

## DOW'S ACQUISITION PROGRAM

*Dr. Koen H. Heimeriks and Dr. Stephen Gates 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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— “If one sheep leaps the ditch, all the rest will follow.”  
English proverb

Dow Chemical Company (Dow), the U.S.-based chemical giant, had been moving from basic to specialized chemicals through merger and acquisitions (M&As). With its \$11.6 billion acquisition of Union Carbide Corporation (UCC) in 1999, Dow started off one of the most challenging acquisition programs in the chemicals industry thus far. Dow's Executive Board called upon one of its most seasoned managers, Randy Croyle, to establish a Program Management Office (PMO). The PMO, later renamed the M&A Technology Center (the Center), was charged with preparing the UCC integration and was subsequently responsible for integrating all of Dow's M&As. To successfully implement this acquisition program, Croyle created an expert team to put together Dow's M&A methodology, which at the end of 2005 consisted of more than 100 codified in-depth integration templates.

As part of the acquisition program, Dow acquired Wolff Walsrode (Wolff) in 2006, a German specialty chemicals firm and part of the Bayer Group. This acquisition, combined with its existing cellulose unit, helped Dow become a significant player in the cellulose industry and strengthened its footprint in Central and Eastern Europe. Once again, Dow's M&A methodology was applied to ensure the firms' smooth integration. While the Dow-Wolff management team's decisions followed the templates, deviations from standard procedures were also made due to the complexity of the project. Dow faced major challenges: it had to decide to what extent and how quickly it should integrate Wolff (a full or partial integration), and how to integrate the part of Wolff's business that did not fit Dow's portfolio.

While Dow announced the acquisition of Wolff on December 18, 2006, the closing of the deal happened in early July 2007. It was late in the afternoon on July 6, the first Friday after closing, when Croyle found himself in doubt. As head of the M&A Technology Center at Dow Chemical, he had just spoken with Bhavik Karia, one of Dow's seasoned managers experienced in M&As, about the acquisition of Wolff Walsrode. From the Center's founding, which coincided with his overseeing the integration of UCC, Croyle had remembered well one sentence in particular: “This will be the most successful integration in our history.” Indeed, the UCC integration was widely acclaimed as one of the most successful integrations

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in the chemicals industry. But while the Center had been successful in integrating UCC and other smaller acquisitions, the question on his mind was whether Wolff would follow suit.

From UCC as well as other acquisitions, Croyle knew well that integration speed was one of the keys to success; besides the need to capture synergies quickly, providing internal reassurance to employees and continued external servicing of customers proved elementary over and over again. However, Karia had just asked for a three-month extension of the Wolff integration planning schedule. Being responsible for IT integration, which was a vastly important aspect in the integration, he told Croyle: "Let's take time to understand what we have acquired before we go in on the first day and start implementing our methodology. While we can deliver the projected cost synergies by putting Wolff Walsrode on Dow's global IT systems and terminating its outsourced IT contracts, we should first evaluate its high-performance manufacturing processes and customer interfaces to see what we might need to adjust." Clearly, they both knew that so far Dow's M&A methodology was central to the success of its integration program. Croyle knew Karia was equally aware of the inherent challenges of acquisition integration and in particular the importance of integration speed. So why would he decide to postpone proven practice this time around?

The integration team had also discovered that a part of Wolff called Probis was functioning as an independent service provider, which could impact synergy potential. During Karia and Croyle's conversation, Karia said, "We should be careful not to overpower Wolff — if we do, we may discard 'a diamond in the rough' called Probis." In spite of a sound strategic rationale, had Dow potentially overestimated the synergy potential with Wolff? Since every deal is different, what level of integration should Dow aim for and what parts of Dow's acquisition methodology should it use this time around?

## THE CHEMICALS INDUSTRY

The chemicals industry had been dubbed "the industry of industries." Its U.S. segment had recorded large trade surpluses and as of 2006 employed more than half a million people. Chemicals were among the largest industrial sectors in the European Union, especially in Germany, representing two-thirds of the manufacturing trade surplus and accounting for 12 per cent of manufacturing's added value. The largest chemicals companies included BASF, Dow, Shell, Bayer, INEOS, ExxonMobil, DuPont, SABIC and Mitsubishi (see Exhibit 1).

The chemicals industry had enjoyed rapid growth for more than 50 years. Historically, the chemicals industry was concentrated in three areas of the world: Western Europe, North America and Japan (the Triad). The European Union remained the largest producer area.

Halfway into the first decade of the new millennium, the traditional dominance of chemicals production by the Triad countries, however, was being challenged by changes in feedstock availability and price, labor and energy costs, differential rates of economic growth and environmental pressures. Burgeoning demand in Asia, particularly in China and India, was resulting in more chemicals being produced there locally. Middle Eastern chemicals producers able to leverage their own natural resources had also benefited from this spike in demand.

Moreover, as of 2007, the volatility in financial markets and the credit crunch started to seriously affect the chemicals industry, slicing its margins and leaving capacity underutilized. How badly businesses were hit depended on their position in the chain, with producers of bulk chemicals suffering more acutely than specialty chemicals companies.

One way to defend against the slowdown was to follow the M&A path, which was pursued by Dow as well as other incumbents. With the number of deals having grown progressively since 2000, chemicals companies marked a record for M&As in terms of deal size in 2006. To increase their size and to move into safer areas, companies took advantage of the economic environment to make major changes in their portfolios and ownership structures. They sold off various divisions to narrow the spectrum of their business, hoping to gain some protection (see Exhibit 2). Also, incumbents sold off or relocated part of their bulk activities to local markets by establishing large joint ventures with local investors in China and India.

### The Specialty Chemicals Segment

The global specialty chemicals segment<sup>1</sup> grew by 8.9 per cent over the 2001-2005 period and was forecast to grow by a further 28.9 per cent in 2005-2010. With an anticipated compound annual growth rate of 5.2 per cent over the 2005-2010 period, the market was expected to be worth \$744 billion by the end of 2010. The chemicals industry in general, however, was expected to grow by about two per cent in the Triad countries between 2005 and 2015. China was predicted to have the fastest-growing chemicals industry at a rate of more than 10 per cent.<sup>2</sup>

Though Europe still commanded the largest share of the market, growth in demand for specialty chemicals had been declining across the region. Whereas in 2005 Europe was still leading, with a 34.5 per cent share, Asia-Pacific's share (27.5 per cent) was expected to increase due to the rapidly growing specialty chemicals market in China, which analysts predicted would become increasingly important for future revenue.

The specialty chemicals market was highly fragmented. The market leader, Tokyo-based Shin-Etsu, commanded only 1.6 per cent of the market. The U.S. chemicals giant Rohm & Haas, which was acquired by Dow in 2009 as part of its acquisition program,<sup>3</sup> followed Shin-Etsu and accounted for another 1.2 per cent. More than 95 per cent of the global specialty chemicals market consisted of players with market shares well below those figures. Given the highly fragmented market, the major players favored consolidation to boost sales; growth initiatives came from M&As and product differentiation. Many companies maintained broad product portfolios to insulate against fluctuating demand.

### DOW AND ITS ACQUISITION PROGRAM

With more than \$49 billion in annual sales and more than 42,000 employees worldwide in 2006, Dow was vying with Germany's BASF to be the largest global company in the \$1.6 trillion chemicals industry. Founded in 1897 in Midland, Michigan, Dow manufactured and sold chemicals, plastics, specialized products and services to customers in more than 175 countries, spanning the food, transportation, health and medicine, personal and home care and construction end markets.<sup>4</sup> The company's vision, developed in 2005, was to be "the largest, most profitable, and most respected chemical company in the world."<sup>5</sup> In 2007, the company reported annual sales of \$53.5 billion and a net profit of \$2.9 billion.

<sup>1</sup> Specialty chemicals are used in the manufacture of a wide variety of products including final chemicals, specialty paints and inks, and others. The market is calculated using the revenues of companies in the high value-added chemicals sectors.

