An Innovative Approach to Meeting Pharma's Changing Needs

The Shift to Functional Service Providers

The pharmaceutical industry faces tremendous challenges in the coming years: depleting pipelines, patent expirations, shorter drug-development times, and more demand for novel products that satisfy unmet medical needs. The service industry needs to provide these sponsor companies with more creative, innovative approaches and the experience and flexibility they demand. The new business model for providing this support is the ***functional service provider*** (FSP) model.

Traditional contract research organization (CRO) models have long been the choice of pharmaceutical, biotechnology, and medical-device companies for research-and-development support services. Using these models, CRO industry leaders have established global, synchronized processes; built global infrastructures; and provided a wealth of services that allow sponsor companies to take a "one-stop shop" approach to development.

Today, however, these companies are exploring new ways to leverage outsourcing so they can lower drug-development costs while rapidly delivering safe, effective medicines. With this in mind, they are turning to FSPs that provide services function by function. Unlike a CRO company, an FSP is a niche provider that works on part of a large project. Examples of these niche services include site identification and initiation, investigator contract and budget negotiations, patient recruitment and clinical monitoring, data management, electronic data collection, biostatistics, medical writing, and more.

FSPs offer these benefits to sponsor companies:

- Reduce the time needed to initiate projects
- Focus on best-of-class provision of specific services
- Provide targeted, cost-effective use of experienced professionals
- Simplify complex processes with quality measurements
- Increase and decrease resources and activity without affecting internal head count
- Allow sponsors to focus on their core competencies
- Manage multiple vendors through a central point of contact

This white paper provides an overview of the key changes occurring in the pharmaceutical industry, a discussion of the implications for outsourcing services companies, and a comparison of CRO and FSP models, and presents three cases illustrating the experiences of how the functional service model can be implemented successfully.

Current Industry Environment

The pharmaceutical industry must identify ways to replenish its depleted pipelines and its revenue loss of $120 billion from expiring patents. In recent years, productivity has been poor, costs have risen, and the number of new medical entities has gone down.

In September 2010, FiercePharma published the revenue and the number of employees of the top 12 pharmaceutical companies. Across the 12 companies, the average revenue per employee was $466,833. If senior executives at all 12 companies were to modify their corporate structures to achieve this average, 140,032 jobs would need to be eliminated. Moreover, the estimated revenue loss of $120 billion from expiring patents would require an additional 274,124 jobs to be eliminated to meet the average revenue-per-employee numbers. In total, 414,156 jobs (about 40% of the jobs at the 12 companies) would need to be eliminated to meet the industry average across the peer group.

We are seeing some trends in mergers and acquisitions of the recent past reemerge, as larger companies begin acquiring the assets of complementary or competing companies to build or expand product pipelines and revenue. But this strategy has also met with dissatisfaction and a lack of success. In *World News,* April 13, 2011, Burrill & Company, a well-respected life sciences venture capital firm, noted that the mergers and acquisitions strategy has failed miserably.

"M&A strategy resulted in the loss of $1 trillion over the last 10 years." (Burrill & Company, April 13, 2011.)

Depleted pipelines are opening the door to drug development for new competitors. CROs are receiving equity as part of their compensation, and they have the infrastructure to develop compounds. The Gates Foundation, a philanthropic organization, has made its first for-profit investment, and it could easily leverage its $36 billion to develop compounds. Also, venture capital firms could acquire or invest in intellectual property and its originators, developing compounds, using a virtual strategy.

In the past year, large pharmaceutical companies have begun to reposition themselves, using downsizing, focused development, sales-force attrition, and sales of development operations to large CROs. The pursuit of billion-dollar products to be marketed to the masses is being replaced by a focus on specialized patient populations and their unmet medical needs and by a shift away from large, bureaucratic, and siloed infrastructures.

Despite these challenges, the pharmaceutical industry continues to demonstrate an ongoing commitment to innovation and quality research and development to save and improve the lives of patients. In 2010, the industry invested a record $67.4 billion in research and development, an increase of $1.5 billion from 2009. Based on overall sales, the pharmaceutical industry invests as much as five times more in research and development than the average manufacturing company.

Services Industry Response

Today, some CROs that started as cottage-industry companies are absorbing the cost of extended commitments to personnel shifted out of large sponsor companies. These CRO companies can now provide the same level of support services that sponsor staff used to have internally. This significant increase in outsourcing has led to a greater partnership between the larger sponsor companies and their global CRO partners to support continued development efforts.

However, the higher failure rate of Phase II and III trials is prompting a renewed focus on smaller and more diverse clinical programs. For pharmaceutical companies, the goal has become moving products through development more quickly, using creative and innovative approaches.

