

## **The Evolution of Services Science at IBM Business Consulting<sup>1</sup>**

As Linda dropped off the weekly sales pipeline conference call she was both relieved and concerned. She was relieved because the XYZ deal had finally closed. This was a major SAP implementation and was considered a “must win” if the practice was going to make its sales target for the quarter. The account team had been telling her for several weeks that the deal was “in the bag”, but somehow the contract signoff kept slipping week after week. Now the deal was closed and IBM could soon begin deploying a project team and generating revenue. But in order to close the deal the account team had to negotiate a significant change in the scope and timing of the project. The client had become increasingly concerned about the size of the project and decided to defer implementation of the HR system into a later phase. Instead, the project now included a custom interface to the existing HR system, an effort not previously considered by the capacity management team. Linda was concerned because she no longer had a home for a team of 10 consultants that were all in her sector. The team was just about to wrap up another project and the fact that the team could stay together was considered a significant boost to productivity and had been a major factor in getting the price down to a point the client would accept. Although the practice had won a major new client, as was so often the case, last minute changes in the proposal had created major changes in the project staffing plan.

Linda logged onto the IBM *Professional Marketplace* web site to start reworking the staffing plan. She needed a resource plan from the project manager for the interface development project before she could begin looking for those resources. She knew it would come soon and she would have to find those resources as soon as possible. She also knew those resources would most certainly come from outside her practice area. In the interim she would focus on finding homes for the HR team. She knew that the only SAP deals in her sector that included HR were at least 6 weeks out, and she would have to get her team deployed before then. She also knew that by the time those deals closed she would not have any HR qualified consultants and would probably have to borrow resources from another sector. Linda began running a series of queries in the marketplace to see if any other sectors had a short term need for an SAP HR team.

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<sup>1</sup> Doctoral student Thomas R. Robbins prepared this case under the supervision and with the assistance of Professor Terry Harrison as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative solution.

### **Building the IBM Consulting Practice**

By the mid 2000's IBM had established itself as a major player in IT services and was actively promoting itself as a service provider. IBM had been aggressively marketing its business consulting services as "The Other IBM."<sup>2</sup> But despite its long track record in services, its role as a major player in business consulting was relatively new. By the early 1990s IBM recognized that many customers were struggling with the challenges associated with changing technology. Those customers were often seeking outside advice on how to manage rapid technology shifts, and increasingly they were turning to IT consulting firms for that advice. IBM was too often being viewed as a technical vendor and the ownership of the IBM relationship was moving down the organization chart of its customers.

In order to reestablish its role as a strategic advisor to executive management, IBM determined they needed to build a credible business consulting operation. The first major step in that plan occurred in 1991 when IBM hired Robert M. Howe, a senior vice president at the strategic consulting firm of Booz, Allen, and Hamilton. Howe was given the charge of building a consulting organization within IBM and immediately began retraining account executives, technicians and engineers as consultants and architects. He also began aggressively recruiting experienced leaders from established consulting firms. Howe worked behind the scenes for a year and half building his organization and selling work where he could.

By October of 1992 the organization was strong enough to announce publicly, and IBM officially launched the practice under the brand name of *The IBM Consulting Group*. But while IBM was successfully growing its consulting business, the corporation as a whole was in crisis mode. CEO John Akers was putting together a plan to split IBM into independent operating units in an approach that many believed would lead to the eventual breakup of the company. In April of 1993 Akers was replaced by Louis V. Gerstner Jr., a former McKinsey consultant and CEO of RJR Nabisco. Gerstner quickly reversed course, canceling plans for a break up of IBM. A key component of Gerstner's turnaround strategy was an increased focus on services, including consulting services. Through the remainder of Gerstner's tenure consulting services continued to

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<sup>2</sup> See the advertisement from a 2005 issue of *Business Week* in Appendix 1

grow organically, becoming a strong, but not a major player in the marketplace. In December of 1996 IBM announced the formation of IBM Global Services, a single business unit to encompass IBM's wide range of technology services that included outsourcing, technical services, and now increasingly general business consulting. By the time Gerstner stepped down as CEO in April of 2002, to be replaced by services head Sam Palmisano, IBM had performed a major corporate turnaround. Services were now a major component of IBM's business model, though the service business remained heavily focused on outsourcing and technical services. Business consulting remained a relatively small portion of IBM's overall services business.

The role of business consulting at IBM took a major shift on July 30<sup>th</sup> of 2002 when IBM announced plans to acquire the consulting operations of PricewaterhouseCoopers (PWC) for \$3.5 billion. When the PWC deal closed in October of 2002 IBM added 30,000 consultants and approximately \$5 billion dollars in consulting revenue. For PWC it marked the culmination of a long and difficult process of separating itself from its auditing roots.

### **Public Accounting and Consulting**

The stock market crash of 1929 and the resulting securities legislation passed in 1933 and 1934 created the need for the public accounting firm; an independent firm that could review the financial statements of publicly traded companies and attest to their accuracy. By the 1980s eight dominant accounting firms had emerged. Collectively known as "The Big 8", these firms audited virtually all major public corporations across the globe. By the early 1990s the number of firms was reduced to five as multiple mergers were consummated. The Big 5 firms; Arthur Andersen, KPMG, Ernst and Young, Deloitte Touche, and PricewaterhouseCoopers, not only dominated the accounting profession but has grown into major providers of business consulting services. Consulting had in fact begun to outstrip audit services as a revenue generator for many firms.