<sup>2</sup> "The Global Chemical Industry: US, China and global status and opportunities, 2015," American Chemical Society, <http://mooreconomics.com/Chem%20Industry%20Opportunities%20in%20China.pdf>.

<sup>3</sup> The \$15.3 billion deal makes it Dow's and the industry's biggest acquisition to date.

<sup>4</sup> Annual Report 2003, The Dow Chemical Company, 2003.

<sup>5</sup> Annual Report 2005, The Dow Chemical Company, 2005.

Dow's business segments consisted of the feedstock-driven Basics businesses and the market-driven Performance businesses. Implementing the company's vision, the company sought to draw a greater proportion of its earnings from its Performance businesses as these represented higher margins and less earnings volatility (see Exhibits 3A, 3B, and 3C). More specifically, Dow aimed to expand its Performance businesses through organic growth and bolt-on acquisitions, while pursuing an "asset light" strategy in its Basics businesses through joint ventures.<sup>6</sup> Furthermore, the company's portfolio management approach involved the shutdown of under-utilized and non-competitive facilities as well as the divestiture of interests in underperforming and non-strategic businesses. Supported by the various joint ventures formed, acquisitions were thus a key part of Dow's growth strategy.

And indeed, Dow's acquisition program was vast. Between 1999 and 2006, it made more than 30 acquisitions. In addition, it oversaw some 50 joint ventures around the globe (see Exhibit 4).<sup>7</sup> Whereas the joint ventures predominantly served to relocate several of its basic chemicals activities, many of Dow's recent acquisitions were aimed at a swift and directed move into specialty chemicals. It claimed that it had pursued acquisitions only if they made financial and strategic sense. Dow had defined a set of key criteria for acquisition candidates. First, the target companies had to fit Dow's strategy to be a performance- or market-facing company. Second, any acquisition had to be accretive to earnings by the end of its second year of operation. Third, Dow would measure any potential acquisition against the yardstick of a share buyback and the long-term value it represented to stockholders.<sup>8</sup> The acquisition proposal for Wolff Walsrode met all three of these criteria.

### The M&A Technology Center

A major event in Dow's history that Croyle remembered well was the acquisition of UCC in 2001. In August 1999, Croyle was called into the office of Dow's executive vice-president. "Randy," he said, "we would like you to head up the PMO." Croyle said, "What is the PMO?" "The Program Management Office." "What's a Program Management Office?" "Randy, I don't have a clue, but we talked to some consultants and they said we need one." The founding of the PMO turned out to be essential to Dow's acquisition program. It marked the starting point of the PMO and made Croyle engage in more than 100 interviews and plenty of travel to inventory best practices on acquisitions. The \$11.6 billion acquisition of UCC was the largest acquisition Dow had ever undertaken. Given UCC's size and importance to Dow's future, the investment in creating a PMO to distill Dow's memory of best practices in M&A was justified. Moreover, the PMO investment proved highly successful: Dow achieved savings of \$1.2 billion in the first 18 months after closing the deal. According to Dow, this was largely due to its elaborate integration planning efforts and speedy implementation.

The focus on speed and full integration arose out of the vast deal in large part because UCC was a basic chemicals producer. Reducing excess capacity proved critical to delivering projected synergies. Now that many of the future acquisitions would be in the specialty chemicals segment, where integrating proprietary technologies and accommodating customers' specifications were important value drivers of successfully integrating an acquisition, the decisions about speed and level of acquisition integration became more nuanced.

The initial PMO team consisted of Croyle and two other senior managers; all of them had been with Dow for 20 to 25 years at the time. An office professional joined the team shortly after. In addition, the PMO

<sup>6</sup> *Annual Report 2006, The Dow Chemical Company, 2006.*

<sup>7</sup> "Dow and the Art of Joint Venture," *www.thedeal.com*, April 15, 2006.

<sup>8</sup> *Annual Report 2007, The Dow Chemical Company, 2007.*

brought in several functional experts, such as from human resources, environment, health and safety, information systems, and supply chain, to lead the development of the function-specific integration plans.

Croyle and his team developed Dow's integration methodology more or less from scratch. Even though Dow had engaged in more than 200 acquisitions and JVs since the early 1980s,<sup>9</sup> little to no documentation of this experience had been kept. As a first step, the PMO decided to gather the integration-related knowledge that existed within Dow. Croyle spent a lot of time talking with various leaders, whether they were business unit leaders or functional leaders — there were bits and pieces of knowledge all over the place. Besides the large number of internal interviews, the team also went out and talked to a number of companies who had just gone through integration. For example, the team talked to the Daimler Chrysler people who shared with it what not to do, which was just as important as finding out exactly what to do.

The tasks and responsibilities of the PMO evolved after its establishment. The initial focus was on acquisitions, especially the integration of acquired companies. By 2004/2005, its area of expertise evolved to include the due diligence phase. By 2007/2008, it was also increasingly involved in the transaction phase. Besides acquisitions, Croyle and his team started working on JVs in 2002 when the PMO was renamed the M&A Technology Center. In 2004/2005, they also got involved in divestitures and plant shutdowns (see Exhibit 4).

The Center not only concentrated Dow's M&A knowledge but also transferred it as needed within the company. Croyle and his team developed a standard methodology for managing the due diligence and implementation stages of acquisitions (see Exhibits 5A and 5B). This way, a repeatable process was used to ensure that no issues would remain unresolved or overlooked in the various phases.

Depending on the complexity of the acquisition, the Center was typically involved from six to nine months prior to the announcement until three to six months after the closing. Early in the acquisition process, the Center worked with the transaction team from the corporate financial M&A group, advising it on integration issues that could affect the valuation of the target firm. The Center then led the due diligence and implementation phases regarding all functions and businesses involved in the transaction. For example, it kept track of due diligence best practices and ensured that due diligence teams were properly trained. It also developed implementation plans, established synergy tracking, and ensured flawless execution in the first 100 days. After the integration, the Center monitored implementation for another two years and maintained an archive of lessons learned to update Dow's M&A methodology. During the course of an acquisition, Center-staff members reported to senior management on a quarterly basis using many different dashboards (see Exhibit 6).

## **THE ACQUISITION OF WOLFF WALSRODE**

On December 18, 2006, Dow announced its intent to acquire Wolff Walsrode, part of Bayer AG. Croyle was meditating on how to integrate Wolff even before the deal was closed. "Since Dow and Wolff are complementary," he thought, "we can bring different products, processes, applications and expertise together. This way we can preserve the best elements of both businesses — customer focus, technologies, processes, people, etc." However, he also knew that Dow was a large multinational with globally standardized IT and work systems aimed at generating tremendous efficiencies. Would Dow be able to adjust to new types of customers expecting close attention to their ever-changing requirements? This tension raised some doubts in the M&A Tech Center as to whether Wolff should be completely integrated as quickly as possible or rather partially integrated over a longer time period.

<sup>9</sup> Thomson Financial, 2008a, *Securities Datastream Corporation*, accessed May 26, 2008.

Croyle believed the strategic rationale for acquiring and integrating Wolff was crucial to determine how fully it should be integrated and how quickly. By combining Wolff Walsrode with Dow's cellulose business unit, Dow Wolff Cellulosics would become the number one player in this market segment with the advantages that implies, namely, greater purchasing power over suppliers and pricing power with customers. Moreover, Wolff Walsrode had proprietary technology and leading manufacturing processes that Dow could adopt. Finally, Wolff could open doors to new customers in regulated markets and in Eastern and Central Europe. Only when the entire M&A team understood and agreed on it, could it collaborate and move ahead in line with the strategy. Using Dow's M&A methodology, Croyle drew up the outline of a strategic rationale "white paper" for his colleagues at the Center to discuss (see Exhibit 7). When they were done, he would show the "white paper" to all functional and business leaders at Dow and let them make additions.