The traditional CRO companies are built for large programs that require tremendous overhead, resources, and support to accommodate large patient populations and large pools of data. With the pressures from payors and others, the focus has shifted to smaller clinical trials that target specific populations and are overseen by smaller, virtual teams. The support of these teams will come from companies that demonstrate a high degree of flexibility and provide access to experienced staff who proactively contribute to the overall strategy and execution before and during the study.

The selection of traditional CRO companies by sponsors seems logical because these companies have the resources to design, implement, and execute clinical programs consistent with corporate goals. However, certain forces affect the ability of these companies to support and execute trials on behalf of small- to medium-sized sponsors looking to address tomorrow's drug-development challenges:

- **Small- and medium-sized sponsors do not provide the revenue that large sponsors do.** Understandably, large sponsors bringing hundreds of millions of dollars in revenue to a traditional CRO company will get more attention than smaller sponsors with a few trials.
- **Most traditional CRO companies are traded publicly.** Senior management of these companies is under pressure to meet revenue targets. Thus, business developers chase most opportunities to add revenue and meet targets, even when their resources are low and overused.
- **Traditional CRO models were built to accommodate larger clinical trials.** The change in strategy to focus on specialized patient populations and unmet medical needs will require a high degree of flexibility and access to experienced staff. A traditional approach has demonstrated that it cannot satisfy the needs of sponsors looking for creativity and innovation to meet their program needs.
- **The inconsistent flow of work creates staffing challenges for those using traditional models.** Because of inconsistent work patterns and program cancellations, managing a company that uses traditional CRO models is difficult. To support existing and future business, management faces a constant need to adjust staffing levels and shift personnel across studies.

The industry's shift away from the blockbuster approach to focus on targeted patient populations and unmet medical needs creates a tremendous opportunity for smaller sponsors who operate virtually and rely on their service partners to execute their programs and projects. Companies built on the traditional CRO model serve their purpose for trials that require large, global organizations to execute clinical programs. However, sponsors are demanding a more creative approach to pursuing specific patient pools.

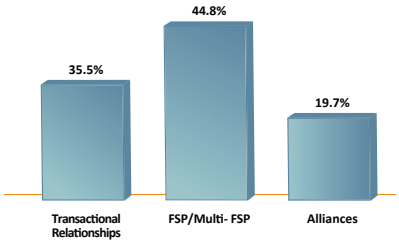
The Case for the Functional Service Providers Model

A growing trend in the industry is to use companies who manage and employ FSP models. As the chart of study data (to the right) below indicates, the FSP model is the preferred outsourcing model among 382 sponsor companies.

Some mistakenly view FSPs as staffing companies only. Though FSPs do provide these services, they can and do provide much more. Many of these companies have built their business and expertise around a core functional area and have 15 to 30 years of industry experience. Many have been created and developed through industry friendships and their leaders are committed to client success because acquiring their next project depends on their past and current performance. Because many FSPs are privately owned, there is less pressure to take on more work just to meet revenue targets. Thus, FSPs take only the work they can do with a high degree of quality and oversight.

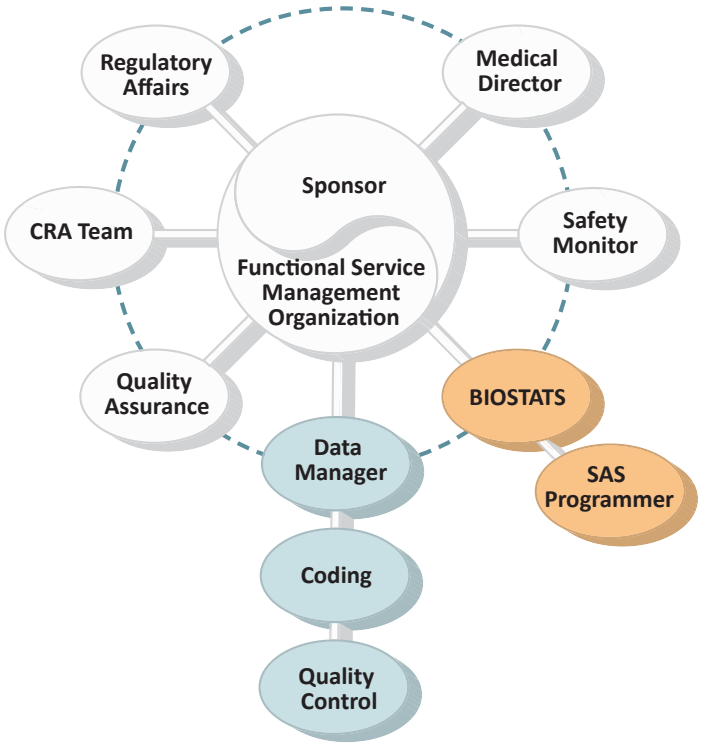
The operating model of an FSP is based on the hub-and-spoke concept (illustrated below), with technology use as a key element for accessing clinical study data and reports on an ongoing basis. This access to information allows various FSPs to stay engaged in the program at all times. It also enables an ease of communication across the team structure and allows for transparency by the sponsor and core team to hold all contributing parties accountable. The sponsor and the functional service management organization (FSMO) are closely aligned, so updates, intelligence, and decision making are tightly integrated. With this model, the use of appropriate, seasoned FSPs can be leveraged based on the specific needs of the projects.

