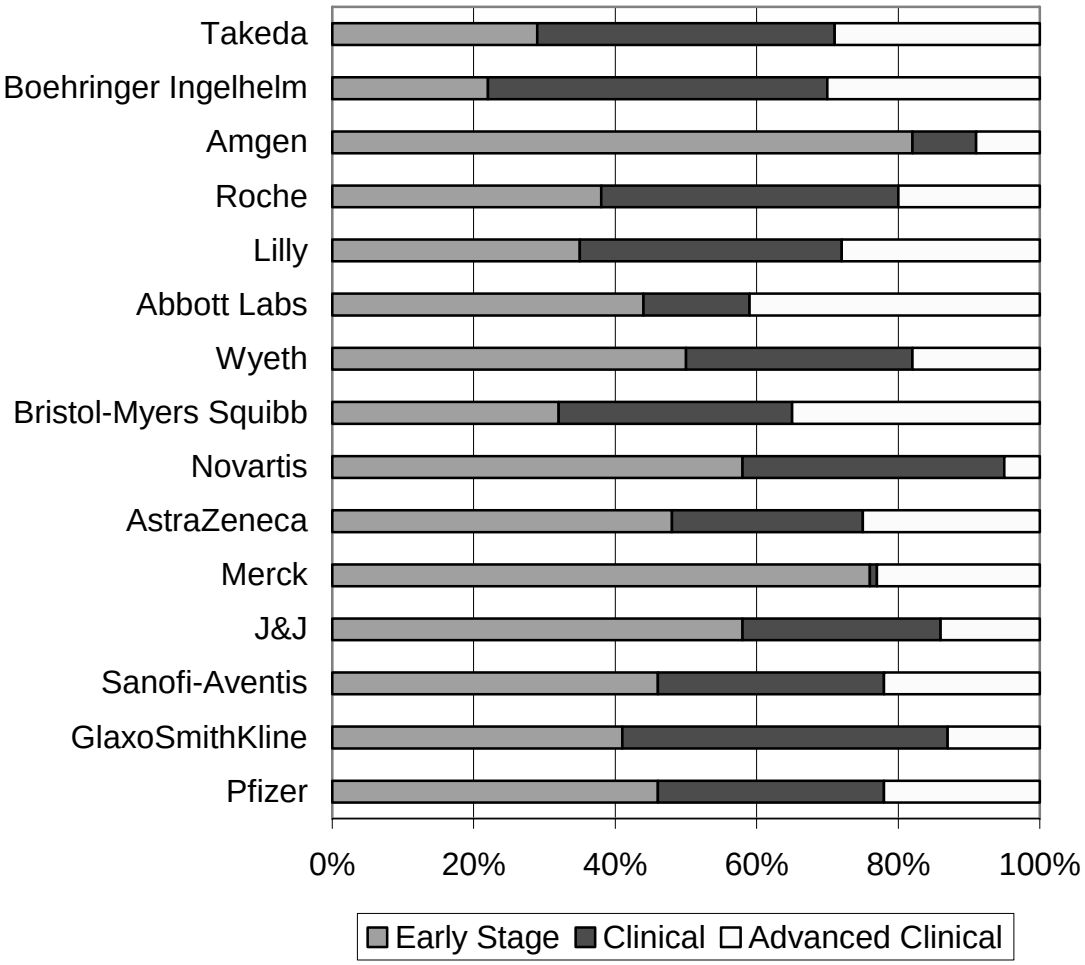
Phase II: In this stage of human clinical trials the drug is administered to patients with the disease. Typically 200 to 300 patients are included in Phase II trials.

Phase III: This stage of human clinical trial is similar to Phase II except that a larger group of patients is used (2,000 to 3,000), with the trials taking place in a multi-center study. A Phase III clinical trial may cost between $30 million and $100 million, and represents an important commitment to bringing the drug to the market. Typically, more than 85 per cent of drugs are successful in Phase III studies. Following a successful Phase III outcome, the company will file a New Drug Application (NDA) to the FDA (comparable regulatory agencies exist in other countries) for approval before the drug can be marketed.

Source: Company Documents.

Exhibit 6

DISTRIBUTION OF ALLIANCE DEALS BY STAGES



Note: The distribution of alliances is based on the count of alliances in each category and does not take into account the absolute value of the deals.