The deal was closed on July 1, 2007, at a purchase price of \$731.41 million (€540 million), including debt and pension commitments.<sup>10</sup> This made it a medium-sized acquisition for Dow. Bayer — which had been disposing of its chemicals assets as part of its strategy to focus on pharmaceuticals and healthcare<sup>11</sup> — said it would use the cash to pay down debt. Dow, for its part, planned to combine Wolff with its water-soluble polymers business to create a new specialty business in the cellulose industry. The two companies were combined to form a new business unit within Dow — Dow Wolff Cellulosics — with annual sales of around \$1.1 billion and approximately 2,200 employees. Dow's Martin Sonntag was appointed the general manager of the new company. He stressed, "We are a new industry leader built on the foundation of two great companies, thereby creating something truly new."

Dow Water Soluble Polymers (DWSP) had a smaller headcount than Wolff — 700 employees before the merger, compared with Wolff's 1,500 employees. However, it had higher annual sales — \$650 million, compared with Wolff's \$500 million (see Exhibit 8 for Wolff's financial information). At the same time, Dow was much more international than its partner. DWSP's 700 employees were based at 14 sites worldwide, whereas Wolff had only two principal sites in Germany, one in Poland and one in the United States.<sup>12</sup>

## THE INTEGRATION OF WOLFF WALSRODE

Just before the integration phase began, Croyle received an email from Karia who, being one of Dow's seasoned managers, was currently in charge of IT integration.

Dear Randy,

I have been discussing the integration plan with my team. To achieve the synergy commitment of US\$6 million per year, we need to make sure that the integration will go smoothly so no additional costs will be incurred through glitches along the way. Does the Center have any advice for us? We wish to learn, for example, what went well with previous integrations, what the key lessons are, and what methods are indispensable.

Best,  
Bhavik

<sup>10</sup> "Dow Chemical Buys Wolff Walsrode" (Tearsheet), Thomson Financial, 2008b, accessed via [www.thomson.com](http://www.thomson.com).

<sup>11</sup> S. Davoudi, "Dow Buys Wolff Walsrode," *Financial Times*, July 3, 2007.

<sup>12</sup> "Dow to Acquire Wolff Walsrode from Bayer; Acquisition Underscores Dow's Commitment to Performance Business; Will Create US\$1 billion Water Soluble Polymers Business for Dow," PR Newswire, December 18, 2006, available at <http://global.factiva.com>.

Croyle replied promptly:

Dear Bhavik,

I'm happy to share my experience. From our most successful M&A ever, the UCC acquisition, I learned that integration speed is a key to success. Speed helps capture synergies quickly, so both employees and customers are reassured that nothing went wrong with Dow. At the same time, we should stick to the agreed synergy level, i.e., a full integration of the IT systems. I can recommend a variety of methods to help you achieve a smooth integration.

1. Set up an implementation steering team. After integration projects are launched, the team will ensure that they stay within budget and deliver expected value.
2. Hold joint planning sessions with Wolff. Managers and experts from both companies can sit down and discuss organizational and cultural issues.
3. Set implementation milestones. After setting milestones, you can track progress with the IBM M&A accelerator.
4. Make a Day One checklist to ensure a smooth transition on the first day.
5. Devise performance metrics to monitor progress on a regular basis.

Also, the Center can put IT integration files, tools, and templates on the Intranet so you have easy access at any time. We can also provide trainings to the whole group or on a one-to-one basis. However, keep in mind one thing: each deal is different and you'll probably have to draw on some of the other tools in our M&A methodology to make this work.

Hope this is helpful. Let me know if you need more assistance.

Best,

Randy

Karia took Croyle's advice seriously and complied with the standard methodology to a high degree. In his opinion, it didn't matter what those templates and tools looked like. Having that operating discipline — to have a plan, to abide by the milestones, and to communicate regularly — was a key aspect of Dow's acquisition methodology that the Center brought to the table. Having been involved in acquisition before, Karia knew that following Dow's M&A methodology also meant that acquired firms were put on Dow's IT system as soon as possible to ensure alignment of work processes.

However, despite the comprehensive tools, templates and documents developed by the M&A Tech Center to guide integration step by step, Karia understood that every acquisition was different; specifics needed to be accounted for. He and his team had a lot of interaction with Wolff during the integration phase and received much more detailed information than in the due diligence phase. "We have surprises," he remarked, "good or bad. And we have to decide how we are going to achieve the synergies we have committed to." So, besides some of the written or codified mechanisms, he pondered what other tacit mechanisms to use to ensure the "surprises" in the Wolff deal could be dealt with.

The greatest challenge that Karia was facing concerned the level of integration. On the one hand, the main synergy potential was identified with full IT integration. On the other hand, Dow wanted to preserve Wolff's autonomy to some degree in order to keep the firm's valuable best practices and regulated customers. In the end, Dow made quite a few deviations from standard procedures. For example, one deviation concerned the level of integration. Unlike Dow's cellulose customers, many of Wolff Walsrode's customers operated in regulated markets that placed specific requirements on how they could purchase products and services. Wolff's interaction with its regulated customers imposed certain

organization structure constraints that had to be respected. In essence, the question was whether it would be possible to fully integrate the back-office and purchasing activities, but leave intact some of the customer-facing activities that could not be fully integrated into Dow's global platforms.

Moreover, Karia thought that the standard set-up of the implementation team might be altered to respond to Wolff's regional specifics in Germany, Poland and the United States. He knew that regional sub-teams could be formed to better understand the different IT systems (e.g. procedures to enter orders differed between the United States and Germany) and to decide on an appropriate integration strategy.

The speed of integration was another issue he knew required special attention. Wolff Walsrode's manufacturing processes were leading edge: it integrated manufacturing and IT systems very tightly, which allowed for quick responses to customers' requests. Dow could learn from Wolff's high level of automation, and transfer this process technology to other business units. On the other hand, Wolff was accustomed to operating on a stand-alone basis, and outsourced some of its IT needs to IT service providers. Dow could generate major cost savings (\$5 million annual reduction) by leveraging its global IT systems into Wolff Walsrode, and terminating the contracts with the IT service providers. However, if Dow were to integrate Wolff rapidly, there might be a risk of disturbing the integrity of the leading-edge automated manufacturing processes.

While some deviations were easy to make, like keeping the Wolff name (Dow Wolff Cellulosics because Wolff Walsrode employees were very proud of the name from a cultural standpoint), others proved more difficult. Since they had not been not involved in due diligence, Karia and his team made a surprising discovery: Wolff included a company called Probis. Even though Dow knew of Probis before the acquisition, it did not know Probis's work process or how it was related to clients. Located in the industrial park in Germany where Wolff had its main facilities, Probis provided numerous services (environmental, especially water treatment and energy; procurement; maintenance; and technical) not only to Wolff but also to other companies in the park. As a chemicals company, Dow was highly sensitive to its environmental impact so Probis's environmental services were an important consideration. Probis employed 320 people (20 per cent) of Wolff Walsrode's total headcount of 1,500. It was profitable, and operated like any independent service provider. Yet, such a business model was completely foreign to Dow.

Karia explained, "In our setup, we receive an internal work order for maintenance that describes what work has to be done; then it may get into a local system and we have limited tracking of all the detailed activities around what happens to that work order, how the work gets done, the materials and labor charges tied to that work order, and of course, we do not have internal invoices. In the Probis scenario, they treat every work order equally, whether it is from Dow or an external company. They capture all the information and perform all activities — keeping time for each employee who works on that order, the work process, materials used, all the financial stuff including issuing invoices, etc."

Karia would need to find a completely new IT system to solve all the problems. Such a system did not exist anywhere at Dow and would cost a couple of million dollars — it would certainly be too expensive. However, in his role as chief information officer for this business unit, Karia should leverage Dow's global information systems to avoid developing costly local solutions. "What to do? Shall we leave Probis as is, integrate it or sell it?" Karia asked himself. The Center recommended full integration of Wolff, but Karia wondered whether that was optimal. He needed time to think through this crucial issue.