By the late 1990s, issues of *audit independence* were getting serious attention in the press as well as from regulators at the Securities and Exchange Commission. The concern was that the increasingly common practice of selling large consulting projects to the very companies they audit might make the firms reluctant to challenge management on increasingly complex accounting issues. Rapid growth in Big 5 consulting business due to the Y2K and ERP booms of the late 1990s, along with new public disclosure rules implemented in 2000 increased the visibility of the perceived independence issue. Companies were now forced to publicly disclose

the fees they paid their auditors for audit and consulting services, and the degree to which audit firms had expanded into consulting became a matter of public record. SEC chairman Arthur Levitt launched a public campaign to address the perceived independence of the public accounting profession and many executives in the accounting industry felt it was only a matter of time before Levitt would try and force the public accounting firms to divest themselves of their management consulting operations, a process that kicked into full gear in 1999.

Hoping to get a jump on the inevitable, and thereby avoid fire sale prices, the accounting firm Ernst & Young (EY) announced on December 7, 1999 that it had entered negotiations with French IT firm Cap Gemini (CG) concerning a possible sale of its consulting division. EY chairman Phil Laskaway firmly believed that the SEC would eventually force his hand and compel his firm to get out of the consulting business. Laskaway also believed that going public was not a good option. He felt the best option was to merge the practice with a firm that already knew the ins and outs of running a public company. While IBM had long been rumored as a possible buyer, Laskaway and his team eventually made a deal with Cap Gemini, a smaller firm that desperately needed to develop a presence in the US market. As negotiations with Cap Gemini continued, the SEC continued to apply pressure. In March of 2000, the Wall Street Journal reported that the SEC had notified 52 PWC audit clients that their audits were potentially tainted by independence issues. In May of 2000 SEC Chairman Arthur Levitt gave a speech at New York University calling for increased audit independence, including the possible separation of the audit and consulting operations. Levitt called E&Y's proposed sale the "right thing to do". Two weeks later, on May 23<sup>rd</sup> 2000, the Cap Gemini Ernst & Young (CGEY) transaction closed. Cap Gemini paid out \$7.6 billion dollars, mostly in stock, to acquire the consulting business of E&Y. In June the stock of the newly formed CGEY closed at an all time high of 226 Euros.

The split of consulting and audit operations now seemed inevitable. In August of 2000, the consulting partners of Arthur Anderson, by this time operating under the name of Andersen Consulting, won a major court victory over their audit partners granting them a corporate "divorce" and paving the way for a public offering or sale of the consulting practice. In October it was announced that PWC was in negotiations with Hewlett Packard's new CEO Carly Fiorina over the sale of PWC's consulting practice. Fiorina was eager to build HP's services arm and was reportedly offering to pay between \$17 and \$18 billion.

The HP sale was not to happen. Just over a month later HP announced surprisingly poor financial results and announced it was dropping its bid for PWC Consulting. Meanwhile rival firm KPMG continued to move forward with an alternative approach, an initial public offering. On February 2, 2001 KPMG Consulting went public raising more than \$2 billion and proving that the IPO route was a viable option. (KPMG Consulting would later change its name to BearingPoint to further distance itself from its audit roots.)

Two months later, in April of 2001, Anderson Consulting, now renamed Accenture, announced its own plans to go public. But by this time the consulting market was showing signs of trouble. With the passing of the Y2K/ERP boom the consulting market was beginning a major slow down. As Accenture was announcing its IPO, KPMG was announcing plans to dismiss 450-500 workers in the US and Canada. A week later PWC announced plans to cut 1,100 back office employees. By April 20<sup>th</sup>, the day Accenture filed for its IPO, KPMG Consulting stock had dropped to \$15.25, well below the initial price of \$18. CGEY stock was also in decline; closing at 148 Euros, down from 210 Euros the day the EY transaction closed. In spite of the weak market for consulting Accenture went forward with its IPO on July 19<sup>th</sup>, 2001, selling a small stake of the company to the public. After one quarter as a public company Accenture would announce a \$370 million loss, including a billion dollars in IPO related expenses.

With a weak market for consulting services, and no buyer emerging, PWC Consulting remained a part of the public accounting firm, operating in a partnership structure. The pressure for audit firms to divest themselves of consulting operations had diminished somewhat after Levitt had left the SEC in February of 2001. But that quickly changed in late 2001 with the emerging Enron scandal. One of the major issues in the Enron case was the role of Enron's auditor, Arthur Andersen, played in a series of complex financial transactions. In addition to its role as an independent auditor, Andersen was a major provider of consulting services to Enron. (Anderson Consulting, which had effectively split from Arthur Anderson before the Enron work was performed, escaped any scrutiny in the scandal, but the Arthur Andersen partnership would, in June of 2002, be convicted of obstruction of justice and effectively put out of business.) Andersen's consulting practice helped set up a series of aggressive transactions that were then signed off on by Andersen's audit practice.

The pressure for auditors to exit the consulting business had returned and PWC had to take some action. In July of 2002 PWC announced that it would move forward with an IPO, taking its consulting operation public under the name *Monday*. But the market for consulting services remained weak. By July 29<sup>th</sup> CGEY stock had fallen to 33 Euros, down 193 Euros from its high 2 ½ years earlier. The same day BearingPoint stock closed at \$10.10, well off its \$18 offering price. Accenture stock had held its own, closing at \$16.47 up slightly from its offering price of \$14.50. Though not publicly reported, PWC's consulting revenues would decline by 13% in the year ending June 30<sup>th</sup>.

But then on July 30<sup>th</sup> the plans to go public were scrapped when IBM announced it would buy PWC's consulting practice for \$3.5 billion, a fraction of the \$17 billion HP had offered 2 ½ years earlier. The transaction moved forward quickly and on October 2<sup>nd</sup>, 2002 IBM formally acquired the consulting practice of PWC and its roughly 30,000 partners and employees.