Adoption of outsourcing models



Source: Tufts CSDD 2009 (Ken Getz); N=382 sponsor companies

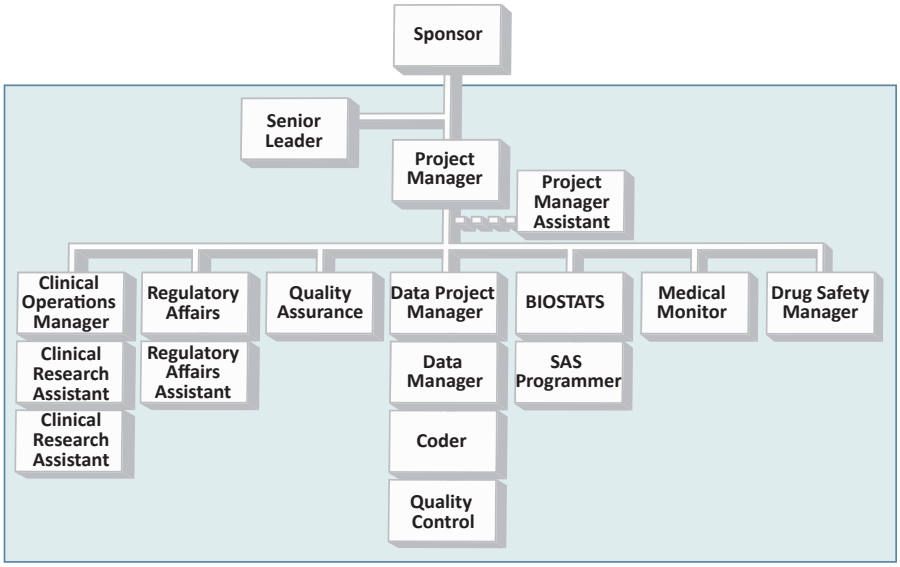
Functional Service Management Organization (FSMO)



Comparison of the CRO and FSP Models

As the full service organizational chart (below) shows, the traditional CRO model has a wealth of services in one company. The structure consists of silos of functional groups, all reporting to project management. In most CROs, project managers are facilitators who track the progress of a study or program, ensure workflow within the company, and foster communication across the groups.

Full Service CRO



In many cases, each functional group has executive and senior leaders who govern the performance of their group. Project managers in traditional CRO models are bound by the internal processes and operations of their company. Sometimes, their infrastructure limits them to only a few options, even though their clients' studies require a flexible approach. When a failure in one department causes additional work in another department, the client is billed for the out-of-scope work, and the underlying problem may not be corrected. Also, some service areas and management layers may be included as part of the core team, despite the sponsor's need for reduced overhead.

For the sponsors needing access to senior-level staff, expertise, creativity, and proactive approaches to their programs, traditional CRO models may not be the best choice. However, FSPs can provide the flexibity needed to support the program. As the FSMO chart shows, the FSP model has a project manager who leads the core team and reports directly to the sponsor. The supporting cast consists of individuals or companies that best fit the needs of the sponsor's program. In this example, the clinical research assistants (CRAs), medical/safety monitor, and quality assurance services are provided by independent contractors because the use of independents conformed to the required activity level, providing highly experienced resources targeted for specific needs. Data management and biostatistics are provided by FSP companies because their success and contribution come by way of their experienced staff and successful operational workflows.

"Using functional service providers ***assures the engagement of experts in every aspect of delivery,*** whether this is at the level of an individual clinical trial or design of a strategic development plan. In today's global business environment, ***the team that can work without borders of any kind has a competitive advantage."***

Vice President, Clinical Operations
Large Biotech Company

Managing and Supporting Sponsors Through FSPs

A popular way for sponsors to supplement their staff is to use an FSP that provides staffing support. Staffing FSPs have access to quality industry professionals who can fill openings quickly. These FSPs recruit the appropriate people and often provide them on a full-time-equivalent (FTE) basis, although the sponsor provides governance and oversight.