### The “Chill Period”

The initial integration timeline was July 1, 2007, to April 1, 2008 — the standard nine-month stretch for integrating a medium-sized company. Karia, however, for practical reasons, did not want to start all integration projects immediately — the summer was vacation time in Europe and too few people were on duty. Though Americans usually take very little time off from work, Germans consider their summer holiday sacrosanct. So he proposed to launch none of the integration projects before October 2007. Instead, he wanted to take advantage of the period from July through September to carry out various cross-functional assessments to understand Wolff’s business model, organization and work processes, and compare them with those of Dow.

As the recently appointed CEO of the newly created Dow Wolff Cellulosics, Martin Sonntag was responsible for bottom-line results. After consultation with his business implementation leader, he accepted Karia’s argument for a three-month assessment period despite the PMO’s recommendation to deliver on large cost synergies as quickly as possible. Though Dow was a function-driven company, its business unit leaders rather than the Center decided on integration plans and the execution of those plans. Karia called the assessment period a “chill period” and thought, “Let’s take time to understand what we have acquired before we go in on Day One and start implementing our global standard work processes and business solutions.”

During the “chill period,” when the two companies exchanged information, they also identified gaps between each other’s way of working and discussed how to fix them. “I never present to them only the good things because I never come across any company where everything is perfect,” Karia said. “There are always issues. If those issues are brought to the table, you can jointly work on them and make sure you don’t miss any.”

Through intense interaction that summer, Karia got the Wolff staff to cooperate — they started to work with him instead of against him. The two companies got to know each other better and resolved typical change management issues, for example, resistance to new ways of working. Karia’s decision to take time to understand Probis’s business before recommending what to do also helped the change management process. Karia recalled, “We listened to Wolff, and agreed that Dow did not have a good solution for Probis so it would be kept for the time being.” As a result, Wolff employees became more open to new solutions and grew more globally oriented as part of an American multinational. Nevertheless, the 20 per cent of Wolff employees working in Probis were left in limbo.

The Wolff project was one of the first integrations Karia undertook where Dow spent a considerable amount of time early on to understand the business operations, ways of doing things, and what the acquired company was doing well. The “chill period,” however, seemed to clash with the “speedy integration” Croyle recommended. Karia met resistance inside Dow. The main objection was that the three-month “chill period” represented a considerable “delay” of the overall integration and therefore of the moment when the new company would start contributing to the synergies — both cost and growth. Yet, since cost synergies can be delivered quickly and are under management’s control while growth synergies develop over time and depend more on customers, the pressure to deliver on the cost synergy value driver was constant and required strong counter-arguments.

Karia explained to Croyle and others who disagreed: “If we say on Day One that we go ahead integrating the project, problems hidden in the project will occur during implementation. The thing is that we already made the decision that we would fully integrate. The implementation team will find some obstacles further

down the line that impact the overall planning. And it likely means we have to alter our original timeline and incur additional costs.”

To some people, however, this argument was unconvincing. The speed of integration execution meant everything to them. Moreover, Dow had a wealth of M&A experience and since the integration would take place anyway, why not kick-start it earlier than later? Dow attributed one of its most successful acquisitions — the acquisition of UCC — largely to a speedy integration implementation.

## CONCLUSION

Pondering these issues, Croyle was still in doubt about what was best. Was Karia’s argument for a “chill period” cogent? Would it not stall the integration process — speed was critical, right? If a “chill period” was necessary, should it be applied on a larger scale (not only IT) and be part of the methodology guideline for future acquisitions? In the Wolff integration, what would be the optimal synergy level? And what would be the best solution for Probis?

Clearly, Croyle was convinced that the M&A methodology was the key to Dow’s success in integration management. Thinking back on the achievements with the integration of UCC, he thought: “Wolff is clearly a smaller acquisition, but what’s the best way to success this time round?” And then, he had so many other acquisitions and JVs to worry about — what other ways were there to make Wolff follow the earlier success stories? For one thing, the right tools and templates should be drawn from Dow’s acquisition methodology to make Wolff follow suit with the UCC deal. But what decisions needed to be taken for the M&A Tech Center to pull off another successful acquisition?

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## Exhibit 1

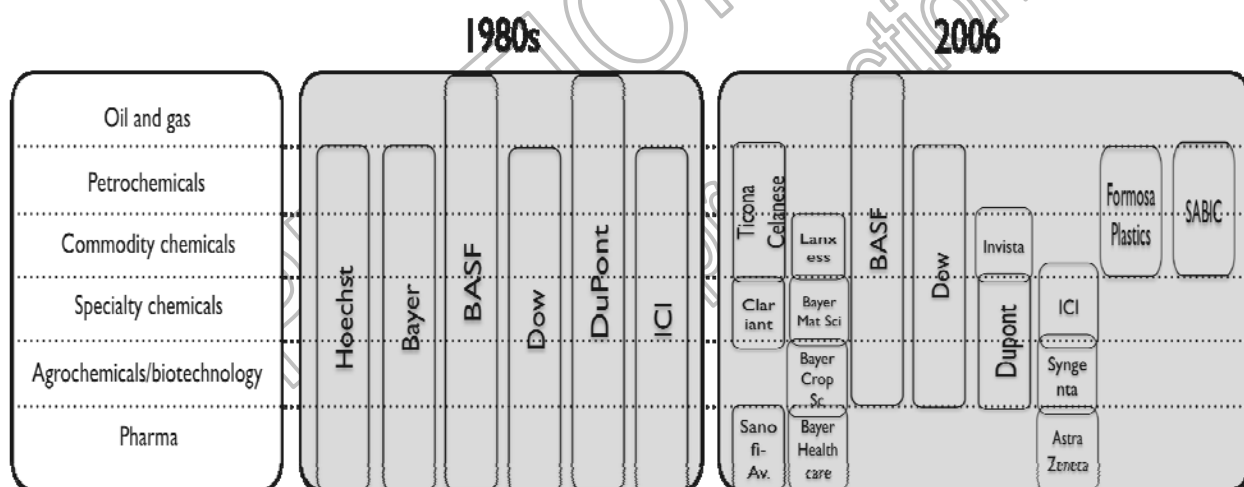
## GLOBAL TOP 10 CHEMICALS COMPANIES 2005-2006

Rank 2006	Rank 2005	Company	Chemical Sales (\$m) 2006	Change from 2005 (%)	Chemical Sales as % of total sales	Headquarters country
1	2	BASF	49,516	12	75	Germany
2	1	Dow Chemical	49,124	6	100	U.S.
3	3	Royal Dutch Shell	36,306	4	11	U.K./Netherlands
4	4	ExxonMobil	34,098	9	9	U.S.
5	17	Ineos Group	33,366	169	100	U.K.
6	5	DuPont	28,928	3	100	U.S.
7	7	China Petroleum & Chemical	27,783	32	21	China
8	5	Total	24,012	-14	12	France
9	11	Formosa Plastics Group	21,012	13	60	Taiwan
10	8	Bayer	19,926	-4	55	Germany

Source: *Financial Times*, 2007.