### **Integrating PWC**

Though it had long been rumored to be in the market for a consulting practice, IBM had never moved past the discussion stage to make a formal offer. But when PWC announced its plan to go public IBM Global Services Executive Ginni Rometty saw an opportunity. Rometty convinced her boss Douglas Elix, general manager of IBM Global services, to hold discussions with PWC. Rometty and Elix negotiated the general terms of a deal during the first few weeks of July, 2002, with the deal being announced on July 30<sup>th</sup>.

Rometty, who would become the head of the new IBM Business Consulting Services unit, faced a difficult challenge in integrating the PWC operation. Not only was PWC's business in decline, but the transition from a partnership structure to a public company structure could become a major issue. Under the PWC structure the top tier of the consulting organization were partners; equity holders in the firm with claims on the firm's profits. The partnership structure forced the firm to distribute its profits to the partners each year. (It was this inability to hold onto retained earnings that was often cited as a fundamental disadvantage to the partnership structure.) The PWC partners were therefore highly compensated relative to their IBM counterparts, and with the switch to a corporate structure the practice now had to retain capital.

The result was that the average PWC partner would see a 20% reduction in cash compensation, with about 1/3 of the remaining compensation in the form of a bonus contingent on individual and group results. Top level partners, who made a million dollars or more at PWC, would see a 40% reduction. Of the 1,200 partners at PWC, about 1,000 made the transition to IBM. To partially offset the reduction, and provide an incentive for staying on, IBM issued former partners IBM stock options. The options were priced at the closing price of IBM stock when the deal closed, and vested over a 4 year period.

Rometty and her team worked hard to mesh the cultures of the merging organizations. PWC partners retained the title of “Partner”, even though they were no longer organized formally as a partnership. She also placed PWC executives into many key positions, adopted many of PWC’s business processes, and organized the business consistently with the former PWC structure.

### **IBM Global Services**

By the mid 2000s IBM Global services was a major revenue generator for the IBM Corporation. In 2005 IBM reported global services revenue of \$47.3 billion. Since 2000 services revenue had grown at a compound annual rate of 7.4%, while overall corporate revenue had grown at a rate of 1.4%. As a result, Global Services had grown from 39% of the company’s total in 2000 to 52% in 2005. At the end of 2005 IBM had approximately 198,000 employees in the global services organization. IBM offers a wide range of technical services, as shown in the following table:

<b>Global Services by Segment</b>	<b>2005</b>	<b>2004</b>	<b>2003</b>	<b>2002</b>
Strategic Outsourcing	19,766	19,309	17,124	
Business Consulting Services	14,185	13,767	12,955	9,422
Integrated Technology Services	7,538	7,441	7,099	
Maintenance	5,868	5,696	5,457	
	47,357	46,213	42,635	36,360

Strategic Outsourcing (SO) involves the long term outsourcing of technology operations from a client to IBM. SO work is usually awarded in large, multi-year contracts that often involve the transfer of employees from the client organization to IBM. Integrated Technology Services (ITS) involves the design, implementation, and maintenance of client’s technology infrastructure. ITS included projects such as network operations, server configuration, or system upgrades. ITS contracts tend to be short term in nature. Maintenance services cover a range of technical

services provided to clients, but are primarily due to application maintenance (AM) contracts. AM services include the development, management and maintenance of commercial package and custom developed software applications.

The Business Consulting Services (BCS) segment represents the revenue IBM generates from management consulting services and includes virtually all of the former PWC work. BCS work tends to be sold as deliverable-oriented projects. Depending on the nature of the work a project can range from a few weeks to several years. A project may be staffed by a few people, or a team of over 100. Much of BCS work is driven by implementations of software developed by Independent Software Vendors (ISVs). The major ISVs; SAP, Oracle, Peoplesoft, and Siebel account for a large portion of the business, though IBM also works with a large number of smaller vendors<sup>3</sup>. BCS also provides many services not directly related to software implementations; including strategic consulting, supply chain improvement, and change management. Business Consulting Services is a component of the Global Business Solutions (GBS) organization within IBM. The GBS organization delivers consulting and applications management services globally. Given the breadth and depth of services provided within the business consulting arena, efficient organization is critical to operational effectiveness.

### **GBS Organization and “The Matrix”**

There are multiple dimensions around which to organize a large, diverse consulting practice. Geography (the physical location of the workforce), competency, the functional skill sets possessed by the individuals, or industry expertise are all viable methods of organization. At the highest level the global GBS workforce is segregated by major geography, typically a country or group of countries, hence the GBS practice in the United States is organized separately from EMEA, Canada, or Latin America.

Within the United States the GBS organization is a matrix structure, based on industry and competency, referred to internally simply as “The Matrix.” The columns of the matrix are based on the industry affiliation of the client. GBS, and IBM in total, go to market based on industry segmentation. The logic is that complex, strategic consulting services must be designed based on

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<sup>3</sup> ORACLE has acquired both Peoplesoft and Siebel, though in 2006 the products remain separate. IBM continues to treat them as separate products.



the characteristics of the customer's business environment. An oil and gas company, for example, has different priorities and needs than a retailer. The IBM consulting organization recognizes 18 distinct industry verticals; each of which is managed by a partner level resource known as an *Industry Leader*. The industry verticals are aggregated into sectors, which are groups of similar industry verticals. The organization defines sectors for Public, Communications, Distribution, Financial Services and Industrial industry groups. A sixth sector, Small and Medium Business includes all middle market accounts across industry.

The rows of the matrix are based on major competencies, referred to in IBM as *service lines*. Service Lines are broad categories for the type of services offered by the consulting practice. The organization includes six service lines, each managed by a partner called the *Service Line Leader*. The intersection of a service line and a sector, the cells in the matrix, are called *practice areas*. Each practice area is managed by a partner known as the *Practice Area Leader* (PAL).