Most sponsors using FSPs for staffing use their own work practices, internal hardware, and training. Most sponsors also train replacement employees when turnover occurs, so enhanced quality and oversight around the hiring, onboarding, and business continuity become important for securing and retaining high quality.

A sponsor can use an FSMO as a third party to further support recruitment, onboarding, and continuity of business consistent with sponsor objectives, work practices, and expectations.

Recruitment: During this phase, the FSMO gathers requirements for the ideal candidate. Many sponsors provide surface detail, such as the number of years of industry and therapeutic experience and proficiency in certain systems or Web use. Recruiters for the staffing FSP should be provided with more thorough specifications.

Onboarding: Review of standard operating procedures (SOPs) and training in systems, such as reporting and using e-mail, are basic parts of the selected staffing initiation processes. These responsibilities are generally left to the sponsors, although a growing number are beginning to solicit outside support. However, during periods of turnover, sponsors are challenged when having to retrain new replacements, orient them to study team members and participants, and quickly engage them. If the staffing FSP also operates as a traditional CRO company, some turnover can be the result of a reallocation of resources, as staff members are removed to service another client.

Continuity of Business: What obligation does the staffing FSP have to ensure that its people provide quality services? How often are these people reviewed against the requirements and performance metrics or expectations? Leaving these responsibilities to the staffing FSP can create a conflict of interest. Using third parties allows the sponsor to receive an unbiased review of performance, identify corrective and preventive action, identify potential training needs, and move to replace a poorly performing staff member. Oversight may take the form of unannounced comonitoring visits, audit visits following a site visit, review of work against a plan for data management, or review of writing templates and drafts against expectations.

Case studies

The following three actual experiences illustrates how the functional service model was implemented successfully.

Case Study 1: Rescue of an oncology study from a global, full-service CRO company

The sponsor was a small, venture-funded, virtual biotechnology company running a small prevention trial on breast cancer patients. To execute the clinical program, which was expected to last 12 months, the sponsor secured a full-service CRO company. The initial proposal and contract suggested a fixed-price model, but with amendments

and adjustments, it became an FTE and hourly rate program. Representatives from all functional areas, including three project managers, and an FTE CRA were involved in the study.

By the 12-month mark, the CRO company had missed many milestones, and the sponsor hired the FSMO to take over the study. A summary of the status of the study at that time follows.

- The CRO company had identified and enrolled 10 sites based on their ability to use a central institutional review board One site was responsible for 70% of the enrolled patients. Seven sites did not enroll a single patient over the 12 months, yet they continued to receive oversight by the CRA. Three of the sites were improperly presenting the trial to patients. Though the CRO company received payments from the sponsor, some sites and third-party suppliers had not been paid for 6 to 8 months.
- The CRO costs exceeded the budget by 50% at the milestone, and only one-third of the trial was completed.
- Paper workflows were utilized for the randomization of patients, drug supply notification, shipment tracking, and assembly of weekly and monthly reports, requiring layers of administrative support for managing and tracking.
- Case report form pages were stored in a file drawer. No database had been built.
- Weekly and monthly meetings included all functional members and senior managers responsible for oversight.

A ***single*** point person, one perfectly ***clear*** contract, and a ***targeted*** roster of the most capable industry ***experts*** available for your study

The FSMO worked with the sponsor to manage the monthly allocation of funds to ensure trial integrity and build a supporting infrastructure of technologies and workflows. The original plan called for a 1-month effort to convert the trial, build a technology-based data collection platform, and engage all active and new clinical sites. The team would create the central database, enter and verify all existing paper CRF data, and automate the workflow.

After reviewing its extensive partnership network, the FSMO selected a project lead and CRA. The team contacted the working sites, and the nonperforming sites were eliminated. New sites were identified, using questionnaires and background research to ensure that they could meet the study requirements.

A medical monitor/safety supervisor and two CRAs were identified to support the study. Both CRAs were oncology nurses with about 20 years of experience as site coordinators and CRAs. Their experience provided valuable support for the site staff working with a complex protocol.

A number of recruitment protocol inconsistencies in previous amendments were identified and corrected.

(*Note.* The CRO and the FSMO involved in this study are reflected in the team organization charts—one showing a full-service CRO and the other showing the hub-and-spoke FSMO model. See page 4).