## Exhibit 2

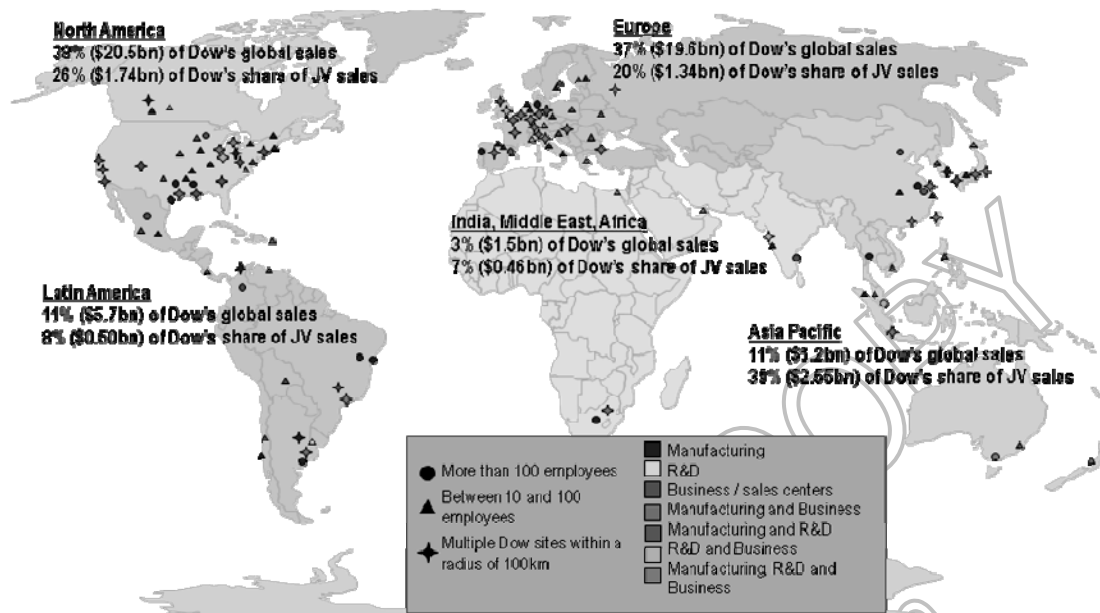
## STRATEGIC EVOLUTION OF CHEMICALS FIRMS



Source: "BASF and the Chemicals Industry," *Economist*, November 2, 2006.

Exhibit 3A

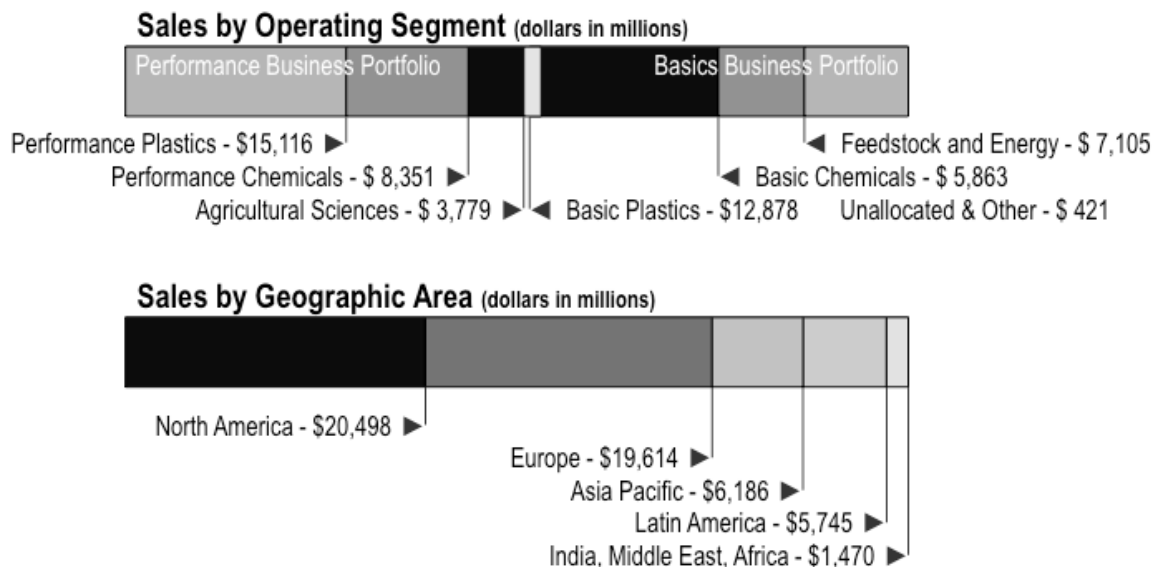
DOW'S WORLDWIDE ACTIVITIES



Source: Dow Chemical company documents.

Exhibit 3B

DOW'S OVERALL PERFORMANCE, 2007



Source: Dow Chemical company documents.

## Exhibit 3C

## DOW CHEMICAL PERFORMANCE BY SEGMENT, 2003-2007

(in \$ millions)		2007	2006	2005	2004	2003
<b>Performance</b>						
<b>Performance Plastics</b>						
Net sales		15,116	13,944	11,388	9,493	7,770
	Annual growth rate (%)	8.41	22.44	19.96	22.18	N/A
	Per cent of total sales (%)	28.25	28.39	24.59	23.64	23.81
EBIT		1,390	1,629	2,507	1,075	719
	Annual growth rate (%)	-14.67	-35.02	133.2	49.51	N/A
	Per cent of total Ebit (%)	13.43	14.29	16.74	10.45	13.13
<b>Performance Chemicals</b>						
Net sales		8,351	7,867	7,713	6,667	5,552
	Annual growth rate (%)	6.15	2	15.69	20.08	N/A
	Per cent of total sales (%)	15.61	16.01	16.66	16.6	17.01
EBIT		949	1,242	1,435	720	756
	Annual growth rate (%)	-23.59	-13.45	99.31	-4.76	N/A
	Per cent of total Ebit (%)	9.17	10.89	9.58	7	13.8
<b>Agricultural Sciences</b>						
Net sales		3,779	3,399	3,364	3,368	3,008
	Annual growth rate (%)	11.18	1.04	-0.12	11.97	N/A
	Per cent of total sales (%)	7.06	6.92	7.26	8.39	9.22
EBIT		467	415	543	586	441
	Annual growth rate (%)	12.53	-23.57	-7.34	32.88	N/A
	Per cent of total Ebit (%)	4.51	3.64	3.63	5.69	8.05
<b>Total Performance</b>						
Net sales		27,246	25,210	22,465	19,528	16,330
	Annual growth rate (%)	8.08	12.22	15.04	19.58	N/A
	Per cent of total sales (%)	50.91	51.32	48.51	48.62	50.04
EBIT		2,806	3,286	4,485	2,381	1,916
	Annual growth rate (%)	-14.61	-26.73	88.37	24.27	N/A
	Per cent of total Ebit (%)	27.1	28.82	29.95	23.14	34.98
<b>Basics</b>						
<b>Plastics</b>						
Net sales		12,878	11,833	11,815	10,041	7,760
	Annual growth rate (%)	8.83	0.15	17.67	29.39	N/A
	Per cent of total sales (%)	24.07	24.09	25.51	25	23.78
EBIT		2,006	2,022	2,398	1,714	658
	Annual growth rate (%)	-0.79	-15.68	39.91	160.5	N/A
	Per cent of total Ebit (%)	19.38	17.74	16.01	16.66	12.01