The six Service Lines define the services offered by IBM's consulting practice. The *Applied Technologies* service line provides purely technical services such as application development, enterprise integration, and web services. The *Customer Relationship Management* (CRM) service line is a mix of technical and functional consulting. Much of the work done by the CRM service line involves the implementation of enterprise software such as Siebel, or the CRM modules of ERP packages such as SAP or Oracle. The CRM service line also delivers non-ISV projects such as contact center transformation. The *Supply Chain Management*, *Human Capital Management*, and *Financial Management* service lines are also mixtures of functional and technical services. Supply Chain services include implementation of packages such as i2, or the supply chain components of ERP packages, but also include process improvement initiatives to reduce supply chain cost. Similarly, Human Capital includes implementing the HR components of ERP packages such as Peoplesoft, but also general consulting services related to Human Resources, knowledge management, or training. The Financial Management service line generates much of revenue providing core ERP system implementations, but also has the skills to provide general consulting on financial management issues. *Strategy and Change* is the service line least oriented to software implementation.

For a portion of the organization, the matrix has a third dimension. Given the large volume of work in enterprise application implementation, and the special skills required, IBM has designated ISV Leaders for major packages; SAP, Oracle, Peoplesoft and Siebel. While the ISV leaders do not have P&L responsibility they are responsible for managing the sale and delivery of implementation projects for their packages. ISV leaders are responsible for meeting sales as well as staff utilization targets.

From a management perspective the sectors are the primary dimension of the matrix. Profit and loss accounting occurs only at the sector level. The service lines and ISVs are secondary modes of organization. Leaders of these practice groups are measured primarily on sales of their practice across the sectors. The leadership of service lines and ISV practices are assigned to a staff level department, but virtually all other consulting personnel are assigned to a sector, with their costs rolling up to the sector level P&L.

Individual consultants are tagged with multiple designations. Each individual has a position in the ranking hierarchy referred to in IBM as their *band level*. Entry level resources are designated as band 6 or band 7. More senior non-partner level resources are given grades 8 through 10. Additional grading exists within the partner ranks; first level line partners are D partners, practice leaders are typically C level partners, service line or ISV leaders are typically B level partners, while sector level partners are usually A level partners.

In addition to their hierarchical level, consultants are tagged with the sector to which they are assigned. Band 7 and higher consultants are usually tagged with an industry designation. (Band 6 consultants are considered too inexperienced to have a designated industry specialty.) All consultants are tagged with their service line designations, and those who are package specialists have an ISV tag. In addition, each individual has a collection of job-role/skill designations. These are a set of detailed skill classifiers that can be used for matching resources with open positions. Skill designations are fairly detailed and even a junior level resource will have a dozen or so skills. More experienced resources will have many more skill designations.

## Pipeline Management

In business consulting, capacity management begins with *pipeline management*. The pipeline is the set of potential projects in various stages of the sales process. The pipeline of potential deals provides the best source of resource requirements over the next several months and IBM places a major emphasis on maintaining an up to date and accurate pipeline. The pipeline reporting process keeps track of the number of deals in the pipeline and their estimated size. Each sector has a quarterly target for deal *signings* and the ratio of deals in the pipeline to the signing target is a key indicator of business strength. Most units like to have 3 to 4 times coverage of pipeline-to-required signings at the start of a quarter. In consulting services a clear distinction exists between signings and revenue. Signings occur when a contract is awarded and includes the estimated value for the life of the contract. Revenue is recognized when the actual services are performed. Backlog measures the signings that have not yet been converted into revenue and is another key metric for the health of the business.

The pipeline management process is closely managed through a series of weekly conference calls that have come to be known as the *cadence* process. The cadence process comprises a series of weekly conference calls that roll up demand through the GBS organization. The process begins with a conference call on Monday where line partners update their Industry Leader with current information. Formal reports from the sales system are used on the call, but each important deal is discussed in turn with a focus on what can be done to get the deal closed. On Tuesdays the Industry Leaders hold a similar call with their Sector Leaders and the industry level data is rolled up to the sector level. On this call the industry leaders give the sector leader their “call to close”, their best estimate of the dollar volumes in closing they expect to achieve in their industries. The Sector Leaders make similar commitments on a call with Mike Collins, the general manager of GBS for the Americas. The weekly cadence process concludes on Thursday when the regional general managers update Ginni Rometty, the managing partner of GBS globally.

Pipeline data is used for multiple purposes including projections of future financial results communicated to senior management and investors. The pipeline is also an important predictor of future resource requirements. The pipeline process is, for the most part, tracked in dollars. For capacity management purposes the dollar volumes in the pipeline need to be converted into

specific skill set requirements that ultimately must link to the skills of individual consultants. To make this process work IBM has developed a sophisticated capacity management process and organization.

### **Capacity Management within GBS**

Capacity in professional services is directly related to the number of people available, either through direct employment or subcontracting, and the skills they possess. Given the diversity of skills required, and the complexity of the overall organization, capacity management in the GBS organization is difficult. A number of distinct job roles are directly and indirectly involved in capacity management.

The front line capacity manager is the *Resource Deployment Manager* (RDM). RDMs are typically assigned to specific practice areas - the cells in the matrix - but many exceptions exist. In some case the practice area is too small and an RDM is responsible for multiple cells. In other cases the area is too large and the practice area is further divided, usually along some finer division of service line, and managed by multiple RDMs. RDM roles also exist for individual ISVs. The primary responsibility of the RDM is to facilitate the matching process, linking up available consultants with open positions. As one RDM described the role, “my goal in life is to clear the bench.” In a broader sense RDMs work to reconcile the competing interests of the client, the company, and the consultant. “While all the direct performance metrics involve utilization and the size of the bench, a good RDM keeps the interests of the individual in mind” commented one RDM. Each RDM has a group of consultants for which they are directly responsible and it is the utilization of this group for which they are evaluated. While the number varies from RDM to RDM, a group of between 120 and 150 consultants is typical. RDMs work to find homes for the consultants in their group, but also work with the project managers in their practice to find resources from other practices required on practice area engagements. The IBM Professional Marketplace is the web based tool used to facilitate supply and demand matching, but significant informal networking is required as well. Most RDMs listen in on multiple sales pipeline calls each week to keep track of what jobs might sell.