Source: Data from http://www.pharmaprojects.com, accessed August, 2004.

Exhibit 7

LILLY FINANCIALS, 2000–2004
(in US$ million)

	2000	2001	2002	2003	2004
Net sales	10,862	11,542	11,077	12,582	13,859
Foreign sales	3,858	4,178	4,495	5,361	6,189
Research and development expenses	2,019	2,235	2,149	2,350	2,691
Income from continuing operations before taxes and extraordinary items	3,859	3,507	3,458	3,261	2,941
Net income	3,058	2,780	2,707	2,561	1,810
Year end share price[1]	93.6	78.54	63.5	70.33	56.75
Market capitalization	66,709	86,599	89,348	63,970	64.53
Dividends per share [1]	1.06	1.12	1.24	1.36	1.45
Current assets	7,943	6,939	7,804	8,769	12,836
Current liabilities	4,961	5,203	5,063	5,561	7,594
Property and equipment	4,177	4,532	5,293	6,539	7,551
Total assets	14,691	16,434	19,042	21,688	24,867
Long-term debt	2,634	3,132	4,358	4,688	4,492
Shareholder equity	6,047	7,104	8,274	9,765	10,920
Number of employees	35,700	41,100	43,700	45,000	44,500

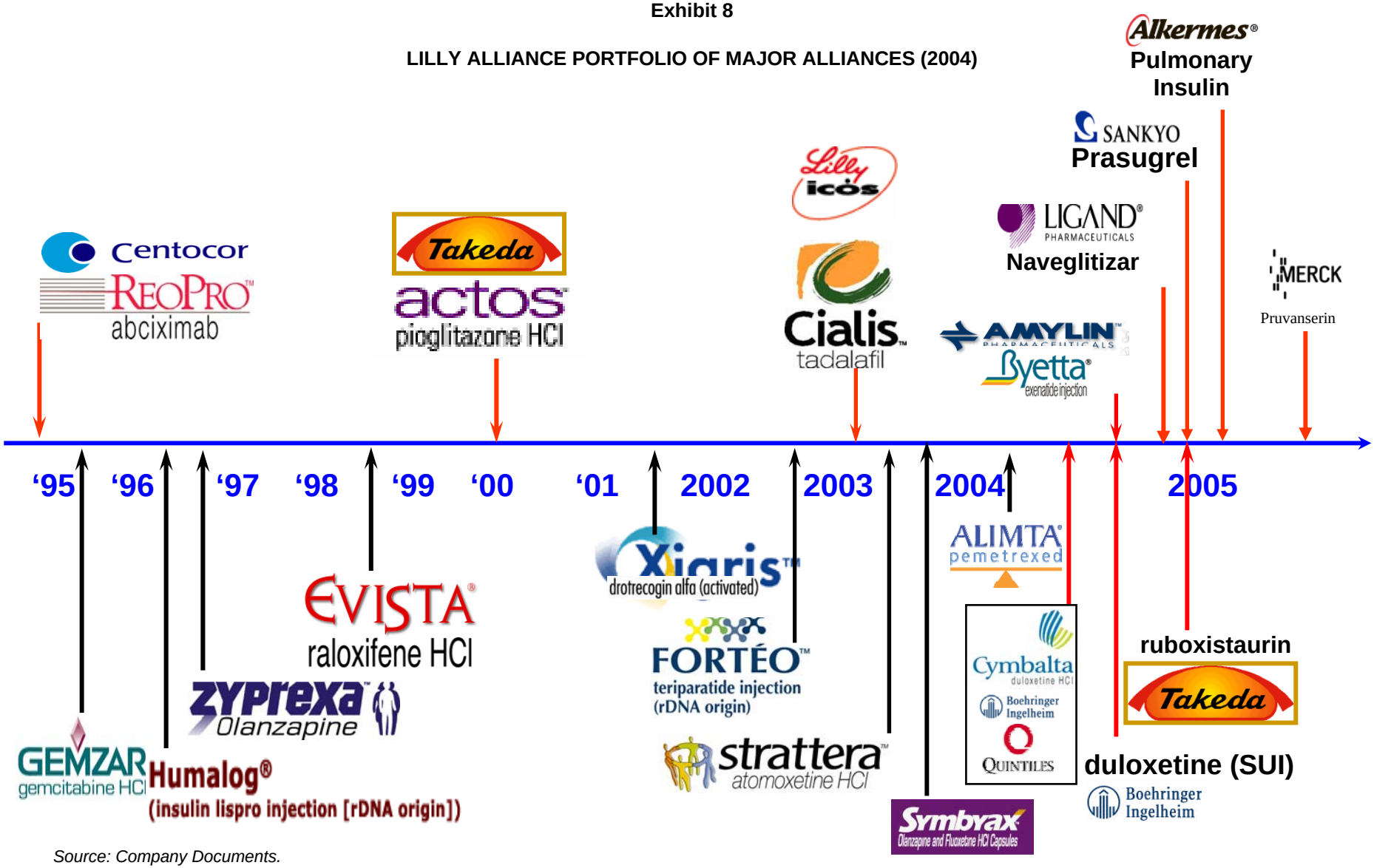
[1]Share price and dividend per share are in US$.