## Exhibit 3C (continued)

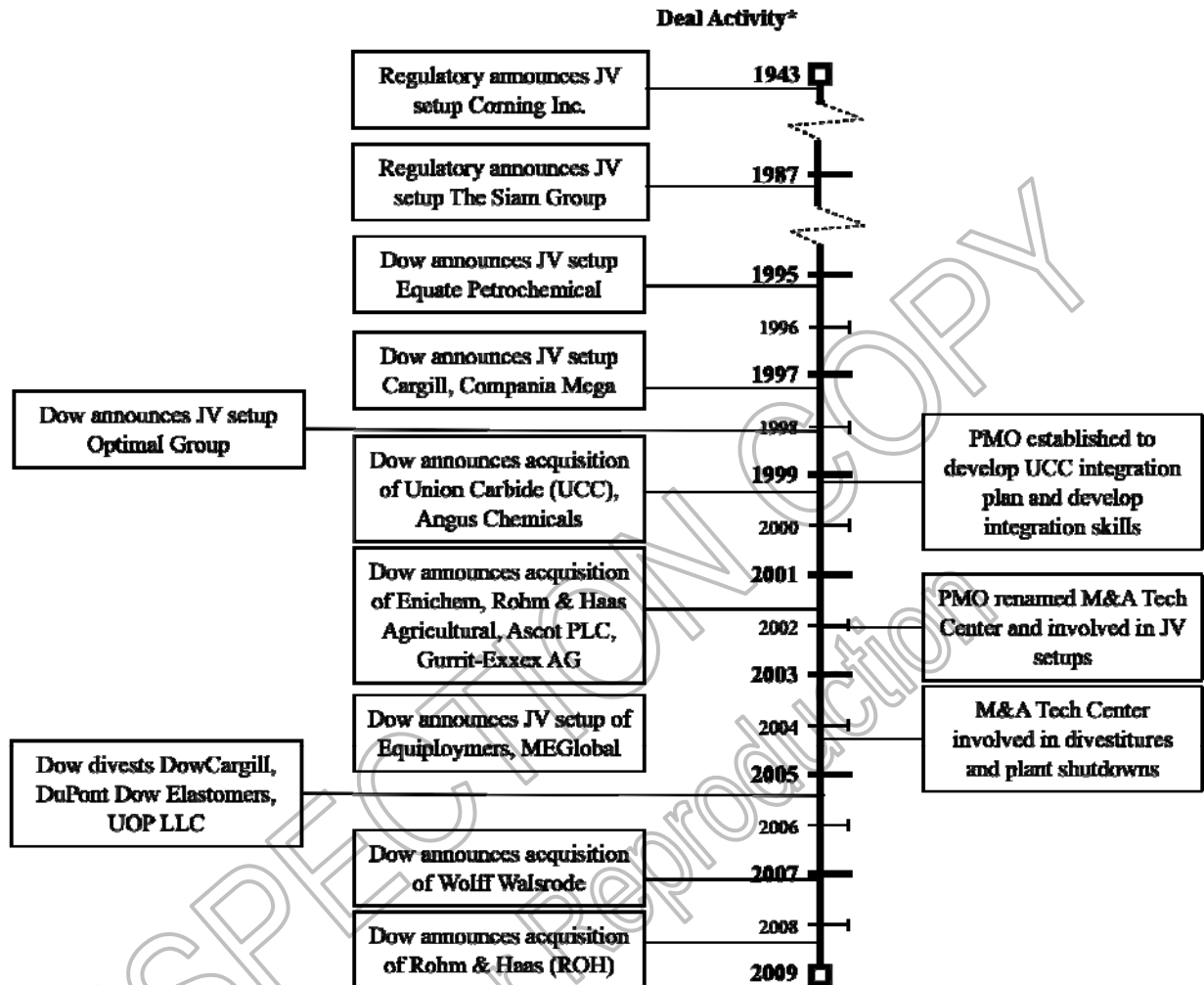
<b>Chemicals</b>					
Net sales	5,863	5,560	5,660	5,454	4,369
Annual growth rate (%)	5.45	-1.77	3.78	24.83	N/A
Per cent of total sales (%)	10.96	11.32	12.22	13.58	13.39
EBIT	813	689	1,129	1,600	334
Annual growth rate (%)	18	-38.97	-29.44	379.04	N/A
Per cent of total Ebit (%)	7.85	6.04	7.54	15.55	6.1
<b>Hydrocarbons and Energy [a]</b>					
Net sales	7,105	6,205	6,061	4,876	3,820
Annual growth rate (%)	14.5	2.38	24.3	27.64	N/A
Per cent of total sales (%)	13.28	12.63	13.09	12.14	11.71
<b>Total Basics</b>					
Net sales	25,846	23,598	23,536	20,371	15,949
Annual growth rate (%)	9.53	0.26	15.54	27.73	N/A
Per cent of total sales (%)	48.3	48.04	50.83	50.72	48.88
EBIT	2,819	2,711	3,527	3,314	992
Annual growth rate (%)	3.98	-23.14	6.43	234.07	N/A
Per cent of total Ebit (%)	27.23	23.78	23.55	32.21	18.11
<b>Unallocated and Other</b>					
Net sales	421	316	306	262	353
Annual growth rate (%)	33.23	3.27	16.79	-25.78	N/A
Per cent of total sales (%)	0.79	0.64	0.66	0.65	1.08
EBIT	-897	-594	-1048	-1100	-339
Annual growth rate (%)	51.01	-43.32	-4.73	224.48	N/A
Per cent of total Ebit (%)	-8.66	-5.21	-7	-10.69	-6.19
<b>Total Segments</b>					
Total net sales	53,513	49,124	46,307	40,161	32,632
Annual growth rate (%)	8.93	6.08	15.3	23.07	N/A
Total Ebit	10,353	11,400	14,976	10,290	5,477
Annual growth rate (%)	-9.18	-23.88	45.54	87.88	N/A

Note: [a] The Hydrocarbons and Energy business transfers materials to Dow's derivative businesses at cost, which results in EBIT that is at or near break-even.

Source: Compiled from The Dow Chemical Company Annual Reports 2003-2007.

Exhibit 4

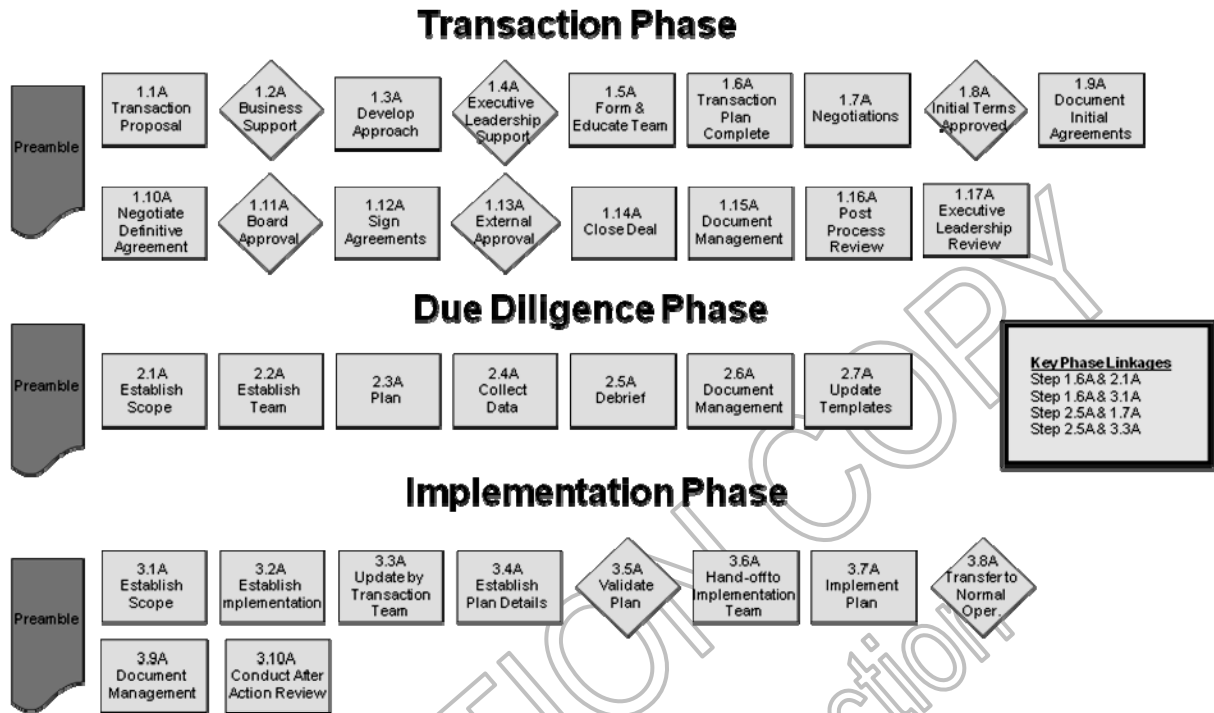
TIMELINE OF DOW'S MAJOR M&A AND JV ACTIVITIES



Note: Only a few of the large deals are depicted. In total, Dow acquired more than 200 firms in the period of 1983-2009.  
 Source: Interview data and archival data.

Exhibit 5A

DOW'S ACQUISITION PROCESS DIAGRAM



Source: Dow Chemical company documents.