While RDMs are assigned to the cells of the matrix, other capacity management roles exist in the rows and the columns. In the rows, each service line has a *Supply Analyst*. In the columns, each sector has a *Demand Analyst*. As the name implies, the supply analyst is responsible for ensuring

that the service line has sufficient capacity to staff projects. Based on business projections, the supply analyst develops and maintains a hiring plan that identifies the number of resources to be hired by level and skill set. Supply analysts also work to identify retraining requirements. The hiring plan is formally developed on a quarterly basis, but is also updated at the midpoint of the quarter. While RDMs are associated with individual practices, and therefore roll up into the sector organization, supply analysts are part of the human resources staff function and are not associated with any particular sector.

The demand analyst on the other hand works as a type of sector level RDM. While the RDMs do not report directly to the demand analysts, the demand analyst does coordinate the activity of all the RDMs across the sector. If the RDM's job is to manage the utilization of the practice, the demand analyst's job is to manage the utilization of the sector.

Each sector also has a group of Business Advisors, the overall capacity managers for the sector. A sector typically has business advisors assigned at the industry level, all reporting to a senior business advisor with sector level responsibility. While their official title is business advisor, these individuals could easily be called the capacity managers for the organization.

### **Automated Support**

Corporately IBM has placed a strong emphasis on improving the management processes applied to its services business. Under the general term of Service Science, Management and Engineering (SSME), IBM had undertaken a number of initiatives to improve the business processes in its service business. An important component of the overall effort is the Workforce Management Initiative, a series of projects to improve services capacity management. A major part of WMI is job matching; linking open positions with available resources.

Several tools exist to support the job matching function. The Professional Marketplace tool is the central clearinghouse for job postings, but several other tools feed data into the marketplace. *PD Tool* is the application used by individual consultants to maintain their availability and skills. Consultants use PD Tool to forecast their availability for a three month rolling time period. While the individual consultants enter their deployment forecasts, RDMs often modify the data to keep it up to date. Also, many RDMs continue to track key data, such as roll off dates, in personal spreadsheets maintained outside the formal systems.

Along with information about the supply of resources, data on the demand for resources is critical. The sales cycle for large consulting projects is typically very long and at any given point in time there are many deals in the sales pipeline. Pipeline data is transferred from the pipeline management system which is an implementation of the Siebel CRM system. The Siebel system is used to track potential sales at the opportunity level. Each potential transaction is entered into Siebel and tracked throughout its lifetime. Many RDMs participate on the weekly cadence calls to keep up to date with new business opportunities. The pipeline reports are generated from Siebel and made available to RDMs, though many RDMs don't find these reports helpful as they don't provide the data at the level necessary for resource matching. Once a project has been deemed to have a significantly high probability of selling the opportunity is transferred from Siebel into marketplace and *open seats* are created. Open seats are specific job roles related to projects that are being tracked in Siebel and include only those roles for which a specific resources has not been identified. Once they are in the marketplace, RDMs across the company can see the open seats.

### **Development of the IBM Professional Marketplace**

The IBM Professional Marketplace was rolled out in 2004. The tool was designed to replace a series of standalone systems and one-off databases that provide near real time updating of the data. Previous systems were updated once a week, and since conditions changed so quickly the systems were rapidly out of date and so were rarely used. RDMs instead relied on informal networks and personal tracking sheets to keep up to date. But with the advent of the Marketplace data was current enough that most RDMs now routinely used the tool both to look for resources and to look for openings.

The Professional Marketplace tool was developed by IBM's Integrated Supply Chain division as a component of the overall push for operational efficiency and is touted as a major success. According to Harold Blake, director of the workforce management initiative, IBM can now draw on the right consultant, in the right place, at the right time, to meet the client's specific needs. This ensures the client is happy, and that consultants' time is used as effectively and efficiently as

possible.” By mid 2006 IBM was claiming savings of over \$500M in improved efficiency.<sup>5</sup> Among the benefits claimed from PM were reduced need for subcontractors, faster fulfillment of open needs, and improved client satisfaction.

The PM tool contains data on over 90,000 IBM resources worldwide, and is very simple to use. It has been described by some users as a “*Google for resources*”. PM has two basic uses; searching through the existing list of resources, or advertising needs by entering *open seats*. The two methods correspond to a pull approach and a push approach to resource management. An RDM looking for a resource to fill a project need would pull data from the system. After logging on to the PM tool the RDM can progressively filter the list of resources by selecting a set of qualifiers; criteria that might include geography, job role/skill set and most importantly availability. As each successive qualifier is added the system instantly updates a listing of how many resources fill the qualification. At any point the user can begin to page through the profile descriptions of the individuals matching the specified search criteria. Users can also specify a text based keyword search on the current list at any time. Many users filter the list on availability and then search with keywords for specific terms relevant to the needs they have.

The second use for the PM is through a feature known as *Open Seats*. An Open Seat is a posting of an unfilled need for a specific resource, either for a sold project or a high probability opportunity. Like the individual data records, an Open Seat is a mix of coded field data and free form text. Users can search Open Seats in a manner similar to the way resources are searched. While there are many coded fields, there is also a great deal of free form text.

The marketplace tool had originally been developed for use by the RDMs and other members of the capacity management team. However, a change had been made recently to grant access to the tool to all practitioners. Now for the first time individual consultants can search the database to see what opportunities might be available and project managers can search through the entire IBM resource pool on their own.