Case Study 2: Assisting a sponsor company with investigator-initiated research workflow

A sponsor was having difficulty managing its investigator-initiated research (IIR) program, using a lengthy review and approval process, and performing IIR studies in compliance with regulatory and industry guidelines. The sponsor had purchased Sharepoint as an internal tool for document tracking and sharing, but it was not being used because of a lack of training and requirements gathering. Field-based medical science liaisons had difficulty accessing timely information to provide oversight of the programs and ensure integrity.

The FSMO engaged the sponsor to provide a map of the existing workflow of the company at the time of engagement. Several bottlenecks were identified as delays in the review and approval process and the coordination with field-based medical liaisons. These delays led to physicians losing interest in initiating the studies.

The FSMO selected a lead project manager who was responsible for identifying the existing workflow and challenged areas. The team also engaged an expert to review and evaluate regulatory guidelines, comparing the existing workflow and activity of internal team members with those required by the industry.

Interviews with various key team members were held to determine activity levels and existing work practices. The FSMO suggested a newer workflow and SOPs that conformed to regulatory requirements. Based on the suggested workflow and the sponsor's desire to maintain a lean organization, the FSMO engaged a Sharepoint partner to identify a strategy for managing the workflow through technology.

The sponsor initiated and leveraged all SOPs and adjusted workflow per the plan as Phase I and cited many workflow benefits as a result. The workflow allowed the team to increase performance by processing additional study programs for review without adding to the head count. It also allowed the team to use Sharepoint in a limited way. One trained internal resource could track and manage the programs and provide support for the field-based medical science liaisons.

Case Study 3: Biotechnology company with limited budget leverages FSPs to gain access to experienced providers

A biotechnology company with a novel product entered the clinic, looking to manage a limited budget and generate initial data. The goal was to conduct a battery of supporting clinical trials, using outsourced providers for their experience, flexibility, and cost-effectiveness.

The company had received proposals from full-service CRO companies. The proposed budgets included many caveats allowing for cost adjustments and increases if extra work was needed. The CRO companies reviewed the protocols but did not present more cost-effective ways to execute the program.

The FSMO was engaged to meet with the sponsor so it could better understand the requirements of the clinical trial. Then, the FSMO identified execution strategies and presented the appropriate FSPs for the requirements. The FSPs were selected to manage four data sources for consolidation and centralization of information. Data needed to be readily available to many team members, including data safety review boards, safety monitoring team, senior leaders, and study team members. The study was adaptive in

nature and uniquely designed to use fewer patients and help lower study costs. This execution strategy created challenges for the larger CRO companies to support.

The FSMO provided a team leader with over 26 years of industry and global FSP management experience to coordinate the services of data collection, medical imaging, central lab integration biostatistics, and reporting across many fronts.

Also, the FSPs selected for the project agreed to a fixed-price contract arrangement that saved the sponsor 40% of the expected full-service CRO costs.

During the trial execution, a number of changes that impacted the eCRF pages were submitted and were identified as necessary. The date for training and deployment was only days away. The team gathered to discuss a strategy and identified a way to adjust its own workflow to include changes in other work, postpone noncritical pieces, and meet the deadline required for the study initiation. Because of adjustments in the workflow, the project scope—and the original contract costs—did not change.

Conclusion

Sponsor companies today want to operate with less overhead and infrastructure and with more focus on core competencies to drive their drug-development programs. Payors and patients demand that these companies focus not on large revenue-generating compounds but on specialized, targeted products that fit unmet medical needs. Service companies using traditional CRO models will be challenged to meet sponsor company demands for more innovation, creativity, flexibility, and experience. FSPs are well positioned to meet these demands.

About the Author

Michael Harte is the founder and president of **The Harte Group,** a company specializing in the use of functional service providers (FSPs) and supporting the movement of virtual drug development since 2009. Mr. Harte has more than 20 years' experience in the industry. He previously served as Senior Vice President, Global Sales and Marketing for etrials, Worldwide, Inc. before its acquisition by Merge Healthcare in 2008. As a founding member of etrials in 2000, Mr. Harte contributed to the strategic direction of the company and was responsible for leading the company from first-year sales of $300,000 to $20 million in year 2008. Mr. Harte's ability to connect and satisfy client needs encouraged the creation of one of the first integrated technology platforms, thereby allowing its users to maintain lean corporate structures, focus on core competencies, provide better oversight of outsourced partners, and support the expanded use of FSPs.

About The Harte Group

The Harte Group is a functional services management organization that provides sponsor companies with an alternative to traditional contract research organization models. **The Harte Group** has established a partnership network with more than 120 functional service provider companies that employ more than 16,000 professionals globally. A core team of seasoned executives provides a wealth of experience in selecting these professionals and managing virtual teams.