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## Exhibit 5B

**DETAILED EXCERPT OF DOW'S ACQUISITION METHODOLOGY  
(Description of Acquisition Integration Mechanisms)**

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**Function and staffing mechanisms**

Dedicated M&A function	"M&A Technology Center": 4 project managers, 12 M&A Focal Points with dual line reporting; additional staff as needed. Leads the due diligence and implementation stages.
Functional M&A Focal Points	An individual identified by the executive responsible for a particular function to act as the M&A reference person for that function. Dual reporting, i.e., to functional executive and to M&A Technology Center director. Responsible for usage, improvement of function-specific M&A mechanisms. Train, guide functional leaders from the sponsoring business. Coordinate in detail DD and implementation phases in their function. Forecast, manage the demand of resources for M&A activities.
Functional M&A Resource Centers	Exist for HR, IS, EH&S (4 people). Subset of the M&A Technology Center. Continuity across deal stages and deals. Build the function's M&A methodology.
Financial M&A department	"Corporate financial M&A," small group of individuals with finance and treasury backgrounds, reports to the CFO. Leads the transaction stage of an acquisition.
Implementation steering team	Makes the higher-level integration decisions; people from the DD team stay on the implementation steering team, have responsibility for the implementation, provide consulting and input to implementation team.
Deal-specific PMO	A program management office is established for each acquisition.
Deal-specific PMO leader	A project manager from the Center is assigned to each acquisition.
Business implementation leader	Manager from the sponsoring business responsible for the integration.
Functional implementation leader	Implementation leader for a specific function, from the sponsoring business, sits on the cross-functional implementation team.
Cross-functional due diligence team	Made up of all functional due diligence leaders; serves to identify and manage cross-functional dependencies.
Cross-functional implementation team	Made up of all functional implementation leaders; serves to identify and manage cross-functional dependencies.
Clean Teams	Used for large acquisitions. Made up of external consultants, Dow and target retirees. They get access to confidential information during the regulatory review process to identify synergy opportunities. The detail of their analysis and recommendations is not released until Day One. This gives Dow a jump start on synergy capture.

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**Tacit transfer mechanisms**

One-on-one coaching	Provided by the Center project managers to the sponsoring business VP: establishing expectations for acquisition, e.g., assisting with creating White Paper.
Functional trainings	Training sessions for individual functions on implementation planning, provided by M&A Focal Points.
Training sessions on mechanisms usage	For example, Center project managers and M&A Focal Points have provided training on the use of a new project management tool.
Due diligence kick-off meeting	Hand-off from transaction team to due diligence team, transfer of findings/knowledge including business goals, expected synergies, etc.
Due diligence debrief meeting	Meeting of 10-15 people of the due diligence team, review of the DD findings with the DD team and the transaction team (e.g. show stoppers).
Implementation kick-off meeting	2-day boot camp/workshop, participants are Dow employees, any external hired by Dow; takes place well in advance of Day One, after due diligence, when there is a good likelihood that deal will happen. Hand-off from due diligence team to implementation team, sharing potential implementation issues discovered during the DD phase for each function; review of value drivers; explanation of generic implementation plans by function, customization of plans according to value drivers; discussion of interface issues, prioritization between functions; boot camp helps team understand, execute M&A methodology.
Joint business planning sessions	Formal exchanges and sessions between functions of both companies.
Cross-team meetings	Meetings between Dow teams and the target's teams; serve to discuss and resolve integration issues; also an informal way of identifying cultural differences between firms.

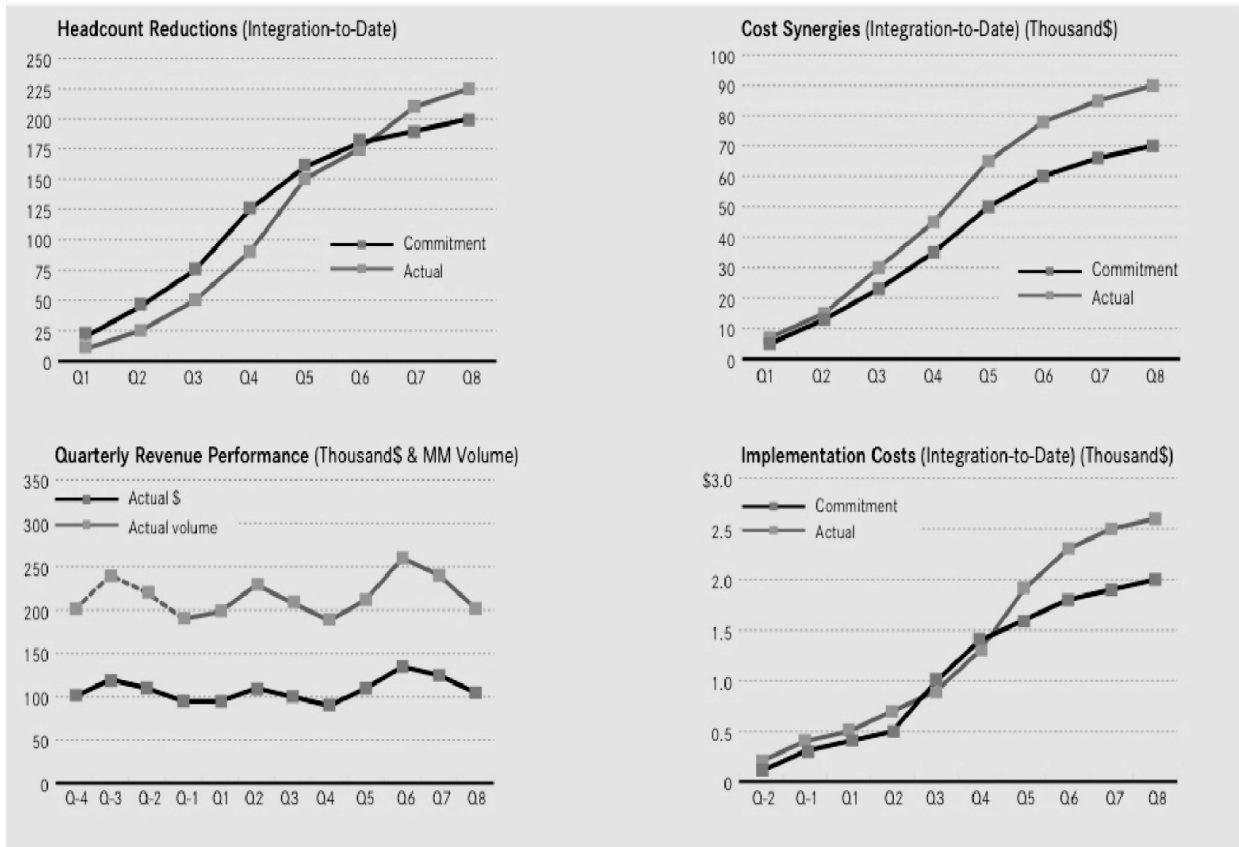
## Exhibit 5B (continued)