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<sup>5</sup> See the appendix for the official IBM case study on Professional Marketplace, publically posted on IBM’s web site.

The PM tool is in theory a fairly simple search tool, behind the scenes it is a complex data warehouse application with feeds to and from many other systems. Internally, the PM tool's data architecture is segregated based on its two major functions. A candidate section tracks data on IBM resources. A separate set of tables in the database tracks information about resource requests and projects they are associated with. The web interface to PM is essentially a query tool on top of this database.

### **Advanced Planning and Services Science**

While IBM had achieved significant benefit from the Professional Marketplace, many believed more modeling and automation could yield further benefits and workforce management had become a focus area within IBM Research. By the mid 2000's the concept of SSME (Service Science, Management & Engineering) had become an important topic both within research and across the company. Under the banner of SSME, IBM had launched many research projects, both internally and through funded research at University partners. From October 5 through 7, 2006, two-hundred fifty four people, representing 21 countries and many areas of government, industry, and academia, gathered at the IBM Palisades Conference Center in New York to discuss SSME. Sponsored by IBM, the conference aimed to demonstrate results in the formation of multi-disciplinary SSME and also to outline a roadmap for establishing SSME as its own discipline.

Within IBM research efforts are underway to further automate the resource matching problem. IBM researchers are actively working on an approach to apply manufacturing planning concepts to service operations problem. Matching supply and demand in this context is particularly difficult and is highly influenced by the stochastic nature of many aspects of the data<sup>6</sup>.

In the Resource Capacity Planning problem, the company has a given supply of resources, a Bill of Resources that lists the kinds of resources needed for different service offerings, and the demand for each service offering. The objective is to calculate the gross requirements for resources by job role/skill set combination, identify "gaps" and "gluts", and recommend staffing decisions. While this seemed to be a straightforward adaptation of the MRP model of manufacturing, there are difficulties. A lack of consistency in how Job Role/Skill Sets were

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<sup>6</sup> See the article "Serving the Services Industry" by Brenda Dietrich and Terry Harrison for a more detailed description of these issues. This article appeared in the June 2006 issue of *OR/MS Today* and is available at <http://www.lionhrtpub.com/orms/orms-6-06/frservice.html>.



assigned makes it difficult to accurately inventory resources. The uniqueness of each engagement and the notion that *everything we do is custom*, makes creating accurate bills of resources difficult.

### **Reworking the Staffing Plan**

As Linda began to query the IBM Marketplace for open HR positions she wondered about the effectiveness of the capacity management process at GBS. The multi-dimensional matrix structure with its overlapping roles and responsibilities seemed overly complex at times, but she couldn't think of a better way to organize the business. She was unsure how successful she would be in finding a new project in the short time, and now that the system was open to practitioners it wouldn't take long before the team found out they were stuck on the bench and began searching for a new home. She wondered if it would still be possible to keep the team, together, and leverage the experience they had gained as a team. She also wondered if when the HR deal finally closed whether she could put together a team that had worked in the past. If not, she wondered how that would affect the cost. She was also concerned about finding the technical resources required for the new interface requirement. She knew these technical resources were in short supply and were always highly utilized. She was anxious to start looking for the right skills but needed a more detailed skill set description from the project manager before she could begin.

### **Case Issues**

1. Discuss the impact of IBM's organizational structure on the process of matching supply and demand in the professional services market. Is there a better way to align the incentives of all parties?
2. What kinds of traditional supply chain management tools and analyses could be used in the scheduling of professional services? Are there aspects of the professional services supply chain that complicate the use of these tools?
3. Where do the largest impacts from uncertainty occur? What kinds of models, software and data could be used to buffer the impact?
4. For the immediate term, what should Linda do?

## Appendices

### Magazine ad promoting IBM's consulting capabilities

The advertisement features a woman in a dark blazer and yellow top looking out of an airplane window. The background is the interior of an airplane cabin with overhead storage bins. The IBM logo is in the top left corner. Three questions are listed in the upper right: 'HOW DO WE GIVE CUSTOMERS BETTER AND BETTER SERVICE WITH FEWER AND FEWER DOLLARS?', 'HOW DO WE KEEP OUR BRAND BRAND NEW?', and 'HOW DO WE FIND THE HOLY GRAIL: EFFECTIVE CRM?'. The main headline reads 'IBM BUSINESS CONSULTING THE OTHER IBM'. Below this, a paragraph describes IBM's CRM expertise and mentions clients like TD Waterhouse, American Power Conversion, and Starwood. A small disclaimer at the bottom states that IBM and On Demand Business are registered trademarks of International Business Machines Corporation.

IBM

HOW DO WE GIVE CUSTOMERS BETTER AND BETTER SERVICE WITH FEWER AND FEWER DOLLARS?

HOW DO WE KEEP OUR BRAND BRAND NEW?

HOW DO WE FIND THE HOLY GRAIL: EFFECTIVE CRM?