Source: Company Annual Reports.

Market value and share prices sourced from Forbes.com.

Exhibit 8

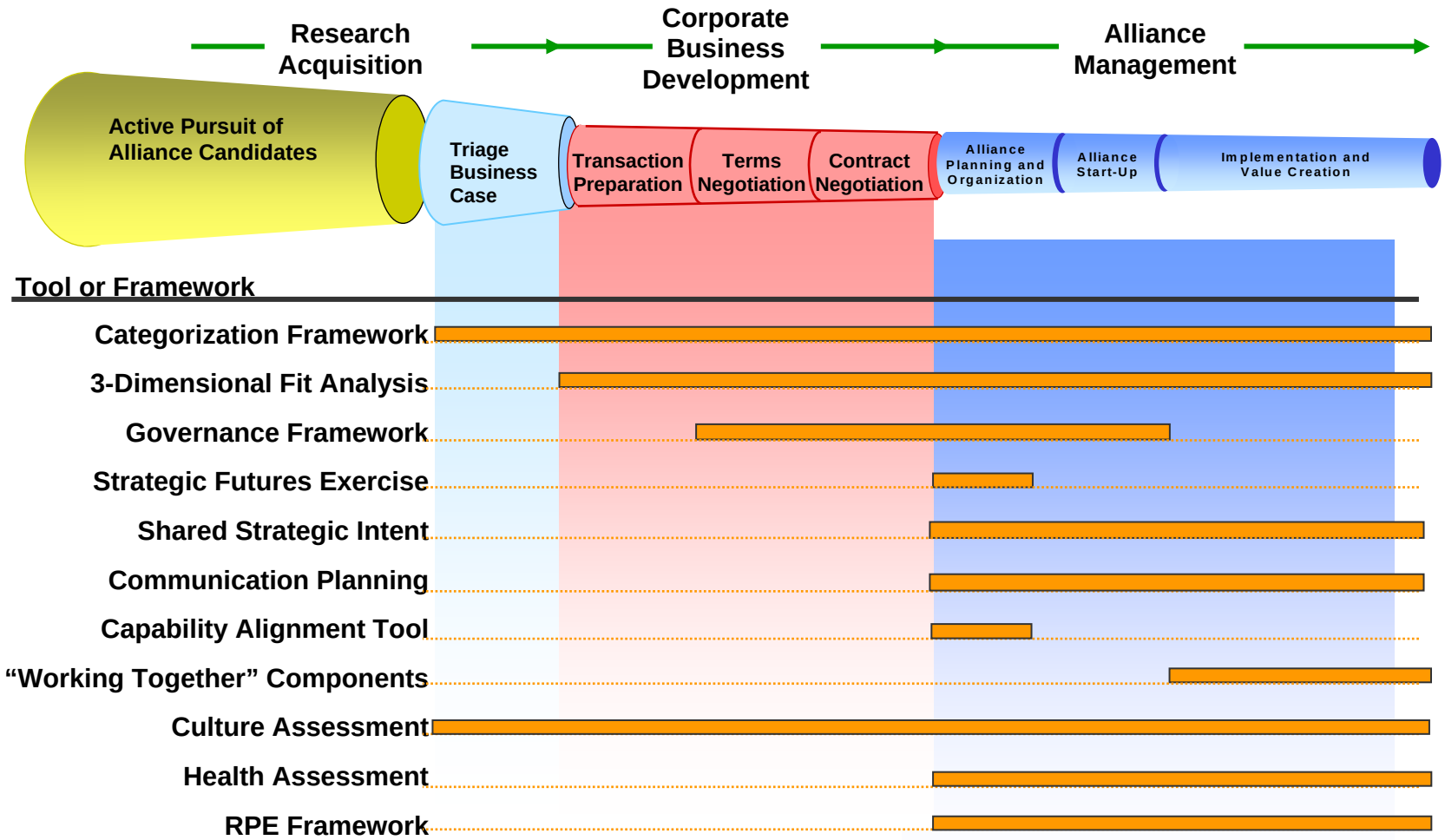
LILLY ALLIANCE PORTFOLIO OF MAJOR ALLIANCES (2004)