Codification mechanisms	
M&A intranet website	Provides access to all templates, documents, tools, contact persons, etc.; 80-90% of the M&A-related knowledge base is available to any Dow employee.
White Paper template	Word document with generic questions on: key financials, project description, business unit strategy, strategic rationale of acquisition, deal landscape, value impact, risks, implementation strategy, critical dates. When complete, this document is presented to the executive leadership to be approved; completed White Papers of past acquisitions are available upon request from the Center to businesses considering an acquisition.
Acquisition Process Summary	A PowerPoint presentation to educate business VPs. Used in Center's personal coaching sessions. Contains details on acquisition process, team structure, negotiation, due diligence, implementation, and evaluation.
Acquisition Timeline	Excel document. Shows all activities that have to occur in the entire acquisition process. Used in Center's personal coaching sessions.
Acquisition manual	"Strategic Guidance Document": A reference document mainly for business unit managers, especially for those new to M&As. Includes all processes, templates, mechanisms; pitfalls in acquisitions, capabilities needed, critical issues. Currently under preparation by the Center.
Implementation Steps	An area on the M&A intranet website with details on the implementation process. Each step is divided in sub-steps, each sub-step has a number of activities, each activity has a description, key tasks, key learnings, and a link to tools and templates.
Key Implementation Drivers	PowerPoint document. Eight key implementation drivers. One of the first documents used to educate the business unit leader considering an acquisition.
Implementation Leader Skills and Responsibilities	PowerPoint document. Directed at the business VP to help select the implementation leader. Used in Center's personal coaching sessions.
M&A-specific project management tool	IBM M&A Accelerator: Project management tool licensed from IBM. During DD stage used to track the status of the deal, issues, timing, probability of the deal happening. During implementation stage used to capture implementation plans and monitor their execution. Each functional team inputs its implementation plan with key tasks, key milestones, i.e., two top levels of the more detailed functional implementation plans. The Center tracks all key milestones, issues, tasks.
Corporate due diligence checklist	Master template for due diligence. 24-page Word document.
Function-specific due diligence checklists and questionnaires	Generic checklists and questionnaires with key items for each function. Are tailored to each acquisition according to the value drivers, deal specifics.
Site Profile template	Used during integration planning to gather information on the acquired firm's individual sites.
Due diligence report summary template	Collects key due diligence findings of all functions that need to be passed back to the transaction team for the team to determine whether it wants to go forward with the acquisition and at what price.
Functional due diligence report out template	Used to summarize due diligence findings. Focuses on deal breakers, synergy impacts, implementation impacts. Completed by each function. Preparation for the DD debrief session.
Opportunity Analysis, Value Assessment document (IS)	IS-specific document, incorporates the due diligence findings, documents scope, size, location, details needed to launch the implementation.
Functional implementation strategy template	Identification and documentation of the functional strategy for the integration; a template with a number of items to address; serves to share functional implementation strategy with other functions and identify cross-functional dependencies.
Function-specific generic implementation plans	Show activity by time period. Introduced to functional teams at implementation kick-off meeting, then customized to particular acquisition. Each function has around 100 activities.
Implementation milestones	Milestones are identified in each functional implementation plan; the major ones are monitored by the Center.
Performance metrics	4 to 6 metrics for each acquisition, defined according to business intent and value drivers, tracked for 8 quarters post-close via "Acquisition Dashboards." Mandatory metrics are EH&S performance and cash flow. Dashboard is published and sent to executive management by the Center's director every quarter, including a commentary by the Center's director.
Synergy identification and tracking templates	Dow has fairly strict guidelines, rules for synergy identification and tracking. Regular synergy roll-ups are done before and after closing (large deals: 3 times pre-close, twice post-close; smaller deals: one pre-close and one post-close).
Synergy tracking system	"MAIMS" (mergers and acquisitions implementation management system), a tool developed in-house to track synergies.

Source: Dow Chemical company documents.

Exhibit 6

EXAMPLES OF IMPLEMENTATION DASHBOARD FOR ACQUISITIONS



Source: Dow Chemical company documents.

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Exhibit 7

OUTLINE STRATEGIC RATIONALE “WHITE PAPER”

Given the rising worldwide demand for cellulose (products derived from cellulose, a natural raw material), Dow Chemical seeks to grow its existing cellulose business through the acquisition of Wolff Walsrode, a similar-sized business unit in Germany that belongs to Bayer.

Dow advances the following reasons for acquiring Wolff:

\_\_\_\_\_  
\_\_\_\_\_

The integration strategy is to preserve the best elements of the two businesses. Dow's strengths are innovative chemicals for many applications — commodities, petroleum, agriculture, and health care, while Wolff holds strong positions in construction applications in Europe. Key applications of cellulose include construction materials, personal care, pharmaceuticals, food and industrial applications.

Dow determines the following value drivers for the acquisition:

\_\_\_\_\_  
\_\_\_\_\_

However, risks should not be overlooked. Dow identifies the following risks in the Wolff acquisition:

\_\_\_\_\_  
\_\_\_\_\_

Source: Simplified from Dow Chemical company documents.

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## Exhibit 8

## WOLFF WALSRODE FINANCIAL INFORMATION

Table 1: Wolff Walsrode results for years ending 2005 and 2006

(in Ü million)	2005	2006
<b>Net sales</b>	<b>329</b>	<b>334</b>
Cost of goods sold	-225	-233
Selling expenses	-42	-45
Research and development expenses	-8	-8
General administration expenses	-20	-19
Other operating income (expenses) - net	2	11
<b>Operating result (EBIT)</b>	<b>36</b>	<b>40</b>
Non-operating result	-3	-7
<b>Income (loss) before income taxes</b>	<b>33</b>	<b>33</b>
Income taxes	-13	-13
<b>Income (loss) after taxes</b>	<b>20</b>	<b>20</b>
of which:		
Current income (loss) before taxes	33	33
Income taxes	-13	-13
<b>Current income (loss) after taxes</b>	<b>20</b>	<b>20</b>
Income (loss) from the sale before taxes	-	-
Income taxes	-	-
<b>Income (loss) from the sale after taxes</b>	<b>-</b>	<b>-</b>

Source: Bayer Annual Report, 2006.

## Exhibit 8 (continued)

Table 2: Wolff Walsrode balance sheet as of December 31, 2006

(in € million)	2006
<b>Noncurrent assets</b>	<b>214</b>
Goodwill and other intangible assets	8
Property, plant and equipment	194
Other noncurrent assets	2
Deferred taxes	10
<b>Current assets</b>	<b>122</b>
Inventories	61
Trade accounts receivable	53
Other current assets	8
<b>Total assets</b>	<b>336</b>
<b>Noncurrent liabilities</b>	<b>115</b>
Provisions for pensions and other post-employment benefits	89
Other provisions	7
Financial liabilities	-
Other noncurrent liabilities	-
Deferred taxes	19
<b>Current liabilities</b>	<b>43</b>
Other provisions	11
Financial liabilities	8
Trade accounts payable	16
Other current liabilities	8
<b>Total liabilities</b>	<b>158</b>

Source: Bayer Annual Report 2006.

Table 3: Wolff Walsrode performance 2002-2006

(in € million)	2002	2003	2004	2005	2006
<b>Net sales</b>	<b>230</b>	<b>323</b>	<b>328</b>	<b>329</b>	<b>334</b>
% change	N/A	40.4	1.5	0.3	1.5
<b>Operating result</b>	<b>N/A</b>	<b>N/A</b>	<b>40</b>	<b>36</b>	<b>40</b>
<b>Net income (loss)</b>	<b>N/A</b>	<b>N/A</b>	<b>20</b>	<b>20</b>	<b>20</b>

Sources: Bayer Annual Report, 2003, 2004 and 2005, and Form 20-F, 2005 and 2006. All available at [www.bayer.com](http://www.bayer.com).

## Exhibit 9

## DOW'S PMO PERSONNEL

Name	Function	Title	Primary responsibility	Years in Dow Chemical
Randy Croyle	M&A Technology Center (background in manufacturing & engineering)	Director	Coordination of due diligence and integration phases of acquisitions	35
Darius Mistry	M&A Technology Center	Project Manager	Coordination of due diligence and integration phases of acquisitions	27
Michael Bator	M&A Technology Center (background in manufacturing & engineering)	Project Manager	Coordination of due diligence and integration phases of acquisitions	35
Jeff Paulus	M&A Technology Center (background in finance)	Project Manager	Coordination of due diligence and integration phases of acquisitions	30
Thomas Weaver	M&A Technology Center/Information Systems	Business IS Manager, IS M&A Focal Point	Information systems interface between PMO and IS function; integration of IT systems	28
Brenda Keillor	M&A Technology Center/Environment, Health & Safety	EH&S Resource Center Director, EH&S M&A Focal Point	Deliver EH&S strategy and management system solutions; develop M&A operating discipline for EH&S	28
William Mialki	Information Systems	IS Implementation Program Director	Director for managing the enterprise system and work process implementations for all acquisitions, mergers and divestitures	7 (20 in Union Carbide)
Jim Wishart	(Business Unit)	Strategy and Business Development Manager	Business integration leader in the Wolff Walsrode acquisition, responsible for due diligence and integration planning	8
Bhavik Karia	Information Systems	Business IS Manager	Lead and support business units in all IT-related issues	22

Source: Interview material and Dow Chemical company documents.