IBM BUSINESS CONSULTING  
**THE OTHER IBM**

Find the answers with an altogether different kind of thinking about marketing, sales and service. Find the answers with IBM. We have over 5,300 CRM specialists with deep expertise in balancing and optimizing revenue growth, customer service and cost reduction. We've already helped boost profitable growth for TD Waterhouse, American Power Conversion and Starwood. What could we do for you? Visit [ibm.com/innovation/crm](http://ibm.com/innovation/crm)

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**Key Historical Event Timeline**

**Date Event**

4/1/1991 Bob Howe hired from Booz Allen to build IBM consulting business (approx date?????)  
10/19/1992 IBM Consulting Group officially launched  
4/1/1993 Lou Gerstner named IBM CEO  
5/1/1993 IBM Consulting organizes by Industry  
11/7/1994 Bob Howe promoted to run finance industry unit  
12/12/1996 IBM forms IBM Global Services  
12/7/1999 EY announces it has entered negotiations with Cap Gemini over a possible sale of its consulting operations  
3/1/2000 WSJ reports that the SEC has notified 52 PWC audit that audits are tainted by audit independence issues  
5/10/2000 SEC chairman Levitt calls for improved audit independence, including the possible spin off of consulting operations  
5/23/2000 CG closes EY transaction, \$7.6 billion  
6/2/2000 CG stock closes at all time high of 226 euros  
8/7/2000 Anderson Consulting wins divorce from Arthur Andersen  
10/11/2000 PWC confirms negotiations with HP over a sale of consulting operations for \$17 billion  
11/13/2000 HP drop plans to acquire PWC consulting  
2/7/2001 KPMG takes consulting arm public  
2/9/2001 Arthur Levitt leaves the SEC  
4/20/2001 Accenture files for IPO, KPMG announces plans to dismiss 450 to 500 employees  
4/27/2001 PWC announces plans to cut 1,100 back office employees  
7/19/2001 Accenture launches IPO  
10/12/2001 Accenture posts net loss of \$370M with \$1B in IPO related charges  
12/2/2001 Enron files for bankruptcy  
2/7/2002 Deloitte Touche announces pending split of consulting business  
4/1/2002 Sam Palmisano becomes CEO (verify date)  
6/10/2002 PWC announces plans to spin off consulting operations into a public company named "Monday"  
6/15/2002 Arthur Andersen convicted of charges related to the Enron scandal  
7/29/2002 CG stock closes at 33 euros, down 193 euros since its high 2 1/2 years earlier  
7/30/2002 IBM announces plans to acquire PWC consulting for \$3.5 billion, 2 1/2 years after \$17B sale to HP is cancelled  
10/2/2002 IBM close the acquisition of PWC's consulting operations

## Elements of the Consulting Services Matrix

### Sectors/Industry Verticals

Public Sector (John Nyland)  
Education  
Government - Federal  
Government - State/Local  
Healthcare  
Communications  
Energy and Utilities (Bob L. Vallee)  
Media and Entertainment (Steve M. Abraham)  
Telecommunications (Lawrence Kenny)  
Financial Services  
Banking (Rusty Wiley)  
Financial Markets (Sarah Diamond)  
Insurance (Mike Adler)  
Distribution  
Consumer Products (Bill Gilmour)  
Retail (Joe Gagnon)  
Travel and Transportation  
Life Sciences  
Industrial  
Aerospace and Defense (Joseph Bellissimo)  
Automotive (Dan Blake)  
Chemicals and Petroleum (Steve Edwards)  
Electronics (George Bailey)

### Service Lines

Applied Technologies (Douglas Hunt)  
Customer Relationship Management (Adam Klaber)  
Financial Management (Steve Lukens)  
Human Capital Management (Mary Sue Rogers)  
Strategy and Change Services (Marc Chapman)  
Supply Chain and Procurement (Bill Ciemny)