Source: Company Documents.

Exhibit 9

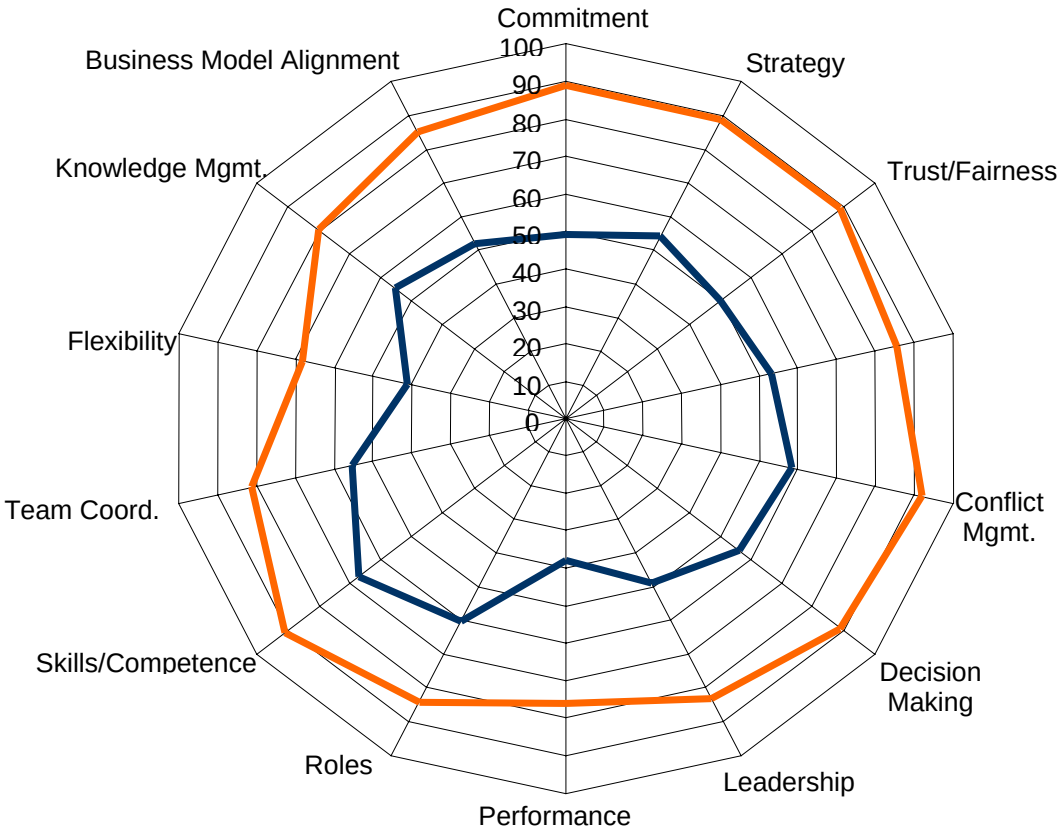
LILLY ALLIANCE MANAGEMENT PROCESS AND RELATED TOOLS (EXAMPLES)



Source: Company Documents.

Exhibit 10

VOICE OF ALLIANCE DATA (EXAMPLE)



Note: Data over 2002 to 2003 for an alliance (X) is shown in the figure.

Source: Company Documents.