### Independent Software Vendors (ISVs)

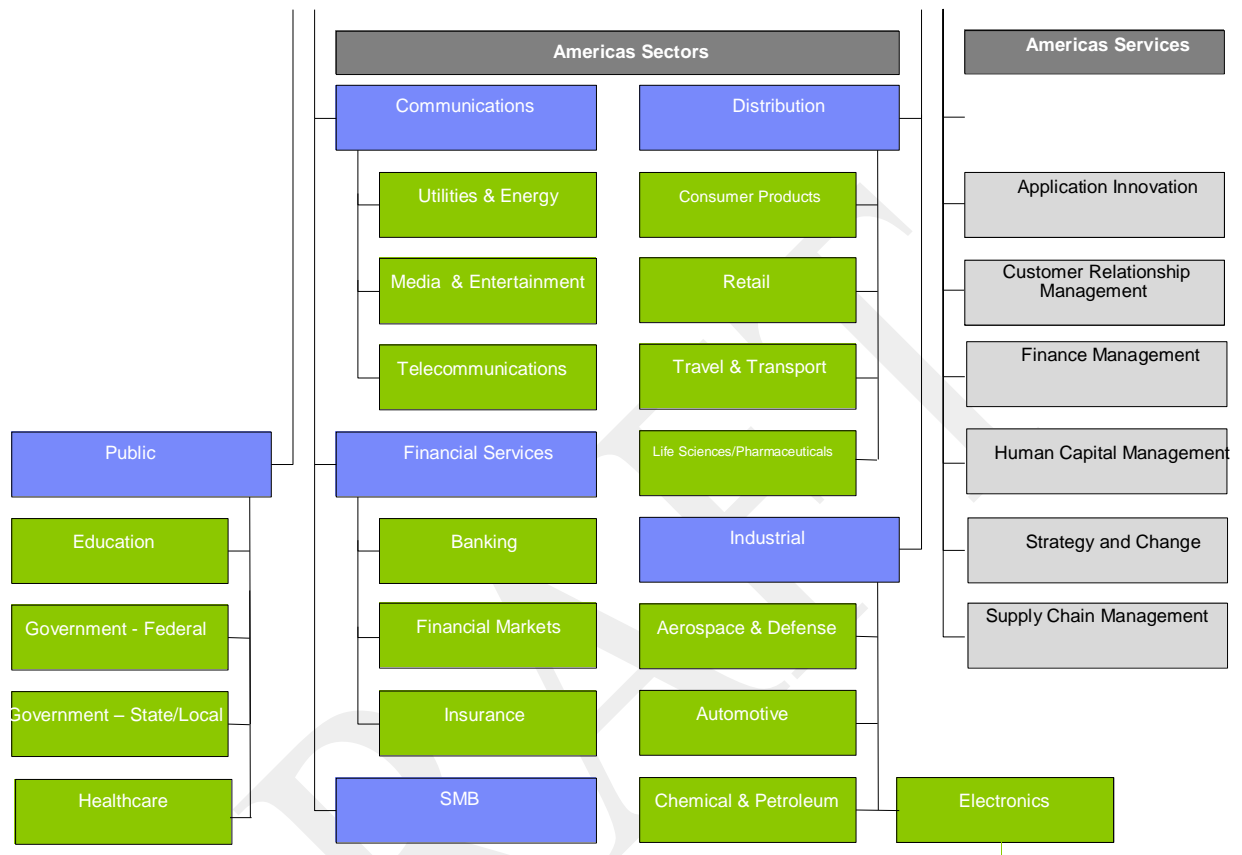
SAP  
Oracle  
Peoplesoft  
Siebel

7

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<sup>7</sup> Information is current as of 14 August 2007

Partial Organization Chart for Global Business Services – US



# Professional Marketplace

Published on: **24 Jul 2006**

“IBM can now draw on the right consultant, in the right place, at the right time, to meet the client’s specific needs. This ensures the client is happy, and that consultants’ time is used as effectively and efficiently as possible.” - Harold Blake, Director, Workforce Management Initiative, IBM Integrated Supply Chain

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**Customer:** IBM Corporation

**Deployment Country:** United States

**Industry:** [Aerospace & Defense](#), [Automotive](#), [Banking](#), [Chemicals & Petroleum](#), [Consumer Products](#), [Education](#), [Electronics](#), Fabrication & Assembly, [Financial Markets](#), [Government](#)

**Solution:** Innovation that matters

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## Overview

IBM was looking for a way to create a new labor resource management system to manage employee and contractor resources in a manner akin to the ways in which a supply chain tracks and forecasts demand and inventory.

**Business need:** IBM needed to become more efficient at deploying the right expertise as quickly and efficiently as possible to meet client needs.

**Solution:** Working closely with human resource (HR) executives, IBM Global Business Services and the company's Integrated Supply Chain division (ISC) adapted the business model used for hardware and applied it to 68,000 professionals worldwide.

**Results:** IBM Professional Marketplace offers a single view of IBM's global services resources in order to quickly match and deploy skills to meet customer needs.

**Benefits:** Fulfillment rates have improved with engagements staffed 20% faster and better matched to exact qualifications requested by the client. In addition, there is nearly a 10% decrease in the use of subcontractors due to better utilization. Improved efficiencies have saved IBM US\$500 million thus far, with expectations of far greater savings when the

system is fully up and running.

#### Case Study

<http://www.ibm.com/common/ssi/fcgi-bin/ssialias?infotype=pm&subtype=ab&appname=CSDB&htmlfid=ITMPPMP&attachment=ITMPPMP.PPT>

#### Why become on demand?

In an industry in which some products can be replicated globally with relative ease and produced by low-cost manufacturing operations, services and customization offer fresh profit-making opportunities. And while product innovation remains important to IBM, software and services are increasingly vital.

IBM's development of a people-focused supply chain grew out of its long-established track record for making and delivering products with excellence. Indeed, an effort is under way to map IBM's manufacturing supply chain principles to the organization's service business. But personnel are not items of production, and IBM employs approximately 180,000 people in its services business. The company was looking for a way to create a new labor resource management system - based on a uniform taxonomy of employee skills - that would enable the company to efficiently match its labor resources to client needs and deploy the right expertise as quickly and efficiently as possible.

#### How and where did they start?

Working closely with human resources (HR) executives, IBM Global Business Services and the company's Integrated Supply Chain division (ISC) developed a labor management system called the Workforce Management Initiative (WMI) to track its employee resources in a manner akin to the ways in which an enterprise resource planning (ERP) system tracks product availability. The labor resource management system relies on several core components supported by robust IBM WebSphere Application Server V5.1 software.

One aspect of WMI is Professional Marketplace, which provides partners and project managers with access to real-time information about available professionals and open positions, allowing them to make more efficient and strategic staffing decisions for projects worldwide. With visibility to search across professional profile information such as resumes, skills, cost, engagement and availability information, partners and



project managers have the information they need to assign resources more quickly, streamline the deployment process and create increased value for clients. Another key component is the integration hub that uses Websphere Application server as its foundation. It is designed to consolidate IBM's internal and external talent pool data into a single database for efficient searching across all professionals.

When the data entry is completed at the end of 2006, IBM's labor management system will contain a complete catalog listing each of the nearly 180,000 consultants in its professional service division. Not only will it be able to instantly retrieve data on each employee's specialties and skills, but it will also be able to track workers' whereabouts so that it can automatically send the most suitable - and closest - consultant to meet clients' requests. No longer will a logistics management specialist in Poughkeepsie be sent to Sweden because no one was aware that an equally suitable candidate was just finishing up a job in Denmark.

What benefits did they achieve?

Although the labor management system is still technically in its infancy, IBM has already witnessed a number of benefits. The company estimates that the improved efficiencies in its labor resource management processes have saved IBM US\$500 million thus far, with billions more anticipated once the program is fully up and running. As the program continues to grow, the scalability of the IBM DB2 and WebSphere software makes it possible for the company to eventually build its taxonomy to one million entries.

IBM estimates that it has already reduced its reliance on expensive outside contractors by up to seven percent. Furthermore, the utilization rate - the amount of time that consultants spend on billable tasks - has risen significantly. The program has also increased client satisfaction. Now, consultants dispatched to lead projects are more likely to have the targeted qualifications requested by the client than might have been the case in the past. Consultants also arrive at their assignment locations more quickly. The payoff can be measured in more than goodwill; IBM estimates that every point of improvement in client satisfaction equals \$3B.